

AVIATION INSURANCE

BY

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According to the United States Bureau of Air Commerce figures there were only 9,152 licensed aircraft in the United States as of January 1, 1938 and of this number the scheduled airlines operated 386. The values of these planes range from less than one thousand dollars up to three-quarters of a million dollars, while the uses to which the aircraft are put are numerous and varied. Furthermore, conditions in airplane design and operation are changing so rapidly that it is impossible to keep up with developments. For these reasons it can be seen that the time for placing aircraft insurance on an actuarial basis has not yet arrived. Therefore this paper will not be concerned with possible rate-making formulae but will confine itself to a brief review of the aviation rate-making picture as it exists today with particular emphasis on the main casualty coverages.

AVIATION INSURANCE CARRIERS

Aviation insurance in the United States is written by three underwriting groups of companies; the Aero Insurance Underwriters, the Associated Aviation Underwriters and the United States Aviation Underwriters. These three groups are members of the Board of Aviation Underwriters, the rate-making organization for aviation insurance, which at the present time only operates in New York State.

CLASSIFICATIONS

Aviation risks have been classified into five main classes according to the use of the aircraft. These classes are:

1. *Private Pleasure*

All planes used for private pleasure and personal business purposes exclusively.

2. *Industrial Aid*

Planes used for transportation of executives and employees and for sales promotion purposes and owned by a business organization not otherwise connected with the aviation business.

3. *Commercial—Flying Services*

Planes operated for hire in connection with passenger and cargo carrying, charter flights, photography, sales demonstration, either including or excluding student instruction.

4. *Aircraft and/or Aircraft Engine Manufacturing*

5. *Scheduled Air Lines*

Planes carrying passengers, mail and cargo on a regular schedule.

HULL INSURANCE COVERAGE

Hull Insurance covers against loss or damage to the aircraft specifically described in the policy due to the following perils:

Fire A—fire on the ground only, excluding the running of engines.

Fire B—fire on the ground only, including the running of engines.

Fire C—fire on the ground and in the air, excluding fire following crash.

Fire D—fire under all circumstances.

Perils of the Air or Crash—Damage to the aircraft during flight due to collision with the ground, water or other object, including damage by fire or explosion caused by such collision and including damage due to stranding or sinking or water damage arising from flight. An aircraft unreported for sixty days after take-off is deemed to have been lost by reason of one of the above flying perils.

Windstorm—Damage to the aircraft by Tornado, Cyclone or Windstorm except while the aircraft is in flight or taxiing subsequent thereto.

Land Damage—Damage to the aircraft while on land, but not in flight or taxiing, caused by hail or by being struck by or colliding with another aircraft, vehicle or object (excluding any aircraft, vehicle or object owned or operated by the Assured or his employees).

Mooring—Damage to water-alighting aircraft, while not in flight or taxiing, caused by windstorm, hail, stranding or sinking or being struck by or colliding with another aircraft, vehicle or object (excluding any aircraft vehicle or object owned or operated by the Assured or his employees).

Theft, Robbery and Pilferage—Theft, robbery and pilferage, except by any person in Assured's household or employe.

CASUALTY INSURANCE COVERAGE

Casualty Insurance is the usual third party liability coverage comparable to bodily injury and property damage on automobiles except that bodily injury coverage on aircraft is subdivided into public liability and passenger liability which are separately insured and rated. A few years ago the aircraft liability policy contained no omnibus clause but merely covered the named assured for damage due to the specific aircraft while being flown by a named pilot. At the present time the insurance attaches to the specifically described aircraft while being flown by a specifically approved pilot and if such conditions exist then the insurance covers not only the named assured but also any person while riding in, any approved pilot while operating or any person legally responsible for the operation of the aircraft provided the operation is with the permission of the named assured. It will be noted that the pilot still has to be approved, which is not the case in automobile insurance.

HULL AND CASUALTY RATES

Each aviation risk is still rated on its own merits based on information received by the underwriters in the application for insurance. Advisory rates have been set up for the average risk falling within the classifications of private pleasure, industrial aid or commercial. A majority of the aviation risks fall within these

classes and the average advisory rate is quoted unless unusual circumstances are present. The New York Insurance Department has permitted the Board of Aviation Underwriters to file a rate range for each classification within which the advisory rates fall and within which each quotation falls. This filing will be continued until sufficient experience has been developed to permit the establishment of standard average rates.

As aircraft are not confined to any particular territory, there are no territorial differentials in rate with the exception of wind-storm insurance in Florida where the rates are loaded for coverage during the hurricane season.

For the coverages which depend on the flying hazard, that is, passenger liability, public liability, property damage and crash, there is a differential in rate depending on the experience of the pilot approved by the underwriters to fly the plane. The fact that the experience of the pilot directly affects the flying hazard is amply confirmed by the latest Bureau of Air Commerce figures for the period July to December 1937 which show that out of 1,075 accidents in all flying operations excluding scheduled airlines, 55.3% of the accidents were due to pilot errors.

It is interesting to observe that in scheduled air line operations where all the pilots are experienced the figures for calendar year 1937 show that out of 50 accidents only 18.2% were caused by pilot errors, the greatest percentage of accidents (25.4%) being caused by the weather.

Average advisory hull insurance rates are given in the following table:

RATES

Coverages	Private Pleasure	Industrial Aid	Commercial	
			Excluding Instruction	Including Instruction
Fire A.....	2½%	2½%	2½%	2½%
Fire B.....	2¾	2¾	3¼	3¼
Fire C.....	3	3	3½	3½
Fire D.....	4	4¼	4½	5
Crash (10% Ded.)*.....	12 or 12½	12½ or 13¼	14 or 15	18
Windstorm (5% Ded.).....	½	½	¾	¾
Land Damage (2½% Ded.).....	½	½	½ or ¾	½ or ¾
Mooring (5% Ded.).....	1½	2	2 or 2½	2 or 2½
Theft (\$25 Ded.).....	¼	¼	¼	¼

* Crash rates quoted contemplate a pilot with over 500 hours' flying experience.

The above rates are subject to 100% co-insurance and are applicable only to a new plane insured for the full retail list price. Where a new or used aircraft is insured for less than the retail price the basic rates are loaded in order to pay partial losses in full. The formula used is as follows:

$$\text{Loaded Premium} = [X \times r] + [(Y - X) \times l]$$

Where X = Amount of insurance

Y = retail list price

r = basic rate

l = loading rate

The loading rate is a percentage of the basic rate, viz.:

Coverage	Loading Rate
Fire	15% of Basic Rate
Crash	25 " " "
Windstorm	40 " " "
Land Damage	40 " " "
Theft	60 " " "
Mooring	40 " " "

The percentage loadings for fire and crash are comparatively low on the supposition that the majority of losses under these covers will be total.

The Board has ruled that the retail sales price minus the amount of insurance shall not exceed the amount of insurance, or $(Y-X)$ shall not exceed X . The operation of this ruling in practice is that when the value of a plane has depreciated to $\frac{1}{2}$ the retail sales price, the full loaded rate is applied and this loaded rate is a maximum.

There is no specific rate differential based on the type of construction of the aircraft but this factor is considered by the Underwriters when making quotations.

Average advisory casualty insurance rates, where the pilot has over 250 hours' flying experience, are given in the following table:

RATES

Coverages	Private Pleasure	Industrial Aid	Commercial	
			Excluding Instruction	Including Instruction
Public Liability	\$50	\$60	\$ 75	\$ 80 or \$85
Property Damage ...	50	60	70	75 or 80
Passenger Liability }	30	55	75	75
Minimum per plane }	50	75	100	100

For private pleasure risks where the pilot has less than 250 hours' flying experience the rates are:

Experience of Pilot	Passenger Liability	Public Liab.	Prop. Dam.
100 to 250 Hours...	\$50 per Seat (Min. \$65).....	\$65	\$60
Less than 100 Hours	60 per Seat (Min. 75).....	70	65
Amateur License...	Passenger carrying prohibited	80	75
Student License....	Passenger carrying prohibited	85	80

The above rates are for \$5,000/\$10,000 limits for Public Liability, \$5,000 per passenger seat for Passenger Liability and \$1,000 for Property Damage. Increased limits tables are used to obtain premiums for higher limits. The upper limit for passenger liability is the limit per passenger seat times the number of seats insured.

RATING OF SCHEDULED AIRLINES

At the present time only two of the Underwriting Groups write insurance on scheduled airlines. The other group has withdrawn from this field for the time being. The Board of Aviation Underwriters has no jurisdiction over these rates as there are no scheduled airlines operating out of New York State. Consequently the rates for each risk are made by the carrying group.

A fundamental proposition for arriving at a proper rate is, however, followed by both groups in making rate quotations; namely, that the hazard in connection with any aviation risk is directly related to the amount of flying which is done. In the case of scheduled airlines, reports of aeroplane miles flown, passenger miles flown and number of hours flown are more readily available than is the case for individual miscellaneous risks. Therefore, rates for public liability and property damage are quoted on a "per aeroplane mile" basis while rates for passenger liability are quoted on a "per passenger mile" basis. A passenger mile is one passenger flown one mile.

For the Casualty covers the advisory rates used as a guide in rating minor scheduled airlines are:

Public Liability.....	5/10 Limits	.001 per aeroplane mile
Property Damage.....	1000 Limit	.00075 per aeroplane mile
Passenger Liability.....	5000 Limit	.00225 per passenger mile

The casualty rates for the major airlines are lower than the rates given above and are not uniform.

A minimum annual deposit premium is charged and the earned premium adjusted on audit.

Rates for all hull coverages except crash offer no particular difficulty and are approximately the same as the advisory hull rates for the commercial classification. Rates for Crash are on a flat or flying hour basis with various deductible plans.

ADMITTED PASSENGER LIABILITY

In connection with passenger liability insurance for other than scheduled airline risks, the underwriters offer a coverage known as "Admitted Passenger Liability" or "Guest Voluntary Settlement." This coverage is only available where the insured carries a passenger liability policy covering his legal liability with limits at least twice the limits of the admitted liability.

The company agrees with the insured to offer settlement of the principal sum regardless of legal liability, to any guest of the insured in regard to bodily injuries suffered by the guest while in, entering or leaving the insured aircraft provided such injuries result in loss of life or dismemberment. It is a condition of the payment of benefits that the guest execute a full legal release of all claims against the insured and anyone else covered by the policy. If the guest refuses to give the release then the assured is covered under the passenger liability insurance as fully and completely as if there had been no admitted liability.

The rate for admitted liability is \$15 per thousand. Credit for this premium is given under the passenger liability premium in the following manner:

Assume a four passenger plane used for industrial aid and insured for 20/80 passenger liability of which 10/40 is admitted; in this case the rate for \$5,000 per seat is \$55.

The increased limits factor for \$20,000 is	1.66
The increased limits factor for 10,000 is	1.36
Difference is	.30
Passenger liability premium equals 30% of \$55 or	\$ 16.50
\$10,000 per seat Admitted Liability at \$15 per M	150.00
Total premium per seat.....	\$166.50
Policy premium \$166.50 × 4 equals.....	\$666.00

If only the passenger liability for 20/80 limits were carried the premium would be

$$\begin{array}{r} \$55 \times 1.66 \text{ equals } \$ 91.30 \text{ per seat} \\ \quad \quad \quad \times 4 \\ \hline \$365.20 \text{ total premium} \end{array}$$

In noting that where there is Admitted Liability the premium is in, entering or leaving the insured aircraft provided such injuries considerably higher than for passenger liability alone two factors may be mentioned. One is that where loss of life or dismemberment occurs, the passenger or his representative may receive the principal sum without resort to the good graces of a jury and the second is that there would be no necessity of proving negligence.

That it is necessary to prove negligence in regard to airline accidents was brought out in the case of *Cohn vs. United Air Lines* (U. S. Dist. Court of the Dist. of Wyoming, February 8, 1937), which was discussed in the 1937 Aeronautical Law Review as follows:

“Plaintiff filed a suit in which the bare allegation was made that the defendant was negligent and that his negligence caused the death of Cohn.—The Defendant filed a Motion to dismiss.

“The Court sustained the motion to dismiss the petition, holding that ‘res ipsa loquitur’ did not apply; that it was common knowledge that many plane accidents occurred which were unexplainable; that it was common knowledge that they could occur without negligence; and that until there was a further development of the art of flying and until flying reached a point of such mathematical certainty that an accident could only occur because of negligence, the doctrine would not apply.”

This same principle probably applies to miscellaneous flying operations as well as to scheduled airlines and therefore admitted liability would be paid in cases where there was no legal liability because negligence could not be proved.

INDIVIDUAL PERSONAL ACCIDENT INSURANCE

Individual personal accident policies cover injuries received by the insured due to an aircraft accident when such injuries result in death, dismemberment or total disability. For death and dismemberment the principal sum or one-half the principal sum

as the case may be is paid, while for total disability weekly indemnity is paid for twenty-six or fifty-two weeks. The policy may be written to cover only while the insured is riding on a scheduled airline or it may cover while the insured is riding on any "C" or "NC" licensed aircraft.

The annual rates are approximately as follows, depending on the nature of the risk:

Death and Dismemberment	
Scheduled Airlines	\$1.80 per thousand
Non-Scheduled	\$15-\$35 per thousand
Each \$5 per week of Weekly Indemnity	
For 26 Weeks.....	25% of D & D rate
For 52 Weeks.....	35% of D & D rate

The Bureau of Air Commerce figures show that in 1937, the scheduled airlines flew 1,267,580 passengers and there were 51 passenger fatalities. No one knows exactly how many of these passengers flew more than once but the Air Transport Association of America estimates that during 1937 approximately 200,000 people flew once and for the first time. This leaves 1,067,580 passengers to represent repeaters who flew on an average of 2½ to 3 times: which means that 355,860 to 427,032 persons represent repeaters. Assuming therefore that 400,000 persons were repeaters, then approximately 600,000 different persons were passengers in 1937 of which 51 were killed. The death rate therefore was one in 11,765.

From this death rate it would appear that the scheduled airline rate of \$1.80 per thousand is too high or else that very few people buy accident insurance which results in a lack of spread. This is probably the case because the countrywide experience of the Board of Aviation Underwriters for individual personal accident insurance, on both schedule and non-schedule flying combined, is as follows:

Policy Year	Premiums Written	Losses Incurred	Loss Ratio
1935	\$107,389	\$251,874	234.5%
1936	151,462	18,102	12.0
1937	72,790	71,505	98.2
<u>3 Years</u>	<u>\$331,641</u>	<u>\$341,481</u>	<u>103.0%</u>

EXPERIENCE

The Hull and Casualty Insurance experience as filed by the Board of Aviation Underwriters with the New York Insurance Department is shown on exhibits attached to this paper. The exhibits give the countrywide written premiums, losses incurred and loss ratios for policy years 1932 to 1937, inclusive, reported as of December 31, 1937, separately for each coverage and each class. The premium for 1937 has not been adjusted to an earned basis. The Casualty experience is not separated for standard and excess limits and the exposure is not reported. The permissible loss ratio for aviation insurance is assumed to be 60% although the expense ratios of each of the Underwriting Groups are variable due to their different methods of operation. These statistics are used by the underwriters as a guide and not as a basis for rate-making.

The premium on scheduled airlines accounts for 45% of the total hull premium, 66% of the total casualty premium and 80% of the total passenger liability premium. The experience on scheduled airlines for the hull coverages has been favorable, the six year loss ratio being 43% but the passenger liability experience for this class is decidedly unfavorable, the six year loss ratio being 102%. The underwriters have been gradually increasing these passenger liability rates and hope that next year will show an improvement in this experience.

The six years' experience for the other classes excluding scheduled airlines, although limited, is favorable and shows: for hull insurance a loss ratio of 44%; for public liability, a loss ratio of 7%; for property damage a loss ratio of 11%; and for passenger liability, a loss ratio of 54%.

CONCLUSION

In conclusion, it must be pointed out that aviation insurance rate-making has made considerable progress during the past six years and it is to be hoped that the future development of this industry will eventually permit the application of actuarial science to this line of insurance.

BOARD OF AVIATION UNDERWRITERS
COUNTRYWIDE EXPERIENCE AS OF DECEMBER 31, 1937

CLASS OF RISK	POLICY YEAR	PUBLIC LIABILITY			PROPERTY DAMAGE		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	34,162	14,996	43.9	32,046	5,217	16.3
	1933	51,492	4,538	8.8	41,760	3,046	7.3
	1934	61,856	2,619	4.2	35,851	7,756	21.6
	1935	51,116	9,825	19.2	38,423	7,197	18.7
	1936	51,506	2,266	0.4	50,401	5,922	11.8
	1937	32,162	91	0.3	32,242	3,940	12.2
Total		282,294	34,335	12.2	230,723	33,078	14.3
Industrial Aid	1932	22,033	5,506	25.0	15,467	825	5.3
	1933	17,193	..	..	13,538	551	4.1
	1934	14,428	1,587	11.0	12,717	153	1.2
	1935	15,522	60	0.4	12,162	1,779	14.6
	1936	17,112	..	..	13,236	1,584	12.0
	1937	26,341	..	..	21,442	535	2.5
Total		112,629	7,153	6.4	88,562	5,427	6.1
Flying Services	1932	27,362	2,595	9.5	24,485	3,886	15.9
	1933	17,501	13,372	76.4	14,776	6,948	47.0
	1934	16,591	4,356	26.3	16,920	3,186	18.8
	1935	27,098	4,479	16.5	23,962	1,392	5.8
	1936	30,126	55	0.2	20,703	6,441	31.1
	1937	23,852	4,282	18.0	13,925	5,775	41.5
Total		142,530	29,139	20.4	114,771	27,628	24.1
Manufacturers	1932	8,704	..	..	6,875	41	0.6
	1933	10,105	11	0.1	6,694	11	0.2
	1934	7,537	204	2.7	6,395	498	7.8
	1935	9,514	..	..	6,762	42	0.6
	1936	9,760	..	..	8,219	516	6.3
	1937	14,755	..	..	9,411	843	9.0
Total		60,375	215	0.4	44,356	1,951	4.4
Private Pleasure	1932	25,314	1,186	4.7	19,698	2,197	11.2
	1933	29,283	1,190	4.1	20,612	184	0.9
	1934	23,750	..	..	17,901	350	2.0
	1935	30,898	..	..	21,648	1,247	5.8
	1936	38,532	65	0.2	30,295	884	2.9
	1937	40,325	..	..	27,329	329	1.2
Total		188,102	2,441	1.3	137,483	5,191	3.8
Unclassified	1932	15,040	..	..	7,756	1,367	17.6
	1933	30,446	3	..	15,154	1,235	8.1
All Classes Combined	1932	132,615	24,283	18.3	106,327	13,533	12.7
	1933	156,020	19,114	12.3	112,534	11,975	10.6
	1934	124,162	8,766	7.1	89,784	11,943	13.3
	1935	134,148	14,364	10.7	102,957	11,657	11.3
	1936	147,036	2,386	1.6	122,854	15,347	12.5
	1937	137,435	4,373	3.2	104,349	11,422	11.0
Total		831,416	73,286	8.8	638,805	75,877	11.9

BOARD OF AVIATION UNDERWRITERS
COUNTRYWIDE EXPERIENCE AS OF DECEMBER 31, 1937

CLASS OF RISK	POLICY YEAR	PASSENGER LIABILITY			ALL THIRD PARTY LIABILITY		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	237,538	237,370	99.9	303,746	257,583	84.8
	1933	373,466	122,256	32.7	466,718	129,840	27.8
	1934	307,616	550,951	179.1	405,323	561,326	138.5
	1935	509,121	463,013	90.9	598,660	480,035	80.2
	1936	690,022	810,347	117.4	791,929	818,535	103.4
	1937	467,772	462,869	99.0	532,176	466,900	87.7
Total		2,585,535	2,646,806	102.4	3,098,552	2,714,219	87.6
Industrial Aid	1932	30,256	550	1.8	67,756	6,881	10.2
	1933	50,015	470	0.9	80,746	1,021	1.3
	1934	33,105	235	0.7	60,250	1,975	3.3
	1935	28,044	4,456	15.9	55,728	6,295	11.3
	1936	26,879	..	..	57,227	1,584	2.8
	1937	41,084	..	..	88,867	535	0.6
Total		209,383	5,711	2.7	410,574	18,291	4.5
Flying Services	1932	57,290	13,755	24.1	109,137	20,236	18.5
	1933	26,558	70,021	263.7	58,835	90,341	153.5
	1934	22,762	22,435	98.6	56,273	29,977	53.3
	1935	39,231	76,902	196.0	90,291	82,773	91.7
	1936	41,249	33,722	81.8	92,078	40,218	43.7
	1937	41,946	63,038	150.3	79,723	73,095	91.7
Total		229,036	279,873	122.2	486,337	336,640	69.2
Manufacturers	1932	9,044	..	..	24,623	41	0.2
	1933	9,967	..	..	26,766	22	0.1
	1934	5,677	..	..	19,609	702	3.6
	1935	6,223	845	13.6	22,499	887	3.9
	1936	6,217	..	..	24,196	516	2.1
	1937	8,632	26,383	305.6	32,798	27,226	83.0
Total		45,760	27,228	59.5	150,491	29,394	19.5
Private Pleasure	1932	15,963	386	2.4	60,975	3,769	6.2
	1933	21,904	77	0.4	71,799	1,451	2.0
	1934	19,531	3,727	19.1	61,182	4,077	6.7
	1935	26,047	741	2.8	78,593	1,988	2.5
	1936	39,633	12,330	31.1	108,460	13,279	12.2
	1937	34,887	20,000	57.3	102,541	20,329	19.8
Total		157,965	37,261	23.6	483,550	44,893	9.3
Unclassified	1932	1,786	..	..	24,582	1,367	5.6
	1933	6,805	..	..	52,405	1,238	2.4
All Classes Combined	1932	351,877	252,061	71.6	590,819	289,877	49.1
	1933	488,715	192,824	39.5	757,269	223,913	29.6
	1934	388,691	577,348	148.5	602,637	598,057	99.2
	1935	608,666	545,957	89.7	845,771	571,978	67.6
	1936	804,000	856,399	106.5	1,073,890	874,132	81.4
	1937	594,321	572,290	96.3	836,105	588,085	70.3
Total		3,236,270	2,996,879	92.6	4,706,491	3,146,042	66.8

BOARD OF AVIATION UNDERWRITERS
ALL HULL LINES COMBINED
COUNTRYWIDE EXPERIENCE AS OF DECEMBER 31, 1937

CLASS OF RISK	POLICY YEAR	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	568,495	409,715	72.1
	1933	345,428	127,662	37.0
	1934	356,448	160,633	45.1
	1935	497,397	95,394	19.2
	1936	462,048	350,844	75.9
	1937	537,495	55,465	10.3
Total		2,767,311	1,199,713	43.4
Industrial Aid	1932	68,165	29,135	42.7
	1933	60,463	32,185	53.2
	1934	58,478	49,555	84.7
	1935	119,723	93,943	78.5
	1936	98,979	46,168	46.6
	1937	166,226	34,317	20.6
Total		572,034	285,303	49.9
Flying Services	1932	119,711	69,447	58.0
	1933	104,240	41,786	40.1
	1934	145,700	32,938	22.6
	1935	98,726	37,458	37.9
	1936	109,597	51,586	47.1
	1937	215,079	96,706	45.0
Total		793,053	329,921	41.6
Manufacturers	1932	140,486	110,815	78.9
	1933	163,966	81,488	49.7
	1934	169,172	58,053	34.3
	1935	222,117	104,376	47.0
	1936	313,066	156,659	50.0
	1937	307,893	34,063	11.1
Total		1,316,700	545,454	41.4
Private Pleasure	1932	64,071	69,607	108.6
	1933	68,620	12,079	17.6
	1934	76,147	46,373	60.9
	1935	94,114	33,698	35.8
	1936	147,888	100,879	68.2
	1937	178,986	25,902	14.5
Total		629,826	288,538	45.8
Unclassified	1932	13,539	17,225	127.2
	1933	15,223	4,852	31.9
All Classes Combined	1932	974,467	705,944	72.4
	1933	757,940	300,052	39.6
	1934	805,945	347,552	43.1
	1935	1,032,077	364,869	35.4
	1936	1,131,578	706,136	62.4
	1937	1,405,679	246,453	17.5
Total		6,107,686	2,671,006	43.7

BOARD OF AVIATION UNDERWRITERS
COUNTRYWIDE EXPERIENCE AS OF DECEMBER 31, 1937

CLASS OF RISK	POLICY YEAR	FIRE			PERILS OF AIR		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	223,374	90,120	40.3	287,280	278,940	97.1
	1933	182,313	56,607	31.0	132,024	67,017	50.8
	1934	129,604	96,149	74.2	181,673	60,246	33.2
	1935	198,692	19,537	9.8	245,726	71,467	29.1
	1936	162,352	51,984	32.0	246,769	293,335	118.9
	1937	170,990	37,091	21.7	302,590	4,882	1.6
Total		1,067,325	351,488	32.9	1,396,062	775,887	55.6
Industrial Aid	1932	36,133	6,250	17.3	21,984	16,693	75.9
	1933	32,233	9,969	30.9	19,729	19,189	97.3
	1934	30,344	2,349	7.7	19,979	9,877	49.4
	1935	48,680	41,963	86.2	57,046	33,861	59.4
	1936	41,229	42,425	102.9	44,772	3,089	6.9
	1937	63,963	27,018	42.2	73,929	7,199	9.7
Total		252,582	129,974	51.5	237,439	89,908	37.9
Flying Services	1932	43,361	24,855	57.3	61,884	41,389	66.9
	1933	37,631	9,818	26.1	54,487	25,054	46.0
	1934	47,195	13,269	28.1	81,363	17,104	21.0
	1935	48,007	19,733	41.1	37,952	13,378	35.3
	1936	58,968	23,467	39.8	33,061	24,710	74.7
	1937	79,139	55,072	69.6	109,278	37,442	34.3
Total		314,301	146,214	46.5	378,025	159,077	42.1
Manufacturers	1932	31,292	3,453	11.0	98,622	106,388	107.9
	1933	27,446	..	..	127,244	81,488	64.0
	1934	30,956	..	..	122,215	57,091	46.7
	1935	32,132	224	0.7	180,652	103,701	57.4
	1936	48,473	255	0.5	246,124	152,793	62.1
	1937	37,899	..	..	252,975	30,111	11.9
Total		208,198	3,932	1.9	1,027,832	531,572	51.7
Private Pleasure	1932	42,674	50,326	117.9	9,556	11,073	115.9
	1933	47,265	6,241	13.2	8,067	2,703	33.5
	1934	50,214	23,281	46.4	14,472	14,211	98.2
	1935	69,016	28,663	41.5	5,492	1,674	30.5
	1936	89,532	24,510	27.4	28,754	1,091	3.8
	1937	113,352	16,016	14.1	26,465	8,796	33.2
Total		412,053	149,037	36.2	92,806	39,548	42.6
Unclassified	1932	6,750	16,250	240.7	5,309	334	6.3
	1933	8,083	2,965	36.7	5,717	1,576	27.6
All Classes Combined	1932	383,584	191,254	49.9	484,635	454,817	93.8
	1933	334,971	85,600	25.6	347,268	197,027	56.7
	1934	288,313	135,048	46.8	419,702	158,529	37.8
	1935	396,527	110,120	27.8	526,868	224,081	42.5
	1936	400,554	142,641	35.6	599,480	475,018	79.2
	1937	465,343	135,197	29.1	765,237	88,430	11.6
Total		2,269,292	799,860	35.2	3,143,190	1,597,902	50.8

BOARD OF AVIATION UNDERWRITERS
COUNTRYWIDE EXPERIENCE AS OF DECEMBER 31, 1937

CLASS OF RISK	POLICY YEAR	WINDSTORM			LAND DAMAGE		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	31,794	40,114	126.2	22,092	375	1.7
	1933	22,939	2,001	8.7	4,956	1,364	27.5
	1934	24,993	2,510	10.0	11,546	1,612	14.0
	1935	33,037	2,466	7.5	12,679	1,623	12.8
	1936	27,581	778	2.8	16,472	4,747	28.8
	1937	35,488	658	1.9	21,006	334	1.6
Total		175,832	48,527	27.6	88,751	10,055	11.3
Industrial Aid	1932	5,603	2,396	42.8	3,040	3,611	118.8
	1933	4,923	3,027	61.5	2,101	..	..
	1934	4,175	33,981	814.0	2,152	17	0.8
	1935	6,287	18,119	288.2	4,577	..	..
	1936	5,884	..	..	4,225	210	5.0
	1937	11,649	..	..	10,352	100	1.0
Total		38,521	57,523	149.3	26,447	3,938	14.9
Flying Services	1932	7,990	1,836	23.0	4,574	1,150	25.1
	1933	7,655	4,048	52.9	2,857	2,866	100.3
	1934	8,269	16	0.2	4,696	1,782	37.9
	1935	6,308	2,782	44.1	3,772	256	6.8
	1936	8,787	659	7.5	5,352	2,676	50.0
	1937	11,611	3,151	27.1	7,091	985	13.9
Total		50,620	12,492	24.7	28,342	9,715	34.3
Manufacturers	1932	5,421	974	18.0	3,495	..	..
	1933	4,647	..	..	3,274	..	..
	1934	8,757	..	..	3,458	..	..
	1935	4,772	..	..	2,872	451	15.7
	1936	7,446	1,048	14.1	6,976	1,074	15.4
	1937	7,580	..	..	6,302	36	0.6
Total		38,623	2,022	5.2	26,377	1,561	5.9
Private Pleasure	1932	6,132	3,241	52.9	3,358	991	29.5
	1933	7,192	3,125	43.3	3,467	..	..
	1934	3,714	2,551	68.7	3,782	5,921	156.6
	1935	8,986	2,453	27.3	5,365	821	15.3
	1936	12,474	2,560	20.5	8,170	3,119	38.2
	1937	13,468	863	6.4	9,697	19	0.2
Total		51,966	14,793	28.5	33,839	10,871	32.1
Unclassified	1932	889	..	..	213	641	300.9
	1933	728	..	..	487	..	..
All Classes Combined	1932	57,829	48,561	84.0	36,772	6,768	18.4
	1933	48,084	12,201	25.4	17,142	4,230	24.7
	1934	49,908	39,058	78.3	25,634	9,332	36.4
	1935	59,390	25,820	43.5	29,265	3,151	10.8
	1936	62,172	5,045	8.1	41,195	11,826	28.7
	1937	79,796	4,672	5.9	54,448	1,474	2.7
Total		357,179	135,357	37.9	204,456	36,781	18.0

BOARD OF AVIATION UNDERWRITERS
COUNTRYWIDE EXPERIENCE AS OF DECEMBER 31, 1937

CLASS OF RISK	POLICY YEAR	THEFT			MOORING		
		Premiums Written	Losses Incurred	Loss Ratio	Premiums Written	Losses Incurred	Loss Ratio
Scheduled Air Lines	1932	3,955	166	4.2	..	..	..
	1933	3,196	673	21.1	..	..	..
	1934	7,567	116	1.5	1,065	..	..
	1935	6,246	301	4.8	1,017	..	..
	1936	6,989	..	..	1,885	..	..
	1937	5,760	..	..	1,661	12,500	752.6
Total.....		33,713	1,256	3.7	5,628	12,500	222.1
Industrial Aid	1932	1,405	185	13.2	..	..	..
	1933	1,477	..	..	..	..	..
	1934	1,059	114	10.8	769	3,217	418.3
	1935	1,692	..	..	1,441	..	..
	1936	1,846	71	3.9	1,023	373	36.5
	1937	4,424	..	..	1,909	..	..
Total.....		11,903	370	3.1	5,142	3,590	69.8
Flying Services	1932	1,902	217	11.4	..	..	..
	1933	1,610	..	..	..	..	..
	1934	2,265	767	33.9	1,912	..	..
	1935	2,350	216	9.2	337	1,093	324.3
	1936	2,251	74	3.3	1,178	..	..
	1937	4,117	15	0.4	3,843	41	1.1
Total.....		14,495	1,289	8.9	7,270	1,134	15.6
Manufacturers	1932	1,656	..	..	..	..	..
	1933	1,355	..	..	..	..	..
	1934	1,491	..	..	2,295	962	41.9
	1935	1,300	..	..	389	..	..
	1936	3,063	102	3.3	984	1,387	141.0
	1937	2,036	..	..	1,101	3,916	355.7
Total.....		10,901	102	0.9	4,769	6,265	131.4
Private Pleasure	1932	2,351	3,976	169.1	..	..	..
	1933	2,629	10	0.4	..	..	..
	1934	2,641	409	15.5	1,324	..	..
	1935	3,200	87	2.7	2,055	..	..
	1936	4,177	75	1.8	4,781	69,524	1,454.2
	1937	5,415	208	3.8	10,589	..	..
Total.....		20,413	4,765	23.3	18,749	69,524	370.8
Unclassified	1932	378	..	..	..	..	..
	1933	208	311	150.0	..	..	..
All Classes Combined	1932	11,647	4,544	39.0	..	..	..
	1933	10,475	994	9.5	..	..	..
	1934	15,023	1,406	9.4	7,365	4,179	56.7
	1935	14,788	604	4.1	5,239	1,093	20.9
	1936	18,326	322	1.8	9,851	71,284	723.6
	1937	21,752	223	1.0	19,103	16,457	86.2
Total.....		92,011	8,093	8.8	41,558	93,013	223.8