CIVIL AERONAUTICS JOURNAL

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REPORT ON AIRLINE TRAFFIC SURVEY ISSUED

Authority Completes Study on Station to Station Traffic Flow

The major traffic characteristics of the variation in airline passenger and air mail flow between stations on all United States domestic airlines are presented for the first time in a report published by the Authority. The only comprehensive work of its kind ever completed, the 210-page report which is entitled "Station to Station Airline Traffic Survey—August 1939," was prepared in the Accounts and Analyses Division of the Bureau of Economic Regulation, under the immediate direction of Dr. E. Dillon Smith. The survey was compiled from basic data supplied by the 16 domestic air carriers and the Post Office Department.

Due to the magnitude of the survey, a detailed study could not be undertaken for every month in the year, but it is believed that, in general, the results covering August of last year reflect a fair picture of the traffic flow throughout the year.[1]

The report is summarized by Dr. Smith in the following:

The two maps reproduced herewith are from the report. Figure 1 shows the passenger traffic flow and figure 2 the air mail traffic flow. They summarize the survey and show the variations in traffic densities on the various domestic routes. The five tables also summarize information contained in the full report.

The traffic figures at the 10 most important airline stations of the 179 operating in the United States in August 1939 are summarized in table I. New York (Newark) [2] was shown to be the busiest airport in the country with 154 scheduled flights in and out per day of which 138 were mail flights. Next was Chicago with 116 flights per day, 98 with mail. Washington, D. C., was third with a total of 102 scheduled flights per day of which number 94 were mail flights. New York and Chicago ranked first and second, respectively, in passenger volume and in reverse order in air mail volume. Although smaller than many other cities in terms of population, Washington, D. C., was third in both passenger and air mail volume.

The passenger and mail ranking order in table I is based on the total number of passengers and pounds of air mail, respectively, flown into and out of each station. It is to be noted that these rankings are based solely on the volume of traffic *handled* at each station and that the relative volume of traffic originating at or destined to each station is not shown. These rankings are, of course, affected by seasonal factors which differ from one part of the country to another. For example, if the survey had been made in a winter month, stations in Florida would have had much higher rankings.

As shown on the map (fig. 1) passenger traffic was heaviest between New York and Boston, New York and Chicago, and New York and Washington. The total estimated traffic between these three groups of stations during August 1939 is of timely interest: Between New York and Chicago an average of 491 revenue passengers per day was carried on 52 flights; between New York and Washington there were 461 passengers on 49 flights, and between New York and Boston 394 passengers on 31 flights. These statistics are, however, only based on minimum average flight loads; exact information of this character would require an origination and destination survey.

The statistics relating to the nonstop passenger and mail traffic between New York and Boston, New York and Chicago, New York and Washington, and New York and 12 other stations are given in table II. Of unusual significance in this table is the fact that the New York-Boston nonstop traffic, all

[1] The passenger-miles flown for August 1939 are 23.15 percent above the average for the year as a whole after removal of the secular tendency.

[2] Operations into New York Municipal Airport-LaGuardia Field as a co-terminal with the Newark Airport were not commenced until December 1939.

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(Continued from preceding page)

carried by American Airlines, was transported in ships which were loaded to an average of 15.8 persons per flight. This is an excellent illustration of what can be accomplished in the matter of accurately scaling the equipment allocation to the traffic density requirements of a route.

With respect to Boston, the report shows that the weighted average number of passengers per mile flown over air mail route No. 18 (Newark-Boston) was 15.2 which yields a passenger revenue of 80 cents per mile. In the case of Washington there were 102 nonstop flights per day in and out, and 37 of these were between Washington and New York.

Table III shows the total passenger traffic carried by American, TWA, and United between New York and Chicago. The tabulation has been made on the basis of average minimum rather than maximum loads due to the fact that such loads are more indicative of the traffic between the two terminal stations.

A comparison of the nonstop New York-Chicago passenger traffic among these three carriers is given in table IV.

Table V summarizes data on the three transcontinental routes and on the main eastern seaboard route. In this table are shown the average daily volume and the station to station traffic densities. The number of flights per day shown is the average for the whole route of the carrier.

In conclusion, it should be stated that the data in this survey have been introduced in whole or in part by witnesses for the Authority in all cases before it pertaining to air mail rates, certificates of convenience and necessity and acquisitions of stock control and mergers since and including the United-Western air merger case of January 1940.

Table I.—Airline traffic survey station summary of 10 principal stations for August 1939

Stations—Arranged in rank order			Average daily loads		Total number of flights	Average number of passengers per day per flight
Rank		City and State	Passengers	Mail poundage		
Passenger	Mail					
1	2	New York, N. Y.	1,657.3	17,961.6	154	10.8
2	1	Chicago, Ill.	1,250.1	22,147.9	116	10.8
3	3	Washington, D. C.	885.7	12,708.6	102	8.7
4	6	Pittsburgh, Pa.	665.4	9,947.5	78	8.5
5	13	Detroit, Mich.	592.6	7,593.4	56	10.6
6	5	Cleveland, Ohio	585.0	10,801.4	65	9.0
7	14	San Francisco, Calif.	496.8	7,245.7	46	10.8
8	54	Boston, Mass.	466.2	2,377.7	41	11.4
9	7	Los Angeles, Calif.	436.4	9,820.6	42	10.4
10	18	Buffalo, N. Y.	381.3	6,300.7	36	10.6

Table II.—New York, N. Y., airline traffic, August 1939

Nonstop between New York and—	Average mail pounds per day	Average revenue passengers per day	Average revenue passengers per flight	Number of flights per day	Carriers operating flights
Boston, Mass.	1,204.8	268.3	15.8	17	17—AAL.
Chicago, Ill.	1,101.4	157.5	9.8	16	6—AAL; 4—TWA; 6—UAL.
Washington, D. C.	3,339.1	361.5	9.8	37	11—AAL; 26—EAL.
12 other stations	12,316.3	870.0	10.3	84	
Total (15 stations)	17,961.6	1,657.3	10.8	154	

Table III.—New York to Chicago total passenger traffic, August 1939

Carrier	Route No.	Flights per day	Percent of total flights operated	Average minimum total passengers per day	Percent of total passengers	Passengers per flight
American Airlines, Inc.	7	18	34.62	212.7	43.34	11.82
Transcontinental & Western Air, Inc.	2,136	16	30.76	96.2	19.60	6.01
United Air Lines Transport Corporation	1	18	34.62	181.9	37.06	10.11
Total		52	100.00	490.8	100.00	9.44

Table IV.—New York to Chicago nonstop passenger traffic, August 1939

Carrier	Scheduled flights	Percent of total flights operated	Average daily passenger load	Percent of total passenger load	Passengers per flight	Average passenger seats available	Passenger load factor
American Airlines, Inc.	6	37.5	73.7	46.79	12.28	126.0	58.49
Transcontinental & Western Air, Inc.	4	25.0	21.9	13.91	5.48	64.0	34.22
United Air Lines Transport Corporation	6	37.5	61.9	39.30	10.32	122.5	50.53
Total	16	100.0	157.5	100.00	9.84	312.5	50.40

Table V.—Transcontinental and eastern seaboard airline traffic, August 1939

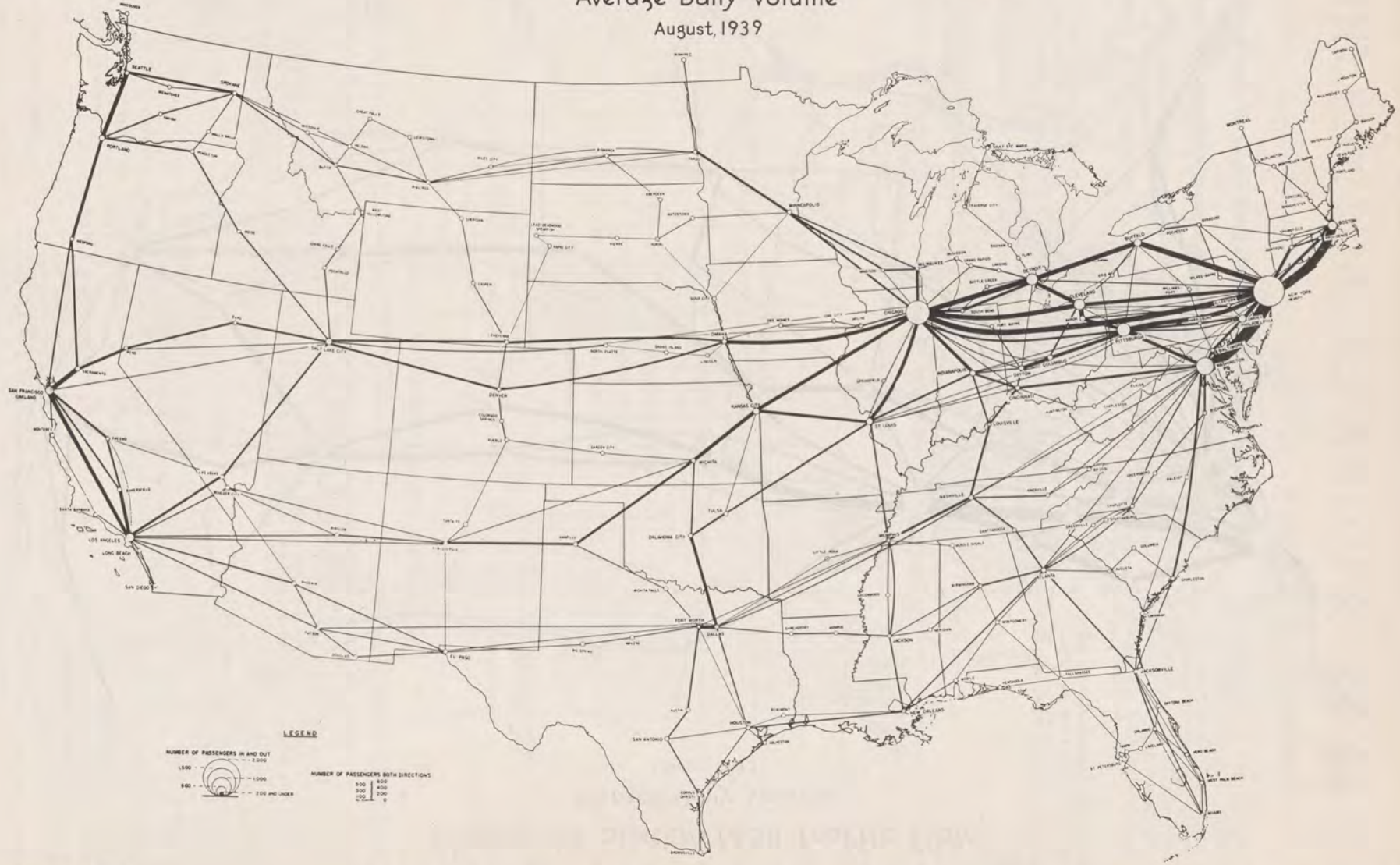
Carriers	Route No.	Average passengers per day	Average mail pounds per day	Number of flights per day	Average passengers per flight	Average mail pounds per flight
American Airlines, Inc.	4, 23	69.2	2,170.0	7.67	9.1	296.2
Eastern Air Lines, Inc.	6	80.2	1,879.4	10.15	7.9	185.2
Transcontinental & Western Air, Inc.	2	97.4	2,995.3	9.83	9.9	304.7
United Air Lines Transport Corporation	1	109.7	3,846.1	9.86	11.1	390.1

AIRLINE TRAFFIC SURVEY

Station to Station Passenger Traffic Flow

Average Daily Volume

August, 1939



BUREAU OF ECONOMIC REGULATION
ACCOUNTS AND ANALYSES DIVISION

Figure 1

CIVIL AERONAUTICS AUTHORITY

AIRLINE TRAFFIC SURVEY

Station to Station Mail Traffic Flow

Average Daily Volume

August, 1939

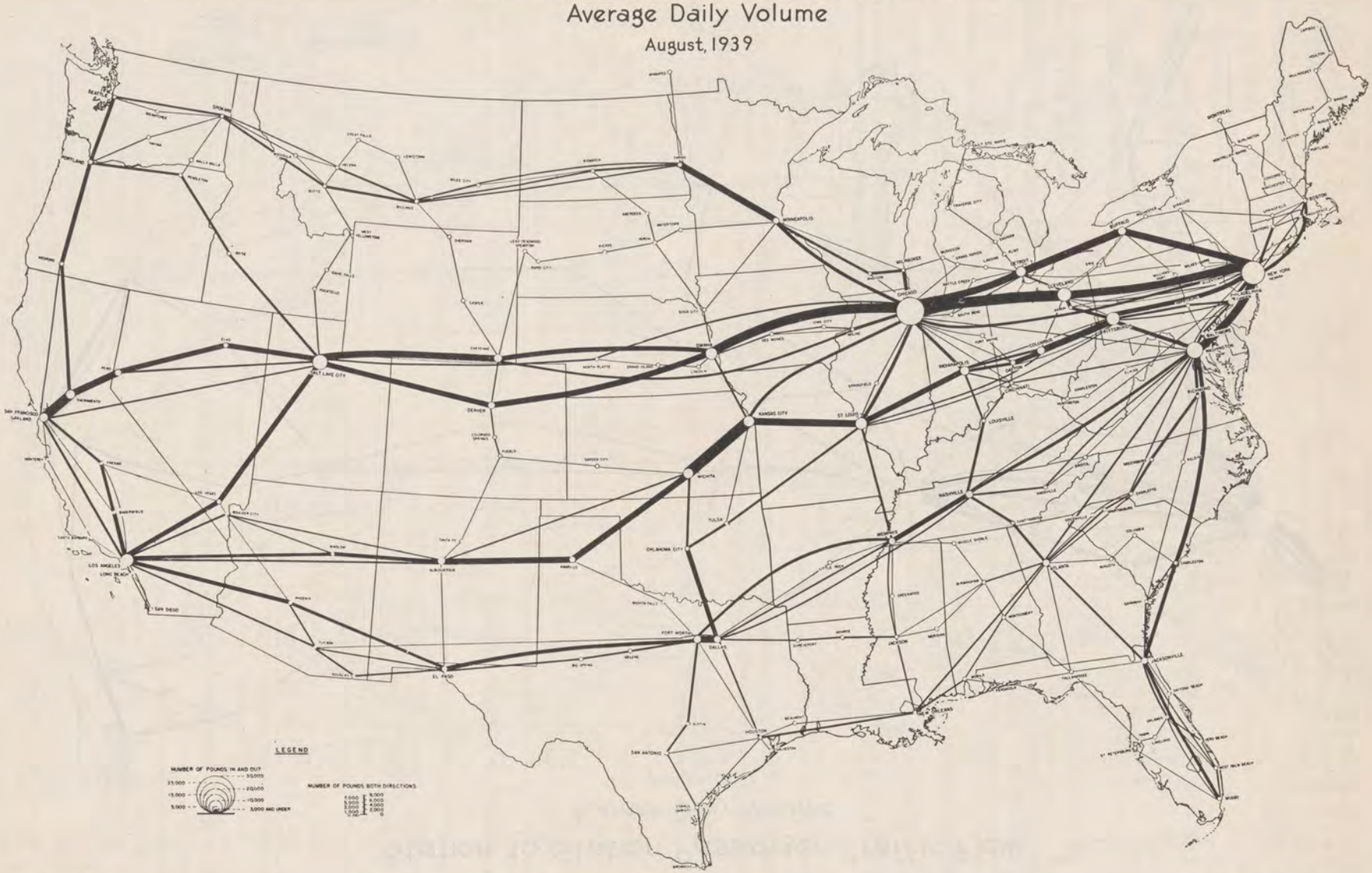


Figure 2

MANUFACTURING AND PRODUCTION

Expansion in Light Aircraft Production Continues

First Quarter Civil Domestic Production 52.6 Percent Ahead of Last Year

Domestic civil aircraft production statistics for the first quarter of 1940 reflect continued sharp expansion in manufacture of light planes of over 50 horsepower.

The demand for planes in this class resulted in a gain of 691 percent in the production of single-engine planes of 51 to 70 horsepower. In the 1940 first quarter 435 were produced as compared with 55 in corresponding period of 1939. It is also shown that the category of single-engine planes of 71 to 100 horsepower advanced 316 percent for the first quarter, from 19 in the 1939 quarter to 79 in the 1940 quarter.

The trend toward increased power for small planes was indicated by a marked decrease in production of planes of 50 horsepower and under.

Total production of all categories of domestic civil aircraft during the 1940 first quarter was 789, as against 507 in the corresponding period last year.

In the accompanying tables, A, B, and C, aircraft production figures for the first quarter of 1940 are broken down according to types, weight, and engine horsepower, with comparisons for the same period of 1939.

TABLE A.—**Domestic civil aircraft production by types**

	First quarter (January–March, inclusive)	
	1940	1939
Landplanes:		
1–2 place:		
Single engine	623	408
Multiengine	1	3
3–5 place:		
Single engine	126	55
Multiengine	0	2
6–20 place: multiengine	5	4
22 place and over: multiengine	22	14
Seaplanes:		
Single engine	5	4
Multiengine	0	4
Amphibians:		
Single engine	0	0
Multiengine	0	1
Unclassified:		
Single engine	6	9
Multiengine	1	3
Total single engine	760	476
Total multiengine	29	31
Grand total	789	507

TABLE B.—**Domestic civil aircraft production, by weight and engine classification**

	First quarter (January–March, inclusive)	
	1940	1939
Class I (not more than 1,300 pounds)	584	384
Class IIS (1,300–4,000 pounds single engine)	150	76
Class IIM (1,300–4,000 pounds multiengine)	0	2
Class IIIS (4,000–10,000 pounds single engine)	20	7
Class IIIM (4,000–10,000 pounds multiengine)	3	6
Class IVS (10,000–25,000 pounds single engine)	0	0
Class IVM (10,000–25,000 pounds multiengine)	24	16
Class V (gross weight in excess of 25,000 pounds)	1	4
Unclassified:		
Single engine	6	9
Multiengine	1	3
Total	789	507

TABLE C.—**Domestic civil aircraft production, by engine horsepower**

	First quarter (January–March, inclusive)	
	1940	1939
50 horsepower and under:		
Single engine	171	334
Multiengine	0	2
51–70 horsepower:		
Single engine	435	55
Multiengine	0	0
71–100 horsepower:		
Single engine	79	19
Multiengine	0	0
101–165 horsepower:		
Single engine	30	26
Multiengine	0	0
166–225 horsepower:		
Single engine	3	2
Multiengine	0	1
226–300 horsepower:		
Single engine	16	23
Multiengine	0	1
301–600 horsepower:		
Single engine	20	8
Multiengine	3	4
601–1,800 horsepower:		
Single engine	0	0
Multiengine	25	20
Unclassified:		
Single engine	6	9
Multiengine	1	3
Total single engine	760	476
Total multiengine	29	31
Grand total	789	507

Summary of Certificates and Ratings

Summary [1]

Pilot certificates of competency active	33,740
Air line transport pilot certificates of competency active	1,203
Student pilot certificates active	34,362
Glider pilot certificates of competency active	149
Student glider pilot certificates active	324
Mechanic certificates of competency active	10,209
Parachute rigger certificates of competency active	420
Certificated aircraft active	12,829
Uncertificated aircraft active	495
Certificated gliders active	39
Uncertificated gliders active	83
Repair stations holding certificates of competency active	190
Ground instructors certificates of competency active	692
Air-traffic control-tower operators certificates of competency active	225
Air Carrier dispatchers certificates of competency active	319

[1] As of May 1, 1940.

New Type Certificates

[Certificate numbers and dates of assignment in parentheses]

ENGINES

Guiberson, Aero-Diesel A-1020, 9-cylinder radial air cooled, 310 horsepower at 2,140 revolutions per minute at sea level pressure altitude (220, April 24, 1940).

Aircooled, Franklin 4AC-176F, 4-cylinder horizontal opposed air cooled, 80 horsepower at 2,500 revolutions per minute at sea level pressure altitude (221, April 26, 1940).

PROPELLERS

Hamilton Standard, 22D propeller, aluminum alloy, hydraulically controllable pitch with 83° range, maximum diameter 10 feet 9 inches, minimum diameter 7 feet 6 inches, limits dependent upon blade model installed—not to exceed 650 horsepower and 2,300 revolutions per minute (736, April 18, 1940).

AIRWORTHINESS CERTIFICATES ONLY

Air Safety Board (Remodeler), Boeing F4B4, 1-place closed land biplane. Engine, Pratt & Whitney Wasp S1D1 (2-555, April 23, 1940).

Lockheed, 18-H, 17-place closed land monoplane. Engines, 2 Pratt & Whitney Hornets S1E2-G (2-556, April 30, 1940).

Schools Issued Certificates and Ratings

Athens Air Service, Inc., municipal airport, Athens, Ga., approved April 3, 1940, as a primary flying school (solo and private).

East Coast Flying School, hangar No. 6, Floyd Bennett Field, Brooklyn, N. Y., approved April 3, 1940, as a primary flying school (solo and private) in conjunction with School of Education, New York University, New York City, N. Y. (ground school).

Edwards Flying Service, 47 Emmet Street, New Hyde Park, Long Island, N. Y., approved April 4, 1940, as a primary flying school (solo and private) in conjunction with School of Education, New York University, New York City, N. Y. (ground school).

Carl Evers Flying School, hangar No. 3, Floyd Bennett Field, Brooklyn, N. Y., approved April 4, 1940, as a primary flying school (solo and private) in conjunction with School of Aviation, New York University, New York City, N. Y. (ground school).

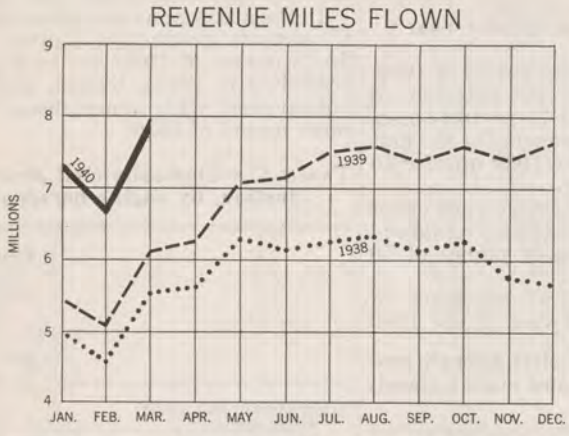
Pacific Aeronautical College, 200 Administration Building, Los Angeles municipal airport, Inglewood, Calif., approved April 4, 1940, as a primary flying school (solo and private).

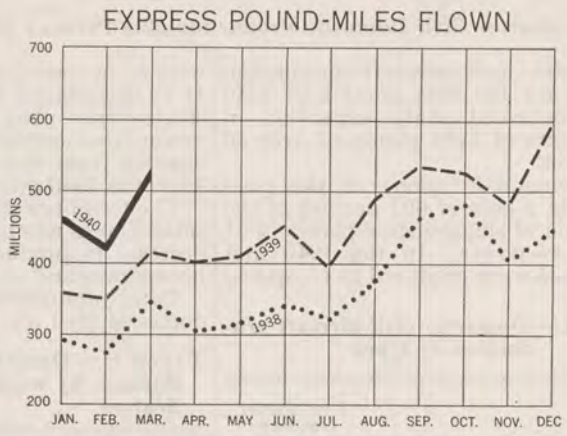
Speer Flying Service, 3330 Barnett Avenue, San Diego, Calif., approved April 20, 1940, as an advanced flying school.

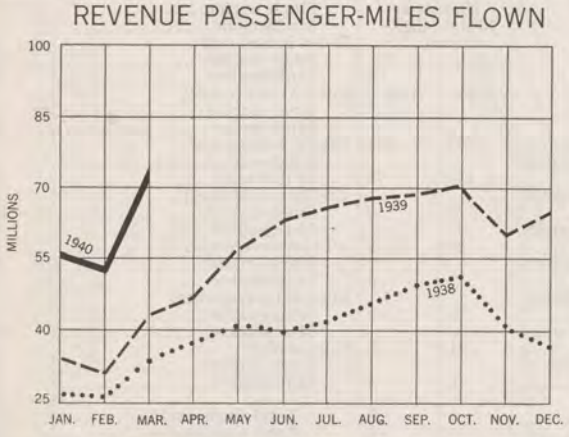
Wallace Air Service, 163 South Howard, Spokane, Wash., approved April 25, 1940, as an advanced flying school.

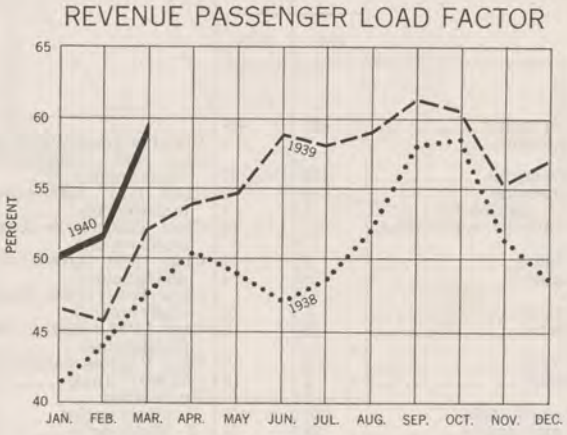
AIR TRANSPORTATION

Domestic Air Carrier Statistics for 1938, 1939, and First 3 Months of 1940









Domestic air carrier operations statistics for March 1940

Operator	Revenue miles flown		Revenue passengers carried		Revenue passenger miles flown		Express pound-miles flown		Revenue passenger load factor (percent)	
	March 1940	Percent change over 1939	March 1940	Percent change over 1939	March 1940	Percent change over 1939	March 1940	Percent change over 1939	March 1940	March 1939
American Airlines, Inc.	1,947,721	49.31	54,840	81.54	21,256,647	72.31	138,584,343	16.66	66.38	57.43
Boston-Maine Airways, Inc.	53,978	−1.33	1,497	45.20	236,438	52.07	227,568	−1.63	43.39	28.42
Braniff Airways, Inc.	361,572	25.93	8,719	84.72	2,829,620	94.93	17,236,535	60.39	53.86	57.40
Chicago & Southern Airlines, Inc.	117,770	8.48	2,256	61.49	907,173	57.16	4,574,119	16.31	71.93	53.17
Continental Air Lines, Inc.	99,435	68.39	1,098	214.61	337,097	185.42	531,303	59.20	44.85	33.33
Delta Air Corporation	152,278	24.70	3,640	90.18	945,208	72.16	2,431,094	55.86	58.11	44.97
Eastern Air Lines, Inc.	1,346,053	44.15	29,959	48.73	16,421,590	57.62	77,261,800	28.21	67.17	62.25
Inland Air Lines, Inc.	80,570	−4.89	698	57.56	177,958	64.25	231,911	−54.64	22.09	12.79
Marquette Air Lines, Inc.	13,401	−35.74	70	−57.58	15,502	−57.13	0		19.28	21.67
Mid-Continent Airlines, Inc.	104,848	16.19	1,305	23.23	330,394	33.50	968,660	5.79	31.45	30.48
National Airlines, Inc.	72,430	20.61	2,052	85.87	451,618	97.50	633,115	30.39	62.35	40.27
Northwest Airlines, Inc.	457,108	17.66	7,696	103.87	2,918,287	102.91	16,735,485	46.20	32.88	35.17
Pennsylvania-Central Airlines Corporation	292,776	15.40	13,233	59.53	2,437,747	68.60	9,006,737	35.75	53.40	56.99
Transcontinental & Western Air, Inc.	1,052,068	17.83	19,539	61.53	9,198,021	53.11	74,292,589	41.20	52.71	40.96
United Air Lines Transport Corporation	1,587,882	24.14	27,208	60.64	13,426,349	54.53	166,781,365	23.74	62.68	58.60
Western Air Express Corporation	183,128	−7.34	3,240	82.43	1,119,553	75.24	15,619,816	35.55	49.08	26.29
Wilmington-Catalina Airlines, Ltd.	7,020	28.57	1,282	36.97	38,460	36.97	284,850	−7.57	53.15	48.65
Total	7,930,038	29.09	178,332	67.69	73,047,662	64.25	525,401,290	26.58	59.28	52.34

Air Carrier Operation and Accident Statistics for 1939 and for the Period July–December 1939

The following tables comprise a summary of domestic air-carrier operations for 1939, and complete operations and accident statistics for the period July through December 1939.

Table A, summarizing domestic operations, provides comparisons for the full years 1939 and 1938, and for the July–December periods of 1939 and 1938, with percentage increases.

Table B gives operating statistics for all American air carriers, by individual companies and routes, for the July–December 1939 period.

Table C shows the domestic, foreign, and territorial operations figures, by months, for July through December 1939.

Table D contains vital statistics and the results of accidents for the January–June and July–December periods of 1939 in domestic, territorial, and foreign operations.

Table E compares miles flown per accident, per fatal accident, and per pilot fatality, and per passenger miles flown per passenger fatality for the last 6 months of 1939 and the corresponding period of 1938.

Table F gives an analysis of causes of accidents during the July–December 1939 period.

Table G summarizes miles flown per accident by 6-month periods from January–June 1936 through July–December 1939.

TABLE A.—Domestic air carrier operations statistics for the calendar years of 1939 and 1938 and for the period July–December 1939 and 1938

	Calendar year			July to December		
	1939	1938	Percent of increase	1939	1938	Percent of increase
Revenue miles flown	82,571,523	69,668,827	18.52	45,388,594	36,526,538	24.26
Revenue passengers carried	1,717,090	1,176,858	45.90	1,025,345	686,047	49.46
Revenue passenger-miles flown	677,672,955	476,402,280	42.25	399,033,759	268,241,550	48.76
Available passenger seat-miles flown	1,207,869,577	949,421,755	27.22	681,143,904	506,705,336	34.43
Revenue passenger-load factor—percent	56.10	50.18	11.80	58.58	52.94	10.65
Express carried—pounds	9,514,299	7,335,967	29.69	5,472,540	4,344,310	25.97
Express pound-miles flown	5,411,227,041	4,347,411,761	24.47	3,024,039,495	2,484,618,857	21.71
Mail pound-miles flown	[1] 17,169,782,735	[1] 14,845,719,671	15.65	[1] 9,041,270,347	[1] 7,689,014,584	17.59

[1] Mail pound-miles flown by Inter-Island Airways, Ltd., have been added to the total for domestic mail pound miles flown as the mail carried by this company is under a domestic mail contract.

TABLE B.—Air carrier operations statistics for the period July to December 1939

Operator	Routes operated	Months operated	Revenue miles flown	Revenue passengers carried	Revenue passenger-miles flown	Express	Express pound-miles flown	Mail pound-miles flown	Revenue passenger load factor
	Domestic					*Pounds*			*Percent*
American Airlines, Inc.	Dallas to Los Angeles	6	1,678,226	17,418	16,331,693	126,591	146,693,440	633,015,002	
	New York-Newark to Chicago	6	3,109,528	101,933	40,835,008	814,506	396,431,033	543,838,586	
	Boston to New York-Newark	6	1,115,649	90,473	17,556,198	231,398	42,571,095	72,661,612	
	Boston to Cleveland	6	338,389	12,224	1,796,714	43,173	5,798,658	7,931,858	
	Cleveland to Nashville	6	396,863	17,133	3,302,184	53,205	12,148,023	24,253,213	
	New York-Newark to Fort Worth	6	2,554,091	38,288	23,392,312	200,574	173,796,530	615,966,963	
	Washington to Chicago	6	862,215	27,756	10,525,359	71,929	23,495,148	72,948,094	
	Chicago to Fort Worth	6	780,034	22,938	9,786,347	101,568	54,279,340	143,829,744	
	Total		10,834,995	328,163	123,525,815	1,642,944	855,213,267	2,114,445,072	67.68
Boston-Maine Airways, Inc.	Boston to Caribou via Bangor	6	223,850	7,078	1,044,117	13,336	1,946,519	7,781,842	
	Boston to Montreal	6	171,413	4,172	688,700	6,652	789,486	(1)	
	Total		395,263	11,250	1,732,817	19,988	2,736,005	7,781,842	43.78
Braniff Airways, Inc.	Chicago to Dallas	6	678,641	10,814	4,924,459	66,077	43,085,291	174,109,511	
	Amarillo to Brownsville	6	1,066,731	22,716	6,042,463	84,997	23,631,968	88,823,780	
	Houston to Corpus Christi and San Antonio.	6	119,150	2,057	393,177	643	122,607	0	
	Total		1,864,522	35,587	11,360,099	151,717	66,839,866	262,933,291	62.07
Chicago & Southern Airlines, Inc.	Chicago to New Orleans	6	970,996	13,452	5,292,827	67,232	31,815,945	102,832,735	54.51
Continental Air Lines, Inc.	Denver to El Paso	6	454,346	3,867	1,109,729	9,075	2,344,254	19,131,362	
	Pueblo to Wichita	6	145,800	1,020	386,451	1,504	528,250	10,578,455	
	Total		600,146	4,887	1,496,180	10,579	2,872,504	29,709,817	37.12
Delta Air Corporation	Charleston to Fort Worth	6	888,141	17,852	4,573,767	37,429	12,780,912	71,884,938	51.50
Eastern Air Lines, Inc.	New York-Newark to New Orleans	6	1,619,423	31,818	15,727,330	207,473	105,500,859	334,685,785	
	New York-Newark to Miami	6	2,238,681	63,559	23,588,075	248,887	173,597,927	478,446,918	
	Chicago to Miami	6	1,003,231	22,554	9,151,987	94,289	44,039,138	138,674,576	
	New Orleans to Houston	6	366,318	6,611	2,193,677	33,932	11,251,420	40,576,632	
	Atlanta to Tampa; Tallahassee to Memphis.	6	303,966	4,278	1,200,581	7,716	2,191,207	17,963,163	
	Houston to San Antonio and Brownsville.	6	284,217	4,270	990,451	8,196	2,188,024	12,388,438	
	Total		5,815,836	133,090	52,852,101	600,493	338,768,575	1,022,735,512	51.05

See footnotes at end of table.

TABLE B.—Air carrier operations statistics for the period July to December 1939—Continued

Operator	Routes operated	Months operated	Revenue miles flown	Revenue passengers carried	Revenue passenger-miles flown	Express	Express pound-miles flown	Mail pound-miles flown	Revenue passenger load factor
						Pounds			*Percent*
Inland Air Lines, Inc.	Cheyenne to Great Falls	6	333,426	3,794	990,348	8,935	2,092,990	7,862,812	
	Cheyenne to Huron	6	183,089	1,646	441,671	4,160	1,067,269	8,575,549	
	Total		516,515	5,440	1,432,019	13,095	3,160,259	16,438,361	27.72
Marquette Airlines, Inc.	St. Louis to Detroit	6	145,465	1,184	300,414	0	0	0	28.75
Mid-Continent Airlines, Inc.	Minneapolis-Sioux City-Bismarck-Kansas City-Tulsa.	6	651,176	10,042	2,622,264	29,301	6,868,652	35,928,880	42.19
National Airlines, Inc.	Daytona Beach to Miami	6	183,384	2,968	421,001	7,396	708,687	6,779,586	
	Jacksonville to New Orleans	6	186,908	2,158	693,248	3,718	1,410,988	9,502,711	
	Total		370,292	5,126	1,114,249	11,114	2,119,675	16,282,297	30.23
Northwest Airlines, Inc.	Chicago to Winnipeg	6	1,091,468	33,957	11,934,624	174,736	60,908,982	357,884,125	
	Fargo to Seattle	6	1,679,960	23,183	10,732,892	73,479	57,423,455	251,308,761	
	Total		2,771,428	57,140	22,667,516	248,215	118,332,437	609,192,886	49.51
Pennsylvania Central Airlines Corporation.	Norfolk to Detroit	6	1,186,112	48,559	8,368,951	277,831	50,129,119	103,052,694	
	Detroit to Milwaukee	6	343,005	14,192	2,125,239	55,134	8,821,619	9,636,438	
	Washington to Buffalo	6	104,958	1,313	303,632	5,421	604,608	2,112,093	
	Pittsburgh to Buffalo	6	61,040	984	214,512	818	178,324	0	
	Pittsburgh to Baltimore	6	81,661	2,816	596,575	10,820	1,977,437	0	
	Detroit to Sault Ste. Marie	6	126,259	2,689	519,109	12,513	1,222,666	2,244,890	
	Total		1,903,035	70,553	12,128,018	362,537	62,933,773	117,046,115	63.80
Transcontinental & Western Air, Inc.	New York-Newark to Los Angeles	6	6,204,342	109,890	56,572,831	621,554	430,742,514	1,501,647,520	
	Dayton to Chicago	6	231,233	7,286	1,746,579	43,521	10,612,893	15,951,610	
	Boulder City to San Francisco	6	186,290	2,221	939,094	2,394	1,085,908	6,291,483	
	Phoenix to Las Vegas	6	104,838	1,970	204,392	2,358	173,683	1,583,908	
	Kansas City to New York via Chicago.	½	74,768	1,375	657,409	6,490	3,074,878	7,075,635	
	Total		6,801,471	122,742	60,120,305	676,317	445,689,876	1,532,550,156	52.66
United Air Lines Transport Corporation.	New York–Newark to San Francisco.	6	6,725,425	96,734	63,013,204	897,892	837,319,151	2,408,228,055	
	San Diego to Seattle	6	2,130,926	61,833	22,703,938	354,429	120,740,880	337,401,764	
	Salt Lake City to Seattle	6	698,449	12,232	4,628,801	49,743	26,727,251	114,544,516	
	Cheyenne to Denver	6	102,139	2,733	267,834	17,334	1,698,732	5,335,120	
	Total		9,656,939	173,532	90,613,777	1,319,398	986,486,014	2,865,509,455	64.36
Western Air Express Corporation.	San Diego to Salt Lake City	6	751,388	13,258	5,338,074	187,229	80,860,609	207,957,339	
	Salt Lake City to Great Falls	6	368,006	5,189	1,357,777	17,808	4,246,806	25,807,003	
	Total		1,119,394	18,447	6,695,851	205,037	85,107,415	233,764,342	49.45
Wilmington-Catalina Airline, Ltd.	Wilmington to Avalon	6	82,980	16,858	505,740	77,144	2,314,320	0	62.09
	Total domestic routes		45,388,594	1,025,345	399,033,759	5,472,540	3,024,039,495	[23] 9,041,270,347	58.58
	Foreign and Territorial								
Canadian Colonial Airways, Inc.[4]	New York to Montreal	6	228,791	7,101	2,325,019	5,585	(5)	[6] 21,269	55.61
Inter-Island Airways, Ltd.	Honolulu to Hilo	6	177,540	9,951	1,481,088	41,567	6,888,818	[2] 2,234,648	
	Honolulu to Port Allen	6	39,786	2,399	278,280	12,631	1,512,799	(1)	
	Total		217,326	12,350	1,759,368	54,198	8,401,617	[2] 2,234,648	57.92
Marine Airways, Inc.	Juneau to Sitko and Chichagof	5	20,701	557	52,650	2,655	265,500	0	51.20
Pan American Airways System.[7]	New York to Marseilles	2							
	New York to Southampton	2	425,999	3,450	6,475,975	2,284	(5)	[6] 59,941	
	New York to Lisbon	6							
	Baltimore-New York to Bermuda	6							
	San Francisco to Hong Kong via Hawaii and Philippine Islands.	6	437,923	1,027	3,632,439	19,550	(5)	[6] 33,240	
	Juneau to Fairbanks via Whitehorse.	6							
	Fairbanks to Nome and Bethel	6	180,775	983	617,810	12,348	(5)	[6] 25,674	
	Miami to Buenos Aires	6							
	Miami to Nassau	6							
	Miami to Barranquilla	6							
	Miami to Merida	6							
	Brownsville to Cristobal	6							
	Cristobal to Balboa	6	2,309,293	51,619	24,590,005	637,906	(5)	[6] 379,969	
	Cristobal to Port of Spain	6							
	Cristobal to Medellin	6							
	San Juan via Kingston to Cristobal.	6							
	Port au Prince to Maracaibo	6							
	Rio de Janeiro via Asuncion to Buenos Aires.	6							
	Total		3,353,990	57,079	35,316,229	672,088	(5)	[6] 498,824	56.50

See footnotes at end of table.

TABLE B.—Air carrier operations statistics for the period July to December 1939—Continued

Operator	Routes operated	Months operated	Revenue miles flown	Revenue passengers carried	Revenue passenger-miles flown	Express	Express pound-miles flown	Mail pound-miles flown	Revenue passenger load factor
						Pounds			*Percent*
Pan American-Grace Airways, Inc.	Cristobal, Canal Zone, to Buenos Aires, Argentina, via Santiago, Chile, and Bolivia.	6	636,319	5,979	5,080,041	63,530	(5)	[6] 26,791	52.62
	Total foreign and territorial routes.		4,457,127	83,066	44,533,307	798,056	(5)	[6] [8] 546,884	56.04
	Grand total		49,845,721	1,108,411	443,567,066	6,270,596			58.32

[1] Included in total above.
[2] Mail pound-miles flown by Inter-Island Airways, Ltd., listed under "foreign and territorial," have been added to the total for domestic mail pound-miles flown as the mail carried by this company is under a domestic mail contract.
[3] Mail pound-miles flown does not include 4,595,198 miles flown by All American Aviation Co. for experimental mail pick-up service and 238,860 miles flown by Eastern Air Lines autogiro service between Philadelphia and Camden.
[4] Does not include the operations of Canadian Colonial Airways, Ltd.
[5] Not available.
[6] Pounds.
[7] Does not include the following Pan American Airways affiliated companies: Pan Air do Brasil, Cia Mexicana de Aviacion, and Cia Nacional Cubana de Aviacion.
[8] Does not include mail carried under contract with foreign governments.

TABLE C.—Air carrier operations statistics by months for the period July–December 1939, divided as to domestic and foreign and territorial operations

	July	August	September	October	November	December	Total
Number of operating carriers:							
Domestic	17	17	17	17	17	17	
Foreign and territorial	5	5	5	5	5	4	
Total	22	22	22	22	22	21	
Revenue passengers carried:							
Domestic	170,913	179,051	178,219	178,421	157,931	160,810	1,025,345
Foreign and territorial	12,965	16,747	13,172	11,970	12,116	16,096	83,066
Total	183,878	195,798	191,391	190,391	170,047	176,906	1,108,411
Revenue passenger-miles flown:							
Domestic	66,054,539	68,118,164	69,082,813	70,122,138	60,638,606	65,017,499	399,033,759
Foreign and territorial	6,523,883	8,096,242	8,165,365	7,146,610	6,610,321	7,990,886	44,533,307
Total	72,578,422	76,214,406	77,248,178	77,268,748	67,248,927	73,008,385	443,567,066
Available passenger-seat-miles flown:							
Domestic	113,459,234	115,285,505	112,571,606	115,752,540	109,957,406	114,117,613	681,143,904
Foreign and territorial	13,670,879	14,450,796	13,534,498	12,889,688	11,602,399	13,325,277	79,473,537
Total	127,130,113	129,736,301	126,106,104	128,642,228	121,559,805	127,442,890	760,617,441
Revenue passenger-load factor:							
Domestic—percent	58.22	59.09	61.37	60.58	55.15	56.97	58.58
Foreign and territorial—do	47.72	56.03	60.33	55.44	56.97	59.97	56.04
Total—do	57.09	58.75	61.26	60.06	55.32	57.29	58.32
Express carried (pounds):							
Domestic	725,922	933,965	981,461	948,501	844,413	1,038,278	5,472,540
Foreign and territorial	116,820	137,921	186,730	135,123	98,384	123,078	798,056
Total	842,742	1,071,886	1,168,191	1,083,624	942,797	1,161,356	6,270,596
Express pound-miles flown:							
Domestic	394,088,272	491,914,099	536,701,889	529,988,948	476,224,512	595,121,775	3,024,039,495
Foreign and territorial	[2]	[2]	[2]	[2]	[2]	[2]	[2]
Total	[2]	[2]	[2]	[2]	[2]	[2]	[2]
Revenue miles flown:							
Domestic	7,541,305	7,638,796	7,441,690	7,625,880	7,407,864	7,733,059	45,388,594
Foreign and territorial	752,391	776,613	742,532	733,275	709,388	742,928	4,457,127
Total	8,293,696	8,415,409	8,184,222	8,359,155	8,117,252	8,475,987	49,845,721
Mail carried (pounds):							
Domestic	[2]	[2]	[2]	[2]	[2]	[2]	[2]
Foreign and territorial	78,544	80,998	84,136	89,513	95,251	118,442	546,884
Total	[2]	[2]	[2]	[2]	[2]	[2]	[2]
Mail pound-miles flown:							
Domestic	[1] 1,384,677,064	[1] 1,485,104,221	[1] 1,420,648,823	[1] 1,508,469,281	[1] 1,471,881,619	[1] 1,770,489,339	[1] 9,041,270,347
Foreign and territorial	[2]	[2]	[2]	[2]	[2]	[2]	[2]
Total	[2]	[2]	[2]	[2]	[2]	[2]	[2]

[1] The mail pound-miles flown for Inter-Island Airways, Ltd., are included under "Domestic mail pound-miles flown" as the mail carried by this company is under a domestic mail contract.
[2] Not available.

TABLE D.—Vital statistics and results of accidents occurring in scheduled air carrier operations for the periods January–June and July–December 1939 in domestic, foreign, and territorial operations

[For comparison with previous periods, see Civil Aeronautics Bulletin No. 3, "Aircraft Accidents and Casualties" and Air Commerce Bulletin, Vol. 10, No. 11, May 15, 1939]

	1939								
	January–June			July–December			Total		
	Domestic services	Foreign and territorial services	Total	Domestic services	Foreign and territorial services	Total	Domestic services	Foreign and territorial services	Total
Number of accidents involving—									
Fatal injuries	2	0	2	0	1	1	2	1	3
Severe injuries	1	0	1	0	0	0	1	0	1
Minor and no injuries	15	2	17	15	3	18	30	5	35
Total accidents	18	2	20	15	4	19	33	6	39
I. Injury to personnel:									
Pilots:									
Fatal injury, class A	1	0	1	0	1	1	1	1	2
Severe injury, class B	1	0	1	0	0	0	1	0	1
Minor injury, class C	0	0	0	0	0	0	0	0	0
Uninjured, class D	17	2	19	16	3	19	33	5	38
Copilots:									
Fatal injury, class A	1	0	1	0	1	1	1	1	2
Severe injury, class B	1	0	1	0	0	0	1	0	1
Minor injury, class C	0	0	0	0	0	0	0	0	0
Uninjured, class D	15	2	17	16	3	19	31	5	36
Passengers:									
Fatal injury, class A	9	0	9	0	10	10	9	10	19
Severe injury, class B	3	0	3	0	1	1	3	1	4
Minor injury, class C	4	0	4	0	1	1	4	1	5
Uninjured, class D	107	23	130	121	23	144	228	46	274
Aircraft crew:									
Fatal injury, class A	1	0	1	0	2	2	1	2	3
Severe injury, class B	0	0	0	0	0	0	0	0	0
Minor injury, class C	1	1	2	0	0	0	1	1	2
Uninjured, class D	9	4	13	6	20	26	15	24	39
Ground personnel:									
Minor injury, class C	0	0	0	2	0	2	2	0	2
Total injuries and noninjuries:									
Fatal injury, class A	12	0	12	0	14	14	12	14	26
Severe injury, class B	5	0	5	0	1	1	5	1	6
Minor injury, class C	5	1	6	2	1	3	7	2	9
Uninjured, class D	148	31	179	159	49	208	307	80	387
Total	170	32	202	161	65	226	331	97	428
II. Damage to material:									
Airplanes:									
Completely demolished, class A	2	0	2	0	1	1	2	1	3
Complete overhaul, class B	5	1	6	3	1	4	8	2	10
Major assembly repairs, class C	8	1	9	12	2	14	20	3	23
Minor repairs, class D	4	0	4	1	0	1	5	0	5
Not damaged, class E	1	0	1	0	0	0	1	0	1
III. Nature of accident:									
Collision (see definition) class A	0	0	0	0	0	0	0	0	0
Collision (see definition) class B	1	0	1	0	0	0	1	0	1
Spins or stalls (engine failure) class C	0	0	0	0	0	0	0	0	0
Spins or stalls (not engine failure) class D	0	0	0	0	0	0	0	0	0
Forced landings, class E	1	0	1	1	1	2	2	1	3
Landing accidents, class F	7	1	8	7	2	9	14	3	17
Take-off accidents, class G	0	1	1	1	0	1	1	1	2
Taxying accidents, class H	5	0	5	4	0	4	9	0	9
Fires in the air, class I	1	0	1	1	0	1	2	0	2
Structural failure, class N	0	0	0	1	0	1	1	0	1
Miscellaneous, class X	3	0	3	0	0	0	3	0	3
Indeterminate and doubtful, class Y	0	0	0	0	1	1	0	1	1
Miscellaneous information:									
Fires after accident	1	0	1	0	1	1	1	1	[1] 2
Propeller accidents to persons	0	0	0	1	0	1	1	0	[2] 1
Nonscheduled air line accidents:									
Familiarization with run	0	0	0	2	0	2	2	0	2
Experimental—test flight	0	0	0	1	0	1	1	0	1
Ferrying	1	1	2	1	0	1	2	1	3
Charter trip	0	1	1	0	0	0	0	1	1
Publicity flight	1	0	1	0	0	0	1	0	1
Total nonscheduled accidents	2	2	4	4	0	4	6	2	[3] 8

[1] This figure covers the number of fires occurring after accident. Results are included in the above regular aircraft accident statistics under groups I, II, and III.

[2] Third party, 1 minor injury. This accident is not included under groups I, II, and III as it did not occur in connection with a flight.

[3] Pilots, 1 fatal injury, 7 uninjured; copilots, 5 uninjured; passengers, 5 fatal injuries, 24 uninjured and aircraft crew, 8 uninjured. These accidents are not included in the above statistics under groups I, II, and III but are included in the private flying statistics for the period in which they occurred.

TABLE E.—Comparison of miles flown per accident, per fatal accident, per pilot fatality, and passenger-miles flown per passenger fatality for the periods July–December 1938 and July–December 1939, in domestic and foreign and territorial air carrier operations

	July–December 1938			July–December 1939		
	Domestic services	Foreign and territorial services	Total	Domestic services	Foreign and territorial services	Total
Miles flown	36,526,538	5,522,426	42,048,964	45,388,594	4,457,127	49,845,721
Total number of accidents	18	5	23	15	4	19
Miles flown per accident	2,029,252	1,104,485	1,828,216	3,025,906	1,114,282	2,623,459
Total number of fatal accidents	2	1	3	0	1	1
Miles flown per fatal accident	18,263,269	5,522,426	14,016,321		4,457,127	49,845,721
Total number of pilot fatalities	0	1	1	0	1	1
Miles flown per pilot fatality		5,522,426	42,048,964		4,457,127	49,845,721
Passenger-miles flown	306,580,689	37,319,577	343,900,266	439,893,141	47,882,539	487,775,680
Total number of passenger fatalities	4	6	10	0	10	10
Passenger-miles flown per passenger fatality	76,645,172	6,219,930	34,390,026		4,788,254	48,777,568

TABLE F.—Analysis of causes of accidents occurring in scheduled air carrier operations for the periods January–June and July–December 1939 in domestic, foreign, and territorial operations [1]

[For comparison with previous periods see Civil Aeronautics Bulletin No. 3, "Aircraft Accidents and Casualties" and Air Commerce Bulletin, Vol. 10, No. 11, May 15, 1939]

	January–June			July–December			Total		
	Domestic services	Foreign and territorial services	Total	Domestic services	Foreign and territorial services	Total	Domestic services	Foreign and territorial services	Total
Number of accidents involved	18	2	20	15	4	19	33	6	39
CAUSES									
Personnel:									
Pilots:									
Error of judgment	0	0	0	5.26	0	5.26	2.56	0	2.56
Poor technique	15.00	5.00	20.00	3.95	0	3.95	9.62	2.56	12.18
Disobedience of orders or regulations	5.00	0	5.00	13.69	0	13.69	9.23	0	9.23
Carelessness or negligence	18.00	0	18.00	0	0	0	9.23	0	9.23
Miscellaneous	0	0	0	0	0	0	0	0	0
Total pilot errors	38.00	5.00	43.00	20.90	0	20.90	30.64	2.56	33.20
Other personnel:									
Supervisor	5.00	0	5.00	5.26	0	5.26	5.13	0	5.13
Miscellaneous	0	0	0	0	0	0	0	0	0
Total personnel errors	43.00	5.00	48.00	28.16	0	28.16	35.77	2.56	38.33
Material:									
Power plant:									
Fuel system	0	0	0	0	0	0	0	0	0
Cooling system	0	0	0	0	0	0	0	0	0
Ignition system	0	0	0	0	0	0	0	0	0
Lubrication system	0	0	0	0	0	0	0	0	0
Engine structure	7.00	0	7.00	0	0	0	3.59	0	3.59
Propeller assembly	0	0	0	0	0	0	0	0	0
Engine control system	5.00	0	5.00	0	0	0	2.56	0	2.56
Miscellaneous	0	0	0	0	0	0	0	0	0
Undetermined	0	0	0	0	5.26	5.26	0	2.57	2.57
Total power plant failures	12.00	0	12.00	0	5.26	5.26	6.15	2.57	8.72
Structural:									
Flight control system	0	0	0	0	0	0	0	0	0
Movable surfaces	0	0	0	0	0	0	0	0	0
Stabilizing surfaces	0	0	0	0	0	0	0	0	0
Wings, struts, and bracings	0	0	0	0	0	0	0	0	0
Undercarriage	0	0	0	5.26	0	5.26	2.57	0	2.57
Retractable landing gear mechanism	0	0	0	0	5.26	5.26	0	2.56	2.56
Wheels, tires, and brakes	5.00	0	5.00	0	0	0	2.56	0	2.56
Pontoons or boats	0	0	0	0	5.27	5.27	0	2.56	2.56
Fuselage, engine mount, and fittings	0	0	0	0	0	0	0	0	0
Tail wheel assembly	0	0	0	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0	0	0	0
Total structural failures	5.00	0	5.00	5.26	10.53	15.79	5.13	5.12	10.25
Handling qualities	0	0	0	0	0	0	0	0	0
Instruments	0	0	0	0	0	0	0	0	0
Total airplane failures	17.00	0	17.00	5.26	15.79	21.05	11.28	7.69	18.97
Miscellaneous:									
Weather	5.00	0	5.00	9.74	0	9.74	7.31	0	7.31
Darkness	0	0	0	0	0	0	0	0	0
Airport, terrain or water	10.00	5.00	15.00	30.53	5.26	35.79	20.00	5.13	25.13
Other	15.00	0	15.00	5.26	0	5.26	10.26	0	10.26
Total miscellaneous causes	30.00	5.00	35.00	45.53	5.26	50.79	37.57	5.13	42.70
Total percentages	90.00	10.00	100.00	78.95	21.05	100.00	84.62	15.38	100.00

[1] Causes of accidents indicated in percentages

TABLE G.—**Miles flown per accident in domestic, foreign, and territorial air carrier services for each 6-month period of the years 1936 through 1939**

	1936		1937		1938		1939	
	January–June	July–December	January–June	July–December	January–June	July–December	January–June	July–December
Miles flown	33,666,961	39,944,809	36,693,748	40,709,617	39,009,163	42,048,964	42,652,257	49,845,721
Total number of accidents	42	28	28	22	21	23	20	19
Miles flown per accident	801,594	1,426,600	1,310,491	1,850,437	1,857,579	1,828,216	2,132,613	2,623,459
Total number of fatal accidents	5	5	3	3	5	3	2	1
Miles flown per fatal accident	6,733,392	7,988,962	12,231,249	13,569,872	7,801,833	14,016,321	21,326,129	49,845,721
Total number of pilot fatalities	4	5	2	3	5	1	1	1
Miles flown per pilot fatality	8,416,740	7,988,962	18,346,874	13,569,872	7,801,833	42,048,964	42,652,257	49,845,721
Passenger-miles flown	205,648,792	288,635,079	242,981,192	309,667,397	291,655,918	343,900,266	357,101,671	487,775,680
Total number of passenger fatalities	27	19	22	29	22	10	9	10
Passenger-miles flown per passenger fatality	7,616,622	15,191,320	11,044,600	10,678,186	13,257,087	34,390,026	39,677,963	48,777,568

AIRWAYS AND AIRPORTS

Landing Facilities on May 1, 1940

Airports and Landing Fields

Municipal airports	645
Commercial airports	470
Civil Aeronautics Authority intermediate fields	273
Army airdromes	58
Navy, Marine Corps, and Coast Guard stations	21
State-operated fields	44
Marked auxiliary fields	665
Private fields	111
Fields for miscellaneous Government activities	27
Total	2,314

Airports and landing fields having night lighting equipment:	
Municipal	298
Commercial	94
Intermediate	273
Army	34
Navy	13
State	8
Auxiliary	24
Private	8
Total	752

Seaplane Bases

Army, Navy, Coast Guard, Marine Corps	27
Other seaplane bases and anchorages	158
Total	185

Seaplane bases having night lighting equipment:	
Navy and Coast Guard	2
Other bases and anchorages	8
Total	10

Airport Projects Approved

In accordance with the provisions of section 303 of the Civil Aeronautics Act, the Administrator of the Authority has issued certificates of air navigation facility necessity authorizing the expenditure of Federal funds in the operation of the following projects:

Brainerd, Minn.—$1,521 for N. Y. A. project for erection of a 60- by 70-foot hangar, the work to include placement of concrete footings, erection of the framework and fabrication of wood trusses, and fastening of corrugated sheet metal siding and roofing, together with construction of sliding doors.

Crescent City, Calif.—$10 per annum for Forest Service, United States Department of Agriculture, for annual rental fee.

De Land, Fla.—$15,420 for W. P. A. project for clearing, grubbing, grading, draining, and smoothing the landing area, constructing an office and radio building, erecting fence, and installing boundary and obstruction lights.

Fremont, Nebr.—$1,007 for N. Y. A. project for leveling and seeding, removal of old fence and construction of new fence, cutting trees and grubbing stumps, erection of guard rail for auto parking area, construction of signs, and fabricating and placing standard C. A. A. day markers, cones, and windsock.

Long Beach, Calif.—$781,062 for W. P. A. project for grading, draining, and paving five runways, paving taxi strips, fencing entire airport, installing water and gas mains, developing a trunk sewer system, providing storm drains, installing flush contact lights on all runways together with necessary range and obstruction lights, and centralizing switching control. This project also provides for protection of the airport from flood waters, and drainage of the landing area.

Portland, Oreg.—$18,124 for W. P. A. project for completion of the entrance ways and parking areas through the installation of concrete sidewalks, curbs and gutters, asphaltic paved roadways, landscaping together with sprinkling system, safety fencing, and street lighting.

Robertson, Mo.—$820 for N. Y. A. project for reconditioning runways, landscaping, reconstruction of fence, replacement of a wood bridge deck, and macadam surfacing of auto parking lots.

Rochester, N. Y.—$18,535 for W. P. A. project for grading, fertilizing, and seeding portions of the landing area; and construction of three offices, together with necessary changes in glazing, lighting, heating, and plumbing, and repair work to be performed on the hangar in which the offices are to be located.

Tyler, Tex.—$2,560 for N. Y. A. project for construction of an addition to the existing hangar which is to be used for shop and storage purposes.

Watertown, S. Dak.—$30,000 for W. P. A. project for runway extension, filling of an abandoned gravel pit, installation of boundary, range, and obstruction lights, and erection of a tower with beacon thereon.

Aeronautical Charts

New Editions Issued

During April the following new editions of aeronautical charts were issued by the United States Coast and Geodetic Survey. Pilots are warned that previous editions of the same charts are canceled and now obsolete.

NEW REGIONAL CHART

13-M.—February 1940. Scale, 1:1,000,000. Size, 26 by 45 inches. Located in latitude 32°–38° north and longitude 87°–99° west, covering an area of about 299,000 square miles.

This is the tenth issued of the series of 17 regional aeronautical charts, and covers the area on the following sectional aeronautical charts: Shreveport, Little Rock, Tulsa, eastern half of Dallas, Oklahoma City, and Wichita. It is lithographed in 10 colors, showing airports, names of airports, beacons, compass roses, isogonic lines, weather broadcasts, etc., in red; radio ranges in pink; flight lines in purple; railroad and topographic features in black; water in blue; area of cities in yellow; and elevation gradients in three tints.

NEW EDITIONS OF SECTIONAL AERONAUTICAL CHARTS

Aberdeen.—April 1940. Size, 20 by 39 inches. Located in latitude 44°–46° north and longitude 96°–102° west, an area of about 47,000 square miles.

Includes radio ranges added at Huron, Watertown, and Aberdeen, and beacons added on the lighted airway routes Omaha–Bismark and Huron–Minneapolis.

Butte.—April 1940. Size, 20 by 38 inches. Located in latitude 46°–48° north and longitude 108°–114° west, embracing some 47,000 square miles.

New radio range at Lewiston, and realinement of radio range at Helena.

Casper.—April 1940. Size, 20 by 40 inches. Located in latitude 42°–44° north and longitude 102°–108° west, an area of 49,000 square miles.

Addition of radio ranges at Casper and Douglas.

Cheyenne.—April 1940. Size, 20 by 41 inches. Located in latitude 40°–42° north and longitude 102°–108° west, covering an area of some 51,000 square miles.

Civil airways added, and an accumulation of changes since the last edition.

Detroit.—April 1940. Size, 20 by 41 inches. Located in latitude 42°–44° north and longitude 78°–84° west, an area of about 49,000 square miles.

This edition gives addition of civil airways, as well as changes accumulated since the last edition.

Lewiston.—April 1940. Size, 20 by 39 inches. Located in latitude 44°–46° north and longitude 66°–72° west, covering an area of about 47,000 square miles.

New radio ranges added at Megantic and Blissville.

Wichita.—April 1940. Size, 20 by 44 inches. Located in latitude 36°–38° north and longitude 96°–102° west, covering an area of about 53,000 square miles.

Civil airways and accumulation of other changes included.

Washington.—April 1940. Size, 20 by 33 inches. Located in latitude 38°–40° north and longitude 73° 30′–78° west, embracing some 26,000 square miles.

Includes new radio ranges at Philadelphia and Baltimore, together with changes accumulated since the last edition.

Copies of aeronautical charts may be obtained from the Coast and Geodetic Survey, Washington, D. C., and from recognized dealers at major cities and airports. Regional and direction find-

(See CHARTS page 228)

CIVIL AERONAUTICS AUTHORITY

OFFICIAL ACTIONS

OPINIONS, ORDERS AND REGULATIONS

FOR THE PERIOD APRIL 16–30, 1940, INCLUSIVE

C. A. A. OPINIONS

C. A. A. Opinions—Vol. I Temporary Page No. CLV

DOCKET NO. SR–33

IN THE MATTER OF CHESTER R. GUTERMUTH, LOUISVILLE, KY., HOLDER OF PRIVATE PILOT CERTIFICATE NO. 42462

Decided April 16, 1940

OPINION

BY THE AUTHORITY:

We issued an order (No. 609–73) on November 10, 1939, directing the above-named respondent, Chester R. Gutermuth, to appear at a hearing and show cause why his private pilot certificate should not be revoked or suspended. The order was based on reported facts which indicated that the respondent had performed acrobatics in an airplane at a low altitude over a residential area in Louisville, Ky.

Pursuant to notice, a hearing was held in the matter at Louisville on December 15, 1939, before an examiner of the Authority. The respondent did not appear at the hearing either in person or by counsel.

A number of witnesses were called to testify with respect to the flight in question and their undisputed testimony establishes the following facts. The respondent on April 25, 1939, with his brother as a passenger, and while holder of private pilot certificate No. 42462, made several dives in an airplane over a congested residential area of Louisville. The respondent began his dives at altitudes estimated to have been between 300 and 800 feet and in one case pulled out within approximately 20 feet of the trolley wires and in another cleared the electric light and power poles by only 40 or 50 feet. At the conclusion

NOTE ON THE ARRANGEMENT OF THESE PAGES

This part of the JOURNAL in each issue presents a current record of the official actions taken by the Civil Aeronautics Authority. Digests of all orders and regulations are carried in outer columns under the title "Abstracts." Persons having specific interest in any of these orders may obtain complete verbatim copies by writing to the Director of Statistics and Information, Civil Aeronautics Authority, Washington, D. C.

The large inner columns, set in different type, carry verbatim all opinions accompanying Authority actions. The type and format used will be utilized in the preparation of bound volumes of opinions of the Authority which will be issued at appropriate intervals. After the first volume is completed, the temporary page numbers now used will be replaced by the actual volume and page number which the text will carry in the bound volumes.

ABSTRACTS

ORDERS

Order No. 480: Student pilot certificate of William V. Moss revoked.

The Authority on April 16 revoked student pilot certificate No. 91108, held by William V. Moss, Phoenix, Ariz., for piloting an aircraft on a civil airway at an altitude over a congested area insufficient to permit at all times an emergency landing outside of such area in the event of complete power failure, and other violations of the Civil Air Regulations.

ABSTRACTS

(Continued)

Order No. 481: Violations referred to the Attorney General for judicial action.

The Authority on April 16 referred to the Attorney General for judicial action the following cases involving violations of the Civil Aeronautics Act and the Civil Air Regulations:

Kermit A. Carté, McMinnville, Oreg.—For piloting an aircraft on a civil airway without being possessed of a valid pilot certificate and when said aircraft was not certificated as airworthy;

Rufus S. Johnson, Houston, Tex.—For piloting an aircraft on a civil airway after sunset although said aircraft was not equipped with navigation lights, and other violations;

John R. Melton, Jr., Huntington Park, Calif.—For piloting an aircraft on a civil airway at an altitude over a congested area insufficient to permit at all times an emergency landing outside of such area in the event of complete power failure, and other violations; and

Richard Swingler, Benson, Ariz.—For piloting an aircraft on a civil airway carrying a person other than a certificated instructor actually giving instruction, in violation of the terms of his solo pilot certificate, and other violations.

Order No. 482: Applications of TWA, Continental, United, and Braniff consolidated for Denver-Kansas City route.

The Authority on April 16 consolidated the application of Transcontinental & Western Air, Inc., for a certificate of public convenience and necessity authorizing air transportation between Denver, Colo., and Kansas City, Mo., with the applications of Continental Air Lines, Inc., United Air Lines Transport Corp., and Braniff Airways, Inc. (Previous order No. 368.)

Order No. 483: Private pilot certificate of Chester R. Gutermuth revoked.

The Authority on April 16 revoked private pilot certificate No. 42462, held by Chester R. Gutermuth, Louisville, Ky., for piloting an aircraft over a congested area at an altitude not sufficient to permit at all times an emergency landing outside of such area in the event of complete power failure, and other violations. (For full text of opinion and order see docket No. SR–33, p. 225).

Order No. 484: Student pilot certificate of Ulmo S. Randle revoked.

The Authority on April 16 revoked student pilot certificate No. 91304, held by Ulmo S. Randle, Fairfax, Va., for piloting an aircraft over a congested area at an altitude not sufficient to per-

of these maneuvers, the respondent proceeded to the Shawnee Airport, which is located about 2 miles from where the dives were performed, flying at approximately 100 feet until he reached the city limits and at about 30 or 40 feet from that point to the airport. The flight lasted about 25 minutes.

The witnesses all testified that they had observed the flight and one of them stated that he had recognized the respondent in the plane during the execution of one of the aforementioned maneuvers. In the course of his testimony, the superintendent of the Louisville municipal airport stated that he had known the respondent since 1923 and to his knowledge the respondent had been grounded by representatives of the Department of Commerce in 1937 "for diving on the Shawnee

C. A. A. Opinions—Vol. I *Temporary Page No. CLVI*

Airport" and again in 1938 "for low flying in the vicinity of his home which is Berry Boulevard and Taylor Boulevard."

The examiner filed his report on January 10, 1940, and, after setting out his findings of fact and conclusions, recommended that the respondent's pilot certificate be revoked. A consideration of the entire record reveals strong reasons for adopting this recommendation.

From the evidence it appears that the respondent has repeatedly demonstrated a defiance for the basic principles of safe flying and his flare for acrobatic maneuvers at dangerously low altitudes characterizes him as a show-off and daredevil pilot. Under the Civil Aeronautics Act of 1938 we are charged with the duty of promoting safety in the operation of aircraft, and when a pilot indicates a tendency to disregard the safety of others as well as his own, we must take action against his certificate if that duty is to be well performed. Section 609 of the Civil Aeronautics Act of 1938 empowers us to revoke an airman certificate "for any cause which, at the time of revocation, would justify the Authority in refusing to issue to the holder of such certificate a like certificate." We find that the recklessness demonstrated repeatedly by the respondent would justify us at this time in refusing to issue him a private pilot certificate. Therefore, sufficient cause exists to warrant the revocation of the private pilot certificate issued to the respondent.

Order

The Civil Aeronautics Authority, upon the foregoing findings and conclusions, and pursuant to sections 205 (a) and 609 of the Civil Aeronautics Act of 1938, orders that private pilot certificate No. 42462 issued to Chester R. Gutermuth of Louisville, Ky., be, and the same is, revoked.

Hinckley, Branch, Ryan, Mason, Warner, Members of the Authority, concurred in the above opinion and order.

C. A. A. Opinions—Vol. I *Temporary Page No. CLVII*

Docket No. SR–37

IN THE MATTER OF ULMO S. RANDLE, HOLDER OF STUDENT PILOT CERTIFICATE NO. 91304

Decided April 16, 1940

APPEARANCES:

George Perkins, counsel for the respondent.

L. S. O'Malley, counsel for the Civil Aeronautics Authority.

OPINION

BY THE AUTHORITY:

On January 30, 1940, we issued our order No. 609–106, directing the respondent, Ulmo S. Randle, to appear before an examiner of the Authority and show cause why his student pilot certificate No. 91304 should not be suspended or revoked by reason of certain alleged violations of the Civil Aeronautics Act of 1938 and the Civil Air Regulations. The order was based on reported facts which indicated that on July 30 and August 3, 1939, the respondent flew aircraft NC 22384, owned by him, over congested parts of Fairfax County, Va., at an altitude of less than 1,000 feet; [1] that on September 2, 1939, he flew his airplane carrying a passenger; [2] and that on September 3, 1939, he made a flight in his plane while under the influence of intoxicating liquor.[3]

A hearing was convened before an examiner of the Authority on February 14, 1940. The respondent was present and was represented by counsel. At the opening of the hearing, counsel for the respondent submitted a written waiver of hearing and requested that the Authority decide the case on the evidence in its possession and upon such additional evidence as might be submitted by either the respondent or counsel for the Authority. By agreement between counsel for the respondent and counsel for the Authority, such additional evidence was to be submitted within 10 days. It was further stipulated that it would be unnecessary for the examiner to file a report. Thereupon the hearing was adjourned.

[1] Sec. 60.35 of the Civil Air Regulations: "Exclusive of taking off * * * or landing * * * aircraft shall not be flown * * * over the congested parts of cities, towns, or settlements * * * less than 1,000 feet above the ground."

[2] Sec. 20.610 of the Civil Air Regulations: "No person possessed of a valid student pilot certificate * * * shall pilot any aircraft carrying any person other than a certificated instructor actually giving instruction to such student pilot."

[3] Sec. 60.345 of the Civil Air Regulations: "No pilot * * * in flight shall be under the influence of * * * intoxicating liquor."

Upon the expiration of the 10-day period within which additional evidence was to be submitted, counsel for the respondent requested and received a 10-day extension of time in which to file additional evidence. Thereafter, respondent submitted a plea of *nolo contendere* to the charges contained in the aforementioned order to show cause, requesting that the Authority accept this plea. Counsel for the respondent subsequently filed a brief in support of the respondent's request that the plea of *nolo contendere* be accepted.

The plea of *nolo contendere* has long been used in the practice of criminal law and the courts have universally interpreted it to be, in its effect upon a particular case, equivalent to a plea of guilty. It is, therefore, an implied admission of guilt and its acceptance eliminates the necessity of further inquiry as to the guilt or innocence of the party charged with offense, leaving concern only with the character and extent of the punishment. *United States* v. *Norris*, 281 U. S. 619; *Commonwealth* v. *Ingersoll*, 45 Massachusetts 381.

ABSTRACTS
(*Continued*)

mit at all times a landing outside of such area in the event of complete power failure, and other violations. (For full text of opinion and order see docket No. SR–37, p. 226).

Order No. 485: Trunk authorized to fly aircraft bearing Colombian identification over United States.

The Authority on April 19 granted application of John L. H. Trunk for permission to operate a Barkley-Grow model T8P–1 aircraft bearing Colombian identification mark C–113, registered in the name of the Tropical Oil Company, within the territorial limits of the United States, subject to certain terms and conditions.

Order No. 486: Student pilot certificate of Lester E. Palmer revoked.

The Authority on April 19 revoked student pilot certificate No. 61552, held by Lester E. Palmer, Pukwana, S. Dak., for piloting an aircraft carrying a person other than one possessed of a pilot certificate valid for the operation involved, who occupied a control seat in said aircraft without the dual controls thereof having been made inoperative.

Order No. 487: Felix P. Klimas, temporary suspension of solo pilot certificate.

The Authority on April 23 suspended for a period of 90 days solo pilot certificate No. 63237, held by Felix P. Klimas, Ashland, Wis., for piloting an aircraft carrying a person other than a certificated instructor actually giving instruction, and other violations of the Civil Air Regulations.

Order No. 488: Randon M. Reid ordered to show cause.

The Authority on April 23 directed Randon M. Reid, Dallas, Tex., to appear before an examiner of the Authority and show cause why his temporary commercial pilot certificate No. 38906 should not be revoked or suspended for piloting an aircraft on a civil airway at an altitude over a congested area insufficient to permit at all times an emergency landing outside of such area in the event of complete power failure, and other violations of the Civil Air Regulations.

Order No. 489: Interlocking relationships of Virgil Edwards Chenea and Pan American Airways and subsidiaries approved.

The Authority on April 26 approved interlocking relationships of Virgil Edwards Chenea and Pan American Airways, Inc., and subsidiaries.

ABSTRACTS
(*Continued*)

Order No. 490: Offers accepted in compromise of civil penalties for violations.

The Authority on April 26 accepted the following offers in compromise of civil penalties incurred for violations of the Civil Aeronautics Act of 1938 and the Civil Air Regulations:

Dorothy C. Lemon, West Palm Beach, Fla.—For giving instruction for hire without being possessed of a valid instructor rating—$100.

Joe B. Lievre, San Antonio, Tex.—For piloting an uncertificated aircraft acrobatically on a civil airway without being possessed of a valid pilot certificate—$250; and

Ray W. Berdeau, Palm Beach, Fla.—For starting the engine of an aircraft without a competent operator in the aircraft attending the controls and without blocks having been placed in front of the wheels of said aircraft—$25.

Order No. 491: Offer accepted in compromise of civil penalties for violations.

The Authority on April 26 accepted the following offer in compromise of civil penalties incurred for violations of the Civil Aeronautics Act and the Civil Air Regulations:

Marvin M. Whitman, Minneapolis, Minn.—For piloting an uncertificated aircraft within a control zone in weather below the minimum prescribed for contact flight without being possessed of a valid instrument rating and when said aircraft was not equipped for instrument flight—$150.

Order No. 492: Offer accepted in compromise of civil penalties for violations.

The Authority on April 26 accepted the following offer in compromise of civil penalties incurred for violations of the Civil Aeronautics Act and the Civil Air Regulations:

W. R. Shillington, Robertson, Mo.—For authorizing the flight of his identified aircraft on a civil airway when said aircraft was not possessed of a valid aircraft registration or airworthiness certificate and when said aircraft's identification mark was not valid—$50.

Order No. 493: Northwest Airlines exempted from provisions of section 401 (a) of the act.

The Authority on April 26 exempted Northwest Airlines, Inc., from the provisions of section 401 (a) of the act insofar as is necessary to permit nonstop operations between points named in its certificates of public convenience and necessity covering routes Nos. 3 and 16.

While in the quasi-judicial procedure followed by the Authority in cases of this kind there is no provision or precedent for the use of the plea of *nolo contendere*, there appears no reason why such a plea should not be accepted and accorded the same consideration and effect as it receives in a judicial tribunal. However, notwithstanding the respondent's implied admission of guilt, we have carefully examined the record in this case and find ample evidence to substantiate the allegations contained in the order to show cause.

The offenses with which the respondent is charged, low flying, carriage of a passenger on a student certificate, and flying while intoxicated, are not only serious violations of the Civil Air Regulations, but also indicate contempt upon the part of the respondent for the basic principles of safety in the operation of aircraft. That he committed these offenses is clear from the record. Under these circumstances, the interest of safety requires us to revoke the respondent's certificate.

Section 609 of the Civil Aeronautics Act empowers us to revoke an airman certificate "for any cause which at the time of revocation would justify the Authority in refusing to issue to the holder of such certificate a like certificate." We find that the recklessness and disregard for the regulations manifested by the respondent would be sufficient cause to justify us in refusing at this time to issue to the respondent a student pilot certificate.

ORDER

The Civil Aeronautics Authority, from the foregoing findings and conclusions, and pursuant to sections 205 (a) and 609 of the Civil Aeronautics Act of 1938, orders that student pilot certificate No. 91304, issued to Ulmo S. Randle of Fairfax, Va., be and is hereby revoked.

Hinckley, Branch, Ryan, Mason, Warner, Members of the Authority, concurred in the above opinion and order.

Order No. 494: Chicago & Southern authorized to temporarily suspend service to Greenwood, Miss.

The Authority on April 26 authorized Chicago & Southern Air Lines, Inc., to temporarily suspend service to Greenwood, Miss.

Order No. 495: Solo pilot certificate of Daniel A. Monan suspended for an additional 30 days.

The Authority on April 27 suspended for an additional 30 days from March 31 solo pilot certificate No. 66064, held by Daniel A. Monan, La Grange, Ga., pending proceedings instituted to determine whether said certificate should be further suspended or permanently revoked (previous order No. 467).

Order No. 496: Student pilot certificate of Albert Hugh Johnston suspended.

The Authority on April 30 suspended for a period of 30 days, and thereafter until such time as the holder thereof shall have received 2 hours of dual instruction from a certificated instructor, student pilot certificate No. 84951, held by Albert Hugh Johnston, Atlanta, Ga. (previous order No. 466).

Order No. 497: Mid-Continent to intervene in Denver–Kansas City applications.

The Authority on April 30 granted Mid-Continent Airlines, Inc., permission to intervene in the applications of Continental Air Lines, Inc., United Air Lines Transport Corporation, Braniff Airways, Inc., and Transcontinental & Western Air, Inc., for certificates of public convenience and necessity.

CHARTS

(continued from page 224)

ing (DF) charts sell for 75 cents each, and sectional charts for 40 cents. On orders grossing $10 or more, including assortments, there is a 33⅓ percent discount allowed by the Coast and Geodetic Survey.

Recognized Dealers

The Coast and Geodetic Survey has announced the following changes in its list of recognized dealers authorized to sell charts.

New Dealers

Henry B. Chapman, New Orleans Airport, New Orleans, La. (This dealer supersedes Weems System of Navigation, New Orleans Airport, on the Bureau's list.)

Florida Aeronautical and Supply Co., P.O. Box 2308, Orlando, Fla.

U. S. GOVERNMENT PRINTING OFFICE: 1940