

POST OFFICE DEPARTMENT  
Office of Regional Superintendent  
AIR POSTAL TRANSPORT  
San Francisco, 5, Calif.,

ESR:K

October 5, 1948

SUBJECT: Helicopter Service - Los Angeles, Calif., Area

Deputy Second Assistant,  
Air Postal Transport,  
Washington, 25, D. C.

My dear Sir:

Herewith report on AM 84, air mail service by helicopter, upon completion of one year of operation in the Los Angeles, Calif., area. We have attempted to cover the entire operation in its first year. This includes facts, figures and the conclusions of the writer based upon his observations.

1. CERTIFICATE:

Under date of May 20, 1947, the Civil Aeronautics Board issued a certificate of public convenience and necessity to the Los Angeles Airways, Inc., authorizing that carrier to engage in the transportation of mail by helicopter in the Los Angeles, Calif., area, - Route to be known as AM 84 and the certificate for a three-year period, beginning six months after the effective date of the certificate or on date on which carrier inaugurated service, whichever occurred first.

Recognizing the need of flexibility of operation, the Board issued concurrently with the certificate, an exemption order pursuant to Section 416 (h) (1) of the Civil Aeronautics Act of 1938, which would permit of changes in the route pattern and schedules and allow the carrier to serve points not named or to omit points by filing an "Approved Flight Pattern" with the Board, such Pattern to have the endorsement and approval of the Post Office Department thereon.

The area embraced by the certificate was fifty air miles in any direction from the Terminal Annex Post Office in Los Angeles.

2. PRELIMINARY:

In compliance with Departmental instructions, file AH B R, July 28, 1947, E. S. Ransom, Regional Superintendent at Large, working under the guidance of Regional Superintendent A. O. Willoughby, was designated to handle the details of the establishment of this service by helicopter, in collaboration with Mr. C. M. Belinn of the Los Angeles Airways and Post Office Inspector H. W. Tavener.

On August 4th, conferences were held at which routes were tentatively outlined, inauguration date set and other details discussed. On August 20th, further conferences were held and definite routes set and schedules prepared.

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2. PRELIMINARY Continued:

Between August 20th and October 1st, the inaugural date, sites were acquired, Postmasters visited and instructed, and the necessary details and preliminary work completed.

3. LOS ANGELES AIRWAYS, INC.

Is a stock company, owned by twenty local stockholders, operated by a Board of Directors under the active management of Mr. Clarence M. Belinn, its President. Mr. Belinn has had extensive experience with commercial air lines. Offices of the Company are located in Hangar No. 2 on Los Angeles Municipal Airport with street address at 5901 West Imperial Highway, Los Angeles, Calif.

Maintenance base is also located in Hangar No. 2. There are 10,000 square feet in the hangar; 2,500 square feet for shops and 1,800 square feet for office space.

4. TYPE OF HELICOPTERS:

The helicopters used on this route are made by Sikorsky and known as the S-51. The S-51 has a normal carrying capacity of 745 pounds exclusive of weight of gas load and pilot. They have a cruising speed of approximately seventy-five miles per hour. Five helicopters are now in service.

By a recent change in the rotor assembly system the lifting power in respect to pay load, was increased from 745 pounds to 1,000 pounds. Re-designing of cargo compartment by Los Angeles Airways has materially increased the space available for cargo.

Overall length . . . . .	57'-1/2"
Overall width . . . . .	Main Rotor - - 48'0"
	Landing Gear - 12'0"
Overall Height . . . . .	12'11-3/8"
Gross Weight . . . . .	5,300 lbs.
Maximum Concentration . . . . .	3,300 lbs.
Useful load . . . . .	1,415 lbs.
Weight empty . . . . .	3,845 lbs.
High speed . . . . .	103 MPH
Cruising Speed . . . . .	75 MPH
Maximum rate of climb . . . . .	1,000 ft. min.
Service ceiling . . . . .	15,000 ft.
Hovering ceiling . . . . .	5,400 ft.
Rate of Acceleration Horizontal )	(100 ft. 12 seconds at
	( 50 MPH
	(Full gross
Normal inclination of approach landings)	1 to 5 to clear 50 ft.
"                    "                    take-off )	obstacle

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5. LANDING SITES (Heliports):

Landing sites are designated at "heliports."

Areas for helicopter landings require a minimum of 150 feet X 150 feet. A better and more suitable size is 200 feet X 200 feet.

For safety the approaches must be free from obstructions such as wires, high buildings or poles, tall trees, etc. They are fenced as a means of protecting the public from injury. They must be surfaced or turfed to keep down the dust stirred up by the rotors. This is to prevent nuisance to adjoining residents and damage to property or the helicopters. Paving - Roof Heliport: Asphalt cement, concrete, tile or any reasonably hard and smooth material.

It is preferable that heliports be located on publicly owned property or on property which has little or no value for other purposes, such as dumps, river banks, industrial yards, etc. Such locations eliminate the problem of nuisance zoning and are more economical.

The majority of the heliports in cities served by AM 84 are located on city or county owned property not presently being used for other purposes. In most cases the sites are furnished without rental or for only a nominal fee. A few of the cities served have established Municipal Heliports, believing that the helicopter in the next few years will develop to a point where a municipal heliport will be essential to the city's business and social progress. The location of heliports on publicly owned property has advantages not found on privately owned land - permanency of location, governmental aids to navigation by the C.A.A., and cost. The cost is particularly important when it is considered that the Helicopter, making three trips a day to forty-four cities, uses each heliport only about one minute per trip or a total of three minutes per day. If rental were paid for possession of a landing site it would have to be on a twenty-four hour basis and the cost to the airline, and therefore to the Government in mail pay, would be considerably increased.

Post Office roof-top landings, wherever possible, would speed up delivery and dispatch of mail and eliminate much costly mail messenger service. To date, the only roof-top landing is made on the Terminal Annex Post Office at Los Angeles. This roof-top landing has been highly satisfactory both from an operating standpoint and for efficient and expeditious handling of air mails.

6. COMMUNICATIONS:

At the outset the Helicopters were equipped for radio contact with the control tower of the Los Angeles Airport only, and it was necessary to telephone to the various stations from Los Angeles relative to irregular operations, cancellations, etc.

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6. COMMUNICATIONS Continued:

Originally, complete two-way radio was contemplated. All the craft have been equipped with VHF radio plus two ground stations - one is the operations office, the other is a weather station at Temple City. However, in actual practice, this has not proved entirely satisfactory and energies are now being directed toward the improvement of flying aids so that flights can be regularly made in all types of weather, thus eliminating the necessity of frequent communication with the various post offices regarding operations. Telephonic advice to the post offices relative to irregular operations has not proved satisfactory because of the necessity of contacting over forty offices in possibly a ten or fifteen minute period and the difficulty encountered in getting calls through in time to be of any value.

7. PERSONNEL:

The regular staff of the Los Angeles Airways, Inc., consists of thirty five persons, including nine pilots, fifteen mechanics and one vice-president who has no duties and receives no pay.

Most of the pilots employed have had previous experience in flying helicopters for the Army. All have had special training in flying this type of ship. The Superintendent of Operations, Mr. Fred Milam, is an ex-pilot for the army helicopter division as is Mr. C. Boyd Kesselring, the Chief Pilot. Mechanics have also received special training for this type of work. W. A. Gustafson is Chief Mechanic.

8. ROUTES AND SCHEDULES:

Routes were laid out to operate circuitously, thus affording service to a greater number of cities than could be supplied by straight or finger pattern. This has proved highly satisfactory. Schedules, for the initial operation, were set up to make first carrier delivery in the cities served, - both morning and afternoon. This is still effective.

At the beginning, due to restrictions imposed by the C.A.A. pending flying experience, no night flying was attempted. There were for the helicopter no instruments, landing lights, lighted airways, beams or other aids to navigation such as are employed for the fixed wing craft used in commercial aviation, consequently these had to be developed from scratch. The operation did not, at first, involve night flying because of the length of the daylight hours and the use of California daylight saving time. Landing lights have now been developed and installed. Temporarily, for use in night flying, heliports are being marked with an improved reflector type of lighting called "Scotchlite" and lateral highways will provide a fairly satisfactory substitute for lighted airways. It is contemplated that regulation railroad type fusees or flares will be lighted approximately five minutes in advance of scheduled arrival of trips as an additional guide. Better facilities will be developed as experience obtained indicates change advisable and practicable.

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8. ROUTES AND SCHEDULES Continued:

A third schedule, designed to afford a clean out of mails from all offices after the close of business was inaugurated on Segments A and B on May 1st, and on Segment C on August 16, 1948.

In setting up flight tracks, courses and landing sites, residential districts and public parks were avoided and the operation, insofar as possible was restricted to industrial areas. This was done to prevent complaints from the public relative to noise and dust and to avoid possible injury to persons gathering in public places. In all route patterns, flight track and schedules, safety of operation has been a paramount objective.

The area certificated to AM 84 is divided into four segments known as "A", "B", and "C" and "Shuttle."

ROUTE A - Activated on October 1, 1947 - AMF Los Angeles via Alhambra, Monrovia, South Pasadena-Pasadena, Glendale, Burbank, North Hollywood, Van Nuys, Santa Monica to AMF Los Angeles.

The schedules on this segment are operated anti-clockwise in the morning and clockwise in the afternoon. The first trip on this route was deferred for two hours to provide a more convenient hour for the inaugural ceremonies that were held at each station.

On December 1, 1947, Monrovia was changed from Route "A" to Route "B" and San Fernando was added to Route "A".

ROUTE B - Activated October 16, 1947

From AMF Los Angeles via Huntington Park-South Gate-Lynwood, Whittier, Montebello, El Monte, Pomona, Ontario, Riverside, Corona, Fullerton to AMF Los Angeles.

On December 1, 1947, Monrovia was changed from Route A to Route B and Colton-San Bernardino added. Rosemead and Fontana added on January 10, 1948. Rialto was added on February 18th. San Gabriel, Temple City, Arcadia, Gloomington and Upland added April 1, 1948.

ROUTE C - Activated January 10, 1948

From AMF Los Angeles via Compton, Bellflower, Anaheim, Orange-Santa Ana, Newport Beach, Huntington Beach, Long Beach, Wilmington, San Pedro, Torrance, Redondo Beach to AMF Los Angeles.

Schedules on this segment run clockwise in the morning and anti-clockwise in the afternoon.

Due to failure to obtain landing sites and obtain C.A.A. clearances, service at Long Beach, Wilmington and Huntington Beach was temporarily deferred. Wilmington was activated on January 31st, Long Beach on February 2nd and Huntington Beach on February 7th.

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SHUTTLE SEGMENT: activated October 1, 1947

Between AMF Los Angeles and roof of Terminal Annex Post Office, Los Angeles, Calif., six round trips daily except Sundays. Six additional trips were added on May 1st.

9. PUBLICITY:

A great amount of interest was generated by this first regularly scheduled helicopter air mail service and much publicity was obtained.

October 1, 1947 - Inaugural of Segment "A" - Ceremonies by civic leaders and public officials at each station.

At South Pasadena-Pasadena, the mails were delivered to the helicopter by Pony Express.

The first trip of the shuttle service was deferred until 9:58 am to permit of ceremonies on the roof of the Terminal Annex.

At the airport pictures were taken of the helicopter, movie stars Eddie Cantor, (in a mail carrier's uniform and cap), and Miss Vivian Blaine as well as hostesses of the various regular air lines. Miss Blaine and Mr. Cantor rode the helicopter to the roof of the Terminal Annex where the most elaborate ceremonies were held.

Approximately five hundred persons witnessed the spectacle of the helicopter's arrival. There were newsreel and other pictures and a national radio hookup to broadcast the event. Eddie Cantor was master of ceremonies and injected some humor into the otherwise impressive spectacle. Vivian Blaine furnished the Hollywood movie glamour. The Post Office Department was represented by Mr. John J. Gillen, Acting Second Assistant Postmaster General; Mr. Robert S. Burgess, Deputy Second Assistant Postmaster General, Air Postal Transport; Mr. A. O. Willoughby, Regional Superintendent Air Postal Transport; Mr. Michael Fanning, Postmaster, Los Angeles, Calif; Mr. Wm. Niley, Assistant Postmaster; William Green, General Superintendent of Mails, Los Angeles, Calif., and Mr. William Allen, Special Assistant to the Postmaster General. Many postmasters from adjoining cities were present as well as numerous state and civic leaders. Mr. C. M. Belinn represented the Los Angeles Airways, Inc.; Mr. E. S. Ransom, Regional Superintendent at Large, Air Postal Transport supervised operations at the Municipal Airport.

October 16, 1947: Inauguration of Segment "B". This occurred during the National Convention of Postmasters at Los Angeles. Again there were ceremonies at each station with the focal point the roof of the Terminal Annex where about 1,200 postmasters congregated. For many of them it was the first opportunity to see a helicopter in action. Mr. Willoughby represented the Second Assistant PM General and the Air Postal Transport on the roof of the Terminal Annex while Mr. Ransom represented the Air Postal Transport in the ceremonies at Pomona.

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January 10, 1947: Inauguration of Segment "C". There was considerable enthusiasm for this service in each of the cities on the route. Inaugural ceremonies sponsored by Chambers of Commerce at all points and unofficial cachets were provided at some of the stops to further advertise the cities.

During the first year of operation the numerous articles and pictures that have appeared in newspapers and magazines attest to the interest taken by the public and the aviation industry in this new service to patrons of the Post Office Department.

#### 10. SOUVENIR MAIL:

Collectors have displayed considerable interest in obtaining souvenir covers commemorating the establishment of the helicopter air mail service. To date, from all offices activated there have been dispatched 115,543 covers.

Collectors' First Flight covers dispatched from the various cities are indicated below:

#### October 1, 1947:

AMF Los Angeles	8404
Alhambra	1798
Glendale	3988
Burbank	1857
North Hollywood	6155
Van Nuys	2872
Pasadena	254
South Pasadena	1670
Monrovia	1792
Santa Monica	2931

#### October 16, 1947:

AMF Los Angeles	3525
Huntington Park	1865
South Gate	1610
Lynwood	2472
Montebello	1836
Whittier	2089
El Monte	1362
Pomona	2500
Ontario	2088
Riverside	2203
Corona	1887
Fullerton	1885

#### December 1, 1947

San Fernando	1629
Colton	1575
San Bernardino	2537

#### January 10, 1948:

AMF Los Angeles	2850
Los Angeles	1554
Fontana	2874
Rosemead	1743
San Pedro	1608
Newport Beach	1642
Torrance	1624
Compton	2090
Bellflower	1755
Anaheim	1928
Santa Ana	1850
Orange	1669
Redondo Beach	2869

#### January 31, 1948:

Wilmington	1762
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#### February 2, 1948

Long Beach	2231
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#### February 7, 1948

Huntington Beach	1655
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#### February 18, 1948

Rialto	6472
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#### April 1, 1948

San Gabriel	2756
Arcadia	2063
Bloomington	2796
Temple City	1951
Upland	2907

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10. SOUVENIR MAIL CONTINUED:

At Five Cents each the philatelic covers dispatched to date via AM 84 would represent a revenue to the Department amounting to \$5,777.15. Many of the covers bore more than the required Five Cents postage.

Official Cachet:



11. FORMS AND PROCEDURES:

It was necessary to develop some form whereby a record could be had of the operation of the helicopters and show the volume of mail transported. After study, it was decided that the Form 2702 could be used for this purpose. Due to the fact that the pilot is required to make all entries as well as exchange mails and is busy with both hands and feet in controlling the helicopter mechanism while on the ground, entries for mails, both on and off, are made at AMF Los Angeles before departure. The 2702 then acts as a cargo manifest to indicate the mails boarded and those due off at each station. The only entries that the pilot is required to make are those necessitated by the receipt of inter-city pouches. Because of the limited time on the ground at each landing, (30 seconds to 1 minute), no receipts are given or taken for the mails received and dispatched. Form 2713's are made by each post office so that the pilot, by a glance, can ascertain that he has received from the mail messenger all of the mail dispatched from the post office. Since the inauguration of Helicopter service considerable exchange of inter-city air mail has developed.

12. OPERATIONS:

From the start, operations from a mechanical standpoint have been much better than expected.

In the first month of operation delays and interruptions were entirely due to weather - the majority being accounted for by restricted visibility during the early morning hours.



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12. OPERATIONS Continued:

In the past year there have been but few mechanical delays in comparison to the number of trips flown, the interruptions to service being mainly due to adverse weather, particularly early morning fogs. On one occasion a helicopter was forced to land on a down town parking lot due to extremely heavy rain while on another occasion a ship landed on the Good-year Rubber Co., lot, five miles from the airport because of dense evening fog. In the first instance, the trip completed flight when the rain slacked and in the second case a truck was dispatched to bring the mail to the AMF Los Angeles.

Following is a table showing performance record by months:

<u>Month:</u>	<u>Mail Carried</u> <u>Pounds</u>	<u>Revenue miles</u> <u>Flown</u>	<u>Trip Performance</u> <u>Per Cent completed</u>
October 1947	48,100	9,853	86:52
November	46,411	12,501	98:00
December	77,189	14,551	97:40
January 1948	54,772	15,195	85:00
February	65,210	16,509	98:30
March	77,773	20,039	99:58
April	76,455	18,395	95:29
May	155,672	26,530	97:66
June	176,344	26,441	96:87
July	191,199	26,032	96:99
August	*268,564	24,963	91:87
September	*272,981	26,465	88:88

TOTAL POUNDS CARRIED - 1,510,670

\* - Figures furnished by Los Angeles Airways, Inc., and includes weight of pouches.

13. The following comments of Mr. C. M. Belinn, President of the Los Angeles Airways, are included in this report because of their relation to the present and possible future operations:

"As you are aware, the Los Angeles Terminal Annex is located on our shuttle segment (S) and that we have completed approximately 5,000 landings and takeoffs under day and night operating conditions therefrom. This facility should by no means be considered adequate. We understand that the present roof top is to ultimately become the floor for a subsequent additional story which also accounts for the fact that we have elevator shafts protruding above the mean altitude of the building itself. In fact, other than providing a reasonably free flat surface, there is little to justify it as a heliport.

"At the present time all of the helicopters employed in our operation are adaptations and modifications of the war time Model R-5 and while they can be considered sturdy and reliable, the fact that their design dates back quite some time would indicate that in the not too distant future a new design may be anticipated, incorporating larger load carrying capacity at higher speeds at consequent less cost. It is for this reason

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that we invite your attention to the following: The airline distance from Los Angeles Airport to the Terminal Annex is exactly 12 miles. In view of the fact that we are now utilizing single engine aircraft, it is necessary for our flight track to detour the built-up area of Los Angeles with the result that we actually fly 18 miles in order to service this route. This is accomplished in 12 minutes with ease.

"We have reason to believe that some time in 1951 twin engine helicopters of approximately 10,000 pounds gross weight will be available, possessing the facility to operate on one engine inoperative with a cruising speed of 120 miles per hour. Based upon this, it would appear that we will be authorized a straight line flight track of 12 miles. This coupled with the added speed of the helicopter will result in a flying schedule of 6 minutes' duration between this airport and the Terminal Annex.

"At the present time even under the best conditions, it requires approximately 5 minutes to unload and load our helicopters. While this is not intended to discredit either procedure or personnel, it would indicate that the loading and unloading time under future conditions will become highly disproportionate to the total flight time, particularly if effect also is given to the probable increased capacity of future helicopters which will undoubtedly average between 2,000 and 3,000 lbs. per flight on this particular segment.

"It is our considered opinion that as the speed and size of helicopters increase that the ton mile cost of their operation will decrease so as to compare favorably with that of any other type of vehicle. This coupled with the ever increasing air mail loads will result in virtually a helicopter conveyer system between the large airports and downtown centers. Based upon this, certain supporting facilities should be given consideration such as shelter for emergency maintenance equipment and provision for the storing of certain essential emergency supplies, such as fuel, radio navigation equipment, etc.

"It appears that metropolitan facilities such as these may become virtually a sub-terminal of the operation with the result that under the emergency or off schedule operations, aircraft may be perched over-night and for this reason tie down rings and other devices may be necessary.

"Already temporary navigation lights have been installed on the Los Angeles Terminal Annex with the understanding that a simple but more permanent installation is to be made at once.

#### "OTHER SEGMENTS OF ROUTE AM 84"

"We urgently recommend that as many as possible of the Federal Buildings on Segments A, B, and C be provided with landing platforms on their roof tops. The reasons are the same as are applicable to the Terminal Annex, namely

- "A. Greater safety,
- "B. Faster service,
- "C. Greater economy.

"The following points are extremely critical at this time; North Hollywood, San Pedro and Long Beach. Preliminary plans have already been submitted to the various government agencies which is described in previous correspondence.

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"It should be emphasized that a very simple structure on any of these buildings would serve our purpose adequately. Usually this represents only a flat combination steel and wood or wood exclusively platform approximately 60 feet square. This, of course, presumes that there are no buildings or obstructions in its immediate vicinity.

"You have already been advised that the second year of our operations commences October 1st, and that the principal subject of development during 1949 will be centered on automatic flight and navigation. The details of this project, of course, cannot be discussed formally at this time. It would appear, however, that a great amount of effort will be extended toward the perfection of a modified three-dimensional radar facility. It is reasonable to presume that the capital development costs of this together with any other items related thereto will be quite costly, but we are reasonably certain that the end product of all the projected developments in combination will result in extremely significant regularity, safe and economies at a later date.

"For obvious reasons, there has been no discussion in this communication concerning potential passenger and cargo traffic which is bound to result from the perfection of this helicopter service. The reliability and safety of the helicopter is virtually a proven fact. It is a result of one year's extremely vigorous operation over route AM 84. It is the product of over 40,000 precision landings and take offs on roof tops, miniature heliports, airports and other miscellaneous facilities carrying over 1,750,000 pounds of mail and parcel post in its first year. It does establish the necessity for larger and more spacious helicopters capable of transporting mail, passengers, and cargo in combination.

"A year ago this achievement appeared to be possible only in the remote future. Today it is certain of attainment within a relatively short period of time. Route AM 84 has an immense, compact traffic potential. Five million inhabitants stand ready to be served over its 300 route miles connecting with 204 flight movements daily at the Los Angeles Airport. A very slight penetration of this potential will produce the economic self-sufficiency of the route. It is for this reason that immediate consideration should be given to facilities for passengers as well as mail in connection with the federal roof top improvements. Such action could well translate into reality this company's concerted drive to render service on a purely compensatory basis."

In a speech at Los Angeles, Calif., on October 1, 1948, Mr. Igor Sikorsky stated that within five years there would be helicopters capable of carrying twenty passengers and within ten years helicopters of fifty-passenger capacity would be available.

#### 14. COOPERATION:

The fine cooperative spirit shown by the C.A.A., has loomed large in the accomplishment of good and safe performance. They have allowed the helicopter to operate with a ceiling of five hundred feet and with visibility of one-half mile. Because of the helicopter's ability to proceed slowly, hover or back up, these limitations are considered safe. The C.A.A. Regional Office continues to watch this operation closely with a view to making any needed or justifiable revisions in practice.

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14. COPPERATION Continued:

Municipal officials of the cities served, Postmasters, mail messengers, AMF Clerks and others concerned have all helped by their co-operation to make this new and unique operation function smoothly.

15. COMMENT:

To date forty-four cities are being served direct and 131 satellite offices are receiving equal benefits from this air mail service.

The cities served direct, exclusive of Los Angeles, which claims three million, have a combined population of 1,500,000. Satellite offices would increase this figure. (Original plans called for the supply of 26 offices direct. AM 84 is presently serving 44 offices direct.)

Due to careful laying out of flight tracks there have been practically no complaints of noise or nuisance against the helicopters. Anticipated trouble from this source has not materialized.

There have, so far, been no accidents, injuries or damage to mails reported.

There has been an average of two mechanical delays per month that were in excess of ten minutes' duration.

The bulk of the 1,510,617 pounds of air mails transported were advanced in delivery from four to nineteen hours. Field transfers have been set up so that incoming mails from transcontinental trips will make carrier delivery in downtown Los Angeles. Also field transfers from the Terminal Annex, Los Angeles, for east and northbound trips have been set up for the purpose of making direct connection and thus affording a later close-out and corresponding advancement of a considerable quantity of air mails.

Aside from a considerable number of cancellations account early morning fogs during the months of July, August and September, air mail service by helicopter on AM 84 has been satisfactory.

Very truly yours,



E. S. Ransom,  
Acting Superintendent.



*Milner*

*Will  
M. J.*

PRELIMINARY SCHEDULE

A M 84 LOS ANGELES AIRWAYS, Inc. Route A (Helicopter)

<u>1 j</u>	<u>October 1, 1947</u>	<u>2 j</u>
0630 a	Lv. L. A. Airport	0108 p
0640 a	(Pasadena)	<u>1257 p</u>
	(South Pasadena)	
0644 a	Alhambra	1253 p
0653 a	Monrovia	1244 p
0710 a	Glendale	1227 p
0715 a	Burbank	1222 p
0720 a	North Hollywood	1217 p
0726 a	Van Nuys	1211 p
0739 a	Santa Monica	1158 a
0747 a	Arr. L. A. Airport	1150 a

A M 84 LOS ANGELES AIRWAYS, Inc. Route B (Helicopter)

<u>22 j</u>	<u>20 j</u>	<u>October 16, 1947</u>
1120 a	0620 a	Lv. L. A. Airport
1130 a	0630 a	Lynwood
1139 a	0639 a	Whittier
1145 a	0645 a	Montebello
1150 a	0650 a	El Monte
1206 p	0706 a	Pomona
1214 p	0714 a	Ontario
1228 p	0728 a	Arr. Riverside
1238 p	0738 a	Lv. Riverside
1251 p	0751 a	Corona
0109 p	0809 a	Fullerton
0123 p	0823 a	Lynwood
0133 p	0833 a	Arr. L.A. Airport

A M 84 LOS ANGELES AIRWAYS, Inc. Shuttle Route (Helicopter)

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211 b 209 b 207 b 205 b 203 b 201 b 202 b 204 b 206 b 208 b 210 b 212 b

Lv. 0131p 1205p 1120a 0820a 0730a 0640a Airport 0718a 0808a 0858a 1158a 1243p 0209p Ar  
 Ar. 0145p 1219p 1134a 0834a 0744a 0654a T. Annex 0704a 0754a 0844a 1144a 1229p 0155p Lv

b - Daily except Sunday  
 j - Daily except Sunday and holidays.