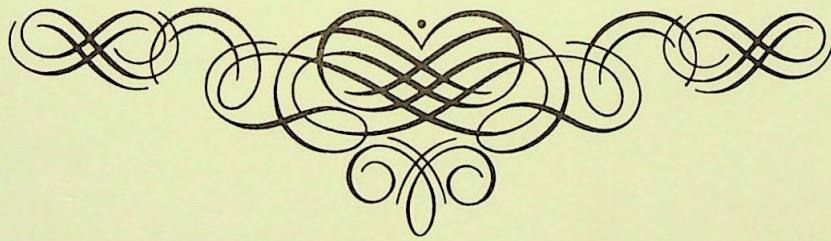


**HISTORICAL RECORD**  
of the  
**ROCKWELL POLAR FLIGHT**

November 14 to 17, 1965



**First Around-the-World Flight Over  
the North and South Poles**

## Participants in The Rockwell Polar Flight

### Crew Members

Capt. Fred L. Austin, Co-commander, Pilot, TWA  
Capt. Harrison Finch, Co-commander, Pilot, TWA  
Jack L. Martin, Pilot in Command, Flying Tiger Line, Inc.  
Capt. Robert N. Buck, Pilot, TWA  
Capt. James R. Gannett, Pilot, Boeing Aircraft Company  
Eugene Olson, Flight Engineer, Flying Tiger Line, Inc.  
Dino G. Valazza, Flight Engineer, TWA  
James M. Jones, Flight Engineer, TWA  
E. A. Hickman, Navigator, Flying Tiger Line, Inc.  
John Larsen, Navigator, Weems Corporation  
Loren E. DeGroot, Navigator, Lear Siegler, Inc.  
John DeMuth, Radio Operator, Collins Radio Corporation  
Goodwin Lyon, Communications, Geo-Atmos  
Explorations, Inc.

### Scientists

Dr. Serge A. Korff, New York University, Director of  
Scientific Program  
Capt. N. A. Lieurance, USN (Ret.), Environmental  
Science Services Administration  
William Sandie, New York University  
Dr. David Bjorndahl, Litton Industries, Inc.  
Peter Mesquita, Litton Industries, Inc.  
James Furuya, Litton Industries, Inc.  
Dr. Donald Goedeke, Douglas Aircraft Company  
Walter B. Gartner, Serendipity, Inc.  
William King, NASA  
The Reverend Anderson Bakewell, S.J., Holy Trinity Church,  
The Explorers Club

### Official Observers

Col. Bernt Balchen, General Precision Company (pioneer  
polar flyer)  
John DuBois, The Explorers Club  
Bart Locanthi, National Aeronautic Association Timer  
Dr. Randolph Lovelace, Lovelace Clinic (deceased)  
M. B. McKinney, Vice President, Union Bank  
Robert W. Prescott, President, Flying Tiger Line, Inc.  
Col. W. F. Rockwell, Chairman of the Boards,  
Rockwell-Standard Corporation and Rockwell  
Manufacturing Company  
Edward J. Williams, Vice President, Rockwell-Standard  
Corporation  
Earl D. Johnson, Aviation Advisory Board,  
Rockwell-Standard Corporation  
William J. Schulte, International AeroClassic  
Edward C. Sweeney, President, NAA & The Explorers Club

### Historians

Lowell Thomas, Jr., The Explorers Club (radio broadcasts)  
Clete Roberts, Geo-Atmos Explorations, Inc. (photography)  
Joseph Longo, Geo-Atmos Explorations, Inc. (photography)  
Wayne Parrish, Publisher, American Aviation Publications  
Donald Moser, *Life* magazine  
J. R. Eyerman, *Life* magazine



Co-commanders Captain Fred L. Austin (left) and Captain Harrison Finch (right) discuss plans for the Rockwell Polar Flight with Colonel Willard F. Rockwell.

# THE ROCKWELL POLAR FLIGHT

by Colonel Willard F. Rockwell

On November 14, 1965, 40 crew members and passengers took off from Honolulu, Hawaii, on a trip which took 62 hours and 27 minutes, with 51 hours and 27 minutes actual flying time. This is an account of the activities on the flight written by Colonel Willard F. Rockwell. Colonel Rockwell is presently chairman of the boards of Rockwell-Standard Corporation and of Rockwell Manufacturing Company, both headquartered in Pittsburgh, Pa.

For his help in developing standard mobile equipment for the Army during World War I, he won the rank of lieutenant colonel in the Army Reserve. During World War II, he was a member of the Executive Committee of the Army and Navy Munitions Board. As director of production of the U. S. Maritime Commission, Colonel Rockwell directed America's record-breaking war-time merchant shipbuilding program.

Today he is deeply involved in the aviation industry through his company's Aero Commander division. On the land, or sea, or in the air, the Colonel has been a leader in transportation for more than half a century.

It was a very gratifying experience to participate in an adventure which was a historic feat and a scientific accomplishment. The around-the-world flight sponsored by Rockwell-Standard Corporation was the first to circle the globe over both Poles. The 26,203-mile voyage established eight speed records and made it possible to collect a substantial amount

of scientific information.

Many of the findings will be of significant value not only to aviation. Studies of the weather should prove beneficial to many fields. Technical experiments with a laser ranger and with radio communications equipment should bring additional reassurance to military commanders assigned similar equipment. Demonstrations of the practicability of three-dimensional celestial positioning may add another technique to the many now employed by astronauts.

Rockwell-Standard's sponsorship of the flight had more basis than merely to participate in what Lowell Thomas had called "The Last Great Adventure of the Air." Our primary purpose was scientific. We wanted to fly a highly instrumented scientific package around the world over both Poles in a short period of time at a relatively constant altitude.

In recent years, Rockwell-Standard has become strongly involved in the aviation field as a manufacturer of business and utility aircraft. Today we are marketing a complete line of Aero Commander aircraft ranging from a business jet to a single-engine plane.

The plane selected for the Rockwell Polar Flight, however, was a new long-range intercontinental model of a Boeing 707 leased from the Flying Tiger Line. A recently designed auxiliary fuel system permitted the aircraft to increase its range to more than 7,000 miles. It consisted of a 4,000-gallon collapsible fuel tank system installed in the 707's forward cabin. Developed by Air Logistics Corp. of Pasadena, Calif., for the United States Army, the collapsible fuel tanks featured unique surge-arresting and tie-down mechanisms and, as the tanks

emptied, they were rolled up and stowed away. This was the first use of the tanks on a normal configuration transport.

The Rockwell Polar Flight afforded the scientists on board the opportunity to conduct many scientific studies with particular emphasis on cosmic ray absorption and high altitude meteorology, including clear air turbulence. In addition, important technical studies were conducted, including the testing of an inertial navigation guidance system never before used over both Poles, and the testing at the Poles of 400-watt radio transceivers. This equipment is in wide use but had never before been tested over the Poles.

Certainly, one of the clearest demonstrations of the flight was that it proved it is possible to fly an aircraft, taken from the air transport inventory, anywhere in the world. The flight illustrated that today's navigational equipment and techniques are adequate to achieve that objective.

A flight around the world over both Poles was not a new idea. For years pioneers of the air have been intrigued by it. However, because of the limited ability of airplanes up to this time to fly the vast distances required, the flight had always remained a dream. The introduction of long range jet airplanes and the recent development of the unique auxiliary fuel system made this flight possible.

Two veteran TWA pilots, Fred L. Austin and Harrison Finch, initiated the project and, with the help of The Explorers Club, brought it to reality. They planned the flight and the flight schedule, made the fuel studies, obtained clearances, participated in the aircraft

modification studies and arranged for world-wide weather data collection.

The route of our flight was designed to follow as nearly as possible the zero and 180 degree meridians. The plane was to make four stops for fuel at Hawaii, London, Buenos Aires and Christchurch. Actually, we made another stop at Lisbon because of a fueling problem in London. While not all of the designated landing places were directly on the zero or 180 degree meridians, they were as close as practical and the flight approximated the desired trajectory. For example, because Honolulu, Hawaii, is at about 157 degrees longitude, a flight straight north, followed by a turn of 23 degrees at the North Pole, would bring the flight down the zero meridian to London. A flight north along the 180 degree meridian was deemed not practical because this would have crossed a part of Siberia.

Before we departed on our world-girdling flight, Major General Joseph D. Caldara, USAF (Retired), president of the Flight Safety Foundation, Inc., told us his organization recognized "the tremendous potential value of the scientific program which comprises an important part of the Rockwell Polar Flight." He said by increasing man's knowledge of the earth and its atmosphere, the flight offered a significant contribution to the safety of flight and promised to make flying safer for everyone.

Charles H. Ruby, president of the Air Line Pilots Association, said that the flight should be highly beneficial to the aviation industry in providing opportunity to evaluate new equipment and to collect data which will aid in high altitude weather forecasting.

Studies on the flight by the Environmental Science Services Administration of the U. S. Department of Commerce (of which the Weather Bureau and the Coast and Geodetic Survey are a part) and by Douglas Aircraft Company's missile and space systems division are of particular interest.

Still and motion pictures were taken of cloud formations, and Douglas obtained pictures of the same formations with a time-lapse camera. The purpose of this was to obtain first-hand knowledge of cloud tops and types as a check on the interpretation of the photographs taken by the TIROS X weather satellite. N. A. Lieurance, director of aviation affairs of ESSA, who made the flight, tells me it will be particularly interesting to compare the cloud tops as observed from the aircraft with the cloud tops indicated by the TIROS photographs.

A. Donald Goedeke, chief scientist for the space sciences department at Douglas, who also made the trip, reports that his vertical and oblique 16mm and 35mm pictures taken during the daylight portions of the flight covered much of the Southern Hemisphere rarely flown over or photographed.

The purpose was to obtain data for meteorological and space applications. The pictures are being analyzed with concurrent radiation data, taken by NASA, for albedo variations due to water, earth, ice, and cloud surfaces. The photographs will further improve capability to interpret clouds from a weather satellite's telemetered data alone or from a manned orbiting laboratory. It is hoped this may result in an ability to provide more efficient weather data for pilots on extended flights.

ESSA also collected air samples at various altitudes for measurement of carbon dioxide content. This may indicate whether the atmospheric heat level in populated areas is increasing, as many scientists believe it is. ESSA also measured the content of atmosphere's ozone, which has a destructive effect on organic material at high altitudes. These studies will aid in designing future transport aircraft and rockets so that both passengers and equipment will be protected from ozone's destructive effects, according to Mr. Lieurance.

These were typical of the scientific experiments aboard. Technical demonstrations also proved interesting. A laser ranger used on the flight demonstrated its practicability and efficiency over every conceivable terrain, according to Dr. David Bjorndahl of Litton Industries, who also was aboard. The pulse laser already had been tested by Litton over the Los Angeles area, he said, but it had not proved itself at the extreme altitudes of this flight nor over the varying terrains encountered.

Throughout the flight the signal return was strong and the altitude measurements were extremely accurate. The laser ranger's most practical uses, Dr. Bjorndahl reports, is in photogrammetry and as a ranging device for military purposes. Because it operates in the radiation spectrum, it has limited use as a commercial altimeter.

In capsule form, here are some of the other activities aboard the Rockwell Polar Flight:

- Recording of winds, temperatures and weather to be compared with forecasts given the crew from world weather reporting system.

- Recording of temperatures of the free air to be compared with temperatures for the same altitude reported by United States upper-air stations using standard radiosonde instruments.

- Measurement of cosmic and solar radiation, including measurement of infrared emanating from cloud formations, in the hope this can contribute to identify clouds and weather conditions around the world from telemetered satellite data.

- Recording of the amount of cosmic radiation on the outside of the plane and on a simulated plastic man inside the plane in an effort to learn more about radiation and environment that passengers and crews of future supersonic jets will experience. This was the first time a cosmic ray meter was flown from Pole to Pole.

- Proving the ability of an inertial navigation system to commercial navigators to provide continuous position, ground speed, drift angle, range, etc., as well as demonstrating its capability in global navigation.

- Demonstration of the practicability of three-dimensional celestial positioning, a technique specifically designed for use in near planet orbital vehicles to provide astronauts with an autonomous navigation capability using only a horizon sextant, a watch and a miniature computer.

- Experimentation in high frequency radio propagation measurement techniques.

- Demonstration of the practical effectiveness of high frequency voice inter-continental communications.

These studies were carried on by various companies and organizations. In addition to ESSA, Douglas and Litton,

mentioned earlier, we had representatives of Lear Siegler, Collins Radio, NASA, New York University, Serendipity Associates, The Explorers Club and reporters for American Aviation Publications and *Life* magazine. Other than myself, there were 10 observers from various walks of life. Total number aboard was 40.

Many of the results of the experiments and tests conducted during the flight will not be known for some time. For example, air samples collected during the flight still are being analyzed as far away as Stockholm, Sweden.

Someone has said the flight combined modern adventure with scientific exploration. This is certainly true. But it also brought into focus the fact that the world is ever shrinking. Therefore, we found it fitting to say in a radio message to President Johnson from over Antarctic: "In conformance with the policy of our Nation, which you have so vigorously pursued, we have asked Father Anderson Bakewell, a member of our expedition, to say a brief prayer as we pass over the South Pole, asking for Divine Guidance in obtaining world peace. This would be in keeping with the Antarctic Treaty which established the requisite for scientific exploration for the benefit of the world community of nations."

The flight was more than the demonstration of scientific or technical skills. It truly was a historic journey. And as such, certainly we should list the eight speed records which we claimed for the United States.

The speed records claimed for the United States by virtue of the flight are:

1. Around-the-world over both Poles — 62 hours, 27 minutes, 35 seconds; dis-

tance 26,230 stat. miles; speed 415 m.p.h. (Time in flight was 51 hours, 27 minutes.)

2. Honolulu to London over North Pole — 13 hours, 54 minutes; distance 7,413 stat. miles; speed 520 m.p.h.

3. London to Buenos Aires, Argentina — 16 hours, 41 minutes (including ground time at Lisbon); distance 6,928 stat. miles; speed 416 m.p.h.

4. London to Lisbon — 2 hours, 19 minutes; distance 958 stat. miles; speed 414 m.p.h.

5. Lisbon to Buenos Aires — 11 hours, 56 minutes; distance 5,957 stat. miles; speed 497 m.p.h.

6. Buenos Aires to Christchurch, New Zealand, over South Pole — 14 hours, 17 minutes; distance 7,035 stat. miles; speed 431 m.p.h. (Speed computed over direct great circle distance — not by way of South Pole check point.)

7. Christchurch to Honolulu — 9 hours, 1 minute; distance 4,861 stat. miles; speed 539 m.p.h.

8. Speed between Poles — North Pole to South Pole — 34 hours, 46 minutes; speed 357 m.p.h.

But the speed records are not the only memorable part of our flight. None of us will forget the adventure of this flight and its many experiences. I will especially remember our passage over the South Pole and the men of the U. S. Operation Deep Freeze at McMurdo Sound, standing outside in the 36-below zero weather, waving to our plane.

It was a historic journey, the first flight over both Poles and one of the last great accomplishments in man's record of earth flight. It was a privilege to take part in it, and it is a source of great satisfaction to know that it will contribute to our knowledge of things vital to aviation.



Boeing 707-349C flown on the Rockwell Polar Flight.

*Description of Aircraft*

Length.....	145' 6"	Width.....	145' 9"
Height.....	42' 6"	Tail Span.....	45' 9"
Fuselage.....	12' 4" wide	Wheel Span.....	22' 1"
Maximum Taxi Weight.....	336,000 lbs.		
Maximum Take-off Weight.....	332,000 lbs.		
Maximum Landing Weight.....	247,000 lbs.		
Empty Weight (N322F) stripped.....	129,920 lbs.		
Engine Thrust (4 Pratt Whitney JT3D)....	18,000 lbs. per engine		
Fuel Capacity.....	185,828 lbs.		
Supplemental cabin fuel (N322F — two 2000 gallon tanks).....	26,800 lbs.		



The Boeing 707-349C about to begin the Rockwell Polar Flight from Palm Springs, Calif.

FEDERAL AVIATION AGENCY

FORM APPROVED  
BUDGET BUREAU NO. 04 R102SPECIAL  
APPLICATION AND AUTHORIZATION FOR ~~PERMIT~~ PERMIT

## 1. APPLICATION

INSTRUCTIONS: Submit in duplicate to authorized Federal Aviation Agency representative or designated manufacturing inspection representative.

## DESCRIPTION OF AIRCRAFT

REGISTERED IN NAME OF  THE FLYING TIGER LINE INC.	ADDRESS Lockheed Air Terminal Burbank, California
MAKE BOEING	MODEL 707-349C
MANUFACTURER'S SERIAL NO. 18975	IDENTIFICATION MARK N 322F

## DESCRIPTION OF FLIGHT

FROM Burbank, California	TO Burbank, California
VIA Palm Springs, Calif., Honolulu, Hawaii, London, England, Buenos Aires, Argentina	DATE 14-17-65
PURPOSE Christchurch, New Zealand, Honolulu.	DURATION 3 days

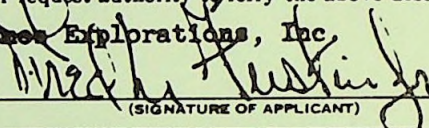
(See attached Exhibit "A")

operate

I HEREBY request authority to ~~operate~~ operate the above-described aircraft for the flight specified.

GeoAtmos Explorations, Inc.

By:



(SIGNATURE OF APPLICANT)

Vice President

(TITLE)

11-12-65

(DATE)

## 2. AUTHORIZATION

INSTRUCTIONS: Retain this authorization in aircraft for duration of flight. This is your authority to conduct the flight requested above. This permit is valid until landing is effected at the destination indicated in your request, provided the aircraft is flown by a properly certified crew, is operated in accordance with applicable Civil Air Regulations, and in accordance with the following special limitations:

- When the temporary installations described on the attached Form FAA 337 dated Nov. 13, 1965 is incorporated, this aircraft does not comply fully with the International Airworthiness Standards of ICAO, Annex 8, Part II. This permit does not authorize those portions of any flight which may be over foreign countries. Permission must be obtained from foreign countries to conduct flights over their territories.
- Persons or property shall not be carried for compensation or hire.
- Occupancy of this aircraft is restricted to persons essential to the purpose of the flight.
- Smoking is prohibited within the cabin fuel compartment.
- If fuel fumes are detected smoking is prohibited within the cabin area, all electrical equipment in the cabin subject to arcing shall be deactivated.
- All flights shall be conducted to avoid areas having heavy air traffic and, when operating in the vicinity of cities, towns, villages and congested areas, conducted in such a manner that the aircraft will not create hazardous exposure to persons

## REMARKS:

OVERNote: This permit authorizes shake-down flight Burbank. DATE ISSUED  
11/13/65

SIGNATURE OF FAA REPRESENTATIVE

G.L. Lincoln



DESIGNEE NO.

WE-AEDO-43

## EXHIBIT "A" (facsimile of original document)

The Applicant is Geo-Atmos Explorations, Inc., a California Corporation, incorporated December 2, 1964. The officers of Applicant are Harrison Finch, President; Fred L. Austin, Jr., Vice President and Treasurer; David G. Saunders, Secretary. The officers are stockholders and Directors.

The primary purpose of the Applicant corporation is to engage in planning and conducting expeditions by aircraft to make scientific observations and evaluations in various fields, including meteorology, radiation, air turbulence, navigation, communications and others.

Messrs. Finch and Austin are active Senior Pilots with Trans World Airlines, having been with TWA for 23 and 26 years respectively. Mr. Saunders is an attorney and acts as corporate counsel for Applicant.

Early in 1964 the idea of a flight circumnavigating the earth and crossing over both North and South Poles was mentioned to Captains Finch and Austin. They set about to evaluate the desirability, possibility, practicability, usefulness, and other factors involved in such a trip.

They were advised by qualified scientists that such a flight could contribute substantially to the scientific community in many areas; and they resolved to crystalize plans for such a flight, which has now been done.

Rockwell-Standard Corporation, of Pittsburgh, Pennsylvania, has agreed to be the financial sponsor of what is to be known as the Rockwell Polar Flight. Rockwell will not be involved with the means or method of conducting the flight, all of which will be controlled by Geo-Atmos. Lease arrangements have been made by Applicant with The Flying Tiger Line, Inc.

The Flight Crew has been assembled. Pilot in Command will be Jack L. Martin, on temporary leave as System Chief Pilot of the Flying Tiger Line, Inc., and designated by Applicant as Pilot in Command. Other pilots will be Captains Harrison Finch, Fred L. Austin, Jr., and Robert N. Buck, all TWA senior pilots who are Type Rated and experienced in Boeing 707 Series Aircraft.

Flight Engineers will be D. Valazza and James Jones, both flight engineers with TWA, and Eugene D. Olson, Check Flight Engineer with FTL, all three experienced and qualified on Boeing 707 Series Aircraft.

Navigators will be John Larsen, (Weems Navigation Service), L. DeGroot, U.S.N. Ret. (Lear Siegler Corp.), and Col. Bernt Balchen, U.S.A.F. Ret.

Communications will be handled by J. DeMuth of Collins Radio Corporation.

Other participants in the flight to assist in carrying out various scientific purposes as indicated and who, for purposes of this application, will serve as crew members are:

G. Lyon	Clearance Procedures
Dr. Serge A. Korff	Cosmic Ray Research
William Sandie (New York University)	Cosmic Ray Research
Dr. Newton A. Lieurance (Capt. U.S.N., Ret.)	U.S. Weather Bureau
Dr. David Bjorndahl	(Litton Systems)
Peter Mesquita	Inertial Navigation
James Furuya	Systems and Lazer Altimeters
M. B. McKinney	Flight Coordinator
Dr. Lowell Thomas	Recorder, Editor and Compiler of Scientific and Historical Events
Col. W. F. Rockwell	Industrial R. & D.
E. J. Williams	Industrial R. & D.
John E. DuBois	N.A.A. Timing Official
Dr. Edward C. Sweeney	N.A.A. Timing Official
The Reverend Anderson Bakewell	Arctic Survival
Wayne Parrish	Recorder

## continuation of Exhibit "A"

The purpose of this flight is twofold — first, to collect certain scientific data and, second, to establish various aviation records for the United States. As stated above, it is intended to fly around the world over both Poles at a track approximating 0-180° meridians, thereby collecting scientific data relating to cosmic radiation, measurement of the usual meteorological variables, the taking of air samples and measuring of the temperature, pressure, humidity, wind direction and velocity. In addition, a very important feature of the flight insofar as the United States Weather Bureau is concerned will be the taking of photographs at approximately 5-minute intervals while at cruising altitude 35,000 to 40,000 M.S.L. of the meteorological conditions along the route of flight which will later be used to verify the readouts and analyses which the Weather Bureau is making of the weather through photographs received from the Satellite Tiros X. The flight will also enable the practical testing, under actual flight conditions, of certain technical devices being developed to assist in navigation, namely, inertial guidance systems, syncom receiving units, center of gravity accelerometers, laser altimeters, scientific measurements of clear air turbulence, and various other devices of similar nature.

The Rockwell-Standard Corporation and other contributors are providing the financial support for the flight. The other participants in the flight, such as Litton, Collins Radio, Explorers Club, U.S. Weather Bureau, etc., are being permitted to engage in the scientific aspects of the flight without any compensation to the Applicant. No compensation will be paid to the flight crew members. In fact, this flight is being conducted by the Applicant without any promise, assurance or expectation of financial award and in no way can be considered as being for compensation or hire. Obviously, in a record setting flight of this nature, certain publicity and possible resulting financial gain may be attained to the sponsors or the participants.

The Applicant shall require full disclosure consistent with the requirements of national security of all scientific data, reports or documents relating to the information gathered in preparation for or in the course of the flight by all participants, including crew members, technicians and all persons aboard the aircraft, and such dissemination shall be to the public at large.

Arrangements have been made to obtain the necessary clearance to fly over and land in the foreign countries indicated enroute. While within the United States, the operation will be conducted in accordance with Part 91 of the Federal Aviation Regulations and, while over the high seas, it will be conducted in accordance with Annex II (Rules of the Air) to the Convention on International Civil Aviation.

Arrangements have been made in coordination with The Flying Tiger Line, Inc. for the providing of aircraft maintenance at the fueling stops while enroute utilizing such organizations as Pan American, Trans World Airlines and Quantas. Engineering assistance and backup has been and will be provided during the flight by Boeing Aircraft and Pratt & Whitney. Appropriate arrangements have been made for both liability and hull insurance.

At all times, the operational control of the flight and its participants will be under Geo-Atmos Exploration, Inc.




Some of the crew members are shown here. They are (left to right): Captain James R. Gannett, pilot; Loren DeGroot, navigator; Captain Harrison Finch, co-commander; Captain Robert N. Buck, pilot; Captain Fred L. Austin, co-commander; Dino G. Valazza, James M. Jones and Eugene Olson, flight engineers; John Larsen, navigator; Jack L. Martin, pilot in command; and E. A. Hickman, navigator.



Official photograph of crew members taken in Honolulu.

(ORIGINAL DOCUMENT)

ENGINEER - CAS	<i>[Signature]</i>	 <h1>ENGINEERING ORDER</h1> <p>THE FLYING TIGER LINE INC.</p>	NO. <u>13-00-101</u>
MGR.-ENGR. & QUAL. CONT. DER LA-275	<i>[Signature]</i>		ISSUE NO. <u>    </u>
V. P. - MAINT & ENGR.			SUPPLEMENT <u>    </u>
V. P. - OPERATIONS			IMMEDIATE COMPLIANCE <input checked="" type="checkbox"/>
DIRECTOR OF FLIGHT OPS.			NEXT NUMBERED OPERATION <input type="checkbox"/>
MGR.-MATERIAL CONTROL			AS REQUIRED BY CONDITION <input type="checkbox"/>
SUPV.-QUALITY CONTROL			CONVENIENCE <input type="checkbox"/>
	<i>[Signature]</i>	OVERHAUL <input type="checkbox"/>	
TITLE		MODIFICATIONS TO N322F TO ACCOMODATE THE "ROUND THE WORLD" FLIGHT	
AIRCRAFT AFFECTED	DESCRIPTION OF CHANGE		
N322F BOEING 707-349C	THE AIRCRAFT, N322F, WILL BE MODIFIED TO ACCOMMODATE ALL THE SPECIAL EQUIPMENT WHICH WILL BE INSTALLED FOR THE "ROUND THE WORLD" FLIGHT.		
	<u>REASON FOR CHANGE</u>		
	TO PROVIDE EXTRA FUEL AND INSTALL EQUIPMENT PECULIAR TO THE FLIGHT.		
	<u>REFERENCES AND/OR DRAWINGS REQUIRED</u>		
	BOEING SKETCH LOFS-349 AIR LOGISTICS DRAWING 113451 FTL DRAWING 11-00-101 FTL DRAWING 11-00-102 FTL SCHEMATIC 24-00-101 FTL SCHEMATIC 24-00-102		
	<u>PARTS AND/OR MATERIALS REQUIRED</u>		
	AS REQUIRED FOR EACH INDIVIDUAL SYSTEM.		
	<u>PUBLICATIONS AFFECTED</u>		
PARTS AFFECTED	NONE		
	<u>EFFECT ON WEIGHT AND BALANCE</u>		
	ADDS 7,578 LBS. AND 6,096,053 INCH LBS. OF MOMENT		
	<u>MAN-HOURS REQUIRED</u>		
	TO BE ACCUMULATED LATER.		
	<u>RE-IDENTIFICATION REQUIRED</u>		
	NONE		
	<u>INSTRUCTIONS</u>		
	INSTALL THE FOLLOWING SYSTEMS AS PER THE NOTED DATA:		
	1. INSTALL THE FUEL CELLS, SUMP PAN AND ASSOCIATED PLUMBING PER BOEING SKETCH LOFS-349 AND AIR LOGISTICS DRAWING 113451.		
DATE	<u>11/12/65</u>	CHAPTER 13	PAGE <u>1</u> OF <u>2</u>
REVISED	<u>    </u>	STANDARD PRACTICES	

# ENGINEERING ORDER

THE FLYING TIGER LINE INC.

NO. 13-00-101

ISSUE NO. \_\_\_\_\_

SUPPLEMENT \_\_\_\_\_

## INSTRUCTIONS (CONT'D)

2. INSTALL LITTON INERTIAL GUIDANCE SYSTEM.
3. INSTALL COLLINS H. F. RADIO SYSTEM.
4. INSTALL EDO LORAN "C" SYSTEM.
5. INSTALL 2 EACH TIME LAPSE CAMERAS.
6. INSTALL A NASA RADIOMETER.
7. INSTALL A LASER ALTIMETER.
8. INSTALL NEW YORK UNIVERSITY EQUIPMENT ON SHELF IN AFT R.H. PORTION OF MAIN CABIN.
9. INSTALL NEW YORK UNIVERSITY EQUIPMENT ON TABLE IN AFT R.H. PORTION OF THE MAIN CABIN.
10. INSTALL THE CO<sub>2</sub> SAMPLER FOR THE U.S. WEATHER BUREAU ON THE AFT SIDE OF THE CABIN DIVIDER F.S. 1163.
11. INSTALL SIX EACH BUNKS IN THE FORWARD CABIN FOR CREW REST.
12. INSTALL 24 EACH PASSENGER SEATS IN AFT END OF THE MAIN CABIN.
13. INSTALL 1 EACH 25 MAN LIFE RAFT IN THE FWD AND AFT ENDS OF THE MAIN CABIN.
14. INSTALL 10 EACH WALKAROUND O<sub>2</sub> BOTTLES.
15. INSTALL 1 EACH EA-A20D ANSUL FIRE EXTINGUISHER.
16. INSTALL THE OVERHEAD RACKS AND PSU'S FOR THE 24 PAX SEATS.
17. INSTALL THE NO. 3 GALLEY UNIT.
18. INSTALL 1 EACH CABIN DIVIDER FORE AND 1 EACH AFT OF THE FUEL COMPARTMENT.
19. INSTALL MISCELLANEOUS EQUIPMENT AS REQUIRED.
20. INSTALL FUELLING PROCEDURE INSTRUCTIONS AS PER FTL DRAWING 11-00-101, SHEETS 1 AND 2.  

NOTE: SHEET 1 WILL BE A PLACARD AND WILL BE INSTALLED ON THE FLIGHT ENGINEER'S TABLE. SHEET 2 IS ADDITIONAL INSTRUCTIONS AND COPIES WILL BE AVAILABLE AT FLIGHT ENGINEER'S STATION AND IN THE FUEL COMPARTMENT.
21. INSTALL ONE EACH PLACARD, P/N 11-00-102, ON THE CABIN DIVIDER ACCESS DOORS AT F.S. 560 AND 1163. THESE ARE TO BE ON BOTH SIDES OF THE DOORS.
22. INSTALL NASA DEVICES IN AFT L.H. SIDE OF MAIN CABIN.

DATE 11/12/65  
REVISED \_\_\_\_\_

CHAPTER 13  
STANDARD PRACTICES

PAGE 2 OF 2

(ORIGINAL DOCUMENT)

NATIONAL AERONAUTIC ASSOCIATION  
APPLICATION FOR SANCTION OF RECORD ATTEMPT

The information requested below must be completed in full and be signed by an authorized representative of the Sponsor of the Record Attempt:

APPLICANT -- Sponsor: Geo-Atmos Explorations Inc.  
Contact: Fred L. Austin Phone: 883-1428  
Address: 4848 Queen Victoria, Woodland Hills, Calif.

RECORD ----- Category: ( ) WORLD (X) World "Class" ( ) National  
Type: Speed Around the World & 5 records for Speed Over  
Recognized Courses. See attached list.  
Class: C-1, Group III (Jet) ( ) Feminine  
Proposed Date of Attempt: Nov. 11, 1965  
Location of Attempt, or Course: From Palm Springs, Calif. to  
HNL to LON to CNZ to HNL to Palm Springs, Calif.


AIRCRAFT --- Manufacturer: Boeing 707  
Type & Designation: 320-C  
Gross Weight (incl. fuel & crew): 330,000 #

ENGINES ----- Manufacturer: Pratt & Whitney  
Quantity & Designation: 4 - JT3  
Horsepower, or Thrust: 18,000# each

PILOT ----- Name: F. L. Austin - Harrison Finch  
Nationality: USA FAI License No: 427-65

I/We understand that the Sponsor listed above is responsible for all NAA expenses and fees connected with this record attempt, per the schedule attached, and hereby certify that this record attempt will be conducted in accordance with the regulations of the Federation Aeronautique Internationale and the National Aeronautic Association.

This space for NAA use only	
SANCTION PERIOD OF 90 DAYS	
STARTS:	<u>11 Nov. 1965</u>
ENDS:	<u>9 Feb. 1966</u>
SANCTION FEE:	<u>\$1000.00</u>
<u>M. J. Sandelman</u> <u>11/10/65</u> Approved By & Date	



Signed: Fred L. Austin  
Title: Director  
Date: 11/1/65

11/10/65  
Desired starting date of Sanction  
TO: NATIONAL AERONAUTIC ASSOCIATION  
1025 Connecticut Avenue, N. W.  
Washington 6, D. C.

APPLICATION FOR SANCTION OF RECORD ATTEMPT

Class C-1, Group III - Speed Around the World

Speed Over Recognized Courses

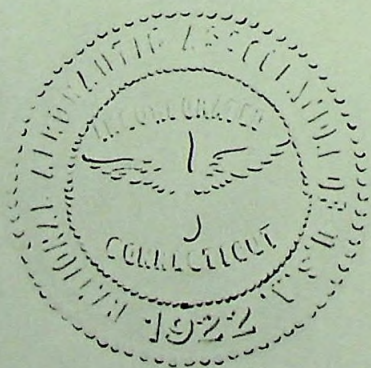
Honolulu/London

London/Buenos Aires

Buenos Aires/Christ Church

Christ Church/Honolulu

North Pole/South Pole



(ORIGINAL DOCUMENT)

PS-4600 (3)

GENERAL DECLARATION

~~Outward~~/Inward)

Owner or Operator: THE FLYING TIGER LINE, INC.

Marks of Nationality and Registration N322F USA Flight No. Special Polar Date November 14th 65

Departure from LISBOA - PORTUGAL Arrival at BUENOS AIRES ARGENTINA

(Place and Country) LISBOA - PORTUGAL BUENOS AIRES ARGENTINA

FLIGHT ROUTING

("Place" Column always to list origin, every en-route stop and destination)

Page 1 of 2

Table with columns: PLACE, TOTAL NUMBER OF CREW, NUMBER OF PASSENGERS ON THIS STAGE, CARGO. Includes crew details like Capt Martin, Jack. L. and flight stages like Departure Places, Embarking, Through on same flight, Arrival Place, Disembarking, Through on same flight.

Declaration of Health: Persons on board... suffering from illness other than airsickness or the effects of alcohol...

Entered: None. Customs Inspector: None. Any other conditions on board which may lead to the spread of disease: None.

BOARDING INSPECTOR CUSTOMS 17 NOV 1965 CHRISTCHURCH AIRPORT

Details of each disinsecting or sanitary treatment... Aircraft sprayed with aerosol bomb 30 minutes prior arrival.

Sgd., if required: Crew member concerned

ADMINISTRACION ADUANERA DIVISION ADUANERA EZEIZA BELLA CAPITAL

HONOLULU AIRPORT HONOLULU, HAWAII CLEARANCE GRANTED London, England Charles Bailey Customs Inspector

SAIDA PORT OFFICER REPORTED 15 NOV 1965 LONDON (HONOLULU AIRPORT) OCEANIC HONOLULU, MIDWAY

I declare that all statements and particulars contained in this General Declaration, and in any supplementary forms required to be presented with this General Declaration are complete, exact and true to the best of my knowledge and that all through passengers will continue/have continued on the flight.

SIGNATURE J. L. Martin Authorized Agent of the Command CAPT J. L. MARTIN

FLYING TIGER LINE, Inc. DATE November 14th 1965

OWNER OR OPERATOR

Page 2 of 2 Supplement to General Declaration.

AIRCRAFT N-- 322F U.S.A. FLIGHT NO Special Polar TRIP NO Special Polar  
(REGISTRATION MARKS AND NATIONALITY)

POINT OF EMBARKATION \_\_\_\_\_ POINT OF DISEMBARKATION \_\_\_\_\_

	SURNAME AND INITIALS	PAX	BAGS	BAGS	TOTAL	OWNER OR OPERATOR USE ONLY	OFFICIAL USE ONLY
		WEIGHT	CK'S	UNCK'S	WT. BAGS		
1	DeGroot, Loren.					Observer	USA 7997719
2	DeMuth, John.					Observer	USA 35746
3	Lyon, Goodwin.					Observer	USA E337642
4	Korff, Serge.					Observer	USA 358194
5	Sandie, William.					Observer	USA 7092009
6	Lieurance, N. A.					Observer	USA Y130151
7	Bjorndahl, David.					Observer	USA D586364
8	Mesquita, Peter.					Observer	USA 0136348
9	Furuya, James.					Observer	USA
10	Gartner, William.					Observer	USA F1000968
11	King, William.					Observer	USA Y36370
12	Lovelace, Randolph.					Observer	USA Y114536
13	Goedeke, Donald.					Observer	USA 7639768
14	Prescott, Robert.W.					Observer	USA C376631
15	Rockwell, Willard. F.					Observer	USA D675527
16	Thomas, Lowell, Jr.					Observer	USA F03x993
17	Williams, E. J.					Observer	USA E225391
18	DuBois, John.					Observer	USA E765690
19	Bakewell, Anderson.					Observer	USA 7979237
20	Balchen, Bernt.					Observer	USA E809443
21	Sweeney. E. C.					Observer	USA E 788256
22	Locanthi, Bart.					Observer	USA 581654
23	Johnson, Earl. D.					Observer	USA 0511949
24	McKinney, M. B.					Observer	USA C213786
25	Schulte, William.					Observer	USA F499159
26	Roberts, Clete.					Observer	USA 7016190
27	Longo, Joseph.					Observer	USA D156362
28	Moser, Donald.					Observer	USA 2413309
29	Eyerman, J. R.					Observer	USA B415729
30	Parrish, Wayne.					Observer	USA B000002
31							

ROCKWELL - STANDARD  
NEWS BUREAU 300 Sixth Ave., Pittsburgh, Pa. 15222

News about Airplanes • Axles • Brakes • Bumpers • Universal Joints • Floor Grating • Forgings  
Seating (Automotive) • Special Drives • Springs (All Types) • Lighting Standards and Brackets  
Transmissions • Filters and other products of ROCKWELL-STANDARD CORPORATION

For more information contact:

Release Date:

FACT SHEET ROCKWELL POLAR FLIGHT

**DEPARTURE:** Sunday, Nov. 14, 1965 - 12:00 Noon (PST), Palm Springs, Calif.

**MISSION:** To fly around the world over the North and South Poles, a flight never before attempted.

**PURPOSE:** Scientific exploration with particular emphasis on high-altitude meteorology, including clear air turbulence studies. Establish five world speed records -- fastest time from point-to-point, pole-to-pole and around the world.

**AIRCRAFT:** Boeing 707-320C, the newest intercontinental version, on lease from the Flying Tiger Line. Gross take-off weight: 330,000 lbs. Range: approx. 8,000 miles. Fuel capacity: 27,908 gals., including two special 2,000-gal. tanks installed in the forward cabin.

**CRUISING SPEED:** 560 MPH

**CRUISING ALTITUDE:** 30-32,000 feet; Over the poles - 40-41,000 feet.

**POWER:** Four Pratt & Whitney JT3D3B jet engines, each developing 18,000 lbs. of thrust.

**ITINERARY:** Palm Springs-Honolulu; Honolulu over the North Pole to London; London-Buenos Aires; Buenos Aires over the South Pole to Christchurch, N. Z.; Christchurch to Honolulu; Honolulu to Los Angeles.

For record purposes, official timing of the flight will be from Honolulu to Honolulu.

CAPTAINS ABOARD THE ROCKWELL POLAR FLIGHT

FRED AUSTIN, CO-COMMANDER, is a Captain with Trans World Airlines. He has been flying since 1932 and has over 17,000 hours flying time. He joined TWA in 1939 after flying for the Wrigley Company for two years. He has flown all of TWA's routes, both in domestic and international operations, and is currently flying transcontinental flights between Los Angeles, New York and Washington, D. C.

HARRISON FINCH, CO-COMMANDER, also a Captain with Trans World Airlines, joined TWA in 1941. He transferred to the International Division in 1950, flying routes in Europe, Africa and Asia. Finch has logged over 18,000 hours flying time and is currently flying TWA flights between New York, London and Frankfurt.

J. L. (JACK) MARTIN, PILOT IN COMMAND, is System Chief Pilot of the Flying Tiger Line. Martin, whose flying time exceeds 15,000 hours, spent three years on the faculty of the USC College of Aeronautics following World War II. He served as pilot operations manager of the Flying Tigers eastern division when the airline was the prime air contractor in the building of the famed DEW line early warning system in the Arctic.

ROBERT N. BUCK, PILOT, is an International Captain with TWA. Buck was the first pilot to perform concentrated thunder storm research for the United States. Because of his vast experience, Captain Buck serves as a member of the President's Supersonic Transport Committee, and frequently functions in an advisory capacity to the FAA.

JAMES R. GANNETT, PILOT, is Senior Engineering Test Pilot for The Boeing Company. Gannett has been flying for 22 years, the last 11 for Boeing. He was an instructor for the Air Force from 1943 to 1946, returned to the University of Michigan to get a Masters Degree in Aeronautics and in 1949 he returned to the Air Force as a flight captain in Korea. Gannett was a test pilot at Edwards Air Force Base until 1954, when he joined Boeing.



AIR LINE PILOTS ASSOCIATION  
55TH STREET & CICERO AVENUE  
CHICAGO, ILLINOIS 60638  
PORTSMOUTH 7-1400

AFFILIATED WITH A.F.L.-C.I.O.

INT'L -----

November 2, 1965

Mr. Fred Austin  
4848 Queen Victoria  
Woodland Hills, California

Dear Mr. Austin:

We have been informed of an aviation development project which you and your associate, Harrison Finch, are undertaking to investigate high altitude weather forecasting, turbulence problems, and the capability of flight instruments, navigation systems, radio and other related equipment. Your project involves a round-the-world flight from Honolulu across the Poles.

From the information we have, the flight should be highly beneficial to the aviation industry in providing evaluation of new equipment, as well as to provide data from which better high altitude weather forecasting can be initiated. We therefore, heartily are in favor of your efforts to organize and finance such an expedition.

We will be looking forward with keen interest to learning of the benefits that will be derived from its completion. Please keep us informed.

Sincerely yours,

AIR LINE PILOTS ASSOCIATION

*Charles H. Ruby*

Charles H. Ruby, President

CHR/baw



NATIONAL AERONAUTIC ASSOCIATION

806 FIFTEENTH ST., N.W. • WASHINGTON, D. C. 20005

DISTRICT 7-2808 • CABLE—NATAERO

UNITED STATES REPRESENTATIVE FEDERATION AERONAUTIQUE INTERNATIONALE

10 November 1965

Fred L. Austin, Director  
Geo-Atmos Explorations, Inc.  
4848 Queen Victoria  
Woodland Hills, California

Dear Mr. Austin:

We are pleased to enclose the approved sanction for a Speed Around the World Record Flight and five records for Speed Over Recognized Courses.

The application with your check for \$500.00 was received this morning. As we discussed in our telephone conversation yesterday, the sanction fees for six record attempts in a single flight will be \$1,000.00. Accordingly, our invoice for the balance is attached.

Clearances with the FAI and the various National Aero Clubs are all arranged with the exception of the Argentine Aero Club which has not yet replied. A second cable was sent on 9 November and a reply is expected today or tomorrow. In any event, we will follow through and take whatever steps are necessary to obtain the clearance prior to your arrival in Buenos Aires.

Diplomatic and international flight clearances are the responsibility of the contestant. From our telephone conversation yesterday and an earlier conversation with Mr. Harrison Finch, we understand that these clearances are being obtained with the assistance of the Flying Tiger Line.

You are already in contact with Mr. Bertrand Rhine who will make the detailed arrangements for documenting the flight. However, so that we can assist when required, will you please keep this office informed of any changes in the departure date or in the flight route. Also, it would be appreciated if you could send us the aircraft flight number.

We are looking forward to the successful completion of this exceptional flight, and are confident that some outstanding world records will be established.

Very sincerely,

M. S. Randleman  
Secretary, Contest Board

MJR:lvp

cc: E. C. Sweeney; W. A. Ong;  
B. Rhine

—DIVISIONS & AFFILIATES—

Academy of Model Aeronautics • Balloon Federation of America • Parachute Club of America • Soaring Society of America  
National Pilots Association

# F S F

**FLIGHT SAFETY FOUNDATION, INC.**

468 PARK AVENUE SOUTH, NEW YORK 16, N. Y. ■ LExington 2-2466

MAJOR GENERAL JOSEPH D CALDARA U.S.A.F. (RET.)  
PRESIDENT

November 12, 1965

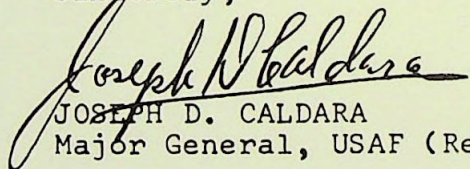
Captain Fred L. Austin  
Captain Harrison Finch  
GeoAtmos Explorations, Inc.  
458 South Spring Street  
Los Angeles, California

Gentlemen:

The Flight Safety Foundation recognizes the tremendous potential value of the scientific program which comprises an important part of the Rockwell Polar Flight. By increasing man's knowledge of the earth and its atmosphere, it offers a significant contribution to the safety of flight and promises to make flying safer for everyone.

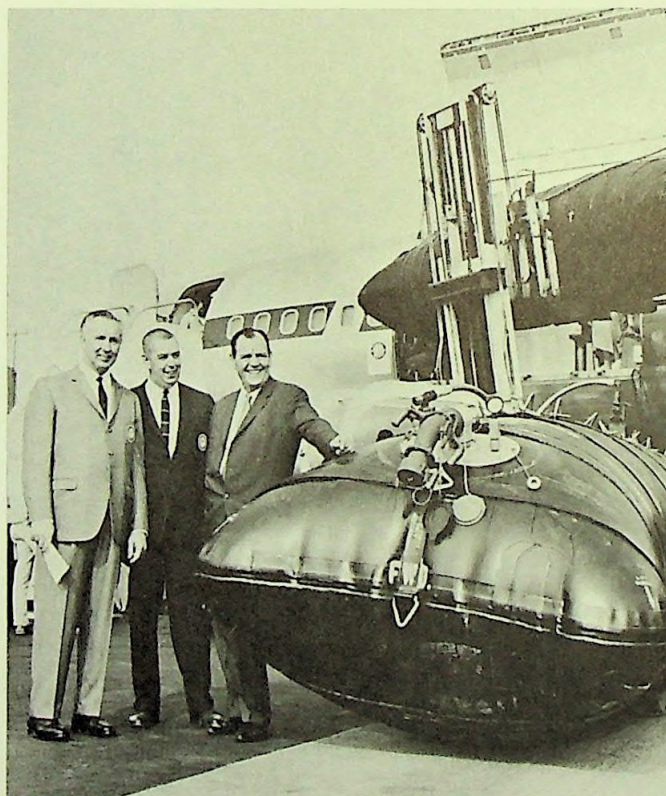
A careful review and analysis of the flight plan indicates an unusually high degree of forethought and professionalism. The Flight Safety Foundation is happy to endorse this scientific effort.

Sincerely,

  
JOSEPH D. CALDARA  
Major General, USAF (Ret.)



Special collapsible tanks for auxiliary fuel are installed inside the Boeing 707.



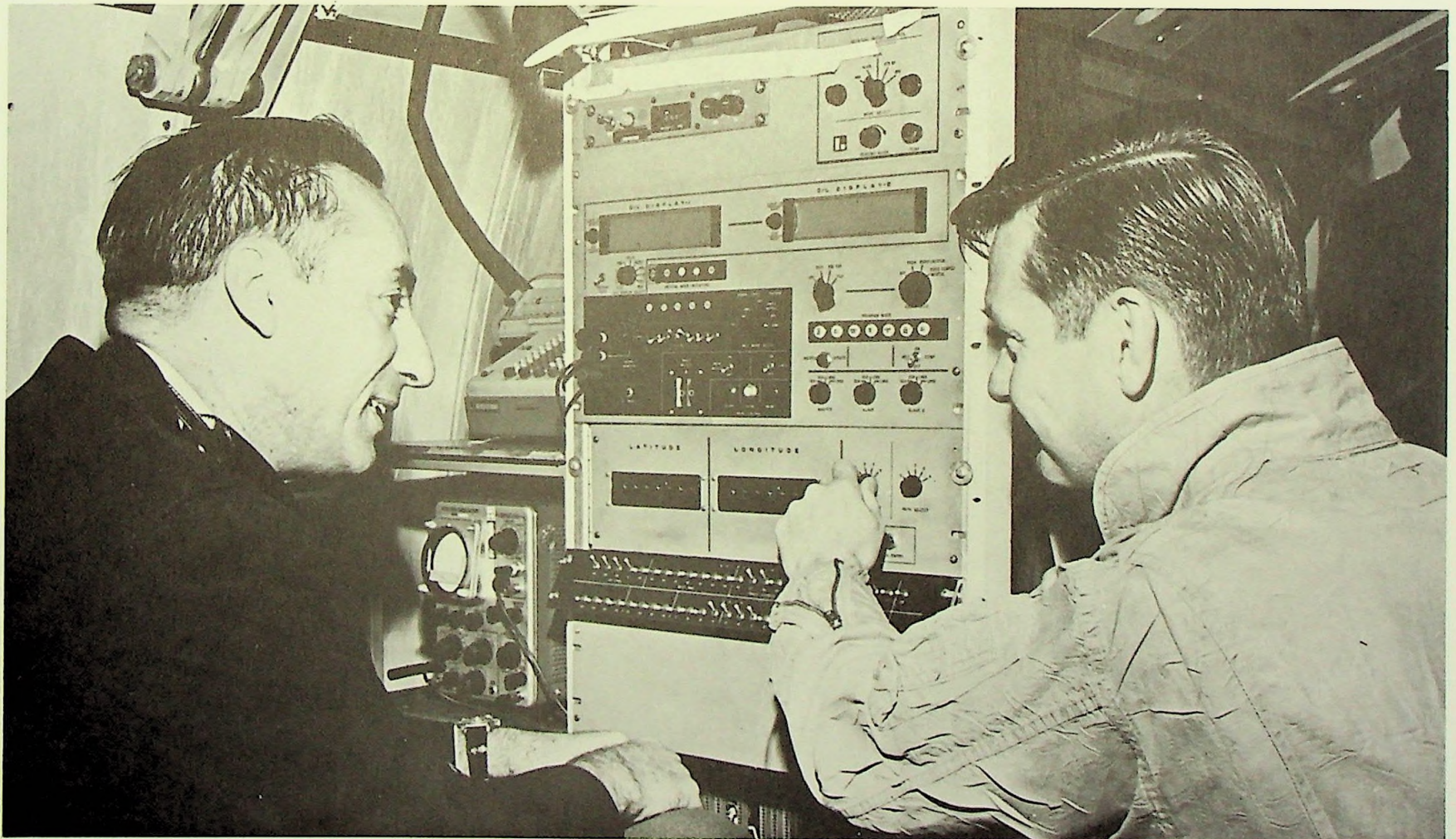
(Left to right) Capt. Fred L. Austin, Capt. Harrison Finch, co-commanders, and Robert W. Prescott, president, Flying Tiger Line, with one of the auxiliary fuel tanks used on the flight.



William King (left) of NASA, and Dr. Serge A. Korff, of New York University, director of the flight's scientific program.



Inside the plane, Co-commander Austin and Colonel Rockwell check the Polar Flight course.



The control panel of the navigational system is demonstrated to Bart Locanthi (left), National Aeronautic Association timer, by Dr. David Bjorndahl of Litton Industries, Inc.



Peter Mesquita, scientist for Litton Industries, makes final check of time lapse cameras and other photographic equipment used on the Boeing 707.



James Furuya, Litton scientist, installs special equipment aboard the plane.



Dr. Serge Korff (left) and Bernt Balchen smile at humorous story told by Earl D. Johnson, member of Rockwell-Standard's Aviation Advisory Board.

(Left to right) The Reverend Anderson Bakewell, S.J., Colonel Rockwell and Colonel Bernt Balchen, pioneer polar flyer, take a brief moment before flight to discuss Mr. Balchen's experiences on previous polar flights.





Displaying The Explorers Club flag are (left to right) Bernt Balchen, Edward C. Sweeney, president of the National Aeronautic Association and The Explorers Club, and John DuBois of The Explorers Club.



During flight, crew members took time to autograph a document. Looking on as Colonel Rockwell affixes his signature are (bottom left to right): Edward J. Williams, vice president, Rockwell-Standard Corp.; M. B. McKinney, vice president, Union Bank; Captain Finch; Wayne Parrish (standing, top left), publisher of American Aviation Publications; Bernt Balchen; and Captain Austin.

Packing bottles he used to collect air samples at various levels during the flight is Captain N. A. Lieurance, director of aviation affairs, Environmental Science Services Administration.





Acting as flight surgeon, Dr. Randolph Lovelace (left), famed pioneer in aerospace medicine, takes Colonel Rockwell's blood pressure as Dr. Donald Goedeke, of Douglas Aircraft, looks on. After the Rockwell Polar Flight, Dr. Lovelace and his wife were killed in the crash of a light airplane. Dr. Lovelace leaves behind a legacy of accomplishment. He developed the first satisfactory oxygen mask for high-altitude flight, and he became NASA's choice to screen the original Project Mercury astronauts in 1958. Dr. Lovelace also devised a program of in-orbit medical experiments, many of which were included in the Gemini 6 and 7 missions.

## Flight Makes Regular Trips Likely

# Rockwell Blazes New Path To Poles

## City Industrialist Tells Story Of 62-Hour Pioneer Vertical Hop

By SHERLEY UHL

When polar flights become standard operating procedure for commercial airlines, some thanks will be due Col. Willard F. Rockwell Sr., who now knows the world from top to bottom.

The tireless Pittsburgh industrialist, already well-traveled, notched another 27,000 miles last week when he led a band of scientists and adventurers on the first vertical round-the-world flight.

### Over Both Poles

They flew over both the North and South poles, raising toasts to each, indifferent to the plane's plunge into darkness for 29 consecutive hours on the northern leg.

This was offset by the Southern trip, when the party began to see the light at Buenos Aires, and continued to see it for something like 28 hours.

Colonel Rockwell grabbed two hours sleep in every 10—and no wonder. It wasn't easy to tell what time of day it was.

The round-tripper from Honolulu took 62 hours, 27 minutes and 35 seconds, of which 51 hours and 20 minutes were spent in the air.

The rest was logged on the ground where, complained the colonel, refueling operations required more time than expected.

### At 56 Below Zero

Also, he said, the flight encountered some stiff headwinds and in the Northern hemisphere was plagued by storm and rain—but not at the North pole. The air temperature there was 56 degrees below zero—a bit too brisk for rain.

While it was dark almost from the time the flight departed Honolulu at 9:45 p. m. (Pacific time last Sunday) until it arrived in London there was some visibility by moonlight.

"We could see huge gorges and cracks in the ice," said Colonel Rockwell, "and at one point not far from the pole we saw lights from an ice-breaker. . . . Nobody knew whether it was a U. S. or Soviet ship."

As the plane passed over the pole, some passengers were devouring thick steaks

cooked by infra-red heat, he recalled. And when the crew captain announced the feat, the colonel added, "we all cheered ourselves."

But the biggest thrill came in the South when the party was greeted by crystal sun-washed skies over the Antarctic ice shelf on Tuesday at 6:27 p. m. (Pacific standard time).

### Everything's North

"Visibility was perfect," said the colonel, "but of course when you're at the South pole the only way you can look is north."

"It was a genuinely rare experience, because that must have been one of the clearest days of the year down there."

The plane crew contacted the U. S. Government's Operation Deep Freeze at McMurdo Sound by radio and asked the staff to step out and wave.

This was something of an imposition since the ground temperature was 36 below. However, as the colonel noted, this probably was a balmy day in the Antarctic, and the deep freezers, bundled in parkas, cheerfully assented.

### Route Outlined

The polar flight route extended from Honolulu to London, to Lisbon, to Buenos Aires, to the South pole, to Christchurch, New Zealand (where spring was busting out all over), and thence back to Honolulu.

Rockwell-Standard Corp., of which the colonel is chairman, underwrote the \$250,000 flight for the Explorers' Club, a distinguished national group into which Mr. Rockwell was inducted while the plane circled the South pole.

He said he sponsored the trip in the interest of aviation science. Part or possibly all of the cost will be recovered in royalties and fees from photographic, film and commercial research rights. A movie camera recorded each moment of the journey.

Any promotional benefits were strictly incidental since, as Rockwell-Standard aides



It's a small world for polar pioneer Willard F. Rockwell.

emphasized, that firm manufactures the Aero-Commander, a medium-range plane for private or corporate use, hardly adaptable to polar distances.

### Key To The Venture

The ship used in the Rockwell jaunt was a Boeing 707, leased from the Flying Tiger line and equipped with two nylon rubber fuel tanks, strapped to the forward cabin and containing 4000 extra gallons.

This, said the colonel, was the key to the venture, and it demonstrated the feasibility of designing ships with sufficient fuel capacity to schedule commercial flights longer than those few now in operation.

This view was supported by one of eight scientists aboard—Capt. N. A. Lieurance, USN (ret.), now director of avia-

tion affairs for the U. S. Environmental Science Services Administration (ESSA).

He said the trip proved polar aerial operations actually can be less troublesome than those on other routes, because there is less turbulence at high altitudes, and maximum cloud levels are lower as distance from the equator increases.

He also collected air samples for shipment to the University of Stockholm to be tested to determine whether the earth's carbon dioxide "blanket" is thickening. It could produce a weather warmup that could grow orchids in McKeesport.

Other researchers among the 30 passengers experimented with a clutter of instruments to record informa-

tion on cloud formations, effects of cosmic radiation, ozone concentration and the unpredictability of the jetstream.

"It keeps changing its axis," the colonel explained.

### Claim Speed Records

The Rockwell probe naturally set a pole-to-pole speed record, since it was the first such flight in history. But Co-Commanders Fred Austin and Harrison Finch also claim the fastest time around the world in any direction and the fastest time from Honolulu to London, from Buenos Aires to Christchurch and from Christchurch to Honolulu.

"And don't forget one more record," confided the colonel with a smile. "This is the first time a man over 75 has flown over both poles."

He is 77.

New York Times  
New York, N. Y.

## Jet Leaving Today To Circle the Globe Over Both the Poles

Special to The New York Times  
BURBANK, Calif., Nov. 13—

The first flight around the world over the North and South Poles is scheduled to begin tomorrow.

A modified Boeing 707-349C, the largest, fastest and longest-range jetliner now in world service, will carry some 40 explorers, scientists, technicians, observers and crewmen on a flight that could set six official world records.

Fred Austin and Harrison Finch, both long-time pilots with Trans World Airlines, conceived the idea of the flight and are serving as its co-commanders.

The flight will leave from Palm Springs where the International AeroClassic, the first Annual Aviation Progress Exposition, is being held. It will fly to Honolulu, where the pole-to-pole flight will begin.

It will proceed over the North Pole to London from London to Buenos Aires, then over the South Pole to Christchurch, New Zealand, returning to Honolulu, and back to Los Angeles.

From Honolulu back to Honolulu, the record course is 26,263, which is expected to be covered in a little over 50 hours plus six hours needed for the refueling stops.

### Plane Being Leased

The Flying Tiger Line is leasing the plane to the expedition, which is being sponsored by the Rockwell-Standard Corporation of Pittsburgh, Pennsylvania, a major supplier to the automotive industry and manufacturer of business and private aircraft.

Dr. Serge A. Korff, scientific director of the expedition, is a past president of the Explorer's Club and a cosmic ray expert.

He said that "the flight is an attempt to get more information about difficult aviation problems such as the sudden turbulence of clear air, effects of cosmic radiation, and predictability of the jet stream."

The United States Weather Bureau will conduct experiments on the flight to observe changing patterns in the atmosphere's content of carbon dioxide and ozone. The bureau will also synchronize horizontal and oblique cloud photography at the flight with vertical cloud photography relayed to earth from two of the Tiros meteorological satellites.

The National Aeronautics and Space Administration will study the environmental fatigue problem of the flight's participants resulting from the extremely cramped quarters and the long duration of the flight.

The Christian Science Monitor  
Boston, Mass.

## 'Last great air adventure' will aid flight research

By the Associated Press

Burbank, Calif.

A jet transport leaves Honolulu Sunday on what one of the pilots calls "the last great adventure of the air"—a "round-the-world flight over both poles.

"It's a flight that has been a dream of most pilots who have an adventurous nature, one big flight that has never been done," said Fred L. Austin, of suburban Woodland Hills.

Participating organizations include the National Aeronautics and Space Administration, the United States Weather Bureau, and New York University.

Mr. Austin and Harrison Finch, Trans-World Airline captains on leave to be commanders of the flight, held a news conference to describe the flight and its goals.

Primarily, Captain Austin said, it will have a serious scientific goal "to gain as much knowledge as possible about high-altitude meteorology and navigation; to learn causes of high-altitude turbulence and what can be done to improve forecasts of this turbulence and general weather."

Between long hops there will be stops at London, Buenos Aires, and Christchurch, N.Z. The expedition hopes to cover the 26,203 miles in an elapsed time of 56 hours, 48 minutes.

The flight is sponsored by Rockwell-Standard Corporation, Pittsburgh, an automotive-equipment manufacturer expanding into the aviation field. Geo-Atmos Exploration, Incorporated, a California firm established to study supersonic transport problems, has been planning the flight for more than a year and a half.

Beaver County Times  
Beaver, Pa.

STARTS NOV. 14

## Rockwell Sponsors World Polar Flight

PITTSBURGH (UPI) — The first around the world polar flight was scheduled to start Nov. 14 under the sponsorship of the Rockwell-Standard Corp., the firm announced Monday.

Ten scientists and ten observers along with a crew of ten will make the 27,000-mile flight over the north and south poles in an international version of a Boeing 707 jetliner.

The flight will originate from Palm Springs, Calif., on the final day of the International AeroClassic there.

Rockwell Standard said Lowell Thomas, veteran newscaster and honorary president of the Explorers Club, will be one of the observers.

Two veteran Trans World Airlines pilots, Capt. Fred Austin and Harrison Finch, will

command the craft which will try for several speed records, including fastest times from point to point, pole to pole and around the world.

The plane's first stop will be Honolulu. It will head over the North Pole to London, on to Buenos Aires, over the South Pole to Christchurch, New Zealand, and on to Honolulu.

Col. Willard F. Rockwell, chairman of Rockwell-Standard Corp., which manufactures industrial equipment, said his firm is underwriting the flight in the interest of intercontinental aviation research. Rockwell also will be on the flight.

## First Round-World Flight Pole-to-Pole Under Way

HONOLULU, (UPI) — A group of well-known scientists, explorers, fliers and industrialists arrived here yesterday to start an unprecedented, around-the-world, pole-to-pole jet flight.

The fliers arrived from Palm Springs, Calif., aboard a Boeing 707-320C and landed in a steady downpour, part of an unusually severe rain and wind storm that has plagued the islands since Thursday. They planned to leave for London last evening at 7:07 p. m. HST (12:07 a.m. EST).

The primary goal of the flight was scientific exploration, but if successful, it will be the first time a flight has been made around the world, pole-to-pole.

### Flight Crew of 10

Capt. Fred Austin and Capt. Harrison Finch, pilots for Trans World Airlines, head the flight crew of 10 which hopes to challenge several world speed records on the flight including fastest time from point to point and around the world.

The actual around-the-world flight will be from Honolulu to Honolulu, but the takeoff was made from here as part of the international AeroClassic which began Thursday and will conclude today.

Among the notables aboard were Dr. Donald Goedeke, chief scientist for Douglas space science division; Dr. Serge Korff, world recognized physicist and authority on cosmic ray research;

Col. William F. Rockwell, chairman of the board of Rockwell-Standard, sponsors of the flight; Lowell Thomas Jr., son of the veteran newscaster and writer; Bernt Balchen, pioneer polar flyer and explorer; and Robert

Prescott, president of the Flying Tiger line.

The big jet is leased from the Flying Tiger Lines.

### 560 MPH Cruising Speed

The pre-flight plan called for a cruising speed of 560 miles an hour with altitude ranging from 30,000 to 41,000 feet—over the poles.

The flight will go to London over the North Pole, arriving at 6:30 p.m. (local time) today. From there they will fly to Buenos Aires, over the South pole to Christchurch, N.Z., and back to Honolulu and Burbank, Calif.

Austin said the flight actually would be timed from Honolulu back to Honolulu. He said he hoped to arrive back at Honolulu at 4 p.m. (local time) on Wednesday.

The expected time of the flight was 52 hours.

"We expect to develop new information on the jet stream, make cosmic radiation studies at precise altitudes, take air samplings for spores and micrometeorites, accomplish laser determination of air density and photograph clouds to furnish correlations of the meteorological satellites now in orbit," Capt. Austin said.

Post Dispatch  
St. Louis, Mo.

## 2 PILOTS TO FLY AROUND WORLD OVER BOTH POLES

BURBANK, Calif., Nov. 13 (AP)—Two American pilots will leave Honolulu tomorrow in a jet transport for an around-the-world flight over both poles.

Fred L. Austin and Harrison Finch, both of Los Angeles, are scheduled to take off from Honolulu at 4:30 p.m., Honolulu time.

The flight is expected to provide valuable scientific data.

"It's a flight that has been a dream of most pilots who have

an adventurous nature," Austin said. "It's one big flight that has never been done."

The two pilots, on leave from Trans World Airlines, are being sponsored by Rockwell-Standard Corp. of Pittsburgh.

Representatives of the National Aeronautics and Space Administration, the United States Weather Bureau and New York University will monitor the flight for information.

There will be stops at London, Buenos Aires and Christchurch, New Zealand. The pilots hope to cover the 26,203 miles in an elapsed time of 56 hours, 48 minutes, returning to Honolulu at 4 a.m. Wednesday.

BURBANK (AP) — A jet transport leaves Honolulu this Sunday on what one of the pilots Friday called "the last great adventure of the air" — a round-the-world flight over both poles.

"It's a flight that has been a dream of most pilots who have an adventurous nature, one big flight that has never been done," said Fred L. Austin, 50, of suburban Woodland Hills.

Austin and Harrison Finch, 50, captains on leave from TWA to be co-commanders of the flight, held a news conference to describe the flight, and its goals.

Primarily, Austin said it will have a serious scientific goal — "to gain as much knowledge as possible about high-altitude meteorology and

navigation; to learn causes of high-altitude turbulence and what can be done to improve forecasts of high-altitude turbulence and general weather."

Time-lapse cameras will photograph the weather at five-minute intervals throughout the flight. Industrial psy-

chologists will study flight-crew fatigue and cockpit design. A new inertial guidance system will be studied.

Between hops there will be stops at London, Buenos Aires, and Christchurch, N.Z. The expedition hopes to cover the 26,203 miles in an elapsed

time of 56 hours, 48 minutes.

International recognition of the long jumps and the total flight as records is being sought.

The flight is sponsored by Rockwell - Standard Corp., Pittsburgh, an automotive equipment manufacturer

which is expanding into the aviation field. Geo-Atmos Exploration, Inc., a California firm established to study supersonic transport problems, has been planning the flight for more than a year and a half.

Participating organizations

include the National Aeronautics and Space Administration, the U.S. Weather Bureau and New York University.

The plane is scheduled to leave Palm Springs, Calif., site of a current aviation progress exposition, at 12 noon Pacific Standard Time on Sunday and arrive in Honolulu at 2:30 p.m., Honolulu time. Two hours later it starts its globe-girdling flight. The schedule thereafter — all times local:

Arrive London 6:30 p.m. Monday; leave 8:30 p.m.

Arrive Buenos Aires 7:30 a.m. Tuesday; leave at 9:30 a.m.

Arrive Christchurch 3 p.m. leave 5 p.m.

Arrive Honolulu 4 a.m. Wednesday; leave 6 a.m.

Arrive Burbank, Calif., 1 p.m.

# 'Magnificent Men' To Fly over Both Poles

## Flight Called Last Great Air Adventure

The Tribune  
West Covina, Calif.

### PENNSYLVANIA PROFILE

## Industrialist Blazes New Scientific Trails

At an age when most men are content to sit back in an easy chair and contemplate a life's work, Col. Willard F. Rockwell, Pittsburgh industrialist, continues to be a trail-blazer.

When the 77-year-old chairman of Rockwell-Standard Corporation settles on a new venture, he does it in grand manner.

#### **Underwrote Cost**

Take for instance his latest accomplishment: A 62-hour, around-the-world vertical hop by airplane, the first time the globe had been circled vertically in flight.

Col. Rockwell underwrote the \$250,000 cost of the flight for the Explorers' Club, a prestigious group into which he was inducted while the plane, a Boeing 707 leased from the Flying Tiger line, circled the South Pole environs.

And it was all in the interest of aviation science, the colonel explained.

Rockwell-Standard makes the Aero-Commander, corporation officials said, a medium-range plane intended for private or corporate use and not suited for polar distances.

Part or all of the cost will be regained in royalties and other payments for documentary and movie rights.

#### **Scientific Flight**

Aboard the plane were a group of scientists and friends of Col. Rockwell. The scientists agreed that the 27,000-mile flight demonstrated that planes could be designed with enough fuel capacity to schedule commercial flights longer than those currently in operation.

The highlight of the venture was when the group came upon the South Pole.

"It was a genuinely rare experience, because that must have been one of the clearest days of the year there," Col. Rockwell said.

Grit  
Williamsport, Pa.

RADIO MESSAGE TO:

The President of the United States

As we fly over the Ice Fields approaching the Antarctic on the first flight ever to pass over both Poles, we send greetings. Our objective is to advance scientific knowledge in the realm of aviation environmental problems with particular emphasis concerning the operation of the future Supersonic Transports. We also plan to establish several world speed records to enhance the aviation prestige of the U.S.A. One such record was established yesterday in our non-stop flight from Honolulu to London passing directly over the North Pole. Our course now from Buenos Aires takes us over the South Pole enroute to Christchurch, New Zealand. We will complete our world circling flight at Honolulu Wednesday, hopefully establishing the first over the Poles flight and world speed records around the globe and from Pole to Pole. A considerable amount of scientific environmental and navigational information has already been accumulated. We are confident we have your interest and approval for this most interesting and unique expedition. In conformance with the policy of our Nation, which you have so vigorously pursued, we have asked Father Anderson Bakewell, a member of our expedition, to say a brief prayer as we pass over the South Pole, asking for Divine Guidance in obtaining world peace. This would be in keeping with the Antarctic Treaty which established the requisite for scientific exploration for the benefit of the world community of nations. Our most respectful regards,

The Rockwell Polar Expedition

90°S

Message sent at South Pole

Prayer while over Pole!

May Almighty God

    bless the South Pole Station;

    the leaders,

        whose vision, courage

        and sacrifice

        have made it possible;

        its members;

and all who live

        and work in the Antarctic.

                    Amen.

BLESSING OF AIRCRAFT

(Approved by the Congregation of Sacred Rites, March 24, 1920)

(Given at Honolulu at beginning of flight over North Pole,  
November 14, 1965)

P: Our help is in the name of the Lord.  
ALL: Who made heaven and earth.  
P: The Lord be with you.  
ALL: May He also be with you.

Let us pray.

    God, who made all things for Your glory, yet destined every lower being in this world for man's service, we beg You to bless + this airplane. Let it serve to carry far and wide the fame and glory of Your name, and in expediting more speedily the affairs of mankind without loss and accident. And let it foster in the souls of all the faithful who travel in it a longing for the things above; through Christ Our Lord.

ALL: Amen.

Let us pray.

    God, the salvation of those who trust in You, kindly appoint a good angel from on high as an escort for your servants who make this Polar Flight and who call on You for help. Let him shield the passengers throughout the flight and conduct them safely to their destination; through Christ Our Lord.

ALL: Amen.

The aircraft is sprinkled with holy water.

# Prayers by The Reverend Anderson Bakewell

90° S

17.XI.65

## Prayer for Peace

Almighty and Everlasting God,  
who by Your Spirit of Wisdom and Love  
have so inspired dedicated men  
that by the terms of the Antarctic Treaty,  
signed into force on June 23rd, 1961,  
this vast region of Antarctica,  
lying below the 60th degree of Latitude South,  
an area as large as the United States  
and Western Europe combined,  
may be used for peaceful purpose only,  
grant, in Your goodness and mercy,  
that this same Spirit  
may continue to grow within us  
and spread, until it envelopes the world  
and men lay down their weapons  
and live together as brothers,  
under the rule of the most Sacred Heart  
of Your Son, Our Lord Jesus Christ.

Amen.

Over South Pacific

## Prayer of Thanksgiving

Father:

At the inception of this flight,  
we asked You to bless this aircraft,  
and to preserve it from loss or accident;  
we asked You to appoint an angel from on high  
as an escort for us;  
to shield us as we encircled this planet  
over the hostile environment of both poles,  
penetrated the stratosphere  
and journeyed through the kingdom of clouds  
across five oceans and the Antarctic continent  
in our search for knowledge of the mysteries of  
Your creation.

You have done all that we asked;

we are sincerely and humbly grateful.

May You, with Your Son,  
and the Holy Spirit,  
be praised forever.

Amen.

## Telegram from Governor Edmund G. Brown

LLW286 PD L LOS ANGELES CALIF 17 1242P PST

COLONEL WILLARD F ROCKWELL, CARE E A PINKE VICE PRESIDENT  
FLYING TIGERS AIRLINES BURBANK CALIF

PLEASE EXTEND TO CAPTAINS AUSTIN AND FINCH AND ALL ABOARD ROCKWELL  
POLAR FLIGHT MY HEARTY CONGRATULATIONS ON ACHIEVEMENT OF FIRST  
AROUND THE WORLD FLIGHT OVER NORTH AND SOUTH POLE, YOUR FLIGHT  
HAS MADE SCIENTIFIC AND AVIATION HISTORY AND WE ARE PROUD OF  
ALL WHO HELPED MAKE IT SUCCESSFUL, ROCKWELL-STANDARD AND OTHER  
COMPANIES AND ORGANIZATIONS PARTICIPATING DESERVE PUBLIC THANKS  
AND GRATITUDE OF ENTIRE AVIATION WORLD  
GOVERNOR EDMUND G BROWN

# Original Radio News Report from Lowell Thomas, Jr. to Lowell Thomas, Sr.

RADIO TV REPORTS, INC.

41 EAST 42ND STREET, NEW YORK, N. Y. 10017. 697-5100

FOR KETCHUM, MACLEOD AND GROVE

PROGRAM Lowell Thomas

STATION WCBS Radio  
CBS Network

DATE November 16, 1965

6:45 PM

CITY New York

## REPORT FROM AROUND THE WORLD FLIGHT

THOMAS: "The around the world plane tonight is in the air over the Antarctic Continent, heading for the South Pole on the most exciting leg of the flight.

"Although more than half way around the world from us at this moment, I succeeded in getting through to the plane, thanks to what is known as the Mars Frequency, controlled by our Federal Government. And here is part of the conversation I just had with Lowell, Junior.

"Hello, how are you on board now? This is LT, Senior here in New York. Over."

LOWELL THOMAS JR.: "Well, hello there, greetings. What a surprise, I had no idea you were on. Oh, everything is going along just fine. We left Buenos Aires a little over an hour ago and we're heading now to look for the Pole. Over."

THOMAS: "Where are you at this moment, and how much longer will it take you to get to the Pole? Over."

THOMAS JR.: "We're estimating over the Pole in seven hours and 15 minutes after takeoff from Buenos Aires. In other words, it will be about another six hours, and that would be about 9:00 o'clock in the evening your time."

THOMAS: "How has it been going? Have you had any delays? Over."

THOMAS JR.: "Well, yes, we did have some delays, but all of them have been on the ground. The sticks(?) stuck in the elevator at Lisbon down in the basement for an hour and five minutes. Finally, we had the guy hacksaw it off of our own airplane, so that delayed us right there an hour and five minutes."

THOMAS: "When you fly over the Antarctic peninsula -- and it looks like your route will be directly over that -- I don't want anybody to go out of their way to see those Lowell Thomas Mountains, but if you saw them it would be kind of fun because I may never see them. Over."

THOMAS JR: "Yes, we're going to try very hard to sneak over and take a look at them. We don't know what the weather is going to be like ahead of us. If the weather is clear at all, I'm pretty sure we'll be able to get a look.

"From a technical point of view, it is the most critical flight of all -- that circle around the planet or the Pole. There are several reasons for this. One is that once we leave South America there's no place to go in any kind of direction (?) We're on our own and (phrase unclear). It's a very long haul and we don't have any reliable information as yet of the weather over the Antarctic Continent, especially if the winds are too unfavorable. We may be in a position where we could be forced to return. So these are the two unknowns (phrase unclear) if the weather in Christchurch, New Zealand is forecast to be rain showers and a little (word unclear) activity there. So that again is a question mark.

"And the thing that really was the most critical of all, however, was the takeoff, because it was a short runway. We had an absolute maximum load, plus the fact that the runway temperature was 89 degrees. It's real summer down there, 89 degrees. And we used up almost all of the runway in getting airborne.

"I just wanted to give you a couple of quick highlights of the flight from Portugal to Argentina. First of all, I woke up -- we had a radio call from another aircraft and they had called me when I was taking a little snooze and I got on the radio, and lo and behold, the Commanding Officer of all our (phrase unclear) armed forces, (phrase unclear) armed forces in the Pacific, General Howard Harriff (?) was on the radio, and he said that he was in a jet approaching Manila. (phrase unclear) was just exactly opposite, half way around the planet 12,000 miles. And I thought that was quite a modern miracle to be able to hear him."

THOMAS: "Well, tonight I'd like to salute Colonel Willard Rockwell, the Pittsburgh manufacturer, who at the eleventh hour came through with a couple of hundred thousand dollars to help make this flight possible. Of course, the plane alone is worth about eight and a half million.

"Colonel Rockwell dreams of making his own company the General Motors of the aviation world, and he's on board that plane flying toward the Pole."

Pittsburgh Press  
Pittsburgh, Pa.

## 62 Hours 'Round World

# Rockwell's Plane Ends Pole-To-Pole

HONOLULU, Nov. 18 (UPI)—A sleek, silver Boeing 707 jet, which streaked into a rainstorm from here last Sunday, has returned and completed history's first pole-to-pole round-the-world flight.

The specially equipped plane, nicknamed the "Tigers Polecat," landed yesterday with an elapsed time of 62 hours, 28 minutes.

Through storms and clear sunny weather, it had flown over the North Pole, stopped in London, Lisbon and Buenos Aires, soared over the South Pole, refueled in Christchurch, N. Z., and continued here.

Capt. Jack L. Martin, flight commander, called the trip "a very big success," as also did Col. Willard F. Rockwell, chairman of the board of the Rockwell-Standard Corp. of Pittsburgh, and chief sponsor of the adventure.

But the 77-year-old executive said he was somewhat disappointed the original time goal of 52 hours was not achieved.

He blamed the longer time on headwinds and "reporters who delayed us at airports — of course, we didn't mind them."

The actual flight time was 51 hours, 21 minutes, with 11 hours, 7 minutes on the ground.

[Colonel Rockwell left Burbank via commercial airline for Pittsburgh.]

The polar flight created a record book for such long distance hops. It created the initial time chart for a dash between the two ends of the globe and set records for flights between Honolulu and London; Buenos Aires and Christchurch; and Christchurch and Honolulu.

The specially-equipped plane carried a crew of 10 and 30 scientists, explorers, fliers and industrialists on the historic flight.

Dr. Edward C. Sweeney of Washington, president of the National Aeronautics Assn., described the flight as "one of the great aviation feats."

"We were the first jet over the South Pole, we had the largest party—40 men—on an antarctic flight, and we flew the highest, 37,000 feet," he said.

Actually, the crewmen said they set about 30 records.

The Times-Herald  
Vallejo, Calif.

# Round World Jetliner Sets Speed Mark

LONDON (AP) — A Boeing 707-320C airliner on the first insured by Lloyd's of London for \$13 million.

They are seeking new information about jet streams, high altitude turbulence, polar rays and radar. They are seeking new information about jet streams, high altitude turbulence, polar rays and radar.

Robert Prescott, president of Flying Tiger Lines which owns the plane, left the flight in London. His 12-year-old son, Peter, was killed Sunday in a plane crash near Indio, Calif.

**FLIES HOME**  
Prescott flew to New York immediately after landing.

Goodwin Lyon, protocol officer for the polar flight, explained that while the chief purpose is scientific exploration, the group hoped to establish 30 records during the flight. Representatives from France's Federation Aeronautique and the National Aeronautical Association of America are on board to authorize the records as they are made.

The plane can not take off from the short runway with a full fuel load and thus will have to divert to Lisbon, Portugal, for refueling.

Aboard the plane were 30 American scientists and medical experts. They are Col. Rockwell will set a personal record—the oldest man to fly over the poles. He is 77.

## AIRPORT CLOSED

Repairs closing London airport's longest runway will, however, add two hours to the return trip to Honolulu planned via Buenos Aires, Argentina, and Christchurch, New Zealand.

The plane can not take off from the short runway with a full fuel load and thus will have to divert to Lisbon, Portugal, for refueling.

Aboard the plane were 30 American scientists and medical experts. They are Col. Rockwell will set a personal record—the oldest man to fly over the poles. He is 77.



**ENDING RECORD** flight, five pilots on first around-world trip over both North and South Poles arrive at Lockheed Air Terminal in Burbank. Boeing 707-320C completed record journey Wednesday night. Top to bottom, from left are James Gannett, Jack Martin, Robert Buck, Harrison Finch and Fred Austin.

## Greet Record Polar Plane In Burbank

The plane which made the first around-the-world flight over both North and South Poles arrived Wednesday evening at Lockheed Air Terminal, Burbank.

Some 200 persons were on hand to greet the crew of the Boeing 707-320C on its arrival from Honolulu where the flight officially started and ended.

Welcomed were Jack Martin, system chief pilot of the

Flying Tiger Line, who was pilot in command of the flight; Fred Austin of Tarzana and Harrison Finch, both of TWA, who were co-commanders of the flight; Robert N. Buck of TWA and James R. Gannett of the Boeing Co.

### Took Off Sunday

Also on the flight were scientists and observers.

The journey, sponsored by the Rockwell-Standard Corp. took off Sunday noon from Palm Springs and officially started from Honolulu at 9:45 p.m. Sunday. It arrived back at Honolulu at 12:21 p.m. Wednesday. Total elapsed time was 62 hours, 27 minutes, 35 seconds. Flying time was 51 hours, 20 minutes and ground time was 11 hours, seven minutes.

Co-commanders Austin and

Finch claimed five world speed records for the United States: Fastest times from pole to pole, around the world, from Honolulu to London, from Buenos Aires to Christchurch and from Christchurch to Honolulu.

### Tells of Flight

Scientific exploration was the primary purpose of the 27,000-mile flight, with particular emphasis on high-altitude meteorology, including air turbulence studies.

Describing the flight over the poles, Capt. Martin said on arrival in Burbank that passage over the North Pole was made in the dark, but that when the plane sped over the South Pole those aboard could look down at the weather station and see the people on the ground waving at them.

# Jet Completes First Pole-to-Pole, World-Circling Flight in 62 Hours

Honolulu (UPI) — A Boeing 707 jet known as the "Tigers Polecat" completed history's first pole-to-pole, round-the-world flight Wednesday, touching down at Honolulu International Airport just 62 hours and 28 minutes after its departure.

The specially-equipped Flying Tiger plane carried a crew of 10 and 30 scientists, explorers, fliers and industrialists on the historic flight. The scientists gathered data about radar, cosmic rays, clear air turbulence and the jet stream.

## Left in Rain

The plane, which flew through storms and clear, sunny weather, departed from Honolulu Sunday in a driving rain. It streaked over the North Pole, stopped in London, Lisbon and Buenos Aires, soared over the South Pole, refueled in Christchurch, N.Z., and landed in Honolulu under sunny skies.

The actual flight time was 51 hours and 20 minutes. The plane spent 11 hours and 7 minutes on the ground during various stops as a result of unexpected delays.

After a brief meeting here with newsmen, the passengers reboarded the plane and flew to Burbank, Cal. It departed from Palm Springs Sunday, but began and ended the historic flight in Honolulu.

A personal tragedy marred the trip for Robert W. Prescott, president of Flying Tiger, which supplied the plane. He was informed in flight that his 11-year-old son, Peter, had been killed in a private plane crash near Indio, Cal., on Sunday.

The youth was one of eight persons found dead in the wreckage of a Lear twin-jet aircraft that went down on a flight from Palm Springs to Burbank. Prescott left the "Tigers Polecat" in London and flew directly home.

Among the passengers on the pole-to-pole flight was Air Force Col. Bernt Balchen, who piloted a Ford tri-motor for Adm. Rich-

ard E. Byrd when they flew over the South Pole for the first time in November, 1929, from Little America.

Capt. Jack L. Martin, flight commander and a pilot for Flying Tiger, called the trip "a very big success."

"We experienced absolutely no mechanical troubles," said Martin, of Woodland Hills, Cal. "The plane performed beautifully."

Willard Rockwell, director of the Rockwell-Standard Corp. of Coraobolls, Pa., and chief sponsor of the adventure, also declared the flight a success.

## Time Off

But the 77-year-old executive said he was somewhat disappointed that the original time goal of 52 hours was not achieved. He blamed the longer time on headwinds that reached 150 knots and "reporters who delayed us at airports—of course, we didn't mind them."

An unscheduled stop at Lisbon also extended the flight time, and there was an unexpected delay at the Portuguese capital.

The crew had hoped to take on enough fuel in London to fly directly to Buenos Aires, but a construction project at the English airport prevented this.

That forced the plane into Lisbon, where more time was lost while airport officials went to the rescue of crew members who got stuck in an elevator.

Dr. Edward C. Sweeney of Washington, president of the National Aeronautics Assn., described the flight as "one of the last great aviation feats."

## First Jet Over

"We were the first jet over the South Pole, we had the largest party—40 men—on an Antarctic flight, and we flew the highest, 37,000 feet," he said.

Actually, the crewmen said they set about 30 records during the flight of the "Tigers Polecat," which together with its equipment was insured for \$30 million.

Houston Chronicle  
Houston, Tex.

Los Angeles Times  
Los Angeles, Calif.

## POLAR ROUND-WORLD PLANE RETURNS HERE

A Boeing 707 jetliner returned to Lockheed Air Terminal in Burbank Wednesday night from Hawaii where earlier it had completed the first round-the-world flight over both poles.

The plane left Palm Springs Sunday and completed the 27,000-mile journey in 62 hours and 28 minutes, of which 51 hours and 26 minutes were flying time.

Re-fueling stops were made in London, Lisbon, Buenos Aires and New Zealand. On board the Flying Tiger Line plane were 10 crewmen, 10 scientists and 10 observers. The flight was sponsored by the Rockwell-Standard Corp. Pilots Fred Austin and Harrison Finch claimed five speed records, and scientists said important data were recorded on the high-altitude polar flight.

# Pole-to-Pole Jet Sets Host of New Records

By WALLACE MITCHELL  
*Honolulu Advertiser*

HONOLULU, Nov. 18.

A pole-to-pole, globe-circling Flying Tiger jet 707 touched down at Honolulu International Airport yesterday with a host of new flight records and an elated crew.

Since leaving the same runway at 7:44 p.m. Sunday, the "Tiger Polecat" had streaked across the North Pole to London, refueled at Lisbon and Buenos Aires, circled the South Pole and returned to Honolulu with a single fueling stop at Christchurch, N.Z.

The National Aeronautics Assn. timer aboard the plane showed an unofficial flying time of 51 hours and 29 minutes and a total time—including hours on the ground—of 62 hours, 27 minutes and 35 seconds.

The goal had been 52 hours total time.

"We'd have liked to have been on time," said TWA

Capt. Robert Buck, Pipersville, Pa., one of the five 707 pilots aboard, "but the delay at London hurt us."

When the plane landed at London from Honolulu, the crew found that the only runway capable of handling the fully-refueled 707 for takeoff was out of commission. A less-than-capacity fuel load was taken on and an extra fueling stop was made at Lisbon, Portugal.

An old-and-new combination aboard evaluated the trip with enthusiasm.

They were Bernt Balchen, 66, a white-haired veteran aviator who in 1929 became the first pilot to fly over the South Pole, and Capt. Jack L. Martin, chief pilot of the Flying Tiger Line.

Martin, a beefy, Oklahoma City, Okla., native, ticked off some of the records he believed the flight had established:

"We were the first ones to go around the globe from

north to south. We were the first to cross both poles.

"We set an elapsed time record for the flight and a record time to London via the North Pole.

"The delay at London cost us a London-to-Buenos Aires record because we couldn't take on a full load of fuel, but I think our Buenos Aires to Christchurch hop set a record.

"But the important thing was that we had 707 pilots from TWA, Tiger and Boeing Aircraft and the plane was so well stabilized that we had no trouble working as a team.

"This is a remarkably trouble-free airplane.

"And remember—it will be in service tomorrow for MATS, to fly to the Far East."

The flight left for Burbank, Calif., at 1:22 p.m., three hours after landing.

Martin was the aircraft commander and was in the

cockpit for most takeoffs and landings although Capt. Fred L. Austin, who with fellow TWA Capt. Harrison Finch originated the precedent-shattering flight, landed the "Tigers Pole-Cat" here yesterday.

For Balchen, it was his 26th flight over the North Pole in everything from the first Ford Tri-Motor 40 years ago to modern B-52 bombers. It was his first flight over the South Pole since he piloted the late Adm. Richard E. Byrd over it in 1929.

"The flight was of high significance in evaluation of the progress and capabilities of modern transportation," Balchen said.

"It proved the statement I've often made—that our modern aircraft with its ranges, navigation, electronic and communications equipment and the high proficiency of pilots, can go anywhere, any time, with just as high a degree of safety and regularity as anything flying today.

"In my opinion, the flight has been a test of where we stand today in the development of aircraft—and where we are going tomorrow.

"It has established an interim performance platform for the whole transport industry."

Balchen recalled that on his 1929 flight, he flew over the South Pole at 2,000 feet. The "Tigers Pole-Cat" was at 37,000 feet.

"The visibility was perfect," reported W. F. Rockwell, 77-year-old, chairman of the board of Rockwell-Standard Corp., manufacturers of aircraft instruments that financed the flight.

"We had a half-million dollars worth of instruments aboard to test everything. The equipment even included a mechanical stomach for a test of the effect of neutrons on the body system.

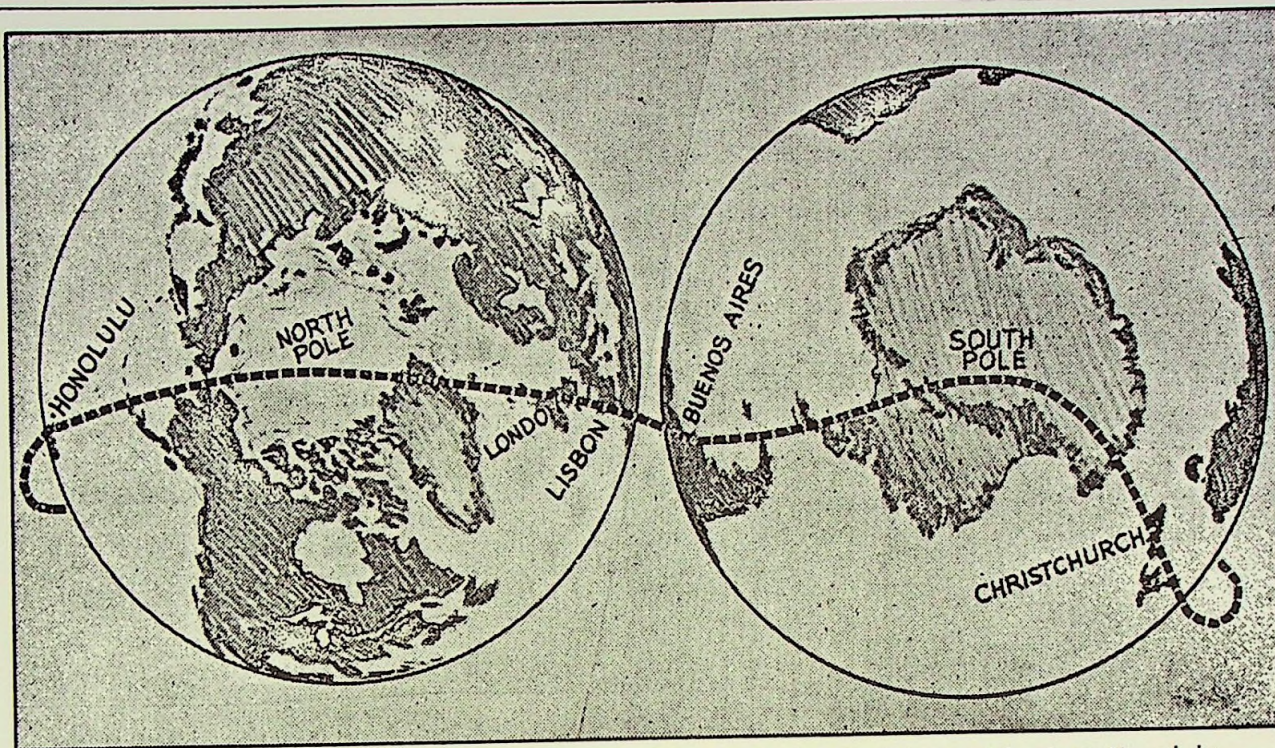
"But," he confessed, "we had trouble getting bearings at the South Pole because the station looked like a smoke-bomb.

"So we asked the station why someone didn't run out and wave to us and they did."

In addition to the five qualified 707 pilots, the crew



Balchen, polar flight veteran of yesteryear, congratulates pilot Martin.



The route of "Polecat" from Honolulu over the North and South Poles and back to Honolulu.

included three 707 engineers and two navigators and 29 scientists and observers.

Robert Prescott, president of Flying Tiger Lines, left the hop at London, where he was informed of the death of his 11-year-old son Sunday in a private plane crash on a flight from Palm Springs to Burbank, Calif.

The normal flying span of the plane was stretched by the installation of a dozen, 4,000-gallon, rubber tanks in the mid-section usually filled with seats. The tanks were used for catnaps by crew and passengers after the fuel was spent.

The interior also was crowded with motion picture and still cameras, scientific instruments, teletypewriters and electronic gear. Seating was in the fore and aft sections of the plane, two- and three-abreast.

There were no particular ceremonies when the plane crossed either of the poles, the crew said.

"We talked to the boys on the ground at the South Pole and took pictures of them and said we'd get in touch with their families when we got back," Captain Buck said.

*Honolulu Star-Bulletin*  
HONOLULU, Nov. 17

The 27,000-mile "Polecat" flight ended at 10:25 a.m. today in Honolulu after a race against time around the world via the North and South Poles.

The chartered Boeing 707 jetliner, crammed with equipment and \$30 million worth of insured scientific talent, touched down at Honolulu Airport completing its historic globe-circling attempt.

The jet was about seven hours behind its original flight plan, but the delay did not detract from the scientific or record-breaking purpose of the flight.

No aircraft had ever attempted to circle the Earth over both Poles.

The pilots, who commanded the round-the-world flight, marveled at the brightness of the South Pole.

Captain Robert N. Buck, one of the five pilots on board, said, "We were in sunshine all the way from Buenos Aires to Christchurch."

"But we were in the dark all the way from Honolulu to London, although we could see ice flows," he said.

Buck said at the South Pole they circled several times and talked with the men on the ground at radar

stations there.

"We told them we would tell their wives that they are in good shape and that we saw them," he said.

"They got a big kick out of it, and they could see our contrails in the sky at 37,000 feet."

Buck said, "We could see the antennas at the South Pole very clearly." He described the flight as a routine trip.

Some crew members came down the ramp of the plane dressed in red flight suits and others in orange, although the pilots were dressed in the same blue uniforms they wear for their respective airlines.

Most of the observers were dressed in civilian suits with cameras dangling from their necks.

All seemed in good spirits after the 27,000-mile flight.

On hand to meet Bernt Balchen, veteran polar pilot, was an old friend, retired General Erik Nelsen, of Kailua-Kona.

The flight took off from Honolulu at 7:44 p.m. Sunday with stops at London; Lisbon, Portugal; Buenos Aires, Argentina; and Christchurch, New Zealand.

The plane began running behind schedule after two delays, stemming from the London stopover.

Because London's longest

runway was under repair, the jet could not take off with enough fuel for the flight to Argentina. It had to refuel in Lisbon.

Then some of the crew and observers got stuck in an elevator at London Airport and had to be sawed out, causing an hour's delay.

Leaders of the flight, however, were confident that they would complete the historic attempt within the predicted 56-hour 48-minute flight time. They did.

Captain Fred L. Austin, a T.W.A. pilot and commander of the flight, called it the "last blazing flight in aviation."

The flight was sponsored by Rockwell-Standard Corporation, manufacturer of airplane and automobile parts, Colonel W. F. Rockwell, 77, chairman of the board, was on the flight.

He said his firm was underwriting the \$2 million flight in the interest of broader research in intercontinental aviation.

The battery of scientists was headed by Dr. Serge A. Korff, professor of physics at New York University.

After taking off from Honolulu Sunday, the jetliner bucked headwinds of 150 knots en route to London, but still set a non-stop record of 13 hours and 42 minutes.

# The Two-Pole Dream Comes True

*Single flight around the world via both Poles is achieved for the first time; "purely routine" circuit take 51:27 hours' flying time*

Wayne W. Parrish

**A**T LONG LAST an airplane has flown around the world via both Poles on a single flight.

Historic as it was, the event was so routine in execution that one wonders that it wasn't achieved years ago. It was just about the only remaining significant epic of the subsonic age.

In these times of space exploits, with astronauts circling the globe in an hour and a half, it was a little difficult to excite a great deal of public interest. And yet this two-pole "first" proved to be an extraordinarily fine tribute to the jet engine and the manned airplane.

Many times in the past such a flight has been dreamed about, planned and engineered. But nobody ever got around to doing it until two veteran TWA pilots, Fred L. Austin and Harrison Finch, kept at the goal with determination until a willing sponsor was found to cover the direct costs of about \$180,000.

The willing sponsor was the Rockwell-Standard Corp. of Pittsburgh (Aero Commander, etc.) and the happiest man on the entire trip from first to last was 76-year-old Col. W. F. Rockwell, board chairman.

Named the Pole Cat, the vehicle was a Flying Tiger Boeing 707-320G, fresh out of Seattle except for one round trip to Saigon. Engines were four Pratt and Whitney JT3D-3B jets developing 18,000 lb./th. ea. Elapsed time was 62 hr. 27 min., but perhaps more impressive was the flying time of 51 hr. 27 min.

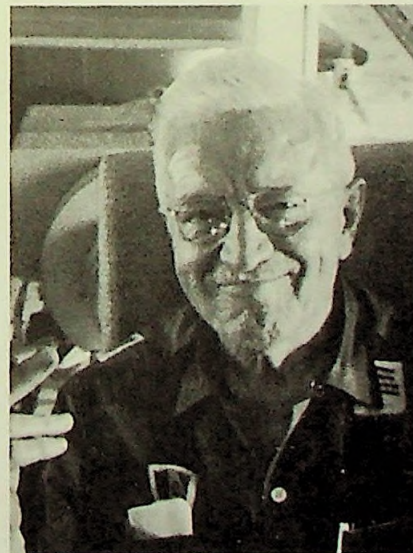
Departing Honolulu Nov. 14, the Pole Cat flew north over the North Pole to London, stopped for more fuel in Lisbon, and again to refuel in Buenos Aires, then flew south over the South Pole and down to Christchurch, N.Z., and returned to Honolulu Nov. 17. Some years hence a long-range supersonic airplane undoubtedly will shatter the Pole Cat's record but for some time it will remain solid.

As I was one of the 39 VLPs (Very Lucky Persons) to be on board all the way around, three things stand out in my mind in addition to the records set. First was the flawless performance of engines, airplane and crews. Second was the kick of being in Lisbon (Europe), Buenos Aires (South America) and Christchurch, N.Z. (Oceania) in the span of one

day. Third was the crossing of all of Antarctica and the South Pole in fine, clear weather in daylight, with awesome scenery.

Surprisingly enough for such a long trip, it was relatively comfortable and free of fatigue throughout. Six-abreast tourist seats were in the rear. Collapsible fuel tanks occupied the main cabin; but when the extra fuel was used up, the deflated tanks were fine for stretching out in sleeping bags. A galley provided hot meals. There was always plenty of coffee and soft drinks. As the flying was mainly north-south and not on the disruptive east-west pattern, eating was maintained on a normal schedule. Those on board were either working as crew members or monitoring scientific instruments or talking or snoozing. There was no stress or strain, no upset tempers.

The flight wasn't firmed up until a very few days before the desired departure date of Nov. 14, which coincided with the final day of the International AeroClassic at Palm Springs, Calif. Less than a week before, the Flying Tiger Line wasn't certain it could cut loose an airplane



from MATS contracts. The lease price was \$150,000 and FTL personnel worked overtime getting the airplane readied and fitted out. Survival equipment from the Air Force arrived just hours before the plane was ferried from the FTL base at Burbank on Sunday morning, Nov. 14, to Palm Springs for the formal departure to Honolulu, where the actual round-the-world flight was to begin.

It was an inauspicious start. It was raining in Los Angeles and also it was raining in Palm Springs, where it is *never* supposed to rain. And it was pouring in Honolulu.

As the accompanying tables show, there were two especially long non-stop hops, Honolulu-London via the North Pole, and Buenos Aires-Christchurch via the South Pole. Because the main runway was being repaired at London Central, and fog had closed a suitable airport in the east of England, an unscheduled fuel stop had to be made at Lisbon, adding to both milage and elapsed time.

A surprising amount of the flight was made in darkness. Leaving Honolulu after dark, the next stop was the following night in London, with time zones clicking off like computers. The only semblance to one full day was an hour and a half of red glow indicating where the sun was shining far below the horizon. It was not until we reached the South Atlantic area that we experienced daylight, and by the time we reached New Zealand it was dark again.

Strange as it may seem, only two stops were made in daylight. One was in Buenos Aires at noontime in fine spring sunshine. The other was on the return to Honolulu about noon on the final day.

Quite apart from the records, there

were numerous other "firsts." The Pole Cat was the first jet to fly over the South Pole. And because of our course from Argentina and our latitude (37,000-40,000 feet), we saw a great deal of Antarctica never before seen by man. Commercial airliners fly daily over the North Pole on the Europe-Tokyo run, but the South Pole has been a forbidding outpost. Although many airplanes have flown to and around the South Pole, the Pole Cat was the first to fly nonstop via the pole from one continent to another.

As for incidents, there were quite a few:

- Earl D. Johnson, consultant, and Edward J. Williams, VP, Rockwell-Standard Corp., began a gin rummy game shortly after takeoff, tried but failed to play around the world without sleep, but did rack up 1487 hands on the entire flight. Neither would say who won.

- Col. Bernt Balchen, 66, the first man to fly over both poles (with Admiral Byrd on a Tri-Motor Ford over the South Pole in 1929 and in a USAF C-54 over the North Pole in 1949), as befitting the only real polar expert on board, was in the right seat over the South Pole. Bob Buck, veteran TWA pilot, had the South Pole shift.

- Shortly after the Pole Cat left the Alaskan coast heading north, a small ventilating fan became overheated and the resulting smoke was a temporarily upsetting factor. But the fan was quickly disconnected (and replaced in London) and, aside from one loose screw on an engine mount, no other mechanical trouble was experienced. Veteran Dino G. Valazza, TWA flight engineer "borrowed" for the trip, said on return to Burbank that the Pole Cat was ready

right then for another such long flight.

- Some 5000 first flight covers had been stamped and canceled by the Palm Springs postmaster, but no formal permission had been obtained from Washington to carry mail. When the Pole Cat returned to Burbank, two postal inspectors confiscated the mail sacks and held them for several weeks until POD legal experts decided to release them, at the same time declaring that they were not official flight covers. (But those who have them will prize them highly for they did, after all, fly on an historic first flight.)

- On board was Lowell Thomas Jr., writer and lecturer like his father, who was defeated in his bid for U.S. Representative from Alaska by 1500 votes in the last election by Democrat Congressman Ralph J. Rivers. It was a mutual shock at Christchurch, N.Z., when Mr. Rivers, on a junket to the Antarctic, was in the receiving line to welcome the polar party and who should come down the steps but Mr. Thomas. The bigger jolt went to the junketing Congressman.

- Funniest incident of all was at Lisbon's dreary airport terminal after midnight, when the crew hoped to make a rapid refueling stop. Seven members of the party, including Bob Buck and Boeing's top pilot, Jim Gannett, dashed for the elevator (designed for a maximum of six persons) to go to an upper floor to the weather and operations offices. The seven jammed in, pressed the button and descended instead of ascending. The fuse blew. The cage slid to the basement which happens to contain the bonded customs area. Customs had placed a big padlock on the gate. So there the seven remained for a total of 45 minutes, with no airport official

(Page 28, far left and center) Three photos of the rugged Antarctic from 37,000 ft. (Left) Obviously enjoying the flight was sponsor Col. W. F. Rockwell. (Minox photos by WWP) (This page, far right) Edward C. Sweeney, president of NAA and of the Explorers Club, which was an early participant in the record flight. (Minox photos by WWP in Buenos Aires) (Upper right) Three seatmates en route: Lowell Thomas Jr., polar expert and retired USAF Col. Bernt Balchen (standing) and Wayne W. Parrish. (Lower right) Dr. Randolph Lovelace, Lovelace Clinic, Albuquerque, N. Mex., at left with Capt. Newton A. Lieurance (USN-Ret.), Director of the U.S. Weather Bureau's Office of Aviation Weather Affairs.



lifting a hand, until Dr. Randolph Lovelace scoured around the store-rooms to find an old hacksaw to break the padlock and release the round-the-world captives. Only then did a Portuguese functionary storm up to protest destroying public property. The seven, it might be added, had lost all sense of humor by that time and the incident was not a fit subject of conversation for some hours.

• By far the calmest men throughout the entire event, starting with the planning and chaotic crises in getting ready, and maintaining sure-footed calm up to the very last, were Captains Austin and Finch. It should be added that three or four irate persons who had hoped to be on board until the steps were pulled away had to be handled most tactfully. There were other episodes in the preparation that would have panicked lesser humans.

• After leaving Buenos Aires, weather reports were obtained regularly from the U.S. weather station on the South Pole, which is well-equipped with DME, a beacon and a good airstrip on the ice cap. But as the beacon is used by low-flying piston supply airplanes, the Pole Cat was unable to find it. The men on the ground spotted the Pole Cat by the strong contrails and directed it by radio to the exact Pole, where the station is located. A remarkably clear view of the ground installation was available to those on board.

It may be some time before all of the scientific data is put together, but several achievements are known definitely. Collins Radio provided a dual 618T high-frequency, single-sideband transceiver to obtain experimental data on high-frequency propagation conditions from many locations. Operated by a Collins specialist, John Demuth, the equipment performed very well. The Collins plant at Cedar Rapids, Ia., was never out of touch with the Pole Cat on the entire flight and only on a few occasions was voice transmission from the airplane on the weak side. Demuth was kept busy and got little sleep. Lowell Thomas Jr. radioed reports to the ABC network regularly.

Due to the haste with which equipment was installed at the last minute, the Collins teletype machine on board was inoperable, as it was out of phase with a new signal generator and there was insufficient time for correction before takeoff.

Of considerable interest was the 4000-gal. collapsible tank system installed in the main cabin by Air Logistics Corp. of Pasadena, Calif. The extra fuel increased the aircraft range for the two long polar hops and represents a very considerable ad-



(Top) Preflight conference at Flying Tiger hangar, Burbank: Left to right, Dino G. Valazza, TWA flight engineer; Goodwin Lyon, Geo Atmos Explorations; Capt. Jack Martin, chief pilot, Flying Tigers; E. A. Pinke, Flying Tigers VP-operations (who didn't go on the flight); and Capt. Fred Austin.

(Above left) Termination of the round-the-world flight at Honolulu. (USAF photo) (Above right) Returning to Burbank: Left to right at bottom, Captains Harrison Finch and Fred Austin, and, top, Captains Jack Martin and Bob Buck.



(Above) At Honolulu, Col. Bernt Balchen is met by Brig. Gen. Erik Nelson (USAF-Ret.), one of four flyers to complete the first globe-circling flight 41 years ago in a single-engine, open-cockpit Douglas biplane, which took 173 days and 70 stops. Nelson's 26,345-mi. west-east flight closely matched the Pole Cat's mileage. (USAF Photo) (Right) Boeing pilot Jim Gannett checks route map used during the flight with Austin. (Below) New-type collapsible tanks installed by Air Logistics, Inc., contained 4000 gal. of fuel.



vance in transporting bulk quantities of fuel by air. The tanks were fabricated by Firestone Tire & Rubber Co. and featured unique surge-arresting and tie-down mechanisms. When empty the tanks are flat and can be rolled up and stored away. This was the first use of the tanks on a normal configuration transport.

Not the least important experiment was the installation of a Litton Industries inertial navigation system. While the flight crew used gyro and celestial navigation throughout, the Litton team was supplementing with its own tests, conducted by Dr. David L. Bjorndahl, Peter Mesquita and James Furuya, and seemed well pleased. In fact, at the South Pole the gyro navigation was off by about 40 miles, while the Litton system was only two miles off target, much closer than the expected margin of error for a flight of this distance. The Litton system also was correct on the heading to New Zealand, while the navigators had to wait until they could make celestial observations to correct the course.

The Litton system used on the Pole Cat is not new, as it is operating in the F-4, F-111, F-104, A-6A and E-2A aircraft, but this was the first opportunity to demonstrate its capability to navigate on a global basis. Time did not permit complete alignment on the ground prior to departure, but the Litton team made adjustments en route and, by the time the Pole Cat left London, the system was functioning "better than expected," which means that it was well within anti-

ciated margin of error. In any event there were no navigation problems throughout the flight.

There were no fewer than five senior pilots on board. In addition to Austin and Finch, there were Capt. Jack Martin, system chief pilot of the Flying Tigers, who was pilot in command and whose flight time exceeds 15,000 hours; Capt. Robert N. Buck, of TWA's international division, whose writings and extracurricular activities have made him one of the nation's best known pilots; and James R. Gannett, senior engineering test pilot for Boeing and one of the top pilots of the industry.

Capt. Austin, incidentally, has been flying since 1932 and has had more than 17,000 hours of flying time. He joined TWA in 1939 and currently is flying TWA between Los Angeles and Washington, D. C. Capt. Finch joined TWA in 1941, has logged more than 18,000 hours and now is flying TWA between New York, London and Frankfurt.

Three flight engineers, all veterans, were on board: Dino Valazza and James M. Jones of TWA, and Eugene Olson of Flying Tiger Line. Navigators were John Larsen, formerly with TWA and now consultant for Weems Corp.; Luran DeGroot, of Lear-Siegler; and E. A. Hickman, of Flying Tiger Line. Also in the crew was Goodwin Lyon, of Geo Atmos Explorations, Inc., a company set up to operate the flight.

In the scientific area, in addition to three Litton specialists, passengers included Dr. Donald Goedeke, of Douglas Aircraft Co., doing space re-

search; Dr. Serge Korff and William Sandie, New York University; Capt. N. A. Lieurance (USN-Ret.), U.S. Weather Bureau; Walter B. Gartner, Serendipity, Inc.; and William King, of NASA.

Observers included Col. Bernt Balchen, one of the world's real experts on the polar regions; Edward C. Sweeney, president, and Bart Locanthi, timer, from the National Aeronautic Association; Col. W. F. Rockwell, chairman, and Edward J. Williams, VP, of Rockwell-Standard Corp.; Dr. Randolph Lovelace, Lovelace Clinic; Father Anderson Bakewell, Holy Trinity Church, of Washington, D.C.; William Schulte, former deputy administrator of the FAA and chairman of the International AeroClassic; John DeBois, Earl D. Johnson and Lowell Thomas Jr., representing the Explorers Club; and Melvin B. McKinney, VP of Union Bank of Los Angeles.

Two photographers from *Life* magazine, Don Moser and J. R. Eyerman, led the press group. Clete Roberts, the Los Angeles TV personality, and Joseph Longo, photographer, were on board for Geo Atmos Explorations, Inc. This writer represented the specialized business press.

An addendum to the flight:

When the Pole Cat was flying from Los Angeles to Honolulu, Fred Austin wanted to know the current runway situation at London Central. With the Collins Radio communication setup, via Cedar Rapids, he had the reply back in five minutes.

Such is today's air exploration. ■

## The Pole Cat Weighed Plenty

Gross Takeoff Weights From:	Lb.
Palm Springs .....	253,933
Honolulu .....	352,610
London .....	273,333
Lisbon .....	329,733
Buenos Aires .....	324,333*
Christchurch .....	285,333
Honolulu (to Burbank) .....	241,333

\* Although this was the longest leg, weight of fuel was lighter due to higher spring temperature at Buenos Aires.

## A Hungry Pole Cat

With cabin tanks installed by Air Logistics, Inc., containing 4000 gal., the Pole Cat consumed a total of 117,354 gal. of aviation kerosene starting at Palm Springs and ending at Burbank. Total capacity was 27,855 gal., filled for the Honolulu-London leg.

Here is the fuel record:

Left Palm Springs with 16,200 gal.  
 Added 23,610 gal. at Honolulu  
 Added 16,607 gal. at London  
 Added 14,300 gal. at Lisbon  
 Added 24,344 gal. at Buenos Aires  
 Added 18,600 gal. at Christchurch  
 Added 11,393 gal. at Honolulu (for Burbank)

The actual round-the-world flight, Honolulu-Honolulu, subtracting 3500 gal. remaining at Honolulu from Christchurch, consumed 98,206 gal.

## Eight World Records Claimed

The National Aeronautics Association, represented on the flight by Edward C. Sweeney, president, and Bart Locanthi, timer, have certified to the Federation Aeronautique Internationale the following eight records (all elapsed times) claimed by the Pole Cat:

Around the world—both poles	62:27 hr.	415 mph
North to South Pole	34:46 hr.	357 mph
Honolulu to London via North Pole	13:54 hr.	520 mph
Buenos Aires to Christchurch via South Pole	14:17 hr.	431 mph
Christchurch to Honolulu	9:01 hr.	539 mph
London to Buenos Aires	16:41 hr.	416 mph
London to Lisbon	2:19 hr.	414 mph
Lisbon to Buenos Aires	11:56 hr.	497 mph

## Here's the Pole Cat Record

Leg	Statute Miles	Flight Time (Hr.)	Ground time at:
Burbank-Palm Springs	Ferry	:44	
Palm Springs-Honolulu	2695	6:27	HON—2:46 hr.
Honolulu-London	7407	13:54	LON—3:24 hr.
London-Lisbon	1070	2:19	LIS—2:25 hr.
Lisbon-Buenos Aires	6140	11:57	BA—2:59 hr.
BA-Christchurch	7027	14:18	CC—2:11 hr.
CC-Honolulu	4856	9:01	HON—3:00 hr.
HON-Burbank	2585	4:27	

Total globe-circling flight time, HON-HON: 51:27 hr.  
 Total elapsed time, HON-HON: 62:27 hr.  
 Total Statute Mileage, HON-HON: 26,500  
 Total Statute Mileage, Burbank-Burbank: 31,980  
 Total elapsed time, Burbank-Burbank: about 4 days, 10 hr. (106 hr.)

The Washington Post  
Washington, D. C.

# Around the World in 86 Hours

*Scientist Skips Sleep to Bottle Air Over Both Poles*

By Martin Well

Washington Post Staff Writer

Newton A. Lieurance didn't sleep a wink during his trip around the world last month.

He stayed awake for 86 consecutive hours because he was too busy bottling air.

He also was monitoring ozone and serving as a weather man on the round-the-world Rockwell Polar Flight of Nov. 14-17.

Lieurance, director of aviation affairs for ESSA, the Environmental Sciences Service Administration, went on the flight as that agency's official observer.

"I was over-programmed," he said. "But I wouldn't have missed it. It was once in a lifetime."

## Flight Scores 'First'

It was the first round-the-world flight to cross both poles, and scientists say that Lieurance's experiments had never been conducted before.

This was the first time, they say, that air samples have been collected over the entire range of latitudes from pole to pole, and over both the Atlantic and Pacific in so short a time span.

Lieurance bottled the air by diverting some of the cabin compressors' intake into spe-

cially prepared glass containers.

Now the McLean resident's 28 samples are being analyzed in Stockholm to establish their carbon dioxide concentrations.

## Trace Ash Residue

From the resulting data, scientists hope to learn how the earth's atmosphere is being changed by the burning of coal and oil in the industrialized Northern Hemisphere.

A panel of the President's Science Advisory Council suggests that this may be a critical problem.

Carbon dioxide added to the atmosphere by combustion wastes could change our climate markedly, the Council has reported.

In fact, some scientists believe that carbon dioxide could make things hot enough to melt the polar ice caps. This would raise the levels of the oceans, flood coastal cities, and cause tropical jungles to flourish all over North America.

## May Provide Answer

Some indications as to whether such a cataclysm could ever become a reality may be provided by Lieurance's experiments.

Dr. Lester Machta of ESSA

is the scientist here who will interpret Lieurance's data. He is mainly interested in using carbon dioxide as a tracer, to study atmospheric circulation and to learn more about fallout behavior.

His assumption is that carbon dioxide takes about three years to get from here to the South Pole.

"By comparing the amount at the South Pole with the amount now here we can run a check on how fast it is changing," Machta said.

## Ozone Measured

As his flight circled the globe, Lieurance also made a continuous reading of atmospheric ozone concentrations.

Ozone, made of three oxygen atoms instead of the normal oxygen molecule's two, is another good atmospheric tracer. By following ozone movements, scientists can follow the movement of the air that carries it.

For Lieurance, two other aspects of the flight also had significance.

One was making an evaluation of the quality of world meteorological service for long-distance flights over polar regions. He found good cooperation between U. S., British, Portuguese, Argen-

tine, New Zealand and Australian weather services.

The flight also permitted the assessing of present services and equipment for polar flight. Here, too Lieurance found prospects bright. The flight encountered no difficulties.

In fact, the only hitch in an otherwise perfect trip, Lieurance said, came when somebody pushed the wrong button in a Lisbon elevator.

The car dropped to the bottom of the shaft and marooned the crew there, delaying the flight by two hours.



The Washington Post

NEWTON LIEURANCE

... "It was once in a lifetime."

COLLINS

# SIGNAL

SPRING 1966

OVER BOTH POLES

## POLE-CAT HUSTLES AROUND THE WORLD

Many an adventure story depicts a "wireless" operator, seated in front of a receiving set, waiting tensely for a report from an expeditionary party to come crackling through.

Such might have been the case in a recent great adventure, had it not been for modern aviation technology and thorough advance planning, including the communications aspect. The around-the-world jet flight via both



*Pole-Cat prepares to take off on historic around-the-world flight over both Poles. Journey demolished eight world records.*

Poles last November 14-17 was a tremendous undertaking, yet was completed with a smoothness that made the journey seem almost uneventful. Very few problems were encountered in this jet era epic. One phase that caused no problems was the communication link between the globe-circling jet and the United States.

What is regarded in some circles to be the exception in high-frequency communication achievement became the rule on this flight. It demonstrated the adeptness of HF single sideband when reliable equipment and proven operating techniques are used. At no time throughout the three-day flight was there inability to make contact

between the aircraft and the U. S. ground station, even from the normally difficult propagation areas surrounding the North and South Poles.

Aboard the aircraft, a Flying Tiger Line Boeing 707-349C dubbed "Pole-Cat," this long-range communication capability was provided by a Collins 618T-2 transceiver. Designed primarily

for airborne operation, the 618T performed with textbook precision.

The idea of a round-the-world jet flight was turned into reality largely through the organization efforts of two veteran Trans World Airlines pilots, Fred Austin and Harrison Finch, financial backing by the Rockwell-Standard Corporation, and the availability of a long-range jet from The Flying Tiger Line. Although there have been numerous globe-girdling flights, none had ever been made over both Poles.

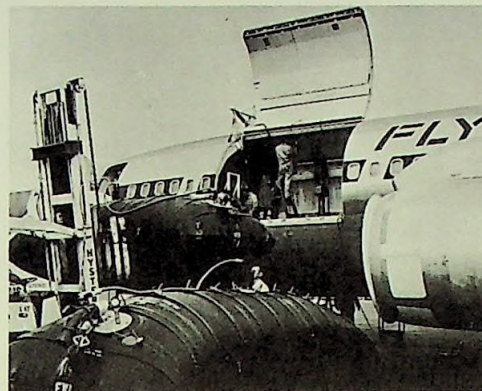
Among the multitude of details involved in such an undertaking was selecting scientific experiments to be performed. This was accomplished with the help of various industries, the National Aeronautics and Space Administration, U. S. Weather Bureau, New York University, and other scientific institutions.

The Collins experiment involved advanced high-frequency communication techniques, using equipment and methods developed during the company's many years of experience in this field. The basic purpose of this experiment was to obtain data on high-frequency propagation conditions from many locations over a relatively short period of time. Included in the experiment were measurements of propagation conditions and voice and data transmission performance. Aboard the aircraft to conduct the Collins experiment was John O. Demuth, engineering assistant in the company's propagation research department and a 25-year employee. Demuth was listed as radio operator on the flight roster.

Installed for the experiment were the 618T-2 (two other 618Ts, part of the normal Flying Tiger communication equipment on the 707, also were aboard), a newly developed signal generator, data modem, and associated equipment including controls, headset and microphone. The installation of this equipment was coordinated by Robert Bennett, manager of electronics engineer, Flying Tiger Line.

Cooperating in the HF experiment was the Military Affiliate Radio System (MARS). MARS facilities were made available along the route to provide communication with the aircraft, although all the Collins experiment transmission was with stateside stations.

Frequencies used ranged between 7 and 21 mc depending upon time and aircraft location. The shortest path length was about 2,000 miles and the



*Left: Auxiliary fuel tanks are installed in the main cabin of Pole-Cat. Right: Collins engineer John Demuth, left, and Lowell Thomas Jr. during experiment.*

longest 9,000 miles. Predictions of the most appropriate frequencies for given times and locations, determined by computer calculations, were provided by the Collins propagation research group. A chart of these frequencies was prepared, and both the airborne operator and ground station operators found them to be highly reliable. If the primary frequency listed for a given time and place was unsatisfactory, an alternate was used.

Demuth shared the aircraft antenna system with the pilots, and assisted them with operational and weather message traffic as well as transmitting data and handling voice messages for other passengers throughout the flight. Among the messages were flight progress reports by Lowell Thomas Jr., and Cleve Roberts, who were heard on nationwide news broadcasts.

At the U. S. receiving site, two receivers, part of the Collins line of Universal Radio Group (URG) HF SSB equipment were used. One receiver was tuned to the primary frequency predicted for that time and the other to the alternate frequency. The 618T aboard the aircraft operated at 400 watts peak envelope power. The ground station operated with 1,000 watts PEP into very-high-gain antennas.

Data from the flight is still being analyzed. Results of studies of the findings to date, however, indicate that much valuable information was obtained and should contribute significantly to knowledge of HF conditions. Fade patterns, multipath structures and signal-to-noise ratios have been obtained from the recorded data. The quality of voice transmission throughout the flight was considered very good, even though at times there was aircraft-

induced Doppler shifts of up to 17 cps.

Outfitting the huge 707-349C took place at The Flying Tiger Line terminal at Burbank, Calif. The aircraft, normally equipped for both freight and passenger carrying, was divided into three main compartments for the flight.

The forward compartment included the Collins operating station equipment and also equipment for other experiments, power supplies and bunks for the crew and flight personnel to use when resting. In the center compartment were two collapsible tanks for 4,000 gallons of fuel needed to extend the range of the jet. The rear compartment contained passenger seats, additional equipment, and a galley.

Pole-Cat was a nearly new aircraft which the Flying Tiger Line provided under a lease arrangement. The pilot in command was Capt. Jack Martin, Flying Tiger system chief pilot. In addition to Capt. Martin, other pilots on the flight were Capt. Robert Buck, Harrison Finch and Fred Austin of TWA, and James Gannett, senior engineer test pilot for the Boeing Aircraft Company.

In addition to its high frequency communication system, the 707-349C was equipped with an extensive range of other Collins avionics equipment, including dual FD-108 flight directors.

Departing from Burbank, Pole-Cat headed for Honolulu, official starting point for the world record effort. On this initial leg the communication capabilities of the Collins equipment became apparent when contact was easily established between the aircraft and mainland station.

From Honolulu the aircraft flew its longest hop of 7,407 miles over the North Pole to London in 13 hours, 54

minutes. Because the North Pole was in darkness, no visible sightings were made; but the communication link with the states was maintained.

Originally, Pole-Cat was scheduled to fly non-stop from London to Buenos Aires. But take-off from a shorter-than-desirable runway at London required a lightened fuel load. Consequently, Pole-Cat had to make an additional stop at Lisbon. The London-Lisbon hop, 1,070 miles, took 2 hours and 19 minutes. The 6,140-mile lap from Lisbon to Buenos Aires required 11 hours and 57 minutes.

The South Pole phase of the flight was from Buenos Aires to Christchurch, New Zealand, a distance of 7,027 miles. The trip took 14 hours and 18 minutes. Personnel at the U. S. weather station at the South Pole spotted the Pole-Cat's contrails and directed it by radio to the Pole, giving those on the aircraft a good view of the installation.

Communication with the states from the South Pole was very clear. So was contact with the states between the South Pole and Christchurch. Even at this distance Pole-Cat transmissions were received at regular intervals.

The Christchurch-to-Honolulu final lap was 4,856 miles and required 9 hours and 1 minute.

Total elapsed flying time on the globe-circling flight was 51 hours, 27 minutes. Including ground time, total elapsed time was 62 hours and 27 minutes, not counting flights between the mainland and Hawaii. Total mileage on the record phase of the flight was 26,500, and 31,980 miles from Burbank to Burbank.

Eight world records have been claimed for the flight, including around the world over both Poles; North to South Pole; Honolulu to London via North Pole; Buenos Aires to Christchurch via South; Christchurch to Honolulu; London to Buenos Aires; London to Lisbon, and Lisbon to Buenos Aires.

Scientific exploration was the primary purpose of the flight, however, with particular emphasis on high altitude meteorology, including clear air turbulence. A total of 40 persons were aboard, including Col. Bernt Balchen, 66, who flew over the South Pole in 1929 with Admiral Richard Byrd in a Ford Tri-Motor.

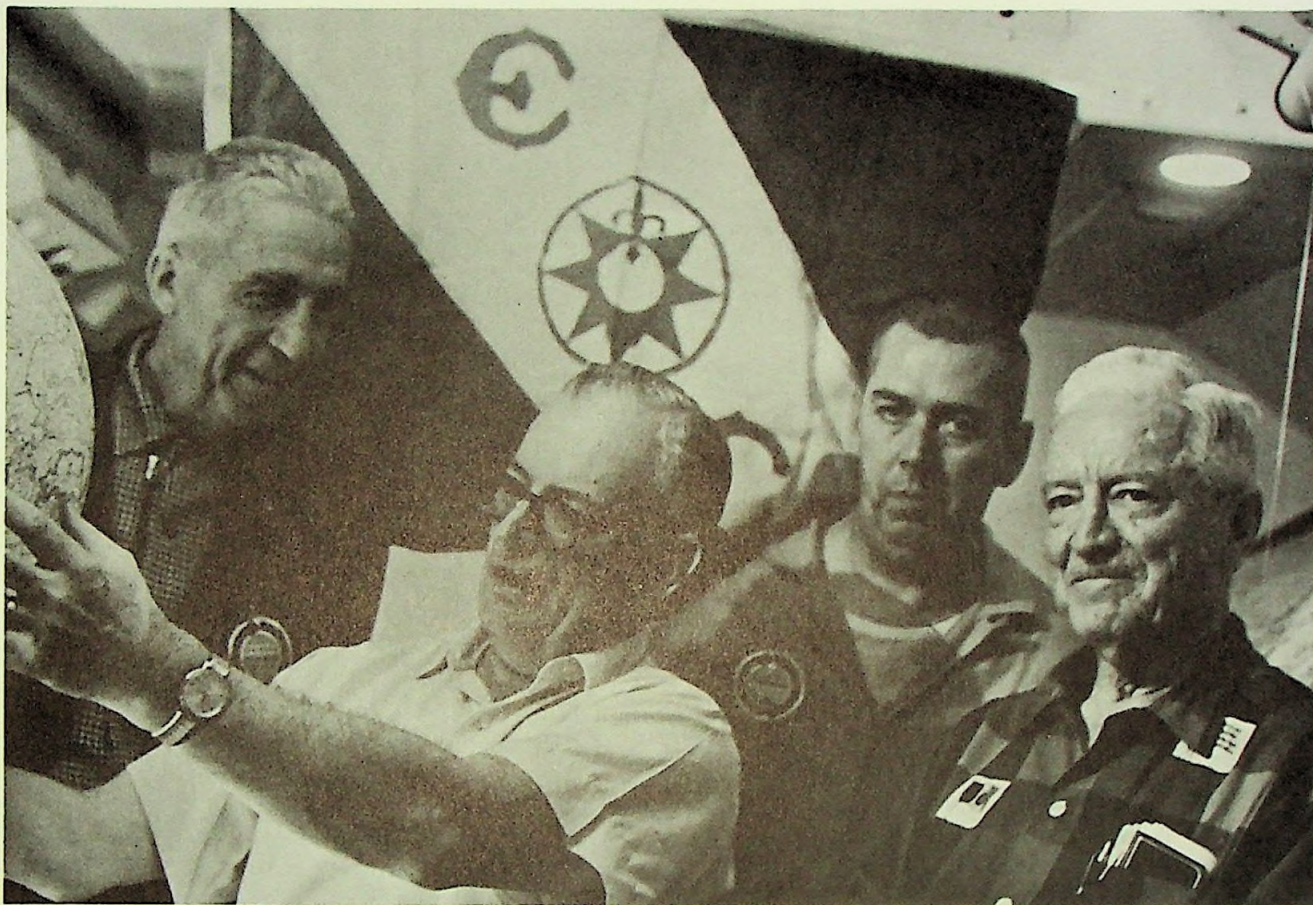
Except for lack of sleep, there were no discomforts involved in the flight.

Compared with some previous around-the-world flights, one of which lasted 57 days, the Pole-Cat odyssey was a breeze.

# W+ the Winged Head



OFFICIAL PUBLICATION OF THE PITTSBURGH ATHLETIC ASSOCIATION



## Seeing The World --- From Top To Bottom!

PAA Members Do Get Around This World. But They'll Have To Go Far To Match Colonel Rockwell

**A** MAN who heads two major Pittsburgh corporations recently focussed world attention on our city and brought added prestige to the nation. He is Colonel Willard F. Rockwell, whose Rockwell-Standard Corp. sponsored a record-breaking flight that never had been attempted before—around the world, over both poles.

The primary purpose of the Rockwell Polar Flight was to obtain scientific data which will contribute to aviation safety throughout the world. In accomplishing its purpose, the flight also established eight world speed records for the United States.

*At 40,000 feet over the Pacific and at speeds averaging 550 miles an hour, talking over the plane's "over the Poles" flight path are John Dubois of the Explorer's Club; E. J. Williams, executive vice president of Rockwell-Standard; Co-commander Harrison Finch and Colonel Willard F. Rockwell.*

Rockwell-Standard Corp., long a major supplier to the automotive industry, also is strongly involved in the aviation industry as a manufacturer of business and utility aircraft.

Colonel Rockwell was one of a party of 40 distinguished American scientists, crewmen and observers, including Lowell Thomas, Jr., who



*Colonel Willard F. Rockwell and veteran polar pilot Bernt Balchen discuss flight plans before take-off. Bernt Balchen was pilot for Admiral Byrd on the first flight ever made over the South Pole.*

made the historic journey. Bernt Balchen, pioneer flier who piloted Admiral Byrd over the South Pole, also was on board.

The 27,000-mile flight was made Nov. 14 to Nov. 17, 1965, in an intercontinental version of a Boeing 707 jet. It departed from Honolulu and flew over the North Pole to London; from London to Lisbon, Portugal; from Lisbon to Buenos Aires, Argentina; from Buenos Aires to Christchurch, New Zealand; and from Christchurch back to Honolulu.

The total elapsed time was a record-breaking 62 hours, 27 minutes and 35 seconds. Seven other world speed records established were from Pole to Pole and from point to point, on the world-girdling trip.

"Scientific information acquired on this flight will contribute significantly to future aviation safety, including high-altitude, high speed flight," says Colonel Rockwell.

The flight was conducted specifically to gather data on cosmic radiation at a constant altitude, to develop new information on the jet stream, to make air samplings for spores, micrometeorites, and atmospheric content, and to photograph clouds in order to furnish correlations of photographs relayed to earth by the Tiros weather satellite.

The cabin area in the plane was converted into a scientific laboratory, and included such items as time-lapse cameras, radiometers and other instruments for measuring cosmic and solar radiation, a new laser altimeter, radio equipment and a new type of

inertial guidance system.

The jet also was equipped with a new type of auxiliary fuel system which permitted the aircraft to increase its range to more than 7,000 miles. It was developed by Air Logistics for the United States Army. The auxiliary tanks occupied part of the cabin area and they collapsed as they emptied. Crew members found the collapsed tanks to be a comfortable base for their bed rolls.

Accompanying Colonel Rockwell aboard the flight was E. J. Williams, vice president of Rockwell-Standard. The flight crew included Co-commanders Captain Fred Austin and Captain Harrison Finch, veteran TWA pilots. Among the scientists aboard were the late Dr. Randolph Lovelace, physician to the astronauts, and Dr. Serge A. Korff, physicist from New York University.

During the flight, Dr. Korff and other scientists measured cosmic and polar radiation and infrared radiation from cloud formations. They also measured the amount of radiation being received inside the plane by a simulated plastic man supplied for this purpose by the National Aeronautics and Space Administration.

Air samples at various levels also were collected during the flight by Capt. N. A. Lieurance, director of aviation affairs, Environmental Science Services Administration, of Washington. The samples now are being analyzed for carbon dioxide and ozone content. This data on ozone, which has a deadly effect on organic materials at high altitudes, will aid in designing aircraft for maxi-

imum protection against a high altitude environment.

The carbon dioxide samples, taken at various altitudes from around the world, have been shipped to a world authority on atmospheric testing, Dr. Walter Bishoff, of the University of Stockholm, Sweden. Dr. Bishoff's analysis of these carbon dioxide samples will indicate whether the heat level of the atmosphere surrounding the earth is increasing as many scientists believe it is. If so, a rise of a few degrees in the atmospheric heat level could melt polar ice causing oceans to rise, flood coastal cities, and even cause tropical plants to grow in Pittsburgh.

"Analysis of the air samples could prove to be the most valuable scientific information obtained by the polar flight," Capt. Lieurance said.

Other scientific data collected during the Rockwell Polar Flight are being analyzed and correlated. The findings eventually will appear as scientific reports in meteorological, aviation and scientific aviation journals.

Edward C. Sweeney, president of the NAA, said that the Rockwell Polar Flight "demonstrated the competence of American know-how, daring and imaginative execution." And these are the qualities which always have characterized the career of Colonel Willard F. Rockwell, prime mover behind the historic flight.

As a pioneer in the axle business, Colonel Rockwell designed an axle which outmoded competitive products and founded his own company. When trouble struck Timken-Detroit Axle Company during the depression, he was elected president to save the business. A few years later, he merged Timken-Detroit with Standard Steel Company to form Rockwell Spring & Axle Company. It became Rockwell-Standard Corp. in 1958. The Colonel also is the founder of Rockwell Manufacturing Company which he organized back in 1925.

Highly respected for his ability to anticipate new trends, Colonel Rockwell has been a driving force in the automotive industry for 50 years and his Rockwell-Standard Corp. now is a major manufacturer of business and utility aircraft.

He is a director of the Freedom Foundation, Pittsburgh National Bank, The National Industrial Conference Board, and many other prominent companies and organizations.



Bart Locanthi (left), official timer, and Captain Fred Austin check time records of the Rockwell Polar Flight.



(Left to right) Colonel Rockwell and Co-commanders Finch and Austin (holding his son) are welcomed home at the end of the 27,000-mile journey.

This advertisement appeared in the May, 1966 issue of *Air Transport World*.



In addition to being the first globe-circling flight via the poles, the Rockwell Polar Flight was the first non-stop flight over the South Pole from one continent to another. The plane used for

this historic flight was a Champion-ignited Flying Tiger Boeing 707-349C, powered by four Pratt and Whitney JT3D-3B jets each developing 18,000 pounds thrust.

North Pole...South Pole...

## Crossing aviation's almost forgotten frontier

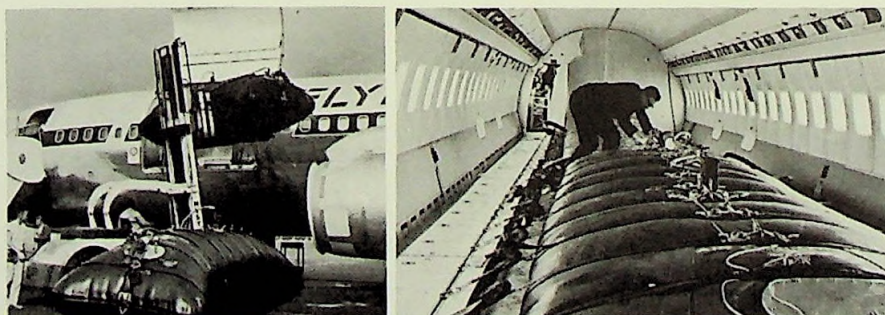
**At last an airplane has flown around the world via both poles! Brought off smoothly by two TWA pilots, the Rockwell-Standard Corporation, and Flying Tigers, the flight was a scientific expedition that stands as a tribute to the high development of American aviation**

With little public fanfare, the Rockwell Polar Flight departed Honolulu last November 14 and headed north. Three days later, the Polar Flight approached Honolulu from the south—and arrived as the first flight in all of aviation history to circle the globe via the North and South Poles!

It was a flight that aviation experts had often said would be the last big exploration this side of space

by a conventional airplane. And it may well have been just that. The flight, employing a Boeing 707 jet named "Pole Cat," was made largely in darkness, including the first leg over the North Pole. But the crossing of Antarctica was made during broad daylight in a clear, cloudless sky. And the scenery was magnificent. Much of Antarctica on the Pole Cat's route had never before been seen by man!

It's a wonder that pilots long



New-type auxiliary fuel cells were put aboard to provide extra long-range flying capability. Each carrying 2,000 gallons of fuel, they are rubber/nylon, collapsible, and incorporate unique tie-down and surge-arresting mechanisms. They were installed in the Pole Cat's main cabin—just aft of the cockpit and forward of the passenger compartment. It was the first time these cells have been used on a normal configuration transport.

ago had not accepted the challenge that the flight offered. Indeed, such a flight had been planned by many pilots in the past. But, for one reason or another, nobody was ever able to actually bring it off until now.

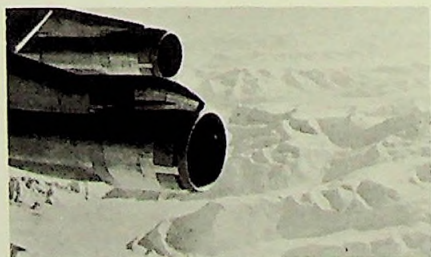
And—had it not been for the tremendous determination of TWA Captains Fred Austin and Harrison Finch—the flight might well have remained a forgotten frontier in aviation history. After first conceiving the flight, these pilots spent two long years stubbornly searching for a sponsor—and a plane—to make their two-pole flight a reality.

Ultimately, two air-minded companies heard of their plan and were anxious to participate. The Rockwell-Standard Corporation, which manufactures the Jet Commander and other Aero Commander business and utility aircraft, enthusiastically agreed to sponsor the flight to help advance aviation science. And the Flying Tiger Line arranged to provide a new jet transport. Then things moved fast. The entire expedition was organized in less than a week!

For the long hops over the poles, the Pole Cat was fitted with a complex auxiliary fuel tank system that boosted its range to over 7,400 miles. In addition, the plane was equipped with over 5,000 pounds of scientific equipment for space, weather, navigational and radio research. The Pole Cat carried a 13-man crew which included 5 senior pilots—plus 27 passengers among whom were official observers from the National Aeronautics Association and scientists.

The entire 26,275-mile Rockwell Polar Flight required just four stops for refueling—and was completed in only 51:27 hours' flying time! It was a trouble-free exploratory flight from start to finish, and total flying time was very close to that planned—a fine tribute to the flying "know how" of the crew and the dependability of their plane.

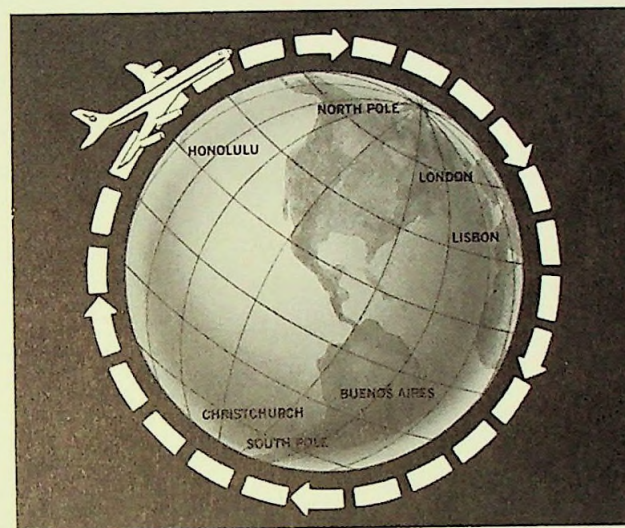
It's flying like this that demands the maximum in dependability from every aircraft engine component. That's why Flying Tiger engineers specified *Champion* jet igniters for this epic flight. Experience has proved that they can depend on Champions under *all* operating conditions!



Flying at an altitude of 37,000 to 40,000 feet, members of the Rockwell Polar Flight got a clear view of much of unexplored Antarctica. This photograph and the one at the right were taken by J. R. Eyerman, one of two photographers who were on board from *Life* magazine.

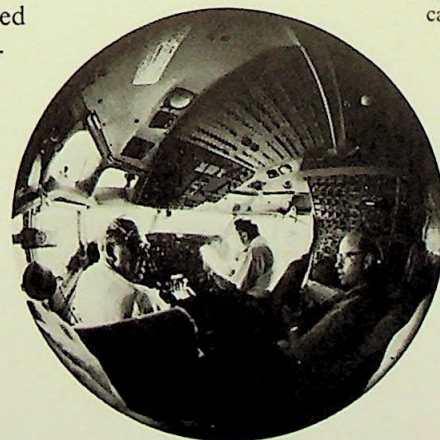


In recognition of the Rockwell Polar Flight's epic achievement, Major General Joseph D. Caldara, President of Flight Safety Foundation, Inc., presents his organization's merit certificate to pilots Fred Austin (top, l.) and Harrison Finch. At center is Col. W. F. Rockwell, Board Chairman of the Rockwell-Standard Corporation.



The 26,275-mile Rockwell Polar Flight circled the world via the poles in five legs:

Honolulu over the North Pole to London . . . 7,415 miles in 13:54 hours ■ London to Lisbon . . . 974 miles in 2:19 hours ■ Lisbon to Buenos Aires . . . 5,991 miles in 11:56 hours ■ Buenos Aires over the South Pole to Christchurch, New Zealand . . . 7,034 miles in 14:17 hours ■ Christchurch to Honolulu . . . 4,861 miles in 9:01 hours. The short leg London to Lisbon was unscheduled—but necessary because London facilities at the time could not refuel the Pole Cat to capacity. Total globe-circling flight time was 51:27 hours, and total elapsed time was 62:27 hours.



This cat's-eye view of the Pole Cat's cockpit shows the instrument jungle surrounding Captain Robert N. Buck and Captain Jack Martin. Behind flight engineer James Jones, there was also much experimental instrumentation, including a Litton inertial navigation system being tested for the first time on a global basis.



CHAMPION  
SPARK PLUG COMPANY  
TOLEDO, OHIO 43601



# American Polar Society



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Official Publication  
**The Polar Times**

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No. 58 June 1964  
No. 59 Dec. 1964  
No. 60 June 1965  
No. 61 Dec. 1965

Winter 1966

Dear Member:

Your Society takes pleasure in sending you No. 61 of THE POLAR TIMES. We are proud to record that on the Rockwell Flight over both the North and South Poles last November 14 to 17 there were six members aboard. They are Prof. Edward C. Sweeney of our Board of Governors, Col. W. F. Rockwell, Col. Bernt Balchen, Rev. Anderson Bakewell, John DuBois and Lowell Thomas, Jr.

Your Society regrets to record the death of its fifth Honorary Member, Prof. Frank Debenham of Cambridge, England. A geologist on Captain Scott's second and last expedition to Antarctica, he was the founder and first director of the Scott Polar Research Institute.

The cover photo on the current issue of THE POLAR TIMES is from "This Is Antarctica" written by Joseph M. Dukert, a member of the Society. A review of his book is in the current number. We commend it to you. Two photos on the back page are by Bjorn Bolstad of Nutley, N.J., another member. He visited the Russian base Vostok in the Antarctic several hours after flying there from McMurdo Sound.

The Society looks to its members for help in enrolling new members. Please send the Secretary names and addresses of your friends to whom membership invitations will be sent; also polar clippings and articles for use in THE POLAR TIMES.

For members whose dues are now payable we enclose a renewal card and reply envelope. You help your Society a great deal by renewing for three years, although one and two year renewals are also acceptable.

Recent issues of THE POLAR TIMES are still available at 50 cents each. Please remit with your order.

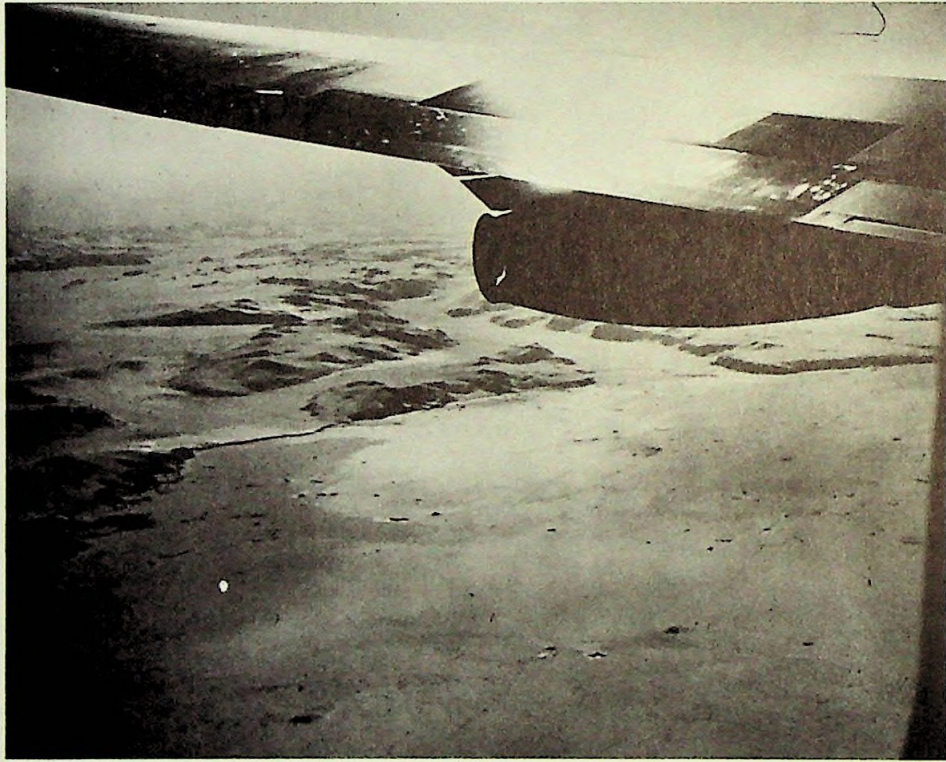
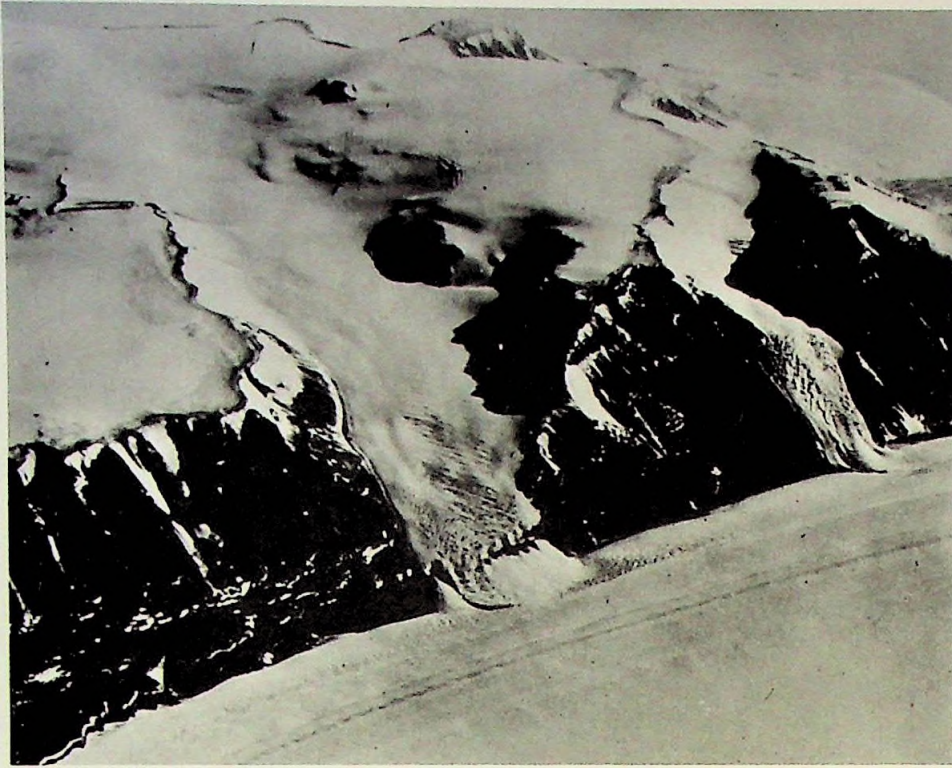
Thank you for your continued interest.

Sincerely yours,

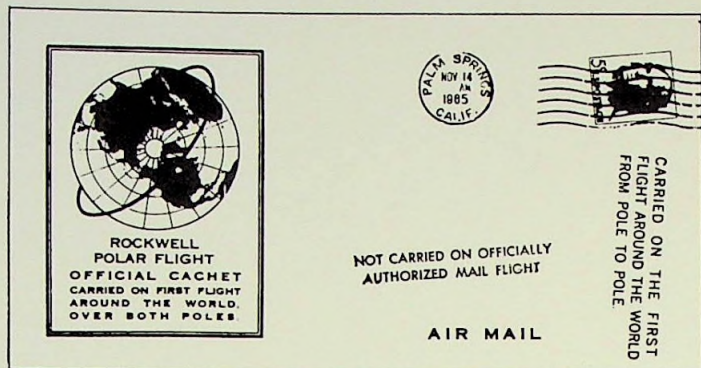
Robert A. J. English  
Rear Admiral, U.S. Navy (Ret.)  
President

#### *Honorary Members*

GENERAL DAVID L. BRAINARD, 1936-1946  
ADMIRAL RICHARD E. BYRD, 1938-1957  
DR. VILHJALMUR STEFANSSON, 1940  
DR. LINCOLN ELLSWORTH, 1944-1951  
PROF. FRANK DEBENHAM, 1949  
DR. PAUL A. SIPLE 1957  
LOUISE A. BOYD 1959



Some of the photographs taken as the plane approached the South Pole show the rugged terrain. Several crew members were delighted to view geographical points in Antarctica named after them — Mount Sweeney, the Lowell Thomas Mountains, and the Balchen Glacier.



## All's Well, Etc.

A unique kind of first day cover — the first mail to be flown around the world over both poles — caused confusion and controversy with U. S. postal authorities. The matter was resolved, but in a manner that added to the uniqueness of the first day covers.

Four thousand, nine hundred specially-imprinted envelopes were carried on the recent Rockwell Polar Flight, sponsored by Rockwell-Standard Corp. of Pittsburgh, Pa. Purpose of the flight was to obtain scientific data which will contribute to aviation safety.

The envelopes began the historic 27,000-mile journey November 17, 1965, in an intercontinental version of a Boeing 707. The plane departed from Honolulu and flew over the North Pole to London; from London to Lisbon, Portugal; from Lisbon to Buenos Aires, Argentina; from Buenos Aires to Christchurch, New Zealand; and from Christchurch back to Honolulu.

Total elapsed time on the world-girdling trip was a record-breaking 62 hours, 27 minutes and 35 seconds. The flight also established seven other world speed records for the United States.

Before the plane had completed its historic bi-polar trip, it was discovered that it was not authorized to carry mail. Postal authorities first confiscated the covers, then released it after stamping each envelope, "Not Carried On Official Authorized Mail Flight".

Each envelope also, is franked with only a 5c stamp, but was carried on airmail flight. "We should have marked them all 'three cents postage due'," said one postal official.

The imbroglio surrounding the Polar Flight covers is as fascinating as it is involved.

The explanation starts with Dorothy Furman, a Los Angeles publicist, who had a special cachet designed and printed on the envelopes at the request of Capt. Fred Austin, veteran TWA pilot and co-commander of the Rockwell Polar Flight. Inserted in the envelopes was a statement by Col. Willard F. Rockwell, board chairman of Rockwell-Standard, explaining the historic venture. As an official observer aboard the flight, Col. Rockwell, 77, became the oldest man to fly over both poles.

Just before take-off, the covers were delivered to Palm Springs postmaster Fred G. Parker, who was delighted to put them through his cancelling machines and deliver them to the plane in sealed mail bags. Mr. Parker also sent a letter explaining the Polar Flight and the mail to PMG Lawrence O'Brien in Washington, D. C.

The news traveled fast. While the Polar Flight still was circling the world, Miss Furman received a phone call from Postal Inspector James G. Hudson of Los Angeles, who questioned her and then told her that the mail would have to be confiscated because it was not an authorized transportation of mail.

Attempting to solve the dilemma, Robert L. Wertman, public relations and advertising director of Rockwell-Standard, contacted Ira Kapenstein, special assistant to the postmaster general. Mr. Wertman assured him that everyone involved with the Polar Flight had acted in good faith and had assumed that some one

else had obtained official authorization for the carrying of the covers. Mr. Wertman pointed out that the Flight was an historic "first" and it would be a shame to deprive the world of a permanent memento and record.

In discussing the situation, one postal inspector said that the unauthorized covers were "a violation of the law". However, when asked to cite the specific law violated, he was unable to do so, and acknowledged that it was a "postal regulation". Monty Curry, public relations director of the International Aero-classic in Palm Springs (from which the Polar Flight departed for its starting point in Honolulu), recalled a postal regulation that, he said, permits local postmasters to commission aviators and airplanes to fly mail whenever expediency demands it.

Apparently the postal authorities were confronted with a dilemma: the first flight covers had not been authorized by their regulations, yet a U. S. postmaster had officially cancelled, and put them aboard an airplane, which flew around the world, for the first time over both the North and South Poles.

When the flight returned to Burbank, Calif., postal inspectors J. G. Hudson and S. N. Smoot were on hand to confiscate the mailbags. However, after several days of post office deliberation, the inspectors released the mail to Capt. Austin, after requiring postmaster Parker to take them back into his Palm Springs post office and stamp the covers, "Not Carried On Officially Authorized Mail Flight".

Capt. Austin then returned the covers to the corporation, along with 212 self-addressed envelopes which philatelists from around the world had sent to the company to be carried on the flight. The envelopes were returned to their owners.



Discussing the historic polar journey before take-off at Palm Springs, Calif. are (left to right): Fred G. Parker, Palm Springs postmaster, who delivered the first day covers to the plane; Harrison Finch, co-commander of the flight; and Arthur Godfrey, who was on hand to see the flight take off for its starting point in Honolulu.



ROCKWELL  
POLAR FLIGHT  
OFFICIAL CACHET  
CARRIED ON FIRST FLIGHT  
AROUND THE WORLD.  
OVER BOTH POLES.

THIS LETTER WAS ABOARD THE ROCKWELL POLAR FLIGHT, THE FIRST AROUND-THE-WORLD FLIGHT OVER BOTH THE NORTH AND SOUTH POLES. THE FLIGHT, NEVER BEFORE ATTEMPTED, WAS MADE IN AN INTERCONTINENTAL BOEING 707-320C.



CARRIED ON THE FIRST  
FLIGHT AROUND THE WORLD  
FROM POLE TO POLE.



NOT CARRIED ON OFFICIALLY  
AUTHORIZED MAIL FLIGHT

AIR MAIL

Scientific exploration was the primary purpose of the flight with particular emphasis on high altitude meteorology, including clear air turbulence studies. In addition, a minimum of five world speed records were set for the United States -- fastest time from point-to-point, pole-to-pole and around the world.

The aircraft carried scientific instruments, navigational equipment and 30 "working passengers," including 10 leading scientists, 10 qualified observers and 10 crew members.

Sponsored by the Rockwell-Standard Corp. the flight started at Palm Springs, California. First refueling stop was Honolulu, after which the plane headed over the North Pole to London; London to Buenos Aires; Buenos Aires over the South Pole and north over McMurdo Sound to Christchurch, N.Z.; Christchurch to Honolulu -- the final refueling stop before the aircraft returned to Burbank, California.

The flight permitted the development of new information on the jet stream, cosmic radiation studies, air samplings for spores and micrometeorites, laser determination of air density and altitude and cloud photography for correlations of meteorological satellites in orbit.

COL. WILLARD F. ROCKWELL  
Chairman of the Board  
Rockwell-Standard Corp.



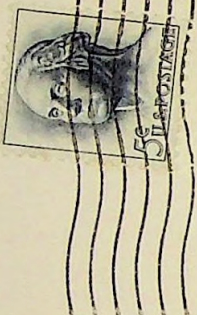
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COL. WILLARD F. ROCKWELL  
Chairman of the Board  
Rockwell-Standard Corp.



ROCKWELL  
POLAR FLIGHT  
OFFICIAL CACHET  
CARRIED ON FIRST FLIGHT  
AROUND THE WORLD.  
OVER BOTH POLES.

# (Official Pilot Flight Report)

V. 11-64 PILOTS FLIGHT REPO THE FLYING TIGER LINE, INC.		NUMBER	STARTING DATE	FLIGHT NUMBER	ACFT. NUMBER	FOR ACCOUNTING USE ONLY													
		42159	11-15-65	POLAR	N-322F	TERMINATE DATE		RAMP DEPARTURE		RAMP ARRIVAL									
						MONTH	DAY	HOURS	MIN	HOURS	MIN								
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SOLINE 4		(CL 44-PTS)		(ICARGO - LBS)	SYMBOL	HR. MIN.	HR. MIN.	*	BURBANK	707									
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CAPT.	J. L. MARTIN	4569		2	2	2.0													
F/O	R. BUCK	TWA		2	1	2.5													
C/P	J. GANNETT	BAC		2	1	2.0													
C/P	F. AUSTIN	TWA																	
C/P	H. FINCH	TWA																	
F/E	E. OLSON	11813																	
F/E	J. JONES	TWA																	
F/E	G. LAHAZZA	TWA																	
NAV	E. HICKMAN	4348																	
NAV	J. HARSEN	WEGMS																	
<p><i>TA 90.00 ON 11/15/65 RECORD</i></p> <p><i>ATA WORK 90.00 SPEED 17 RECORD</i></p> <p><i>AROUND PHNL 2 HOURS 135</i></p> <p><i>PHNL 11/15/65</i></p> <p><i>PREPARED - M.A.A.</i></p>																			
FLIGHT TIME	AIRCRAFT	L#1 ENG.	#2 ENG.	#3 ENG.	R#4 ENG.	FEATH'D. ENGINE	MAINTENANCE DUE - AIRCRAFT TSO									FOLD AROUND COLORED COPIES			
SINCE OHL TO DATE	390.9	170.0	170.0	390.9	390.9	#1 #2 #3 #4	MAGN. PLUG	TERM			DO NOT USE - FOR ACCOUNTING USE ONLY								
HOURS THIS LEG	51.5	51.5	51.5	51.5	51.5		1 2 3 4	CHK.											
SINCE OVHL	442.4	221.5	221.5	442.4	442.4		OIL FILTER	SVC.											
							1 2 3 4	CHK.											
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DIFFICULTIES NOTED DURING FLIGHT NO. POLAR DATE 11/15/65 ACFT. NO. 322F LIST AND NUMBER EACH DEFECT NOTED ON LAST LEG						CORRECTIVE ACTION/OR REASON NOT CORRECTED (REFER TO DIFFICULTIES BY NUMBER ASSIGNED)						MECH. INITIAL EACH ACTION							
① GASPER AIR FAN INOP.						① Changed @ EGLL E. Olson						STA. MECH.							
SIGNED (CAPTAIN) <i>John Martin</i>						DIFFICULTIES CONTINUED ON NEXT SET (V)						CAUTION - WHITE COPY MUST FOLD AROUND COLORED COPIES.							
<p>When Corrective Maintenance and/or Inspections have been performed, the signing off of this function certifies the work was in accordance with FTL Manual, that all required inspection items were inspected by an authorized person and the work was satisfactorily completed, that the aircraft is in condition for safe operation and that no known condition exists that would render the aircraft unsatisfactory.</p> <p style="text-align: right;">② 242228</p>																			

## (ORIGINAL DOCUMENT)

POLAR FLIGHT 11-15-65 HONOLULU TO LONDON FLIGHT TIME 13+54

TIME(Z)	LATITUDE	LONGITUDE	FLIGHT LEVEL	TRUE OUTSIDE AIR TEMPERATURE	TRUE AIRSPEED	GROUND SPEED	WIND DIRECTION/VELOCITY
0554	TAKE OFF						
0624	2344N	15651W	31000	-33	492	500	180/08
0654	2757N	15653W	31000	-33	492	500	180/08
0724	3219N	15643W	31000	-37	492	500	180/08
0743	LEVEL OFF		33000				
0754	3639N	15635W	33000	-46	480	517	240/70
0824	4103N	15613W	33000	-49	480	480	270/50
0854	4509N	15547W	33000	-50	480	490	260/50
0924	4923N	15530W	35000	-56	470	510	230/45
0954	5327N	15545W	35000	-54	475	495	230/30
1024	5726N	15627W	35000	-50	480	485	250/15
1054	6120N	15700W	35000	-46	487	477	210/30
1124	6523N	15730W	35000	-46	487	482	L/V
1154	6915N	15900W	37000	-45	476	470	070/20
1224	7255N	15810W	37000	-48	470	465	075/17
1254	7643N	15650W	37000	-50	465	465	090/20
1324	8033N	15550W	37000	-56	465	464	090/10
1354	8435N	15528W	37000	-56	465	482	240/30
1424	8835N	15540W	39000	-56	465	482	240/30
1435	9000N	0	39000	-56	465	480	240/20
1454	8738N	2600E	39000	-56	465	450	240/20
1524	8400N	0900E	41000	-58	465	450	240/20
1554	8016N	0600E	41000	-58	465	450	240/20
1624	7634N	0300E	41000	-58	465	450	240/20
1654	7251N	0100E	41000	-60	465	450	240/20
1724	6859N	0005W	41000	-64	465	455	230/13
1754	6513N	0030W	41000	-61	465	455	230/15
1824	6129N	0	41000	-58	465	455	220/15
1854	5740N	0020W	41000	-58	465	455	220/15
1924	5403N	0055W	41000	-58	465	455	220/15
1948	LANDED AT LONDON - HEATHROW						

## POLAR FLIGHT 11-15-65 LONDON TO LISBON FLIGHT TIME 02+19

TIME(Z)	LATITUDE	LONGITUDE	FLIGHT LEVEL	TRUE OUTSIDE AIR TEMPERATURE	TRUE AIRSPEED	GROUND SPEED	WIND DIRECTION/VELOCITY
2312	TAKEOFF						
2342	4905N	0152W	33000	-	490	478	250/70
0012	4519N	0208W	33000	-	490	465	255/57
0042	4215N	0441W	33000	-	490	430	295/65
0112	4000N	0803W	DESCENT	-	-	-	250/70
0131	LANDED AT LISBON						

## POLAR FLIGHT 11-16-65 LISBON TO BUENOS AIRES FLIGHT TIME 11+57

TIME(Z)	LATITUDE	LONGITUDE	FLIGHT LEVEL	TRUE OUTSIDE AIR TEMPERATURE	TRUE AIRSPEED	GROUND SPEED	WIND DIRECTION/VELOCITY
0356	TAKEOFF						
0430	3542N	1113W	31000	-50	480	410	240/78
0500	3251N	1330W	31000	-50	480	410	240/78
0530	3003N	1553W	31000	-50	480	410	240/78
0600	2640N	1844W	31000	-46	482	462	220/20
0630	2311N	2029W	31000	-46	482	460	220/22
0700	1933N	2153W	31000	-46	482	460	220/22
0730	1602N	2309W	35000	-50	480	464	270/40
0800	1247N	2513W	35000	-50	480	464	270/40
0830	0914N	2652W	35000	-49	478	463	260/30
0900	0537N	2815W	35000	-49	478	463	260/30
0930	0159N	2947W	35000	-49	488	522	350/43
1000	0158S	3133W	35000	-46	488	522	060/43
1030	0521S	3318W	35000	-45	490	458	250/47
1100	0841S	3510W	35000	-44	490	458	250/47
1130	1222S	3650W	35000	-44	495	488	280/27
1200	1607S	3832W	35000	-45	495	488	280/27
1230	1822S	3941W	35000	-44	495	506	320/20
1300	2137S	4133W	35000	-45	495	442	260/68
1330	2506S	4525W	35000	-46	500	456	270/64
1400	2738S	4830W	35000	-50	493	456	280/50
1430	3014S	5128W	35000	-51	495	444	230/51
1500	-	-	-	-	-	-	-
1530	-	-	-	-	-	-	-
1553	LANDED AT BUENOS AIRES						

## POLAR FLIGHT 11-16-65 BUENOS AIRES TO CHRISTCHURCH FLIGHT TIME 14+18

TIME(Z)	LATITUDE	LONGITUDE	FLIGHT LEVEL	TRUE OUTSIDE AIR TEMPERATURE	TRUE AIRSPEED	GROUND SPEED	WIND DIRECTION/VELOCITY
1852	TAKEOFF						
1930	3841S	5727W	31000	-44	480	470	250/67
2000	4234S	5640W	31000	-47	478	470	245/35
2030	4627S	5550W	31000	-47	478	470	250/42
2100	5027S	5443W	33000	-56	470	490	270/70
2130	5424S	5315W	33000	-56	470	490	265/85
2200	5824S	5212W	33000	-56	470	479	270/65
2230	6219S	5102W	33000	-56	470	479	280/50
2300	6608S	5037W	35000	-62	470	455	255/37
2330	6951S	5055W	35000	-63	470	455	150/16
0000	7347S	5100W	35000	-63	467	457	170/10
0030	7738S	5010W	37000	-67	452	467	290/35
0100	8128S	4820W	37000	-67	455	467	300/25
0130	8502S	4600W	37000	-67	455	428	180/27
0200	8845S	6500W	39000	-68	455	450	300/25
0230	8939S	16000E	39000	-68	455	435	050/35
0300	8603S	15600E	39000	-65	455	437	025/25
0330	8232S	16320E	39000	-62	460	437	030/35
0400	7855S	16600E	39000	-60	460	437	320/28
0430	7505S	16820E	39000	-57	460	444	360/16
0500	7128S	17015E	39000	-53	460	440	300/32
0530	6750S	16950E	39000	-51	460	440	300/32
0600	6410S	16940E	41000	-48	460	440	290/38
0630	6027S	17005E	41000	-44	460	446	285/47
0700	5649S	17107E	41000	-44	460	446	285/47
0730	5304S	17143E	41000	-45	460	450	060/20
0800	4922S	17205E	41000	-45	460	450	295/55
0830	4536S	17225E	41000	-45	460	450	345/10
0910	LANDED AT CHRISTCHURCH						

## POLAR FLIGHT 11-17-65 CHRISTCHURCH TO HONOLULU FLIGHT TIME 09+01

TIME(Z)	LATITUDE	LONGITUDE	FLIGHT LEVEL	TRUE OUTSIDE AIR TEMPERATURE	TRUE AIRSPEED	GROUND SPEED	WIND DIRECTION/VELOCITY
1121	TAKEOFF						
1200	4026S	17538E	33000	-52	475	440	335/75
1230	3721S	17815E	33000	-50	475	455	320/60
1300	3354S	17908W	33000	-45	475	485	290/75
1330	3025S	17618W	33000	-42	475	525	335/95
1400	2637S	17417W	33000	-40	475	500	270/70
1430	2232S	17318W	33000	-39	475	495	250/38
1500	1839S	17209W	33000	-39	475	490	190/15
1530	1443S	17058W	33000	-39	475	500	200/25
1600	1056S	16909W	33000	-39	475	500	215/25
1630	0750S	16635W	33000	-39	475	485	230/10
1700	0529S	16316W	33000	-39	475	490	230/15
1730	0122S	16310W	33000	-39	475	520	145/50
1800	0358N	16300W	33000	-39	475	515	145/47
1830	0752N	16307W	33000	-38	475	490	150/23
1900	1138N	16115W	33000	-37	475	506	265/58
1930	1543N	15951W	33000	-37	475	506	265/58
2000	1940N	15822W	33000	-37	475	506	255/50
2022	LANDED AT HONOLULU						

NATIONAL AERONAUTIC ASSOCIATION

806 FIFTEENTH ST., N.W. • WASHINGTON, D. C. 20005

DISTRICT 7-2808 • CABLE—NATAERO

UNITED STATES REPRESENTATIVE FEDERATION AERONAUTIQUE INTERNATIONALE

PRELIMINARY REPORT ON THE ROCKWELL POLAR FLIGHT

Beginning November 14th - Ending November 17th  
1965

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The Rockwell Polar Flight is the first round-the-world flight to pass over both the North and South Poles. The flight did credit to the United States: it established 8 world records for jet transports; conducted many scientific experiments; was the first jet to fly into the Antarctic; flew a course never before flown; flew higher than heretofore over both Poles (37,000 ft.) with the largest number of personnel aboard (40 men), and from this altitude, and in clear weather, sighted mountains to the east of its south bound course never before studied.

The flight was made in the latest model intercontinental Boeing 707 - 320C, on a lease from the Flying Tiger Line to the Rockwell-Standard Corp. of Pittsburgh. 4 intermediate refueling landings were made.

Speed Records: The following jet transport speed records are claimed for the United States by virtue of this flight:

1. Round-the-world over both Poles - 62 hours, 27 minutes, 35 seconds; distance 26,230 stat. mi.; speed 415 m.p.h. (Time in flight was 51 hours, 27 minutes.)
2. Honolulu to London over North Pole - 13 hours, 54 minutes; distance 7,413 stat. mi.; speed 520 m.p.h.
3. London to Buenos Aires, Argentina - 16 hours, 41 minutes; (including ground time at Lisbon); distance 6,928 stat. mil; speed 416 m.p.h.
4. London to Lisbon - 2 hours, 19 minutes; distance 958 stat. mi.; speed 414 m.p.h.

5. Lisbon to Buenos Aires - 11 hours, 56 minutes; distance 5,957; speed 497 m.p.h.
6. Buenos Aires to Christchurch, New Zealand, over South Pole - 14 hours, 17 minutes; distance 7,035 stat. mi.; speed 431 m.p.h. (Speed computed over direct great circle distance - not by way of South Pole check point.)
7. Christchurch to Honolulu - 9 hours, 1 minute; distance 4,861 stat. mi.; speed 539 m.p.h.
8. Speed between Poles - North Pole to South Pole - 34 hours, 46 minutes; speed 357 m.p.h.

The Rockwell flight made an unscheduled stop at Lisbon, Portugal to refuel due to the fact that the longest runway at London was closed for repairs and this necessitated taking off with insufficient fuel to fly non-stop to Buenos Aires.

The above 8 record claims have been properly filed by the National Aeronautic Association with the Federation Aeronautique Internationale in Paris, France, the world organization which officially homologates world aviation and space records. The "fix" over the North Pole was established within 3 miles by celestial navigation and by the inertial navigation guidance system carried aboard. The "fix" over the South Pole was established by the same means and also by visual observation of the United States scientific station located at the South Pole.

The previous official speed record around-the-world was established in 1961 by Max Conrad, an American, in a small Piper Aztex airplane - time 8 days, 18 hours, 35 minutes, 57 seconds; distance 25,946.5 miles; speed 123.2 m.p.h., including 12 intermediate stops.

Scientific Program: The Rockwell Polar Flight afforded an opportunity to conduct many important scientific studies with particular emphasis on cosmic ray absorption and on high altitude meteorology including clear air turbulence.

The interior of the plane was converted into a scientific laboratory by the installation of numerous pieces of scientific equipment. A brief description follows of the scientific studies conducted under the general guidance of Dr. Serge A. Korff, Professor of Physics at the New York University, and past President of the Explorers Club, with eight other scientists working in their specialities:

Cosmic ray experiment: two ionization chambers - a fast neutron counter - a slow neutron detector.

The NASA Langley Radiation measuring equipment - designed for the SST program to measure the amount of radiation a pilot receives at high altitude.

Two ionization measuring meters were carried - one to measure the ionization inside the plane and the second inside a NASA plastic phantom, simulating a 180 pound man.

Still another NASA experiment was made with a radiometer pointing downward to measure the radiation scattered back from the earth's atmosphere.

The Weather Bureau provided equipment to measure the amounts of ozone and carbon dioxide in the atmosphere at flight levels.

Cloud sequence studies by horizontal time-lapse photography to correlate with the vertical photography made by the Tiros Satellite.

Periodic recordation of air pressure, temperature and wind velocity, plus a visual analysis of cloud types.

In addition to the foregoing scientific studies, important technical studies were conducted. This included an Inertial Navigation Guidance System never before used over both Poles. It also included two identical Collins radios, one for the pilots and one for broadcasting. These were 400 watt transceiver, single side band with amplitude modulation. These are in wide use but never before tested over both Poles.

After leaving Buenos Aires and heading directly to the South Pole at altitudes between 35 and 40,000 feet, the plane flew a tract never before flown and due to favorably clear weather over the central Antarctic plateau, permitted a view of protruding mountains to the east never before observed in this manner.

The aircraft worked perfectly throughout the flight. In London a small compressor pump was replaced. The flight was made in complete darkness from Honolulu over the North Pole, including fueling stops at London and Lisbon, until the aircraft was off the coast of North Africa -- a complete day was missed due to our extreme latitude and the rotation of the earth -- at one point "faint" dawn "developed in the west" when the plane was off Iceland but receded into a sunset. The reverse occurred in the southern hemisphere. The flight experienced full daylight from the mid-Atlantic over Buenos Aires and across Antarctica up to within two hours of New Zealand.

History of Flight: The record-breaking flight was conceived and promoted by two senior Captains of TWA, Captains Fred A. Austin and Harrison Finch, to prove the feasibility of jet flights over both Poles and to advance scientific research. In the spring of 1965 the flight was provisionally sponsored by the Explorers Club (a world-wide scientific organization with New York headquarters) on the condition that sufficient funds could be raised to finance the lease of a suitable aircraft. The aircraft then under consideration was diverted to MATS operations and the Club's sponsorship was withdrawn before all necessary funds could be raised.

In October 1965, the Flying Tiger Line took delivery of a new long range Boeing 707 and tentatively agreed with Captains Austin and Finch to make the plane available for the Polar flight. The Boeing Company certified that the plane could be modified to carry collapsible cabin-interior fuel tanks of 4,000 gallons and thereby increase its safe flying range up to 8,000 miles within its permissible gross weight.

On October 30th, Captains Austin and Finch first telephoned Willard F. Rockwell, Jr., President of the Rockwell-Standard Corporation, and solicited his financial sponsorship of the proposed flight. The next day Colonel Willard F. Rockwell, Chairman of the Board, was briefed and an agreement in principle to sponsor the flight was reached. Within a week detailed legal arrangements were consummated between Rockwell-Standard, the sponsor, Flying Tiger Line, owner of the aircraft, Union Bank of California, underwriters of the airplane, and Geo-Atmos Explorations, Inc., a company set up by Captains Austin and Finch. By these arrangements the latter corporation obtained a "dry" lease of the aircraft from Flying Tigers and then secured FAA flight certificate for this specific flight.

On the closing day of the first International AeroClassic, Sunday, November 14th, the flight took off from Palm Springs, California, for the starting point, Honolulu. The mileage flown from Palm Springs back to Burbank, California was 31,483.

Government Participation: It is to the credit of American technology that the Rockwell Polar flight was organized with a minimum of official government support. On board the aircraft were three government officials: Captain N. A. Lieurance, USN (Ret.), Director of Aviation, U.S. Weather Bureau; William King, NASA scientist from Hampton, Virginia; and Edward C. Sweeney, a Member of the Subversive Activities Control Board, who participated as the official FAI timer, not in his official government capacity.

In addition, several government officials were helpful. Colonel James Cross, Armed Forces Aide to the President; Ambassador Lloyd Hand, Protocol Officer of the State Department, who obtained the necessary foreign government flight clearance; Rear Adm. Fred Bakutis, Commander Naval

Support Force Antarctic, who monitored the flight by radio on a standby search and rescue alert. Admiral Bakutis personally met the flight at Christchurch, New Zealand.

Participants: The crew consisted of 13 experienced airmen, including 5 fully qualified pilots, 3 flight engineers, 3 navigators, and 2 radio operators.

In addition to 6 film and news men and 10 scientists, there were 11 official participants; Colonel Rockwell (age 77), Chairman of the Board of Rockwell-Standard Corporation, and Edward Williams, Vice President of the Rockwell Company.

On board were Bernt Balchen, the Polar pilot who flew Admiral Richard E. Byrd over both the North and South Poles, Dr. Randolph Lovelace, Physician to the astronauts, etc., Edward C. Sweeney, President of the Explorers Club and of the National Aeronautic Association, and the official timer for the Federation Aeronautique Internationale. He was assisted in timing by Bart Locanthi of NAA.

Robert W. Prescott, President of Flying Tiger Line, left the plane at London when advised of the death of his 11-year-old son in an air crash at Palm Springs on the day of departure. Lowell Thomas, Jr. accompanied the flight and kept in radio contact throughout the flight with Lowell Thomas, Sr. and CBS.

The full list of participants follows:

Crew:

Capt. Fred L. Austin - Pilot, TWA  
Capt. Harrison Finch - Pilot, TWA  
Capt. Jack L. Martin - Pilot, FTL  
Capt. Robert N. Buck - Pilot, TWA  
Capt. James R. Gannett - Pilot, Boeing  
Eugene Olson - Flight Engineer, FTL  
Dino G. Valazza - Flight Engineer, TWA  
James M. Jones - Flight Engineer, TWA  
E. A. Hickman - Navigator, FTL  
John Larsen - Navigator, Weems Corp.  
Loren DeGroot - Navigator, Lear Siegler  
John DeMuth - Radio Operator, Collins Radio  
Goodwin Lyon - Communications, Geo-Atmos Explorations, Inc.

Scientists:

Dr. Serge A. Korff, New York University  
Capt. N. A. Lieurance, USN (Ret.), U. S. Weather Bureau  
William Sandie, New York University  
Dr. David Bjordahl, Litton Industries, Inc.  
Peter Mesquita, Litton Industries, Inc.  
James Furuya, Litton Industries, Inc.  
Dr. Donald Goedeke, Douglas Aircraft  
Walter B. Gartner, Serendipity, Inc.  
William King, NASA  
Father Anderson Bakewell, Holy Trinity Church

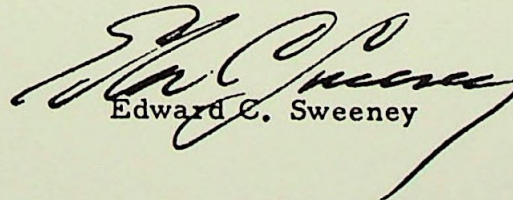
Official Participants:

Col. W. F. Rockwell, Chairman of Board, Rockwell-Standard Corp.  
Edward J. Williams, Vice President, Rockwell-Standard Corp.  
Robert W. Prescott, President, Flying Tiger Line  
Edward C. Sweeney, President, NAA & The Explorers Club  
Bart Locanthi, NAA Timers Club  
Bernt Balchen, General Precision Co.  
Dr. Randolph Lovelace, Lovelace Clinic  
William Schulte, International AeroClassic  
John DuBois  
Earl D. Johnson  
M. B. McKinney, Union Bank, Los Angeles

Press:

Lowell Thomas, Jr., Explorers Club - broadcaster  
Clete Roberts, Geo-Atmos Explorations, Inc. - radio  
Joseph Longo, Geo-Atmos Explorations, Inc. - radio  
Wayne Parrish, American Aviation Publications  
Donald Moser, Life Magazine  
J. R. Eyerman, Life Magazine

In my opinion the United States should be very proud of the Rockwell Polar Flight. It demonstrated the competence of American technical know-how, daring and imaginative execution.



Edward C. Sweeney