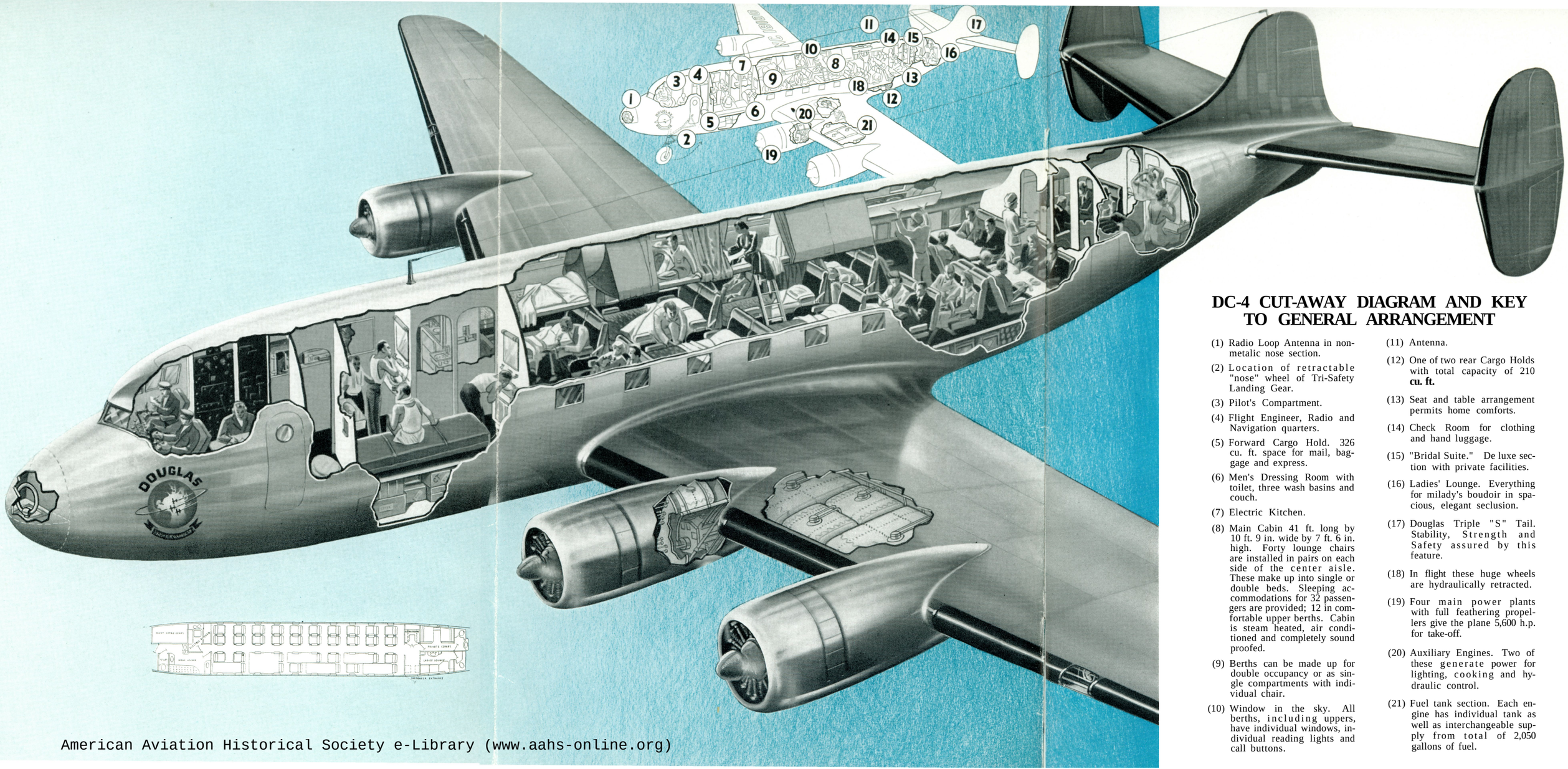


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DC-4 CUT-AWAY DIAGRAM AND KEY TO GENERAL ARRANGEMENT

(1) Radio Loop Antenna in non-metalic nose section.

(2) Location of retractable "nose" wheel of Tri-Safety Landing Gear.

(3) Pilot's Compartment.

(4) Flight Engineer, Radio and Navigation quarters.

(5) Forward Cargo Hold. 326 cu. ft. space for mail, baggage and express.

(6) Men's Dressing Room with toilet, three wash basins and couch.

(7) Electric Kitchen.

(8) Main Cabin 41 ft. long by 10 ft. 9 in. wide by 7 ft. 6 in. high. Forty lounge chairs are installed in pairs on each side of the center aisle. These make up into single or double beds. Sleeping accommodations for 32 passengers are provided; 12 in comfortable upper berths. Cabin is steam heated, air conditioned and completely sound proofed.

(9) Berths can be made up for double occupancy or as single compartments with individual chair.

(10) Window in the sky. All berths, including uppers, have individual windows, individual reading lights and call buttons.

(11) Antenna.

(12) One of two rear Cargo Holds with total capacity of 210 **cu. ft.**

(13) Seat and table arrangement permits home comforts.

(14) Check Room for clothing and hand luggage.

(15) "Bridal Suite." De luxe section with private facilities.

(16) Ladies' Lounge. Everything for milady's boudoir in spacious, elegant seclusion.

(17) Douglas Triple "S" Tail. Stability, Strength and Safety assured by this feature.

(18) In flight these huge wheels are hydraulically retracted.

(19) Four main power plants with full feathering propellers give the plane 5,600 h.p. for take-off.

(20) Auxiliary Engines. Two of these generate power for lighting, cooking and hydraulic control.

(21) Fuel tank section. Each engine has individual tank as well as interchangeable supply from total of 2,050 gallons of fuel.

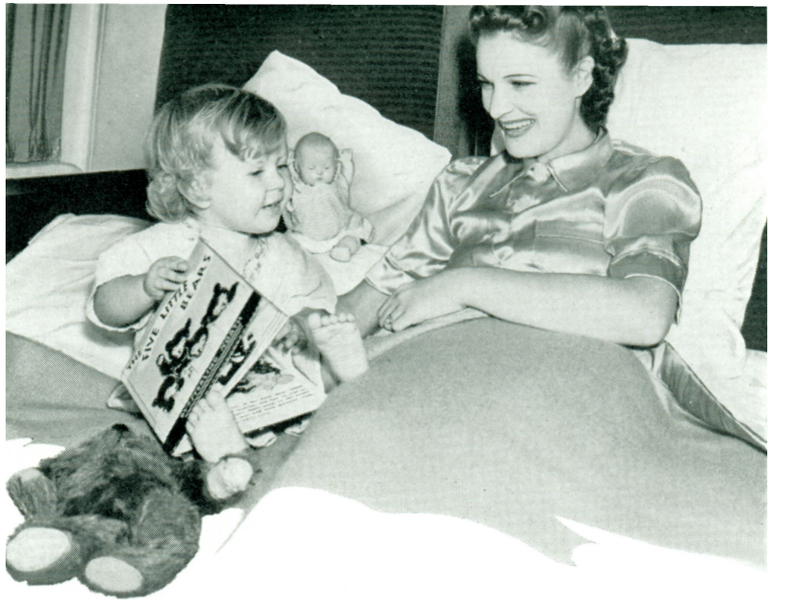
DEDICATING THE DC-4 TO TASKS AHEAD

In these pages Douglas presents its latest and finest commercial air transport, the world-famous DC-4. A few years ago only a vision of things to come, this airplane today is a reality. It is this company's contribution to the science of aeronautics—a new and significant milestone in aviation's progress. As such we dedicate the DC-4 to the tasks ahead—a worthy leader and companion of other Douglas models, "First around the world—now the world over."

From nose to tail the DC-4 is modern, efficient, pacemaking. New comfort, speed and safety for 42



A QUARTER SECTION OF THE MAIN CABIN



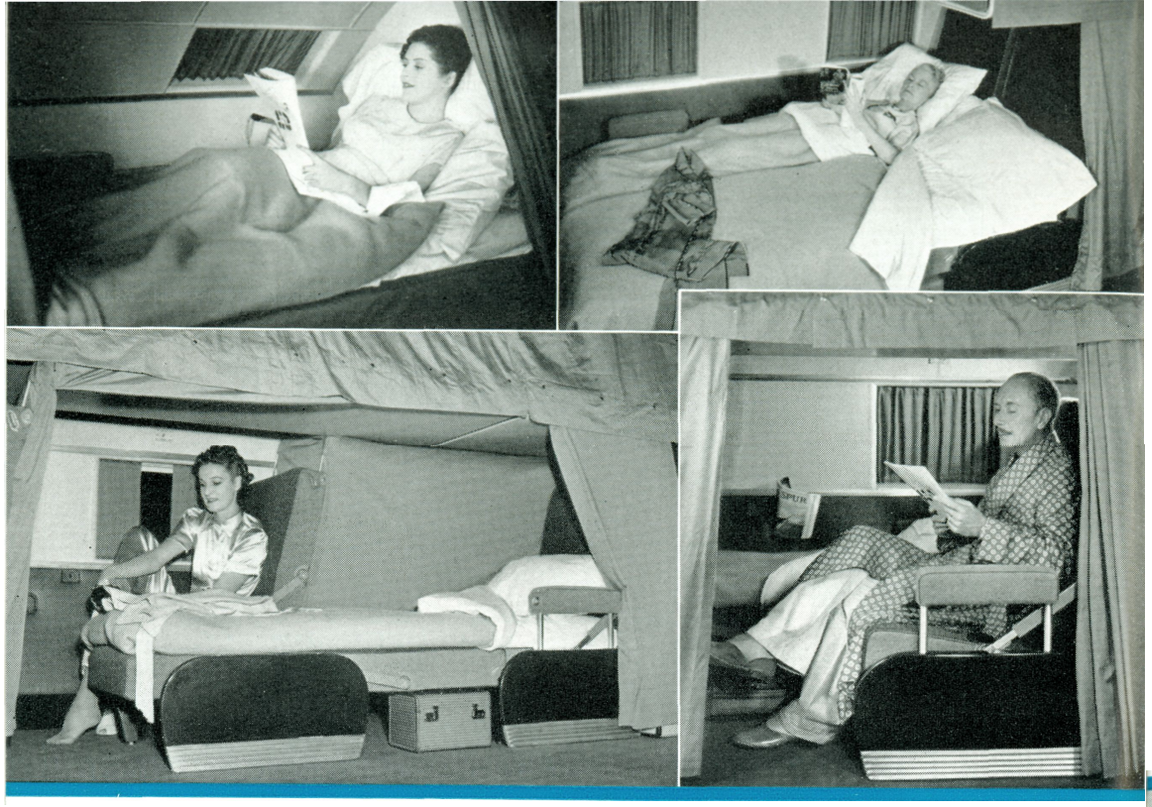
The Five Little Bears" at 10,000 feet.

In size and appointments the DC-4 dwarfs all predecessors. Its fuselage is larger than a standard railway coach and provides a forward compartment for flight personnel, six cargo and baggage compartments, two dressing rooms with complete lavatory facilities, kitchen, private drawing room or "bridal suite" with dressing room and the main cabin with two rows, in pairs, of 40 deeply upholstered chairs. The wide center aisle has headroom enough for a "six footer" to stretch. Chairs make up into luxurious berths; commodious upper berths are also provided. The plane has sleeping accommodations for 32 passengers.

Features for comfort and convenience include complete sound-proofing, air conditioning, steam heat, hot and cold running water, electrically operated kitchen and home appliances, and a telephone system connecting with any exchange in the world while the plane is in port.



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ACCOMMODATIONS RIVAL FINEST HOTELS



The berths of the DC-4 are no ordinary travel berths but are longer and wider than those of de luxe ocean liners and extra fare trains. By an unique staggered arrangement each lower berth has a seat adjacent to it, enclosed by curtains surrounding the berth section. Consequently, dressing and undressing are no longer a travel problem. This arrangement also provides a comfortable retreat for the air traveler who wishes to read after others have retired. Both lower and upper berths are provided with a window and a large rack for the occupant's overnight bag. In addition to the regular ventilation system, each berth has an adjustable cold air ventilator.

AUTOMATIC STEAM HEAT



No detail has been overlooked to provide the air traveler with the utmost in luxurious transportation. The steam heating system automatically maintains a temperature of 70° inside the huge cabin and its various compartments even with a sub-zero temperature outside. Fresh air, individually regulated by each passenger, is forced into the cabin at the rate of 1,250 cubic feet per minute. Two auxiliary engines, independent of the giant main engines, generate 115 volts of electricity to light the plane, cook the food, operate electric curlers in the ladies' lounge and electric shavers in the men's dressing room. These engines also supply power for the various controls and hydraulic systems on the plane.



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YESTERDAY'S PROMISE . . . TODAY'S REALITY

The DC-4 in no way replaces the famous 21-passenger DC-3, the standard transport on most of the world's airlines, nor the new DC-5, designed for short haul operations. Rather, it is an independent development anticipating future needs for greater load capacity in "trunkline" long distance operations. Except for Tri-Safety (tricycle) landing gear which makes it practical for present airports, tail assembly and power plants, the all-metal design and construction of the DC-4 follows closely that of the DC-3.



With its four great twin-row engines developing 5,600 h.p. for take-off, the DC-4 has available one thousand more horsepower than the average streamline locomotive. With a cruising range of 2,200 miles it carries sufficient fuel to drive the average automobile $1^1/_3$ times around the world. The DC-4 maintains its efficiency even at an altitude of over four miles above sea level and carries its useful load of ten tons through the air at nearly four miles a minute.

DINNER AT *EIGHT* THOUSAND FEET

Dining aloft in the DC-4 will be an "event." Tables which are quickly snapped into place make possible efficient service to individuals or in groups up to four at a sitting. Interior arrangements and finish provide a magnificent setting for the finest silver, china and linens boasted by the better clubs and hotels. The electric kitchen is a marvel of efficiency that will excite the admiration of housewife or chef.



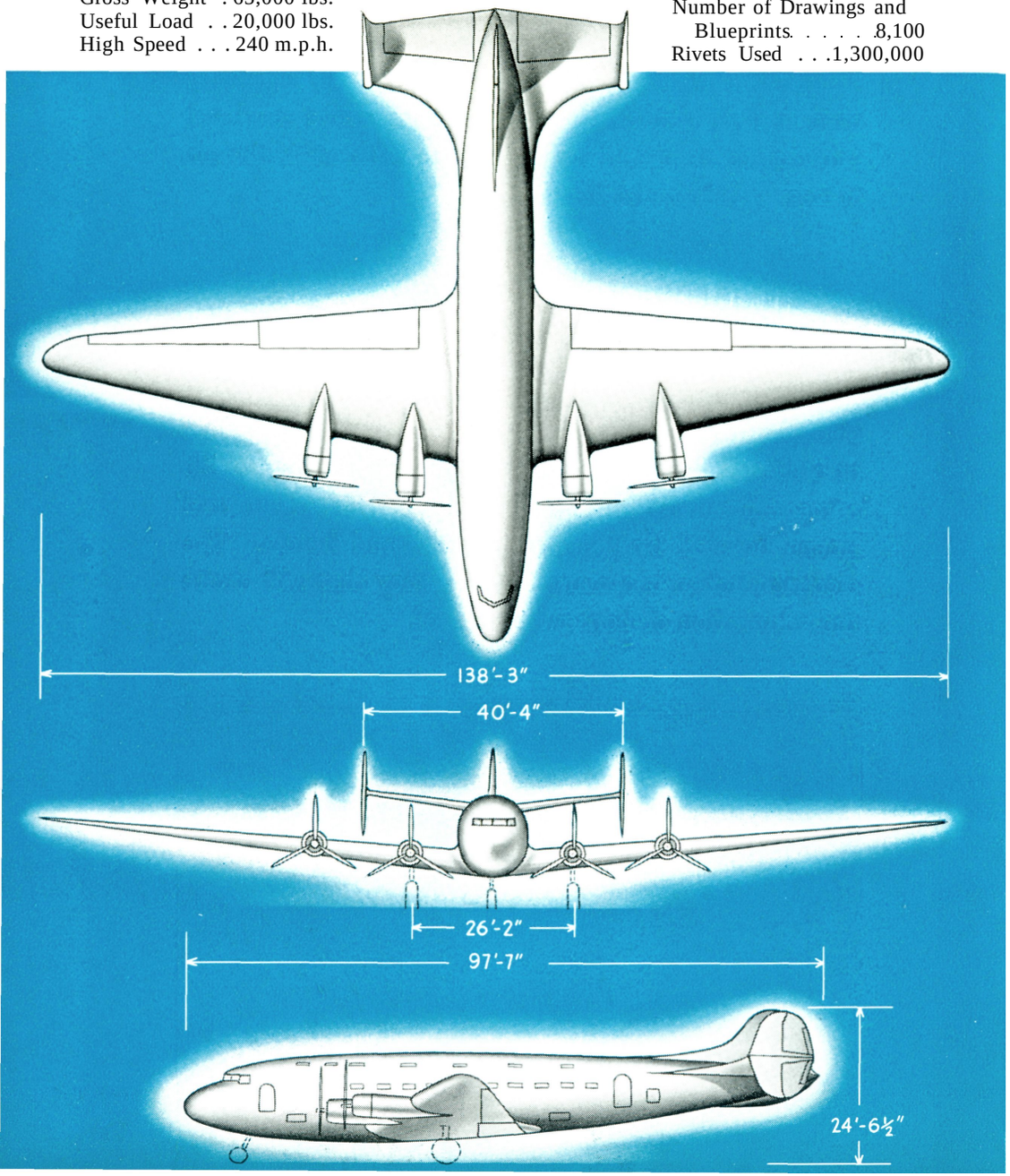
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DC-4 SIZE AND PERFORMANCE

Wing Span . . . . 138' 3"
Fuselage Length . . . 97' 7"
Maximum Height, 24' 6½"
Max. Wing Thickness. 54"
Propeller Diameter . . . 14'
Engines—4 of 1,400 h.p. each—5,600 h.p. total for take-off.
Gross Weight . 65,000 lbs.
Useful Load . . 20,000 lbs.
High Speed . . . 240 m.p.h.
Cruising Speed at 10,000 ft. at 65% power. . . . . 200 m.p.h.
Landing Speed . . . . . 68½ m.p.h.
Service Ceiling . 22,900 ft.
Absolute Ceiling, 24,000 ft.
Maximum Fuel, 2,050 gals.
Maximum Cruising Range . . . . . 2,200 mi.

ITEMS OF INTEREST

Engineering Time . . . . . 500,000 hrs.
Laboratory Testing Time . . . . . 100,000 hrs.
Number of Drawings and Blueprints 8,100
Rivets Used . . . 1,300,000



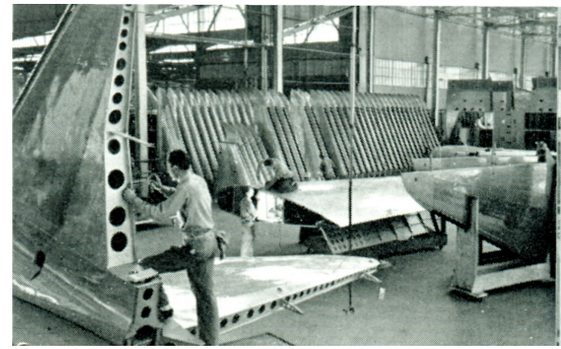
DOUGLAS
FIRST AROUND THE WORLD

DEPEND ON DOUGLAS TO PRODUCE

These and other production pictures in this booklet can only give a partial appreciation of Douglas plant facilities.

As America's largest aircraft builder, Douglas can produce between 100 and 150 planes a month at its Santa Monica and El Segundo plants without adding to existing facilities.

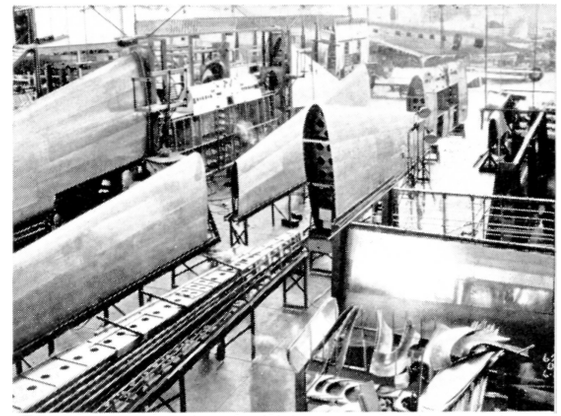
Through years of perfecting production technique, this volume can be attained without sacrificing the quality for which the world knows, "you can depend on Douglas."



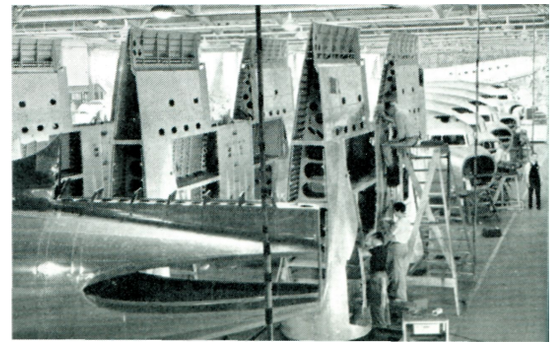
Installation of Wings and Tail Surfaces.



A corner in the Douglas Drop Hammer Department.

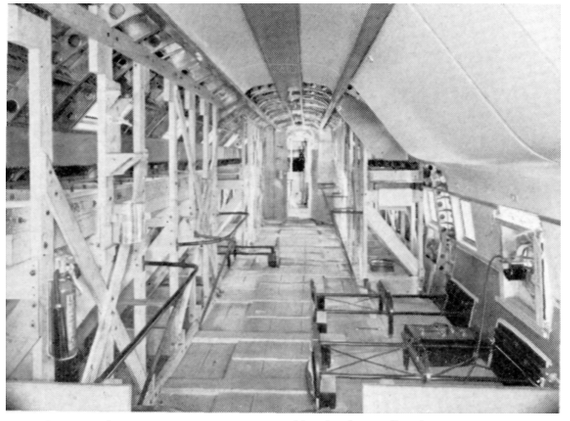


Douglas production facilities revealed in two views.

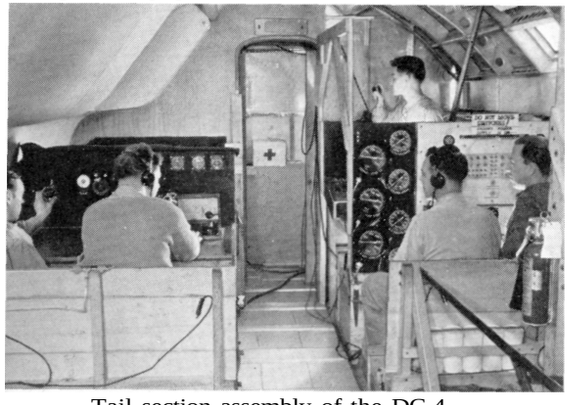




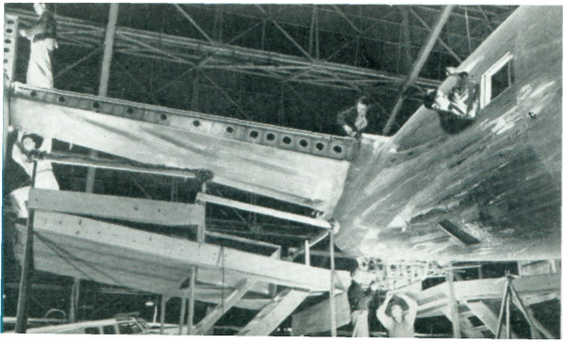
Huge DC-4 fuselage takes form.



Special equipment installed for flight testing.



Tail section assembly of the DC-4.



DC-3 and DC-4

SISTERS UNDER THE SKIN



The famous Douglas DC-3, standard equipment on the major airlines of the world is the product of the same meticulous designing, engineering and testing that produced the DC-4. Its all-metal structures were the basic pattern for the DC-4. All that has been learned in manufacturing over 300 DC transports plus the vast experience gained in producing military planes has been incorporated in the DC-4.

For nearly two decades American ingenuity, craftsmanship and resources have found expression in planes designed by Douglas. Wherever and whenever wings of commerce or defense stretch over skyways you can DEPEND ON DOUGLAS.

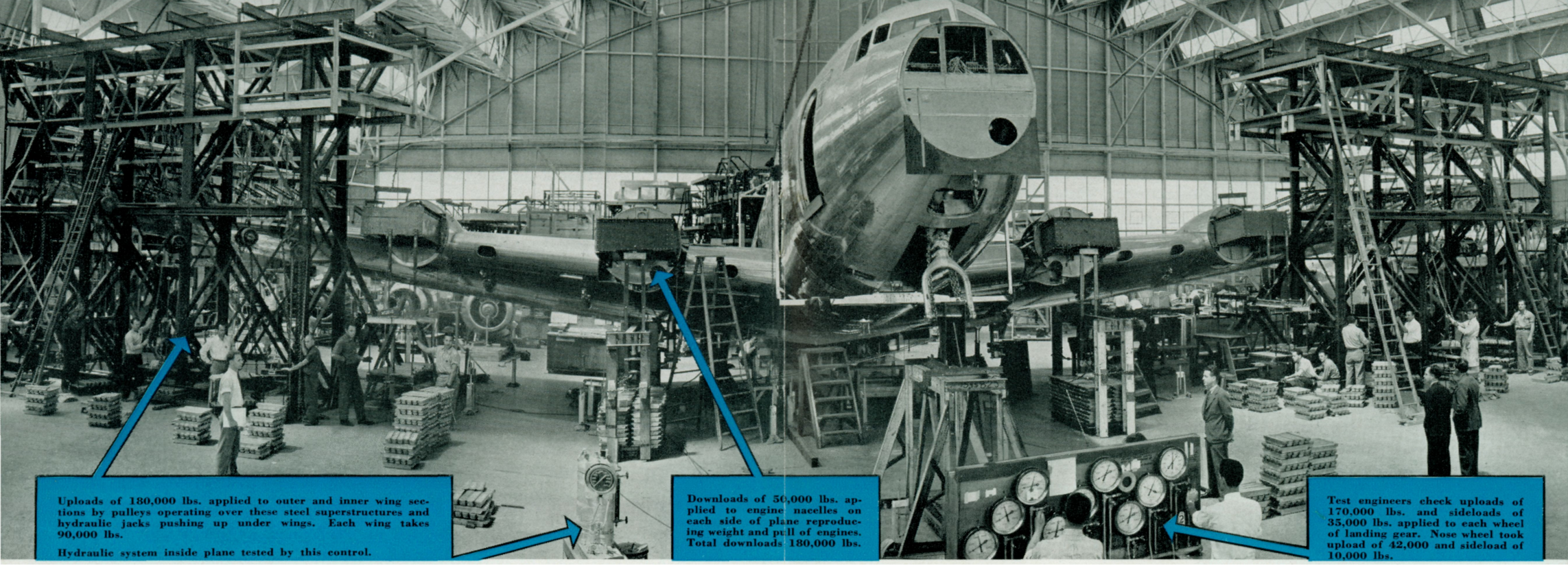


Part of the vast Douglas Engineering Department.

During the two years' development of the DC-4 and now continuing apace is the manufacture of DC-3 21-passenger Day Planes and DST Sky Sleepers. At the average rate of one a day these great planes roll off the Douglas production line to wing their way over the airlanes of the world. The development and manufacture of airplanes has called for a new industrial technique which the volume production of the Douglas DC-3 has furthered immeasurably. The flight security, speed and comfort of these transports in world-wide service has been the greatest single contribution to the advancement of commercial aviation.

WINGS FOR THE WORLD ARE FASHIONED HERE





THE PRODUCT OF POOLED EXPERIENCE

Representing the pooled experience of the Douglas Aircraft Co. and five major airlines, the DC-4 was built on contract for United Air Lines, Transcontinental & Western Air, American Airlines, Pan-American Airways and Eastern Air Lines. During the two years of its development one-half million engineering hours were devoted to its design and fabrication.

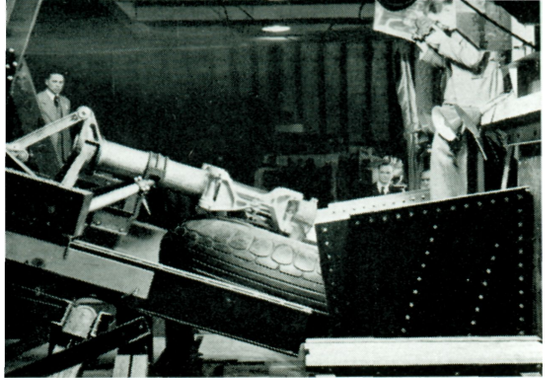
The DC-4 was subjected to the most elaborate and rigid series of tests in the history of aviation. There were 866 separate wind tunnel tests of a scale model consuming time equivalent to flying 361 hours. This was equal to flying 63,175 miles, or 24 transcontinental flights from Los Angeles to New York. Total time devoted to the wind tunnel testing amounted to 1,100 hours.

NO CHANCE FOR GUESSWORK HERE

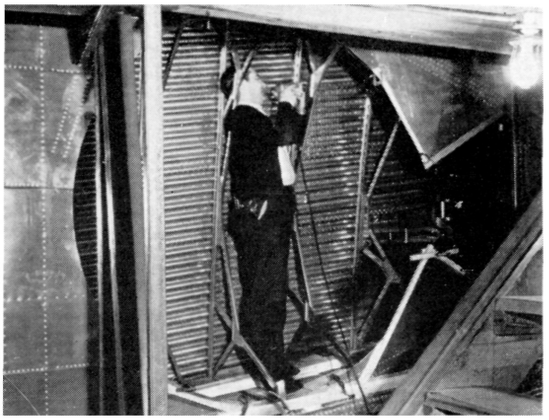
The next phase of DC-4 testing was in the laboratory. Special machinery and fittings were installed at great cost to carry out these tests so that nothing could be left to chance or guesswork. Various structures of the plane were built, then deliberately and scientifically destroyed in order to prove the calculations of engineers.

Then followed static load tests of the finished airplane. Loads up to $3^1/_2$ times the gross weight of the plane, fully loaded, were applied with lead weights and hydraulic jacks. Before it was finally test-flown, 100,000 engineering hours were consumed in laboratory and "on the ground" tests that reproduced aerodynamic stress and vibration conditions sufficient to have taken the DC-4 with a full load three times around the world.

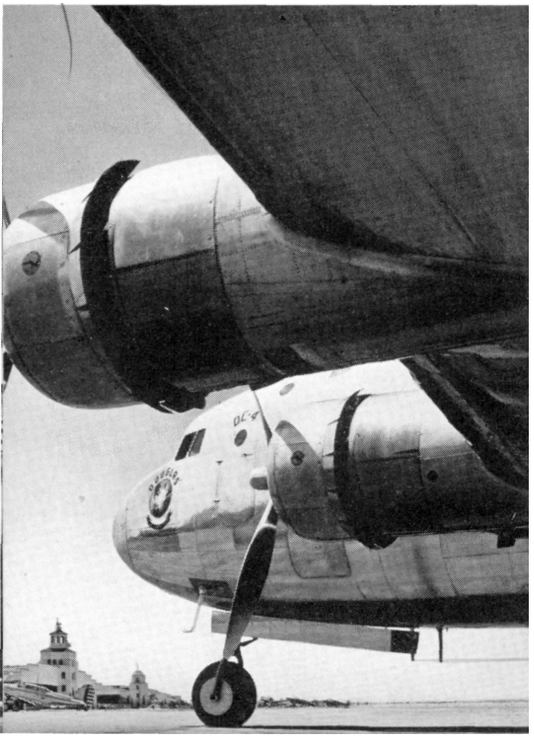
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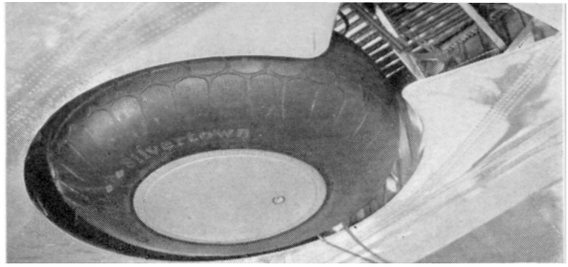


Laboratory testing of DC-4 main wheel and gear.



Worker dwarfed by main wheel well.

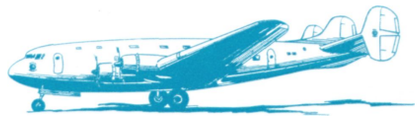




Main wheel retracted in wing.

FOR QUICK TAKE-OFFS AND HAPPY LANDINGS

To one familiar with the "nose up-tail down" position of the conventional airplane on the ground, the appearance of the DC-4 is at first startling. For here is an airplane that is on even keel, in a level position at all times. This is due to its Tri-Safety (tricycle) gear with a nose wheel retractable into the fuselage and the two main wheels, also retractable, located aft of the center of gravity. Aside from the obvious comfort advantage to passengers this gear gives the airplane landing and take-off characteristics and positive control on the ground that have long been sought. Thus the DC-4 is a highly practical airplane for existing airport facilities.

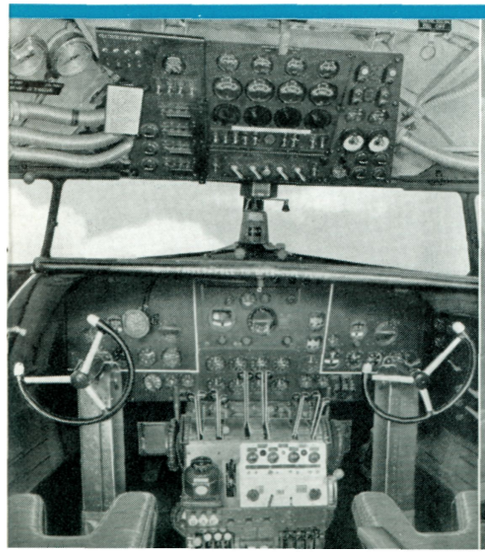


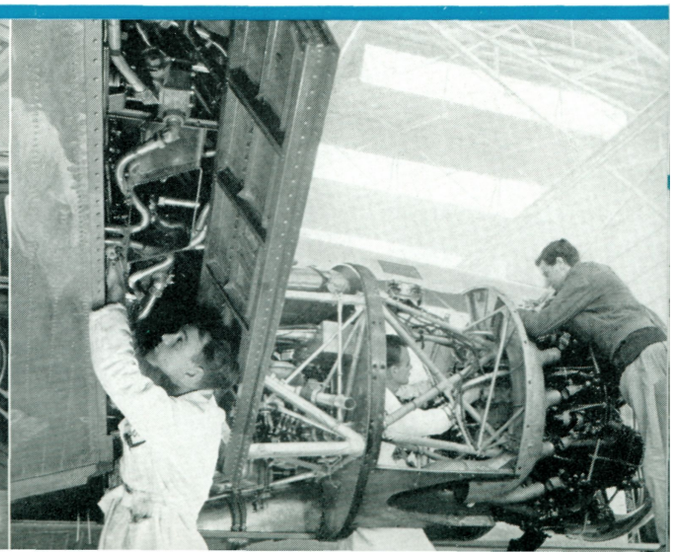
Some of the service innovations of the DC-4 include a special telephone connection which is plugged in as soon as the plane lands, giving passengers a telephone service direct from their seats to any part of the world. While the plane's auxiliary power units are turned off as the plane is being serviced a power cable is plugged in so that electric facilities are uninterrupted.

Air conditioning trucks service the huge plane while in port by connecting to the cabin heating and ventilating system. Warm air is fed into the cabin in winter and cool air in summer. A comfortable temperature for passengers, regardless of the temperature on the ground, is assured.

New facilities for refueling have also been incorporated in the DC-4. One hundred gallons of fuel a minute can be pumped into the plane's tanks through refueling intakes on the under side of the wing. Oil tanks in each engine nacelle can be refilled in a similar manner.

Left: Pilot's Compartment contains every proven instrument for safety including "Automatic Pilot."
Right: DC-4 servicing and maintenance are simplified by removable panels, slotted and hinged doors throughout the structure providing ready inspection and quick adjustment of all vital and working parts. Engine and accessories servicing is simplified by provisions for checking from the rear as well as the sides.

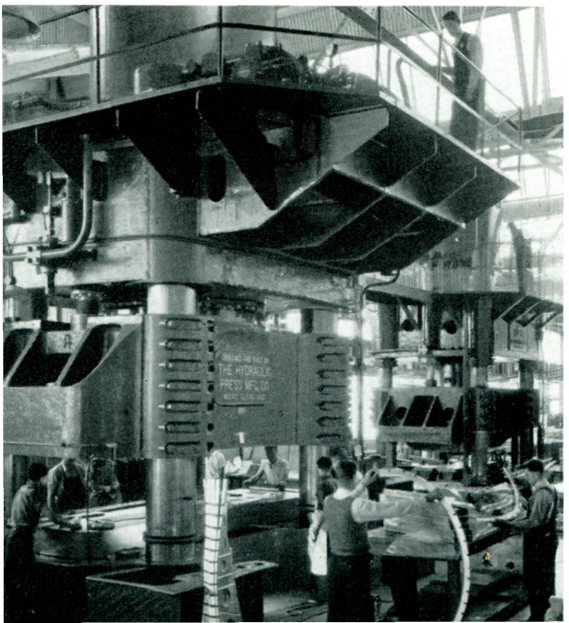






Huge DC-4 Center Wing Section being swung into place.

WORLD'S LARGEST HYDRAULIC PRESS



Mammoth hydraulic presses play a major role in the fabrication of Douglas planes. Illustrated is one of two such presses installed at the Douglas plant. One is the world's largest hydraulic press with a pressure capacity of 5,000 tons. It towers three stories into the air and weighs 840,000 lbs. The other press is of 2,000 tons capacity. both presses cut and shape a multitude of separate airplane parts.

A STUDY IN "THREE DIMENSIONS"



Top is the Douglas A17-A Attack Bomber with wing span of 47 ft. $8^{3}/_{4}$ in. Middle is the world standard DC-3 21-passenger transport with wing span of 95 ft. Bottom is the DC-4 42-passenger transport with wing span of 138 ft. 3 in.

Production models of the DC-4 will have specially designed "high altitude cabins" in which lower-level atmospheric pressures will be maintained for the comfort of passengers and crew while the plane operates at greater efficiency at higher levels. To perfect such a system necessitated minute calculations in the basic design of the plane itself to compensate for atmospheric pressure differentials.



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First Around the World... Now the World Over

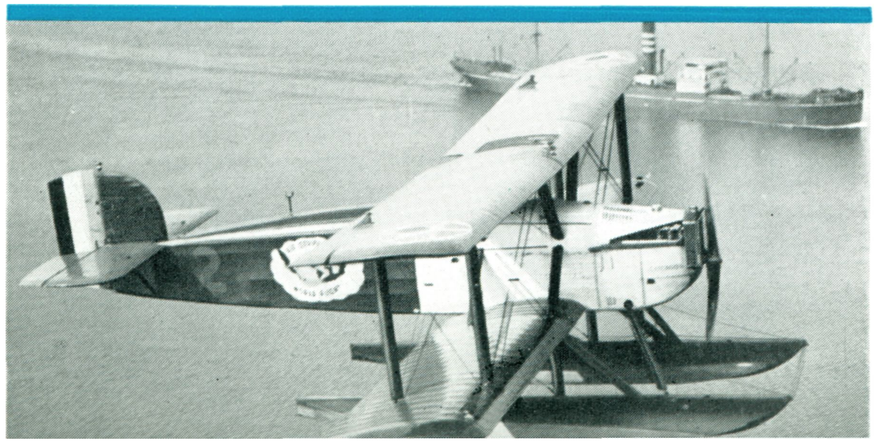
DOUGLAS

THE SUN NEVER SETS ON A DOUGLAS AIRLINER

"Go Douglas" on any of these world-wide airlines: **NORTH AMERICA—**American Airlines, Inc. . . . Braniff Airways ... Canadian-Colonial Airways, Inc.. .. Eastern Air Lines . . . Northwest Airlines, Inc. . . . Pan-American Airways . . . T.W.A. . . . United Air Lines . . . Western Air Express . . . Wilmington-Catalina Airline . . . **SOUTH AMERICA—**Pan-American Airways . . . Pan-American Grace Airways . . . **AUSTRALIA**—Airlines of Australia . . . Australian National Airways . . . **EUROPE**—A. B. Aerotransport, Sweden . . . Air France, France . . . Avio Linee Italiane, Italy . . . C.L.S., Czechoslovakia . . . K.L.M., Netherlands . . . L.A.P.E., Spain . . . L.A.R.E.S., Roumania . . . LOT, Poland . . . Swissair, Switzerland . . . **ORIENT**—China National Aviation Corp. . . . K.N.I.L.M., Netherlands Indies . .. Japan Air Transport.

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The Douglas trade mark commemorates the first flight around the world. Three Douglas U. S. Army planes left April 6, 1924, and flew to Alaska, over Bering trait to Siberia and Japan, then China, Malaysia, India, Arabia, the Balkans, Vienna, Paris, London, the Orkneys, Iceland, Greenland, Labrador, Montreal, Washington and across the American continent to their starting point September 28,, 1924. They covered 27,553 miles in 15 days, 11 hours and 7 minutes flying time. Today Douglas transport fleets fly a distance equal to $13^{1}/_{2}$ times around the world every day!





1920

Destiny cast its pattern over a drawing board in the back of a barber shop when Donald W. Douglas founded, in 1920, the enterprise which bears his name. Romantic as the story of aviation itself is the record of Douglas growth. From its original modest location, the company successively moved to a planing mill, an abandoned blimp hangar, an old movie studio stage, and finally, in 1929, to its present site at Clover Field, Santa Monica. Today Douglas plants cover 23 acres of ground and are using 1,315,974 square feet of floor space.

The Cloudster was the first Douglas plane. It was built for John C. Davis, wealthy Los Angeles sportsman who helped finance the undertaking. Product of a few crude work benches, it was the basic design on which the company obtained its first government order to build three planes for the U. S. Navy.

In spite of many difficulties, these planes were completed on schedule. There followed an order for



1921



1922-28

eighteen more, and need for additional space. In a rickety barn-like structure on the outskirts of growing Santa Monica, where the infant motion picture industry first made its mark, another young giant of the modern age was provided with "cradle space." Here were built the planes in which the U. S. Army was first to fly around the world in 1924, and blaze world sky-trails for the 2200 airplanes that have borne the proud Douglas name to date. A few years later the old movie studio became too small. Its next move brought the company to the modern plant it now occupies at Clover Field where Douglas expansion has continued apace with new additions year after year—a miracle of growth even for the aviation industry.



1939

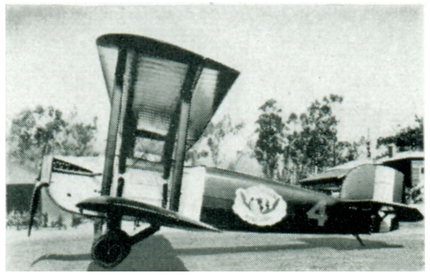
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DOUGLAS ROLL-CALL OF THE YEARS

Illustrating 15 out of 129 types developed by the Douglas Company 1921 to 1938



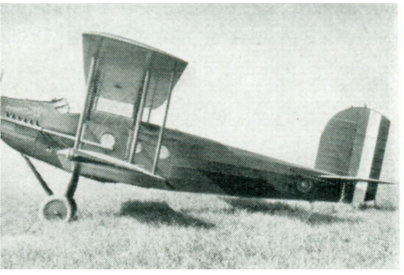
1921 *The Cloudster—first plane built by the Douglas Co.*



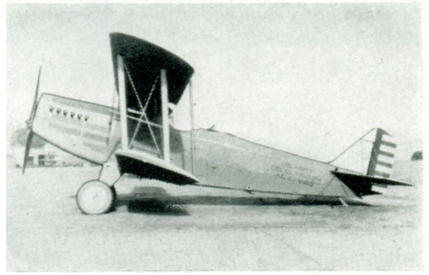
1924 *One of Jour ivorlil cruisers built for the U. S. Army.*



1926 *Mail plane that pioneered routes for P. O. Department.*



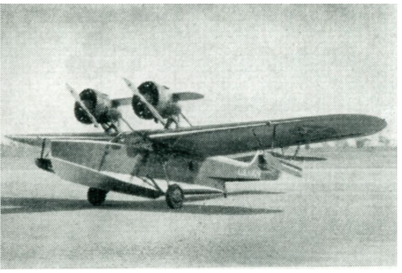
1927 *Personnel transport built for the United States Army**



1929 *Observation plane built for the United States Army.*



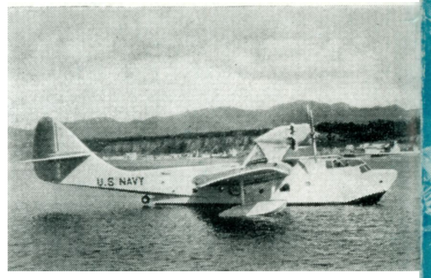
1930 *Observation plane for Army; many are still in service.*



1931 *Dolphin amphibian for Coast Guard and commercial use.*



1934 *DC-2, first production model of transports in world use.*



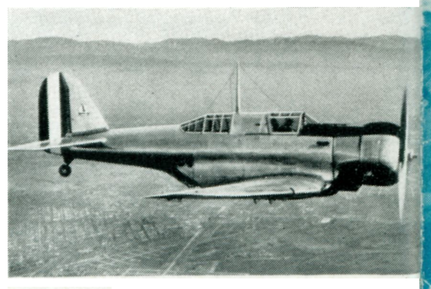
1935 *Experimental flying boat developed for the U. S. Navy.*



1936 *DST sleeper and DC-3, world standard transport introduced.*



1936 *Parasol type observation plane developed for the U. S. Army.*



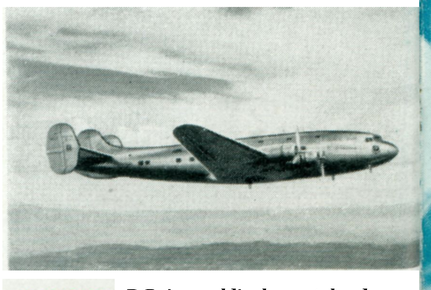
1937 *Attack bomber built in quantities for the U. S. Army.*



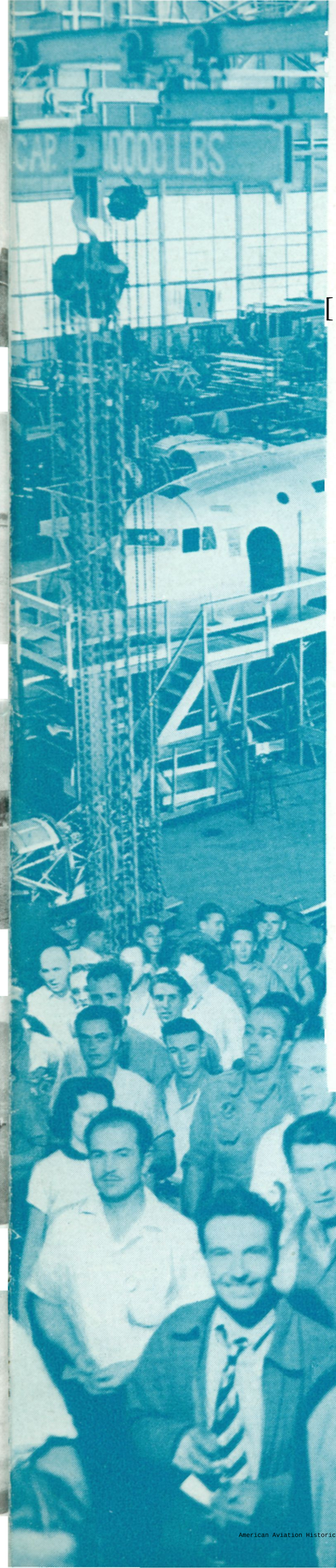
1937 *Many of these bombers built for the United States Army.*



1937 *Torpedo dive botnber built ft>r the United States Navy.*



1938 *DC-4, world's largest land plane sets future standards.*



ACKNOWLEDGMENT

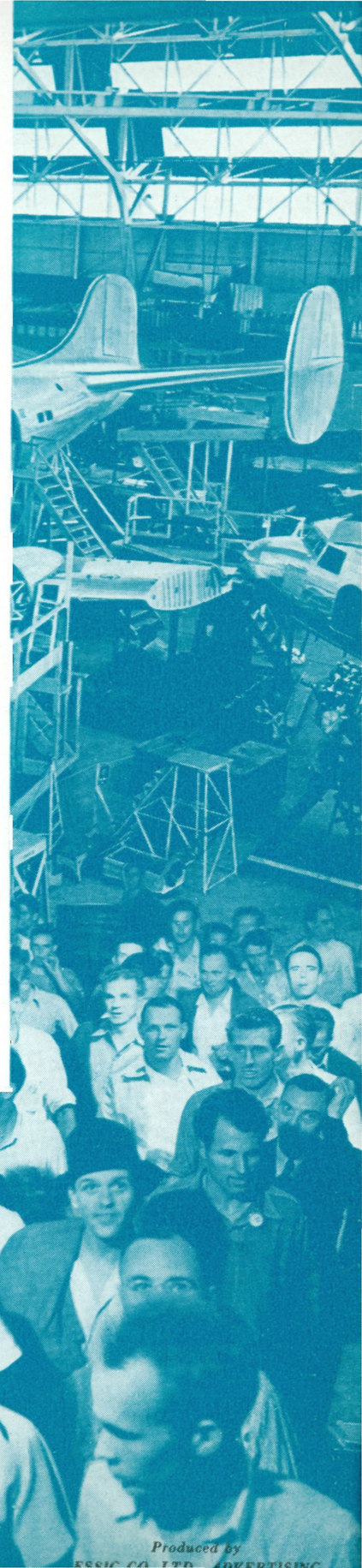
The story of the DC-4 is the story of the organization that made it possible.

To us, it is more than just the outstanding airplane of its time. It is a symbol—a goal achieved and a task fulfilled.

Here in our plants, where other wings of commerce and defense have taken shape to spread over the world's skyways, engineering and craftsmanship find their highest expression.

Scientist and mechanic alike have a heritage and a tradition with which there can be no compromise. Together they work, together they plan ahead and look ahead. The DC-4 is a tribute to the men who designed and built it. It is our token of a job well done and the promise of progress to come.

DONALD W. DOUGLAS.



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