

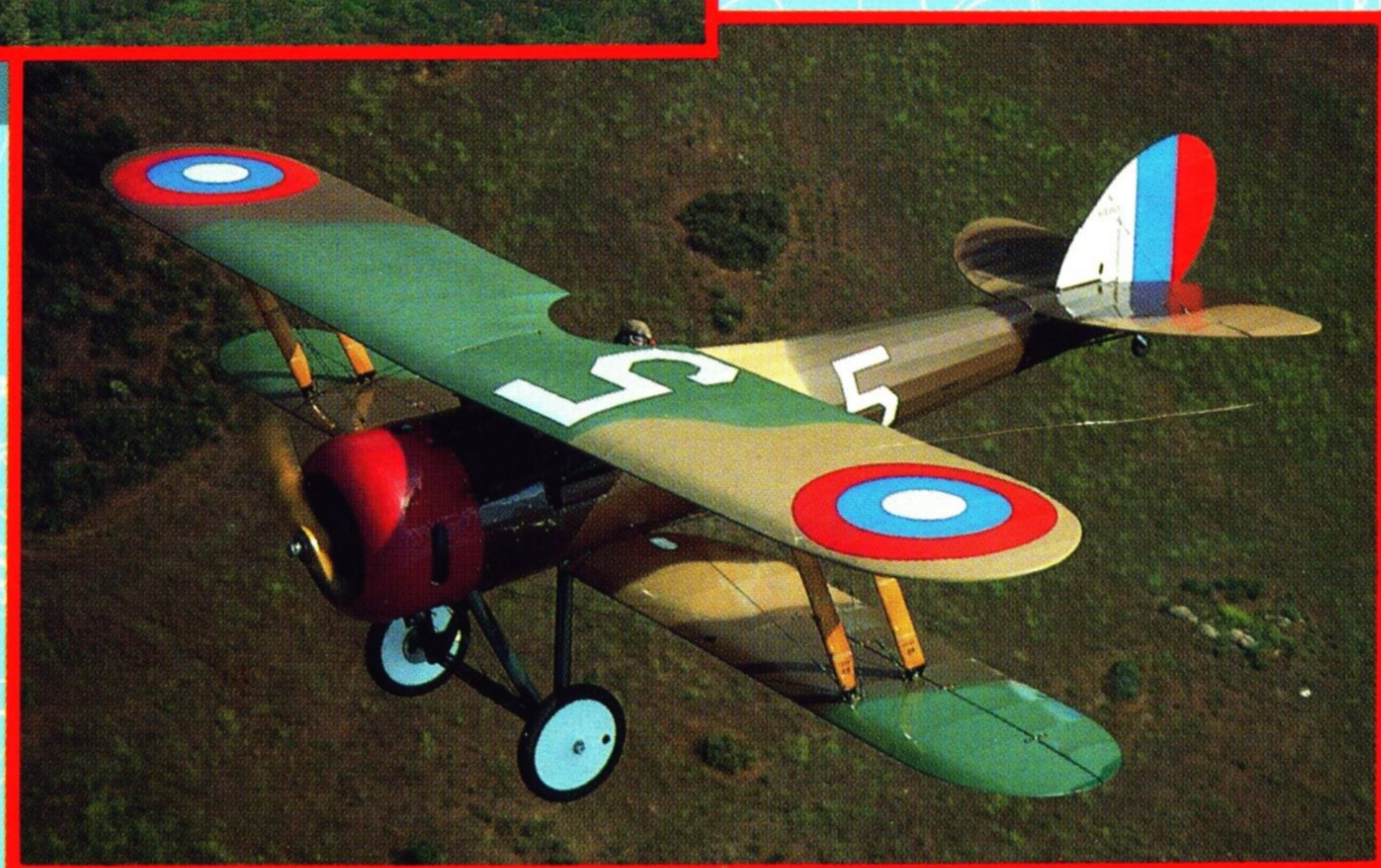


From the Publishers of Model Airplane News

Scale Aircraft Drawings

Volume I—World War I

**Scale Drawings,
Rare Photos, and
Historical Data
on Popular
WW I Aircraft.**



Scale Aircraft Drawings

Volume 1—World War I

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INTRODUCTION

by DAN SANTICH

The time-scale of this book represents the period in history when aviation was born. There were no rules. In many cases pilots were self-taught and their airplanes were handmade creations of fabric, wood, and dreams. Pilot comfort was not a pressing issue, and airports to operate from were a long time in coming.

Most of the aircraft presented in this book are only memories: scraps of fabric and wire that one time filled the sky with ambition and heroics. The photographs are all authentic; they represent a relatively new idea for the era—aviation photography.

A scale model is only as good as the effort that went into the research of it. There is, in absolute terms for scale modelers, no substitute for a dimension. A measurement of a given dimension of a given part of an aircraft is one of the most valuable aids to a scale project. With that dimension, a conversion to inches is a simple matter of mathematics. If it isn't given, it's only a guess.

These drawings are of both historical and artistic interest, and are what are generally referred to as Master Drawings.

This book is dedicated to the doer and the dreamer, the armchair pilot and the Captain of tomorrow's spaceship. It's history in black and white. The drawings presented herein are the works of master illustrators, such as Wylam, Nye, Larsen, Karlstrom, and others. It was a massive effort, and the drawings reflect countless hours of research and digging through the halls of history. In some cases, measurements were taken from the actual aircraft. In many cases there were no remaining examples of the aircraft. Obtaining the accurate dimensions of these aircraft was difficult, if not impossible. Where factory drawings and sketches were available, many differences in dimensions were found. To resolve this dilemma, a best-guess approach was used. But it was an educated guess.

Some errors, a few major and some minor, are noted in the text. Modelers and enthusiasts should check them carefully against available photographs before undertaking major projects. A lot of technical material has been uncovered in the last 30 years that was not available to these draftsmen.

It should be noted that the scale reference given in the title block of each drawing does not reflect the scale size of that drawing. All of the drawings in this book have been reduced for presentation and are available from us in their full-size to the appropriate scale. These Master Drawings were rendered in varying scales.

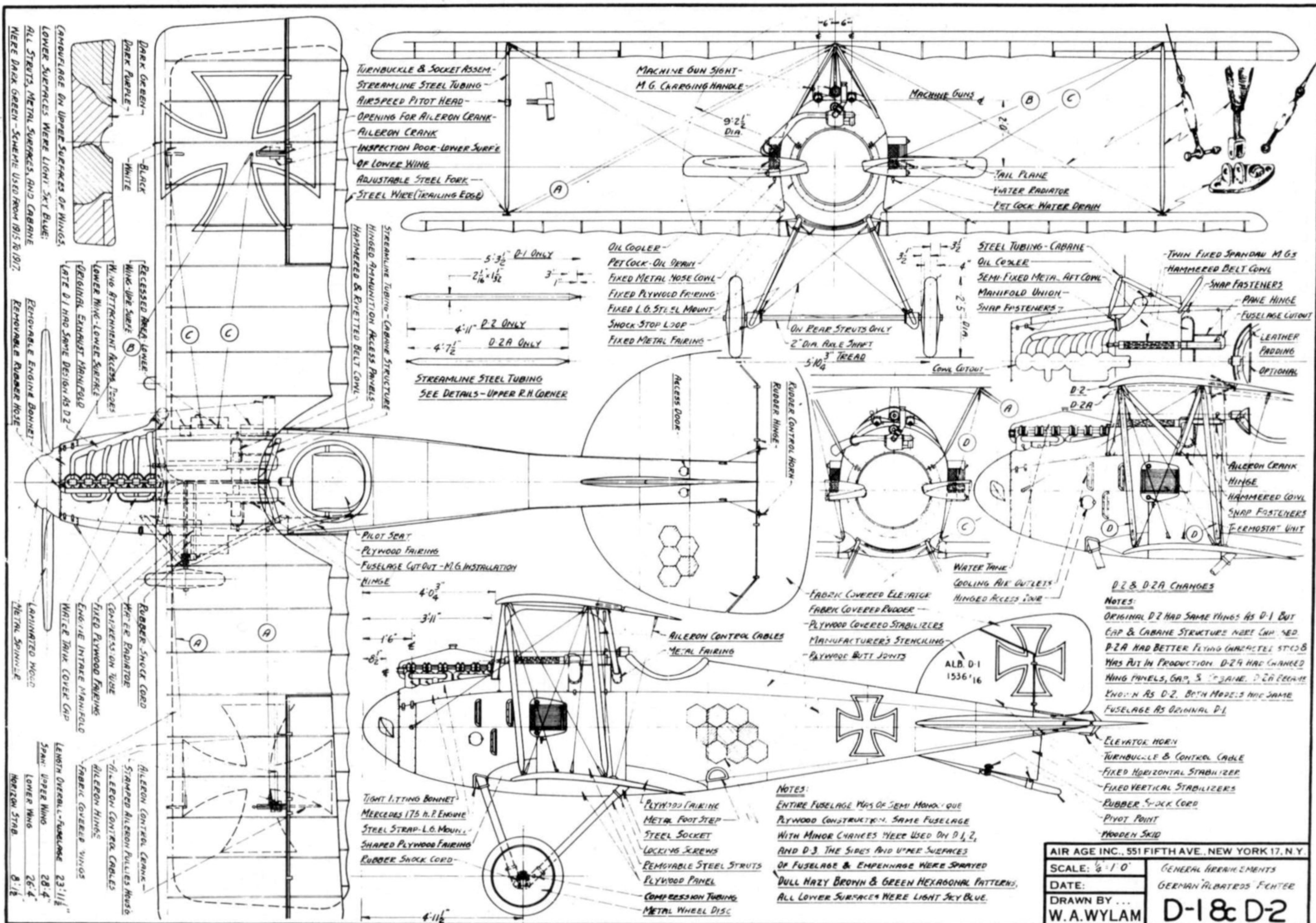
For the scale modeler, this book is invaluable. For the historian, it's a collector's dream. For the aviation-minded, modeler or not, it's a fascinating collection of winged history. We hope you enjoy it.

Albatros

D.I to D.VI

drawings by WILLIAM WYLAM

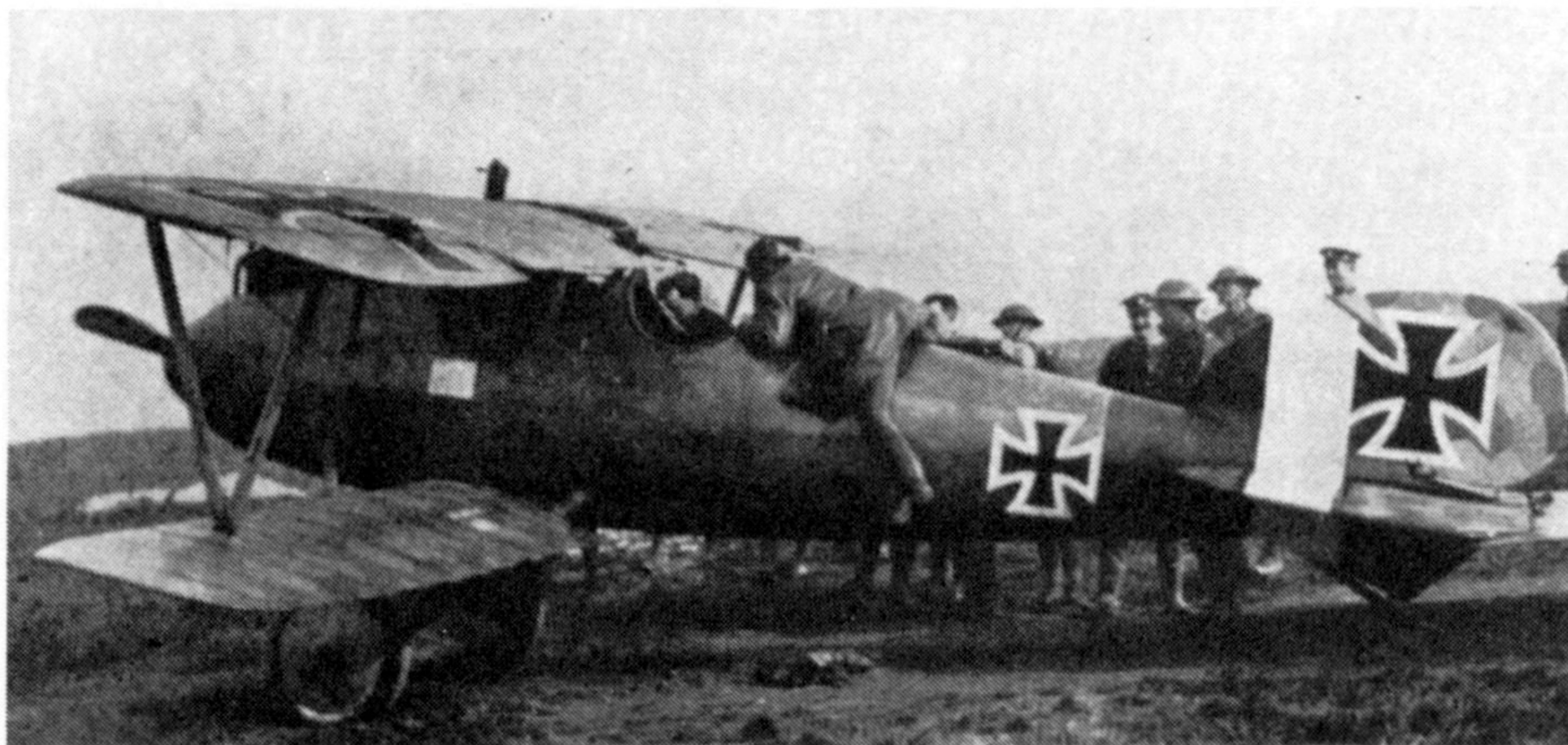
Front view of the Albatros D.V. "Jane's All the World's Aircraft" photo.



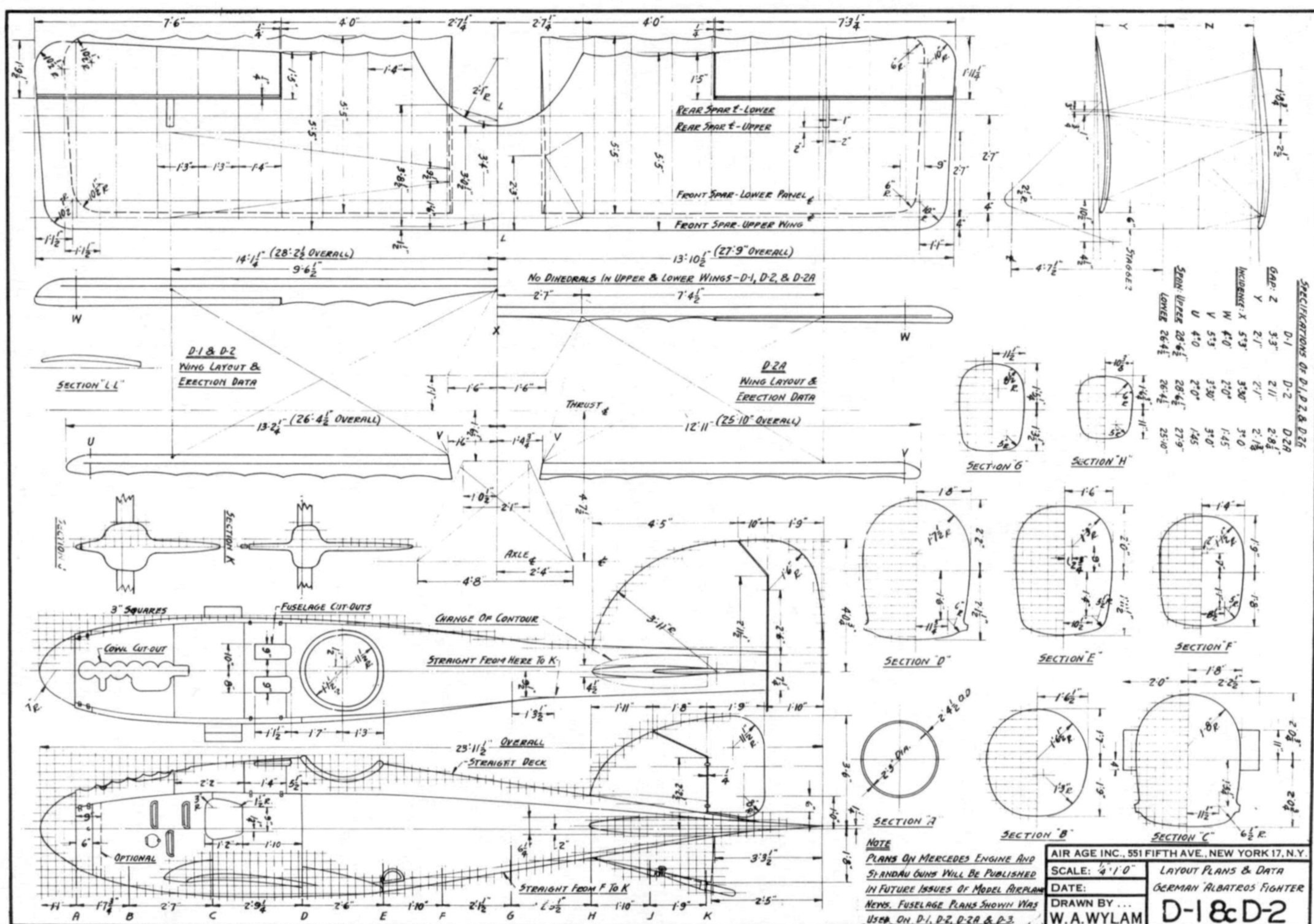
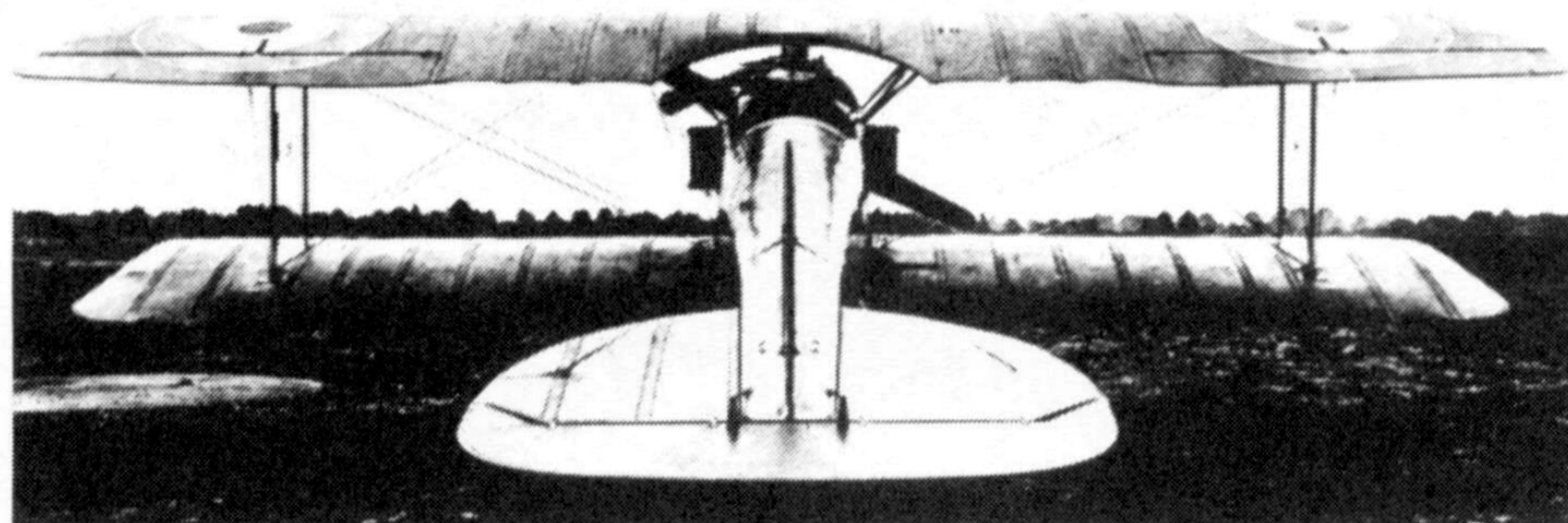
Albatros D.I to D.VI

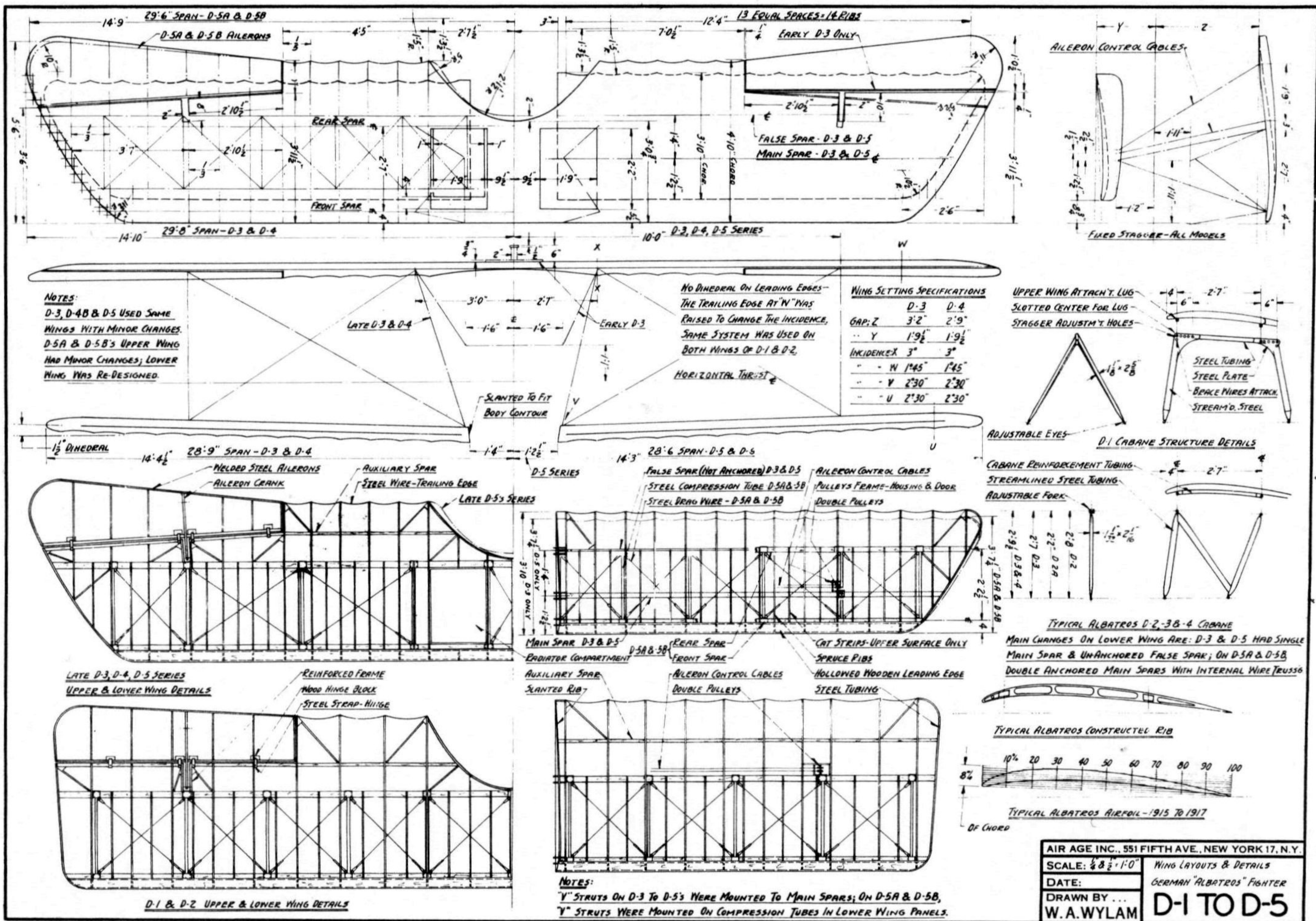
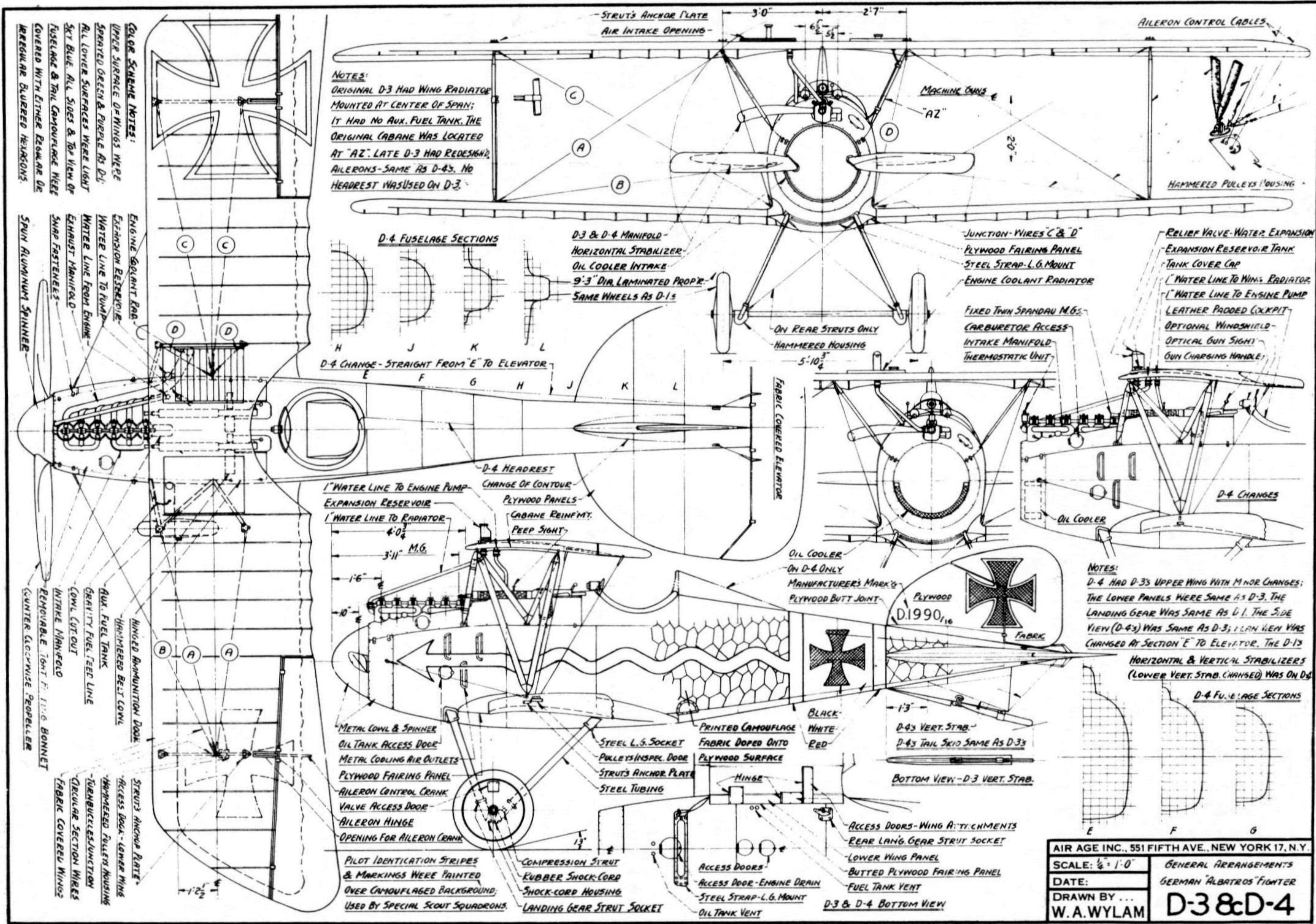
THE ALBATROS was introduced in April 1916 by the Albatros Werke, a manufacturing plant and civil flying school with excellent aero credentials, in the town of Johannisthal near Berlin. The Albatros was the mainstay of German airpower during the entire first world war, although it was outclassed by faster British and French aircraft later in the war. The Albatros D.I made its combat debut on September 17, 1916, against an ill-fated flight of seven British F.E.2b pushers, resulting in the loss of five of the pushers and no loss to the Germans.

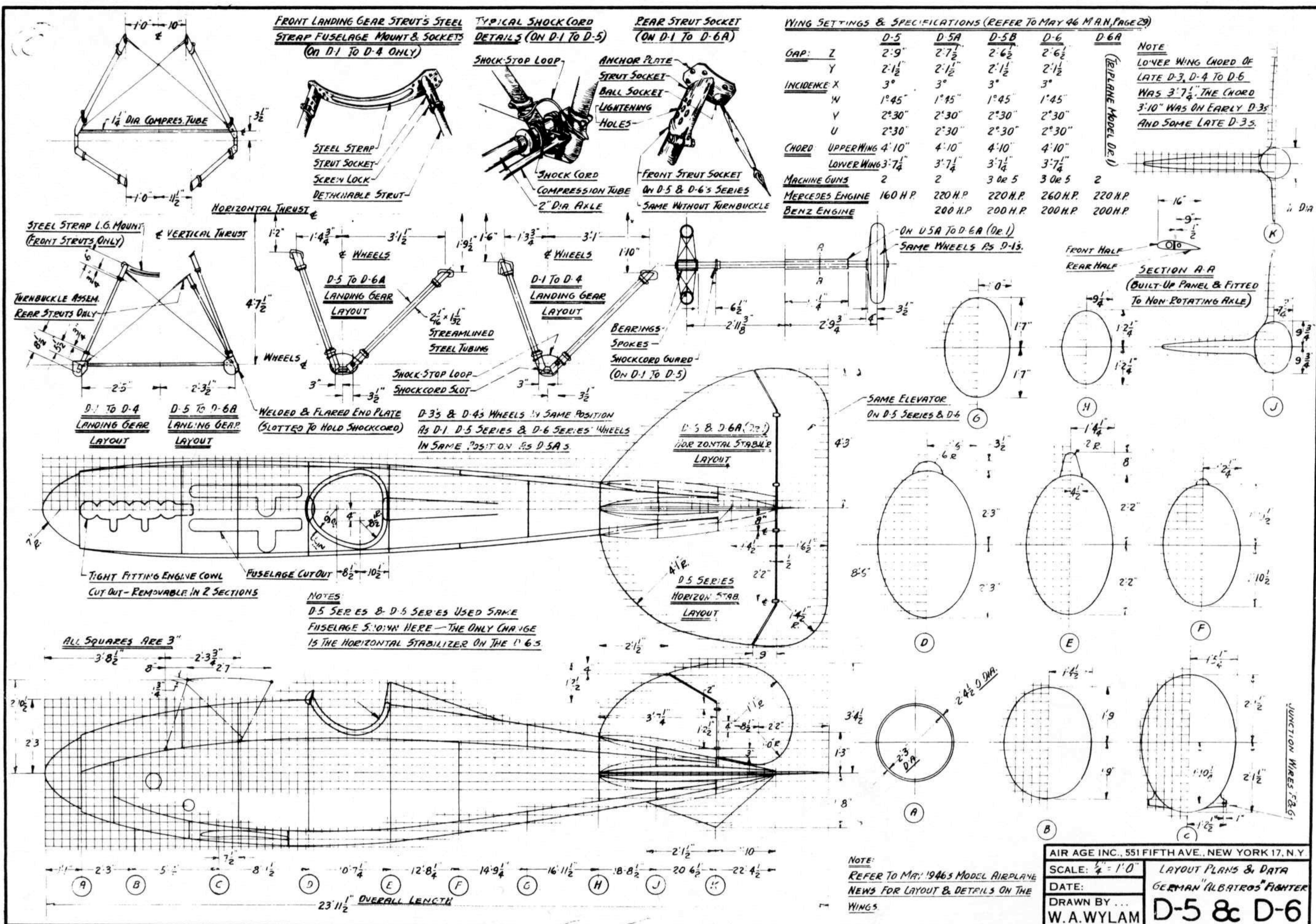
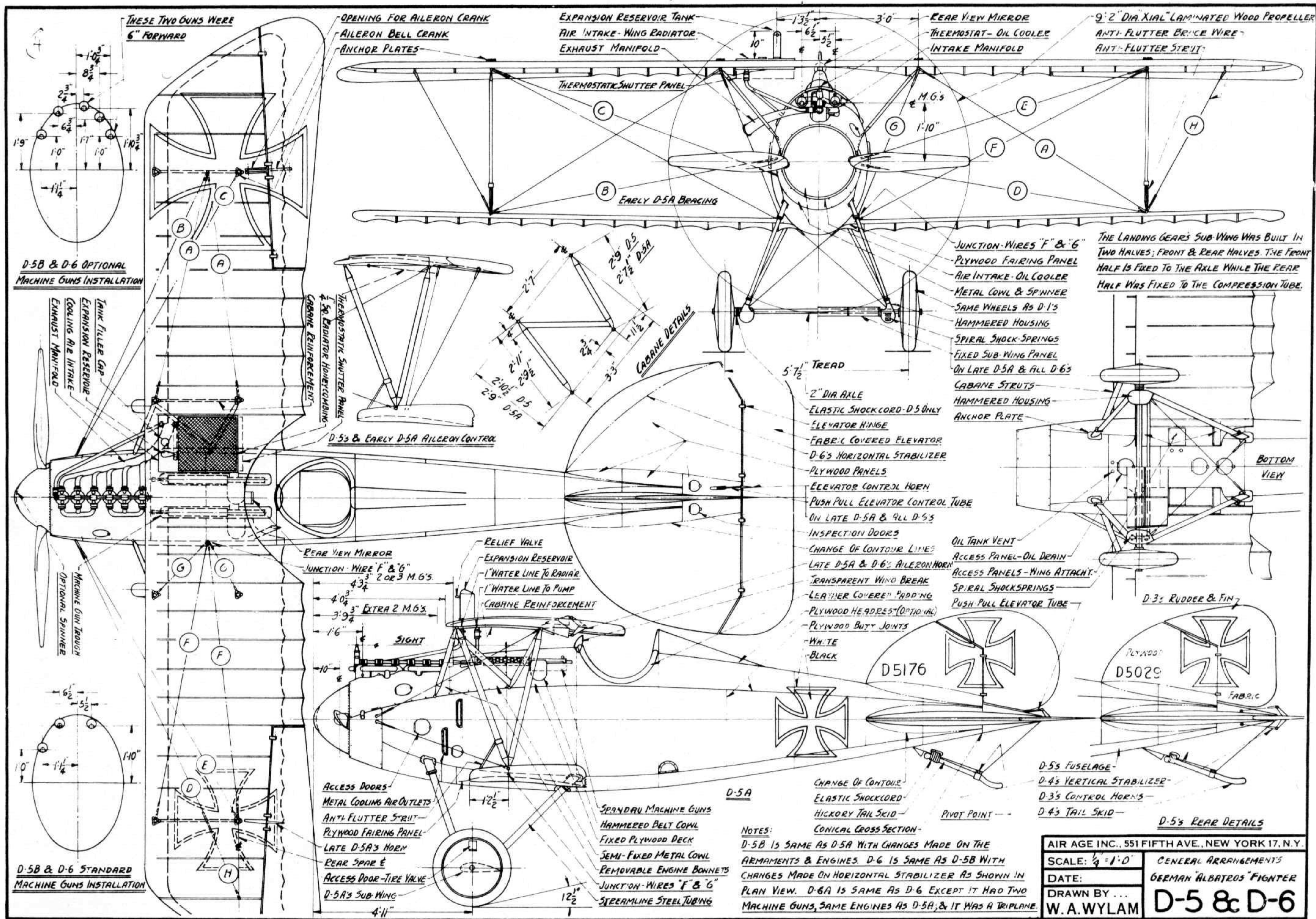
The D.I immediately made every other fighter aircraft at the front obsolete. Development continued, however, which ended with the D.XII. The combat career of the Albatros did not end with the closing of WW I, but went into Polish and Czechoslovakian units. Two survive, both D.Va's; one at the National Air & Space Museum, the other in Australia.



Above: A D.Va. The Albatros was a departure from the typical WW I fabric-and-stick fuselage and utilized advanced streamlining techniques for the times. "Jane's All the World's Aircraft" photo. Below: A captured Albatros D.III bearing RAF markings is another example of German streamlining attempts. Squadron/Signal Publications photo.







Ansaldo SVA-1

drawing by WILLIS NYE



Ansaldo SVA-4 was nearly identical to SVA-1. Note extra strut in center section bracing. Robert Hare photos from Air Age file.

ALTHOUGH little has been written of Italy's contributions during the first world war, the record is an amazing one. Italy's aerodynamicists were numbered among the world's finest, her factories were efficient, and Italian designs were definitely first class.

One of the largest companies was a firm known as "Societa Gio Ansaldo" of Genoa. To guarantee consistent quality, the firm established a testing program virtually unheard of during that period. In-plant testing and inspections were more critical than any contemporary

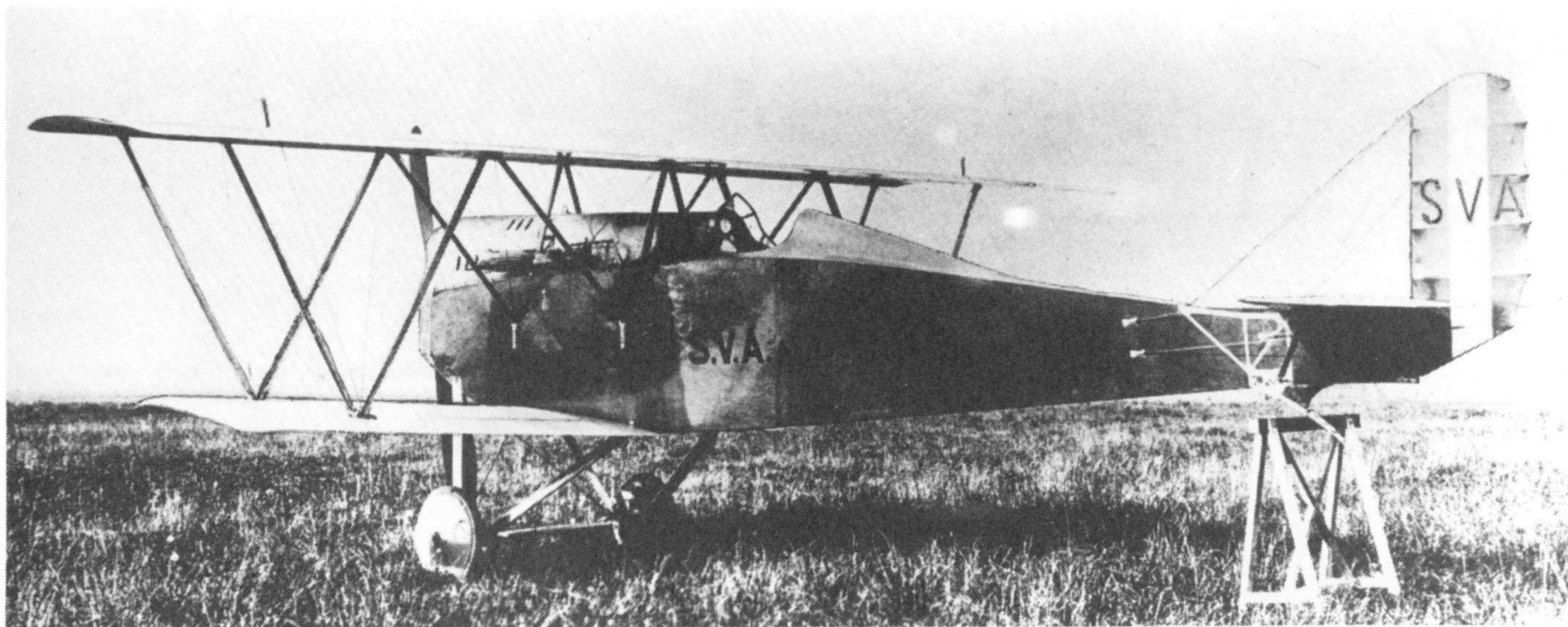
manufacturer had even thought of. From these facilities came the famous S.V.A. series of fighter and bomber aircraft.

Fitted with a six-cylinder, water-cooled vertical-type engine that developed 225 hp at 1,700 rpm, the aircraft was suited to roles of both fighter and bomber. Altogether six models of the basic S.V.A. design are known to have been built, and of these three were exclusively single-seat fighters, two were listed as "escort" types, and one was fitted out as a single-seat bomber. Only the S.V.A.-4 and -5 reached true production status.

Operationally, the S.V.A.-4 and -5 were a distinct success. Nearly all Italian pursuit squadrons were fitted with the fighter version toward the war's end, while four bomber squadrons were entirely -4 equipped. They regularly took on missions of up to 700 miles round trip, which were completed in less than seven hours. Because of their versatility, the -5 fighters were often fitted with bombs for shorter range work and with extra fuel to escort the bombers.

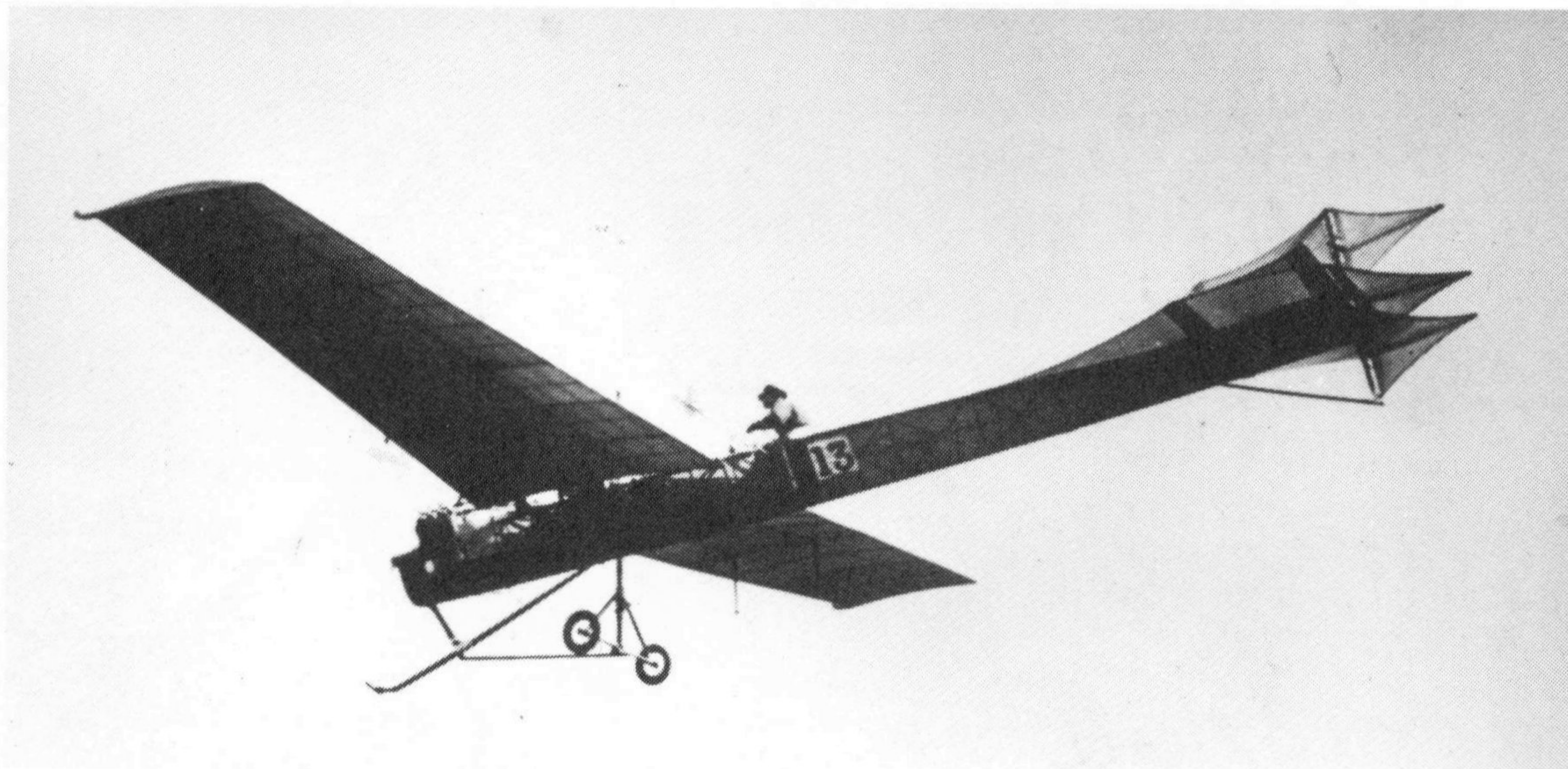
A curious feature of Ansaldo aircraft, as well as other Italian aircraft up through WW II, was that the left-hand wings were *longer* than the right-hand wings to help overcome torque. Most drawings, including Nye's, do not show this.

The S.V.A. team was a formidable weapon deserving of an everlasting place in aviation's Hall of Fame. Seven survive, five in Italy and two in the U.S. □



Antoinette VII

drawing by WILLIS NYE



FROM their motorboat engine factory, Leon Levavasseur and Jules Gastambide began building airplanes in 1903; the first successful design, Model IV, flew in 1908. Herbert Latham used it, much modified, in his first cross-Channel attempt, and the Model VII on his second: both efforts ended in the water. Most of the Antoinette designs were heavily modified: the two photographs on this page, and Nye's drawing, are all of the same machine.

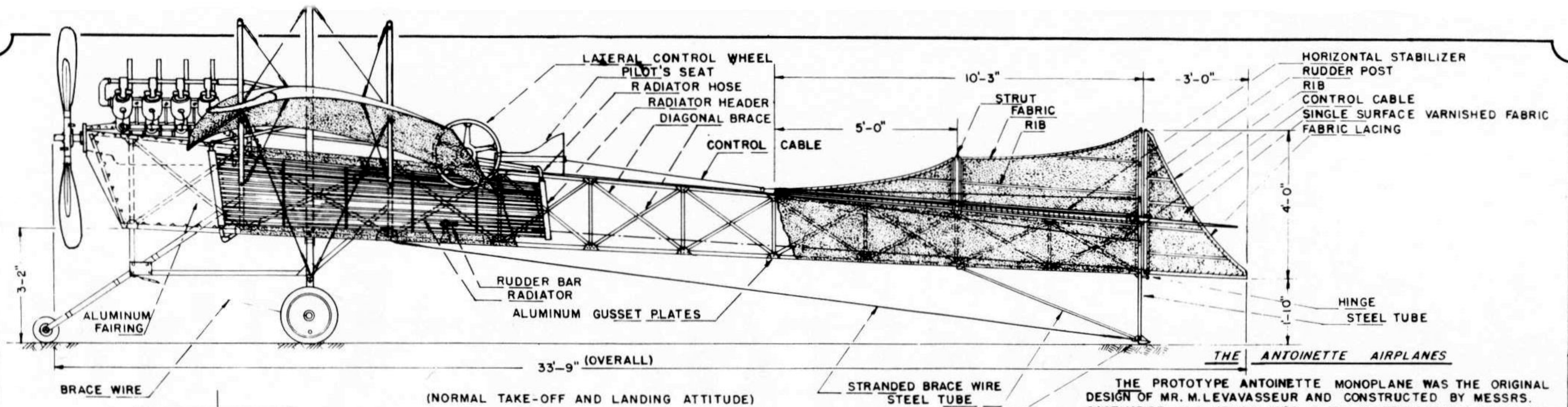
The designs were fast and stable: Latham later flew his Model VII, repaired and dried out, over the Golden Gate Bridge in San Francisco in 1911. He was observed on the occasion by Willis L. Nye, our draftsman.

The firm also built the Monobloc, the first internally-braced low-wing monoplane, in 1910: it was too heavy to fly. Three Model VIIs were lent to the U.S. Navy by Harry Harkness, and two of them appear in photographs of the Curtiss training school at North Island, in California.

Three Antoinettes are left, one in London, one in Paris, and one in Krakow, in Poland. □



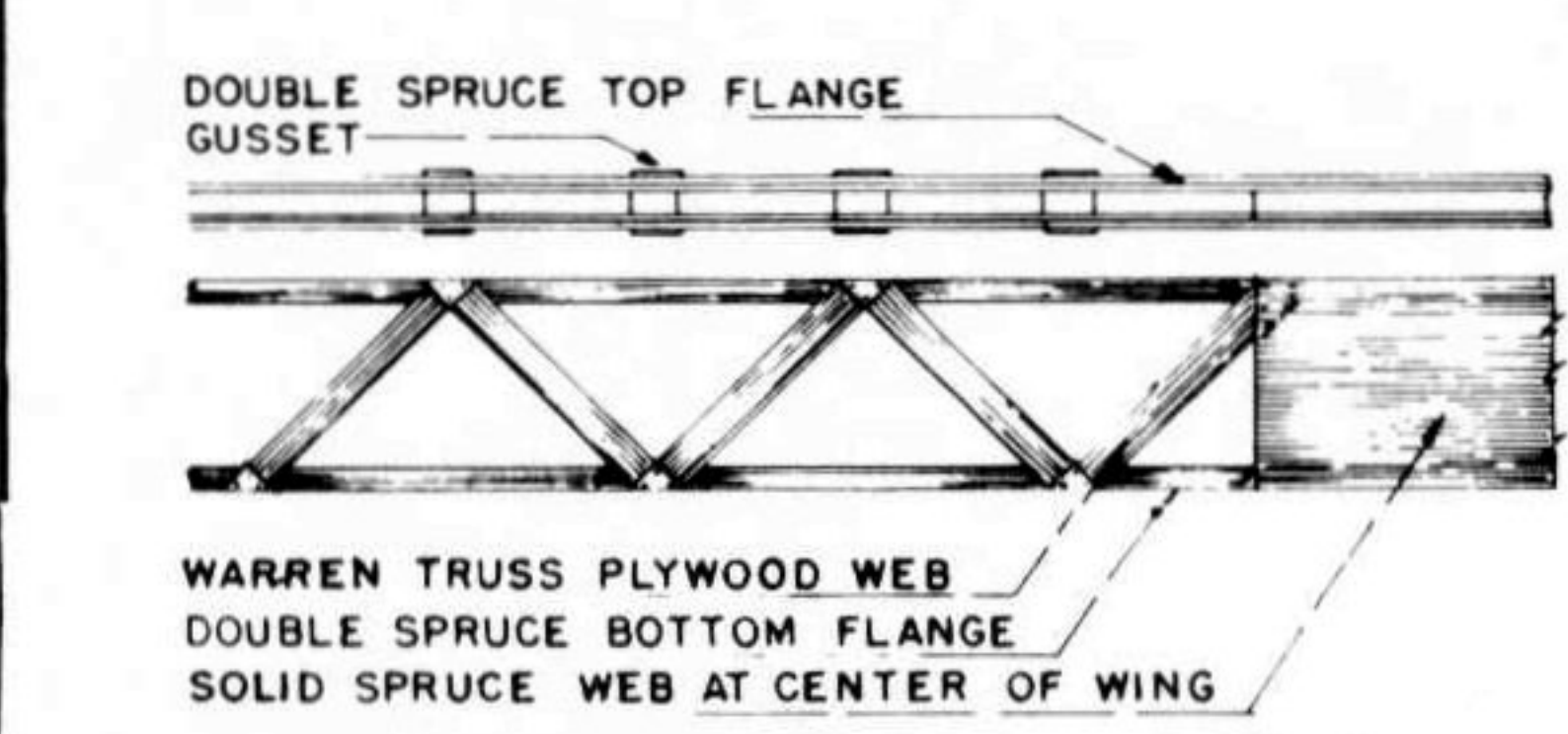
The advancement in aircraft design exhibited here in 1908 was quite revolutionary. Note rudder and elevator control surfaces. The entire wing panels were moved for lateral control. Photos courtesy of Leonard Opdycke, WW I Aeroplanes.



FUSELAGE CROSS SECT.

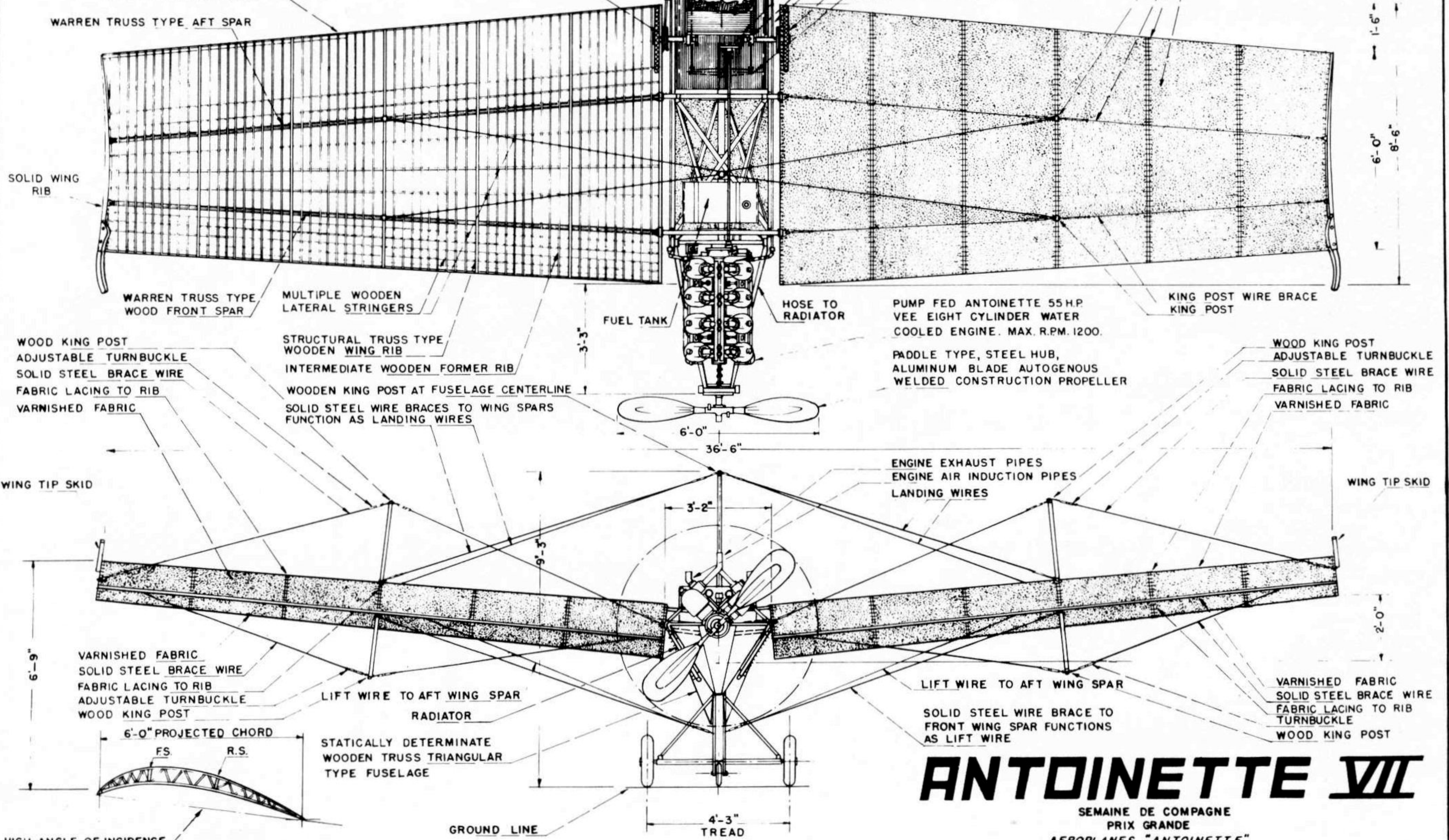


LANDING GEAR DETAIL



WING SPAR DETAIL

NOTE: LATERAL WING ROCKING MOTION DID NOT EXCEED 10 DEGREES



ANTOINETTE VII

SEMAINE DE COMPAGNE
PRIX GRANDE
AEROPLANES "ANTOINETTE"
PARIS, FRANCE

Armstrong-Whitworth

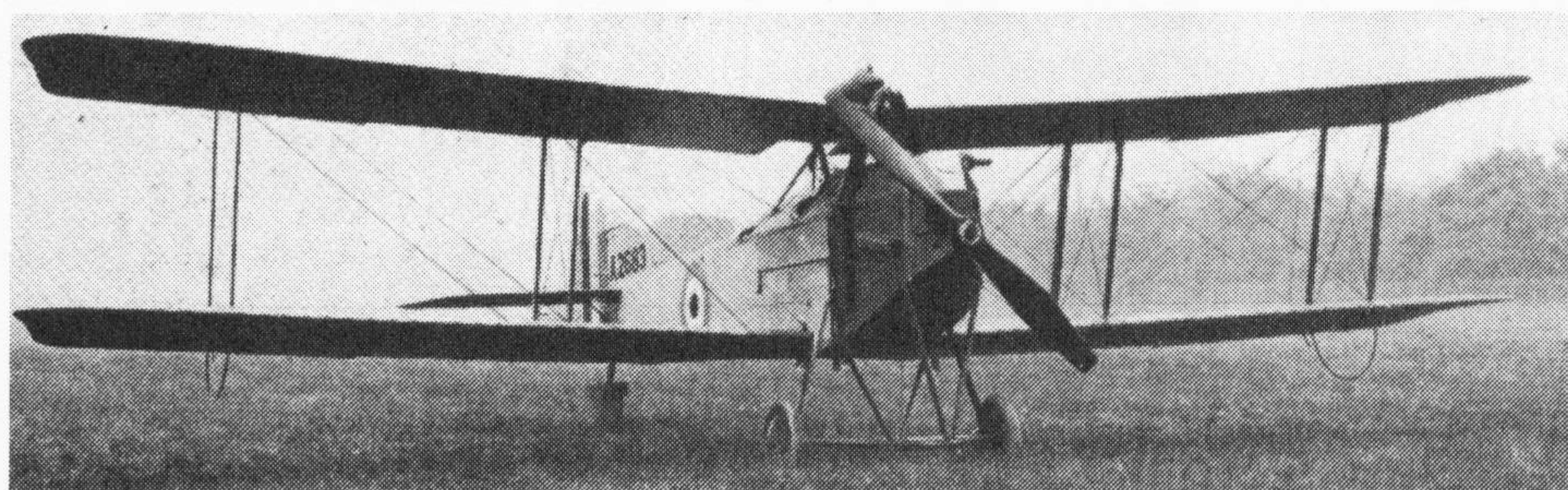
drawing by BJORN KARLSTROM

THE Armstrong-Whitworth F.K.8, designed by Mr. Frederick Koolhoven, was a heavier and an improved version of the F.K.3. It had a deeper fuselage, a slimmer type of undercarriage except that the central skid was cut short in front of the front V, and a 160-hp Beardmore engine. This machine was used to a large extent on various fronts of WW I for contact patrols, artillery spotting, light bombing, photography, and reconnaissance work up to the signing of the

Armistice.

About halfway through its active service life, the F.K.8 was slightly modified by having a V-type undercarriage fitted (at first from Bristol fighters, and when the stock ran low, from B.E.2c's, finally from Armstrong-Whitworth), and smaller radiators of improved efficiency installed. A long exhaust pipe was also added to carry the exhaust fumes well clear of the crew.

None survive. □



With 120-hp Beardmore engine, the F.K.8 had a top speed of 85 mph. Developed by the British, this aircraft served notably throughout WW I. "Jane's All the World's Aircraft" photos.

Specification.

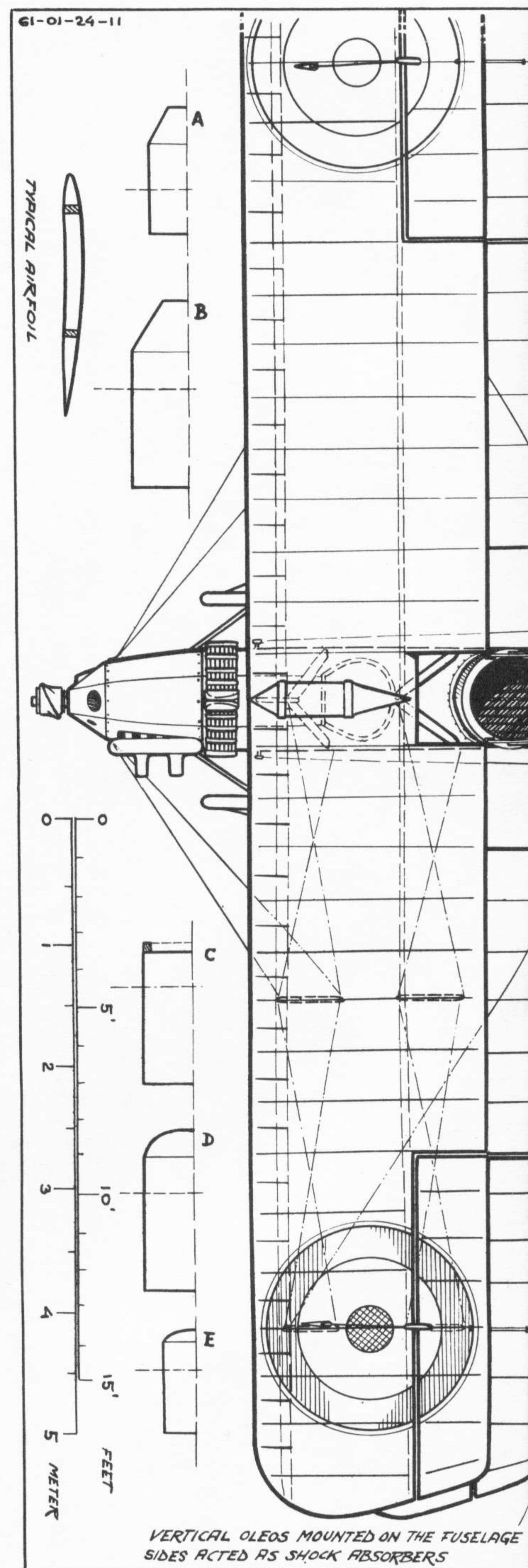
Type of machine	Two-seater Biplane.
Name or type No. of machine ..	Armstrong-Whitworth F.K.3.
Purpose for which intended ..	Sport and Training.
Span	40 ft.
Overall length	28 ft. 8 in.
Maximum height	10 ft. 2½ in.
Engine type and h.p.	90 h.p. R.A.F.
Weight of machine empty	1,900 lbs.
Tank capacity in hours	3½ hours.

Performance.

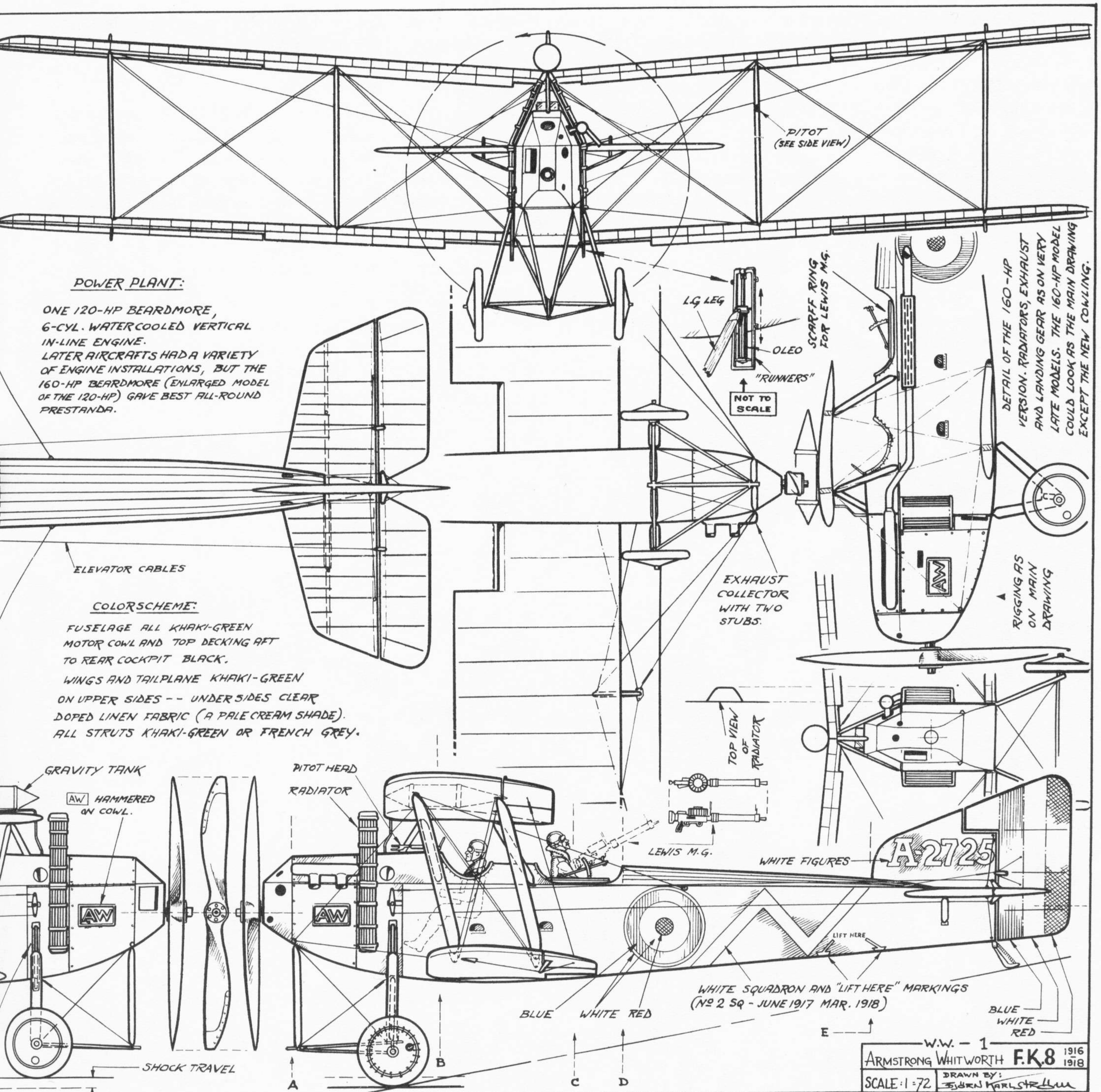
Speed at 1,000 feet	85 m.p.h.
Landing speed	38 m.p.h.

Climb.

To 10,000 feet in minutes ..	23 minutes.
------------------------------	-------------



orth F.K.8



Bleriot XI

drawing by WILLIAM WYLAM

ONE of the epic flights of aviation history, probably equal in importance and impact to Lindbergh's flight, was Louis Bleriot's 22-mile flight across the English Channel in 1909. With this amazing feat, the French pioneer created a worldwide sensation and focused the attention of all civilization on the potential use of the airplane as a transportation vehicle.

The Bleriot XI was small and weighed only 660 pounds. Power was a three-

cylinder Y-type Anzani air-cooled engine that developed about 20 hp. The airframe was wood, with rubberized fabric covering. Lateral control was attained by warping the wings.

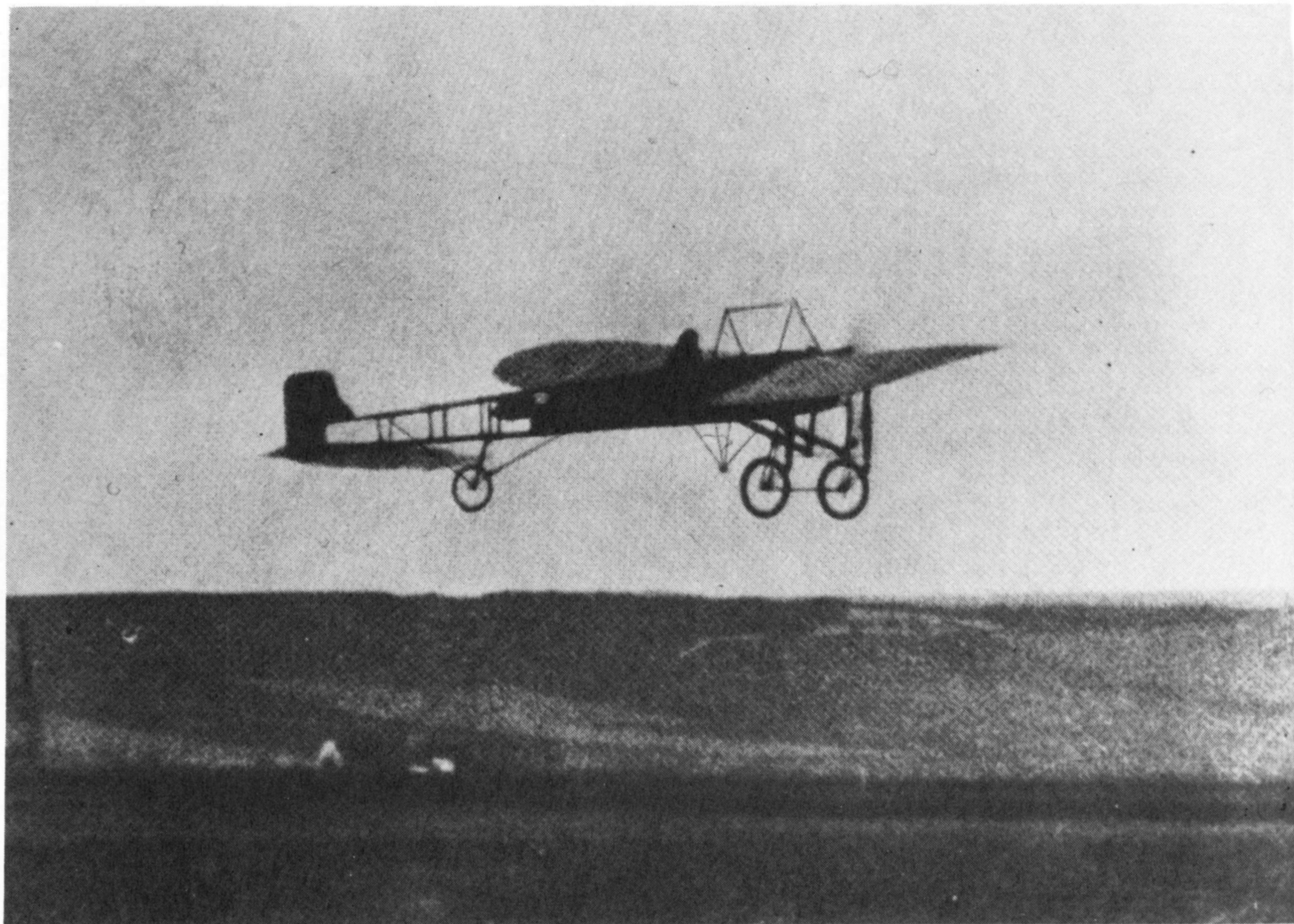
Sparked by an award of \$5,000 by the *London Daily Mail* for the first flight across the Channel, Bleriot was challenged for the award by Hubert Latham, a famous record-smashing pilot of that period. On Sunday, July 25, 1909, Louis Bleriot landed his plane near Dover

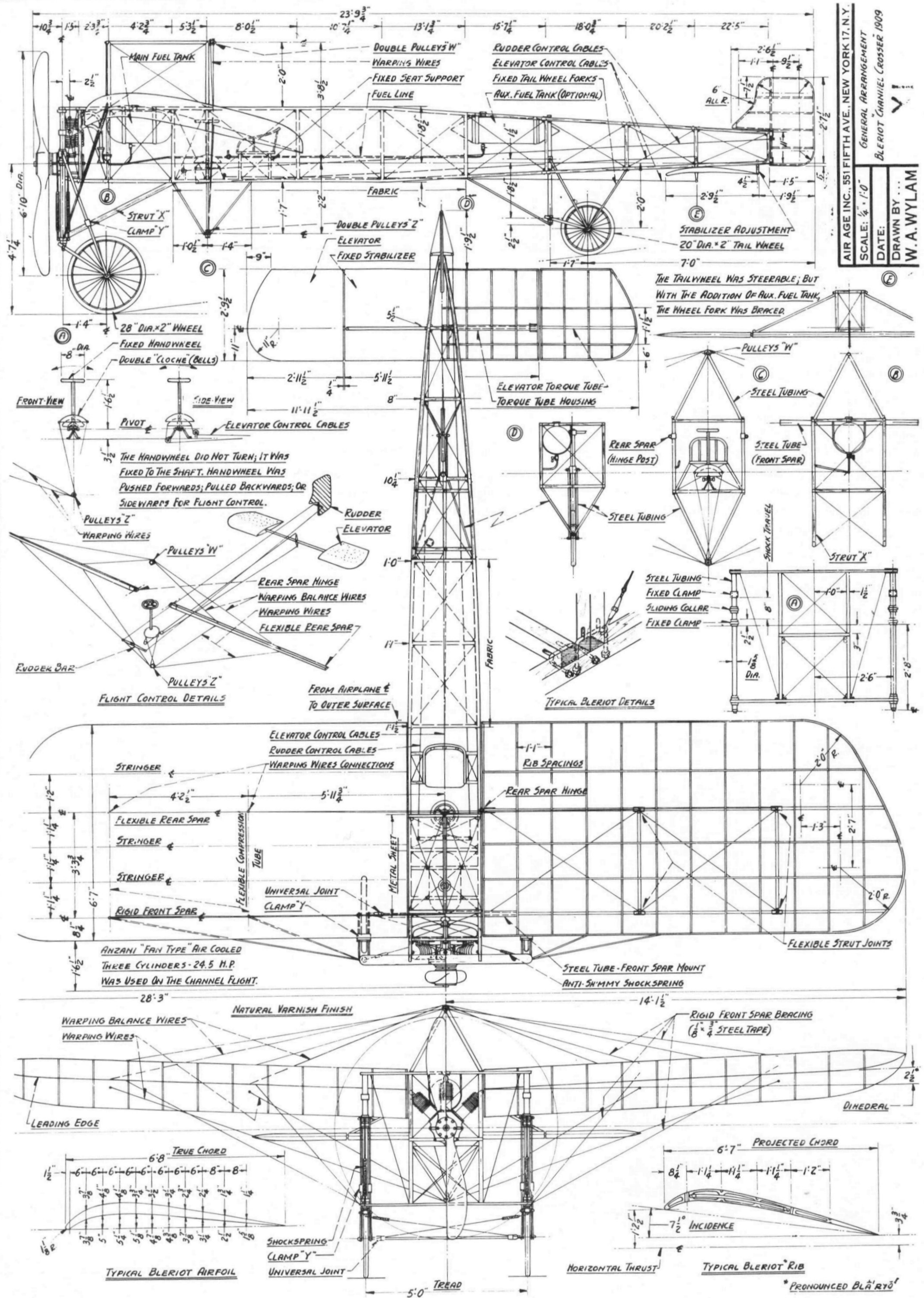
Castle, England, after crossing the Channel in less than one hour, a feat which garnered him over \$15,000 in prize money.

Many variants of the XI design were built by the Bleriot firm, including parasols and two-seaters. The photograph and Wylam's drawing show the aircraft Bleriot used to fly the Channel. Note the inflated bladder inside the fuselage.

Many Bleriot XIs are still around, in museums or privately owned. □

An extremely rare photograph, this shot taken as Bleriot commenced his journey into history crossing the English Channel on Sunday, July 25, 1909. Air Age file photo.





AIR AGE INC., 551 FIFTH AVE., NEW YORK 17, N.Y.
 SCALE: 1/4" = 1'-0"
 DATE: ...
 DRAWN BY: W.A. WYLAN
 GENERAL ARRANGEMENT
 BLERIOT "CHANNEL CROSSER" 1909

Boeing MB-3A

drawing by JOSEPH NIETO

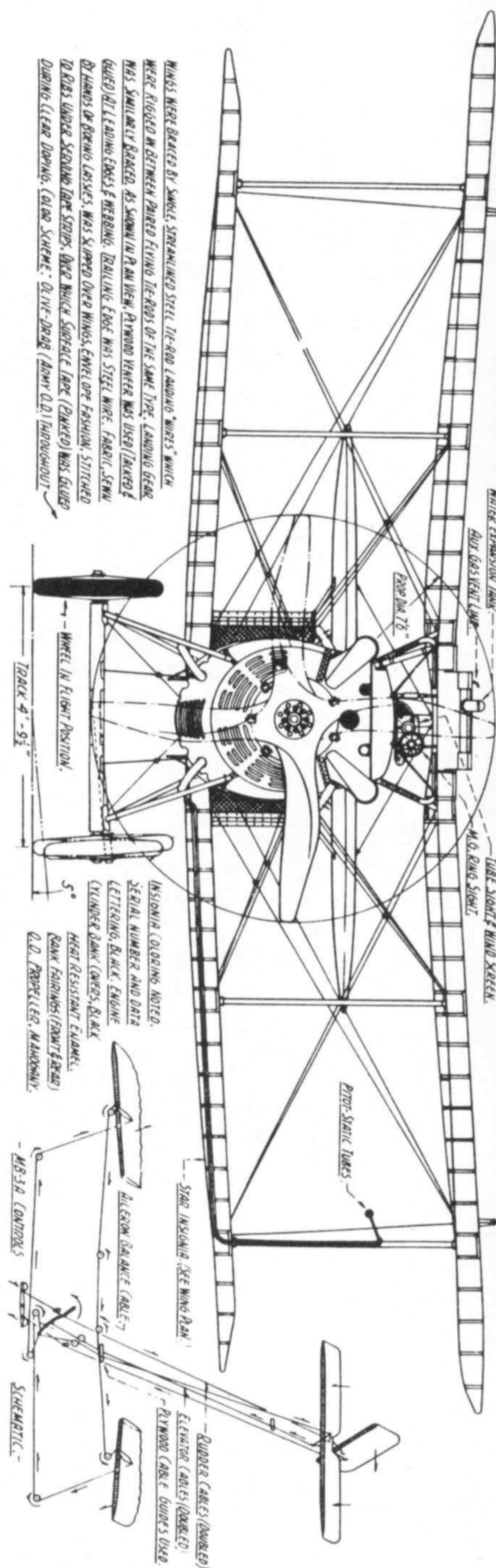
"IF THE WAR had lasted..." That was a common speculation among aircraft engineers and enthusiasts following the Armistice of WW I. Of course, no sane person of the period was genuinely in favor of continuing the European holocaust, but there was, after the fracas was all over, a somewhat nostalgic—and disappointed—feeling that swept over the American aircraft industry. The Thomas Morse Aircraft Co. had but one thing in mind with the MB-3: to equal, and possibly outperform any European plane of the same type. Designed in 1918, and not flown until February 1919, it was too

late to see service in the war.

Boeing was contracted, along with Thomas Morse, to build the Thomas Morse design and the versions produced by Boeing were the MB-3A, which featured modifications to the control surfaces and empennage, among other changes to cowling and engine. The result was an airplane that, in its time, was equal to or better than anything in the air. Serving up until 1929, the MB-3A established Boeing as a quality craft builder at a time when the aviation business was really tough. □



Top photo, "Pedigree of Champions, Boeing Since 1916." Left photo, "Chronicle of Aviation History in America."



Bristol F.2B

drawings by WILLIAM WYLAM

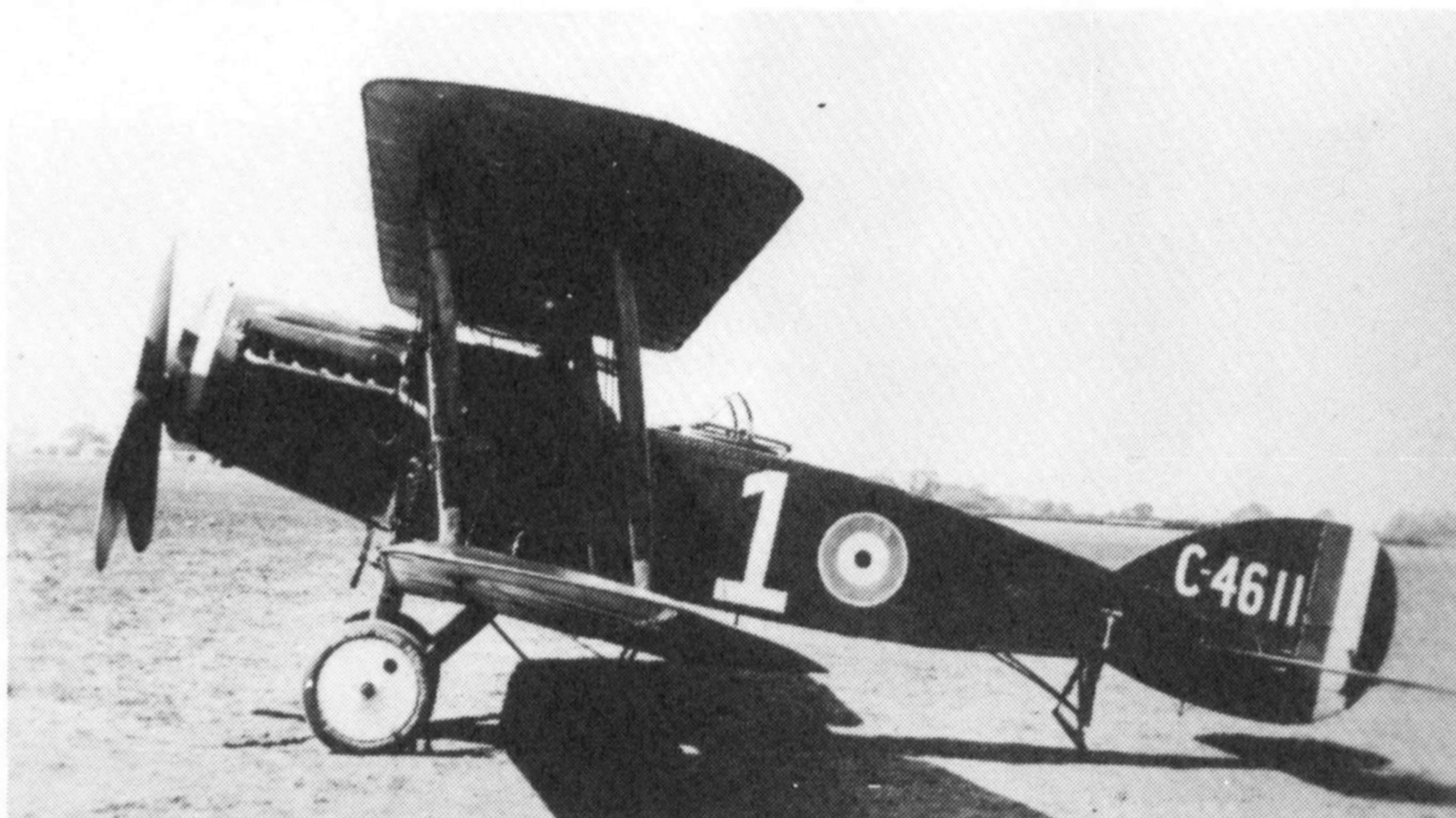
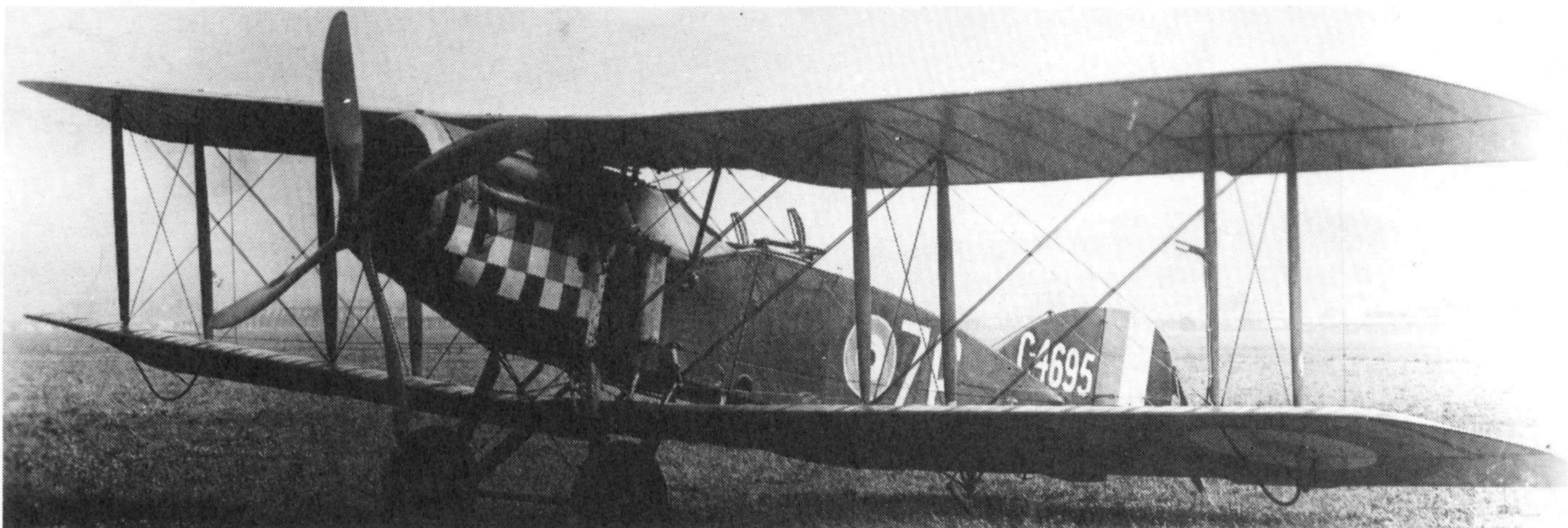
AN OUTSTANDING success in every role it was to play in WW I, the Bristol fighter, affectionately known as the “Brisfit,” was described as a “pilot’s airplane” by all accounts on file with the British Air Ministry. But its first appearance over the Front—six F.2A’s—ended with four of them shot down, because their pilots had not yet learned to fly them like fighters instead of observation planes. When they did learn, in the middle of 1917, the Fighter began to replace the

then-staged S.E.5. It didn’t take long for stories about the F.2B’s fighting ability to get around. A two-place airplane, the F.2B was a departure from pilots’ prior experience and the acceptance of it was initially slow. The training methods, however, stressed the remarkable features of the airplane itself and the pilot-observer teamwork necessary to obtain the greatest possible effect. The result was to fulfill a specific function—fighting in the air.

The engine selection varied from 190 to

280 hp, depending on the job expected of the plane and its date of manufacture. Radiators were fitted accordingly and differed in shape and size. The F-2B was probably the only two-seater built during WW I that handled like a single-seater. It was maneuverable and as fast as the Fokker D.VII. These features made it possible for pilots such as Capt. Andrew McKeever to gain 23 of his 30 victories. And McKeever had only one eye!

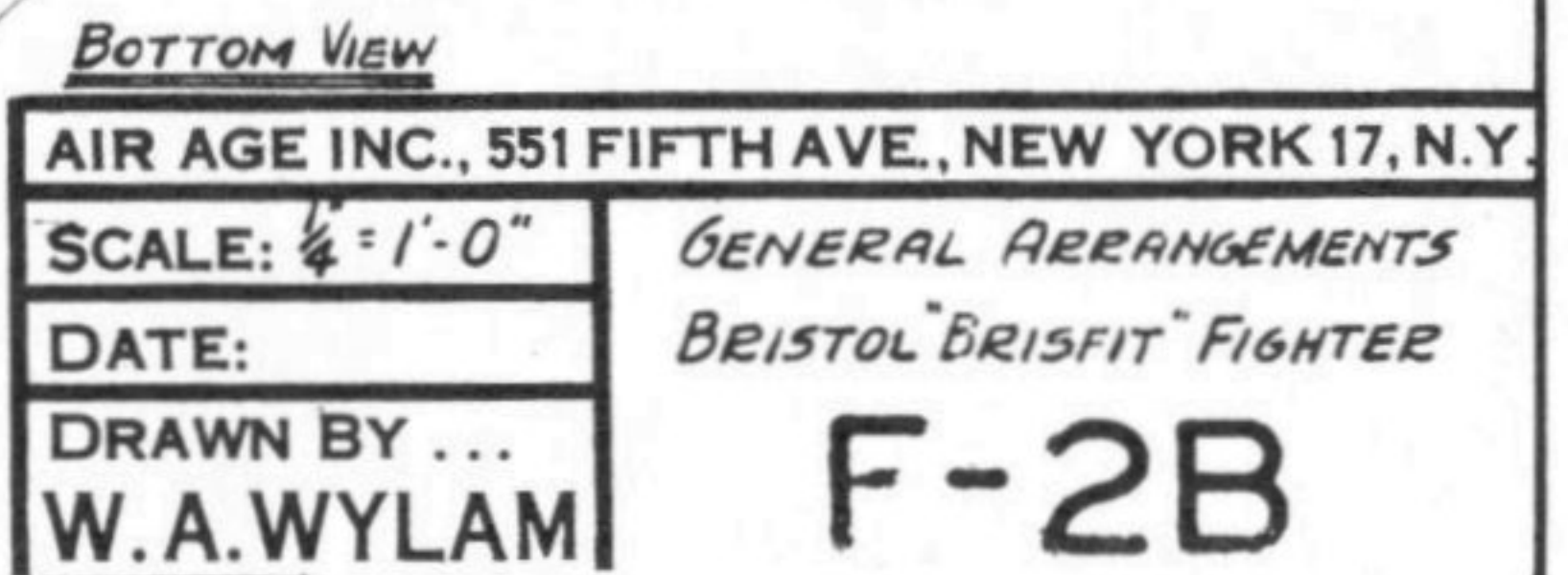
As many as ten F.2B’s survive, all in

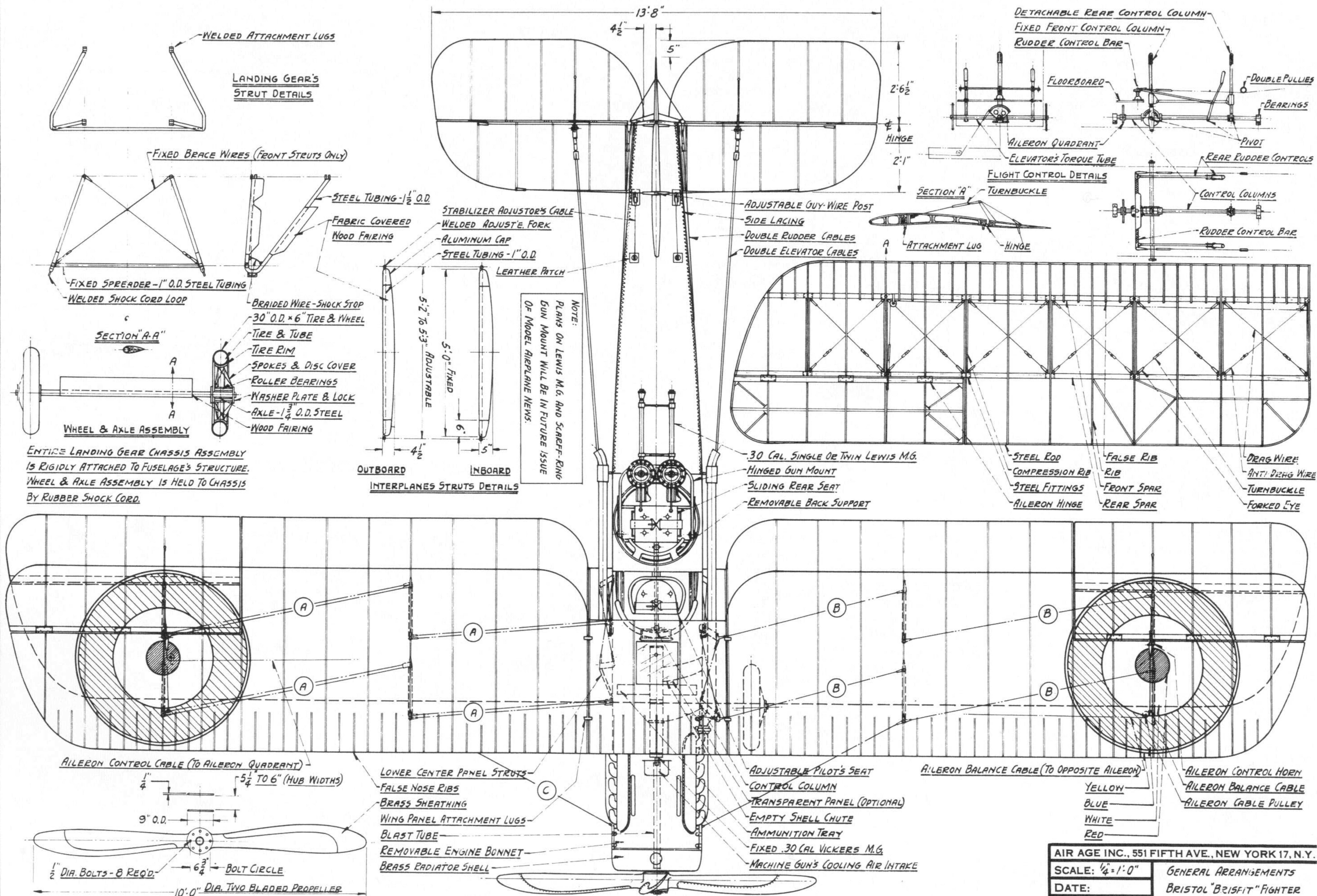


England; two of them in museums, the rest fragments being restored.

Wylam’s drawings of the F.2B are among his most beautiful and least accurate. Modelers should check especially carefully against good photographs the shape of the oval radiator, the tapering rear fuselage, vertical tail, and underline of engine cowling. □

The highly successful British Bristol Brisfit was very maneuverable and as fast as the Fokker D.VII. Air Age file photos.





AIR AGE INC., 551 FIFTH AVE., NEW YORK 17, N.Y.

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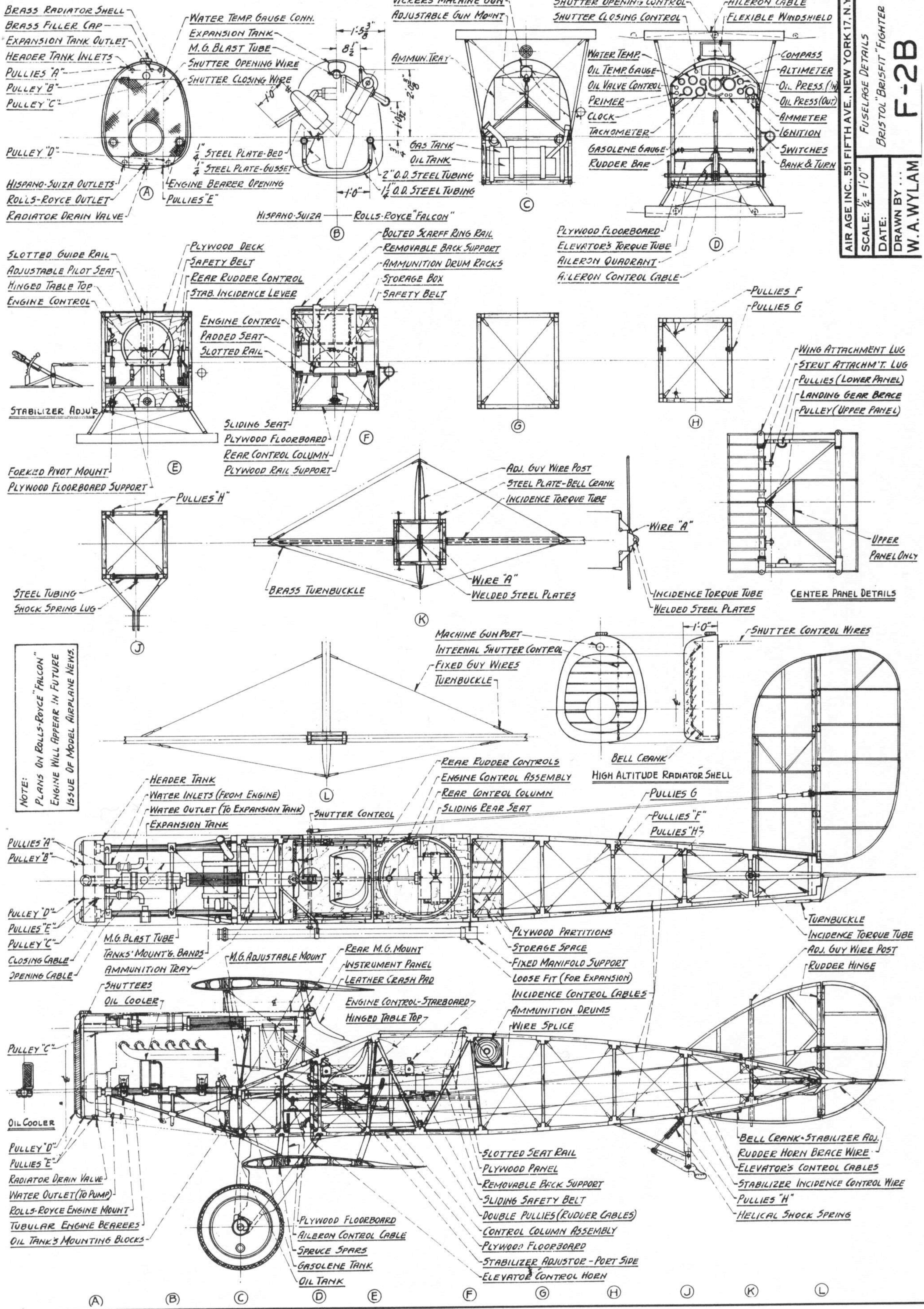
DRAWN BY ...

W.A.WYLAM

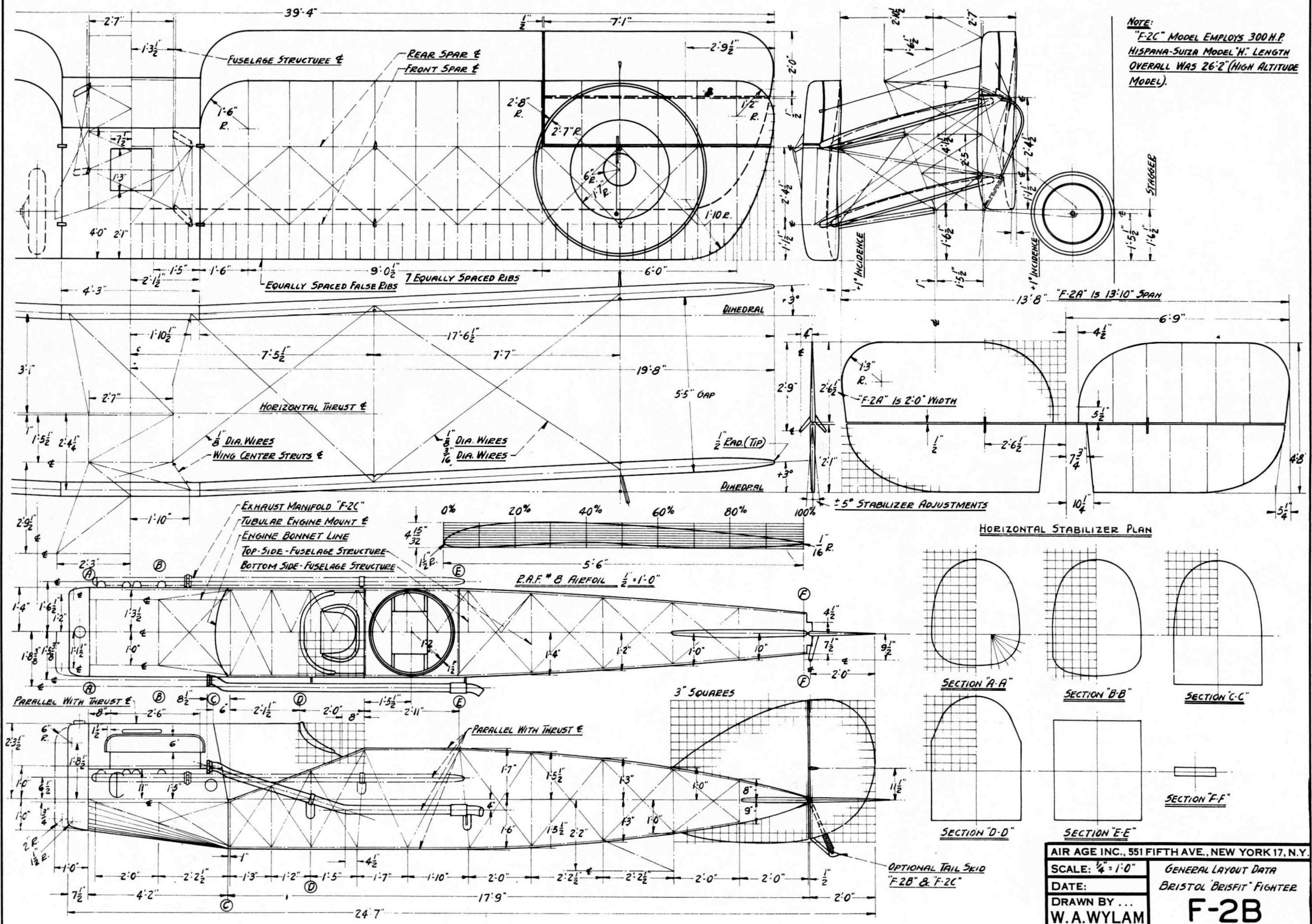
GENERAL ARRANGEMENTS

BRISTOL "BRISFIT" FIGHTER

F-2B



AIR AGE INC., 551 FIFTH AVE., NEW YORK 17, N.Y.
 SCALE: 1/4" = 1'-0"
 DATE: _____
 DRAWN BY: W.A. WYLLAM
 BRISTOL "BRISFIT" FIGHTER
 F-2B



Chance Vought

drawings by WILLIS NYE

VE-7, VE-9, & UO-1



THE CHANCE-Vought VE-7 was designed as an entrant in the U.S. Army advanced trainer competition held in 1917, and the first experimental airplane was submitted for testing to Army authorities in 1918. The VE-7 won the competition and was ordered into production by the parent company and two

licensees, the Springfield Aircraft Co. and the B.F. Sturtevant Co. Twenty VE-7's were delivered by the end of WW I, and in 1922 to 1923 twenty-seven VE-9 airplanes were procured by the U.S. Army Air Service.

The VE-9 was an improved version of the VE-7, and was the first American-

designed ship-board airplane that could be launched from a catapult. The service time of this version was one of the longest of that era, spanning over 10 years, which gave credibility to the company that was to remain a main provider of aircraft for the U.S. armed forces for many years. □

*Their association
with Naval aircraft
design is legendary.
Air Age file photos
of VE-7.*



VOUGHT VE-7

ENGINE INSTALLATION: WRIGHT-MARTIN HISPANO-SUIZA, MODEL "A," 150 H.P. WATERCOOLED ENGINE.

PROPELLER: LIBERTY, 2-BLADE, 8'-4" DIAMETER OF LAMINATED WALNUT PITCH 5-5 1/2."

ENGINE EXHAUST MANIFOLD: TUBULAR WELDED SHEET SUPPORTED ON FORGED BRACKETS.

ENGINE STARTING: PILOT'S COCKPIT PROVIDED WITH BOOSTER MAGNETO AND LUNKENHEIMER FUEL PRIMER. ENGINE WAS HAND CRANKED.

ENGINE CONTROLS: EACH COCKPIT PROVIDED WITH THROTTLE, SPARK, AND FUEL MIXTURE LEVERS ON LEFT SIDE.

ENGINE RADIATOR: HONEYCOMB TYPE, 9 1/2 GALLONS WATER SYSTEM CIRCULATION CAPACITY. DISTANCE TYPE TEMPERATURE INDICATOR. SHUTTERS MANUALLY CONTROLLABLE.

FUEL SYSTEM: TWO FUEL TANKS, MAIN UNDER REAR SEAT, AUXILIARY UNDER COWL BETWEEN ENGINE AND INSTRUMENT PANEL. FUEL CAPACITY 32 GALLONS. FUEL PUMPED TO CARBURETOR BY AN ENGINE-DRIVEN FUEL PUMP. HAND AIR PUMP FOR STARTING IN PILOT'S COCKPIT. FUEL SHUT-OFF VALVES IN EACH COCKPIT.

FLIGHT CONTROLS: DUAL JOYSTICKS AND RUDDER BARS IN EACH COCKPIT. CONTROLS ASSEMBLED AS A UNIT AND QUICKLY REMOVABLE.

INSTRUMENTS: CONSIST OF ALTIMETER, AIRSPEED INDICATOR, CLOCK, TACHOMETER, FUEL PRESSURE GAUGE, OIL PRESSURE GAUGE, WATER TEMPERATURE GAUGE, ETC.

DESIGN NOTES VE-7

(1) VARIOUS MAKES AND TYPES OF LAMINATED PROPELLERS WERE USED WITH VARIATIONS IN PITCH.

(2) INTERPLANE STRUTS OF CONSTANT OR VARIOUS STREAMLINE CROSS SECTION WERE USED.

(3) ENTIRE FLIGHT CONTROLS ARE CABLE ACTUATED. ALL CABLES ARE DOUBLE, FLEXIBLE TYPE.

THE AMERICAN VERSION OF THE HISPANO-SUIZA ENGINE WAS MANUFACTURED UNDER FOREIGN LICENSE BY THE SIMPLEX AUTOMOBILE COMPANY. THIS COMPANY WAS LATER ABSORBED BY THE WRIGHT-MARTIN AIRCRAFT COMPANY OF NEW BRUNSWICK, N.J., THE PARENT COMPANY OF THE PRESENT CURTISS-WRIGHT CORPORATION.

VOUGHT VE-7

FUSELAGE: ENGINE COWLS ARE PRESSED SHEET ALUMINUM. INSPECTION PLATES PROVIDED FOR ACCESS TO INSTRUMENTS, FLIGHT CONTROLS AND TAIL SKID. FRAME HAS SPRUCE LONGERONS AND STRUTS, STEEL CABLE BRACING, AND STEEL FITTINGS. RECTANGULAR CROSS SECTION. ENGINE SECTION IS DEMOUNTABLE AS A UNIT. ENGINE COWLINGS LIGHT BLUE ENAMEL, FABRIC GRAY ENAMEL. FUSELAGE TRUSS FAIRED TOP AND BOTTOM.

SEATING: EACH COCKPIT UPHOLSTERED WITH IMITATION LEATHER. PLYWOOD SEATS. LEATHER COCKPIT COAMING.

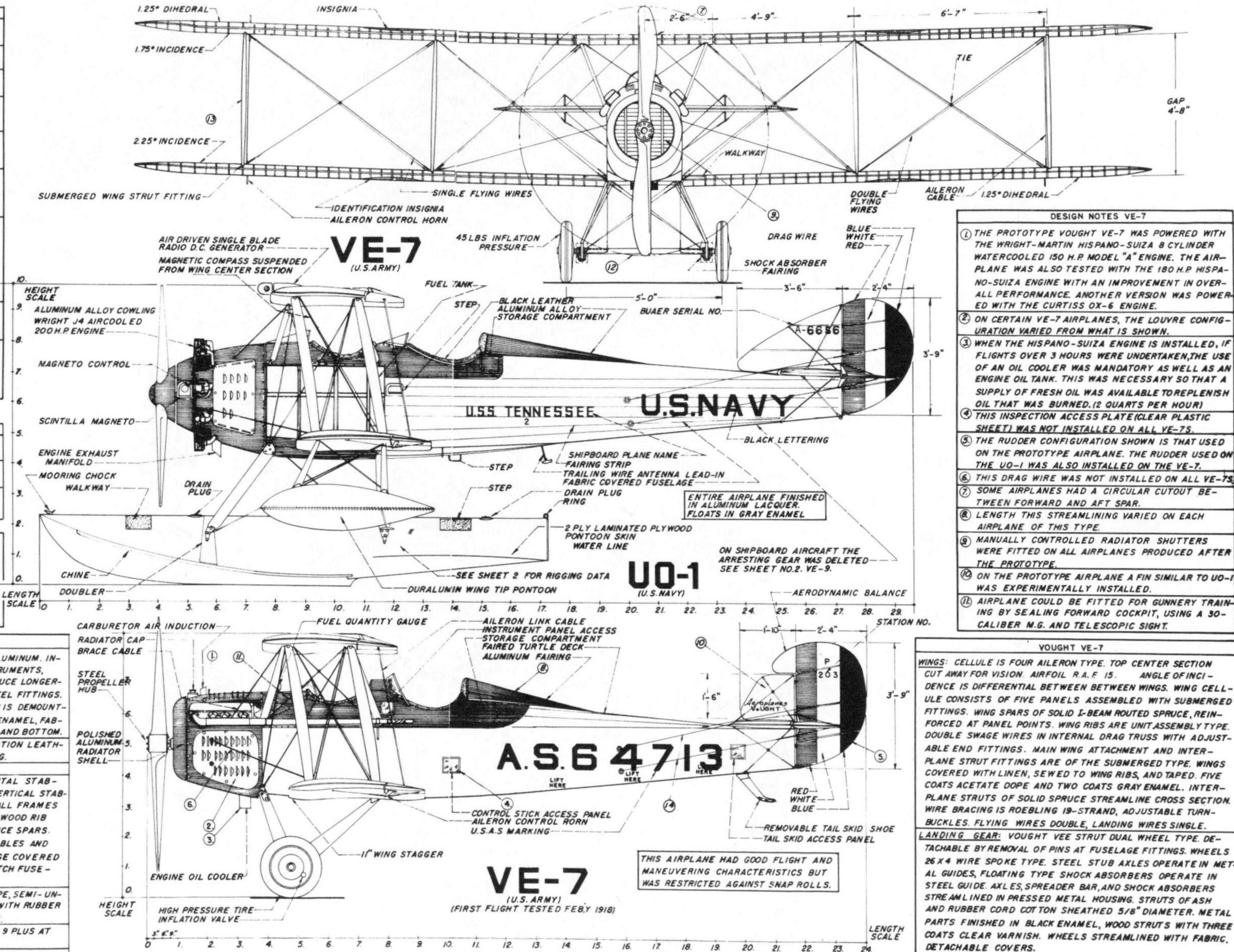
WINDSHIELDS: CLEAR REINFORCED PLASTIC SHEET.

EMPELLAGE: FIXED DOUBLE CAMBERED HORIZONTAL STABILIZER. ELEVATORS DUAL CONNECTED. FIXED VERTICAL STABILIZER. AERODYNAMICALLY BALANCED RUDDER. ALL FRAMES OF STEEL TUBES WELDED OR BRAZED TOGETHER, WOOD RIB FILLED OVER TUBULAR STEEL AND ROUTED SPRUCE SPARS. STRUCTURE INTERNALLY BRACED WITH SWAGED CABLES AND ADJUSTABLE STEEL FITTINGS. ENTIRE EMPELLAGE COVERED WITH APPROVED COTTON FABRIC, FINISHED TO MATCH FUSELAGE COVERING.

TAILSKID: PATENTED VOUGHT DESIGN, FLOATING TYPE, SEMI-UNIVERSAL AND SELF-ALIGNING IN ACTION. FITTED WITH RUBBER SHOCK ABSORBERS AND RENEWABLE METAL SHOE.

FACTOR OF SAFETY: UNIFORM FACTOR OF SAFETY OF 9 PLUS AT HIGH INCIDENCE CONDITION IN STATIC TESTS.

WEIGHT (GROSS): 2,000 POUNDS INCLUDING 525 POUNDS USEFUL LOAD AND 78 POUNDS ENGINE COOLING WATER.



DESIGN NOTES VE-7

(1) THE PROTOTYPE VOUGHT VE-7 WAS POWERED WITH THE WRIGHT-MARTIN HISPANO-SUIZA 8 CYLINDER WATERCOOLED 150 H.P. MODEL "A" ENGINE. THE AIRPLANE WAS ALSO TESTED WITH THE 180 H.P. HISPANO-SUIZA ENGINE WITH AN IMPROVEMENT IN OVER-ALL PERFORMANCE. ANOTHER VERSION WAS POWERED WITH THE CURTISS OX-6 ENGINE.

(2) ON CERTAIN VE-7 AIRPLANES, THE LOUVRE CONFIGURATION VARIED FROM WHAT IS SHOWN.

(3) WHEN THE HISPANO-SUIZA ENGINE IS INSTALLED, IF FLIGHTS OVER 3 HOURS WERE UNDERTAKEN, THE USE OF AN OIL COOLER WAS MANDATORY AS WELL AS AN ENGINE OIL TANK. THIS WAS NECESSARY SO THAT A SUPPLY OF FRESH OIL WAS AVAILABLE TO REPLENISH OIL THAT WAS BURNED (2 QUARTS PER HOUR).

(4) THIS INSPECTION ACCESS PLATE (CLEAR PLASTIC SHEET) WAS NOT INSTALLED ON ALL VE-7S.

(5) THE RUDDER CONFIGURATION SHOWN IS THAT USED ON THE PROTOTYPE AIRPLANE. THE RUDDER USED ON THE UO-1 WAS ALSO INSTALLED ON THE VE-7.

(6) THIS DRAG WIRE WAS NOT INSTALLED ON ALL VE-7S.

(7) SOME AIRPLANES HAD A CIRCULAR CUTOUT BETWEEN FORWARD AND AFT SPAR.

(8) LENGTH THIS STREAMLINING VARIED ON EACH AIRPLANE OF THIS TYPE.

(9) MANUALLY CONTROLLED RADIATOR SHUTTERS WERE FITTED ON ALL AIRPLANES PRODUCED AFTER THE PROTOTYPE.

(10) ON THE PROTOTYPE AIRPLANE A FIN SIMILAR TO UO-1 WAS EXPERIMENTALLY INSTALLED.

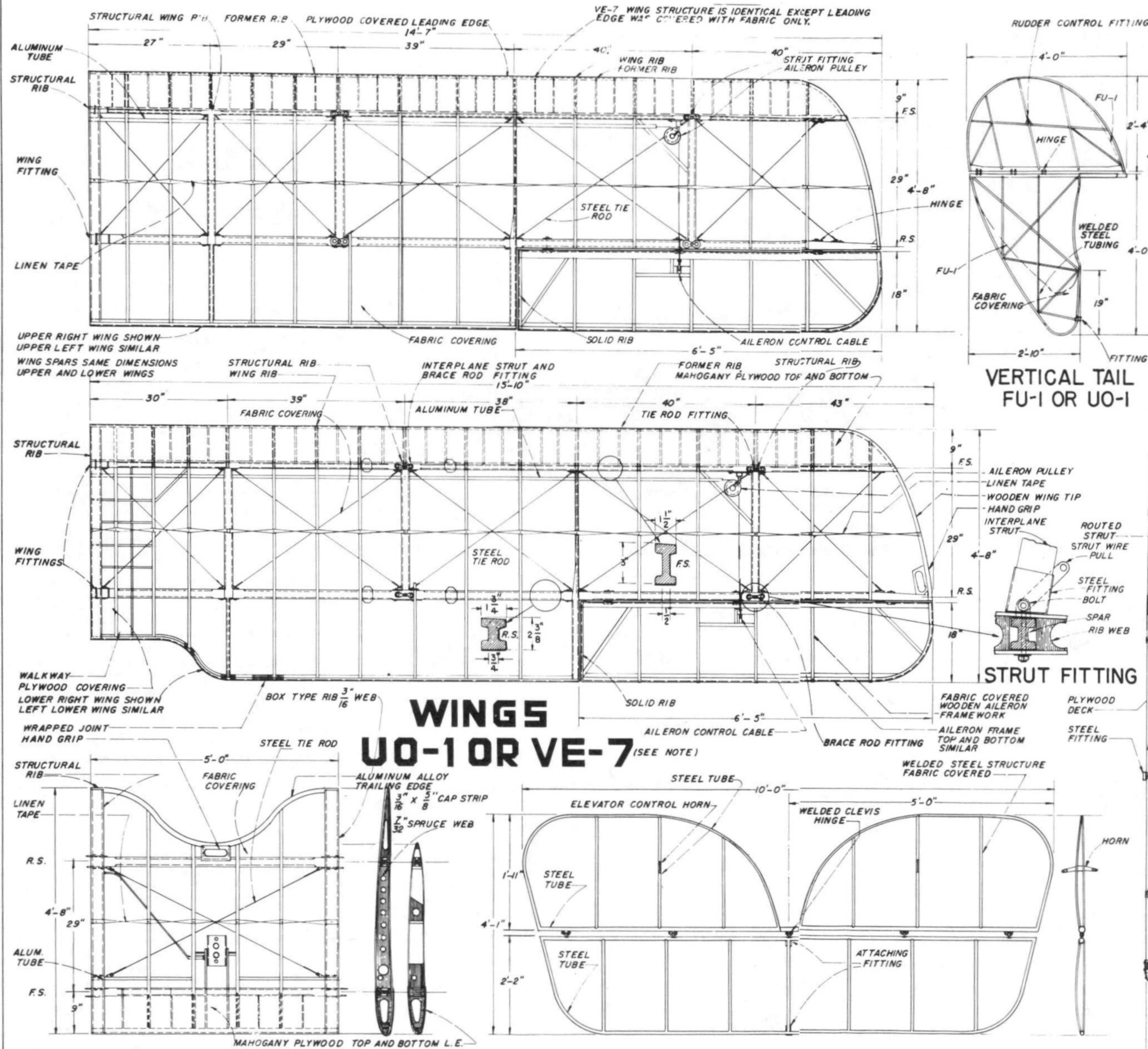
(11) AIRPLANE COULD BE FITTED FOR GUNNERY TRAINING BY SEALING FORWARD COCKPIT, USING A 30-CALIBER M.G. AND TELESCOPIC SIGHT.

VOUGHT VE-7

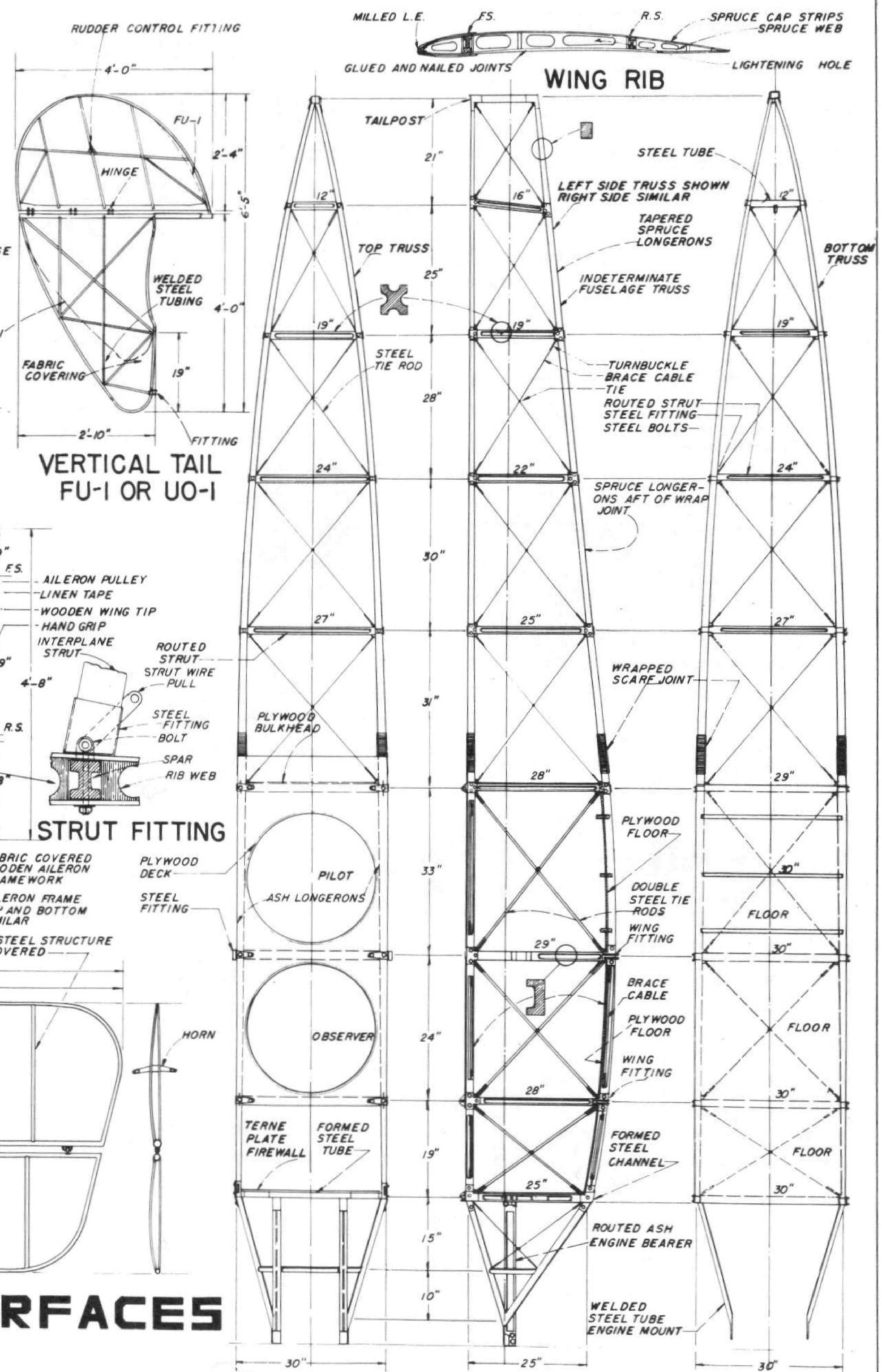
WINGS: CELLULE IS FOUR AILERON TYPE. TOP CENTER SECTION CUT AWAY FOR VISION. AIRFOIL R.A.F. 15. ANGLE OF INCIDENCE IS DIFFERENTIAL BETWEEN WINGS. WING CELLULE CONSISTS OF FIVE PANELS ASSEMBLED WITH SUBMERGED FITTINGS. WING SPARS OF SOLID I-BEAM ROUTED SPRUCE, REINFORCED AT PANEL POINTS. WING RIBS ARE UNIT ASSEMBLY TYPE. DOUBLE SWAGE WIRES IN INTERNAL DRAG TRUSS WITH ADJUSTABLE END FITTINGS. MAIN WING ATTACHMENT AND INTERPLANE STRUT FITTINGS ARE OF THE SUBMERGED TYPE. WINGS COVERED WITH LINEN, SEWED TO WING RIBS, AND TAPED. FIVE COATS ACETATE DOPE AND TWO COATS GRAY ENAMEL. INTERPLANE STRUTS OF SOLID SPRUCE STREAMLINE CROSS SECTION. WIRE BRACING IS ROEBLING 19-STRAND, ADJUSTABLE TURN-BUCKLES. FLYING WIRES DOUBLE, LANDING WIRES SINGLE.

LANDING GEAR: VOUGHT VEE STRUT DUAL WHEEL TYPE. DETACHABLE BY REMOVAL OF PINS AT FUSELAGE FITTINGS. WHEELS 26 X 4 WIRE SPOKE TYPE. STEEL STUB AXLES OPERATE IN METAL GUIDES, FLOATING TYPE SHOCK ABSORBERS OPERATE IN STEEL GUIDE. AXLES, SPREADER BAR, AND SHOCK ABSORBERS STREAMLINED IN PRESSED METAL HOUSING. STRUTS OF ASH AND RUBBER CORD COTTON SHEATHED 5/8" DIAMETER. METAL PARTS FINISHED IN BLACK ENAMEL, WOOD STRUTS WITH THREE COATS CLEAR VARNISH. WHEELS STREAMLINED WITH FABRIC, DETACHABLE COVERS.

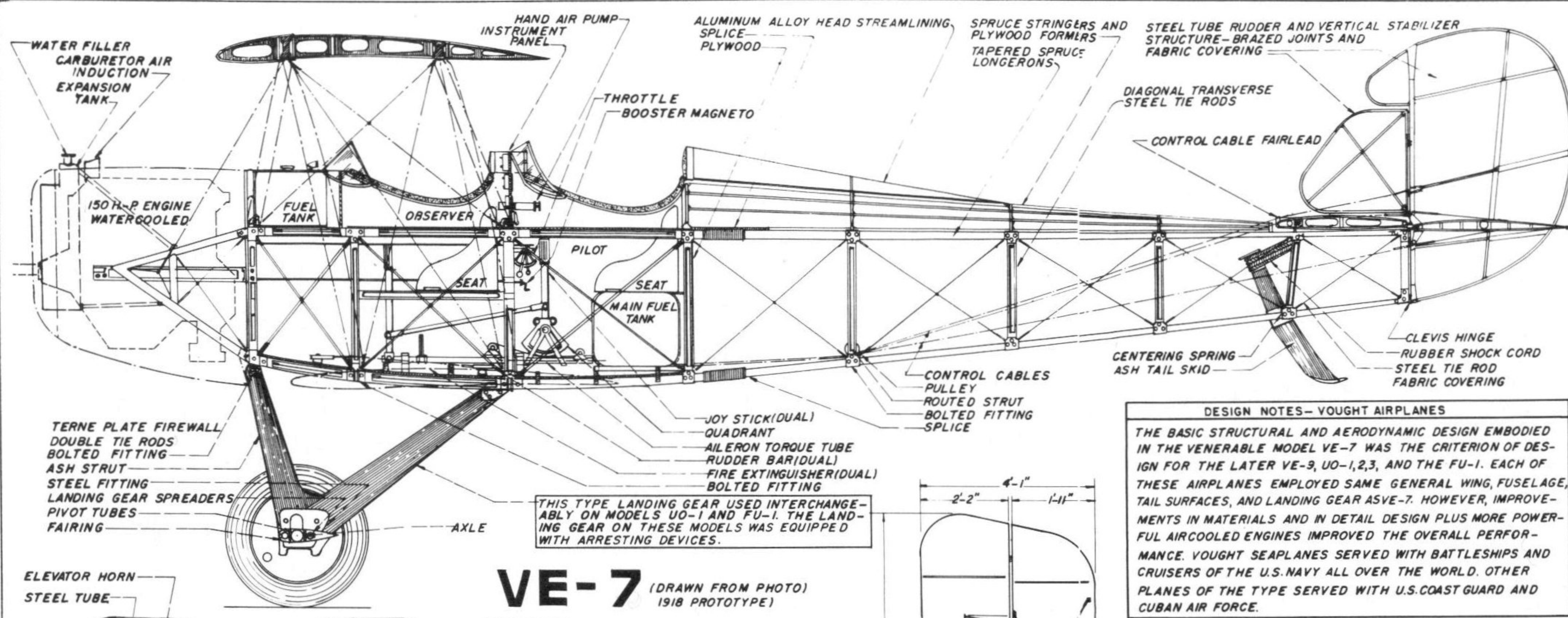
CHANCE VUGHT VE-7 & UO-1



CENTER SECTION HORIZONTAL TAIL SURFACES
UO, FU, VE UO OR FU-1
CHANCE VOUGHT



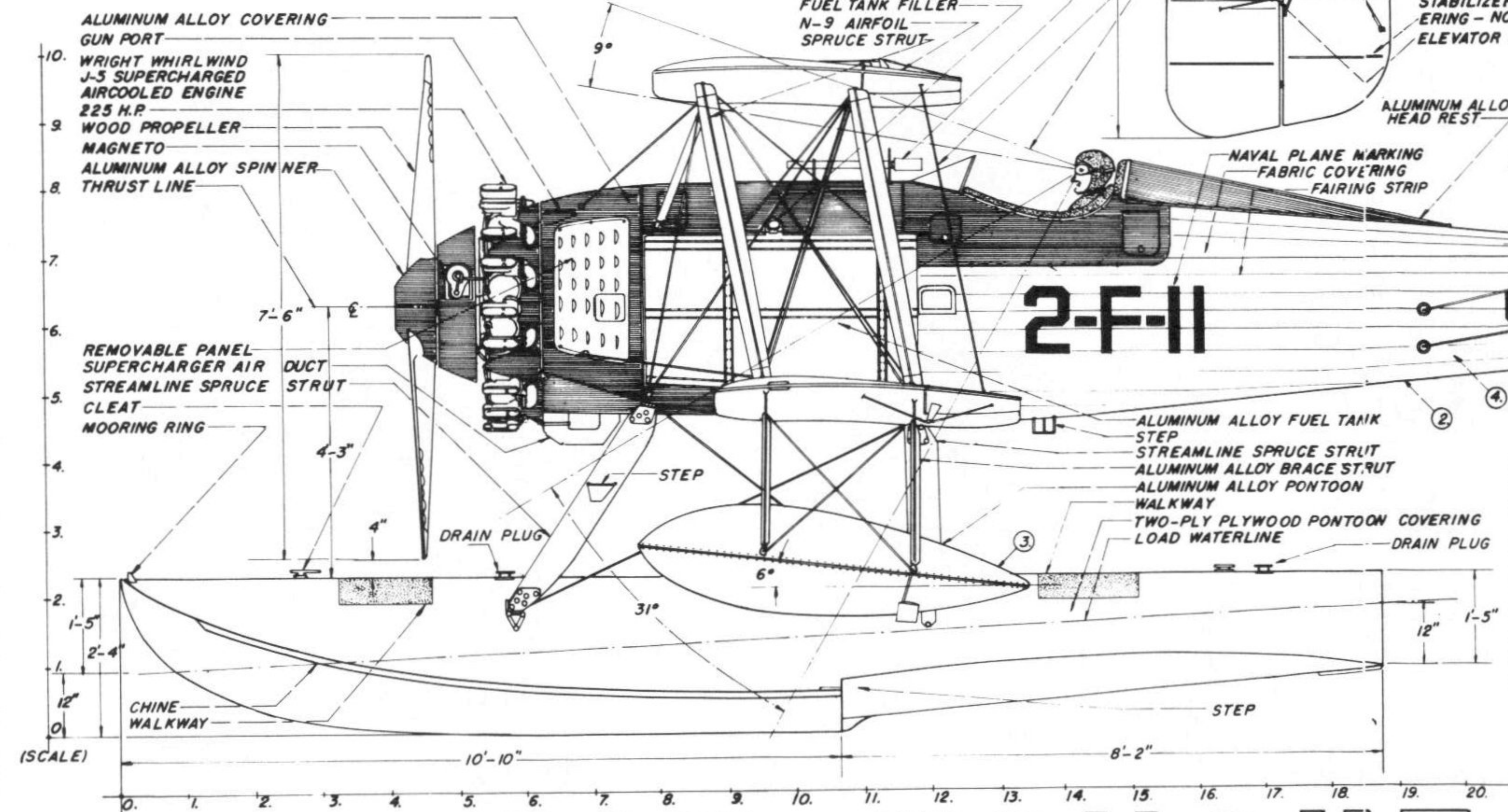
FUSELAGE



VE-7 (DRAWN FROM PHOTO) 1918 PROTOTYPE)

DESIGN NOTES-VOUGHT AIRPLANES
 THE BASIC STRUCTURAL AND AERODYNAMIC DESIGN EMBODIED IN THE VENERABLE MODEL VE-7 WAS THE CRITERION OF DESIGN FOR THE LATER VE-9, UO-1,2,3, AND THE FU-1. EACH OF THESE AIRPLANES EMPLOYED SAME GENERAL WING, FUSELAGE, TAIL SURFACES, AND LANDING GEAR AS VE-7. HOWEVER, IMPROVEMENTS IN MATERIALS AND IN DETAIL DESIGN PLUS MORE POWERFUL AIRCOOLED ENGINES IMPROVED THE OVERALL PERFORMANCE. VOUGHT SEAPLANES SERVED WITH BATTLESHIPS AND CRUISERS OF THE U.S. NAVY ALL OVER THE WORLD. OTHER PLANES OF THE TYPE SERVED WITH U.S. COAST GUARD AND CUBAN AIR FORCE.

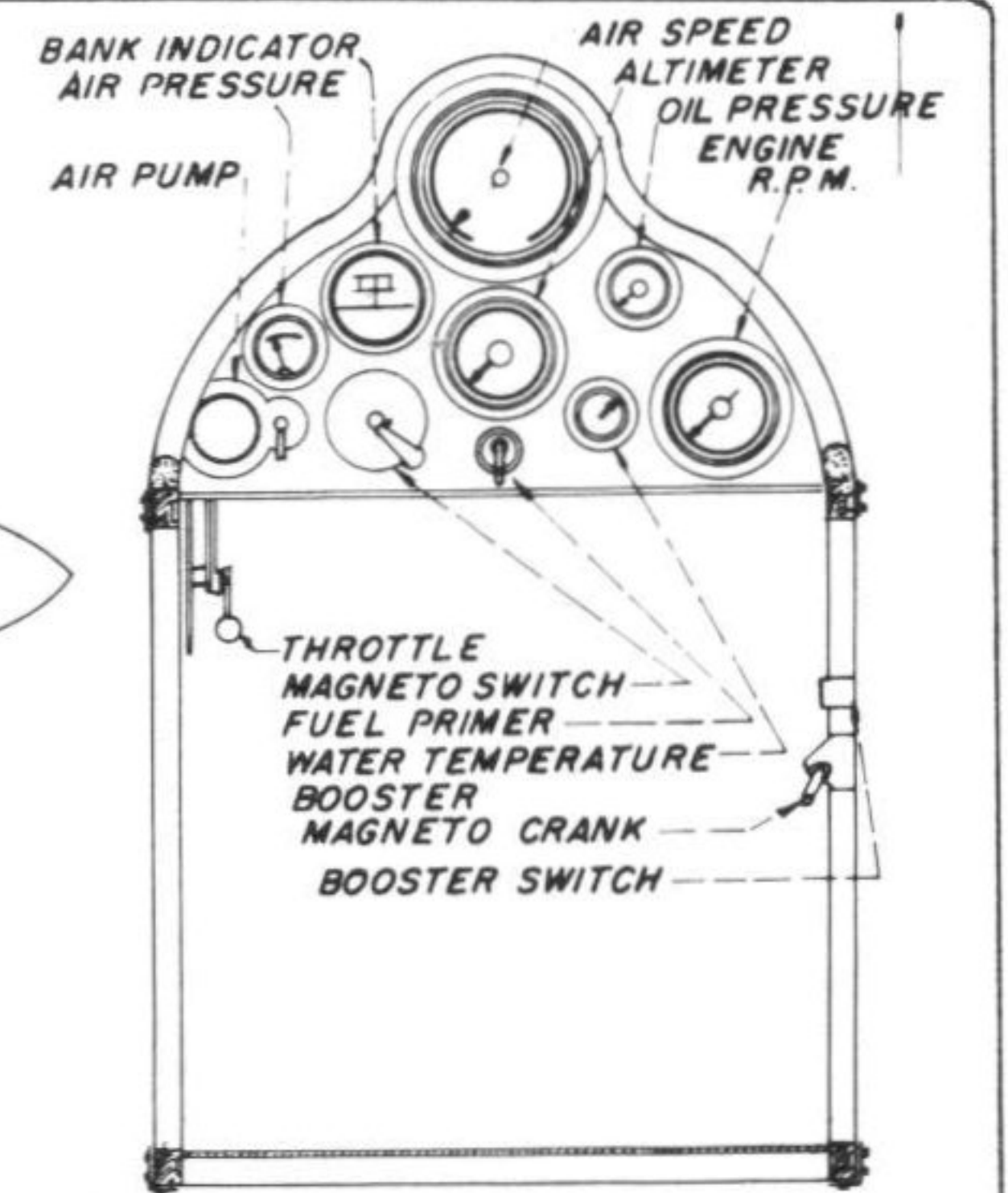
VE-7 TAIL



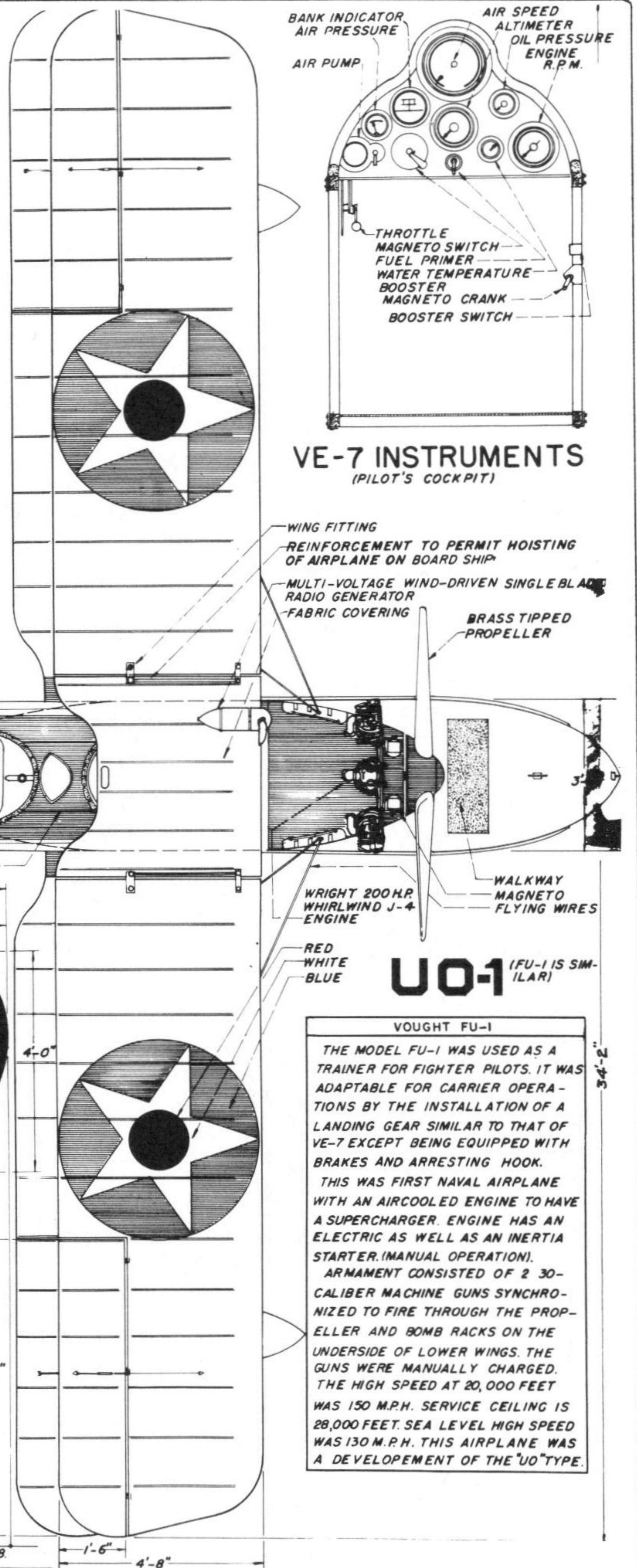
DESIGN NOTES FU-1
 (1) BRACE WIRES DIFFER FROM UO-1.
 (2) FUSELAGE STRUCTURE ON FU-1 SAME AS UO-1, REINFORCED FOR CATAPULT LAUNCHING.
 (3) TWO TYPES OF WING TIP FLOATS WERE SUPPLIED BY NAVAL AIRCRAFT FACTORY, I.E. TYPE SHOWN AND FLOAT SHOWN ON VE-9 BUT BRACED AS SHOWN AT LEFT WING OF MODEL UO-1 FRONT VIEW.
 (4) FUSELAGE FAIRED TO ELLIPTICAL CROSS SECTION.

FU-1 (20 PLANES OF THIS TYPE PROCURED BY U.S. NAVY)

THE AIRPLANE WAS FINISHED IN SILVER PIGMENTED LACQUER. SHADED AREAS WERE LIGHT GRAY. TIRES AND ENGINE IN BLACK.



VE-7 INSTRUMENTS (PILOT'S COCKPIT)



VOUGHT FU-1
 THE MODEL FU-1 WAS USED AS A TRAINER FOR FIGHTER PILOTS. IT WAS ADAPTABLE FOR CARRIER OPERATIONS BY THE INSTALLATION OF A LANDING GEAR SIMILAR TO THAT OF VE-7 EXCEPT BEING EQUIPPED WITH BRAKES AND ARRESTING HOOK. THIS WAS FIRST NAVAL AIRPLANE WITH AN AIRCOOLED ENGINE TO HAVE A SUPERCHARGER. ENGINE HAS AN ELECTRIC AS WELL AS AN INERTIA STARTER (MANUAL OPERATION). ARMAMENT CONSISTED OF 2 30-CALIBER MACHINE GUNS SYNCHRONIZED TO FIRE THROUGH THE PROPELLER AND BOMB RACKS ON THE UNDERSIDE OF LOWER WINGS. THE GUNS WERE MANUALLY CHARGED. THE HIGH SPEED AT 20,000 FEET WAS 150 M.P.H. SERVICE CEILING IS 28,000 FEET. SEA LEVEL HIGH SPEED WAS 130 M.P.H. THIS AIRPLANE WAS A DEVELOPEMENT OF THE UO TYPE.

CHANCE VOUGHT