Aircraft

RECOGNITION

MANUAL

SUPPLEMENT NO. 6
DEC 1956

DEPARTMENT OF THE ARMY FM 30-30
DEPARTMENT OF THE NAVY OPNAV 32P-1200/6
DEPARTMENT OF THE AIR FORCE AFM 50-40G

DEC. 1956

CORRECTED COPY

CHANGE **AFM 50-40F**

AIR FORCE MANUAL
No. 50-40F

DEPARTMENT OF THE AIR FORCE
WASHINGTON, *1 January 1955*

TRAINING

Aircraft Recognition Manual

AFM 50-40, May 1949, including Changes 50-40A, June 1950; 50-40B, June 1951; 50-40C, June 1952; 50-40D, June 1953; and 50-40E, June 1954, is changed as follows:

1. When the following portions have been removed, this Manual and its supplements may be declassified:

a. The photograph and description of the Chase XC-123 aircraft in the addenda section of Supplement No. 2.

b. The photograph and description of the Douglas C-132 aircraft in the addenda section of Supplement No. 4.

c. All references to USSR aircraft "Type-Number" designations appearing in the Manual and its supplements, including the description of Soviet aircraft type designations in Supplement No. 2 which appears on the third page of the USSR section following the USSR tab.

2. After necessary action, this Change will be filed in the front of the Manual.

BY ORDER OF THE SECRETARY OF THE AIR FORCE:

N. F. TWINING
Chief of Staff, United States Air Force

OFFICIAL:
E. E. TORO
Colonel, USAF
Air Adjutant General

DISTRIBUTION:

Zone of Interior and Overseas:

Headquarters USAF	150
Major air commands	5
Except Alaskan Air Command	36
Subordinate air commands	5
Except Services—MATS	2
Squadrons	2
(1 each dayroom and orderly room file)	
Except AFROTC units	1

Miscellaneous:

Air Division, National Guard Bureau	1

U. S. GOVERNMENT PRINTING OFFICE : 1955 O—337379

Aircraft

RECOGNITION

MANUAL

SUPPLEMENT NO. 6
DEC 1956

DEPARTMENT OF THE ARMY FM 30–30
DEPARTMENT OF THE NAVY OPNAV 32P–1200/6
DEPARTMENT OF THE AIR FORCE AFM 50–40G

DEC. 1956

The Aircraft Recognition Manual was produced jointly by the Army, Navy and Air Force for the guidance and instruction of personnel within the Department of Defense.

This manual and all supplements thereto supersede FM 30–30, 1 April 1943, including Supplements 1, 2, 3, 4, and 5, and Recognition Pictorial Manual, Navy Department No. AN–OPNAV–P32–100 (BuAer 3)

AIRCRAFT

RECOGNITION

MANUAL

DEPARTMENTS OF THE ARMY, THE NAVY, AND THE AIR FORCE
WASHINGTON 25, D. C.

AUTHENTICATION INFORMATION

(REVISED DECEMBER 1956) MAY 1949

FM 30-30—OPNAV 32P-1200—AFM 50-40, Aircraft Recognition Manual and all supplements thereto, are published for the information and guidance of all concerned.

BY ORDER OF THE SECRETARIES OF THE ARMY, THE NAVY, AND THE AIR FORCE

OFFICIAL:

JOHN A. KLEIN
Major General, United States Army
The Adjutant General

MAXWELL D. TAYLOR
General, United States Army
Chief of Staff

OFFICAL:

G. L. RUSSELL
Vice Admiral, United States Navy
Deputy Chief of Naval Operations
(Administration)

ARLEIGH BURKE
Chief of Naval Operations

OFFICAL:

E. E. TORO
Colonel, United States Air Force
Air Adjutant General

N. F. TWINING
Chief of Staff, United States Air Force

DISTRIBUTION:

ACTIVE ARMY: CNGB (1); Tec Svc, DA (1); Tec Svc, Bd (1); Hq CONARC (20); Army AA Comd (5); OS Maj Comd (5); OS Base Comd (2); Log Comd (2); MDW (5); Armies (5); Corps (2); Div (5); Regt (2); Bn (2); AAA Co (1); Fr & Cp (2); USMA (5); Gen & Br Svc Sch (2); PMST (1); Mil Dist (3).

NG: State AG (6).

USAR: AAA Regt (1); AAA Bn (1); AAA Co (1).

For explanation of distribution symbols, see SR 320-5-1.

NAVY: (SNDL) 21, 22, 23, 24, 28A, 29, 30, 31, 32, 42, 46, G1A, G1B, G1D (5 copies); G3A, G3B, G3C, G3D, G3E (20 copies); G4A, G5B (5 copies); G5C, G5D (20 copies); G6A, G7A, G7C, G8B, G8H, G8K, G8M, G8P, G8T, G9V, G8X, G8Y, G9, G13, G14, G16, G17, G18, G19, G21, G22, G23, G7B, J3, J28, J34, J60, J79, J84, J94, J95, J105 (5 copies).

AIR FORCE—*Zone of Interior and Overseas:* Headquarters USAF (300); Major Air Commands (5), Except: Alaskan Air Command (36), State Adjutants, ANG (0); Subordinate Air Commands (5), Except: Services, MATS (2); Squadrons (1 each day room and orderly room file) (2), Except: ANG (0), AFROTC Units (1); *Miscellaneous:* Air Division, NGB (1).

The Aircraft Recognition Manual covering aircraft of the United States and Foreign Countries contains recognition information available on an unclassified basis.

Principal air forces are grouped in the Aircraft Recognition Manual by section index tabs, and it is to be noted that pagination is not employed in this part of the manual. In its stead, within each section, aircraft have been arranged according to the Uniform Classification for Combining U.S. Air Force, U.S. Navy, and Foreign Aircraft. The lesser air forces of the world are included under a miscellaneous tab in alphabetical order.

This supplement, the sixth to be published, presents new up-to-date aircraft recognition material. The following listing, as of December 1956, is a complete in-line assembly arrangement of the publication. Insert the new sheets in their proper sections. Numbered pages are to replace corresponding superseded pages. In the Addenda section, following the tab, new sheets are to be added by country or miscellaneous as marked in upper left and lower left corners. Black dots (●) represent new and revised Aircraft Recognition Sheets to be inserted in the proper section and sequence as indicated. Superseded or deleted pages are to be destroyed. It is important that the standard continuity be maintained at all times in order that revisions and supplements may be entered without delay or confusion.

Bomber

B-52	June 1954	B-29	May 1949
B-36	June 1951	B-17	June 1950
B-47	June 1952	B-25	May 1949
B-57	June 1954	B-26	May 1949
B-45	June 1953	B-58	●Dec 1956
B-50	May 1949	B-66	●Dec 1956

Fighter

F-47	May 1949	F-86D	June 1953
F-51	May 1949	F-86H	●Dec 1956
F-80	June 1951	F-89	June 1952
F-82	May 1949	F-94F	June 1952
F-84	May 1949	F-94C	June 1954
F-84F	June 1953	F-100	June 1954
RF-84F	June 1954	F-101A	●Dec 1956
F-86	June 1952	F-102	●Dec 1956
		F-104	●Dec 1956

Cargo-Transport

C-46/R5C	May 1949	C-119H	June 1953
C-47/R4D	May 1949	C-121	May 1949
C-47F/R4D-8	June 1953	C-121C/R7V	June 1953
C-54/R5D	May 1949	C-122	June 1950
C-74	May 1949	C-123	June 1950
C-82	May 1949	C-124	June 1950
C-97	May 1949	C-125	June 1950
C-118B/R6D	June 1951	C-131	June 1954
C-119/R4Q	June 1952	C-133A	●Dec 1956
		KC-135	●Dec 1956

Trainer

T-6/SNJ	June 1951	T-29	June 1950
T-28	June 1950	T-33/TV-2	June 1950

Liaison

L-5	June 1950	L-19/OE	June 1952
L-13	May 1949	L-20	June 1952
L-16	May 1949	LC-126	June 1952
L-17	May 1949		

● Insert latest sheets and destroy superseded sheets.

US NAVY (TAB)

Navy Aircraft Illustrated:

Patrol and Transport

PB4Y-2/1 (P4Y)	May 1949	PBY-6A	May 1949
P4M	May 1949	PBM	May 1949
PV	May 1949	P5M	June 1952
P2V	June 1953	P5M-2	June 1954
P2V-7	●Dec 1956	P6M-1	●Dec 1956
		R3Y/P5Y	June 1954

Search and Attack

TBM	May 1949	AF	June 1952
SB2C	May 1949	AJ	June 1953
AD	June 1953	A3D	June 1953
AD-5	June 1953	A4D-1	●Dec 1956
AM	May 1949		

Fighter

F4U	May 1949	FH	May 1949
F6F	May 1949	F2H	June 1953
F2H-3	June 1953	F9F-6	June 1952
F3H	June 1953	FJ	May 1949
F3H-2N	●Dec 1956	FJ-2	June 1953
F7F	May 1949	F7U	June 1953
F8F	May 1949	F8U-1	●Dec 1956
F9F	June 1952	F3D	June 1950
F9F-8	●Dec 1956	F4D	June 1954
F11F-1	●Dec 1956	F5D-1	●Dec 1956

Miscellaneous

R60/ (R6V)	May 1949	SC	May 1949
JRM	May 1949	UF/SA-16	June 1952

Helicopter

HRP-2/H-21	June 1950	HO4S/ H-19	June 1950
HRP-1	June 1950	HSL	June 1953
HUP/H-25	June 1950	HTE/H-23	June 1953
HO3S-1/H-5	June 1950	HOK	June 1953
H-12	June 1950	HTK	June 1953
		Flying Platform	
HTL-2/H-13B	June 1950		●Dec 1956
		H-32	●Dec 1956
HO5S/ H-18	June 1950	H-34A	●Dec 1956
		H-37A	●Dec 1956

Lighter Than Air

ZPN	June 1953	ZPK	June 1953
ZPM	June 1953	ZPG	June 1953

BRITISH COMMONWEALTH (RAF TAB)

The British Royal Air Force, Fleet Air Arm, and their Equipment. Australian, Canadian, Indian, New Zealand, Pakistan, South African Air Forces and their Equipment. British Aircraft Designations.

RAF Aircraft Illustrated:

Bomber

Lincoln Mk. 2	May 1949
Shackleton	June 1950
Vulcan	June 1954
Victor	June 1954
Valiant	June 1954
Canberra	June 1951
Mosquito	May 1949
Sunderland	May 1949

Fighter

Spitfire Mk. 24	May 1949
Meteor Mk. 4	May 1949
Meteor F. Mk. 8	June 1951
Meteor N. F. Mk. 11	June 1951
Vampire Mk. 3	May 1949
Venom Mk. 1	June 1950
Hunter	June 1954
Swift	June 1954
Javelin	June 1954
D. H. 110	●Dec 1956
Midge (Gnat)	●Dec 1956
English Electric P-1	●Dec 1956

Cargo-Transport

Britannia	●Dec 1956
York	May 1949
Hastings	May 1949
Tudor Mk. 4	May 1949
Comet	June 1953
Viscount	June 1953
Marathon	June 1953
Freighter	June 1953
Ambassador	June 1951
Valetta	May 1949
Varsity T. Mk. 1	June 1950
Dove/Devon	May 1949

Trainer-Liaison

Balliol T. Mk. 2	June 1950
Chipmunk	June 1950
Athena T. Mk. 2	June 1950
Provost	June 1953
Auster A. O. P.	June 1952

ROYAL NAVY (TAB)

Fleet Air Arm Aircraft Illustrated:

Attack

Brigand Mk. 1	May 1949
Firebrand Mk. 5	May 1949
Firefly Mk. 4	May 1949
Gannet	June 1952
Sea Mew	June 1954

● Insert latest sheets and destroy superseded sheets.

Fighter

Seafire Mk. 47		June 1951
Seafury		June 1953
Sea Hornet		May 1949
Sea Vampire		June 1951
Sea Venom		June 1952
Attacker		June 1952
Sea Hawk		June 1950
Wyvern		June 1954

Utility

Sea Prince		June 1951
Sea Otter		June 1953

R. C. A. F. Aircraft Illustrated:

Fighter

CF-100 Canuck		June 1951

U. S. S. R. (TAB)

The Soviet Air Forces, Aircraft Designations and their Equipment.

S. A. F. Aircraft Illustrated:

Bomber

Barge		June 1954
Bull (Tu-4)		June 1954
Pe-8		June 1949
Badger		June 1954
Buck (Pe-2)		June 1954
Buck (Pe-3)		June 1954
Bat (Tu-2)		June 1954
Bob (Il-4)		June 1954
Butcher (Il-28)		June 1954
Bosun		June 1954
Bison	●Dec	1956
Bear	●Dec	1956

Patrol

Mop (GST)		June 1954
Mug (MDR6)		June 1954
Mote (MBR-2)		June 1954

Attack

Bark (Il-2)		June 1954
Beast (Il-10)		June 1954
Box (A-20)		June 1954

Fighter

P-39 Airacobra		June 1951
Fred (P-63A)		June 1954
La-5		June 1949
Fin (La-7)		June 1954
Fritz (La-9)		June 1954
Fank (La-11)		June 1954
Yak-3		June 1949
Frank (Yak-9)		June 1954
Yak-15		June 1951
Feather (Yak-17)		June 1954

Fighter (Continued)

Flora (Yak-23)		June 1954
Fargo (MIG-9)		June 1954
Fagot (MIG-15)		June 1954
Fresco		June 1954
Fantail		June 1954
Flashlight	●Dec	1956
Farmer	●Dec	1956

Cargo-Transport

Camel (Tu-104)	●Dec	1956
Cab (Li-2)		June 1954
Coach (Il-12)		June 1954
Clam (Il-18)		June 1954
Cart (Tu-70)		June 1954
Colt (An-2)		June 1954

Trainer

Midget (UMIG-15)		June 1954
Magnet (UYak-17)		June 1954
Mule (Po-2)		June 1954

SWEDEN (TAB)

The Royal Swedish Air Force and Equipment.

R. S. A. F. Aircraft Illustrated:

Bomber

B-18		May 1949

Fighter

J-21		May 1949
J-21R		May 1949
J-22		May 1949
J-29		June 1951

Attack

A-32		June 1954

Cargo-Transport

SAAB-90		May 1949

Trainer-Liaison

SAAB-91 Safir		June 1954

FRANCE (TAB)

The French Air Force and Equipment.

F. A. F. Aircraft Illustrated:

Fighter

M. D. 450		June 1953
S. O. 4045		June 1954
M. D. 452	●Dec	1956

Cargo-Transport

Caravelle	●Dec	1956
M. D. 315		June 1953
S. O. 30		June 1953
Nord 1400		June 1953
Nord 2501		June 1954

MISCELLANEOUS (TAB)

Other Air Forces of the world, listed alphabetically, and their equipment.

● Insert latest sheets and destroy superseded sheets.

Visual recognition of aircraft will be important as long as men fly in airplanes. Electronic devices can seek out other aircraft, track the fighter airplane to within firing range, and even automatically fire the rockets or cannon, but the PILOT can best determine whether the target aircraft is FRIEND or FOE and permit or abort the final destruction.

Antiaircraft gunners can track and fire effectively at low flying, plainly visible aerial vehicles, but *someone* determines whether the target is FRIEND or FOE before the order "Open Fire" is given!

"But with supersonic aircraft we will not have time to recognize target airplanes," is one statement often heard. Experienced combat pilots who have time or flight experience in supersonic aircraft say that it is possible to recognize target aircraft 98% of the time during supersonic passes before firing range is reached. And they say with supersonic flight experience and aircraft recognition training, 100% in aircraft recognition is possible! The closure rates for supersonic combat are not high, between 50 and 100 knots, and permit positive identification from all types of passes (except head-on) before the point of break-away. So increased aircraft speeds mean only that recognition will demand greater effort and more practice.

Airplanes like automobiles do differ. Trained observation can detect their underlying differences. Success in aircraft recognition depends upon complete familiarity with aircraft appearances. This can be achieved only by continued study aided by a number of training devices available for this purpose. It is the aim of the Aircraft Recognition Manual to supplement the use of such training aids and to provide a convenient volume of reference.

Airplanes must be studied in detail in order to gain familiarity with the distinguishing features of their particular shapes, but two pitfalls should be avoided:

(1) Minor details, no matter how distinctive, should not be emphasized as they are unlikely to be visible at worth-while distances.

(2) In analyzing an airplane part by part, care must be taken not to lose sight of the plane's over-all configuration. Each element should be examined not as a recognition feature in itself but as an integral part of the plane's general design.

Although the substance of an airplane is only a summation of its parts, its appearance evolves not only from the characteristics of its components but also from the way such components are visually related to each other. It will be found much less difficult to remember the appearance of an airplane as a single integrated unit than to try to keep separately in mind the characteristics of all its major parts. Learning the airplane this way is not only easier but infinitely more effective when the time comes for putting the knowledge to work.

In recognition, skill endures only with practice. No one is ever permanently checked out to the extent that he need no longer study. Constant review sparked by an aroused interest and enthusiasm is essential as long as the recognition requirement exists.

With this thought in mind the members of the U. S. Armed Forces can improve their acquaintance with the military and naval aircraft of the United States and the aircraft produced and flown by the nations of the world. In addition, commercial aircraft which are seen on all airways will be of military interest to the armed services, for it is a certainty that any commercial aircraft which can be used as military transports, liaison or observation planes will be so utilized by the enemy if the need should ever arise.

CLASSIFICATION OF AIRCRAFT

Uniform Classification for Use in Combining USAF, Navy and Foreign Aircraft

Airplanes

1. Bomber
   a. Heavy or Heavy Patrol
   b. Medium or Medium Patrol
   c. Light or Light Patrol
   d. Attack
2. Fighter
   a. Interceptor
   b. All Weather
   c. Penetration
3. Reconnaissance
   a. Strategic
   b. Support/Tactical
4. Transport
   a. Military
      (1) Combat
         (a) Heavy
         (b) Medium
         (c) Light
      (2) Non-combat
         (a) Heavy
         (b) Medium
         (c) Light
   b. Non-military
      (1) Heavy
      (2) Medium
      (3) Light
5. Trainer
   a. Advanced
   b. Primary and Basic
6. Search and Rescue
7. Communications/Utility
8. Special Research

Other Aircraft

9. Target
   a. Capable of carrying pilot
   b. Not capable of carrying pilot
10. Pilotless Aircraft
    a. Capable of carrying pilot
    b. Not capable of carrying pilot
11. Guided Missiles
12. Glider
13. Lighter-than-air Craft

Information Useful in Subclassification of the Above

1. Basic Configuration
   a. Fixed Wing
   b. Helicopter
   c. Autogiro
2. Number of Engines
3. Type of Propulsion
   a. Propeller
      (1) Reciprocating engine
         (a) Pusher
         (b) Tractor
      (2) Turbo-Prop
         (a) Pusher
         (b) Tractor
   b. Turbo-Jet
   c. Rocket
   d. Ram Jet
   e. Pulse Jet
   f. Combination of Above
4. Guidance
   a. Piloted
   b. Remotely Controlled
      (1) Beam Rider
      (2) Command Guidance
      (3) Celestial Navigation
      (4) Homing (Specify)
5. Type of Base
   a. Land
      (1) Skis
      (2) Tractor
      (3) Bicycle
      (4) Tricycle
      (5) Conventional-tail support
   b. Ship
      (1) Carrier
      (2) Non-carrier (specify type)
   c. Water
      (1) Pontoons
      (2) Hull
   d. Amphibian
   e. Parasitic
6. Specialized Equipment
   a. Anti-submarine
   b. Early Warning
   c. Radar/Radio Countermeasures
   d. Control of Remotely Controlled Aircraft
7. Missile Aircraft
   a. Air-to-Air
   b. Air-to-Surface
   c. Air-to-Underwater
   d. Surface-to-Air
   e. Surface-to-Surface
   f. Surface-to-Underwater
8. Guided Missile
   a. Air-to-Air
   b. Air-to-Surface
   c. Air-to-Underwater
   d. Surface-to-Air
   e. Surface-to-Surface
   f. Surface-to-Underwater
   g. Underwater-to-Air
   h. Underwater-to-Surface

Designation of Air Force Aircraft (AFR 65–60)

1. **Definitions:**

a. "Type" as applied to aircraft designates the original design purpose of an aircraft, i.e., bombardment, fighter, cargo, etc.

b. "Model" as applied to aircraft designates those aircraft of a given type which are alike in general configuration, construction, equipment, and performance.

c. "Series" as applied to aircraft designates those aircraft of a given type and model having, for all practical purposes, interchangeable parts and identical tactical usefulness.

2. **Designator Assignment.** Aircraft will be assigned a basic type designator in accordance with the function for which they are basically designed. When a type of aircraft is modified to perform a function other than its basically designed function, the basic type designator will be prefixed by the appropriate auxiliary symbol.

a. **Type.** The basic type designation will consist of one letter as follows:

		Type
(1)	Amphibious	A
(2)	Bomber	B
(3)	Cargo	C
(4)	Fighter	F
(5)	Glider	G
(6)	Rotary Wing (Helicopter)	H
(7)	Liaison	L
(8)	Target Aircraft and Drones	Q
(9)	Reconnaissance	R
(10)	Search and Rescue	S
(11)	Trainer	T
(12)	Special Research or Experimental	X

b. **Model.** A particular model of a given type will be designated by a number or numbers separated from the preceding type letter or letters by a dash, such as B–50.

c. **Series.** Following the model number there will always be a series letter, such as B–50A. The letters "O" and "I" will not be used. The series letters of a model will be changed when:

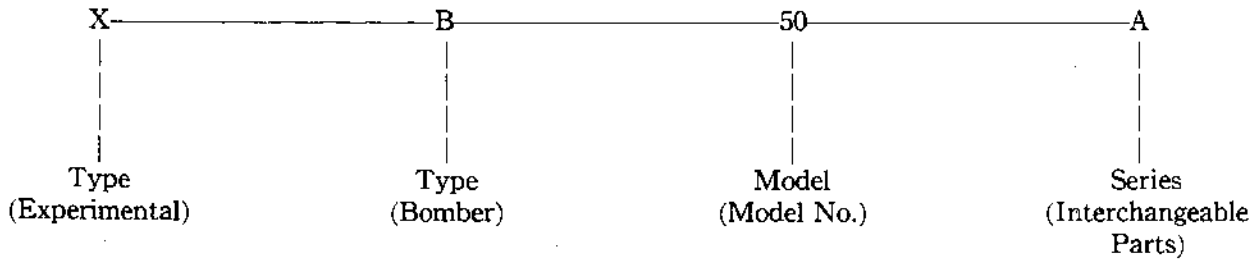
(1) A change is made in the engine which materially affects the engine performance rating or seriously affects the interchangeability in the aircraft.

(2) A change is made in propellers which affects interchangeability (Curtiss instead of Hamilton Standard) or flying characteristics of an aircraft (13′ 6″ propellers instead of 12′ 6″ propellers).

(3) A major change is made in primary installed armament (Addition of chin turret, addition of side guns, installation of 20 mm guns instead of .50 caliber, etc.).

(4) A major change is made in structure and/or equipment installation affecting interchangeability.

3. The following is a breakdown of the XB–50A, employing the foregoing definitions.



4. **Prefix Symbols.** The symbols listed below will be used as prefix symbols to indicate the current usage of an aircraft when it is so modified that its originally intended usage is no longer applicable.

As an example of this redesignation, a B–50A aircraft modified as a reconnaissance aircraft will be redesignated an RB–50A. An aircraft so redesignated will retain this prefix until such time as those features which provided its reconnaissance characteristics are removed and it is restored to its original basic condition or remodified for an entirely different function. Only in exceptional cases will more than one prefix symbol be used to designate an aircraft. Such an exception could occur, for example, if an RF–80 is modified for reconnaissance training. It would then be redesignated as a TRF–80. However, if it is modified for normal training purposes, it should become a TF–80. If more than one prefix symbol is used, the first symbol from the left will be considered the primary prefix symbol and the next one the secondary prefix symbol.

a. **Prefix "B."** The prefix symbol "B" will be used to designate aircraft modified to function as bomber type aircraft, i. e., the inclusion of a bombardier nose in fighter type aircraft. The addition of external bomb, torpedo, or depth-charge carrying devices and dive or skip bombing sighting equipment on any basic type aircraft does not constitute sufficient cause for the redesignation of that aircraft as "B" type.

b. **Prefix "C."** The prefix symbol "C" will be used to designate aircraft specifically modified for cargo use. Basic type aircraft utilized for cargo purposes without modification will not be redesignated with the prefix "C."

c. **Prefix "D."** The prefix symbol "D" will be used to designate those aircraft which are modified to function as director aircraft in conjunction with remotely controlled aircraft or guided missiles.

d. **Prefix "F."** The prefix symbol "F" will be used to designate basic aircraft modified for fighter operations. The addition of rocket launchers on liaison or rotary wing aircraft does not constitute sufficient cause for redesignation as "F" type aircraft.

e. **Prefix "G."** The prefix symbol "G" will be used to designate those powered aircraft after modifications removing all means of self-contained thrust have been completed.

f. **Prefix "K."** The prefix symbol "K" will be used to designate all aircraft modified as "in-flight" refueling tankers.

g. **Prefix "L."** The prefix symbol "L" will be used to designate aircraft modified for liaison missions. The use of this prefix will be extremely limited.

h. **Prefix "M."** The prefix symbol "M" will be used to designate aircraft modified for use as missiles.

i. **Prefix "Q."** The prefix symbol "Q" will be used to designate basic aircraft modified through the inclusion of special electronic equipment for use as targets or drones.

j. **Prefix "R."** The prefix symbol "R" will be used to designate those basic aircraft which have been so modified as to make them suitable for photo and/or electronic reconnaissance missions.

k. **Prefix "S."** The prefix symbol "S" will be used to designate basic aircraft modified through the inclusion of special search electronic equipment, airborne life boats, life rafts, or extensive life saving equipment, etc. This symbol will not be used to redesignate those aircraft utilized for air evacuation of litter patients.

l. **Prefix "T."** The prefix symbol "T" will be used to designate those aircraft which have had equipment removed to make them more suitable for training purposes. This symbol will also be used to designate those aircraft modified through the inclusion of special training equipment, i. e., navigator trainers, engineer trainers, etc. Aircraft used for training purposes for which authorization to remove equipment has not been granted, will not carry the prefix "T". "T" prefixed aircraft will not be considered suitable for return to combat status; therefore, the "T" prefix normally will not be authorized to combat potential aircraft.

m. **Prefix "V."** The prefix symbol "V" will be used to designate those aircraft which are modified as staff administrative aircraft. This will include all "staff-modified" aircraft wherein the modification is not indicated by a series letter. Staff administrative aircraft will include all aircraft which are soundproofed in other than the crew compartment and equipped with passenger seats other than crew-type seats.

n. **Prefix "W."** The prefix "W" will be used to designate those basic aircraft which have been so modified as to make them suitable for weather reconnaissance missions.

5. **Classification Symbols.** Aircraft may have any one of the following classification symbols applied where applicable.

a. **Classification "E."** The classification symbol "E" (Exempt) will be used to designate those aircraft on special tests or experimental projects by authorized activities and for aircraft on bailment contract (Work contracted for by a nonmilitary agency using AF-owned aircraft). This will not include aircraft undergoing contractual removal from storage, reconditioning, modification or modernization to meet an Air Force program, requirement, or characteristic. Aircraft utilized in special tests, experimental projects, or bailment contracts that have not received modifications and where the interchangeability of the aircraft with like type, model, and series aircraft has not been affected, will not be classified with the symbol "E". At the termination of tests, etc., "E" classified aircraft will either be returned to their original condition and designation or, if certain modifications become a permanent part of the aircraft, an appropriate redesignation of prefix, series, or block, other than "E," will be made. The "E" classification is not applicable to "X" classified aircraft.

b. **Classification "X."** The classification symbol "X" will be used to designate experimental aircraft and indicates that the item being developed has not progressed to the stage where engineering tests indicate that the item is sufficiently satisfactory to warrant service tests. This classification also will be used to designate production aircraft that have been so modified for experimental or other reasons as to make them permanently unsuitable for an operational or training requirement, i. e., the experimental installation of R–4360 engines in B–29 aircraft, the experimental installation of tandem landing gear on B–26 aircraft, etc.

c. **Classification "Y."** The classification symbol "Y" will be used to designate those aircraft which have the required military characteristics and are of a quantity produced to develop the potentialities of the model. This classification indicates the item has been developed beyond the experimental stage, but is not ready for classification as an adopted item.

d. **Classification "Z."** The classification symbol "Z" will be used to designate aircraft which are considered by the Chief of Staff, USAF, to be obsolete and of and for which no further procurement will be made. Obsolete aircraft are those aircraft that are declared unsuitable for their original military purposes or for training purposes.

The assignment of a classification symbol to an aircraft will replace any prefix symbol which the aircraft currently possesses, except where the aircraft concerned retains those characteristics and/or equipment which previously classified it under the type indicated by the prefix. In such exceptional cases, the assignment of the classification symbol will be in addition to the prefix symbol. For example, if an RB–17 is placed on bailment contract and is modified, but still retains its reconnaissance features, it would be reclassified as an ERB–17. However, if its reconnaissance equipment is removed, it would become an EB–17. On the other hand if this aircraft is completely superseded by more modern aircraft, it would become a ZRB–17. If, while still in service, the reconnaissance equipment is removed, it then becomes a ZB–17. In no instance will the aircraft classification, prefix, and type designator exceed three symbols. In the event a classification symbol is assigned an aircraft already designated with two prefixes, only the most important prefix will be retained.

Designation of Naval Aircraft.

1. Naval aircraft are divided into types designated as follows:

Type	*Designation*
(a) Heavier-than-air (fixed wing)	V
(b) Heavier-than-air (rotary wing)	H
(c) Pilotless (target) Drones	K
(d) Guided Missiles	M
(e) Lighter-than-air	Z

2. The above types are further subdivided into classes in accordance with their basic usage for which the aircraft is designed as follows:

(a) Heavier-than-air (fixed wing) Type "V"

Class	Mission	Designation
(1) Attack (A)	Surface and ground attack	VA
(2) Fighter (F)	Air defense and escort	VF
(3) Observation (O)	Gunfire and artillery spotting	VO
(4) Patrol (P)	ASW reconnaissance and attack	VP*
(5) Transport (R)	Air logistic support	VR*
(6) Search (S)	Submarine search and attack	VS
(7) Training (T)	Basic and fleet training	VT
(8) Utility (U)	Fleet utility support	VU
(9) Glider (G)		VG
(10) Warning (W)	Airborne early warning	VW

*NOTE: For administrative purposes Class VP and VR aircraft are further classified into four-engine landplane, two-engine landplane, four-engine seaplane and two-engine seaplane and are further identified by adding the letters (HL), (ML), (HS) and (MS) respectively to the basic class designation.

(b) Heavier-than-air (rotary wing) Type "H"

Class	Designation
(1) Cargo Unloading (Crane) (C)	HC
(2) Observation (O)	HO
(3) Submarine search and attack (S)	HS
(4) Transport (R)	HR
(5) Training (T)	HT
(6) Utility (U)	HU

(c) Pilotless Target Drones Aircraft Type "K"

Class	Designation
(1) Aerial target (D)	KD

(d) Guided Missiles Type "M"

Class	Designation
(1) Tactical Weapons	
(a) Air to air	AAM
(b) Air to surface	ASM
(c) Air to underwater	AUM
(d) Surface to air	SAM
(e) Surface to surface	SSM
(f) Surface to underwater	SUM
(2) Test Vehicle (TV)	
(a) Control guidance	CTV
(b) Launching	LTV
(c) Propulsion	PTV
(d) Research	RTV

(e) Lighter-than-air Type "Z"

Class	Designation
(1) Patrol (P)	ZP
(2) Training (T)	ZT

3. Manufacturer's identification letters have been established to simplify the designation of naval aircraft, except guided missiles and test vehicles, and to identify the manufacturer of the aircraft. The identification letters assigned to manufacturers of naval aircraft are grouped according to types of aircraft produced. Airplane manufacturers not currently engaged in the active manufacture or development of airplanes for the U. S. Navy, are listed as "inactive."

Aircraft manufacturers

(a) Heavier-than-air (fixed wing) Type "V"

Identification letter	
B	Beech Aircraft Company, Wichita, Kans.
D	Douglas Aircraft Co., Inc., Santa Monica Plant, Santa Monica, Calif.
	Douglas Aircraft Co., Inc., El Segundo Plant, El Segundo, Calif.
E	Cessna Aircraft Corp., Wichita, Kans.
F	Grumman Aircraft Engineering Corp., Bethpage, Long Island, N. Y.
H	McDonnell Aircraft Corporation, St. Louis, Mo. (formerly "D").
J	North American Aviation Inc., Los Angeles, Calif.
M	Glenn L. Martin Company, Baltimore, Md.
O	Lockheed Aircraft Corp. (Factory "B"), Burbank, Calif.
Q	Fairchild Engine & Airplane Corp. (Fairchild Aircraft Division), Hagerstown, Md.
U	Chance Vought Aircraft Division, United Aircraft Corp., Dallas, Tex.
V	Lockheed Aircraft Corp. (Factory "A") (formerly Vega), Burbank, Calif.
Y	Consolidated-Vultee Aircraft Corp. (San Diego Division), San Diego, Calif.

Inactive

B	Boeing Aircraft Company, Seattle, Wash.
B	Boeing Aircraft of Canada Ltd., Vancouver, B. C.
C	Curtiss-Wright Corp., Columbus, Ohio.
F	Fairchild Aircraft Ltd., Longueuil, Quebec.
G	Goodyear Aircraft Corp., Akron, Ohio.
L	Columbia Aircraft Corp., Valley Stream, Long Island, N. Y.
M	General Motors Corp. (Eastern Aircraft, Trenton Division), Trenton, N. J.
N	Naval Aircraft Factory, NAMC, Philadelphia, Pa.
R	Interstate Aircraft & Engineering Corp., El Segundo, Calif.
Y	Consolidated-Vultee Aircraft Corp. (Stinson Division), Wayne, Mich.

(b) Heavier-than-air (rotary wing) Type "H"

H	McDonnell Aircraft Corp., St. Louis, Mo. (formerly "D").
K	Kaman Aircraft Corp., Windsor Locks, Conn.
L	Bell Aircraft Corp, Buffalo, N. Y.
P	Piasecki Helicopter Corp., Morton, Pa.
S	Sikorsky Aircraft, Div., of United Aircraft Corp., Bridgeport, Conn.
E	United Helicopters, Inc. (Hiller Aircraft Co.), Palo Alto, Calif.
—	McCulloch Motor Corp., Los Angeles, Calif.

(c) Pilotless target drones Type "K"

G	Globe Corp., (Aircraft Division) Joliet, Ill.
M	Glenn L. Martin Co., Baltimore, Md.
R	Radioplane Company, Van Nuys, Calif. (formerly "D").
U	Chance Vought Aircraft Division, UAC, Dallas, Texas.

(d) Guided Missiles Type "M" and Test Vehicles Type "TV"

Manufacturer's letter is not used in designation of guided missiles or test vehicles.

(e) Lighter-than-air Type "Z"

Goodyear Aircraft Corp., Akron, Ohio (Manufacturer's letter is not used in designation of airships).

4. The manufacturer's letter in model designations shall be assigned only to companies designing aircraft. Aircraft manufactured by companies other than the designer shall carry the designation of the original designer.

5. **Prefix letter**—A prefix letter shall be used to denote the development status of a given aircraft. The letter "X" is used to denote that the aircraft is experimental. This letter is dropped from the designation when the aircraft is placed in a production status.

6. **Suffix letter**—A suffix letter shall be used only when an aircraft is modified for an additional or special mission. Suffix letters shall be assigned only from the list below and for the purpose listed. This letter indicates that the modifications are of a permanent nature and limit or augment the primary mission accordingly.

Suffix	*Purpose*	*Suffix*	*Purpose*
A	Amphibious version	N	All-weather operating version
B	Special armament version	P	Photographic version
C	Carrier operation version (of non-carrier aircraft)	Q	Countermeasures version
D	Drone control version (controlling aircraft)	R	Support/transport version
E	Special Electronics version	S	Submarine search and attack
G	Search and rescue version	T	Training version
H	Hospital version	U	Utility version
K	Target drone version (controlled aircraft)	W	Airborne early warning version
L	Winterized version	Z	Administrative version

7. Model designations for piloted aircraft and pilotless target drones shall be made as follows:

(a) *Prefix letter*
(1) "X" is used to denote experimental model when applicable.

(b) *Type letter*
(1) "V" is omitted for fixed wing heavier-than-air craft.
(2) "H," "K," and "Z" are used as applicable.

(c) *Class letter*
Only one class (mission) letter shall be used for each model designation.

(d) *Design number*
The numeral following the class letter indicates the order number of the designer's aircraft in the same class, except that for the first design, the numeral "1" shall be omitted.

(e) *Designer's letter*
The letter assigned to the designer is taken from the authorized list contained herein.

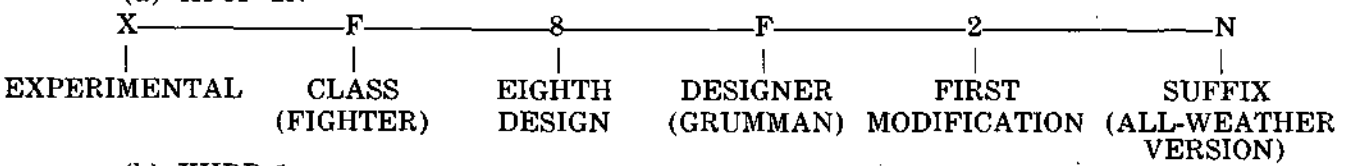
(f) *Modification number*
The numeral following the dash after the designer's letter indicates the modification of the model. The numeral "1" indicates the first model of the series and succeeding numerals indicate the first modification, second modification, etc.

(g) *Suffix letter*
A suffix letter selected from the authorized list herein indicates added or special mission.

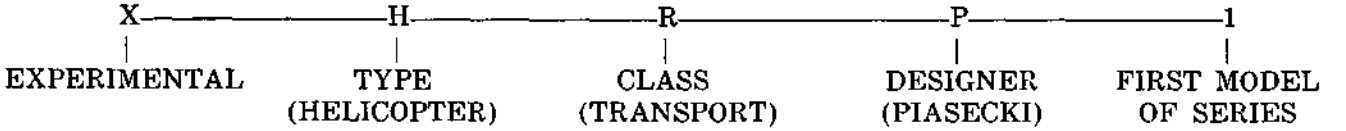
(h) *Suffix number*
A suffix number may be added after the suffix letter when an aircraft configuration is modernized with different equipment without changing its special mission. The numeral "1" indicates the first configuration and succeeding numerals indicate second, third, configuration, etc., except that for the first configuration the numeral "1" shall be omitted.

8. The following are typical examples of designations of piloted aircraft in accordance with the preceding.

(a) XF8F–2N



(b) XHRP–1



9. Pilotless Target Drones (non-man-carrying) are aircraft in which no provision has been made for a human pilot.

10. Pilotless Aircraft Target Drones (man-carrying) are conventional aircraft specially equipped for operation by remote control and intended for use as a pilotless aircraft aerial target.

11. The following is an example of a designation of a pilotless aircraft aerial target.

(a) XKD2R–2

X	KD	2	R	2
EXPERIMENTAL	TARGET DRONES	SECOND DESIGN	DESIGNER (RADIOPLANE)	FIRST MODIFICATION

12. Model designations for guided missiles shall be determined as follows.

(a) *Prefix letter*

(1) "X" is used to denote experimental models.

(2) "Y" is used to denote service test models.

(3) "Z" is used to denote obsolete models.

(b) *Class letters*

Two letter combinations of three letters—A (air), S (surface) and U (underwater) in which the first letter denotes the origin and the second letter denotes the objective of the missile.

(c) *Type letter*

"M" after the class letters indicates "Missile."

Examples:

AAM—Air-to-Air Missile
ASM—Air-to-Surface Missile
AUM—Air-to-Underwater Missile
SAM—Surface-to-Air Missile
SSM—Surface-to-Surface Missile
SUM—Surface-to-Underwater Missile
UAM—Underwater-to-Air Missile
USM—Underwater-to-Surface Missile

(d) *Service letter*

Each basic designation shall be followed by a letter to indicate cognizant Service—"A" Air Force, "G" Army, "N" Navy.

Note: After approval for joint use, the service letter shall be dropped and the designation preceded by "ANG."

(e) *Design number*

The service letter shall be followed by a number to indicate the design number.

(f) *Modification letter*

The model number shall be followed by a modification letter, "a" indicates first modification, "b" indicates second modification, etc.

(g) *Designer's letter*

Not used in designation of guided missiles.

(h) *Prefix letters*

"M" prefixed to a conventional aircraft designation indicates "Missile Aircraft."

"D" prefixed to a conventional aircraft designation indicates "Director Aircraft."

Note: When conventional aircraft are changed to guided missiles or director control missiles, the appropriate letter shall be prefixed instead of suffixed.

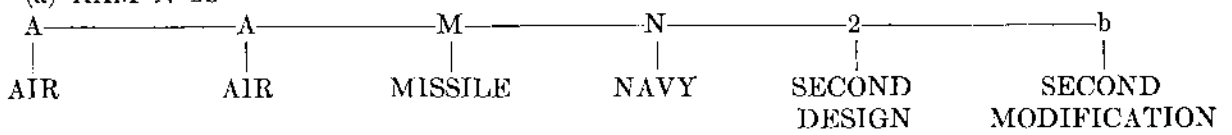
(i) *Popular name*

Popular names are assigned to a guided missile when a particular missile enters the development phase. The names will, in general, conform to the following:

AAM—Winged Creatures
ASM—Birds of Prey
SAM—Mythological Terms
SSM—Astronomical Terms of Bodies
Targets—Game Birds

13. The following is a typical sample of designation of a guided missile in accordance with the above.

(a) AAM–N–2b

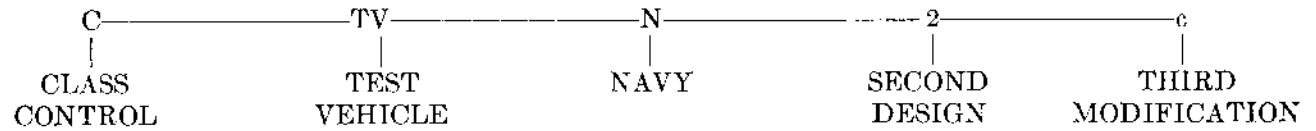


14. When a guided missile is used as a Test Vehicle, it shall be designated "TV," followed by service letter, design number, and modification letter and prefixed with one of the following class letters indicating the type of testing:

(a) *Prefix letters:*

(1) "C"—Control.
(2) "P"—Propulsion.
(3) "L"—Launching.
(4) "R"—Research (includes high-altitude rockets).

(b) The CTV–N–2c is used as an example in the following diagram.

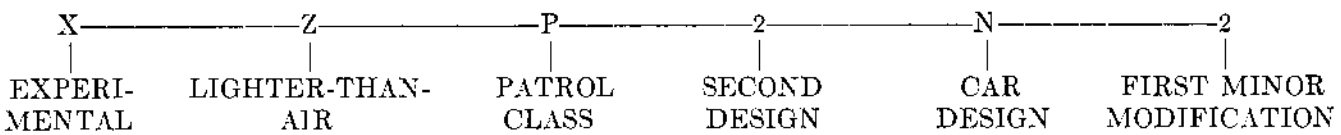


15. Model designations for lighter-than-air craft are made up as follows:

(a) *Prefix letter.* "X" is used to denote experimental model.
(b) *Type letter.* "Z" is used to denote lighter-than-air.
(c) *Class (Mission) letter.* Only one mission letter shall be used in each designation.
(d) *Design number.* The numeral following the class letter indicates the major modification or design number for that class, except that number "1" is not used.
(e) *Car design.* A letter following the class letter indicates the symbol of the car for the airship in that class.
(f) *Modification number.* The numeral following the dash after the Design letter when used, indicates the modification of the model. The numeral "1" indicates the first model of the series and succeeding numerals indicate first modification, second modification, etc.

16. The following is an example of a designation of a lighter-than-air craft in accordance with the preceding

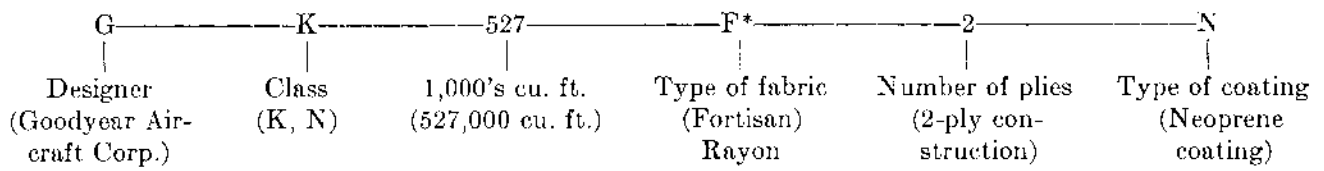
(a) XZP2N–2



17. Designations for lighter-than-air aircraft envelopes are determined as follows:

(a) Maufacturer's identification letter.
(b) Class (Mission) letter.
(c) Volume in 1,000's of cubic feet.
(d) Type of fabric.
(e) Number of plies in fabric construction.
(f) Type of fabric coating.

18. The following is an example of a designation of an envelope for a lighter-than-air aircraft:



19. The following abbreviations are used in the list of characteristics of Naval Aircraft:

M —Monoplane.
TB —Tractor Biplane.
TM —Tractor Monoplane.
Conv't —Convertible.
Date —Delivery of first airplane.
Land —Landplane.
Carrier —Equipped with arresting gear.
Catapult—Equipped with catapulting.

*Types of fabric
F—Fortisan rayon.
C—Cotton.

U. S. AIRCRAFT NAMES AND DESIGNATIONS

The aircraft listed in this tabulation include operational types, experimental types, and some older reserve types employed by the Army, the Air Force, the Navy and Marine Corps, and the Coast Guard. The arrangement is in keeping with the Uniform Classification of USAF, NAVY, and FOREIGN Aircraft.

TYPE	AIR FORCE	NAVY and MARINE CORPS	NAME	ORIGINAL MANUFACTURER
BOMBER				
Heavy	B–36			Convair
	B–52		Stratofortress	Boeing
	YB–60			Convair
Medium	B–29	P2B	Superfortress	Boeing
	B–47		Stratojet	Boeing
	YB–49		Flying Wing	Northrop
	B–50		Superbomber	Boeing
Patrol	B–34, –37	PV–1, 3	Ventura	Lockheed
		PV–2	Harpoon	Lockheed
		P2V	Neptune	Lockheed
	B–24	P4Y–1 (PB4Y–1)	Liberator	Convair
		P4Y–2 (PB4Y–2)	Privateer	Convair
		P4M	Mercator	Martin
	OA–10 (PBY–5A)	PBY	Catalina	Convair
		PBM	Mariner	Martin
		P5M, –2	Marlin	Martin
		XP6M	Seamaster	Martin
		XP5Y (R3Y)	Tradewind	Convair
		WV–1	Constellation	Lockheed
		WV–2	Super-Constellation	Lockheed
Light	B–17	PB–1	Fortress	Boeing
	B–25	PBJ	Mitchell	North American
	B–26	JD	Invader	Douglas
	B–45		Tornado	North American
	XB–51			Martin
	B–57A		Canberra	Martin/English Electric
	XB–58		Hustler	Convair
Search & Attack	ZA–25	SB2C	Helldiver	Curtiss
		TBF	Avenger	Grumman
		TBM	Avenger	General Motors
		AM	Mauler	Martin
		AD	Skyraider	Douglas
		AF	Guardian	Grumman
		AJ	Savage	North American
		XA2J		North American
		A2D	Skyshark	Douglas
	B–66	A3D (P2D)	Skywarrior	Douglas
		XA4D	Skyhawk	Douglas
		XS2F (TF)		Grumman
		AU (F4U)	Corsair	Chance-Vought
		A2U (F7U)	Cutlass	Chance-Vought
		WU		Chance-Vought
FIGHTER	F–47		Thunderbolt	Republic
	F–51		Mustang	North American
	F–61	F2T–1	Black Widow	Northrop

TYPE	AIR FORCE	NAVY and MARINE CORPS	NAME	ORIGINAL MANUFACTURER
FIGHTER—(Con.)	F-80B	TV-1 (TO-1)	Shooting Star	Lockheed
	F-82		Twin Mustang	North American
	F-84		Thunderjet	Republic
	F-84F		Thunderstreak	Republic
	F-86	FJ-2, -3 (Fury)	Sabre	North American
	F-86D		Sabre	North American
	F-88		Voodoo	McDonnell
	F-89		Scorpion	Northrop
	XF-90			Lockheed
	XF-91		Thunderceptor	Republic
	XF-92			Convair
	XF-93			North American
	F-94		Starfire	Lockheed
	F-100		Super Sabre	North American
	XF-101		Voodoo	McDonnell
	XF-102		Machete	Convair
	XF-103			Republic
	XF-104			Republic
	XF-105			Republic
		F4U (AU)	Corsair	Chance-Vought
		FG	Corsair	Chance-Vought
		F6F	Hellcat	Grumman
		F7F	Tigercat	Grumman
		F8F	Bearcat	Grumman
		FH	Phantom	McDonnell
		F2H	Banshee	McDonnell
		F2H-3	Banshee	McDonnell
		XF3H	Demon	McDonnell
		F3D	Skyknight	Douglas
		F3D-3	Skyknight	Douglas
		F4D	Skyray	Douglas
		XF5D		Douglas
		FJ	Fury	North American
	F-86 (Sabre)	FJ-2, -3	Fury	North American
		F6U	Pirate	Chance-Vought
		F7U	Cutlass	Chance-Vought
		XF8U		Chance-Vought
		F9F	Panther	Grumman
		F9F-6-7-8	Cougar	Grumman
		F9F-9	Tiger	Grumman
		XF10F	Jaguar	Grumman
		FO		Lockheed
		XFY		Convair
		F2Y	Sea-Dart	Convair
RECONNAISSANCE	RB-36			Convair
	RB-50		Superbomber	Boeing
	RB-29		Superfortress	Boeing
	RB-45		Flying Cartographer	North American
	RB-47		Stratojet	Boeing
	RB-52		Stratofortress	Boeing
	RB-57A		Canberra	Martin
	RB-66		Skywarrior	Douglas
	YRB-49		Flying Wing	Northrup

TYPE	AIR FORCE	NAVY and MARINE CORPS	NAME	ORIGINAL MANUFACTURER
RECONNAISSANCE— (Continued)	YRB-66			Douglas
	RF-80		Shooting Star	Lockheed
	RF-84F		Thunderflash	Republic
	RF-94		Starfire	Lockheed
	RF-101			McDonnell
		SC	Seahawk	Curtiss
	RC-121C, -D		Constellation	Lockheed
TRANSPORT	C-45	JRB	Voyager/Expeditor	Beechcraft
	C-46	R5C	Commando	Curtiss
	C-47	R4D	Skytrain	Douglas
	C-47F	R4D-8	Super DC-3	Douglas
	C-53	R4D-3	Skytrooper	Douglas
	C-54	R5D	Skymaster	Douglas
	C-60	R5V (R5O)	Lodestar	Lockheed
		R6V (R6O)	Constitution	Lockheed
	C-61	GK	Forwarder	Fairchild
	C-64	JA	Norseman	Noorduyn
	C-69		Constellation	Lockheed
	C-74		Globemaster	Douglas
	C-82		Packet	Fairchild
	C-87A, C	RY-1, 3	Liberator Express	Convair
	C-97		Stratocruiser	Boeing
	XC-99			Convair
	C-118B	R6D	Liftmaster	Douglas
	C-119	R4Q-1	Packet	Fairchild
	XC-120		Packet	Fairchild
	C-121		Constellation	Lockheed
	C-121C	R7V	Super-Constellation	Lockheed
	YC-122		Avitruc	Chase
	XC-123		Avitruc	Chase
	C-124 (C-133)		Globemaster II	Douglas
		R3Y (P5Y)		Convair
	YC-125		Raider	Northrop
		JRM	Mars	Martin
	XC-128			Fairchild
	YC-130			Lockheed
	C-131		Samaritan	Convair
		RM		Martin
	C-132			Douglas
TRAINER	T-6	SNJ	Texan	North American
Advanced	T-7	SNB-2	Navigator	Beechcraft
	T-11	SNB-1	Kansas	Beechcraft
	T-19		Reliant	Convair
	T-28			North American
	T-29			Convair
	T-33	TV-2 (TO-2)	Shooting Star	Lockheed
	F-80	TV-1 (TO-1)	Shooting Star	Lockheed
	TF-86		Sabre	North American
	T-34		Mentor	Beechcraft
	YT-35		Buckaroo	Tempco
	T-36			Beechcraft

TYPE	ARMY	AIR FORCE	NAVY and MARINE CORPS	NAME	ORIGINAL MANUFACTURER
		XT–37		Mitchell	Cessna
		TB–25			North American
		TB–50		Superbomber	Boeing
		TB–47		Stratojet	Boeing
Primary & Basic		T–13, 17	N2S	Kaydet	Boeing
		T–19, 3		Cornell	Fairchild
			N3N	Yellow Peril	Naval A/C Factory
		XT–37			Cessna
			TF (S2F)		Grumman
SEARCH AND RESCUE		SA–16A	JR2F/UF	Albatross	Grumman
		A–10	PBY	Catalina	Consolidated Vultee
		SB–29	P2B	Superfortress	Boeing
LIAISON AND UTILITY		L–4	NE	Grasshopper	Piper
		L–5	OY	Sentinel	Consolidated Vultee
		L–13			Consolidated Vultee
		L–16		Champion	Aeronca
	L–17B			Navion	Ryan
	L–19		OE		Cessna
	L–20	L–20		Beaver	de Havilland
		L–21			Piper
	L–23			Twin-Bonanza	Beechcraft
		L–24			Helio
		XL–25			McDonnell
	YL–26			Aero Comdr	Aero
	LC–126				Cessna
		C–43	CB	Traveler	Beechcraft
		C–45	JRB	Voyager	Beechcraft
		NA–12	J2F	Duck	Grumman
		A–14	J4F	Widgeon	Grumman
		OA–9, -13	JRF	Goose	Grumman
		SA–16A	UF/JR2F	Albatross	Grumman
		B–26	JD	Invader	Douglas
HELICOPTER		H–4B	HNS		Sikorsky
		H–5	HO3S		Sikorsky
			YH–12		Bell
	H–13	H–13	HTL		Bell
		XH–15			Bell
		XH–16			Piasecki
		XH–17			Hughes
		YH–18	HO5S		Sikorsky
	H–19	H–19	HRS (HO4S Version).		Sikorsky
		XH–20			McDonnell
	H–21	H–21	HRP–1, –2	Rescuer	Piasecki
		YH–22	HTK	Explorer	Kaman
	H–23	H–23	HTE		Hiller
	H–25		HUP		Piasecki
			HOK		Kaman
			XHJS		Sikorsky
			XHSL		Bell

TYPE	ARMY	AIR FORCE	NAVY and MARINE CORPS	NAME	ORIGINAL MANUFACTURER
HELICOPTER— Continued		XH–26			American Helicopter
		XH–28			Hughes
		XH–32	HOE		Hiller
	H–34		XHSS		Sikorsky
	H–37		HR2S		Sikorsky
AIRSHIPS			ZPK (S/R & Utility)		Goodyear
			ZP2K (ZPK Modernized)		Goodyear
			ZP3K (Improved ASW gear)		Goodyear
			ZP4K (Latest ASW configuration)		Goodyear
			XZP5K		Goodyear
			ZPM (Long range)		Goodyear
			ZP2M (ZPM Modernized)		Goodyear
			ZPN (Long endur. A/S/W)		Goodyear
			ZP2N (ZPN develop.)		Goodyear
			ZTG (Training)		Goodyear
			XZTL (Training)		Goodyear
MISCELLANEOUS		KB–29		Superfortress	Boeing
		KC–97		Stratofreighter	Boeing
		KC–124		Globemaster II	Douglas
		YG–18			Chase
		XV–1 (XL–25)			McDonnell
		XV–3			Bell

ARGENTINA

"I. Ae."	Military Aircraft Factory, Instituto Aerotecnico.
"Petrolini"	Petrolini Hermanos, Societa Anonima Industrial Y Commercial.

BELGIUM

"Avions Fairey"	Avions Fairey S. A.
"SABCA"	Société Anonyme Belge de Constructions Aéronautiques.

BRAZIL

"C. N. N. A."	Companhia Nacional de Navegação Aérea.
"I. P. T."	Instituto de Pesguisas Techologicas. (Technical Research).

CZECHOSLOVAKIA

Aircraft factories in Czechoslovakia, one of the few countries in the Soviet block possessing a real aircraft industry, are mostly automobile firms which are characterized by their geographical location (Cakovice Works, Chosen Works, Otrokovice Works, Karlin Works, etc.).

Czechoslovakian aircraft types have retained their traditional family names, which are reminiscent of their capitalist predecessors; Areo... Marz, Avia... Praga, Letov... Zlin.

FRANCE

"Adam"	Établissements Aéronautiques R. Adam.
"Arsenal"	Arsenal de L'Aéronautique.
"Béarn"	Constructions Aéronautiques du Béarn.
"Boisavia"	Avions Boisavia.
"Breguet"	Société Anonyme des Avions Louis Breguet.
"Brochet"	Avions Maurice Brochet.
"C. F. A."	Compagnie Française d'Aviation.
"Dassault"	Avions Marcel Dassault.
"Fouga"	Establissements Fouga et Cie.
"Hurel-Dubois"	Avions Hurel-Dubois.
"J. D. M."	Avions J. D. M.
"Jodel"	Société des Avions Jodel.
"Latécoère"	Société Industrielle d'Aviation Latécoère.
"Leduc"	René Leduc Fils.
"M. D. G."	Instruments de Précision M. D. G.
"Max Holste"	Avions Max Holste.
"Millet-Lagarde"	Société Millet-Lagarde.
"Morane-Saulnier"	Aeroplanes Morane-Saulnier.
"Nord"	Société Nationale de Construction Aéronautiques du Nord (S. N. C. A. N.).
"Rey"	Société des Avions François Rey.
"S. C. A. N."	Société de Constructions Aéro Navales de Port-Neuf.
"S. E. C. A. N."	Société d'Etudes et de Constructions Aéro-Navales.
"Sevimia"	Victor Minié Aéronautique.
"S. I. P. A."	Société Industrielle pour l'Aéronautique.
"Starck"	Avions André Starck.
"Sud-Est"	Société Nationale de Constructions Aéronautiques de Sud-Est (S. N. C. A. S. E.).
"Sud-Ouest"	Société National de Constructions Aéronautiques de Sud-Ouest (S. N. C. A. S. O.).

ITALY

"Aerauto"	Aerauto S. A., Costruzioni Aeronautiche E Meccaniche.
"Augusta"	Costruzioni Aeronautiche Giovanni Augusta.
"Alaparma"	Società Aeroplani Livio Agostini.
"Ambrosini"	Società Aeronautica Italiana, Ing. A. Ambrosini & C.
"Breda"	Società Italiana Ernesto Breda.
"C. V. V."	Instituto di Aeronautica, Politecnico di Milano.
"Fiat"	Società Per Azioni Fiat.
"G. C. A."	Gruppo Costruzioni Aeronautiche.
"Macchi"	Aeronautica Macchi S. A.
"Nardi"	Nardi S. A. Per Costruzioni Aeronautiche.
"Piaggio"	Piaggio & C., Società Per Azioni.
"S. A. C. A."	Società Per Azioni Costruzioni Aeronavali.
"Saiman"	Società Anonima Industrie Meccaniche Aeronautiche Navali.
"Siai-Marchetti"	Società Per Azioni Siai-Marchetti.
"Viberti"	Ali Viberti S. p. A.

GREAT BRITAIN

"Airspeed"	Airspeed Division CF The de Havilland Aircraft Co., Ltd.
"Armstrong Whitworth"	Sir W. G: Armstrong Whitworth Aircraft, Ltd.
"Auster"	Auster Aircraft, Ltd.
"Avro"	A. V. Roe & Co., Ltd.
"Blackburn & General"	Blackburn & General Aircraft, Ltd.
"Boulton Paul"	Boulton Paul Aircraft, Ltd.
"Bristol"	The Bristol Aeroplane Co., Ltd.

FOREIGN AIRCRAFT MANUFACTURERS—(Continued)

"Chilton"	Chilton Aircraft Co., Ltd.
"Chrislea"	Chrislea Aircraft Co., Ltd.
"de Havilland"	The de Havilland Aircraft Co., Ltd.
"English Electric"	The English Electric Co., Ltd.
"Fairey"	The Fairey Aviation Co., Ltd.
"Folland"	Folland Aircraft, Ltd.
"Gloster"	The Gloster Aircraft Co., Ltd.
"Handley Page"	Handley Page, Ltd.
"Hawker"	Hawker Aircraft, Ltd.
"Hawker Siddeley"	Hawker Siddeley Group, Ltd.
"Heston"	The Heston Aircraft Co., Ltd.
"Martin-Baker"	Martin-Baker Aircraft Co., Ltd.
"Percival"	Percival Aircraft, Ltd.
"Saro"	Saunders-Roe, Ltd.
"Scottish Aviation"	Scottish Aviation, Ltd.
"Short"	Short Bros. & Harland, Ltd.
"Slingsby"	Slingsby Sailplanes, Ltd.
"Supermarine"	Supermarine Aviation Works, Div. Vickers-Armstrongs, Ltd.
"Vickers"	Vickers-Armstrongs, Ltd.
"Westland"	Westland Aircraft, Ltd.

AUSTRALIA

"Commonwealth"	Commonwealth Aircraft Corp. PTY., Ltd.
"de Havilland"	de Havilland Aircraft Proprietary, Ltd.
"Fairey-Clyde"	The Fairey-Clyde Aviation Co. Proprietary, Ltd.

CANADA

"Avro"	A. V. Roe Canada, Ltd.
"Boeing"	Boeing Aircraft of Canada Ltd. (inactive).
"C. C. F."	Canadian Car & Foundry Co., Ltd. (acquired Noorduym).
"Canadair"	Canadair Ltd.
"Cancargo"	Cancargo Aircraft Manufacturing Co., Ltd.
"de Havilland"	The de Havilland Aircraft of Canada, Ltd.
"Found"	Found Brothers Aviation Co., Ltd.
"National Research Council"	Division of Mechanical Engineering.
"Northwest Industries"	Northwest Industries, Ltd.

INDIA

"Hindustan"	Hindustan Aircraft Ltd.

NEW ZEALAND

"de Havilland"	The de Havilland Aircraft Co., Ltd. of New Zealand.

NETHERLANDS

"Fokker"	The N. V. Nederlandsche Vliegtuigen-Fabriek Fokker.

NORWAY

"Hönningstad"	Norsk Flyindustri A/S.
"Widerøe"	Widerøes Flyveselskap OG Polarfly A/S.

U. S. S. R.

The Russian State Aeronautical Industry comes under the direct jurisdiction of the Commissariat for Aircraft Industries and all aircraft production is undertaken in State factories. (See U. S. S. R. section.)

The technical organization is shared by three establishments, the Z. A. G. I. (Central Aero Hydronamics Institute) which is in charge of all aircraft development; the Z. A. I. M., which does the same for aircraft engines; and the V. I. A. M., which conducts and directs research on materials.

SPAIN

"C. A. S. A."	Construcciones Aeronauticas S. A.
"Hispano"	La Hispano Aviacion S. A.
"I. P."	Iberia.
"Inta"	Instituto Nacional de tecnia Aeronautica.

SWEDEN

"Kungl. Flygforvaltnigens Flygverkstad"	Royal Air Board Aircraft Factory.
"SAAB"	Svenska Aeroplan A. B.
"Skandinaviska Aero A. B	Scandinavian Airways, Ltd.

SWITZERLAND

"Fabrique Fédérale D'Aions"	Federal Aircraft Factory.
"Flug & Fahrzeugwerke"	Flug & Fahrzeugwerke A. G.
"Pilatus"	Pilatus Flugzeugwerke A. G.

TURKEY

"Nuri Demirag"	Nuri Demirag Tayyare Fabrikasi.
"T. H. K."	Turk Hava Kurumu Ucak Fabrikasi.

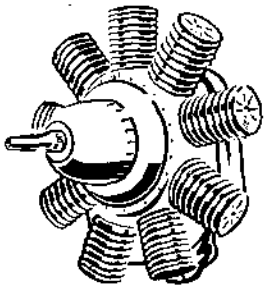
AIRCRAFT ENGINES

It is advantageous to have a knowledge of the various kinds of aircraft engines and, needless to say, such information is of great value in recognition.

There are two main types of aircraft engines in service today. They are the reciprocating engine and the gas turbine. Reciprocating engines, for our purposes, may be sub-divided into two main classes, radial and in-line. The gas turbines may also be sub-divided into two classes, propeller turbines (turboprops) and pure jets (turbojets).

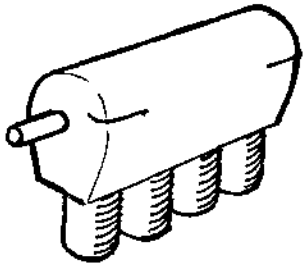
RECIPROCATING ENGINES

Air-cooled Radials



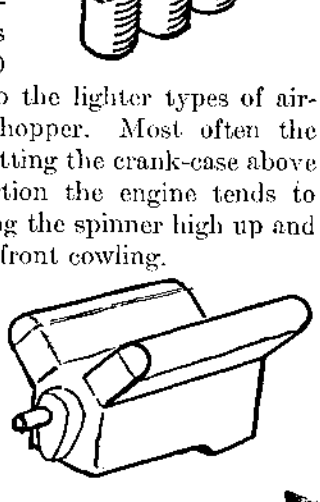
In World War II the radial was the prime mover of our aviation and it is still the most common type seen. The term radial is applied because of the cylinder arrangement which is like the spokes of a wheel, they catch the airflow and are thus cooled. In earlier days these engines were completely uncowled for cooling purposes and were easily recognizable. They have, naturally, a wider frontal area than other engines, but today the radial engine is enclosed within a cylindrical covering, which usually has an open front and through which air enters to cool the cylinders. We usually associate radial engines with a certain bluntness of entry, though the careful streamlining of cowlings and the shaping of airscrew spinners has produced some elegant outer shapes for them and they are no less efficient than the in-line type we mention later. Even so, it is usually best to distinguish a radial by its shape.

Air-cooled In-lines



These engines have their cylinders arranged one behind the other in one or more rows. The air-cooled type as employed in this country, is usually well under the 500 h. p. class and is fitted to the lighter types of aircraft, such as the Grasshopper. Most often the engine is inverted, thus putting the crank-case above the cylinders. In proportion the engine tends to be deep and narrow, having the spinner high up and a large gap or duct in the front cowling.

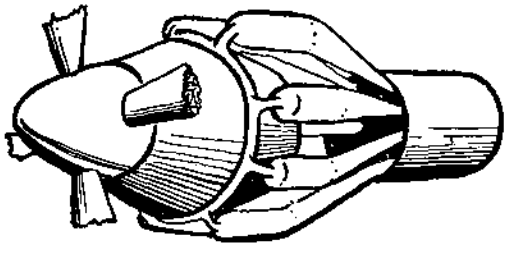
Liquid-cooled In-lines



The usual form is two rows of cylinders making a "V" though there are other arrangements such as the "H" type (so called because its banks of cylinders form an "H"), though they are not common. These engines lend themselves very well to good streamlined cowlings and by using a pointed spinner on the propeller a good aerodynamic shape to the whole engine can be formed. The Allison in-line used in the World War II Cobras is a good example.

GAS TURBINES

Propeller Turbines



Or, as they are familiarly called, turboprops, are offshoots of the turbojet. Instead of using jet-reaction as a means of propulsion, the hot gases are directed on to a turbine wheel which is connected to a propeller. The advantages of this type of engine are that it can be easily installed, presents less drag with a small frontal area and is easy to maintain. The present disadvantage is its high fuel consumption, though there seems to be the possibility of improvement in this respect as the engine is developed in service.

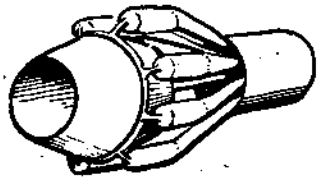
There has been a development called the compounded piston engine, that is to say a normal piston engine which makes full use of the exhaust gas energy to drive a turbine or turbines which are geared to the engine crankshaft.

An example of a turboprop installation is that of the British Rolls-Royce Dart as fitted in the Vickers Viscount. The U. S. Navy's XP5Y is also fitted with turboprop as is the new XA2D, Skyshark. Both of these Navy aircraft are fitted with Allison T–40 twin turboprop units.

Because much of the turboprop engine is usually "buried" inside the airplane's structure, the engine unit is less obvious to the eye. The turboprop engine must employ a propeller to turn its power into thrust which means that there will always be some sort of "stem" for the propellers. This, plus the exhaust stack, from a recognition point of view, is almost as useful as the engine itself.

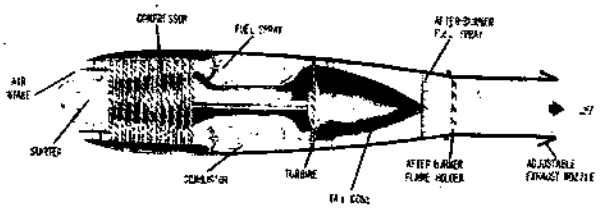
There are two types of compressors used in turboprop, and turbojet engines: one is the axial-flow type and the other the centrifugal-flow type. Shown in the diagram is a centrifugal-flow turboprop engine. The beauty of the axial-flow type, however, is that it provides an aircraft with a very slim over-all body form.

Pure Jets or Turbojets



The principles of operation and construction of the turbojet are simple, and it can be tailored into an airplane design almost anywhere. We find them "buried" inside wings, or set out on long slender "stalks" beneath the wing; they are tucked into wing roots or attached to wing tips; they are paired, tripled, and even quadrupled, in one nacelle. In fact, an airplane designer has so much license in their positioning, that a race of airplanes is being born in which the variety of shapes introduced has made them much more interesting, and in many ways easier to recognize. The engine shown in the illustration belongs to the centrifugal turbojet class.

Turbojet With Afterburner



The exhaust from a turbojet contains much unburned oxygen, and if fuel is admitted to the tailpipe, it can be burned to further heat and expand exhaust gases beyond what is possible in the engine proper. Such a tailpipe arrangement is called an afterburner, and since the velocity of its jet exhaust is greater, the assembly provides a considerable boost in thrust over that of the normal turbojet. Although an afterburner's installed weight is low, its fuel economy is poor; hence it is used only for such purposes as assist in take-off and climb. At other times it is extinguished, and basic engine runs as a turbojet. The annotated illustration is that of a centrifugal-flow turbojet with an afterburner attached.

Engine Details

All types of aircraft engines must "breathe," "exhaust" and "keep cool." To do this effectively they are usually designed with a quota of scoops, ducts, radiators, and exhaust systems of one kind or another. There are in fact so many varieties of each of these items that it is impossible to detail them all. All of them are helpful in recognition (at some time or another), some more than others.

What To Look For

The points to observe specially about engines which may be visible on an airplane are: shape, type, position, and grouping. Shape gives a clue to type. Positions are at the nose of the fuselage, on the top of a pylon, on the back of, or slung beneath, the fuselage; they sit upon, are sunk into, or hang on the wings (underslung) or are suspended from them on "stalks." Engines may be set close together or well spaced out along the wing. They may be set out singly or in groups. Sometimes they extend only a short distance toward the length of the nose of the fuselage, sometimes in line with it, and occasionally beyond it.

PROPULSION

The propeller and jet engine are very closely related, producing thrust by the same means—the acceleration of a quantity (mass) of air. As the air stream enters the propeller disc the blades act upon the air particles so that their velocity is greater behind the propeller than ahead. Each particle has weight and the blades must exert a measurable force to accelerate this weight from the slow to the faster speed. The particles reciprocate by pushing against the blade in the direction opposite to that of the air stream with a force equal to that received from the blade. Add all of these individual pushes together and you have thrust acting on the propeller, which, being part of this airplane, causes the whole system to move.

The propeller generates its thrust by acting on a large quantity of air giving it a relatively small acceleration. The jet engine, whether ramjet or gas turbine does exactly the same thing. Air is introduced into the engine by some means and is then accelerated so that it returns to the air stream at a higher velocity than at the start of the operation. The acceleration of this quantity of air produces thrust in the same essential manner as with the propeller to achieve the same thrust, the jet must impart a larger measure of acceleration to a smaller quantity of air.

The idea that thrust is produced by the jet stream pushing against the outside air is 100 percent wrong. Propulsive force is created within

the engine as the air stream is accelerated and the thrust acts upon the internal engine structure. If the jet could exhaust into a vacuum, more thrust would result as the exhaust flow would not be impeded by the atmosphere cluttering up the exit.

All aircraft jet engines, must perform three essential functions:

1. Store or introduce air (oxygen) into a suitably shaped chamber.
2. Add energy to the air. This is accomplished by burning fuel.
3. Expand and expel the air from the engine exit at a higher velocity than at the start of the operation. This acceleration produces thrust in the opposite direction of airflow. The same idea is obtained if a rubber balloon is blown up, and suddenly released, the resultant jet-reaction drives it through the air.

There is an enormous waste of energy by the "slip" of the jet efflux at low speeds of aircraft, and it is this fact that makes the jet engine so inefficient. Its maximum efficiency is reached at high altitudes where rarified air provides little resistance and permits high speed passage of the aircraft, and, at the same time, enables the jet engine to gather sufficient weight of air to keep itself going.

At a low altitude the jet engine is wasteful, for there is more than enough air for it to swallow, and the speed of the airplane is held back by the relative thickness of the air, and that is by drag. This results in a high speed jet for a low forward speed to the aircraft. Generally speaking the jet engine is most efficient when the aircraft's forward speed is half the speed of the jet stream. Say, 500 knot air speed for a 1,000 knot jet stream.

On the other hand, the propeller works best in the relatively thick atmosphere of low altitude. The higher the propeller is taken the less efficient it becomes, until at extreme altitudes there is not enough air on which it can grip and the engine turns over at high speed, uses a lot of fuel and gets nowhere.

Thus, with propeller efficiency greatest at low altitudes, jet efficiency greatest at high altitudes, to get the best of both worlds the turboprop, at least for the present, is the more efficient. The propeller is mounted on the same shaft as the turbine.

The power of jet engines is measured in pounds of static thrust. In a broad sense this means that a jet engine of 5,000 pounds static thrust could support that weight, suspended in a well, and attached to it, by means of a pulley and wheel.

Very high speeds are reached by turbines and compressors, and 17,000 revolutions per minute are common. At these terrific, almost inconceivable, speeds the tensile stresses on the blades of a turbine reach something like 10 tons per square inch, and blade tips often travel at over 900 knots. The turbine of the de Havilland Ghost turbojet, which is fitted in the Vampire, delivers a static thrust of 5,000 pounds. This is equivalent to 8,000 true horsepower at 525 knots at sea level and corresponding to 12,000 hp. from a normal reciprocating engine with a propeller efficiency of 66 percent. Jet stream velocities reach speeds of more than 880 knots, and, in athodyds, speeds of 2,500 to 3,500 knots are possible.

Turbine blades have not only to withstand these high speeds but also very high gas temperatures, which can reach very nearly 1,000 degrees centigrade. For this reason they have to be made very tough and are always very short. The tail cone also serves the purpose of preventing turbulence behind the turbine; in fact, it protects the turbine wheel.

A fighter traveling at 525 knots uses over a ton of air every second. In addition, the great speed of the jet airplane is in itself a cause of high fuel consumption because of the large resistance that has to be overcome.

Because there is no way of measuring the work done by a jet of hot gases, it is not possible to talk of the horsepower of a jet engine. Instead, the thrust (in pounds) is measured, that is, the direct reaction of the escaping gases against the body of the engine. This thrust varies according to the conditions when it is measured. If the engine is held stationary on the ground it is called static thrust, and it is measured by a kind of weighing machine that records the efforts of the engine to escape from its jet—measuring the blast of the jet itself would not give you the thrust. If the engine is in flight it is reacting away from its jet and the efficiency improves, so the thrust is less. This seems queer; but it will be clear if you remember that 100 percent efficiency is reached with engine and gases going in opposite directions at equal speeds—when, of course, there can be no pressure, that is thrust, between them. Therefore, the thrust developed by an engine is always given as so many pounds at a certain speed and height, since the air resistance due to the velocity and altitude affects the reaction between the engine and the jet.

THE DESIGNATION OF SERVICE AIRCRAFT ENGINES

Reciprocating Engines

The Air Force and Navy systems for the designation of aircraft engines are similar. All service engines are designated by a letter indicating their basic type. The prefix letters "X" and "Y" may be used to signify experimental and service test of restricted service engines, respectively.

Letter symbols	*Types*
R	Radial
V	Upright Vee
L	Line
O	Opposed

This is followed by the displacement of the engine in cubic inches to the nearest multiple of 5 and, finally, the Service model: R-1830-65, V-770-8, R-1820-56, R-2600-8. The final model number of engines ordered to an Air Force specification is always an odd number. Engines ordered by the Navy always carry even model numbers. However, under this system it is possible for a Navy airplane to be equipped with an engine originally contracted for by the Air Force with an Air Force Number. Such an engine will retain the Air Force designation. The last part of the designation may consist of a suffix letter together with the basic model number, indicating major design changes which do not affect performance, installation, or interchangeability of the complete engine in the airplane. When equipped with water injection, the letter "W" is placed between the model number and the suffix letter. A hypothetical example would be the V-1710-20WB: tenth Navy model, water injection, second major revision of the model.

Turbine and Jet Engines

The first part of the designation shall consist of a letter (or letters) together with a number indicating the type of engine.

Letter symbols	*Types*
J	Turbojet (Gas Turbine Engine without External Propeller)
T	Turboprop (Gas Turbine Engine with External Propeller)
PJ	Pulsejet
RJ	Ramjet

The type numerals used in connection with the type letters will be assigned progressively by the Services and shall begin with the number 30 for the Navy and the number 31 for the Air Force. The type numerals are arbitrary, and do not represent any characteristics of the units involved. Even numbers will be assigned by the Bureau of Aeronautics to types approved by the Navy, and odd numbers will be assigned by the Air Matériel Command to types approved by the Air Force. The second part of the designation will consist of dash letter(s) symbol indicating the manufacturer, as follows:

Manufacturer's name	*Letter symbol*
Aerojet Engineering Corp.	AJ
Allison Div., General Motors Corp.	A
Continental Aviation and Engineering Corp.	T
Fredric Flader Co.	FF
General Electric Co.	GE
Globe Aircraft Corp.	GA
G. M. Giannini & Co.	GN
Marquardt Aircraft Co.	MA
McDonnell Aircraft Corp.	MD
Northrop Hendy Co.	NH
Pratt & Whitney Aircraft Div., United Aircraft Corp.	P
Radio Plane Co.	RP
Ranger Aircraft Engine Div., Fairchild Engineering & Airplane Corp.	R
Solar Aircraft Co.	S
Westinghouse Electric Corp.	WE
Wright Aeronautical Corp., Div. Curtiss-Wright Corp.	W

The third part of the designation will consist of a dash numeral, the model number. These model numbers will be assigned to jet engines as they are now applied to reciprocating aircraft engines, that is, odd numbers for Air Force models and even numbers for Navy models. Air Force model numbers for each type of jet engine will begin with one and will continue with consecutive odd numbers. Navy model numbers for each type of jet engine will begin with two and will continue with consecutive even numbers. All even model numbers will be assigned by the Bureau of Aeronautics, including those applied to Air Force approved engine types. All odd numbers will be assigned by the Air Matériel Command, including those applied to Navy-approved engine types.

A given engine design will have only one type and model designation for both Services. For example, should the Navy desire to use an engine bearing Air Force type and model numbers, the Navy will use those numbers without change for

all designation purposes. Further, should the Air Force desire to use a Navy-approved type of engine, but require minor production changes to the Navy model of that type, the Air Force shall use the Navy type designation and assign its own model designation, which will begin with one and will continue with consecutive odd numbers, to the modified engine regardless of the Navy model number.

The letters "X" and "Y" may be used at the discretion of the Services for the purpose of signifying experimental and service test of restricted service engines, respectively. When used, such letters shall precede the designation arrangement described above.

The following hypothetical examples illustrate the arrangement and significance of the subject designations:

J30–A–2	First Navy Model of First Navy Turbojet Type (Made by Allison)
J31–W–1	First Air Force Model of First Air Force Turbojet Type (Made by Wright Aeronautical)
J31–GE–1	First Air Force Model of First Air Force Turbojet Type (Wright Engine made by General Electric)
J35–GE–2	First Navy Model of Third Air Force Turbojet Type (Made by General Electric)
J35–GE–3B	Second Air Force Model of Third Air Force Turbojet Type (Made by General Electric) (Second major revision of the model)
T34–P–3	Second Air Force Model of Third Navy Turboprop Type (Made by Pratt & Whitney)
RJ35–T–6	Third Navy Model of Third Air Force Ramjet Type (Made by Continental Motors)
PJ36–RP–7	Fourth Air Force Model of Fourth Navy Pulsejet Type (Made by Radio Plane)
XJ34–GA–2	First Navy Model of Third Navy Turbojet Type (Experimental Status) (Made by Globe Aircraft)
YRJ37–LA–2	First Navy Model of Fourth Air Force Ramjet Type (Restricted Service Status) (Made by Lockheed Aircraft)

INTERNATIONAL AIRCRAFT REGISTRATION SYMBOLS

All nations but the United States follow a registration system adopted at Versailles in 1919, whereby the nationality and registration marks of civil aircraft of countries which are members of the International Commission for Air Navigation (C. I. N. A.) consist of groups of five letters. Each nation is assigned a one- or two-letter registration symbol, the actual license of the airplane appearing as a combination of three letters with a two-letter national symbol, and four letter with a single-letter symbol (G–ABXY, CF–BEL). The United States uses the letter "N" as the national symbol followed by a registration number (N–13365). This practice supersedes the old identification marking system which employed the letter "N" followed by another letter which was either C for standard, L for limited, R for restricted or X for experimental. The second letter was in turn followed by a registration number. However, under the new requirements the regulation states that aircraft having other than a STANDARD airworthiness certificate shall display in print the appropriate airworthiness classification at each passenger or cockpit entrance in a position so as to be readily visible to passengers or crew entering the aircraft; i. e., LIMITED, RESTRICTED or EXPERIMENTAL.

Letter symbols and licenses appear on both sides of the fuselage, and across both panels of upper and lower wing surfaces. The United States is an exception, applying the license only to both sides of the rudder and to the upper right and lower left wing surfaces. Russia uses URSS or its Russian equivalent, CCCP, followed by a number on fuselage and on both right and left wing panels.

INTERNATIONAL CIVIL AIRCRAFT MARKINGS

*Afghanistan	YA
Albania	ZA
Argentine Republic	LV
Australia	VH
Austria	OE
Belgium & Colonies	OO
*Bolivia	CP or CB
Brazil	PP or PT
British Colonies & Protectorates with the exception that after the 3-letter combination following the National symbol there is another 3-letter combination	VP VQ VR
Bulgaria	LZ
Burma	XY or XZ
Canada	CF
Ceylon	CY
Chile	CC
China (Nationalist)	B
Colombia	HK
Costa Rica	TI
*Cuba	CU
Curacao (Netherlands West Indies)	PJ
Czechoslovakia	OK
Denmark	OY
Dominican Republic	HI
Ecuador	HC
Egypt	SU
Eire (Ireland)	EI or EJ
El Salvador	YS
Ethiopia	ET
Finland	OH
France, Colonies & Protectorates, less Morocco	F
Greece	SX
Guatemala	TG
Haiti	HH
Honduras	XH
Hungary	HA
Iceland	TF
India	VT
Indonesia	PK
Iran (Persia)	EP
Iraq	YI
**Israel	4X
Italy	I
Japan	J
Jordan (Hashemite Kingdom)	TJ
Lebanon	LR
*Liberia	LI
Luxembourg	LX
Mexico	XA, XB, XC
Monaco, Principality of	CZ
Monte Carlo	MC
Morocco	CN
Netherlands	PH
Netherlands Antilles	PJ
Netherlands Surinam	PZ
Newfoundland	VO
New Hebrides Condominium	YJ
New Zealand	ZK, ZL, ZM
Nicaragua	AN
Norway	LN
Pakistan	AP
Panama, Republic of	RX
Paraguay	ZP
Peru	OB
*Philippine Republic	PI
Poland	SP
Portugal	CS
Portuguese Colonies	CR
Rumania	YR
Saudi Arabia	HZ
Soviet Union	URSS or CCCP
*Spain	EC
Sudan	SN
Surinam (Netherlands Guiana)	PZ
Sweden	SE
Switzerland	HB
Syria	YK
Thailand (Siam)	HS
Turkey	TC
Union of South Africa	ZS, ZT, ZU
United Kingdom	G
United States of America	N
Uruguay	CX
*Venezuela	YV
Yemen	YE
Yugoslavia	YU

*The nationality marks herein are provisional.
**An exception is Israel which employs the first two characters of its radio call sign.

The purpose of inserting a glossary into this manual is to enable all who use it to describe an airplane by the same terms. By no means does it pretend to be an encyclopedia of aeronautical and aerodynamical science, but rather a reference source to define those visible features of any airplane by which it is most readily recognized.

AERODYNE (Heavier-than-Air Aircraft)—Airplane, Landplane, Seaplane, Amphibian, Gyroplane, Autogyro, Helicopter, Glider, Ornithopter, Kite.

AEROSTAT (Lighter-than-Air Aircraft)—Airship, Balloon.

AFTERBURNER—A type of power augmentation increasing the thrust output of a turbojet engine by the injection of fuel in a specially designed tailpipe (See Aircraft Engines) (British term—"Re-heat").

AILERON—A movable airfoil usually attached to the trailing edge of the wing and which controls the movement of the aircraft about the longitudinal axis (roll, bank).

AIRFOIL—Any surface, such as an aircraft wing, aileron or rudder designed to obtain a reaction from the air through which it moves.

AIRPLANE—A mechanically driven fixed-wing aircraft, heavier than air, which is supported by a dynamic reaction of the air over its wing surfaces.

AIR SCOOP—A scoop or opening designed to induct air into the aircraft or its engine for some purpose such as carburetion, cooling or ventilating.

AIRSHIP—An aerostat provided with a propelling system and with means of controlling the direction of motion. The term "airship" is sometimes incorrectly applied to heavier-than-air craft (airplane), and should be avoided when used in that sense.

AMPHIBIAN—An aircraft designed to take off from and alight on either land or water.

ARRESTER HOOK—A retractable hook lowered by carrier-based aircraft in order to make limited-space landings by engaging wires on the deck.

ARRESTING GEAR—Any gear incorporated in aircraft and in the landing area to facilitate landing in a limited space, especially on the deck of an aircraft carrier.

ATHODYD—An abbreviated aeronautical term formed by the conjunction of the following words: a—air; tho—thermodynamics; dy—dynamics; d—duct.

AUTOGIRO—A type of aircraft propelled forward by a conventional engine and propeller but supported in the air by a rotor which is aerodynamically rotated by the forward motion of the plane.

BELLY—Colloquial term for the ventral portion or underside of the fuselage.

BIPLANE—An aircraft with two wings placed one above the other.

BLISTER—A colloquial term for a streamlined transparent housing protruding from the fuselage.

BOMBER—(a) Heavy or Heavy Patrol—Bombardment or patrol bombardment airplane with a combat radius of more than 2,500 nautical miles at designed gross weight and bomb load (Combat radius is defined as the distance from the home base to the target or remote base).

(b) Medium or Medium Patrol—Bombardment or patrol bombardment airplane with a combat radius of 1,000 to 2,500 nautical miles at design gross weight and bomb load.

(c) Light or Light Patrol—Bombardment or patrol bombardment airplane with a combat radius of less than 1,000 nautical miles at design gross weight and bomb load, normally to be used other than for direct support of ground or naval forces.

(d) Attack—Bombardment airplane which specializes in the direct support of ground or naval forces.

CABIN—A compartment for one or more persons built entirely within the profile of the fuselage, usually entirely enclosed except for windows and/or doors.

CANOPY—A transparent hood, covering or enclosure. A BUBBLE CANOPY is a streamlined canopy projecting entirely above the top line of the fuselage and is usually made of only one or two pieces of glass or plastic.

CATHEDRAL—A term applied to wings that have a "drooped" effect, or slight negative dihedral. A Cathedral Angle is sometimes employed in swept-wing aircraft to correct overstabilization (British term—"Anhedral").

CENTER SECTION—The central panel of a wing.

CHORD—The straight-line distance between the leading and trailing edges of an airfoil; the width of an airfoil.

COCKPIT—The compartment in an aircraft to accommodate the pilot and/or other persons, usually open or covered by a movable canopy.

COMMUNICATIONS/UTILITY — Light airplane used in carrying one or a few persons or light objects relatively short distances, in liaison, or in other military missions including target aircraft control, towing of targets, etc.

CONTROL SURFACE—A movable airfoil, such as aileron, elevator or rudder, which controls the movement of the aircraft.

COWLING—A removable covering, as around an engine.

DIHEDRAL—A wing design in which the wing tips are raised above the center section portions of a wing. Its effect is to improve its lateral stability.

DIVE BRAKE—A flap or movable surface which, when extended, reduces the speed of the aircraft in a dive.

DORSAL—Adjective pertaining to the back or top portion of the fuselage.

DROOP WINGS—A term applied to wings that have cathedral or negative dihedral. The B–47 and the de Havilland D.H. 108 both have droop.

EDGE—See "LEADING EDGE" and "TRAILING EDGE".

ELEVATOR—A movable airfoil usually attached to the stabilizer and which controls the movement of the aircraft about the lateral axis (climb and dive).

ELEVONS or CONTROLLERS—Hinged on each outer wing and serve as both elevators and ailerons; thus achieving longitudinal and lateral control; used on an all wing type aircraft. The term Ailevators is also used.

EMPENNAGE—The rear part of an airplane, usually consisting of a group of stabilizing planes (Horizontal stabilizers and vertical fin) to which are attached the control surfaces.

ENGINE—The motive power of an aircraft.

Conventional reciprocating engines produce forward motion by driving propellers or rotors and are divided into two basic types—RADIAL and IN LINE, depending on the arrangement of the cylinders about the crankshaft. The former type is usually air-cooled, while the latter type may be either liquid-cooled or air-cooled.

Reaction engines produce forward motion by the discharge of heated gases through a nozzle and are divided into two basic types—JET and ROCKET. The former type utilizes the surrounding atmosphere to provide the thrust medium and the oxygen for its fuel combustion, while the latter type functions independently of the surrounding atmosphere, the thrust being provided by the combustion of self-contained oxygen and fuel.

Aircraft may be powered by either a reciprocating or a reaction engine or a combination of both. The word motor should not be applied to an aircraft engine, since it usually refers to one of the many small auxiliary motors in an aircraft which are used to operate pumps, flaps, landing gear, etc.

EXPERIMENTAL AIRCRAFT— Aircraft which have the required military characteristics but which are undergoing flight tests and other experiments as a preliminary to possible acceptance as standard articles.

FAIRING — An auxiliary part of the exterior structure, the function of which is to reduce drag or "streamline" the aircraft.

FIGHTER—(a) Interceptor—Fighter airplane of relatively short range and high rate of climb, designed primarily to engage in combat with enemy aircraft during daylight hours and under relatively favorable weather conditions in order to prevent their reaching the target.

(b) All Weather—Fighter airplane especially equipped with the electronic and other devices necessary to permit combat operation at night or under adverse weather conditions.

(c) Penetration — Fighter airplane of long range, designed to escort friendly bombers or to engage in other combat operations.

FILLET—A fairing used at the intersection of two surfaces, such as a wing fillet installed at the junction of the wing and fuselage.

FIN—A fixed or adjustable airfoil to afford directional stability such as a tail fin or skid fin. Common name for the vertical stabilizer.

FIRST LINE AIRCRAFT—Aircraft with characteristics and performance which make them suitable to perform the missions for which they were produced.

FLAP COWL—A movable section of the cowling used to control the flow of air around the engine or cowling units.

FLAP, WING—A movable section of an airfoil used to change the effect of air flow over the airfoil. Wing flaps are located along the trailing edge of the wing and are lowered during take-off and landing in order to increase the effective lift of the wing.

FLOAT—A completely enclosed watertight structure attached to an aircraft to give it buoyancy and stability when in contact with water.

FLYING BOAT—A form of seaplane whose main body or hull provides flotation.

FUSELAGE—The main body of an aircraft to which the wings and tail unit are attached.

GLIDER—An aircraft heavier than air, with wings but without a power plant. It is supported in the air essentially by forward motion produced by gliding.

PRIMARY GLIDER—A ruggedly built glider designed for use in elementary training of glider pilots.

SECONDARY or UTILITY GLIDER—a glider designed to have better aerodynamic performance than the primary type, but rugged enough for the use of pilots with limited training.

HIGH PERFORMANCE GLIDER—A glider, generally called SAILPLANE, having a high degree of aerodynamic refinement and low minimum sinking speed, often used in soaring contests.

CARGO TROOP GLIDERS—Large gliders designed to carry cargo and/or troops and towed by a powered aircraft to within gliding range of the destination.

GREENHOUSE—Colloquial term for the transparent hood or canopy over the cockpit.

GUIDED MISSILES—"The field of guided missiles is considered to include uninhabited missiles the trajectory of which is influenced by a mechanism within the missile, together with components of such missiles and associated systems. Conventional torpedoes are excluded."

HEIGHT—The vertical measurement of an aircraft at rest, taken from the lowest point of contact to the topmost part of the aircraft including the rotation arc of the propeller.

HELICOPTER—A type of aircraft propelled through and supported in the air by rotating airfoils which are mechanically rotated by an engine.

HULL—The main body of a flying boat which furnishes buoyancy when in contact with the water. It contains accommodations for the crew and passengers.

IN-LINE—See ENGINE.

JET—See ENGINE.

LANDING GEAR—An assembly of wheels, struts, etc., on a landplane which give support and control to the aircraft while in contact with the ground and in take-off or landing.

CONVENTIONAL type landing gear has a tail wheel (or skid) located behind the main wheels.

TRICYCLE type landing gear has a nose wheel located ahead of the main wheels.

LANDPLANE—An aircraft designed to take off from and alight on land.

LEADING EDGE—The foremost edge of an airfoil or propeller blade.

LENGTH (OVER ALL)—The extreme forward-aft measurement of an aircraft.

LIGHTER-THAN-AIR CRAFT—Aircraft which derives its vertical lift from its weight in relation to that of an equal volume of air.

LOOP—Radio antenna formed of coils of wire.

MAST, RADIO—A fixed spar attached to an aircraft to support the radio antenna.

MACH NUMBER—A Mach number (named for Ernst Mach of Vienna) is a means of expressing speed in relation to the speed of sound. It is generally used to express speeds which approach or exceed the speed of sound. Mach 1.0 indicates the speed of sound—which is 661 knots (or 760.9 m.p.h.) at sea level and 15 degrees centigrade (59 degrees fahrenheit). A speed of Mach .8, for example, would be 8/10ths of the speed of sound. Mach rhymes with lock.

MONOCOQUE—A type of fuselage construction which relies on the strength of the skin or outer shell for its structural stiffness. The shell is supported by crosswise frames called BULKHEADS or FORMERS. SEMI-MONOCOQUE construction is similar to monocoque except that the shell is reinforced with longitudinal stringers running perpendicular to the bulkheads.

MONOPLANE—An aircraft with a single plane or wing. There are four general types.

LOW-WING—A monoplane with the wing located at, or near, the bottom of the fuselage.

MID-WING—A monoplane with the wing located at approximately the mid-point between the bottom and the top of the fuselage.

A LOW MID-WING has the wing located slightly below this point, and a HIGH MID-WING has the wing located slightly above this point.

HIGH-WING—A monoplane with the wing located at the top of the fuselage.

PARASOL WING—A monoplane with the wing located above the fuselage and connected to it by a cabane strut or other structure.

NACELLE—A separate enclosure for an engine or equipment usually smaller than a fuselage.

NOSE—The foremost part of the fuselage.

NOSE WHEEL (DOLLY)—A small two-wheel dolly fitted to nose wheel strut for tail-up carrier stowage.

OBSOLETE AIRCRAFT—Aircraft which are so deficient in military characteristics and performance that they are no longer usable for the purpose for which they were originally intended.

PANEL, ACCESS—A hinged or removable door which provides access to an interior compartment of the aircraft.

INSTRUMENT—A bulkhead on which the aircraft instruments are mounted.

WING—A section of the wing which is constructed separately from the adjoining structure such as the CENTER PANEL or OUTER PANEL. On smaller aircraft the wing is often assembled in one integral panel.

PANTS (also SPATS)—Colloquial term for the fairing on fixed landing gear.

PILOTLESS AIRCRAFT—Remotely controlled aircraft which may or may not be capable of carrying one or more persons, but which will not carry persons in the performance of its primary mission.

PROPELLER—Any device for propelling a craft through a fluid such as water or air; especially a device having blades which when rotated by a power-driven shaft, produce a thrust by their action on the fluid.

ADJUSTABLE—A propeller the blades of which are so attached to the hub that the pitch may be adjusted while the propeller is at rest.

AUTOMATIC—A propeller the blades of which are attached to a mechanism that automatically sets them at the optimum pitch for various flight conditions.

CONTRA-ROTATING—Two propellers mounted in tandem on the same shaft axis but geared to rotate in opposite directions. Sometimes called "CO-AXIAL" propellers.

CONTROLLABLE—A propeller the blades of which are so mounted that the pitch may be changed while the propeller is rotating.

FULL-FEATHERING—A propeller the blades of which can be turned so as to present the least resistance to the airstream. This prevents "wind-milling" of the propeller while the engine is not operating while in flight.

PUSHER—A propeller mounted on the rear end of the engine or propeller shaft so as to "push" the plane forward.

REVERSIBLE PITCH—A propeller the pitch of which can be changed during rotation to a negative angle producing a braking effect or reverse thrust.

TRACTOR—A propeller mounted on the forward end of the engine or propeller shaft so as to "pull" the plane forward.

RADIAL—See ENGINE.

RECONNAISSANCE—(a) Strategic—Reconnaissance airplane of long range equipped to make flights over enemy territory for the purpose of obtaining photographic or other information useful to the planning of subsequent operations.

(b) Support—Reconnaissance airplane of relatively short range designed to support land or naval operations by securing and transmitting information needed in immediate tactical decisions.

RIB—A chord-wise structural member of the wing.

ROCKET—See ENGINE.

ROOT—The "base" of the wing where it is attached to the fuselage.

ROTOR—A complete assembly of rotating airfoils as used on autogiros and helicopters, generally revolving in an approximately horizontal plane. The airfoils are called ROTOR BLADES and are attached to the ROTO HUB.

RUDDER—A movable airfoil usually attached to the fin and which controls the movement of the aircraft about the vertical axis (turn, yaw).

SAILPLANE—A high-performance type glider.

SEAPLANE—An aircraft designed to take off from and alight on water.

SEARCH AND RESCUE—Airplane equipped to specialize in the location and rescue of wrecked aircrew personnel or other persons on land or on sea.

SECOND LINE AIRCRAFT—Aircraft which may be used for the purposes for which they were produced, or for other purposes, but whose deficiency in characteristics and performance entails a recognized handicap for military use.

SHAFT—The part connected to the power plant which drives the propeller or rotor.

SLAT—A movable auxiliary airfoil, attached to the leading edge of a wing, which when closed falls within the original contour of the wing and which when opened forms a slot.

SLOT—An opening near the leading edge of a wing, either fixed or formed by a movable slat, which improves the airflow characteristics of the airfoil.

SPAT—See PANTS.

SPECIAL RESEARCH—Airplane designed for supersonic research or other research into aeronautical problems.

SPINNER—A fairing of approximately conical or paraboloidal shape, which is fitted co-axially with the propeller hub and revolves with the propeller.

SPOILER—A movable airfoil or plate which when opened projects above the upper surface of the wing to disturb the smooth air flow, with a consequent loss of lift and increase in drag.

SPONSON—A protuberance from a flying boat hull, often like a stub wing, designed to increase the beam and give lateral stability in the water.

SPRAY STRIP—A strip projecting from the hull or float of a seaplane to change the manner in which the spray is thrown.

STABILIZER—Any airfoil the primary function of which is to increase the stability of the aircraft. It usually refers to the fixed horizontal tail surface of an aircraft, as distinguished from the fixed vertical surface (fin).

STEP—A break in the form of the bottom of a float or hull.

STRUT—A generic term for a structural member.

CABANE—An exterior strut connecting the wing to the fuselage, usually in parasol or high wing monoplanes.

OLEO—An oil-filled shock absorbing strut used as the main structural member of the landing gear.

SWEEPBACK—Term applied to a wing whose leading edges and trailing edges are farther aft at the tips than at the roots.

SWEEPFORWARD—When the general wing shape sweeps aft from the tips.

TAB—An auxiliary airfoil attached to a control surface for the purpose of reducing the control force or "trimming" the aircraft.

TAIL—The after part of an aircraft generally consisting of stabilizers, elevators, fin and rudder.

TAIL SKID—A skid for supporting the tail of an aircraft on the ground.

TAIL WHEEL—A wheel for supporting the tail of an aircraft on the ground.

TAPER—A gradual diminishing of the chord or the thickness of an airfoil.

TARGET—Aircraft which may or may not be capable of carrying one or more persons, designed to be remotely controlled in flight for use in gunnery practice. (See Classification of Aircraft.)

TRAILING EDGE—The rearmost edge of an airfoil or propeller blade.

TRAINER — (a) Advanced — Airplane used in training pilots in instrument flying, navigation, gunnery, or other advanced phases of military aviation.

(b) Primary and Basic—Relatively light and slow airplane used in teaching students fundamentals of flying.

TRANSPORT—(a) Heavy — Transport airplane with design payload in excess of 30,000 pounds at a 1000 mile tactical operating radius. (Tactical operating radius is defined as three-eighths of the maximum range under design load conditions.)

(b) Medium—Transport airplane with design payload of 16,000 to 30,000 pounds at a 1000 mile tactical operating radius.

(c) Light — Transport airplane with design payload of less than 16,000 pounds at a 1000 mile tactical operating radius, or with a tactical operating radius of less than 1000 miles with any payload.

(d) Military Transport Aircraft—A transport aircraft fitted with military structural or design provisions, and may be a "combat" or "non-combat" transport aircraft.

(e) Combat Transport Aircraft — A military transport aircraft which is prepared and equipped with sufficient internal protection to operate at no more than reasonable risk over and in active combat area.

(f) Non-combat military transport aircraft—A military transport aircraft which is not intended or equipped to operate in an active combat area.

(g) Non-military transport — Conventional commercial type transport aircraft containing no provision for specialized military usage.

THRUST—The resultant force in the direction of motion due to the components of the pressure forces in excess of ambiant atmospheric pressure acting on all inner surfaces of the vehicle parallel to direction of motion. Thrust less drag equals accelerating force.

Thrust in relation to horsepower varies, in as much, as the performance characteristics of a turbo-jet engine are such that the thrust is approximately constant, but the horsepower output increases directly with airspeed for any given altitude. Therefore, the engine ratings are usually given in pounds of thrust at standard sea level static conditions.

At 375 mph the thrust in pounds is equal to the horsepower.

TURRET—A movable enclosure housing armament. It may be manually operated or power-driven.

REMOTE CONTROL turrets are controlled from the position in the aircraft some distance from the turret itself.

UNDERCARRIAGE—See LANDING GEAR.

VENTRAL—Adjective pertaining to the "belly" or bottom portion of the fuselage.

WING—Main supporting surface or airfoil of an airplane. Wings are often classified by their plan shapes, the most usual of which are:

ELLIPTICAL—When leading and trailing edges are elliptical in general shape.

STRAIGHT—When leading and trailing edges are straight, parallel and at right angles to the direction of flight.

TAPERED—When the leading and/or trailing edges are straight but not at right angles to the direction of flight, so that the wing diminishes in chord from the root to the tip.

Wings are also classified by their front-view shape:

DIHEDRAL—When the wing axis slopes up (positive) or down (negative) from the root to the tip.

GULL—When the center panel has positive dihedral and the outer panel is horizontal or has less positive dihedral.

HORIZONTAL—When the wing axis forms a horizontal line.

INVERTED GULL—When the center panel has negative dihedral and the outer panel has horizontal or has positive dihedral.

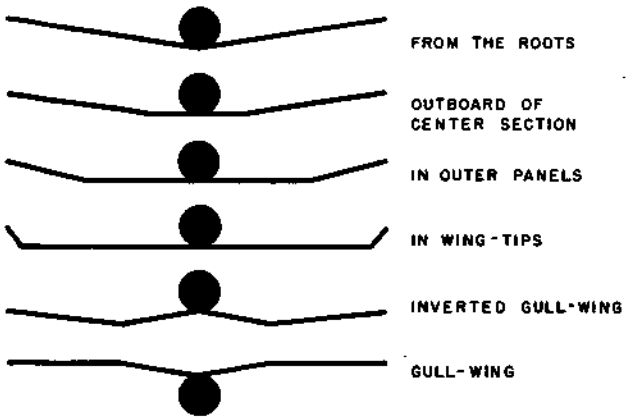
WING, FLYING—A tailless aircraft, the main body of which is an airfoil shape.

RECOGNITION FEATURES OF GUN CALIBERS

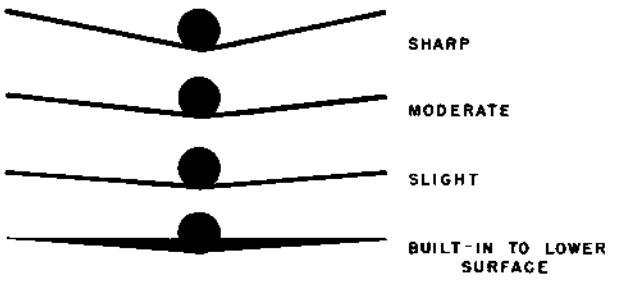
In the recognition of types of gun calibers it is to be noted that even in large calibers, short barrels permit neat installations, and in consequence a sleek streamline fighter may house two to four 30 mm. cannons, noticeable only to the keen observer by the aperture in the aircraft nose or wing, but bear in mind that the exit holes you see may be blast tubes surrounding the barrel and extending forward, giving a false impression of caliber. If the extending projection favors a "thin wall" construction it will most certainly constitute a blast tube. Suggested standards of measurement for the non-technical.

.50 cal.	½ inch in diameter.	40 mm.	approx. 1 silver dollar in diameter.
20 mm.	approx. 1 U.S. cent in diameter.	50 mm.	approx. 2 inches in diameter.
30 mm.	approx. 1 half dollar in diameter.	75 mm.	approx. 1 tennis ball in diameter.

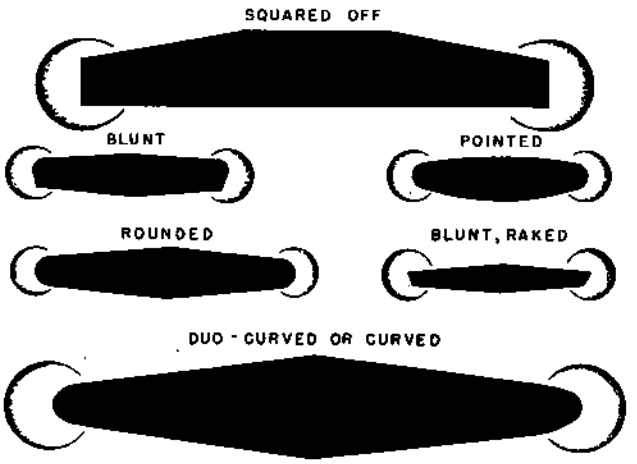
TYPES OF WING DIHEDRAL ANGLE



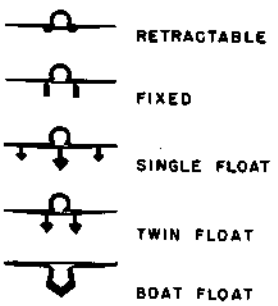
DEGREES OF WING DIHEDRAL ANGLE



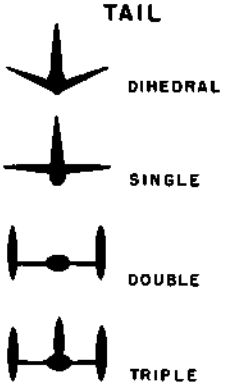
TYPES OF WING-TIP



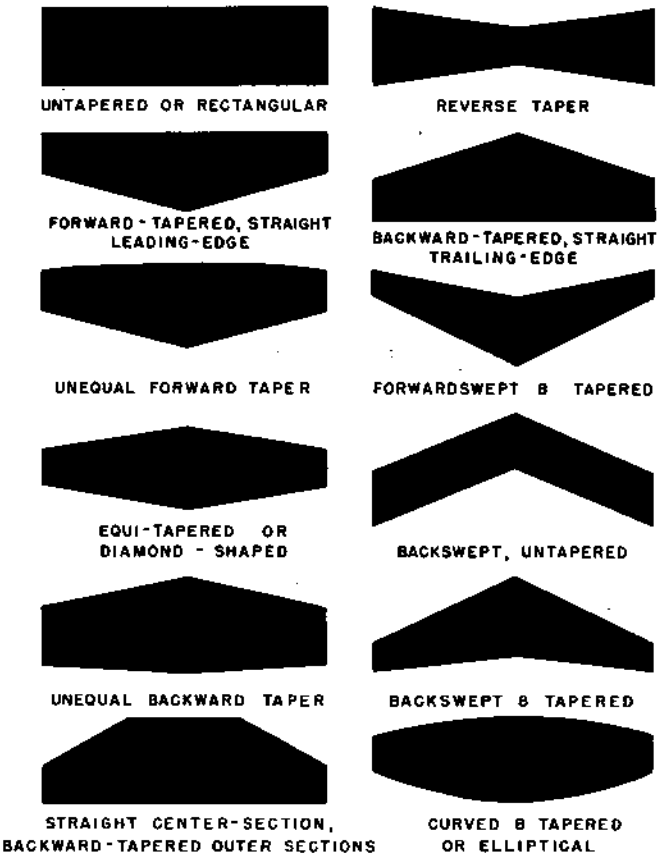
UNDERCARRIAGE



TAIL

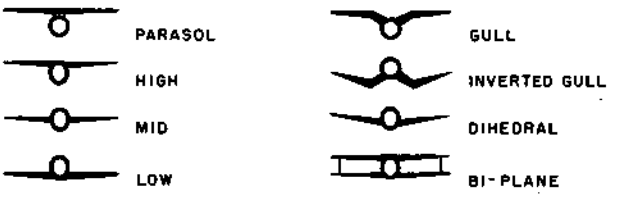


TYPES OF TAPER

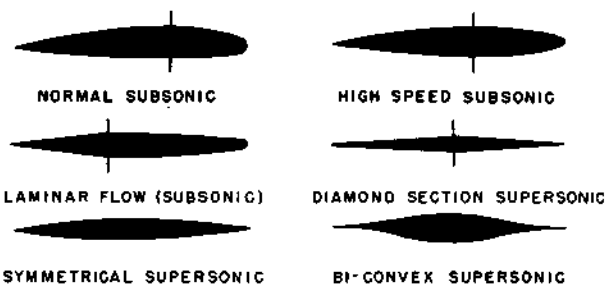


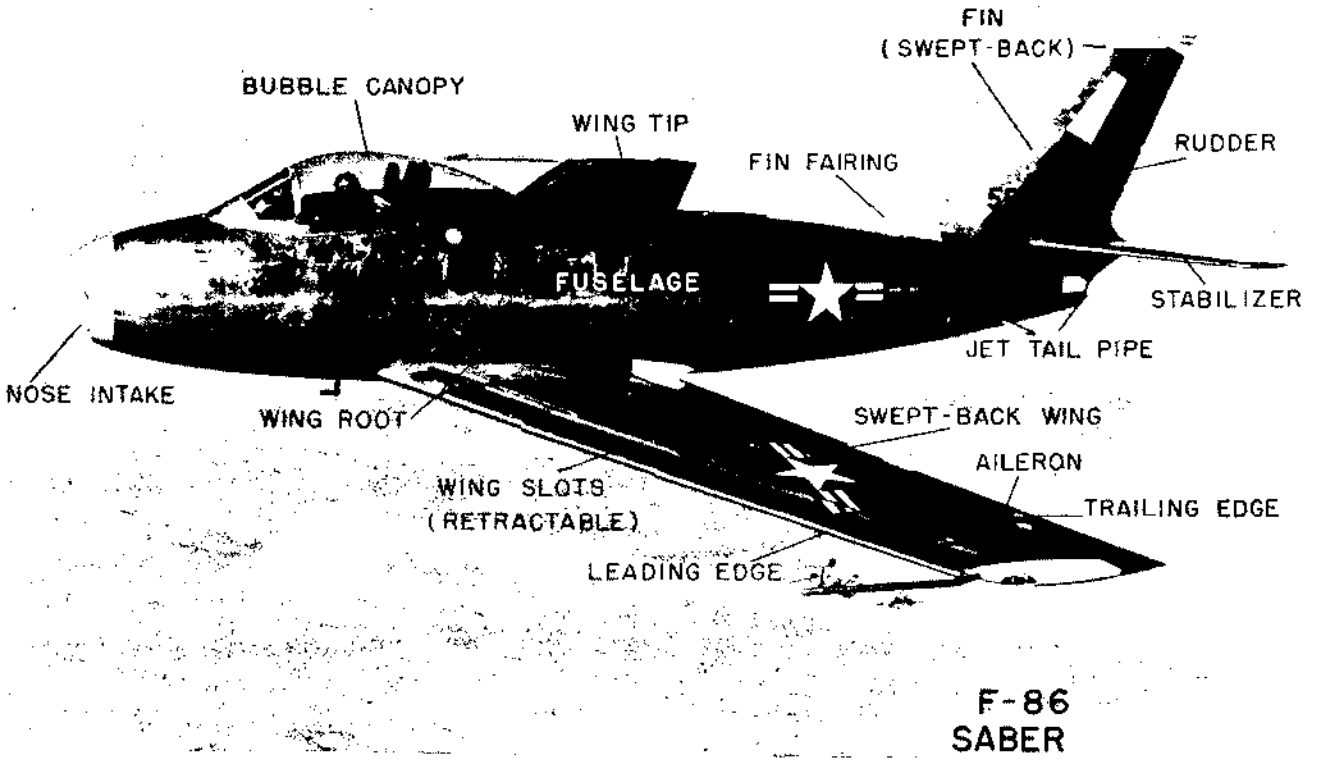
DEGREES OF TAPER

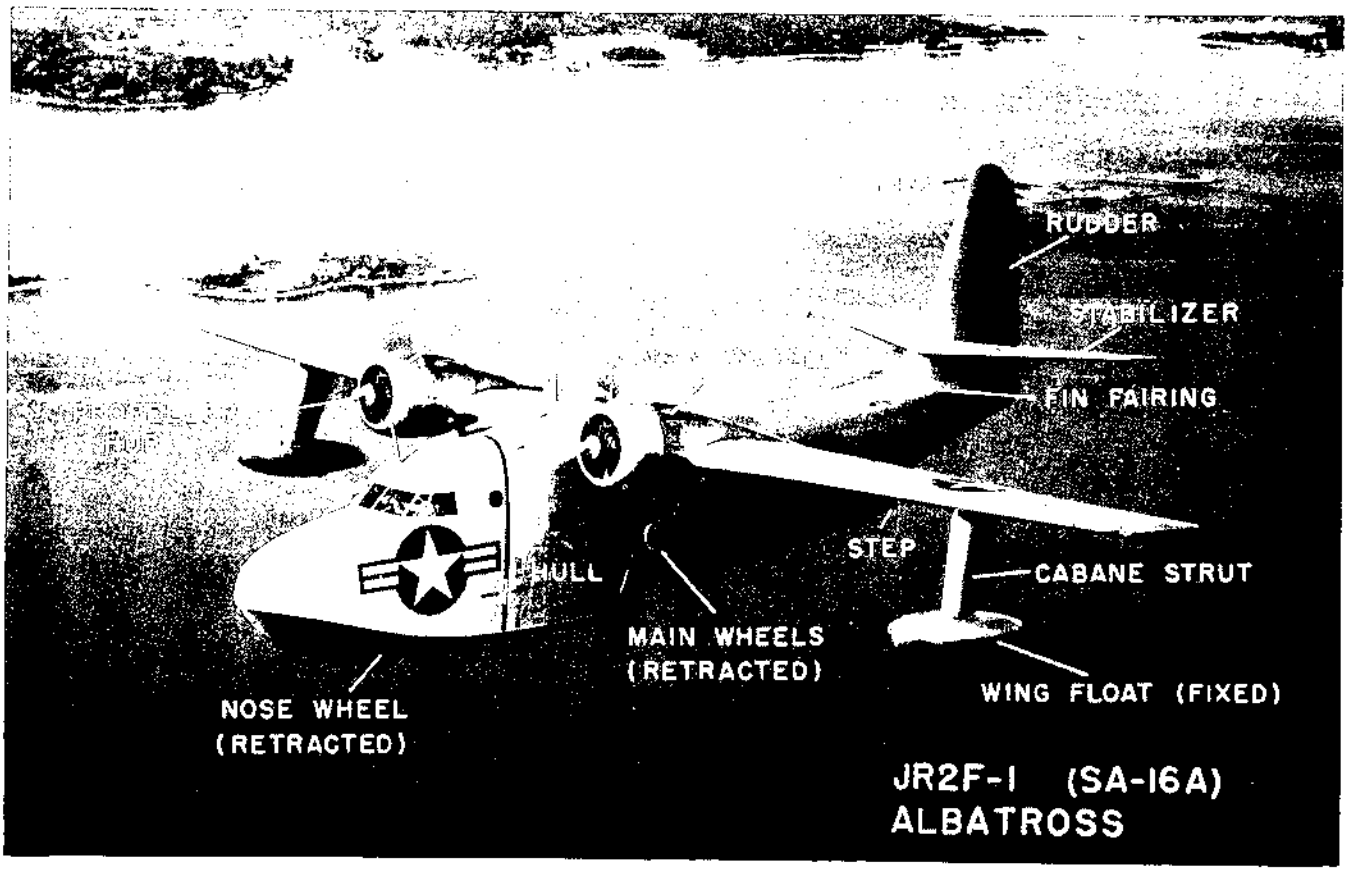
WING POSITIONS



TYPICAL WING SECTIONS




FIN
(SWEPT-BACK)
BUBBLE CANOPY
WING TIP
FIN FAIRING
RUDDER
FUSELAGE
STABILIZER
JET TAIL PIPE
NOSE INTAKE
WING ROOT
SWEPT-BACK WING
AILERON
WING SLOTS
(RETRACTABLE)
TRAILING EDGE
LEADING EDGE
F-86
SABER


RUDDER
STABILIZER
FIN FAIRING
STEP
CABANE STRUT
HULL
MAIN WHEELS
(RETRACTED)
WING FLOAT (FIXED)
NOSE WHEEL
(RETRACTED)
JR2F-1 (SA-16A)
ALBATROSS

AIRCRAFT MARKINGS

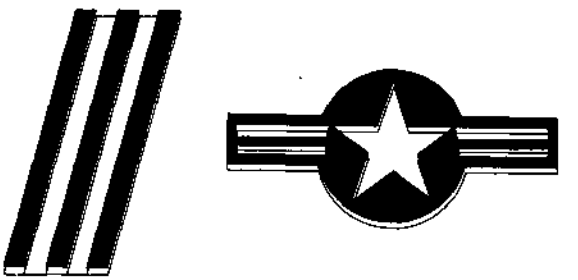
The aircraft markings appearing in color are arranged in alphabetical order of nations with one exception, the United States which is shown in the very beginning.

It is intended that this display be an aid in identifying aircraft and their nationality. All available information is included in the preparation of these markings; however, in the field, discrepancies may be noted especially with those of Communist satellite countries. Gradually these countries have been adopting the Communist red star surrounded by colored roundels. Former national colors are usually represented in the roundels.

Communist markings seen over Korea, in general, conform to those shown in the manual. Variations of these have appeared with different colored roundels or colored horizontal flashings.

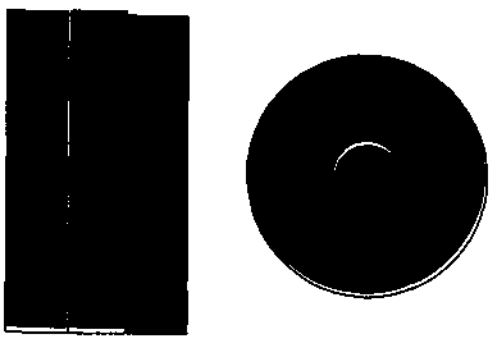
WINGS AND FUSELAGE

UNITED STATES



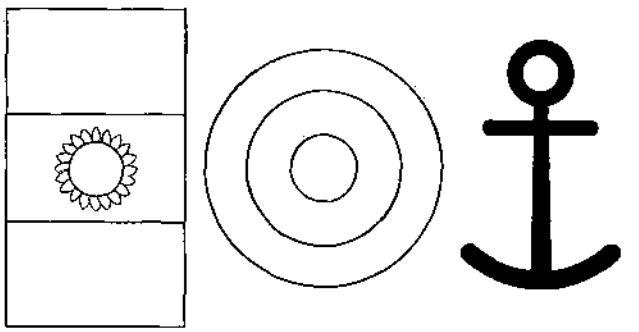
WINGS & FUSELAGE OF A. F. A/C IN KOREA

UNITED STATES AIR FORCE



RUDDER WINGS

AFGHANISTAN



RUDDER ARMY WINGS NAVY

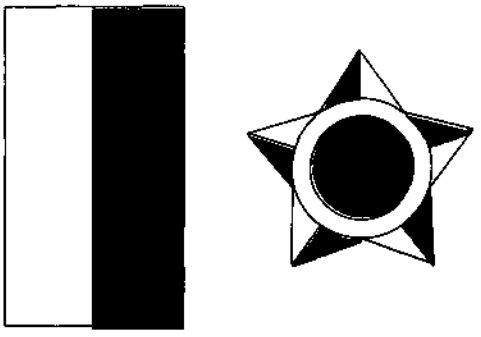
ARGENTINA

RUDDER WINGS AND FUSELAGE

BELGIUM

RUDDER WINGS AND FUSELAGE

BOLIVIA

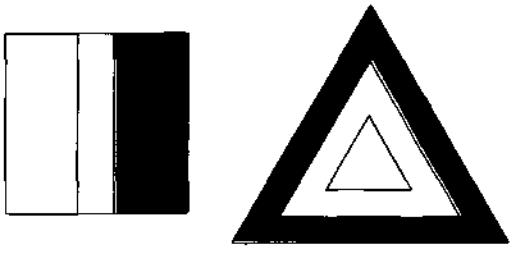


RUDDER WINGS

BRAZIL

WINGS, FUSELAGE AND RUDDER

BULGARIA



FIN FLASH WINGS AND FUSELAGE

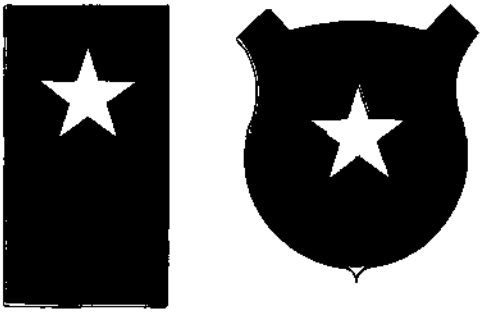
BURMA

FIN FLASH WINGS AND FUSELAGE

CANADA—R. C. A. F.

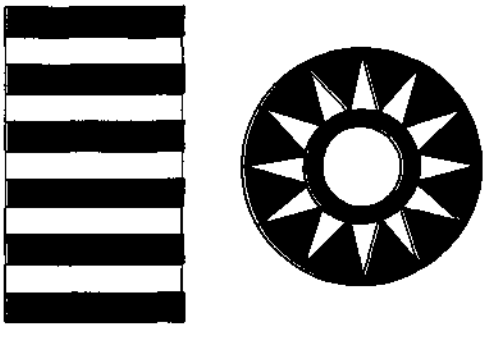
RUDDER WINGS

CANADA—NAVAL



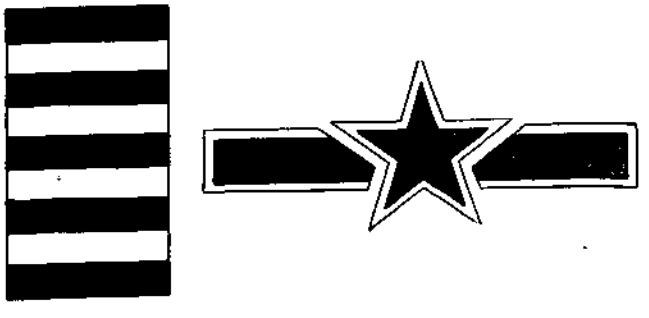
RUDDER WINGS

CHILE



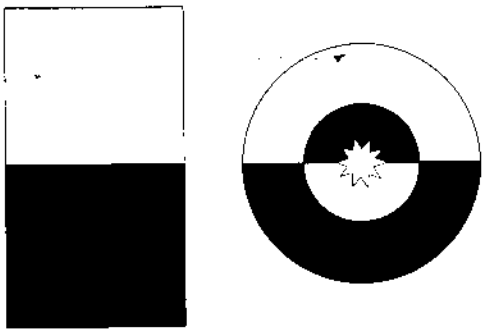
RUDDER WINGS AND FUSELAGE

CHINA—NATIONALISTS



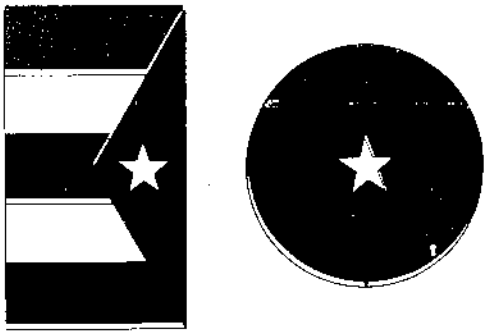
RUDDER, WINGS, AND FUSELAGE

CHINA—COMMUNIST



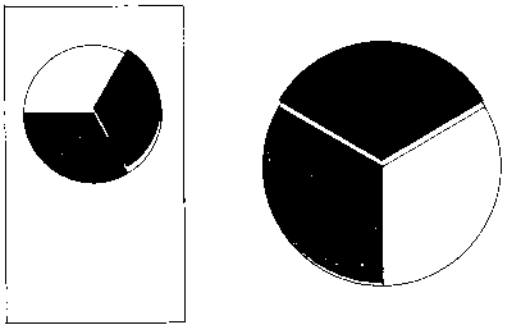
RUDDER WINGS

COLOMBIA



RUDDER WINGS

CUBA

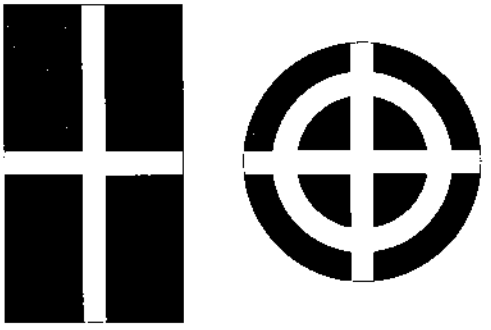


RUDDER WINGS

CZECHOSLOVAKIA

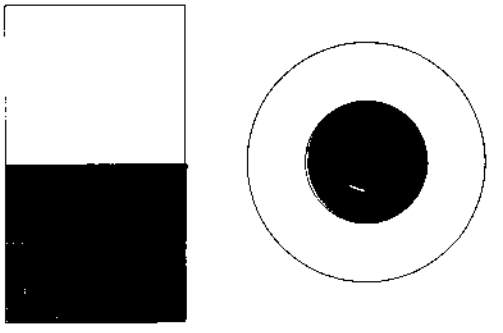
FIN FLASH WINGS AND FUSELAGE

DENMARK



RUDDER WINGS

DOMINICAN REPUBLIC

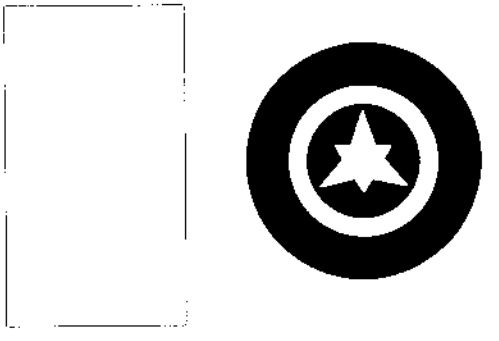


RUDDER WINGS

ECUADOR

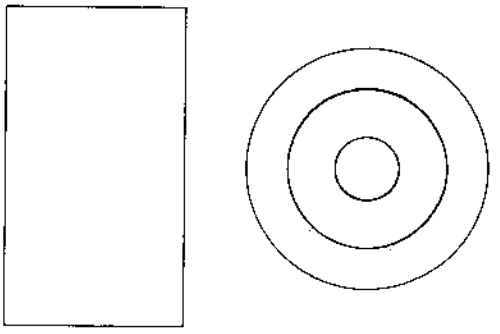
FIN FLASH WINGS AND FUSELAGE

EGYPT



RUDDER WINGS AND FUSELAGE

ETHIOPIA

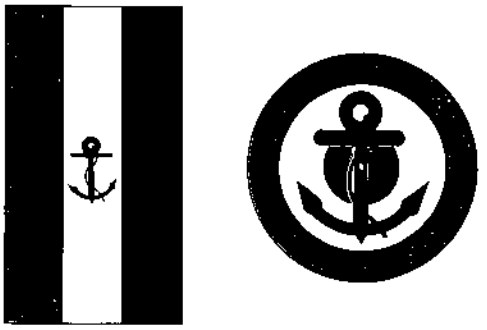


RUDDER WINGS

FINLAND

RUDDER WINGS AND FUSELAGE

FRANCE—AIR FORCE

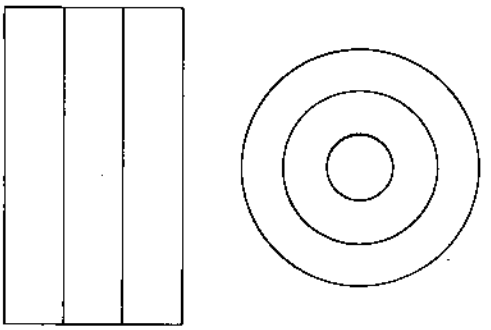


RUDDER WINGS AND FUSELAGE

FRANCE—NAVY

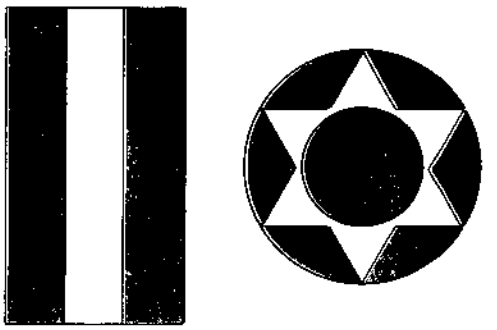
FIN FLASH WINGS AND FUSELAGE

GREAT BRITAIN, AUSTRALIA & NEW ZEALAND



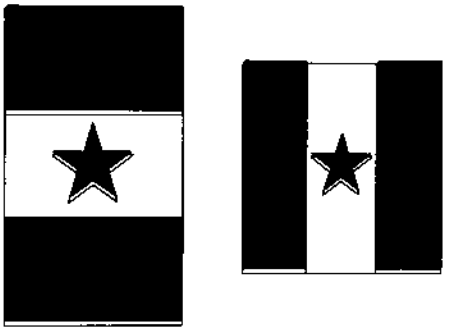
RUDDER WINGS AND FUSELAGE

GREECE



RUDDER WINGS

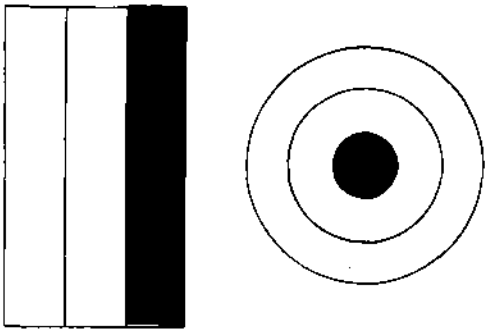
GUATEMALA



RUDDER WINGS

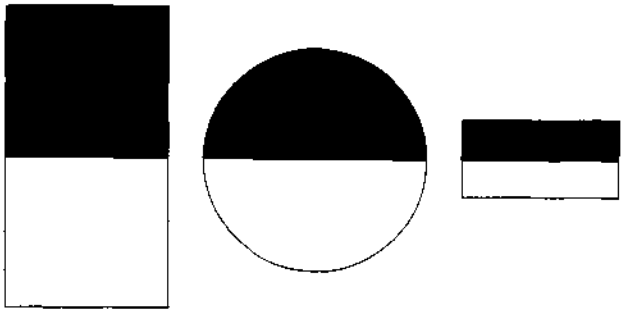
HONDURAS

WINGS, FUSELAGE, AND RUDDER
HUNGARY



FIN FLASH WINGS AND FUSELAGE

INDIA



RUDDER FUSELAGE WINGS

INDONESIA

FIN FLASH WINGS AND FUSELAGE

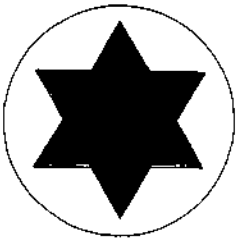
IRAN (PERSIA)

FIN FLASH WINGS AND FUSELAGE

IRAQ

UNDERSURFACE OF WINGS FUSELAGE AND UPPERSURFACE OF WINGS

IRELAND (EIRE)

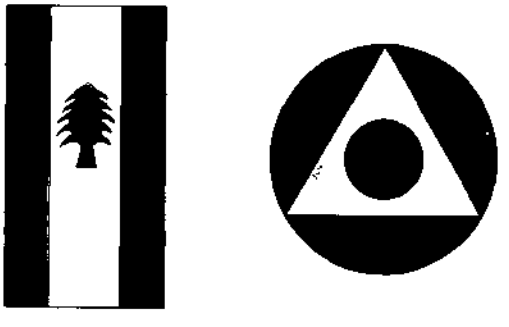


WINGS AND FUSELAGE

ISRAEL

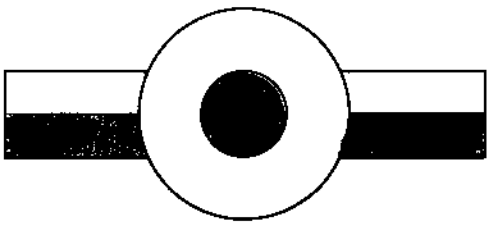
RUDDER WINGS AND FUSELAGE

ITALY

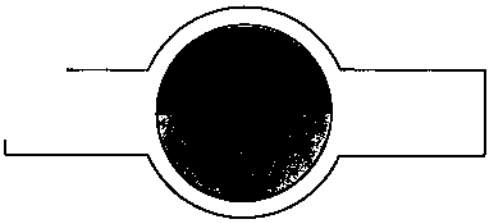


RUDDER WINGS AND FUSELAGE

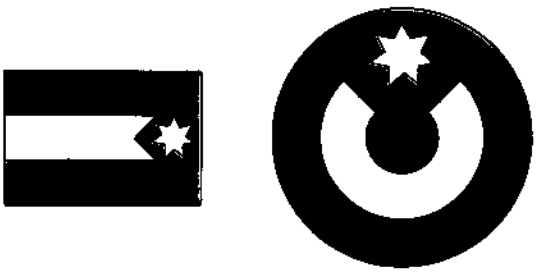
LEBANON



WINGS, FUSELAGE, AND RUDDER
CEYLON



WINGS, FUSELAGE, AND RUDDER
HAITI



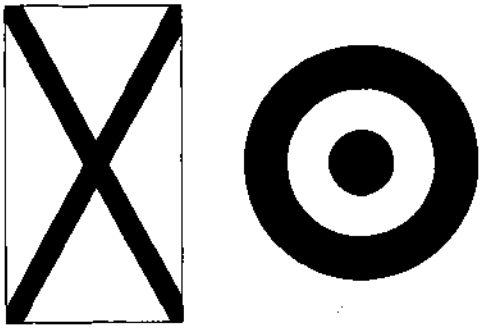
RUDDER, WINGS, AND FUSELAGE
JORDAN

WINGS, FUSELAGE, AND RUDDER
HUNGARY

Note: Cut out the panels above and glue them as follows:
CEYLON—Place under VENEZUELA on page 38.
HAITI—Place under YUGOSLAVIA on page 38.
JORDAN—Place under CEYLON on page 38.
HUNGARY—To cover existing panel on page 33, line 4, column 2.

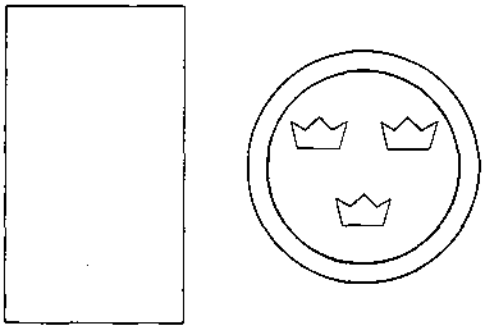
WINGS AND FUSELAGE

SOUTH KOREA



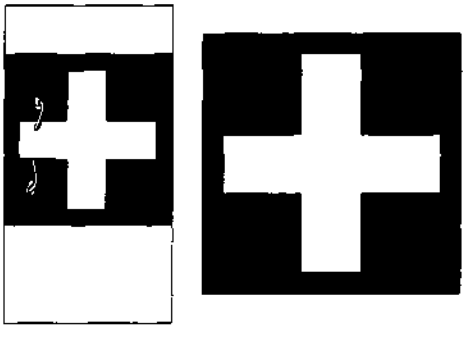
RUDDER WINGS AND FUSELAGE

SPAIN



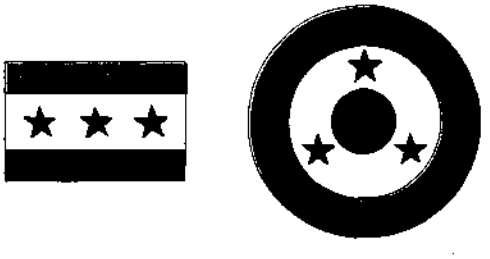
RUDDER WINGS AND FUSELAGE

SWEDEN



RUDDER WINGS

SWITZERLAND

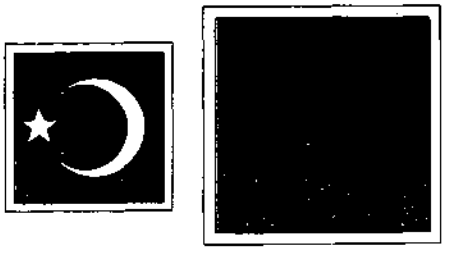


FIN FLASH WINGS AND FUSELAGE

SYRIA

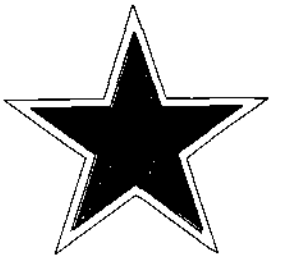
RUDDER WINGS

THAILAND (SIAM)



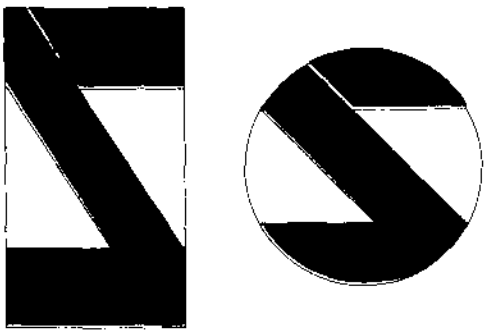
FIN FLASH WINGS AND FUSELAGE

TURKEY



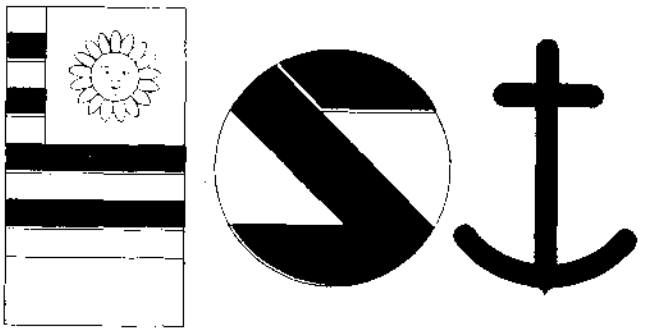
WINGS, FUSELAGE AND RUDDER

U. S. S. R.



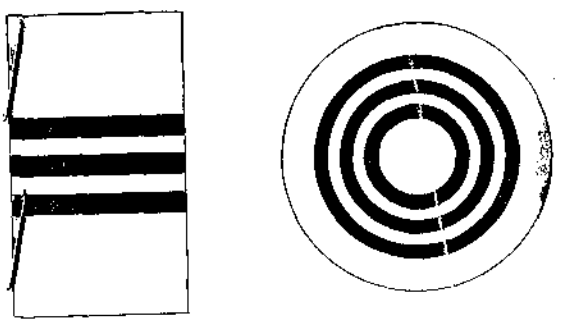
RUDDER WINGS

URUGUAY—ARMY

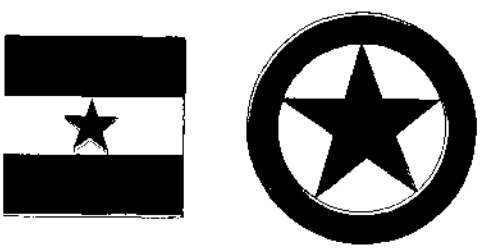


RUDDER WINGS

URUGUAY—NAVY



RUDDER, WINGS, AND FUSELAGE
INDOCHINA



FIN FLASH WINGS AND FUSELAGE

YUGOSLAVIA

AIRCRAFT
ADDENDA

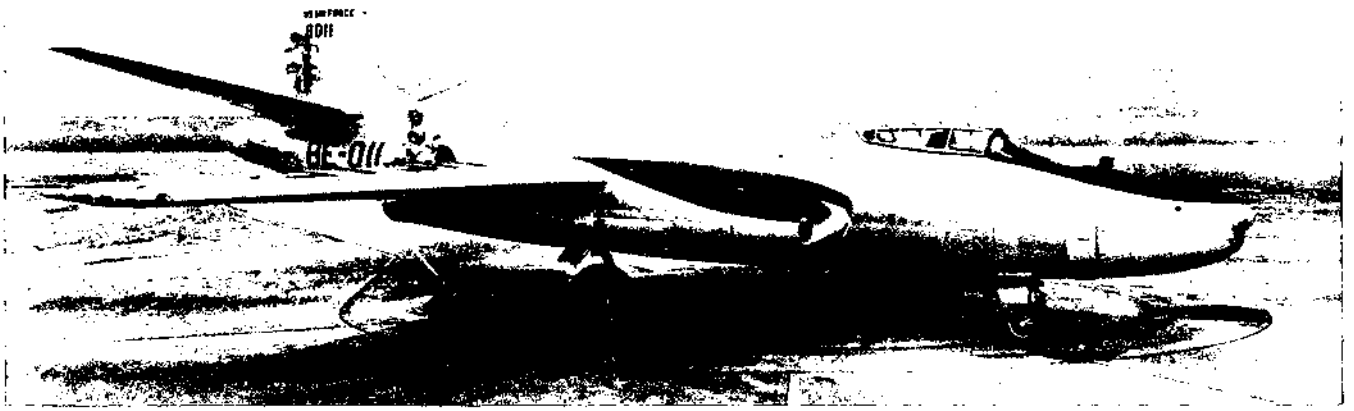
ADDENDA

AIRCRAFT RECOGNITION MANUAL

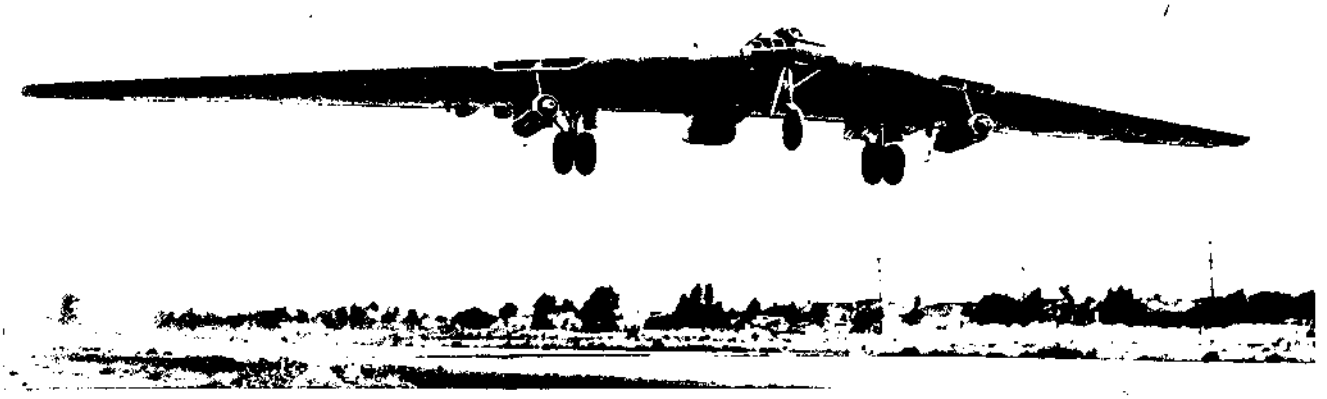
The Aircraft Recognition Addenda contains photographs of U. S. A. F., U. S. N. and Foreign Aircraft chiefly in experimental and testing stages.

Some of these aircraft are scheduled for production and eventual assignment to operational squadrons, while others may serve only as proving grounds for subsequent trends and developments. A few of the aircraft illustrated represent native designs of countries not included in the manual under an individual tab.

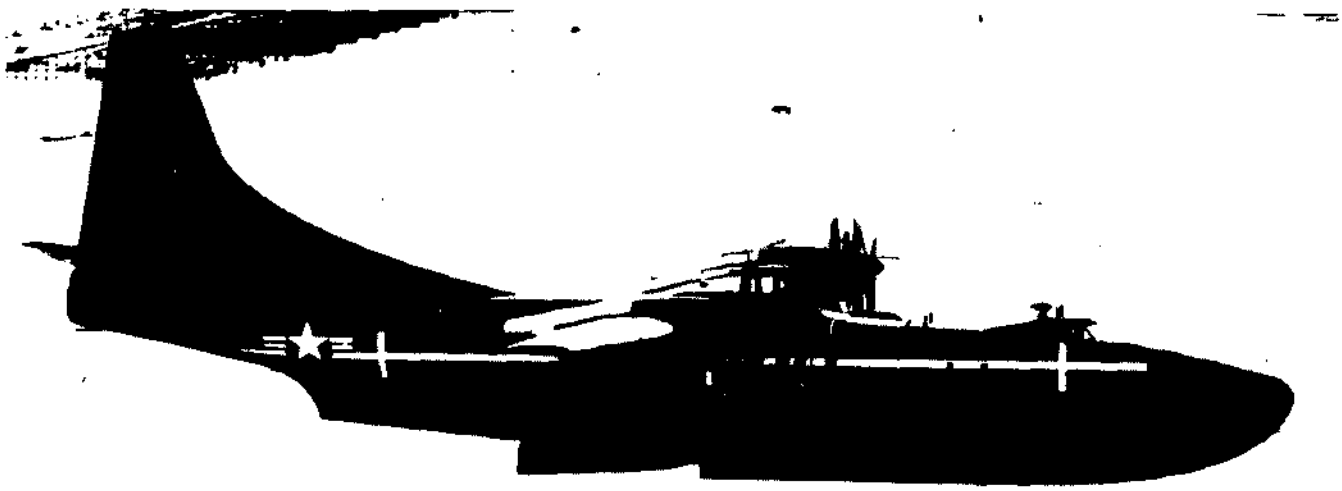
In the course of time, as these aircraft become operational, additional supplements will be published and distributed for insertion in the manual.



The four jet North American RB–45C FLYING CARTOGRAPHER, a photo version of the B–45 TORNADO, has flown missions over Korea.

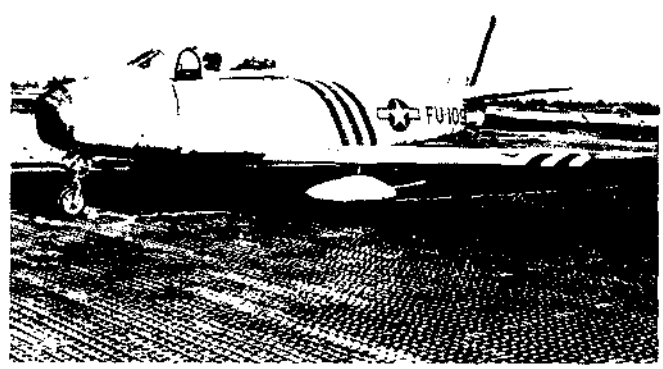


The Air Force's YRB–49 A FLYING WING, converted YB–35 prop bomber for photo-reconnaissance, has six jets along its 172-foot wing.

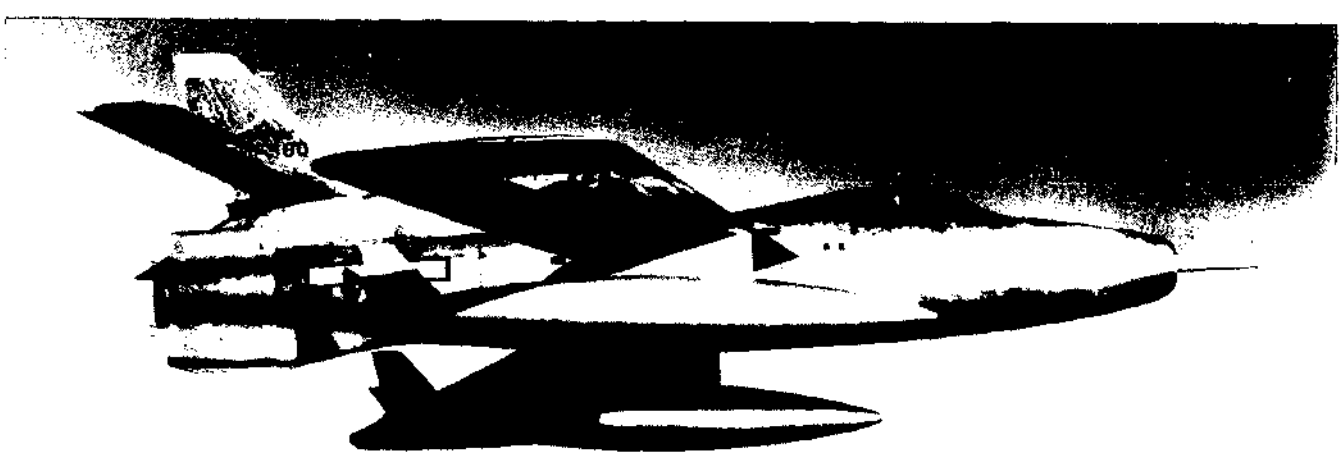


Powered by four Allison T–40 twin turboprop units, the 60-ton Convair XP5Y–1 was the world's first turboprop flying boat to fly.

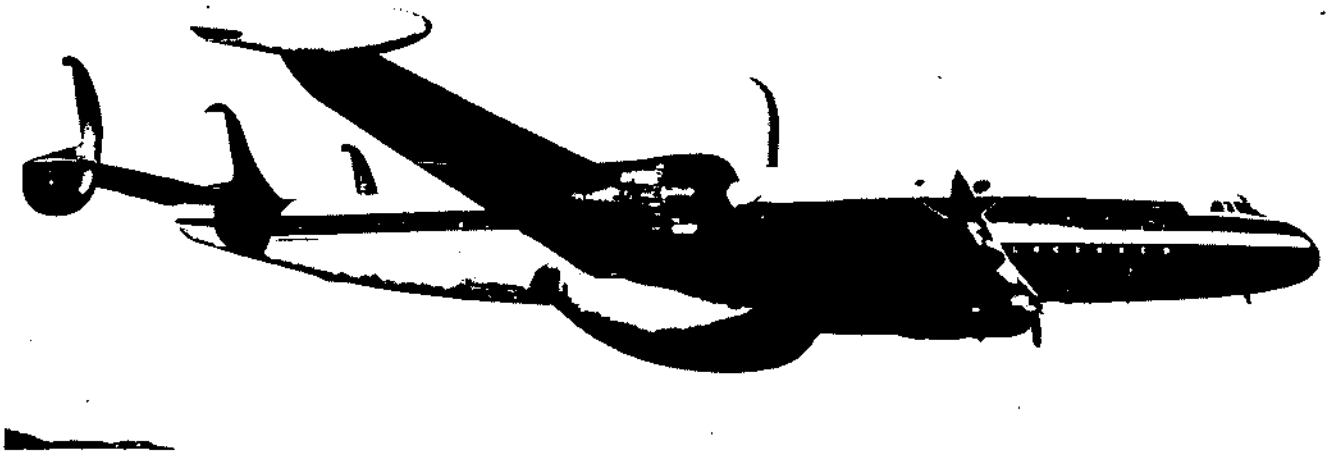
McDonnell's XF–88 is a twin-jet single-place penetration fighter.



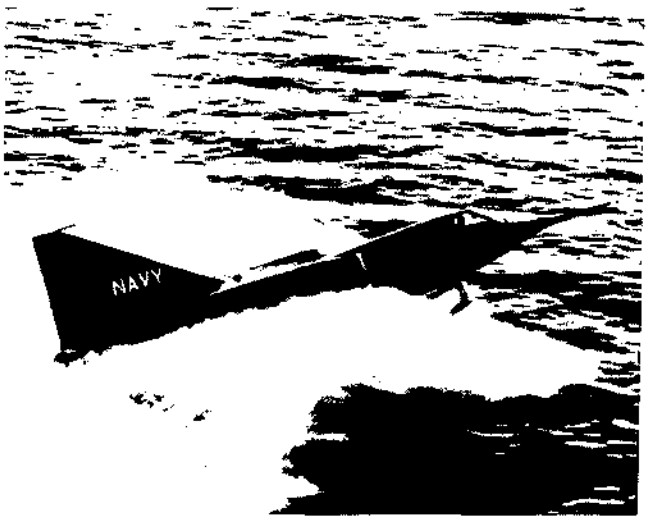
Note the new F–86 markings used in Korea by the A. F.



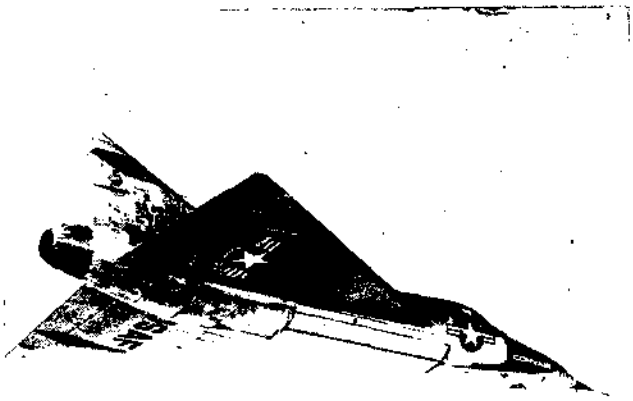
The Air Force's high-speed, high-altitude Republic XF–91 jet-rocket interceptor fighter is equipped with two external tanks.



Lockheed's WV-2 (N)/RC-121D(AF), is a special search and patrol airplane instrumented for airborne C. I. C.



Convair's XF2Y SEA-DART twin-jet hydro-ski fighter.

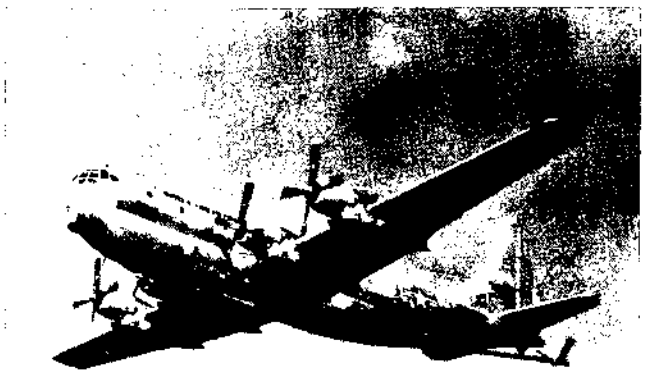


Convair's F-102, prototype F-92, delta-wing fighter.

Grumman's XF10F JAGUAR fighter has variable swept-wings.

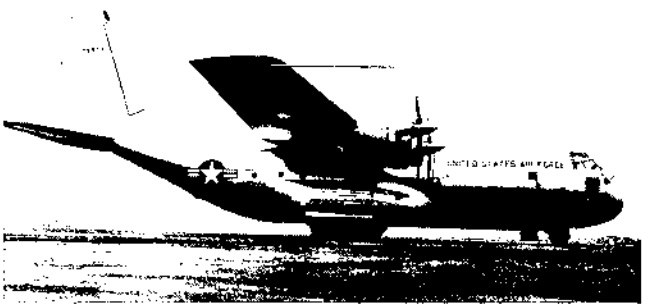
McDonnell's F-101 VOODOO twin-jet long-range fighter.

305899 O—54——3



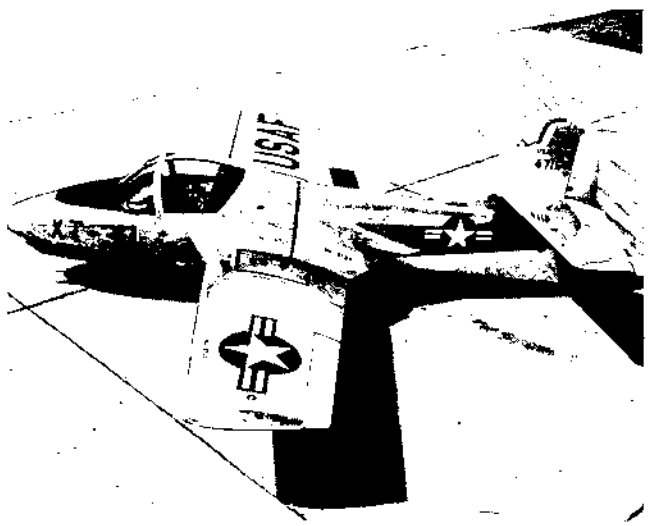
Boeing's KC–97 STRATOFREIGHTER, in-flight refueling.

Douglas C–124C GLOBEMASTER with radar nose.

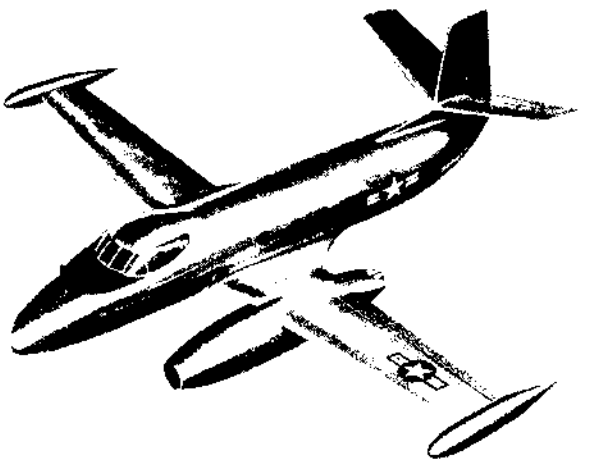


Lockheed's C–130 has four T–56 turboprop engines.

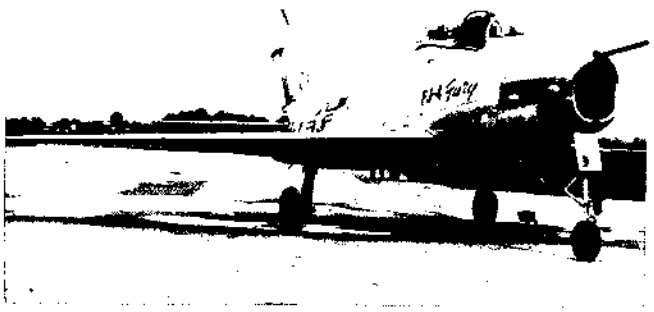
Chance Vought's photo version CUTLASS F7U–3P.



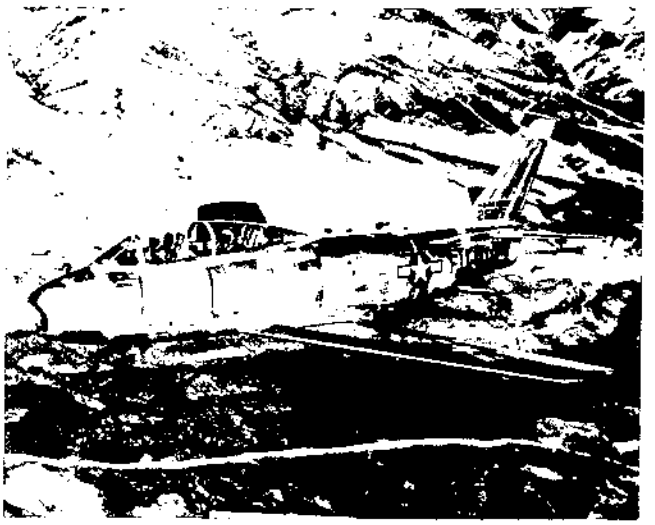
Cessna's XT–37 is a jet light trainer.



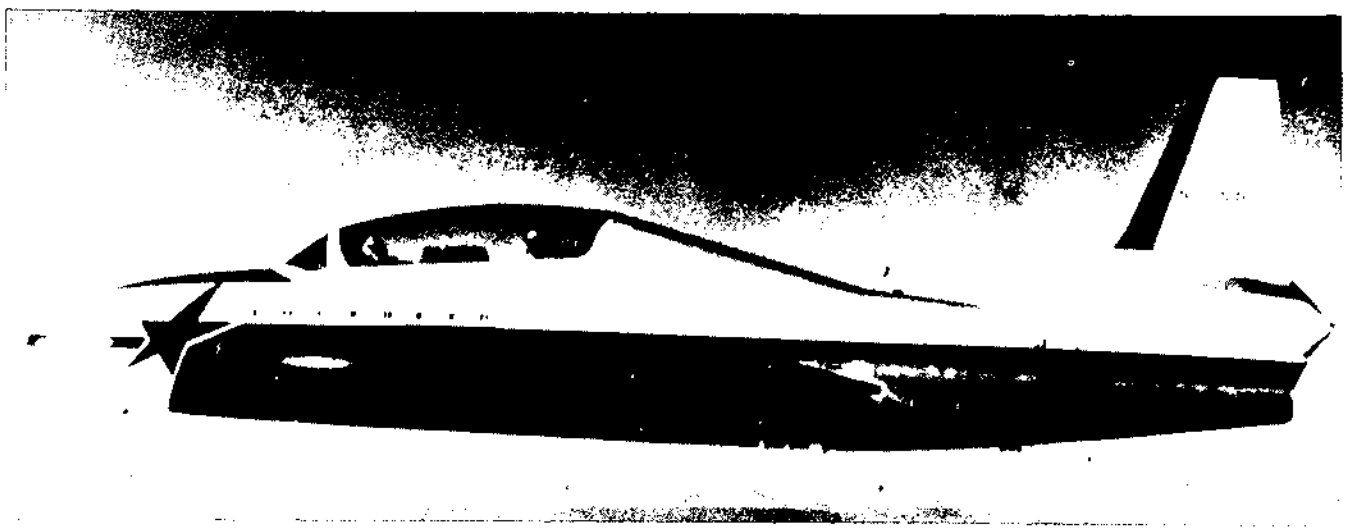
Beechcraft's T–36X is a twin-jet trainer.



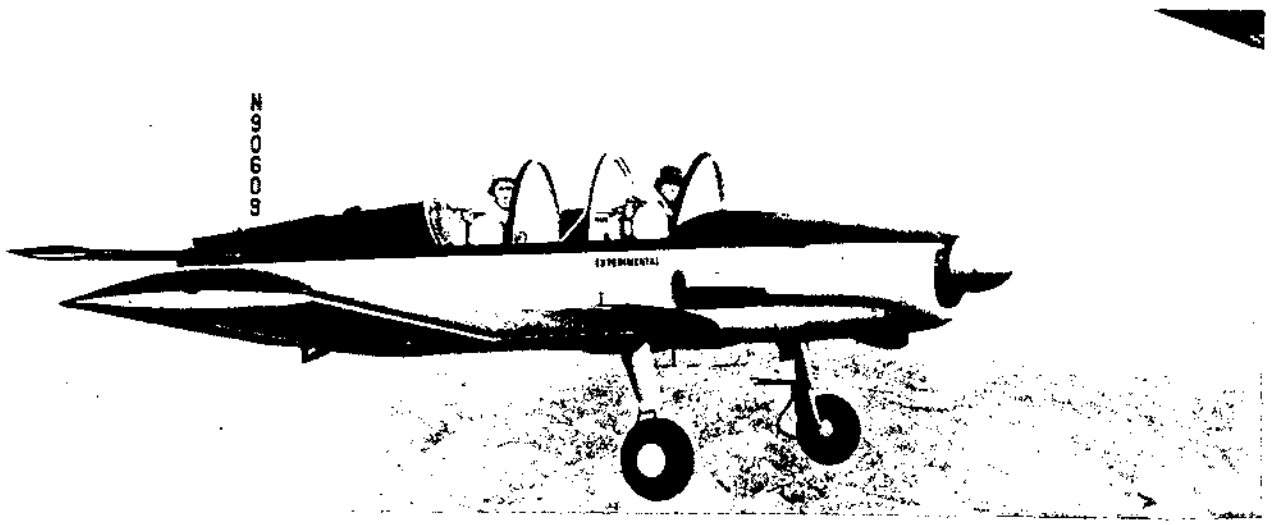
FJ-4 FURY has J65, 7,800-lb. thrust, new wing, and a dorsal spine.



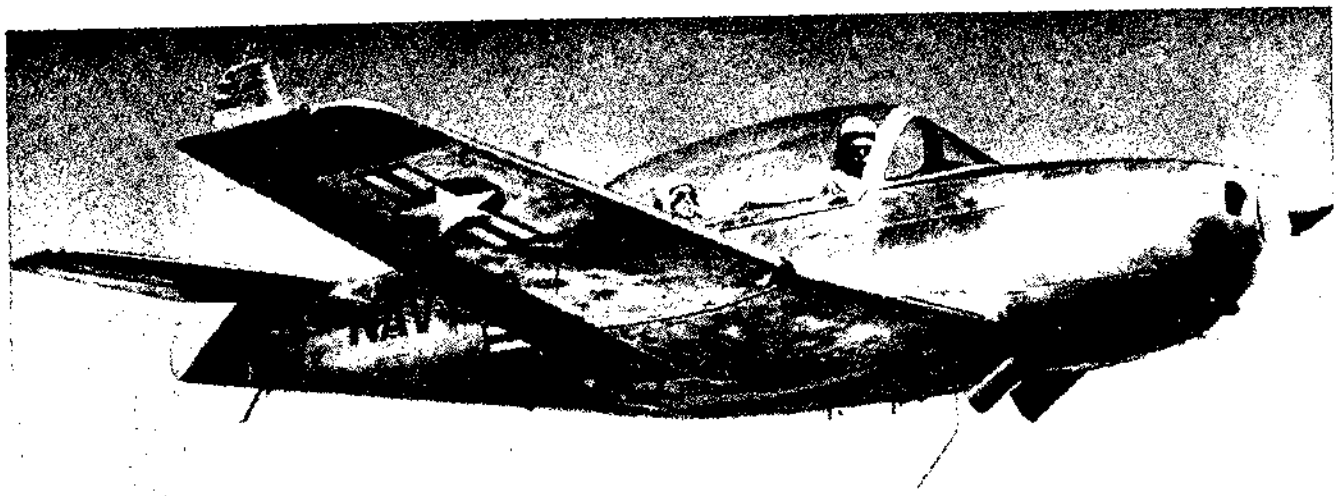
TF-86 is a tandem two-seat F-86 trainer.



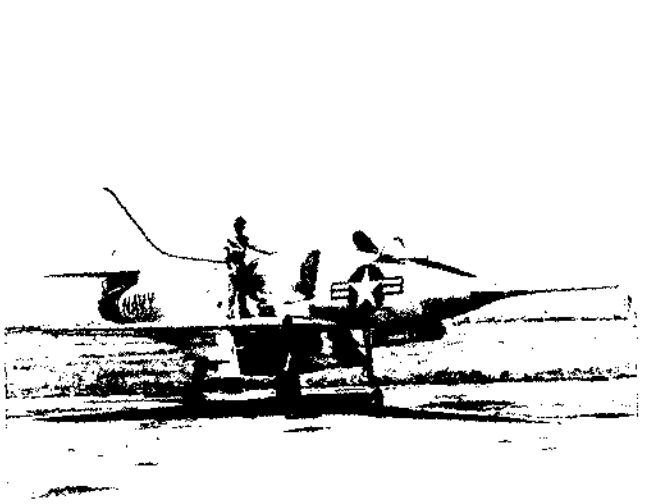
Lockheed's latest model T-33/TV-3 jet trainer features wing-tip tanks, a raised rear seat, and a chubbier fuselage.



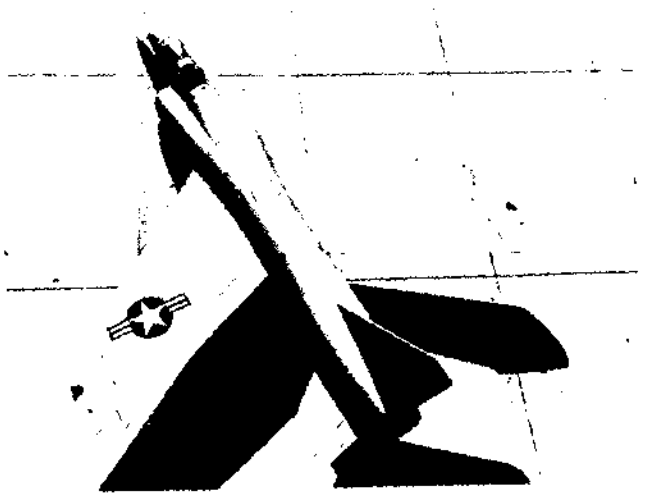
The Fletcher FD-25 DEFENDER has a 225 h. p. Continental engine and is being built in Japan by Kokusai.



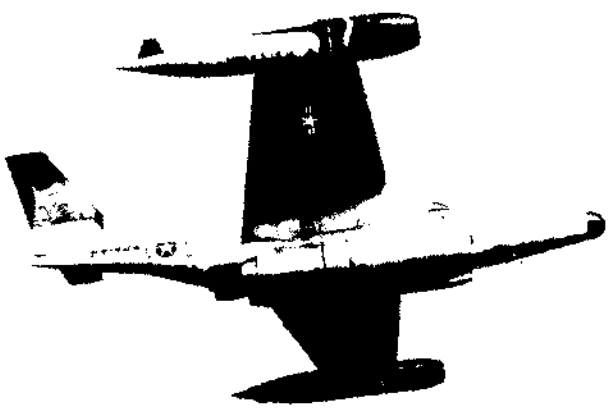
Temco's PLEBE, powered by a 225 h. p. engine, similar to the TE-1/T-35, is intended as an SNJ replacement.



Douglas XA4D SKYHAWK, a lightweight jet attack plane.

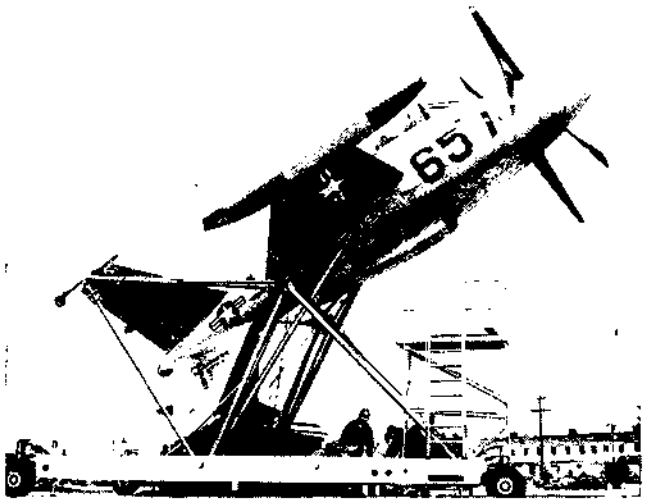


Grumman F9F-9 TIGER Navy jet fighter.

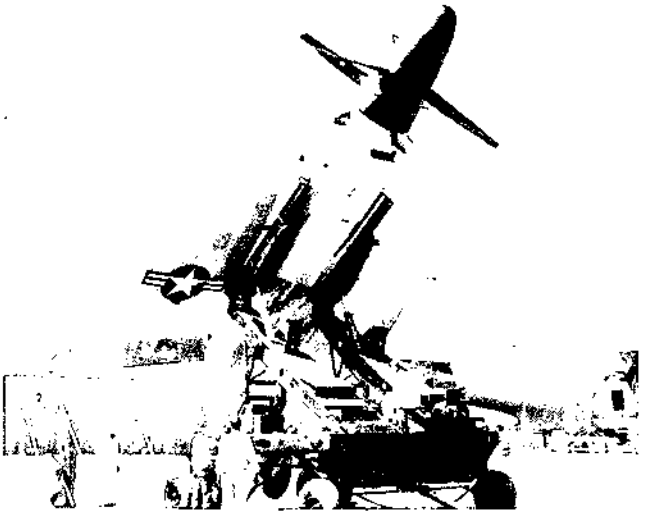


Northrop's F-89D SCORPION has wing-tip rocket pods.

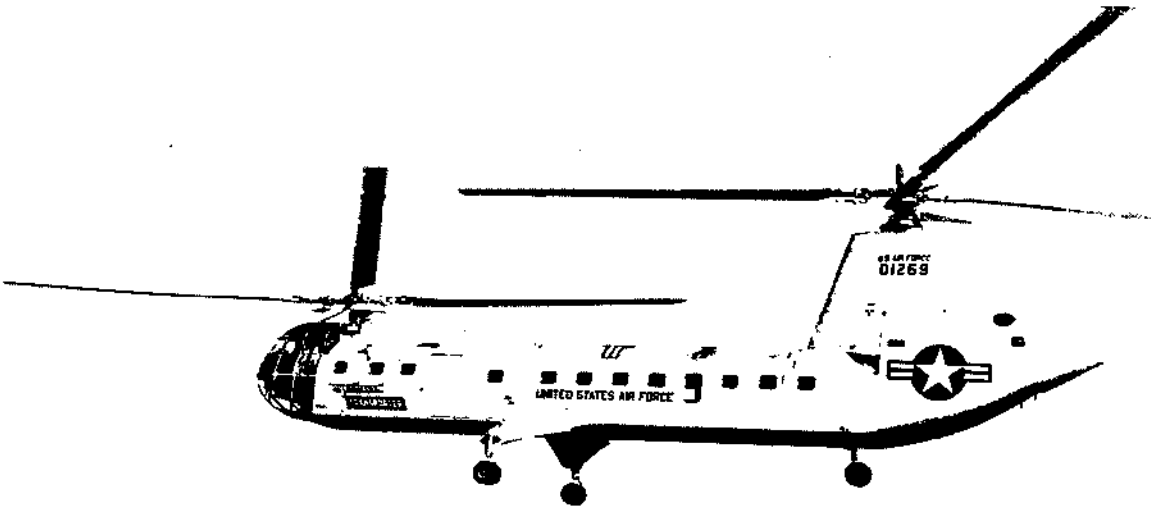
Boeing's 707 STRATOJET, 4 J-57's, 100 passengers.



Lockheed's XFV–1 is a vertical riser with turboprops.

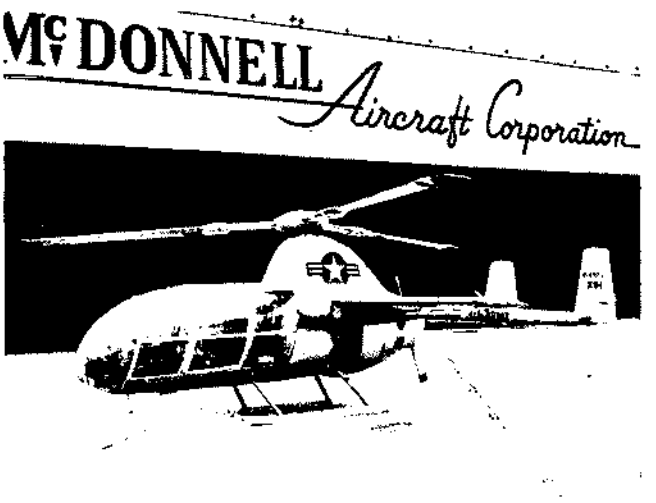


CONVAIR'S XFY is a delta-wing vertical riser.



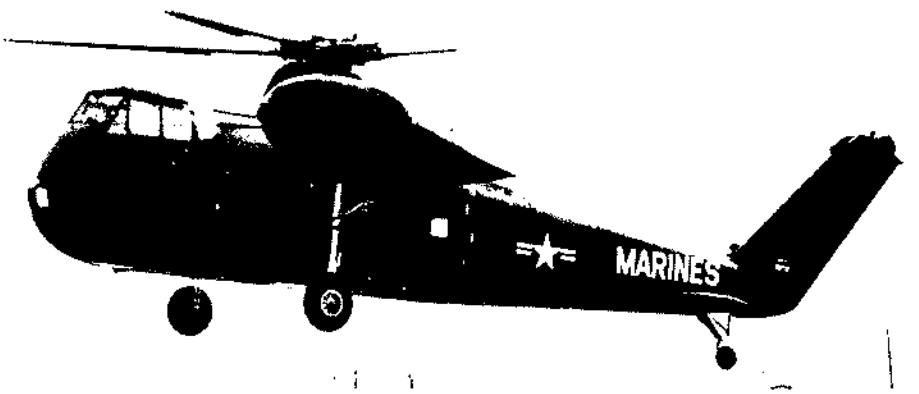
Piasecki's YH–16 TRANSPORTER, 40 passenger helicopter, is powered by two engines developing a total of 3,300 h. p.

The American XH–26 is a pulse-jet-driven helicopter.

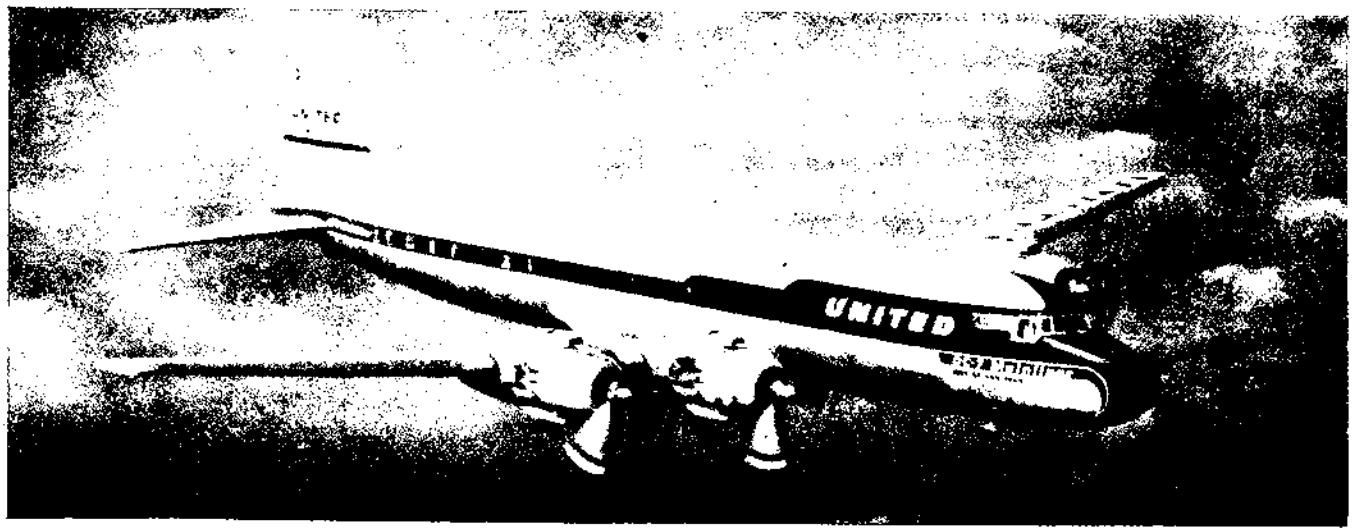


McDonnell's XV–1 convertiplane has a rotor jet and a prop engine.

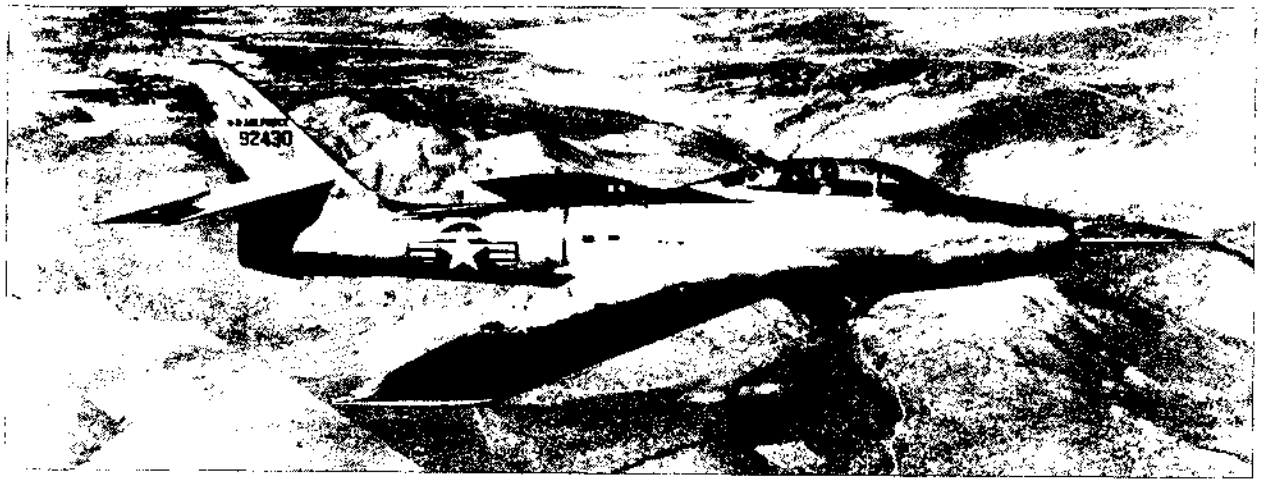
Sikorsky's XHSS–1, powered by a 1,425 h. p. R1820 engine, is a four-bladed, anti-torque rotor, anti-submarine helicopter.



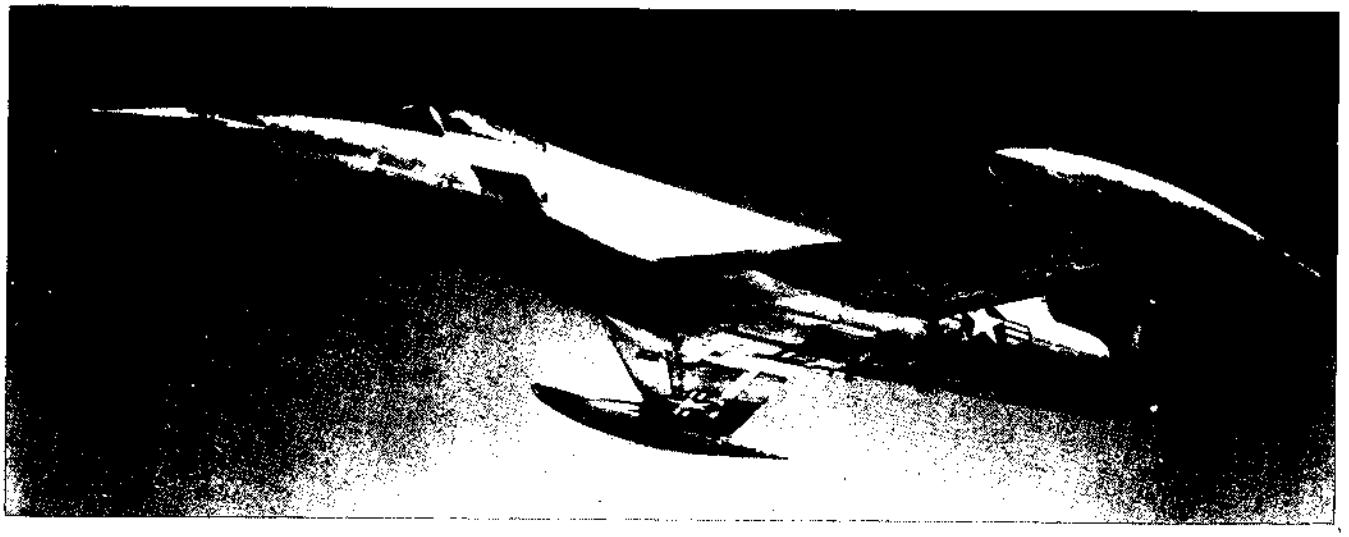
Sikorsky's XHR2S twin-engined helicopter has retractable landing gear and was designed for Marine transport duties.



Douglas's DC–7 is an improved DC–6B with 3,250 h. p. Wright turbocompound engines, and lengthened fuselage.



The F–84F, a swept-wing version of the F–84 THUNDERJET, will become the Air Force's first operational swept-wing fighter-bomber.



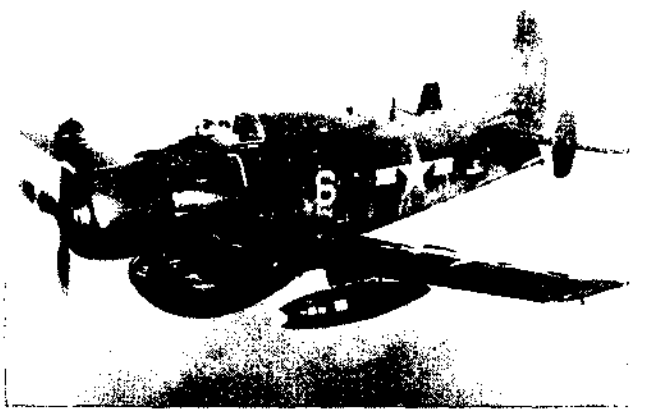
Designed for the Air Force as a penetration fighter, the Lockheed F–90 is a twin-jet swept-wing aircraft weighing more than the C–47/R4D.

The North American XF–93A penetration fighter, similar to the F–86 but with flush intakes, is powered by a 6,250 pound thrust J–48.

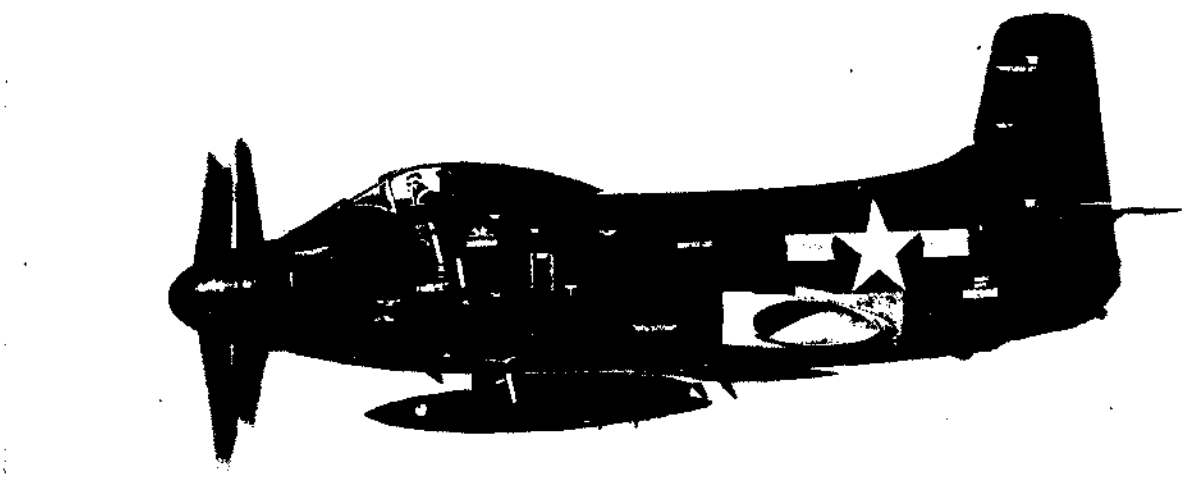
955047 O—51——4

Designed by Chance Vought, the F6U PIRATE is a carrier-based jet fighter that has seen very little operational duty.

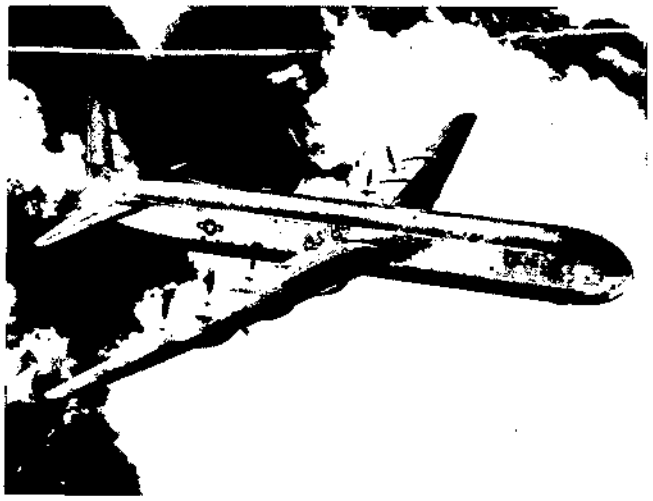
Martin's XB-51 three-engined jet bomber has a third jet in its tail.



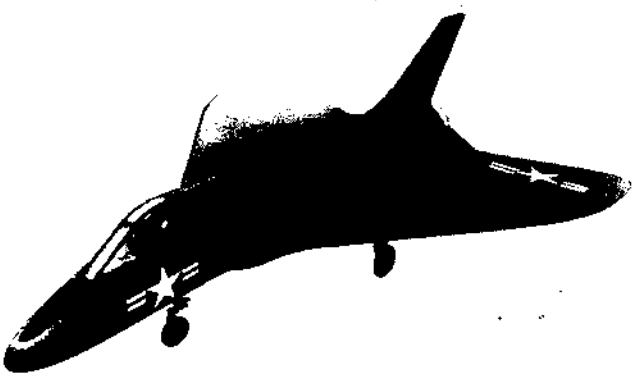
AD-3W Douglas SKYRAIDER is half of the Hunter-Killer team.



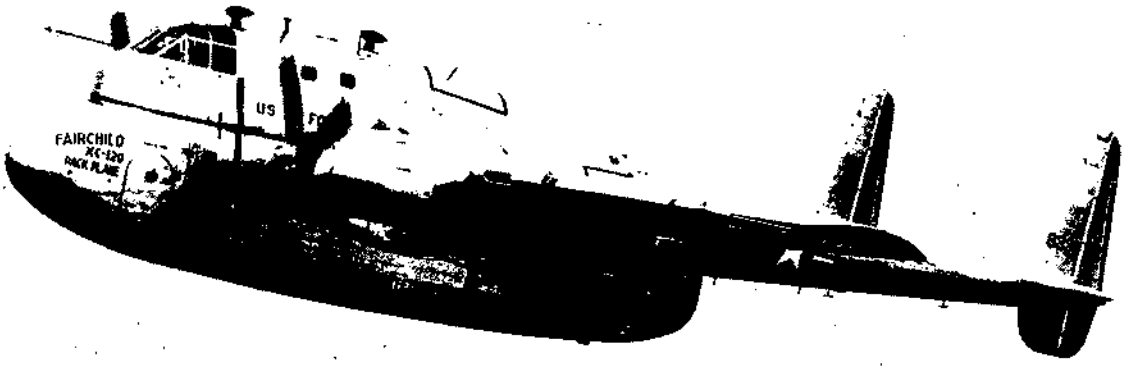
The Douglas XA2D-1 SKYSHARK is a single-place carrier-type attack plane powered by an Allison T-40 twin-turboprop engine.



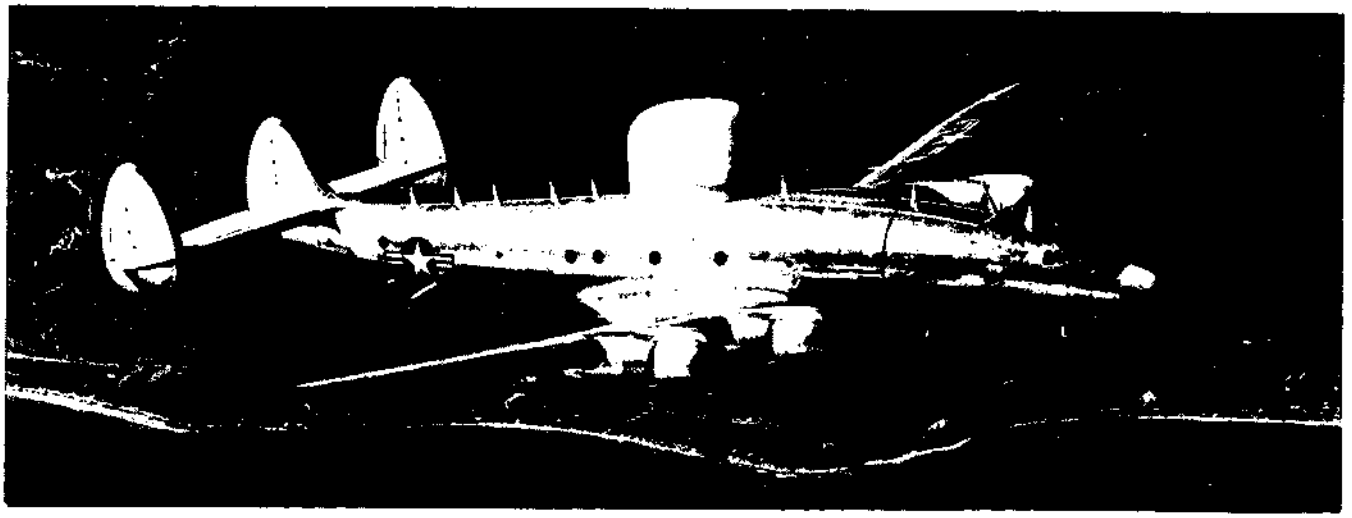
A sister ship to the B–36, the Convair XC–99 carries 400 troops.



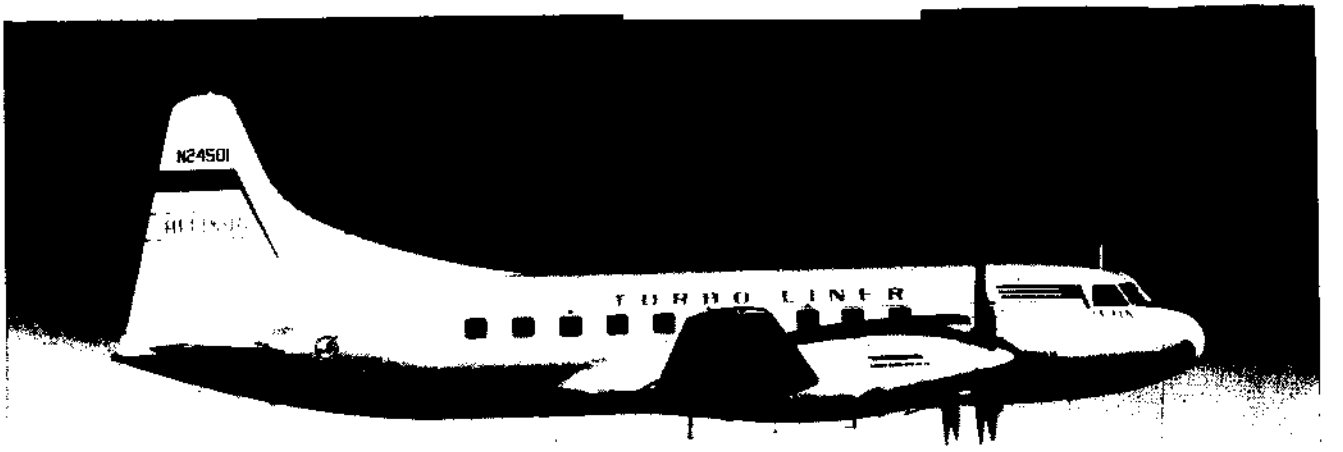
Navy's delta-wing Douglas XF4D SKYRAY is a jet carrier fighter.



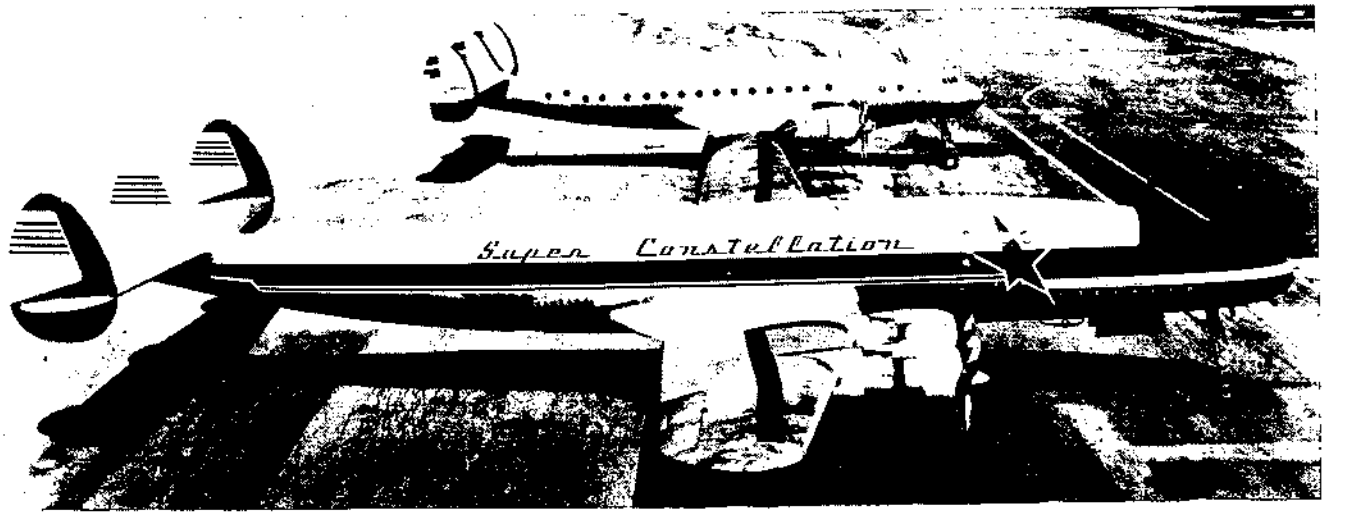
Fairchild's XC–120 PACKPLANE can detach its cargo-carrying fuselage pod which holds 20,000 pounds of cargo, or 36 litter patients.



Sometimes called the FLYING LABORATORY, the Navy's Lockheed PO–1W is a modified CONSTELLATION with A. E. W. gear.

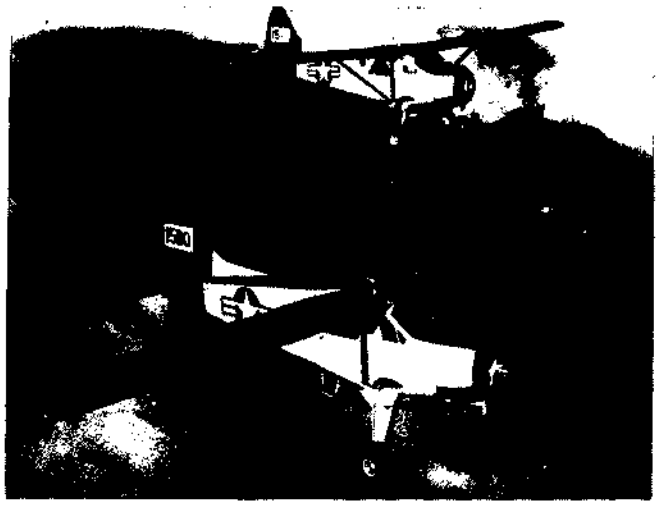


America's first turboprop transport, the TURBOLINER, with two 2,750 h. p. Allisons, is a research plane converted from a CONVAIR-LINER.



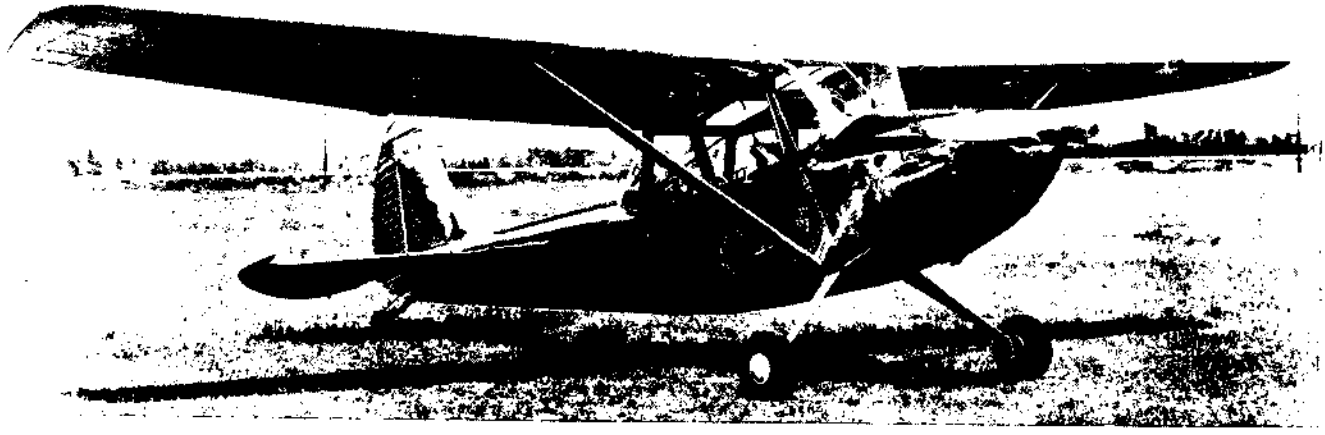
Lockheed's newest transport, the SUPER CONSTELLATION, C-121C/R7O, has a longer fuselage and greater range than the earlier model.

The Douglas SUPER DC-3, C-47F/R4D-8, is a modernized DC-3 to extend the life of the aircraft beyond the obsolescence deadline of 1952.

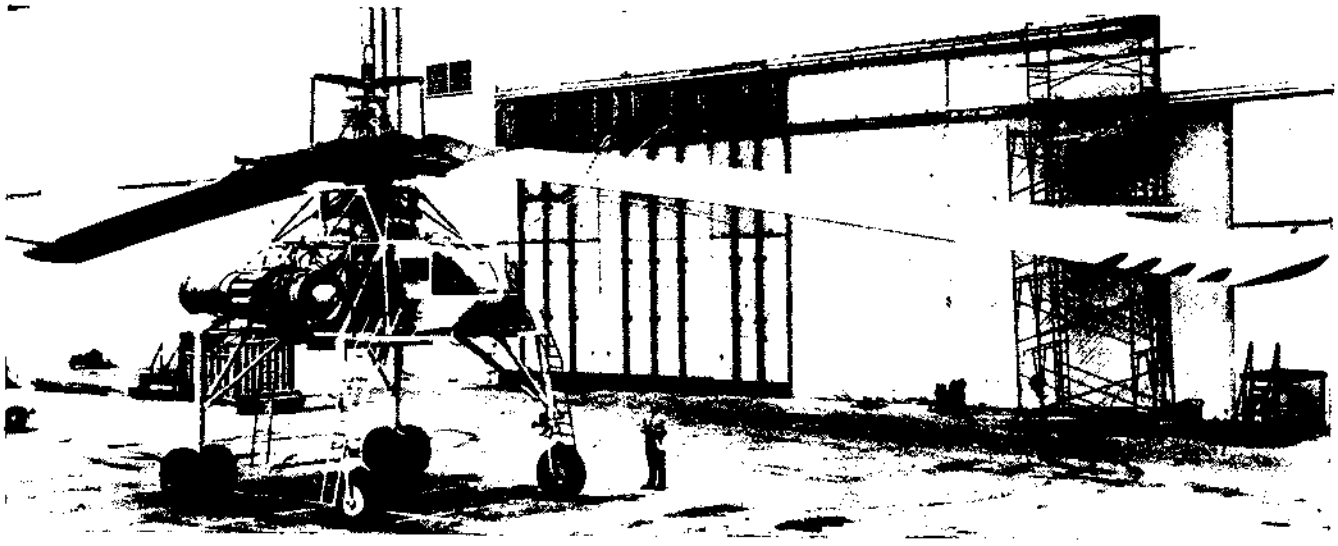


D. H. of Canada designed the L–20 BEAVER and sold it to the U. S.

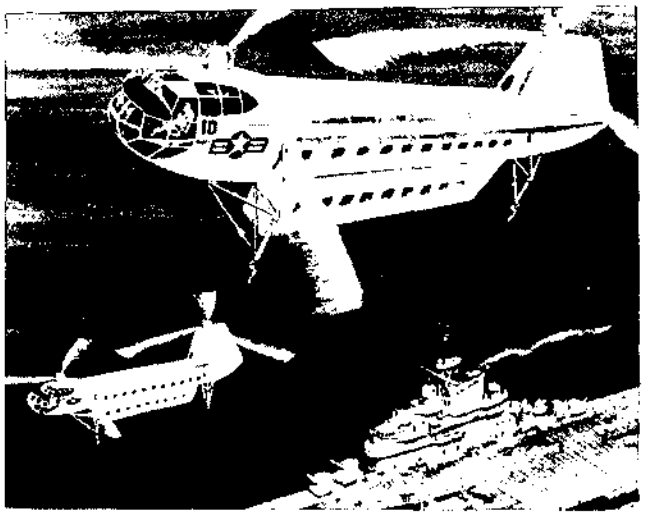
First U. S. turbojet airliner to fly, Chase XC–123 with four jets.



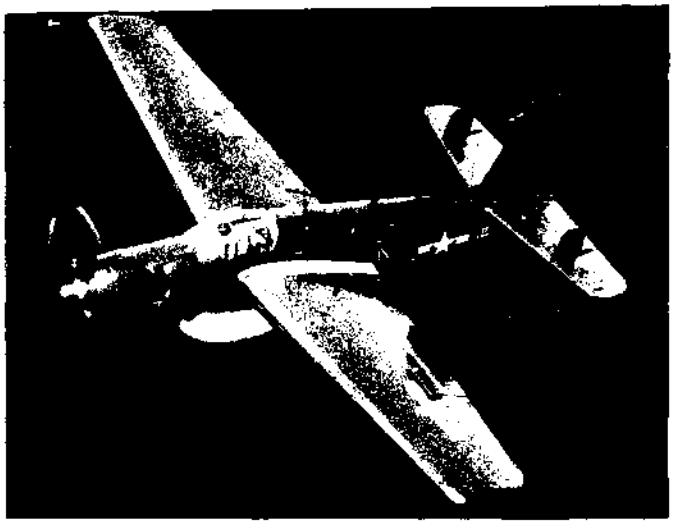
Cessna's in-lined engined L–19 is a dual-control all-metal liaison aircraft with a crew of two or a pilot and one litter patient.



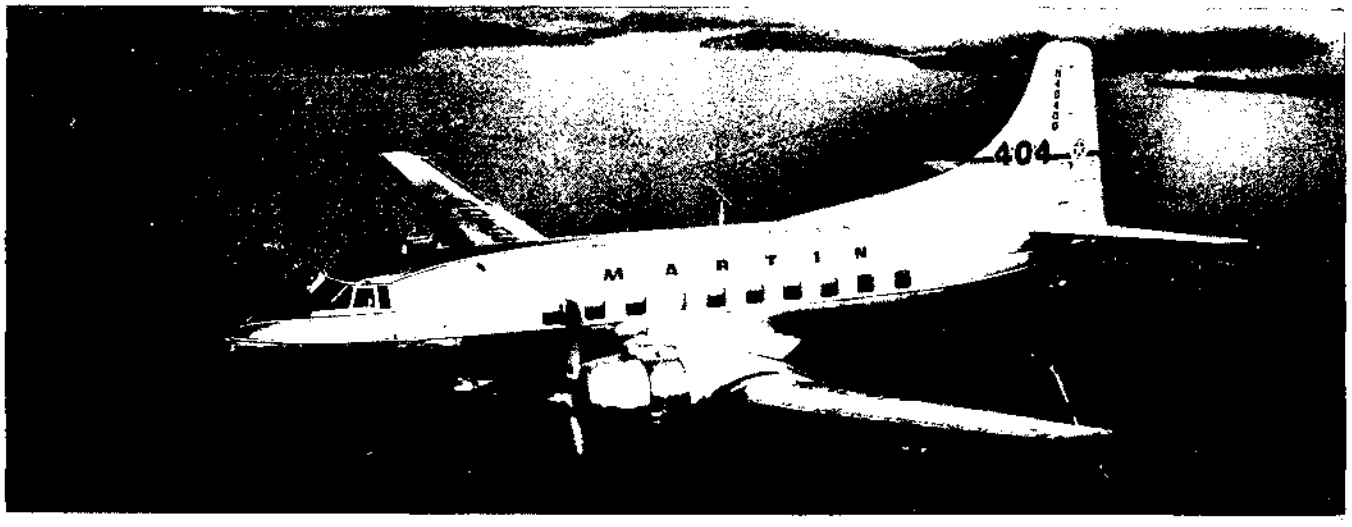
Hughes' XH–17 FLYING CRANE, powered by two jet units, was designed to lift up to 24,000 pounds for a distance of 60 nautical miles.



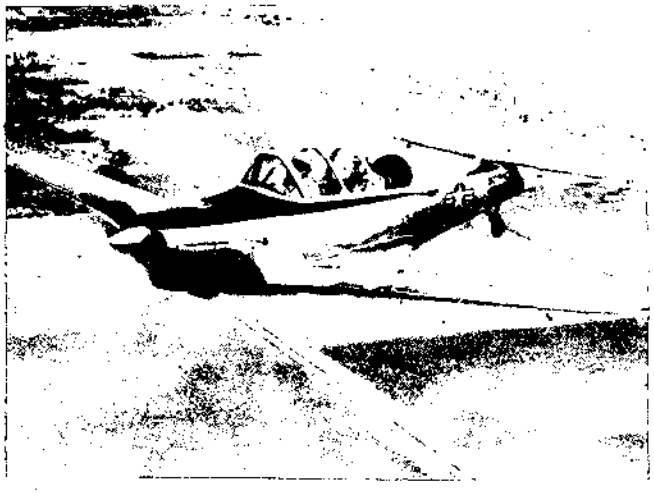
Piasecki's XH–16 will have two engines and a detachable pod.



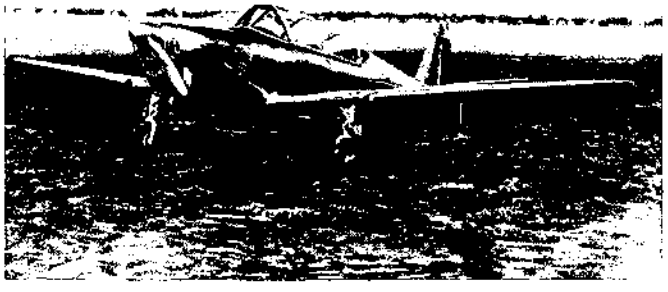
Note the additional fins on the Navy's new AF GUARDIAN.



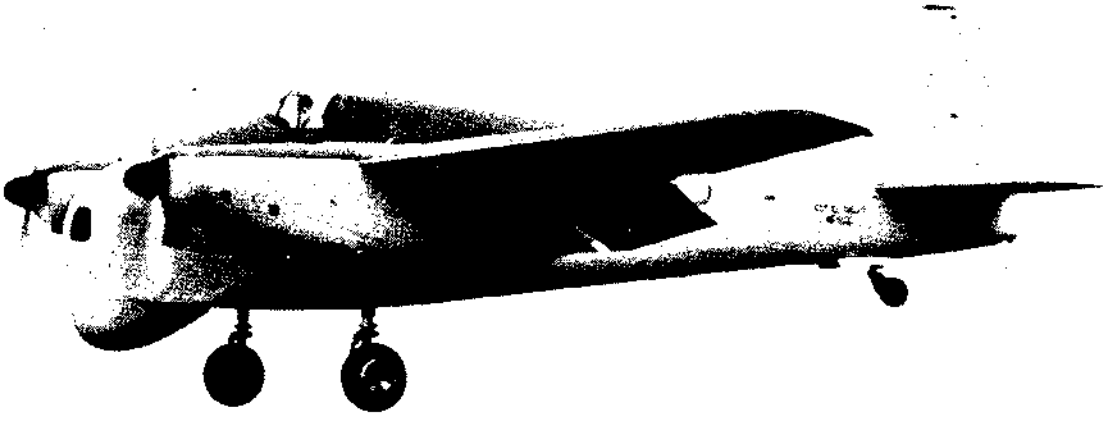
Martin's 4–0–4 airliner, a development of the 2–0–2 with 2,400 h. p. engines, is on order by the U. S. Coast Guard and civilian airlines.



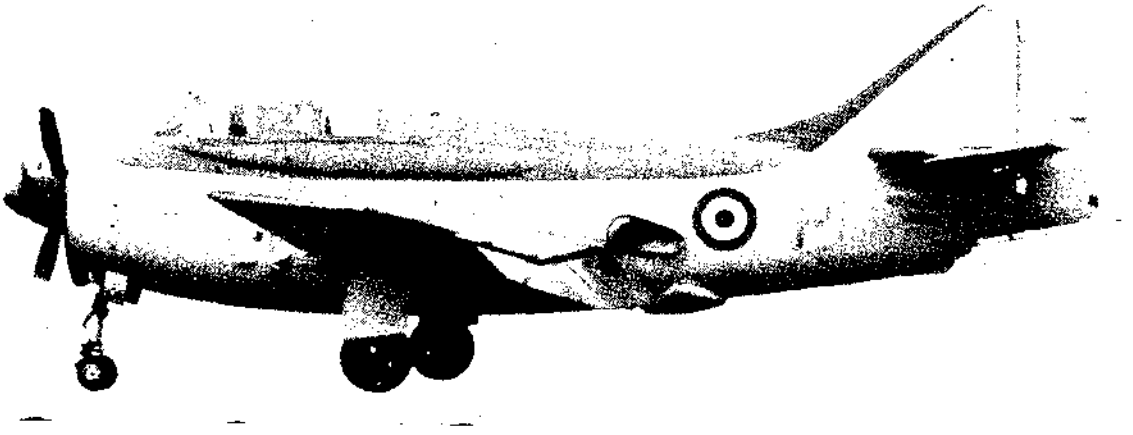
Temco's YT–33 BUCKAROO is a two-seat primary trainer.



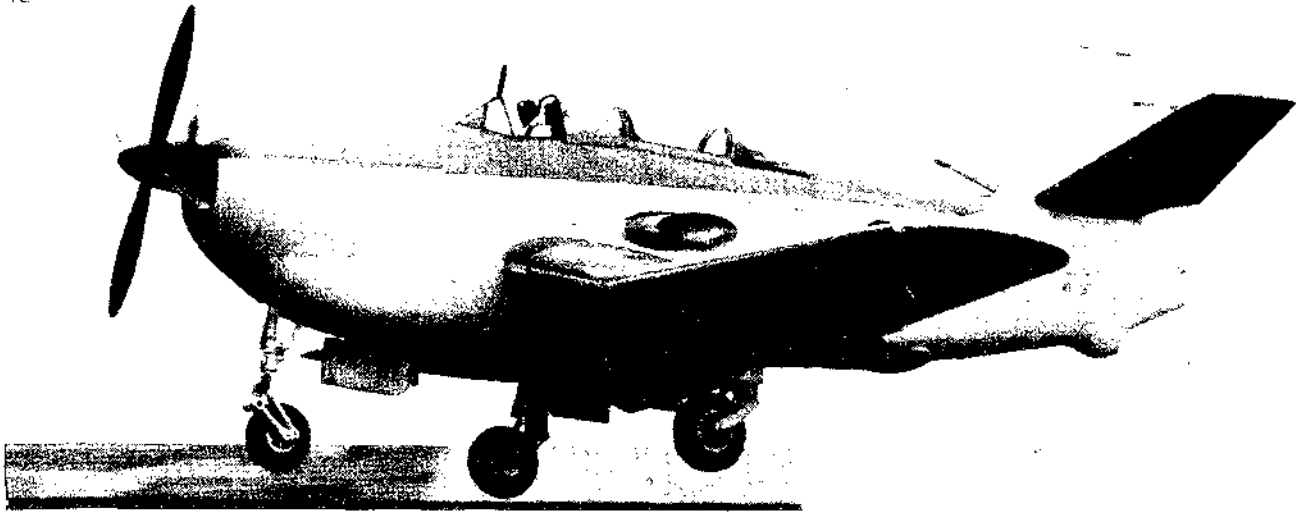
Beechcraft's YT–34 MENTOR was developed from the BONANZA.



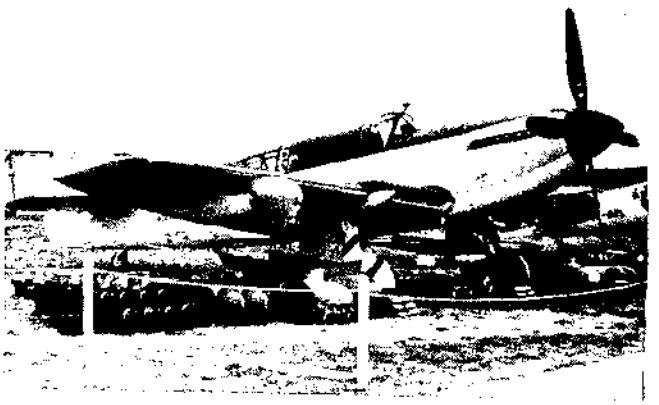
The British Short S.B.3, a development of the STURGEN, is an antisubmarine type fitted with a radar nose and two Mamba turboprop engines.



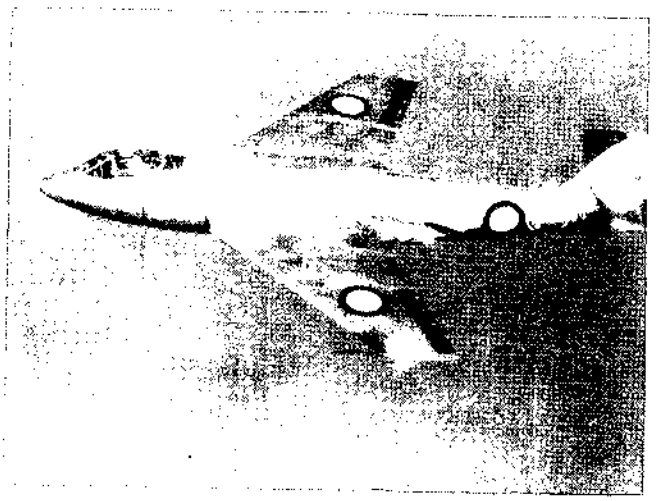
The British Fairey 17 GANNET with its Double-Mamba turboprop engine is slated for production as a carrier-borne antisubmarine aircraft.



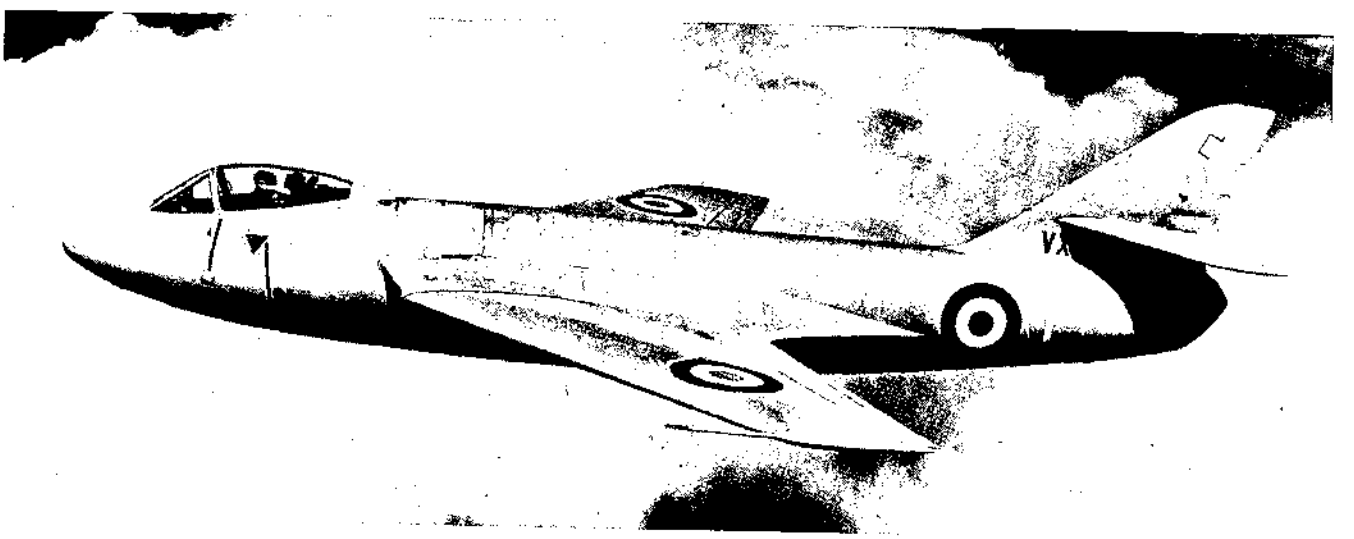
The British Blackburn Y.B.1, antisubmarine, is shown with a Double-Mamba turboprop engine; an earlier version Y.A.5 had a Griffon engine.



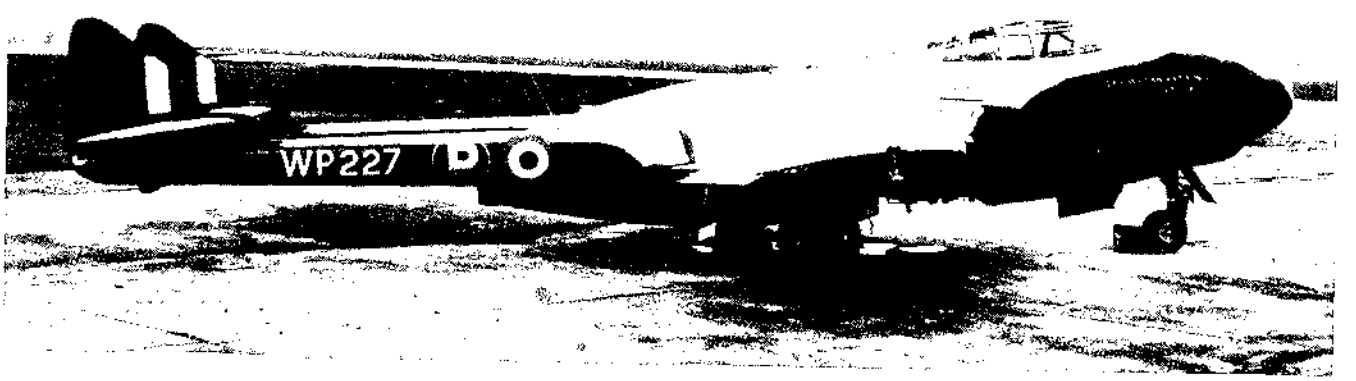
The British Fairey FIREFLY Mk. 5 is a naval reconnaissance fighter.



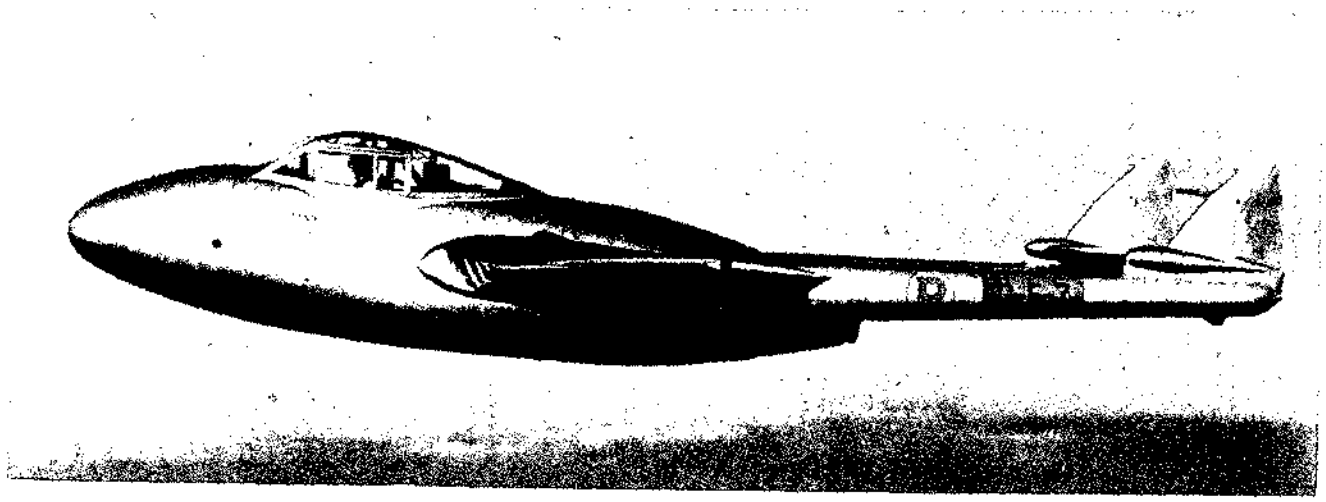
The British Hawker P.1052 is a swept-wing version of the SEA HAWK.



The British P.1081, Nene powered, differs from the P.1052 by having a sweptback empennage and a new rear fuselage with straight-through exhaust

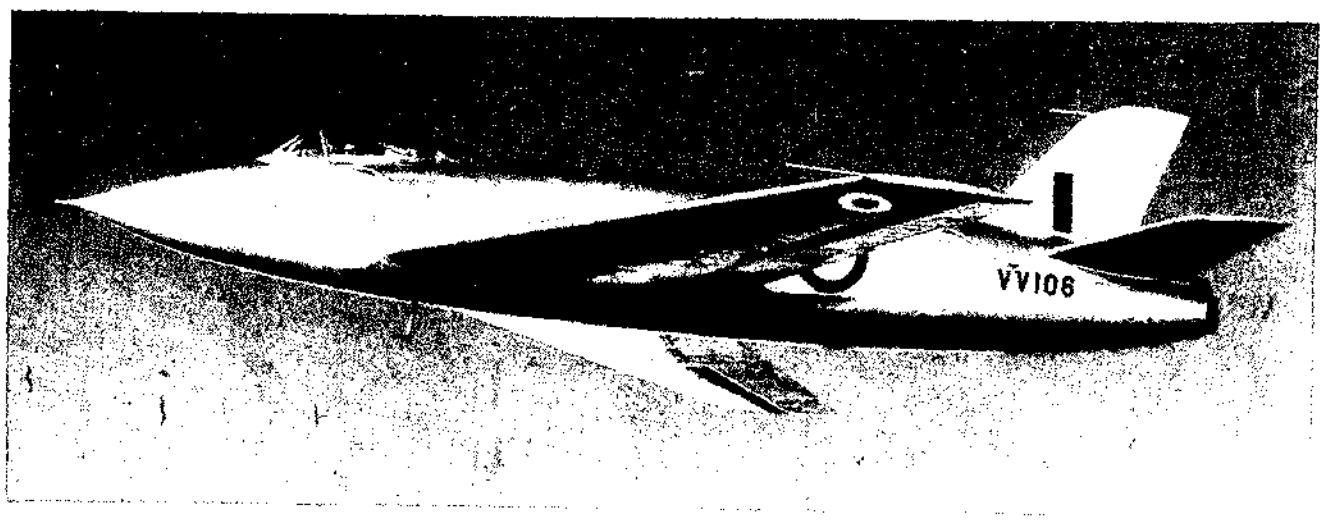


Scheduled for carrier use, the British de Havilland 112, VENOM N. F. Mk. 2, is a new version with a longer nose to accommodate radar.

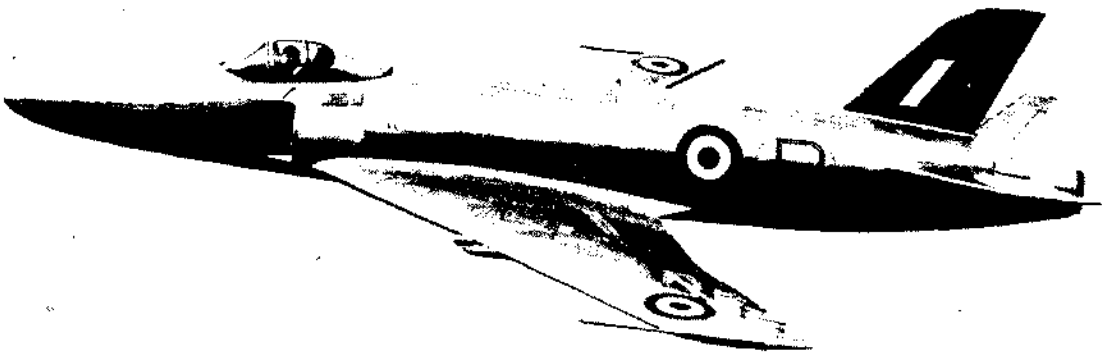


The British de Havilland 115 VAMPIRE two-seat side-by-side all-purpose dual control trainer uses many of the Vampire Mk. 5 components.

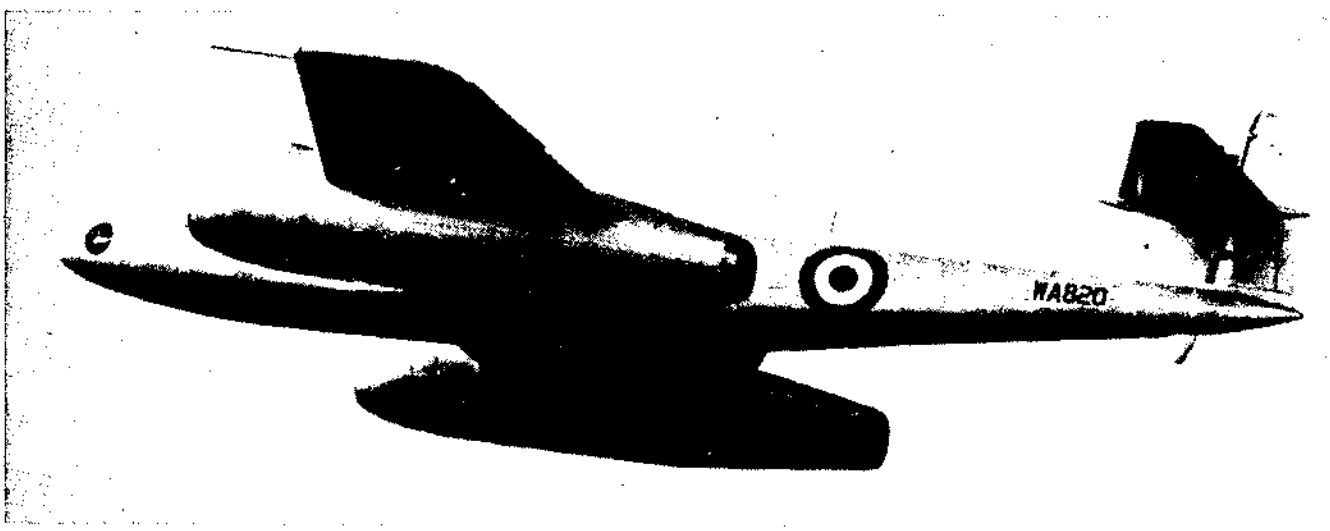
The British de Havilland 113, a two-seat side-by-side night jet fighter, is basically a VAMPIRE Mk. 5 with a new front fuselage for radar.



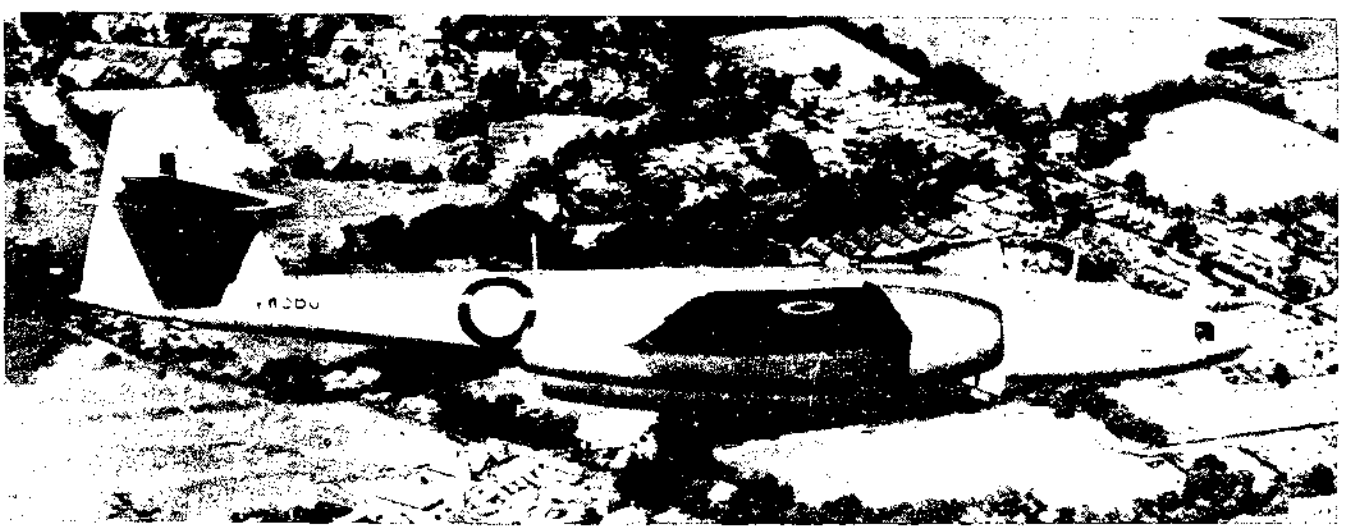
The British Supermarine Type 510, a development of the ATTACKER, was the first sweptback wing aircraft to take off and land on a carrier.



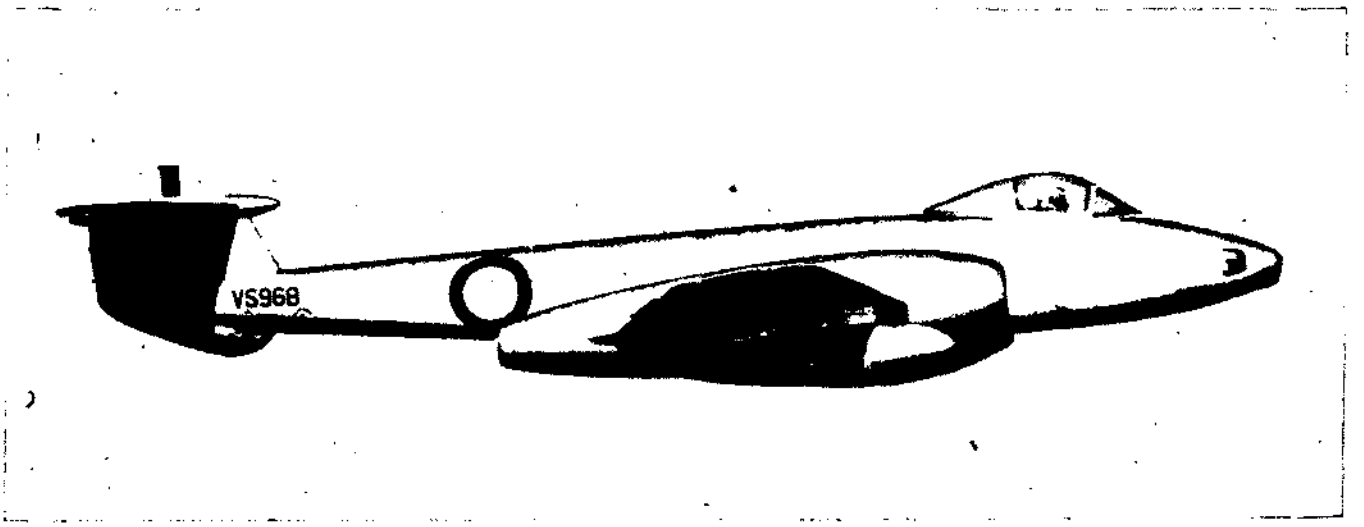
The British Supermarine Type 535, a development of the Type 510, has a longer nose, a tricycle landing gear and provisions for an afterburner.



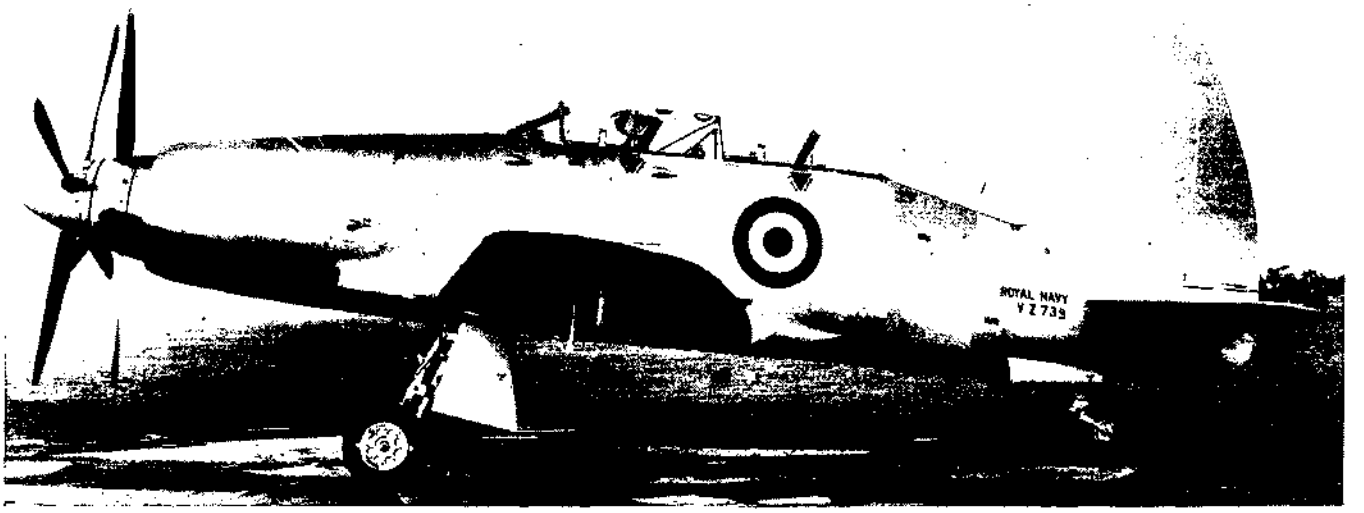
An experimental British METEOR Mk. 8 with longer nacelles is powered by two 7,200-lb. thrust Armstrong Siddeley Sapphire jet engines.



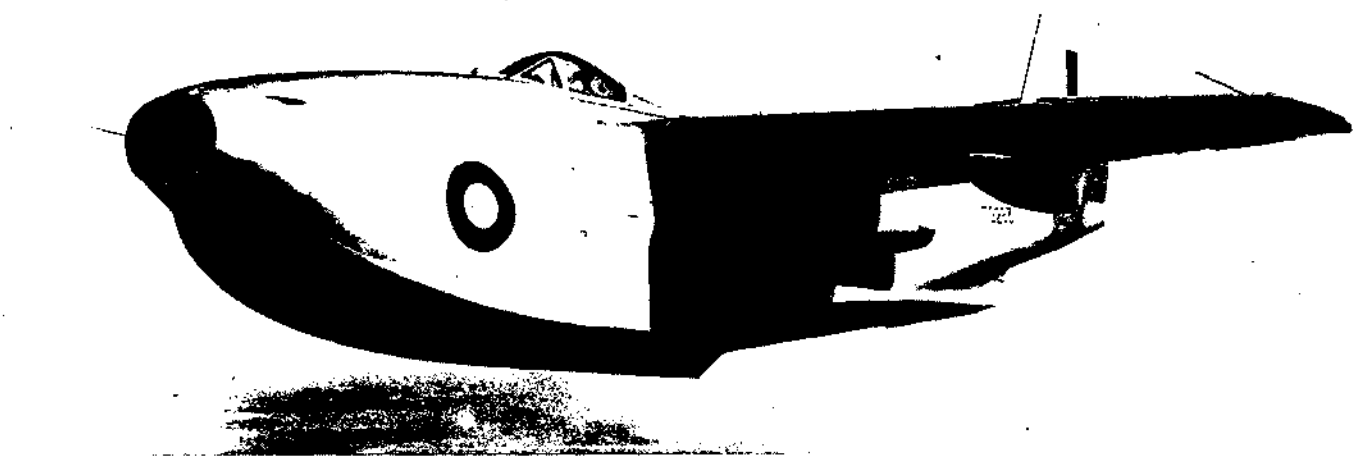
A fighter reconnaissance version, the METEOR F.R. Mk. 9 has the Mk. 8 empennage and a new nose section for forward and lateral photography.



An unarmed photographic reconnaissance version, the METEOR P.R. Mk. 10 has the old Mk. 4 empennage and a new nose for camera ports.

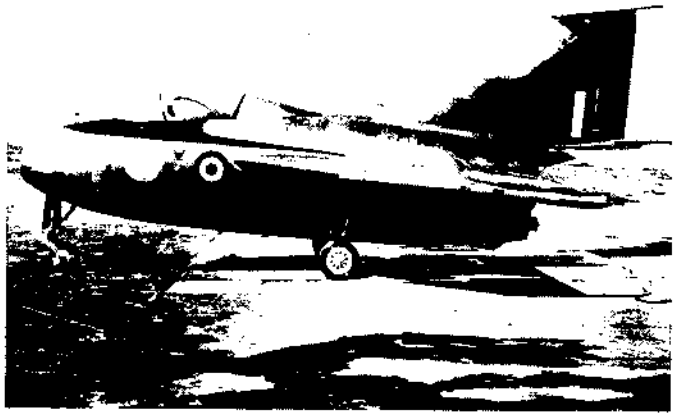


The British-Westland WYVERN T. Mk. 3 is a two-seat trainer version of the turboprop Python powered T.F. Mk. 2 Naval Strike Fighter.

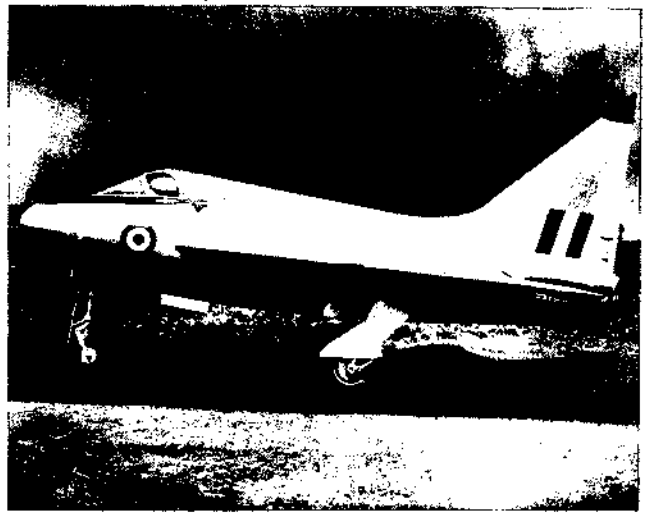


Designed and built by British Saunders-Roe, Ltd., the SR.A1 twin-jet single-seat flying boat was the world's first jet fighter flying boat to fly.

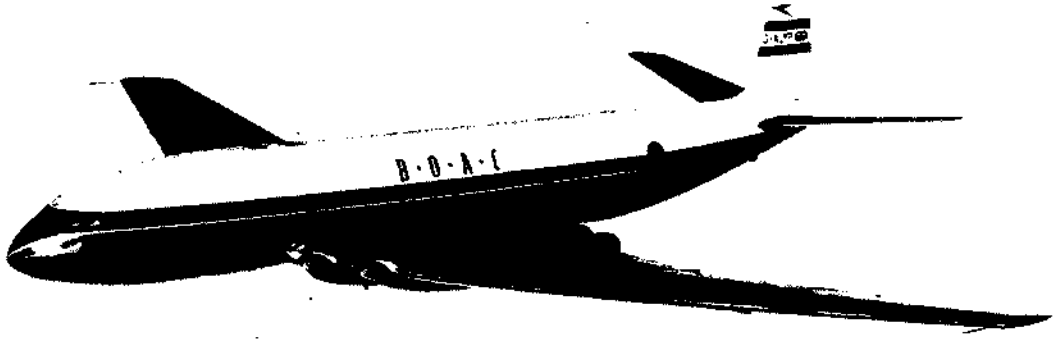
The British Avro 707B, a second version with a longer nose, is a single-seat jet delta-wing research aircraft; a third version exists with wing intakes.



Britain's Fairey F.D.1 is a small delta-wing research jet aircraft.



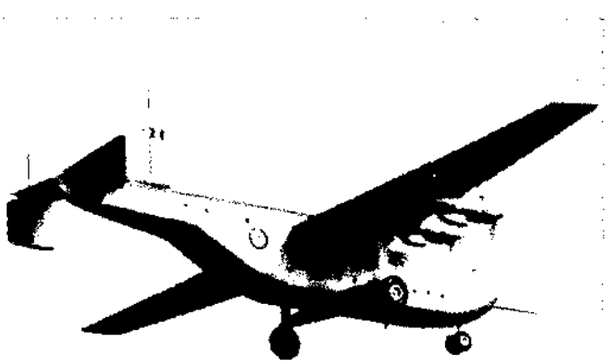
The Nene powered Boulton Paul P.111 is a research delta-wing jet.



The British de Havilland COMET, powered by four Ghost jet engines and two rocket motors for assist, was the world's first pure jet airliner to fly.

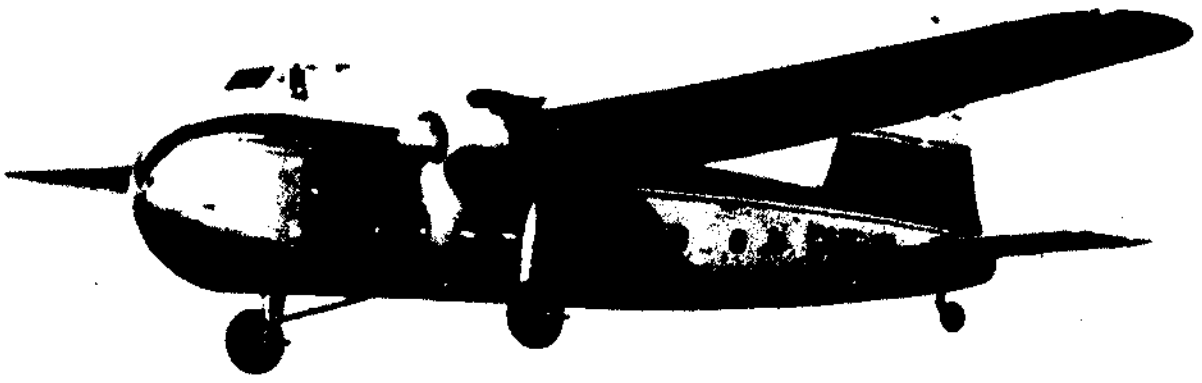
The British Bristol BRABAZON Mk. I, a 100-passenger airliner powered by 8 paired piston engines, has a 290,000 pound take-off weight.

The British de Havilland 114 HERON, a four-engined 14-passenger version of the DOVE, is a feeder-line transport with a fixed tricycle landing gear.



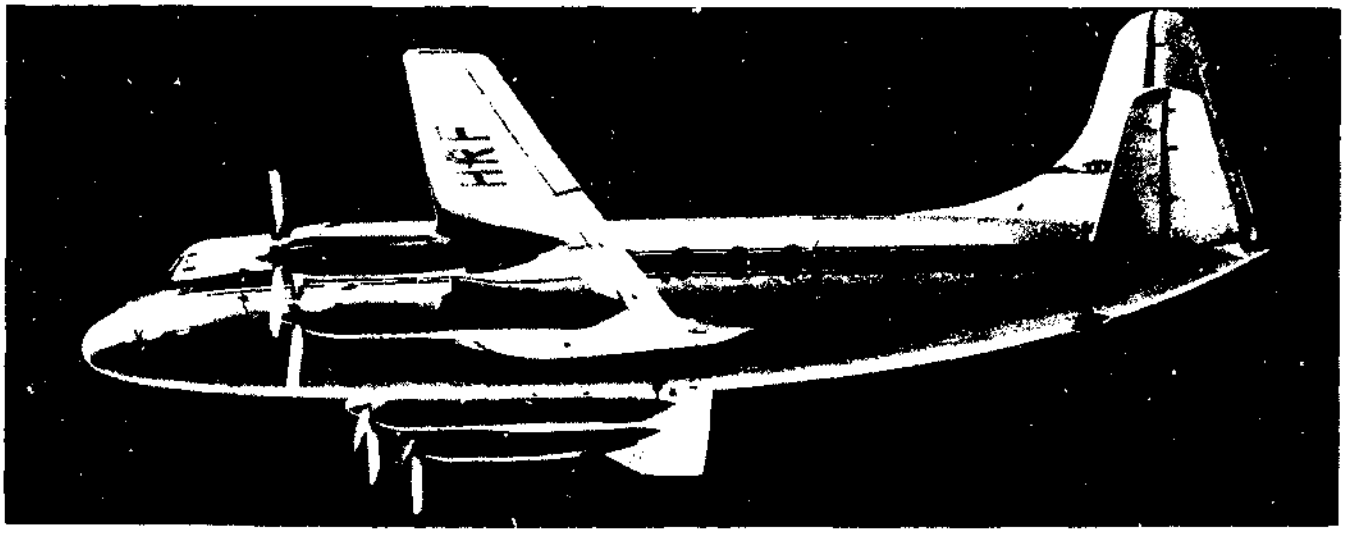
The British Blackburn and General is a large Military Transport.

Avro's ASHTON, a Nene powered research transport, has TUDOR lines.

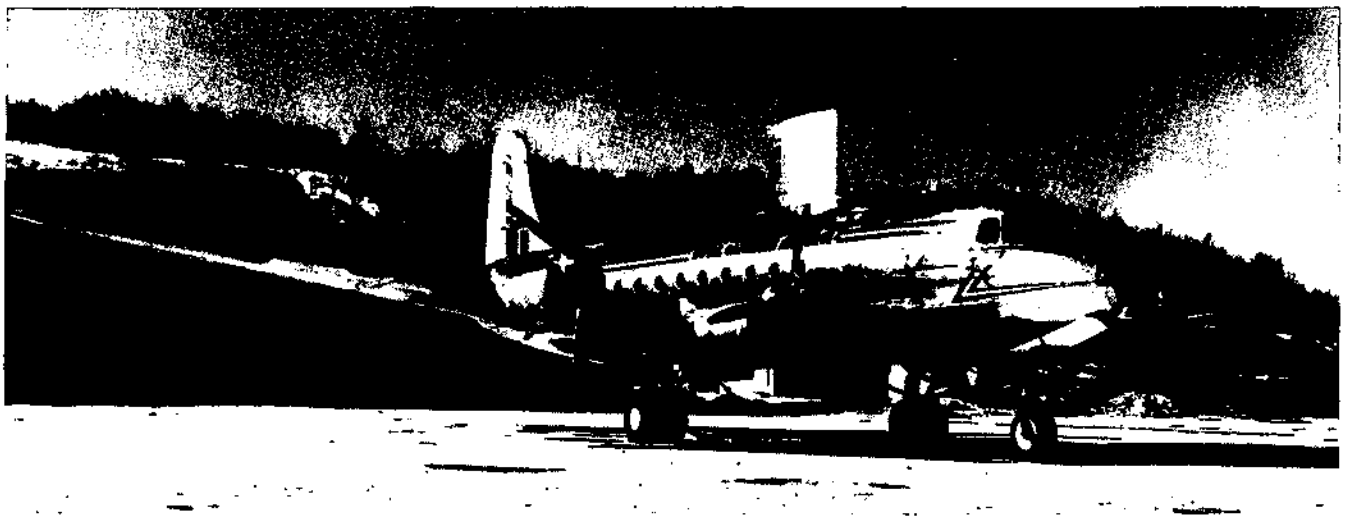


The British Bristol 170 FREIGHTER/WAYFARER high-wing cargo carrier has two 1,700 h. p. Hercules engines and a bulldog appearance.

Britain's Armstrong Whitworth's APOLLO is a 26-passenger airliner with four turboprop Mamba engines rated at 1,010 h. p. each.



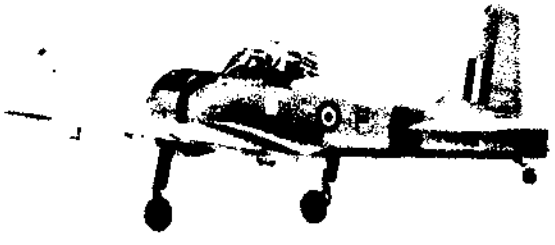
The British Vickers VISCOUNT airliner, a development of the VIKING, is powered by four Dart engines rated at 1,325 h. p. each



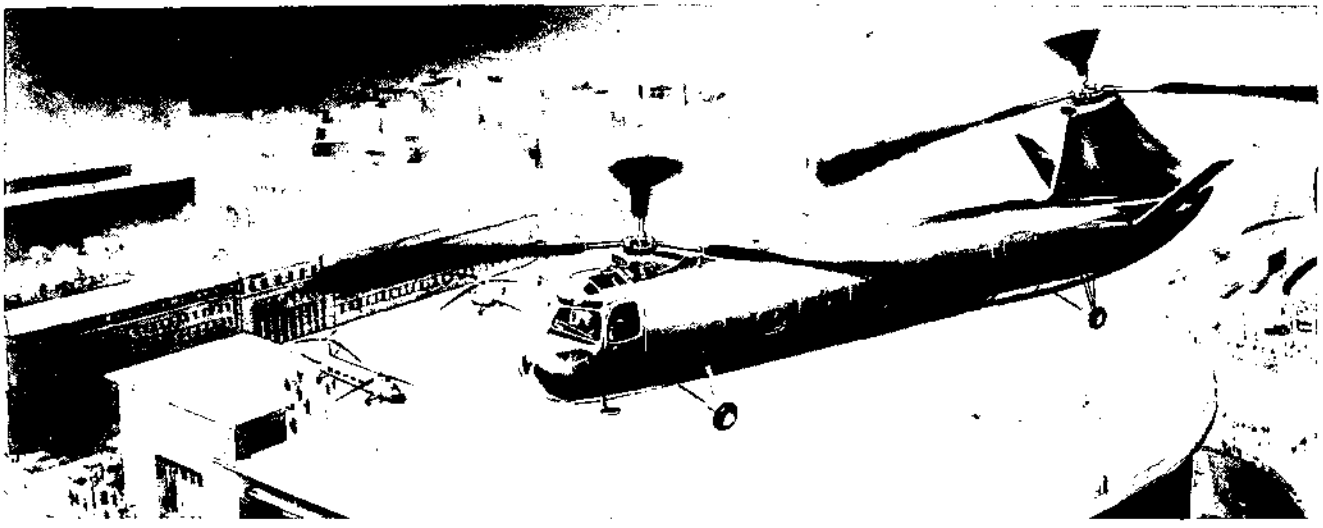
Latest version of the NORTHSTAR is the ROCKCLIFF ICE WAGON, Canadian version of the C–54/R5D, modified for airborne icing research.

Canada's Avro C–102 Jet-liner, a 50-passenger transport with four Derwent turbojets, was the first jet airliner to fly in North America.

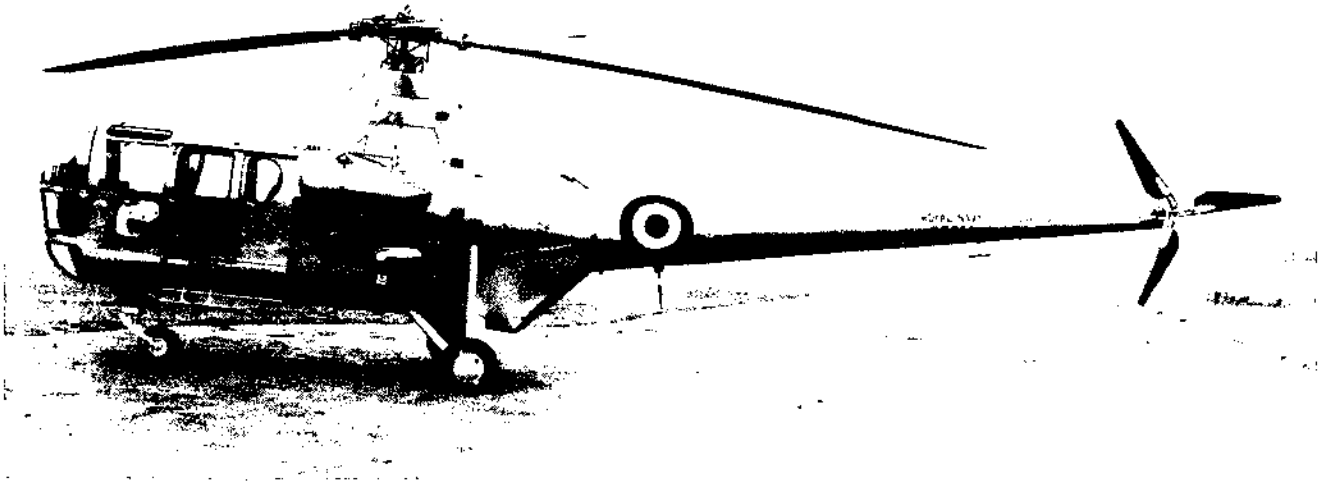
The British Handley Page H.P.R.2 is a two-seat side-by-side trainer.



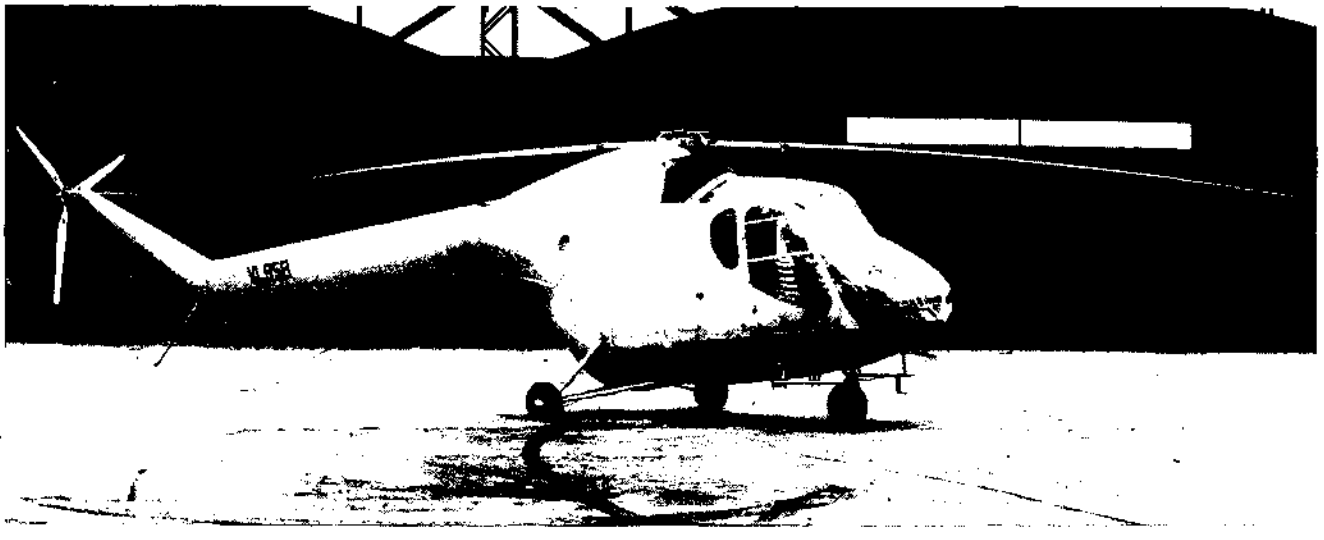
The British Percival P.56 is a two-seat side-by-side basic trainer.



The British Bristol 173 helicopter has two synchronized radial engines each driving a rotor; however, it is able to run on one engine.

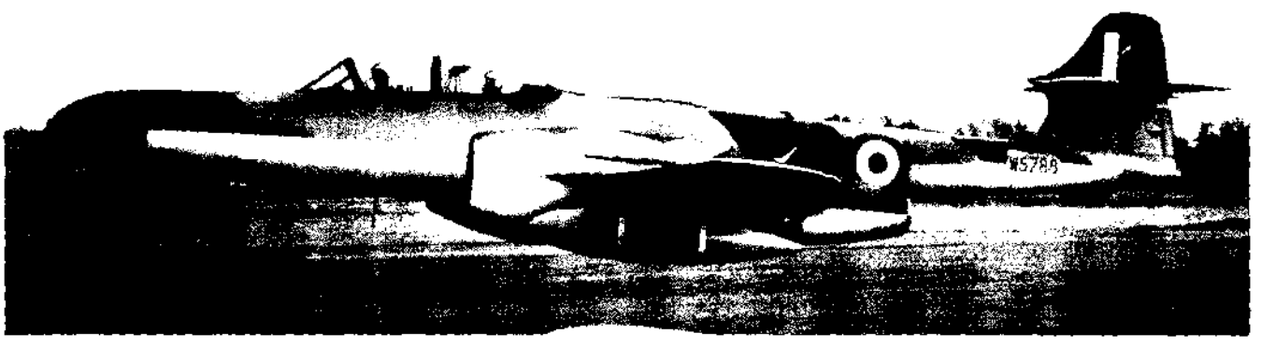


The DRAGONFLY-H. R. Mk. 1 (HO3S/H-5) powered by a 500 h. p. Alvis Leonides engine, is being produced for the Royal Navy by Westland.

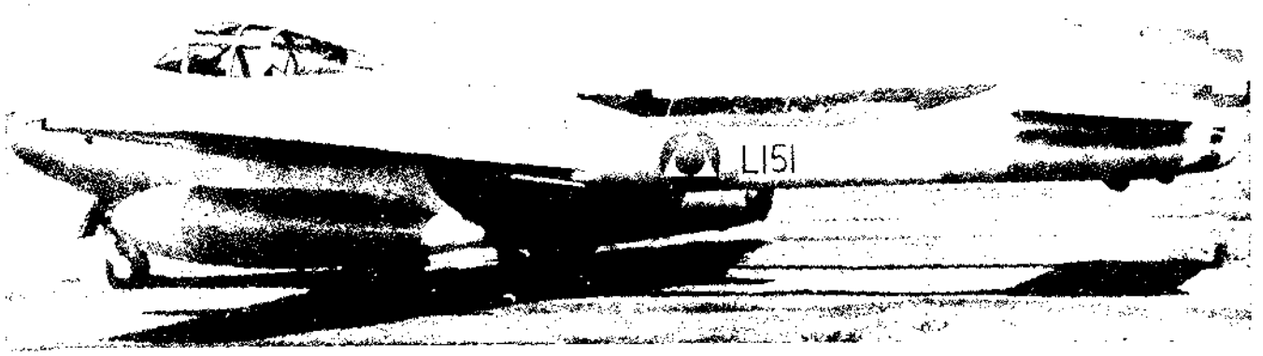


The British Bristol Type 171 SYCAMORE helicopter, first to be built by Bristol, is intended for use as air-taxi, rescue work or artillery spotting.

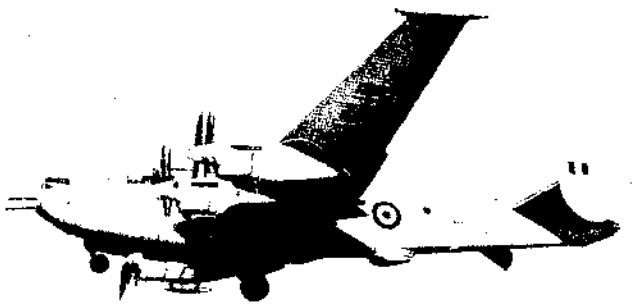
Supermarine's 525 carrier fighter, a swept-wing development of the 508, is powered by two Avon turbojet engines.



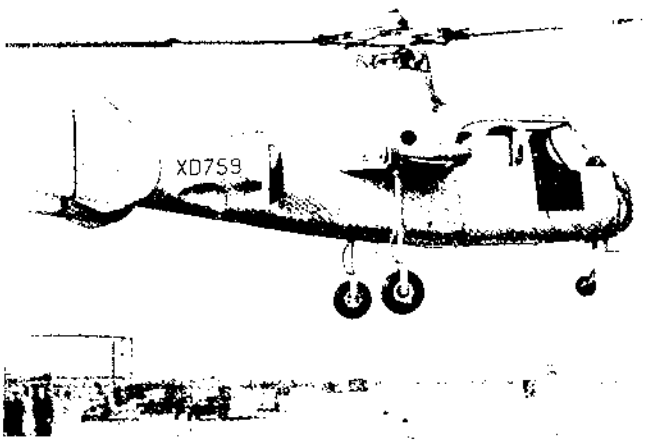
The Armstrong Whitworth METEOR NF Mk. 14 has a one-piece canopy, a radome nose, and increased fin area.



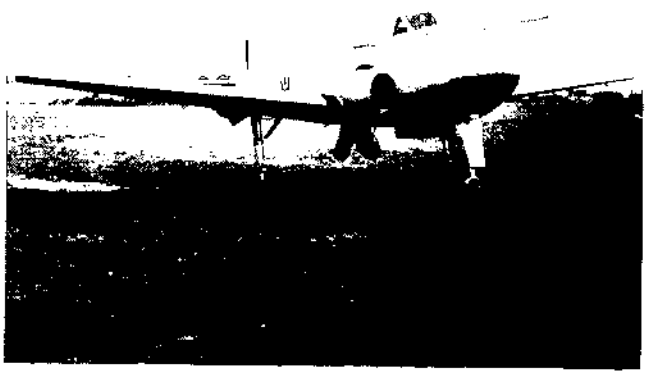
De Havilland's improved VAMPIRE jet trainer features wing tanks and tail-booms with fairings to the rudder.



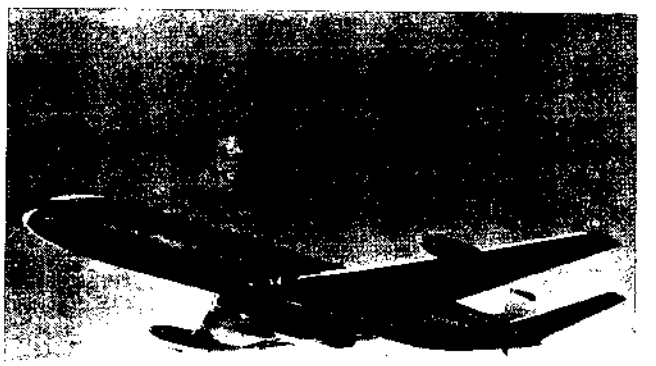
Avro SHACKLETON Mk. 3, with a nose wheel.



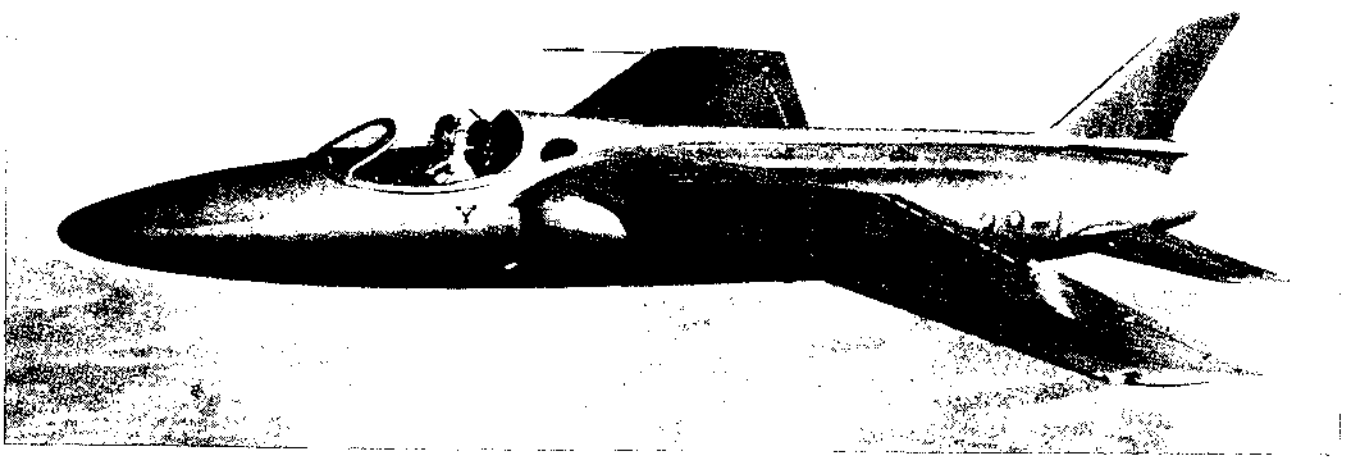
The GYRODYNE II convertiplane has pusher props.



Percival JET PROVOST trainer has a Viper jet.

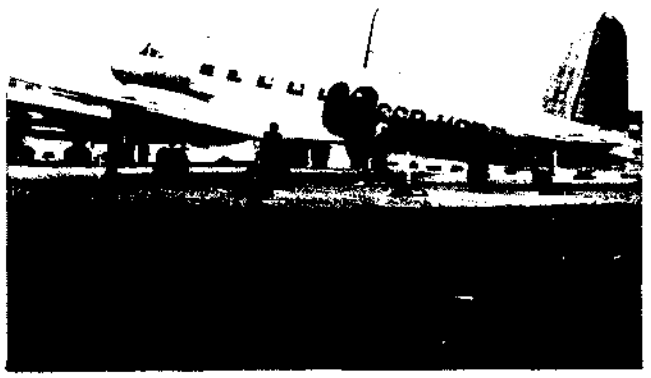


COMET mk. 3, 4 Avons, 9,000 lbs. thrust each.

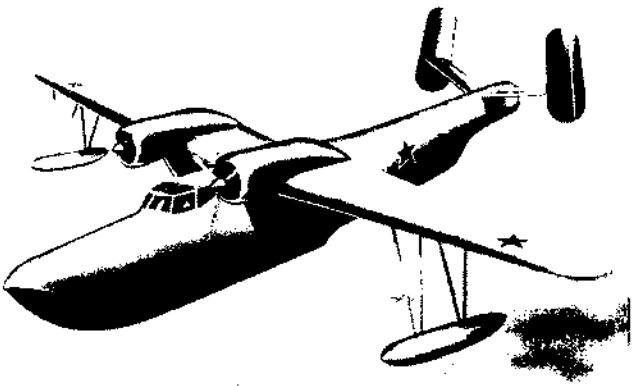


Foland's MIDGE, a prototype of the GNAT, is a lightweight jet interceptor with a 1,640-lb. thrust Viper jet engine.

The Soviet "CROW" (Yak–14) is a strut-braced high-wing four-place monoplane with a fixed landing gear.



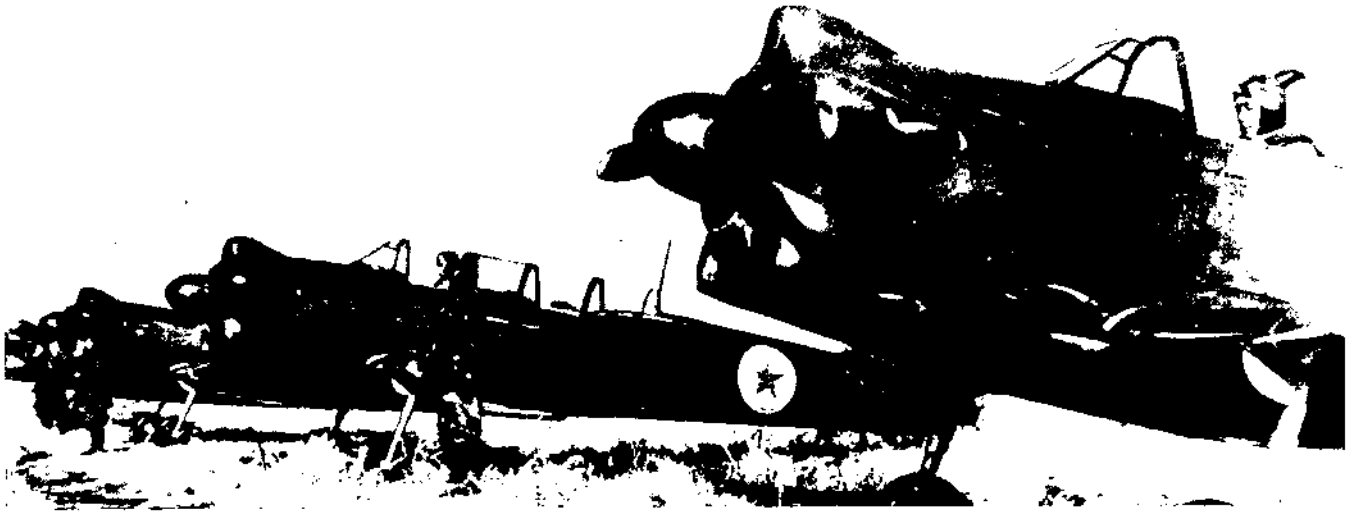
The twin-engined "ARK" (Yak–16) carries 14 passengers.



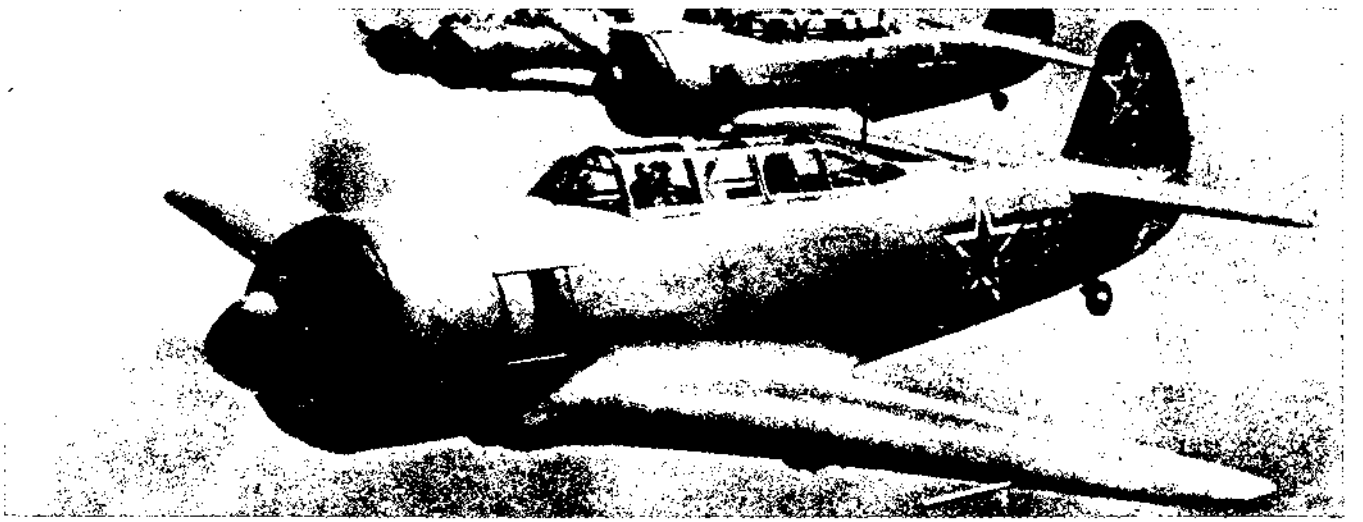
The "MADGE" seaplane is an improved MDR–6.

The Soviet "HARE," by Mil, resembles the HO5S.

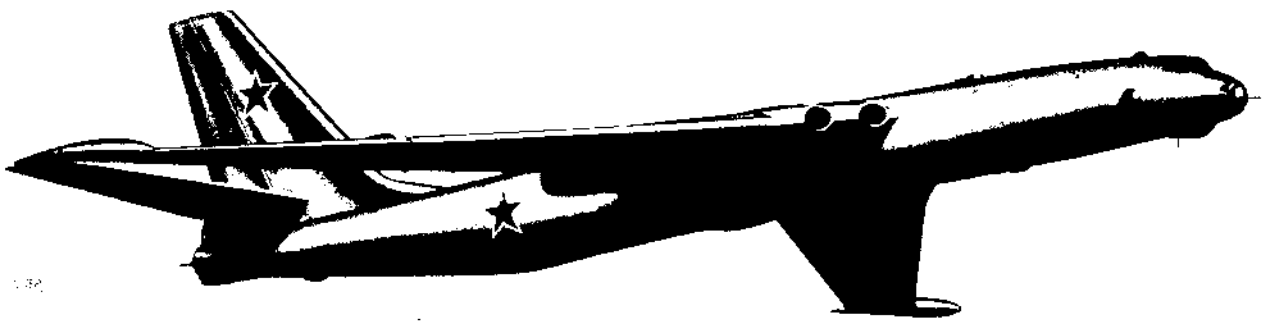
The "HOUND" helicopter by Mil, resembles the HO4S.



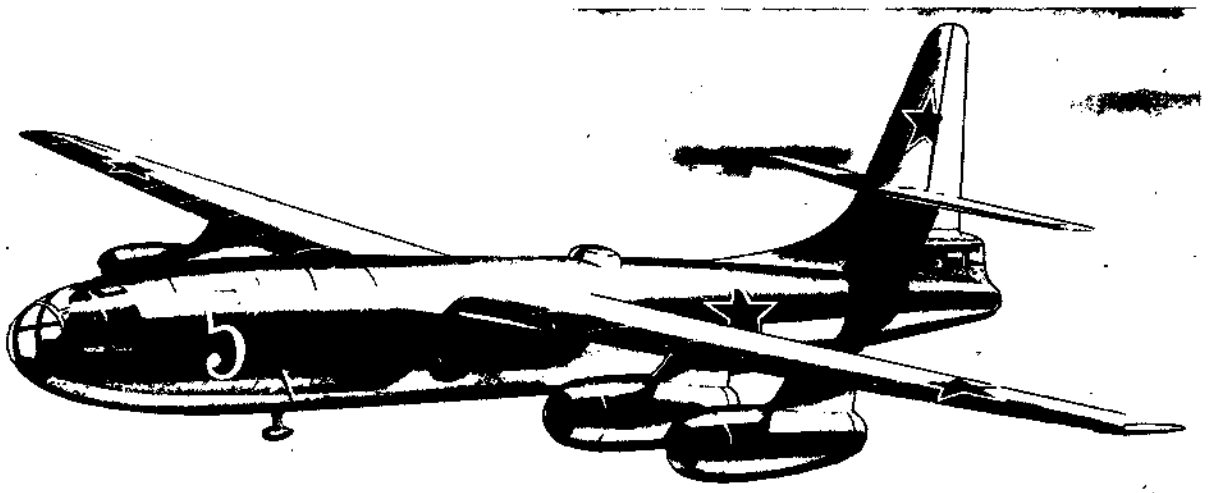
The "MAX" (Yak–18), a single engine low-wing trainer, features a radial engine and a fixed landing gear.



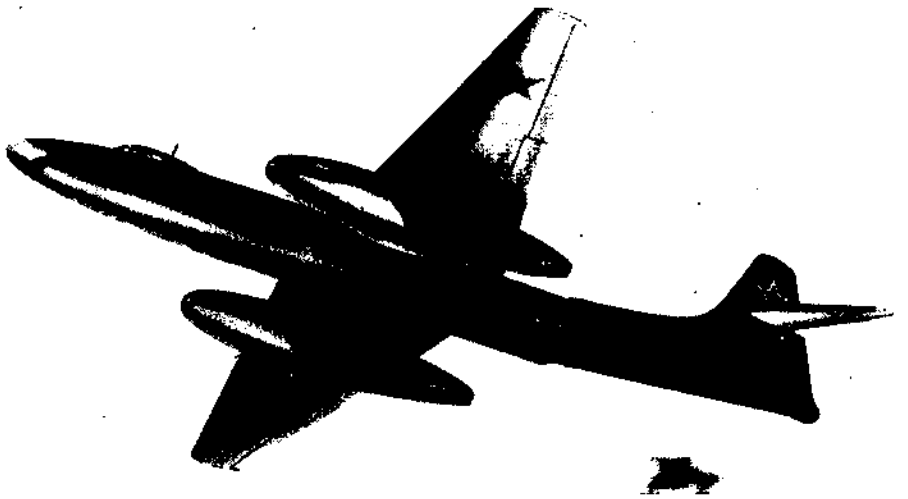
The Soviet "MOOSE" (Yak–11) trainer, featuring a prominent greenhouse, is similar in appearance to the T–6/SNJ.



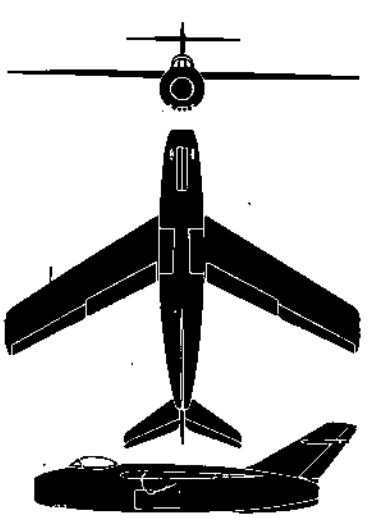
The Soviet "BISON" long-range four-jet bomber appeared at the 1954 Air Show.

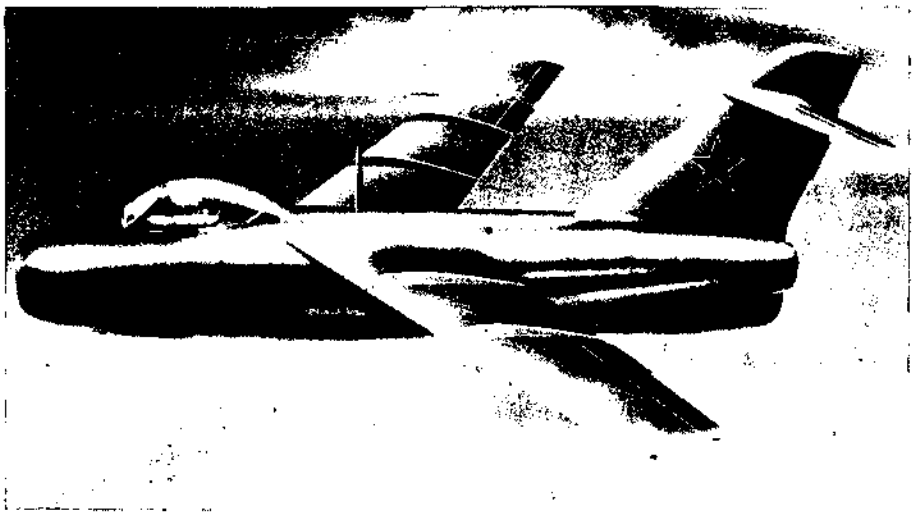


The Soviet's ILYUSHIN four-jet bomber, Type 10, with its tricycle landing gear, is approximately the size of the U. S. B–17 FORTRESS.



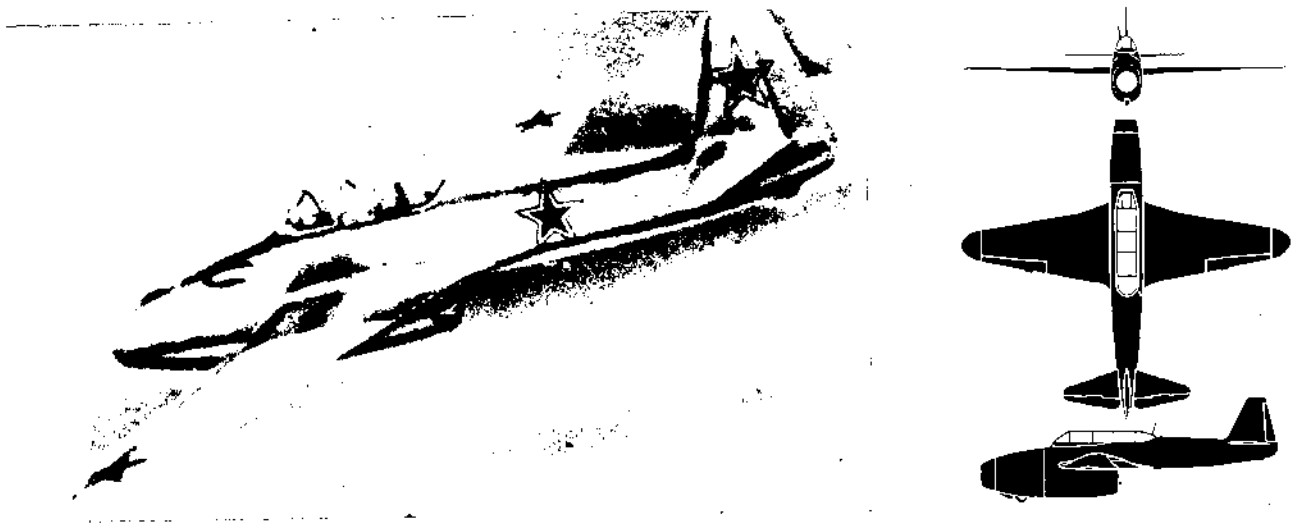
Features of the Soviet Type 12 twin-jet bomber, similar to Type 35, are its tapering shoulder-wing, long clean fuselage and sweptback stabilizer.



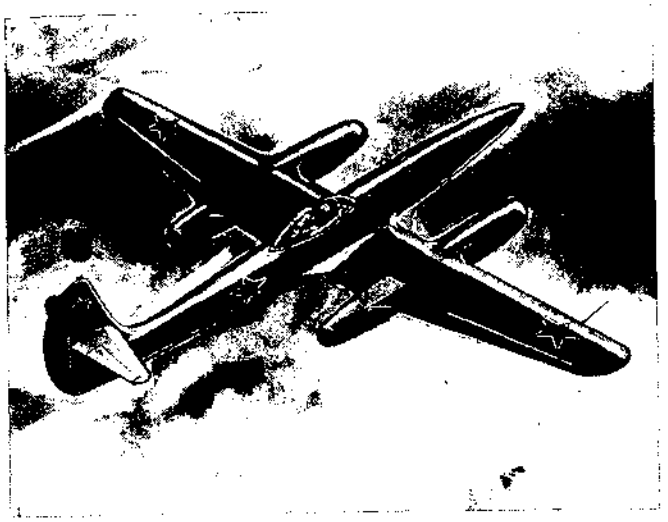


With its all-sweptback surfaces, the Soviet shoulder-wing Type 15 by LAVOCHKIN is a high-speed jet fighter of advance design.

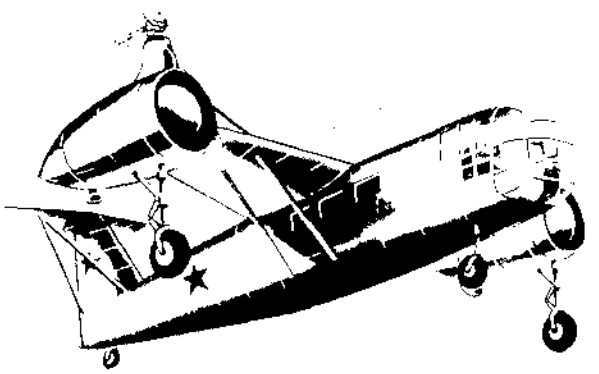
955047 O—51——5



The Type 26, a jet trainer version of the Type 16, is a development of the Yak–15 with a tricycle landing gear and an external nose wheel fairing.

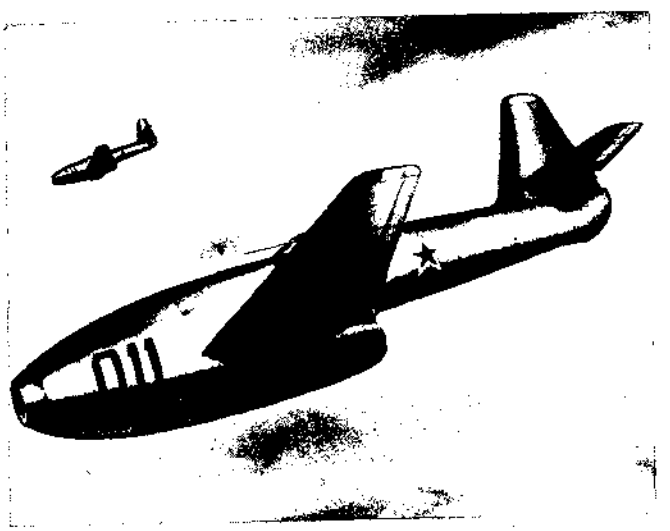


The Soviet twin-jet Type 8 resembles the German Me 262.



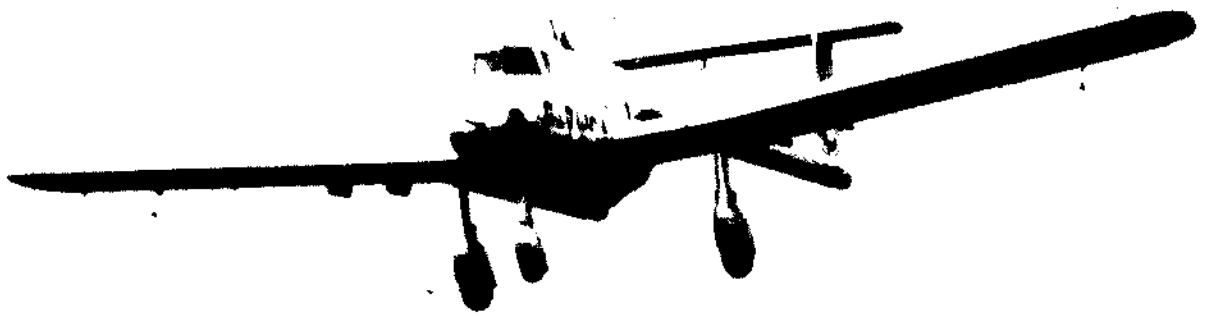
BRATUKHIN designed the twin-rotored OMEGA helicopter.

Designed for feeder-lines the Soviet Yak-16 carries 14 passengers.

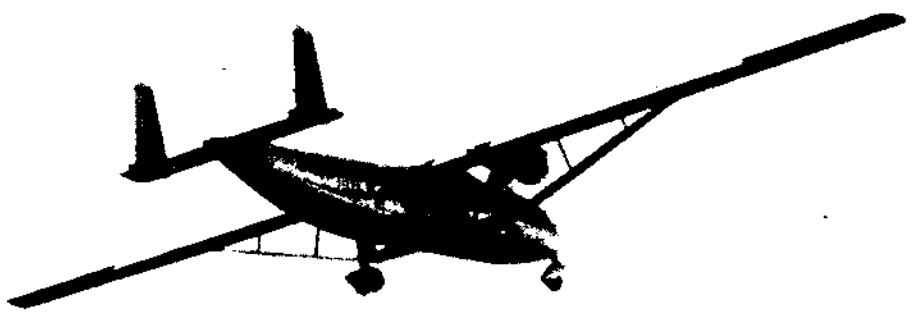


The Soviet Type 28 jet fighter resembles the Yak–15 series.

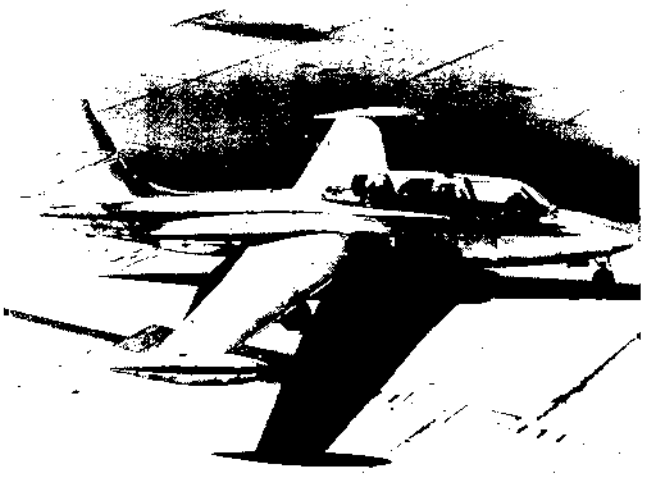
The French SUD-EST AQUILON (SEA VENOM) is a carrier fighter powered by a Fiat-built Ghost jet engine.



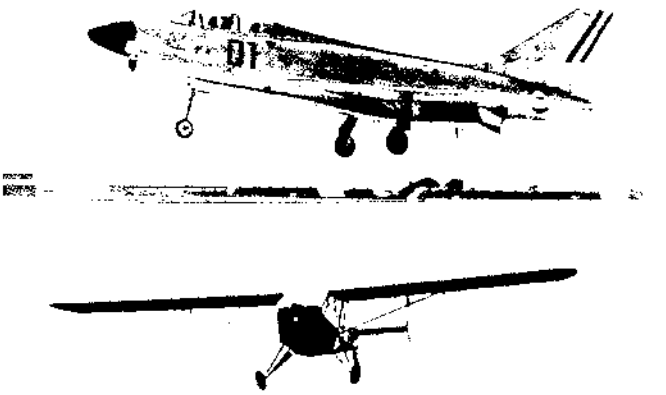
The French Potez HP 75, a heavily armored rocket-armed low-speed attack aircraft, has a 450 h. p. pusher engine.



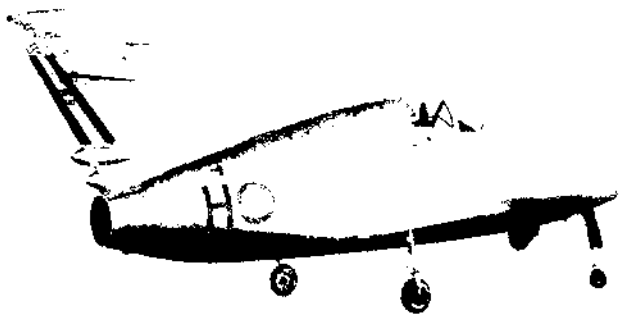
The French Hurel-Dubois H. D. 31, a high aspect ratio twin-engined transport has double-fins, and a fixed landing gear.



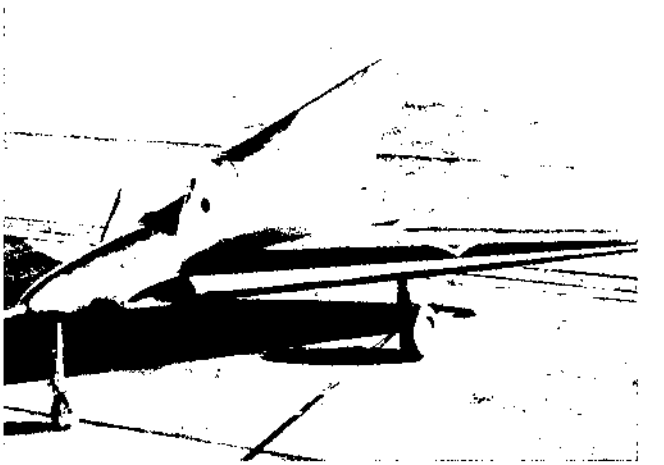
The French Fouga C. M. 170R jet trainer, third prototype.



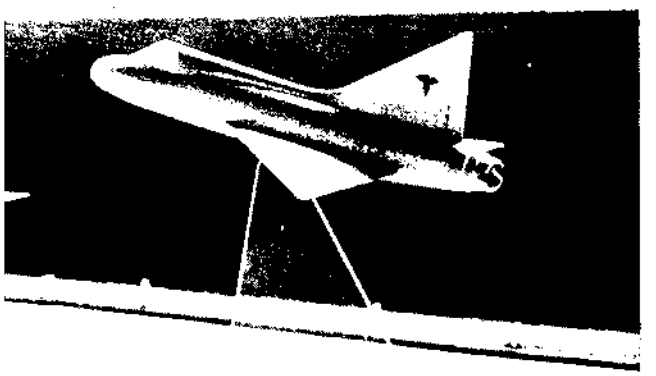
Dassault MYSTERE IVN (top) and NC 856.



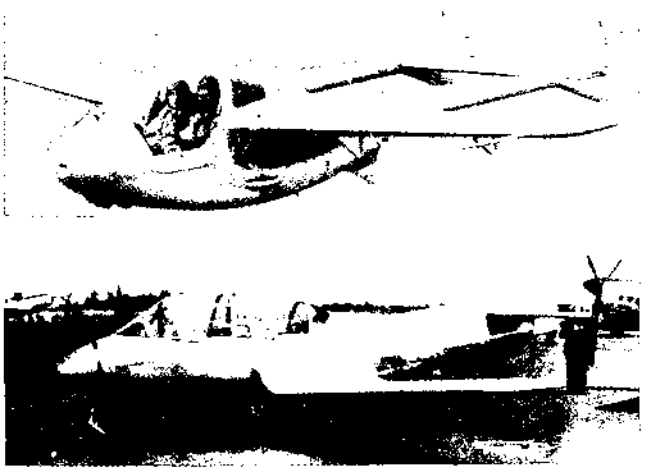
The French 1402 GERFAUT is a delta-wing test plane.



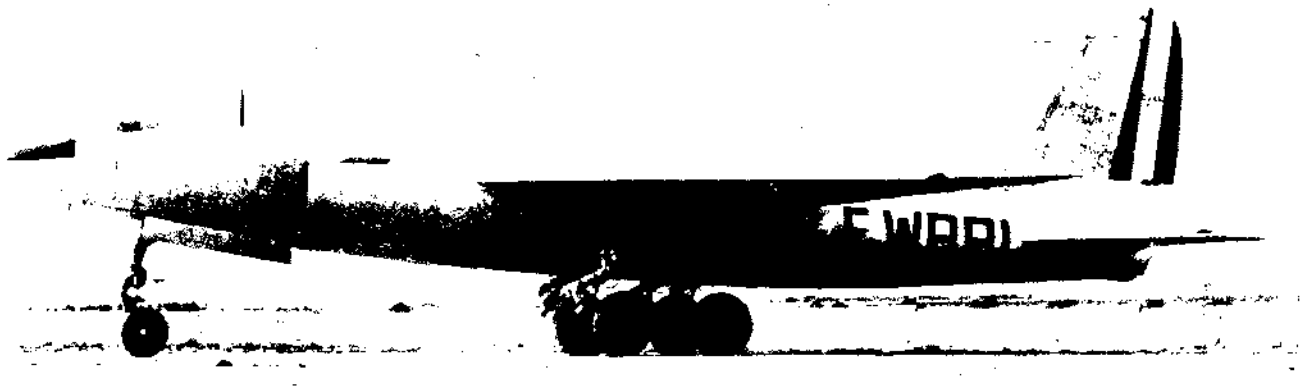
The Payen P. 49 is the first French delta-wing to fly.



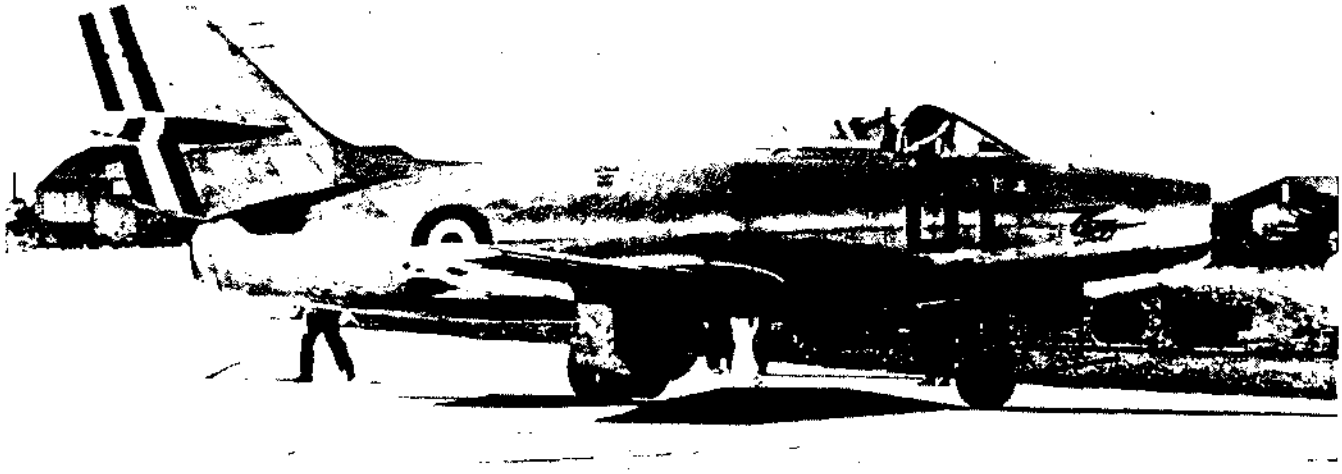
SE DURANDAL delta-wing lightweight fighter.



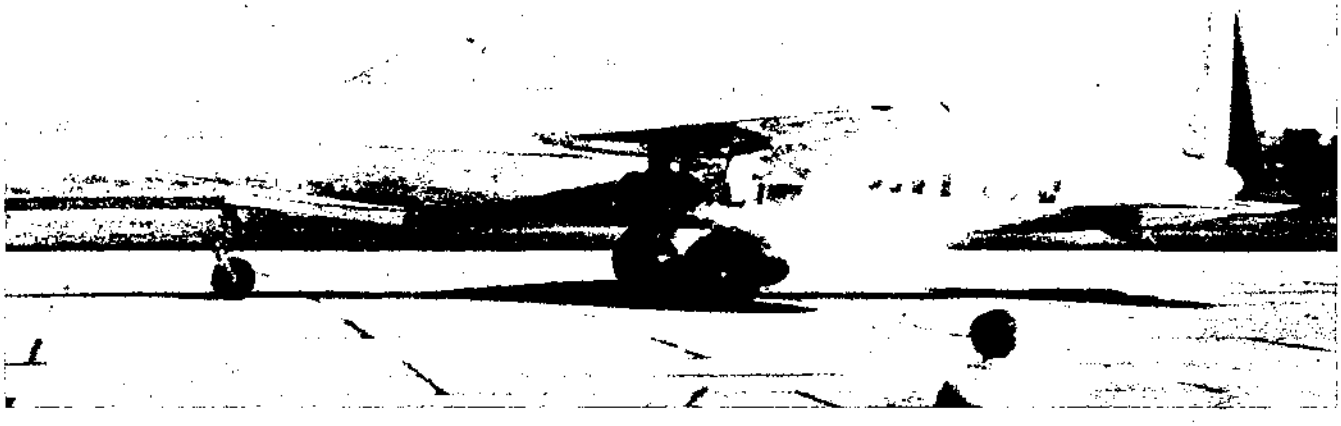
S. I. P. A.'s 1,500-lb. MINIJET (top) and "300" trainer.



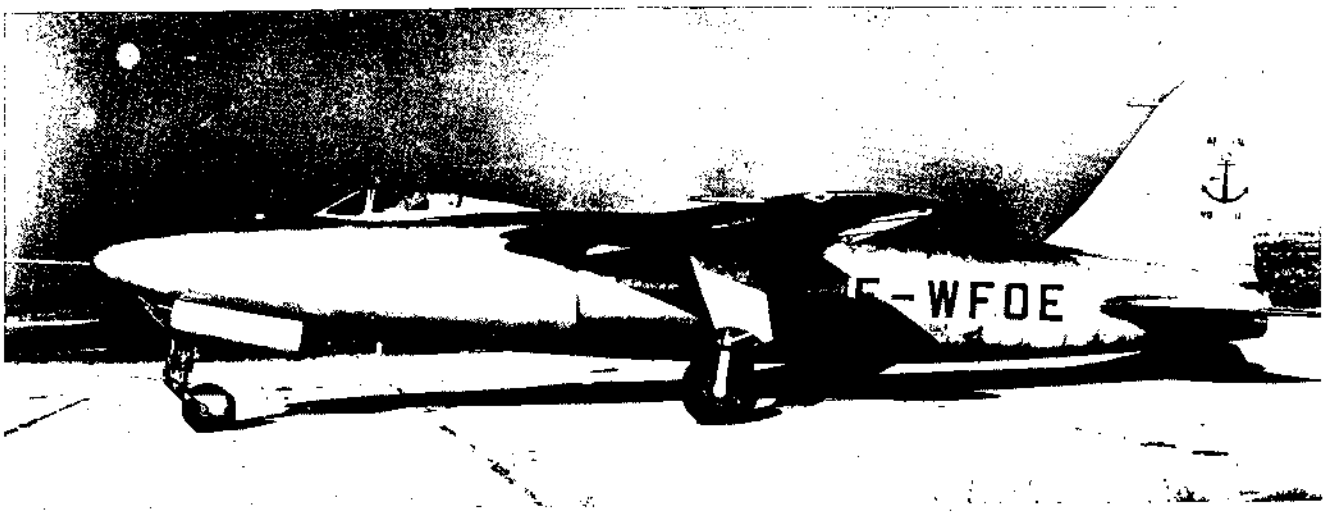
The French S. O. 4000 experimental twin-jet high-performance bomber is the culmination of the research aircraft S. O. M. 1 and M. 2.



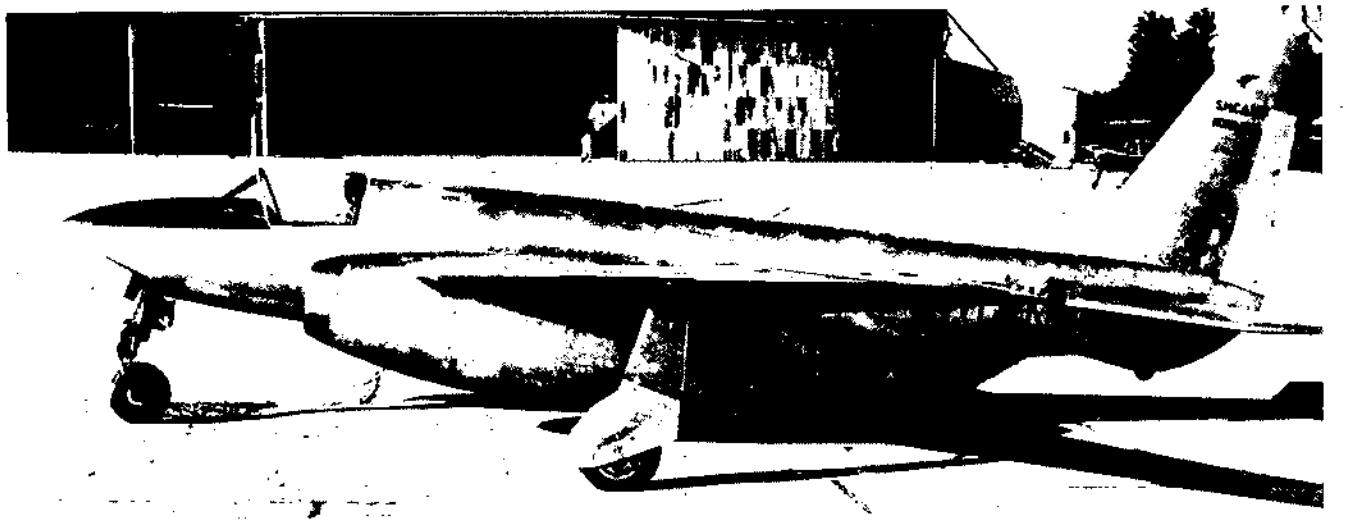
The French Dassault M. D. 450 OURAGAN (Hurricane) is a single-seat French Nene powered fighter; a swept-wing version is called the MYSTERE.



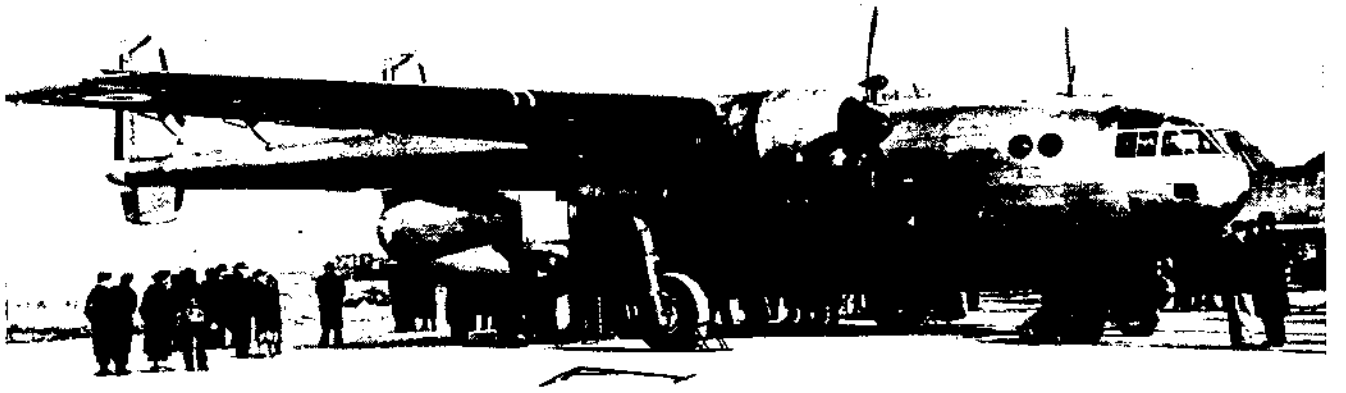
The French S. O. 6021 ESPADON (Swordfish) fighter is a modified S. O. 6020 with side intakes for its French Nene turbojet engine.



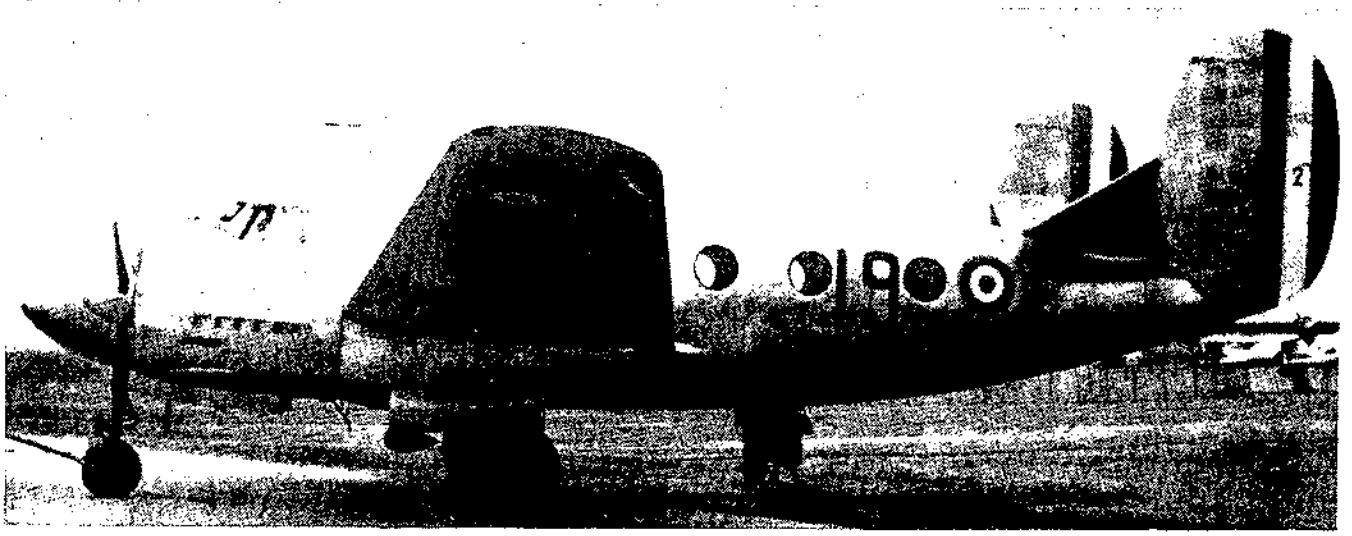
The French Arsenal VG 90, a single-seat shoulder-wing naval jet fighter, is a development of the VG 70 with a French Nene turbojet engine.



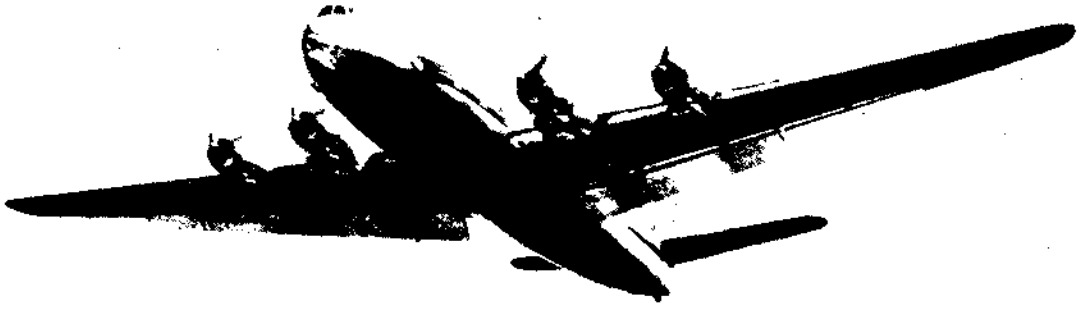
The French Nord 1601, a sweptback wing and tail twin-jet research aircraft, is powered by Derwent jets on each side of the fuselage.



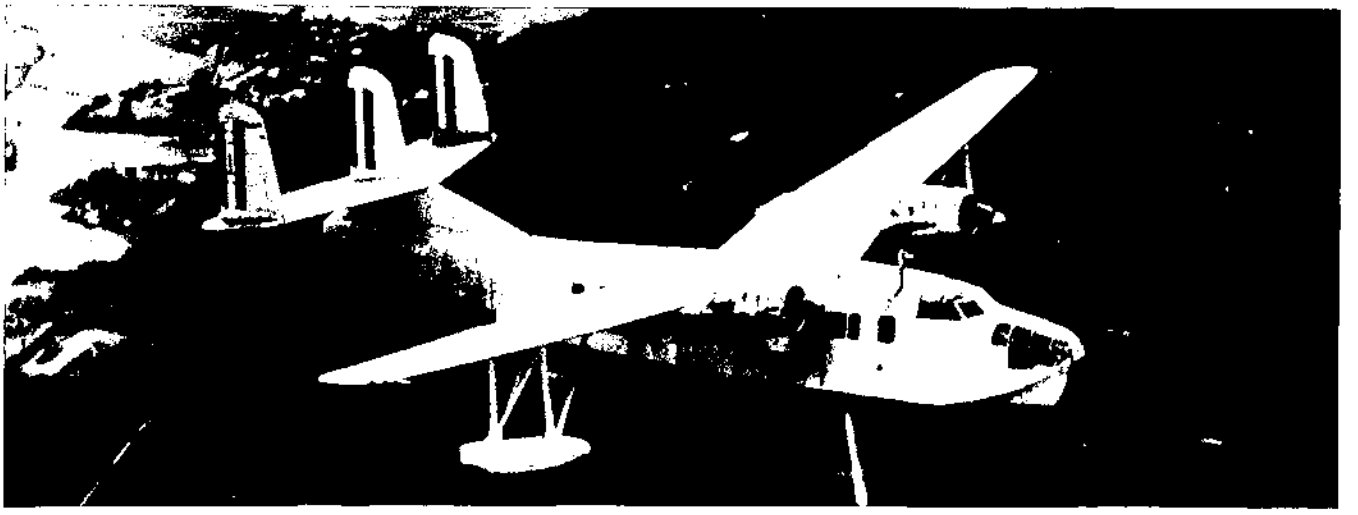
The French Nord 2500 NORATLAS, a medium military cargo transport similar to the U. S. C–119, has two 1,600 h. p. engines.



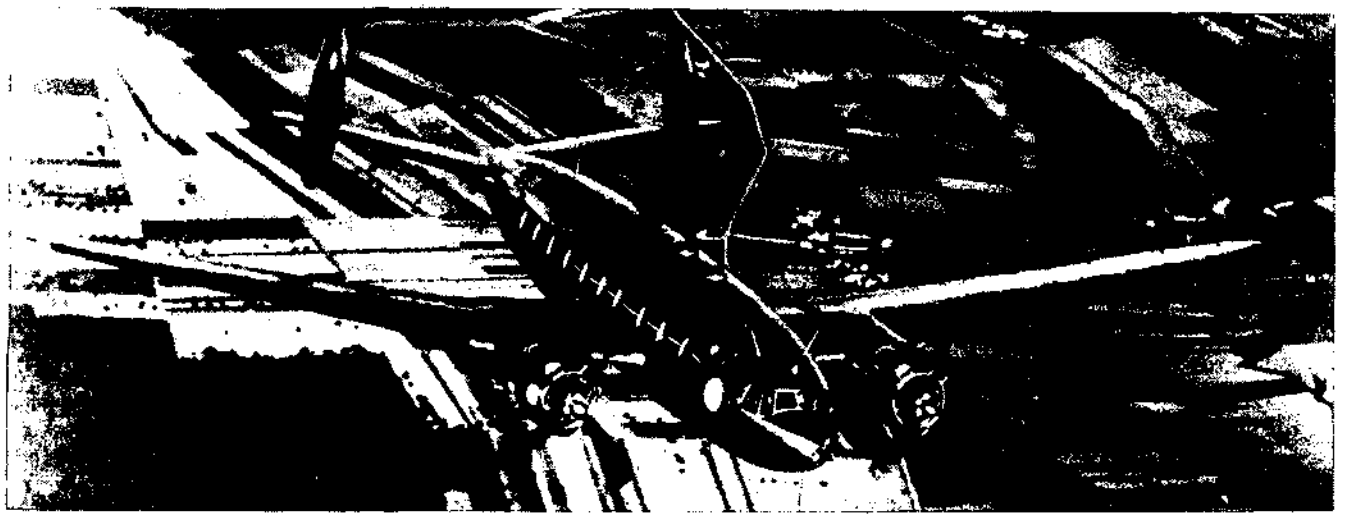
The French Dassault M. D. 315 FLAMANT, a light military transport with two engines rated at 600 h. p. each, is in quantity production for the F. A. F.



The French S. E. 2010 ARMAGNAC is a postwar 90-passenger airliner being produced for Air France with four 3,500 h. p. P & W engines.



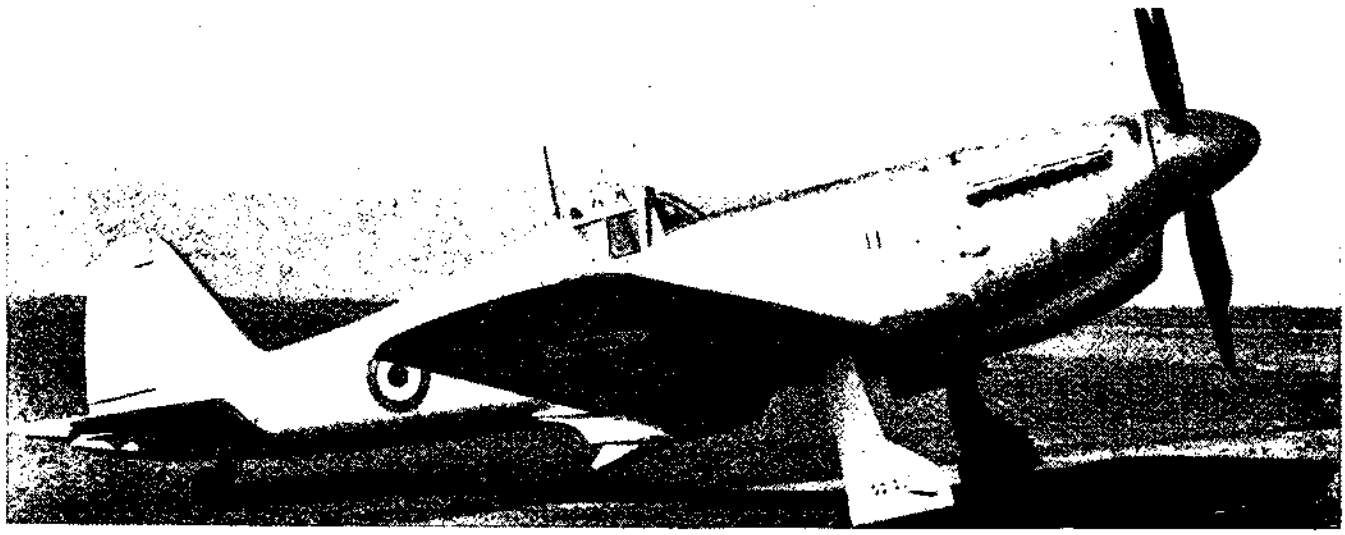
The Nord 1400 reconnaissance and rescue amphibian has been tested with different make engines and is in production for the French Navy.



The French S. O. 30P BRETAGNE is a production version of the S. O. 30 N, R, etc., and is now going into service with U. S. engines.

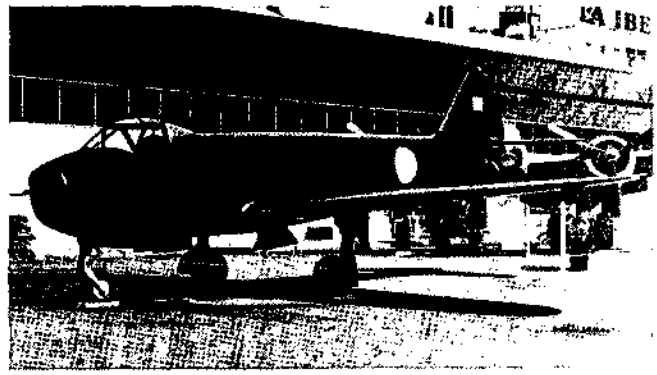
The French Breguet 761 DEUX-PONTS, a large four-engined cargo transport with a two-deck fuselage, is in limited production.

The French S. O. 1100 ARIEL, an experimental two-seat helicopter, is driven by rotor tip jets fed by an exhaust driven engine in the fuselage.

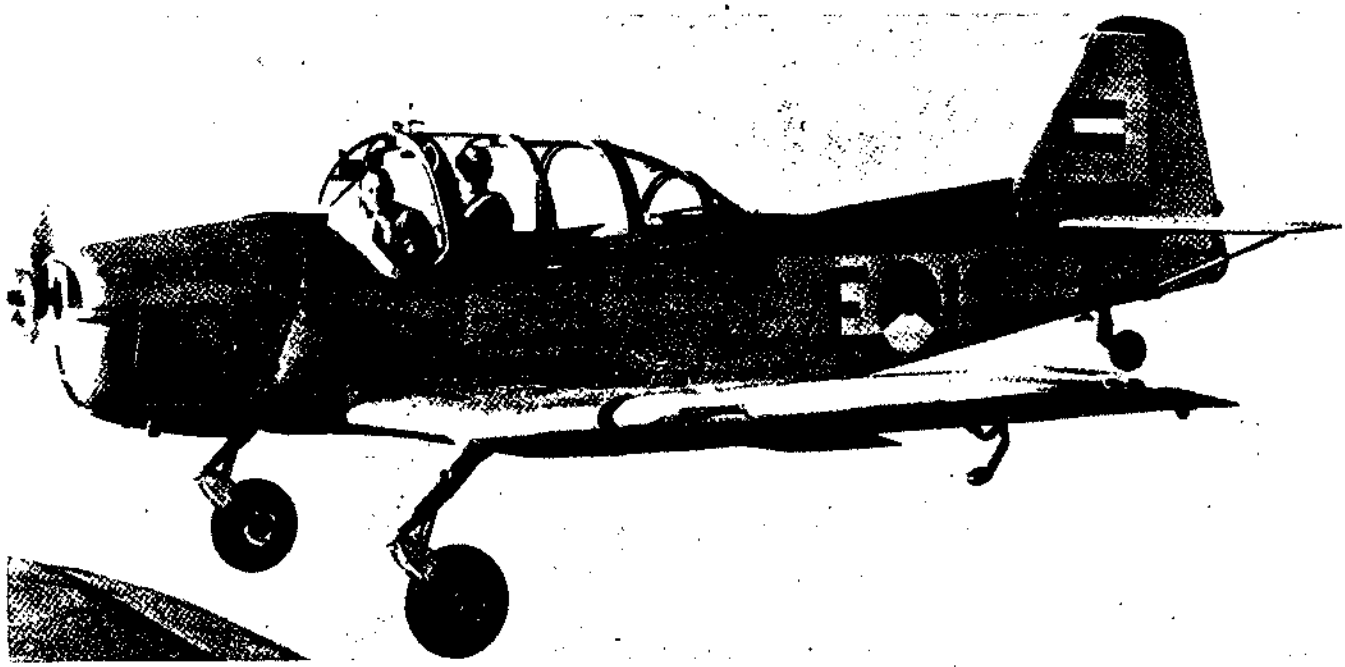


The Italian Fiat G. 59A fighter comes in another version, the G. 59B, a two-seater fighter trainer; both have 1,630 h. p. British Merlin engines.

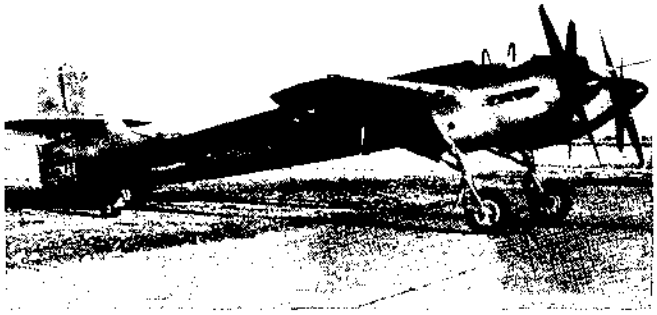
The Italian Breda-Zappata B. Z. 308 transport will carry 55 passengers.



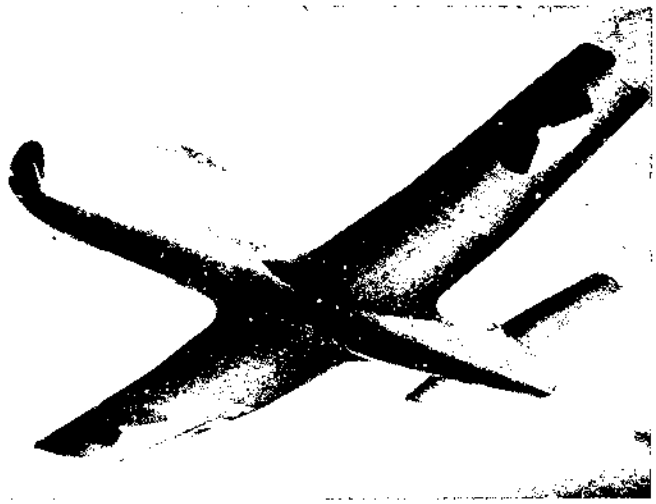
I. Ae. 27 PULQUI I (Arrow) was designed, built and flown in Argentina.



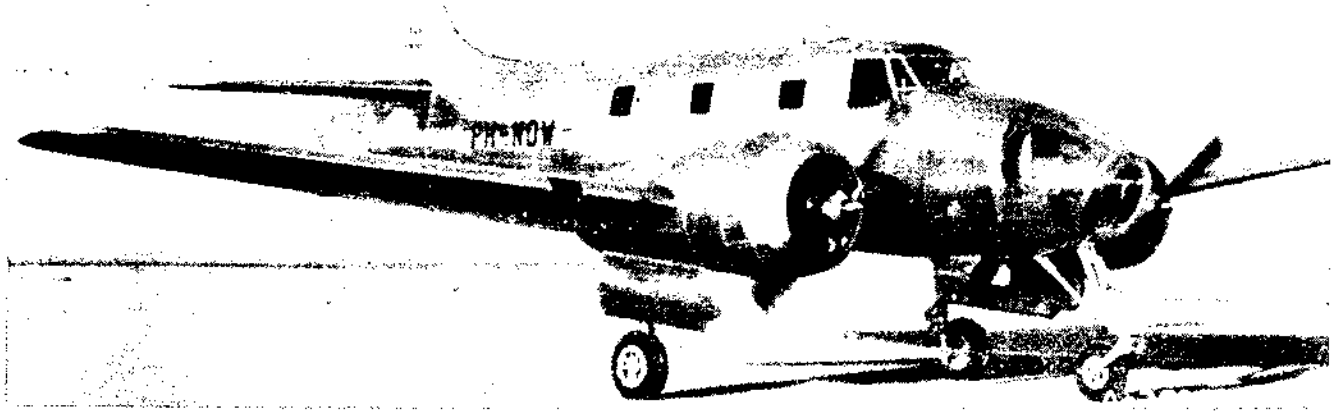
The Fokker S. 11 INSTRUCTOR two/three seat trainer with 190 h. p. Lycoming engine is operational in the Dutch Air Force.



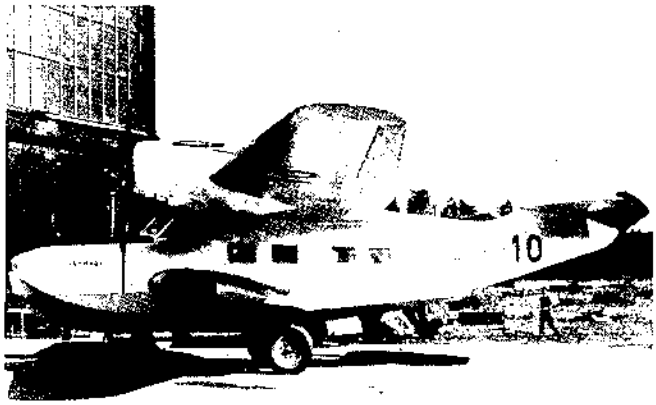
Argentina's I.Ae. 30 NANCU (Eagle) has British engines.



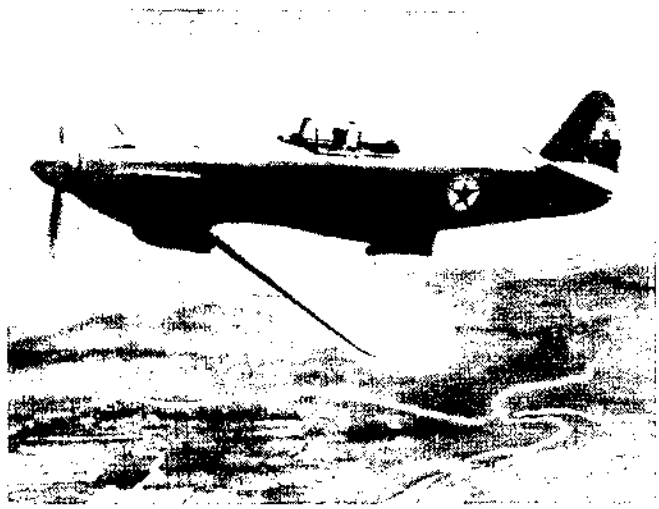
The Dutch Fokker S. 14 jet trainer is to have a Derwent engine.



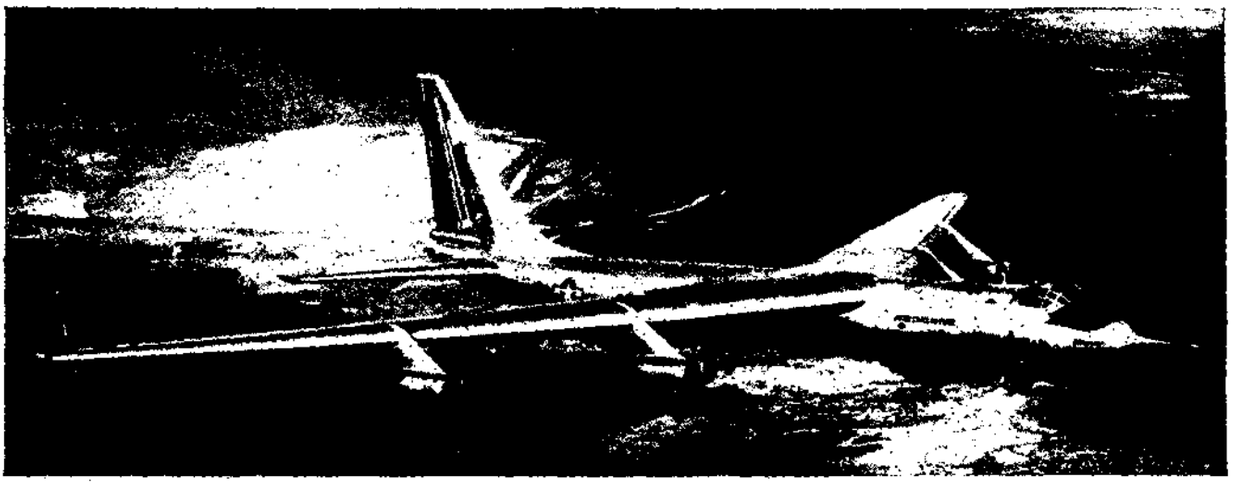
The Dutch Fokker S. 13, an advance trainer weighing more than 12,000 pounds loaded, is powered by 600 h. p. P & W Wasp engine.



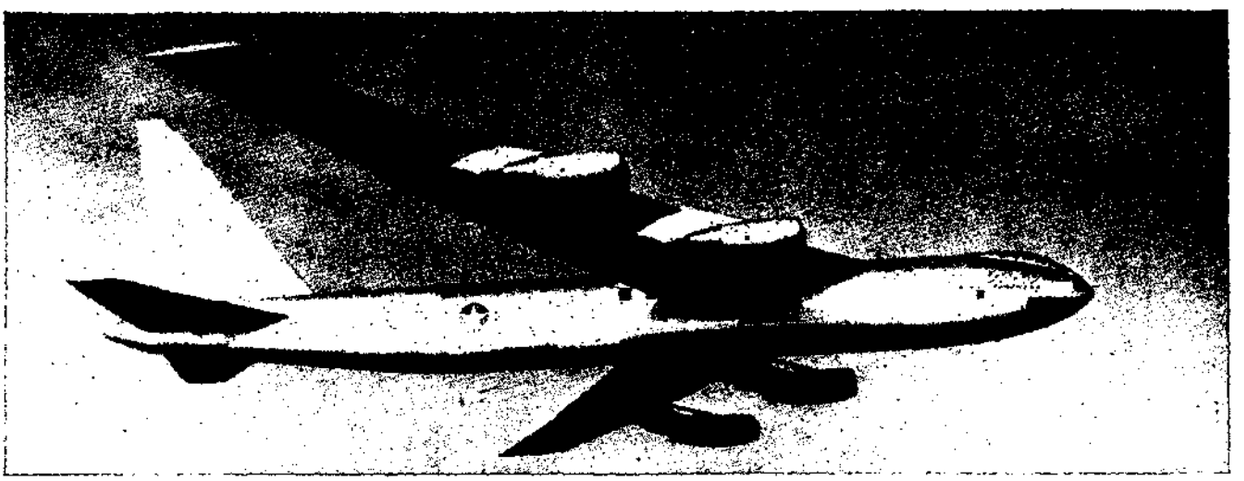
Norway's Hönningstad FINNMARK amphibian has U. S. engines.



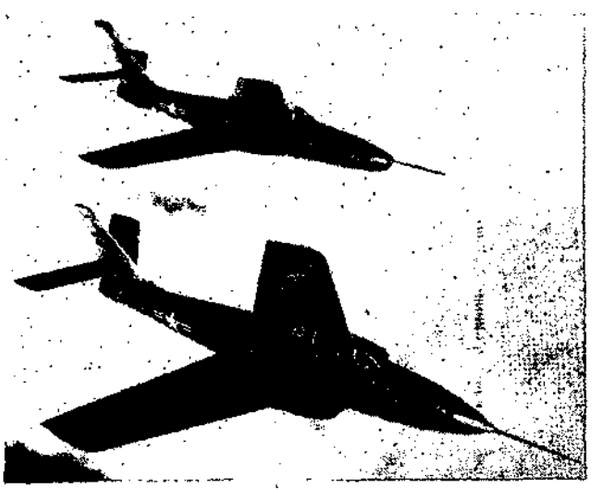
The Yugoslav S-49 is similar to Soviet Yak prop fighters.



Convair's swept-wing and tail heavy jet bomber, the YB-60, features eight J-57 turbojet engines and some B-36 bomber components.

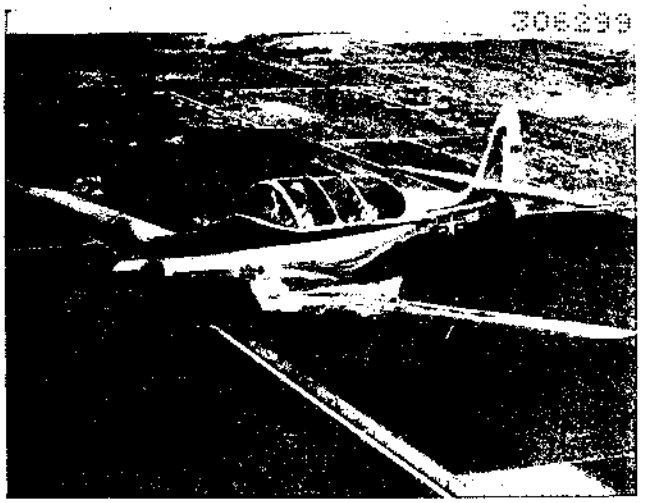


Boeing's YB-52 STRATOFORTRESS, a long range heavy bomber, features eight J-57 turbojet engines, and a decelerating parachute.

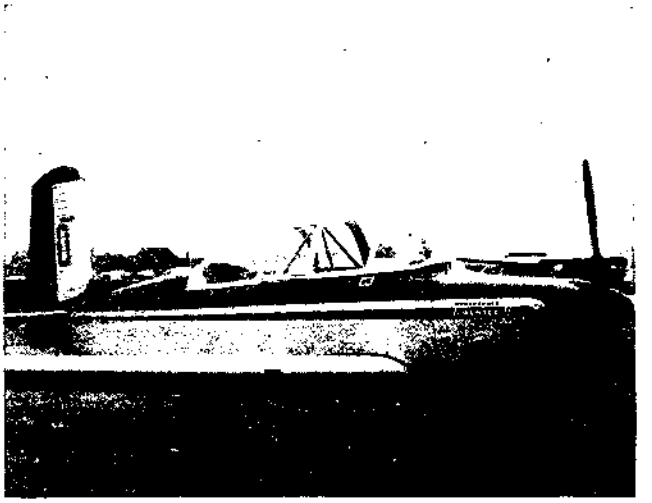


The Republic F-84F and RF-84F (rear) have wing root intakes.

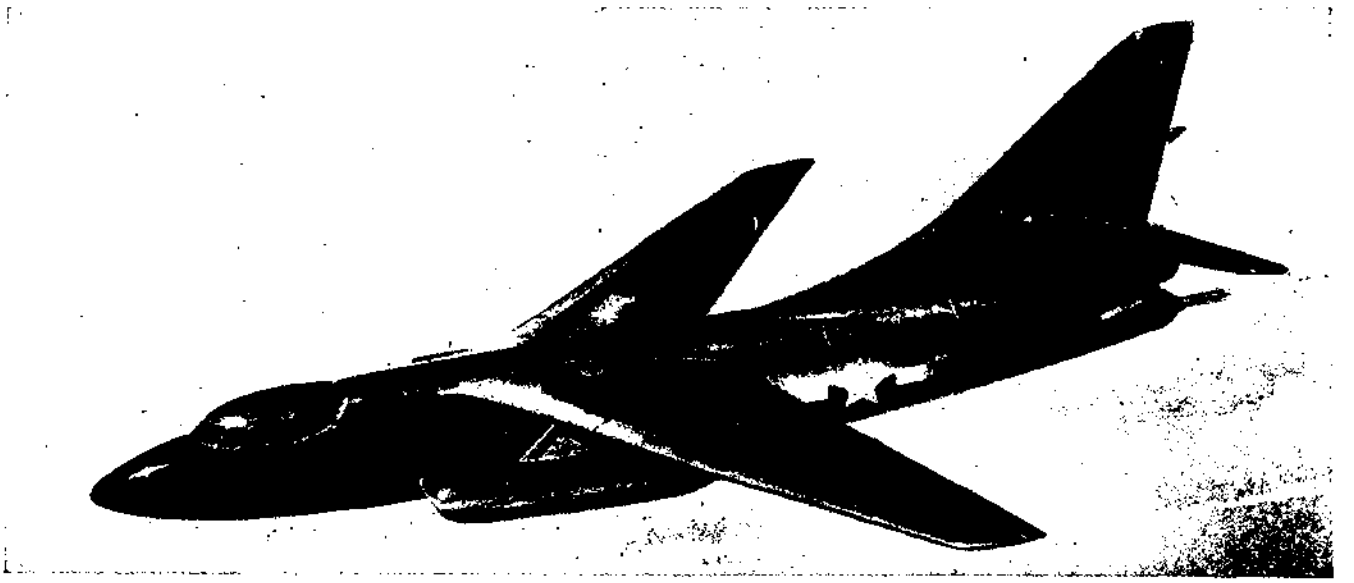
Lockheed's F-94C STARFIRE has a new nose and stabilizer.



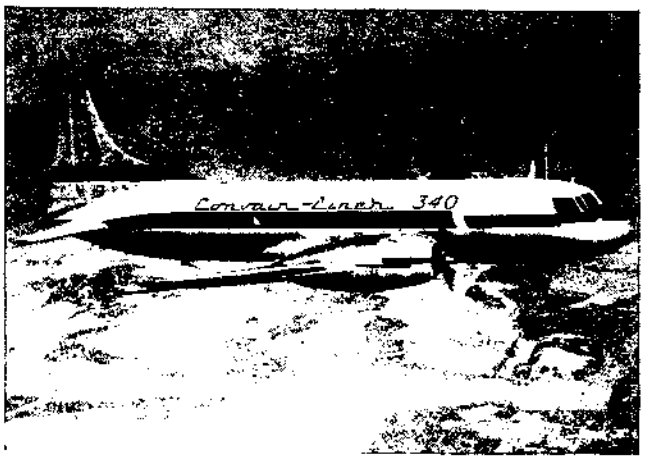
*YT-35 BUCKAROO primary trainer has a 165 h. p. engine.



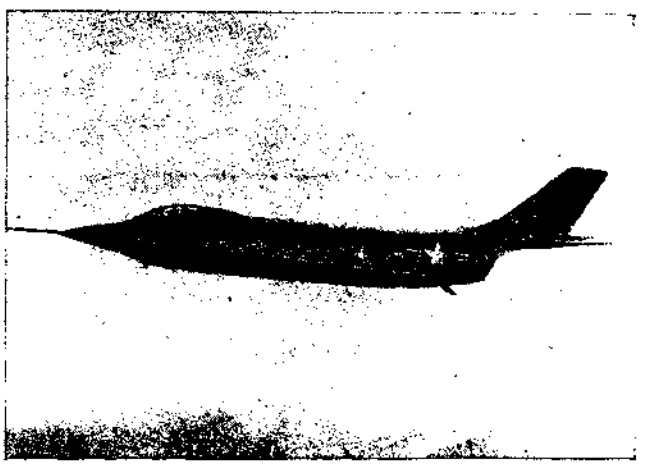
*Beechcraft's YT-34 MENTOR is similar to BONANZA.



The Navy's Douglas XA3D is a twin-jet, swept-wing attack bomber designed for carrier operations; an A. F. version, XB-66, is planned.

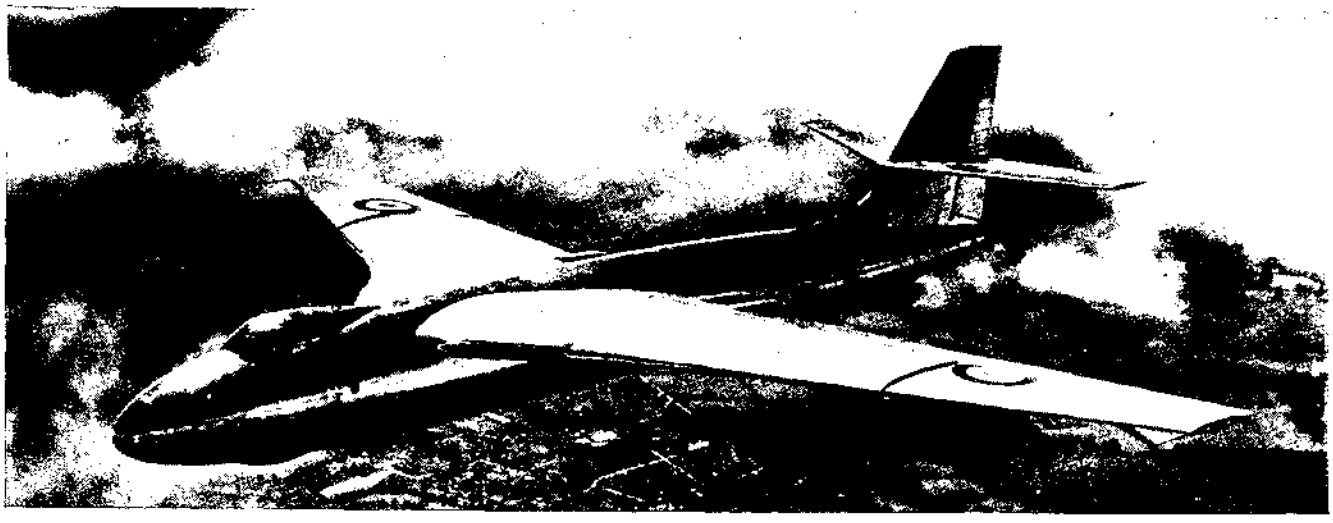


The new CONVAIR-LINER 340 is longer than the 240.

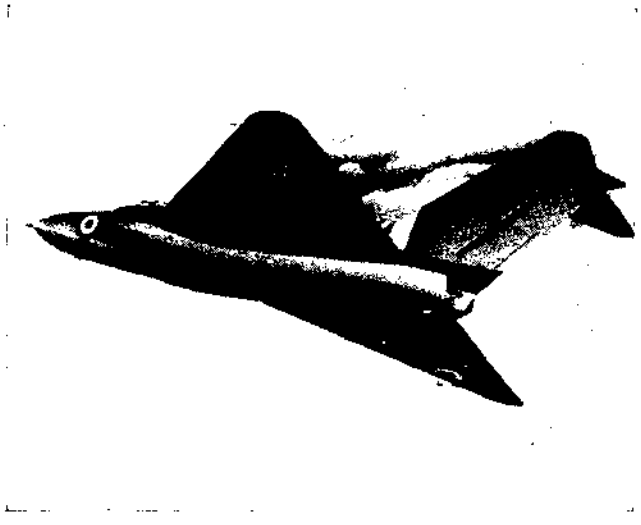


McDonnell's XF3H DEMON Navy fighter features swept-wings.

*Errata for aircraft mislabeled YT-33 and YT-34.

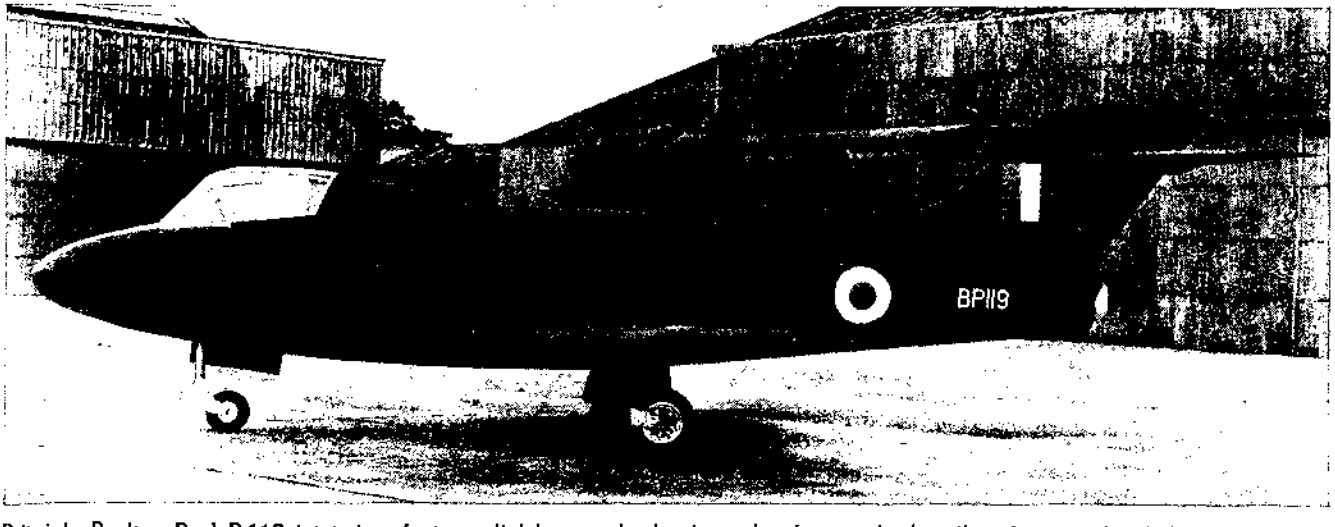


The Vickers VALIANT, Britain's first four-jet bomber, features Avon jet engines in buried wing root installations and slightly sweptback wings.

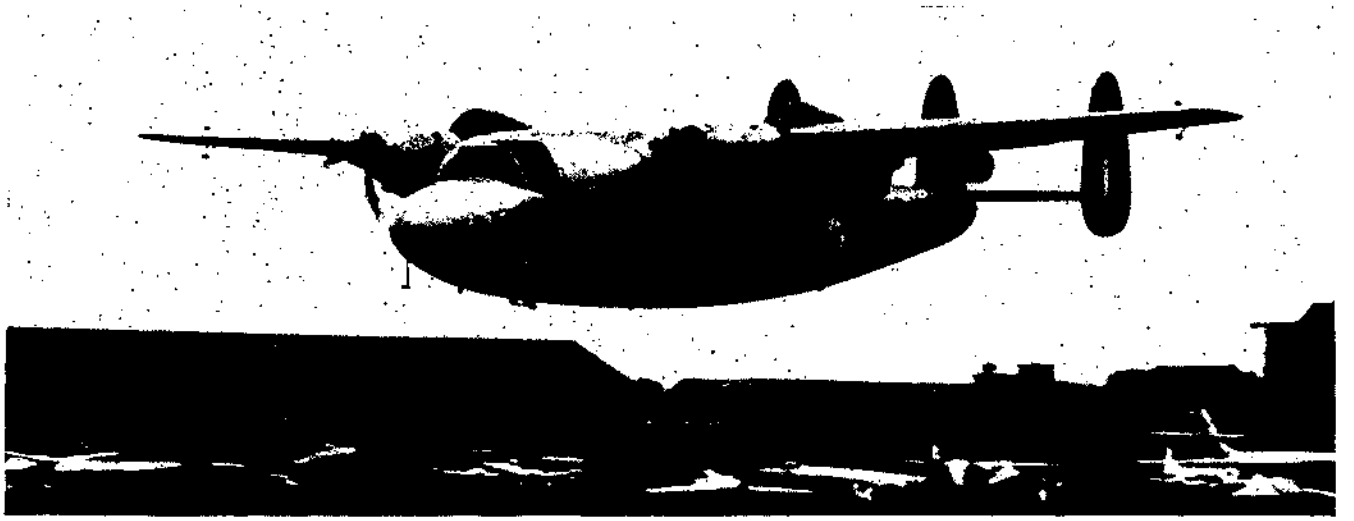


The British Gloster G.A.5 delta-wing JAVELIN has two Sapphire jets.

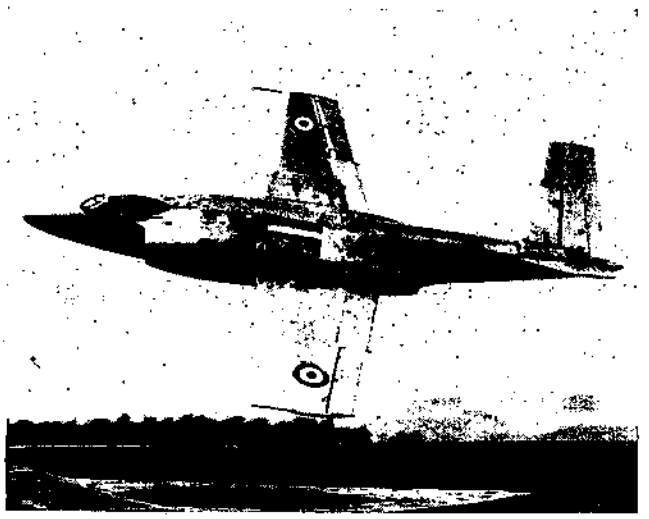
Britain's Avro 707A delta-wing jet features wing root intakes.



Britain's Boulton Paul P.119 jet trainer features slightly sweptback wings, sharply sweptback tail surfaces and side-by-side seating.

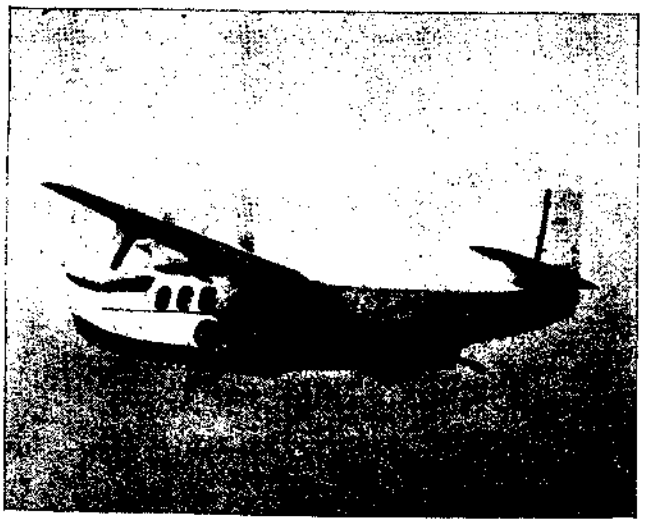


The British deHavilland MARATHON Mk.2 fitted with reversible pitch propellers is a turboprop engine version of the four-engined Mk.1.



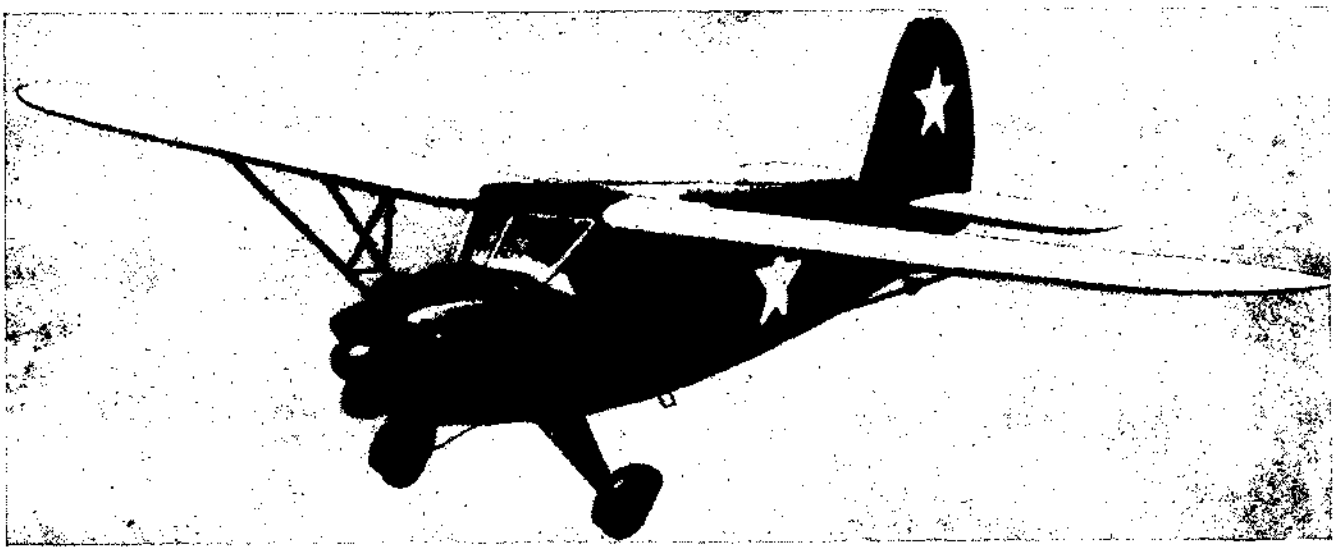
Britain's Supermarine 508 is a naval fighter with two Avon jets.

The British deHavilland D.H.110 VIXON has two Avon jets.

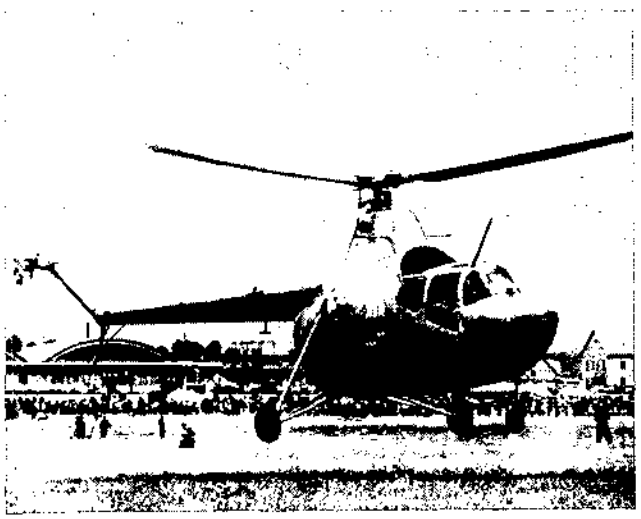


The British Short SEALAND is a light, twin-engine amphibian.

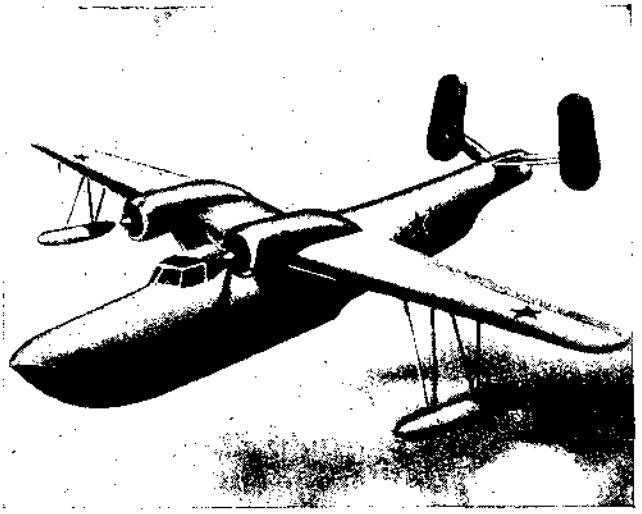
The British Short INSURANCE Bomber has four Avon jets.



The Soviet Type Yak-14 is a strut-braced high-wing four-place monoplane with strut-braced tail assembly and fixed landing gear.



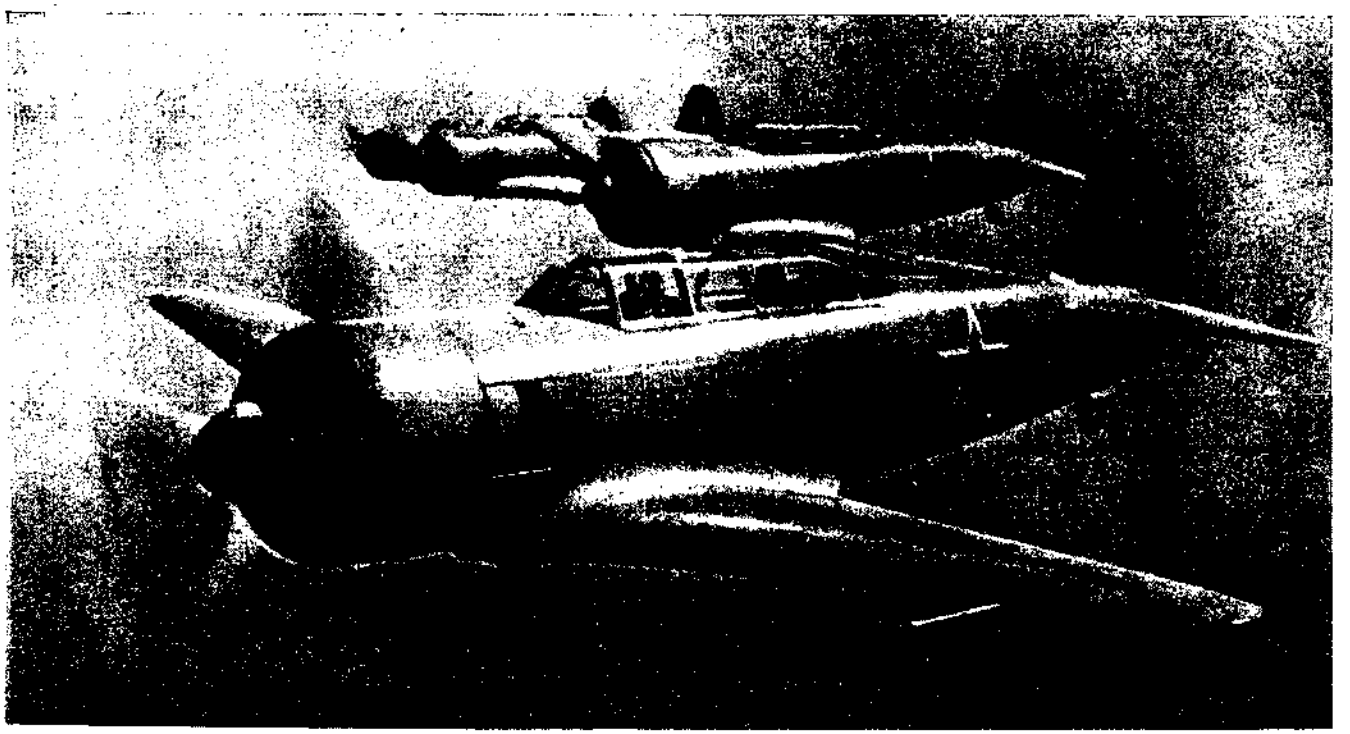
The Soviet Type 32 helicopter, by Mil, resembles the HO5S.



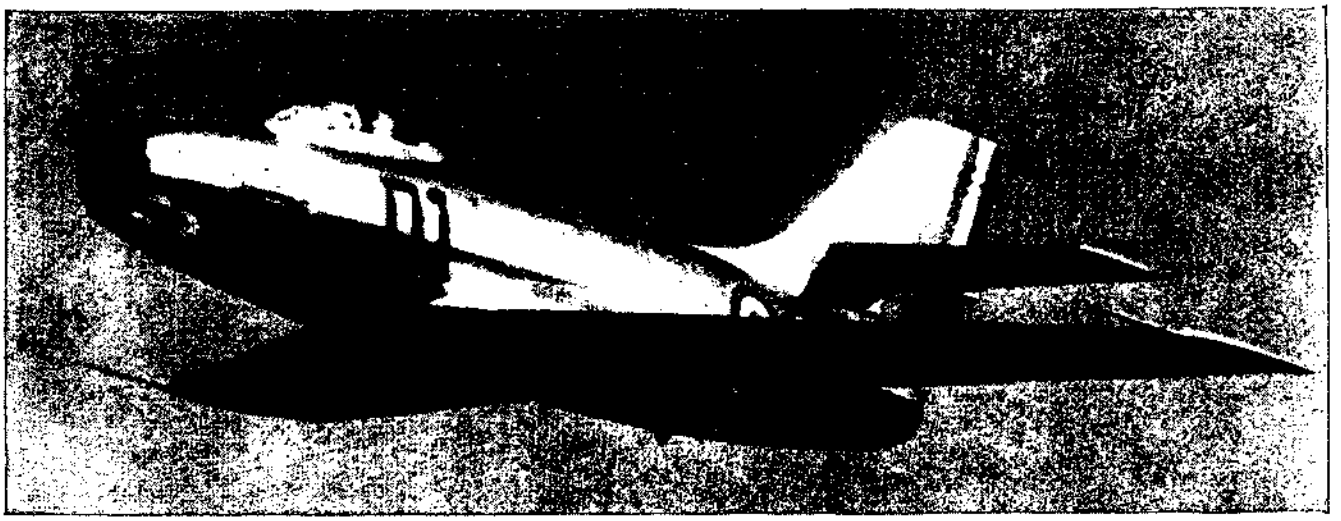
The Soviet Type 34 is an improved version of the MDR-6.

The Soviet's experimental bomber, Type 31, has four propeller-driven engines, a long fuselage, a prominent rudder and a fin fairing.

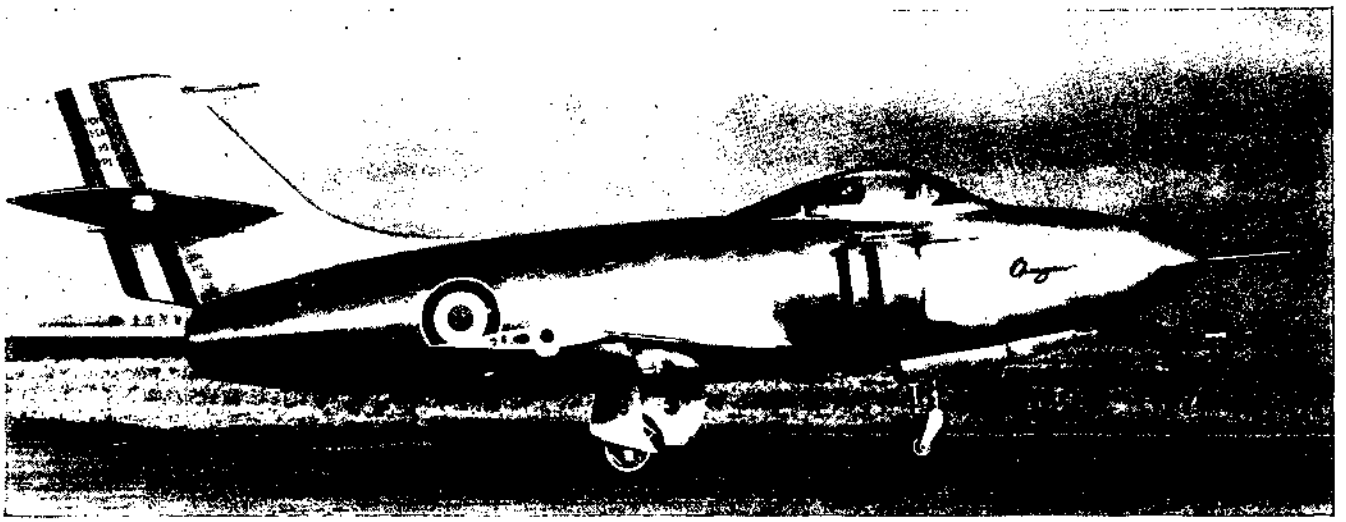
The Yak-18 is a single engine low-wing trainer featuring a radial engine with cylinder fairings, a tapering wing, and a fixed landing gear.



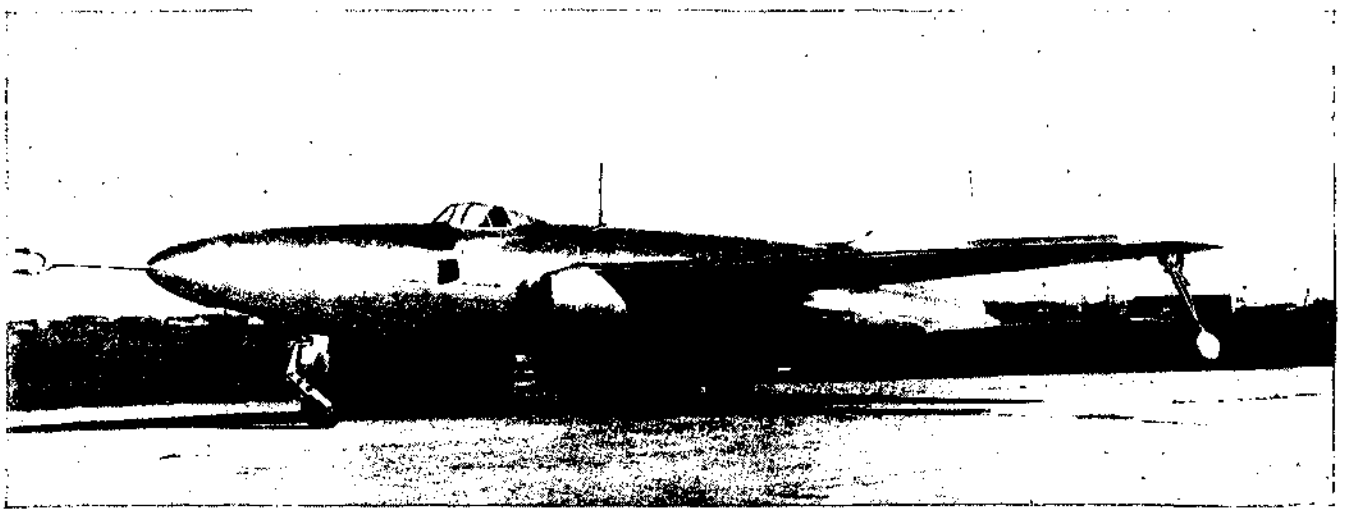
The Soviet Yak-11 trainer, featuring a prominent greenhouse covering, is similar in appearance and about the same weight as the T-6/SNJ.



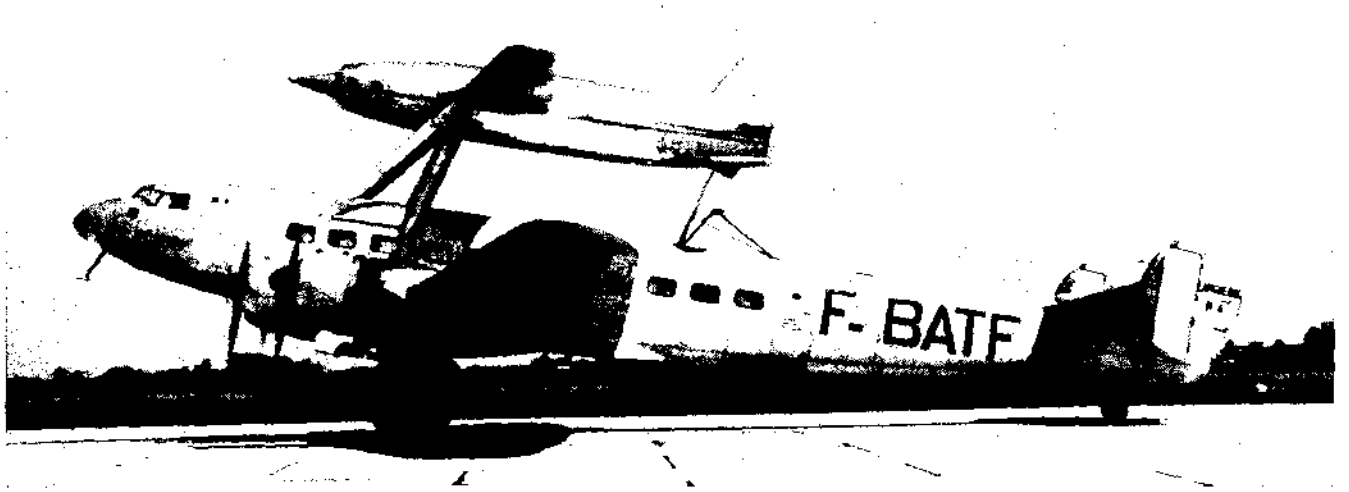
Dessault's M.D. 452 MYSTERE jet fighter, a swept-wing version of the OURAGON, is scheduled to be produced for the French Air Force.



The French MD. 450.11, Type 30.L, with its electronics laden nose section has cheek air scoops instead of the OURAGON's nose intake.



The French S.O. M2 is a flying scale model of the S.O. 4000 and is fitted with a single British Derwent turbojet engine.

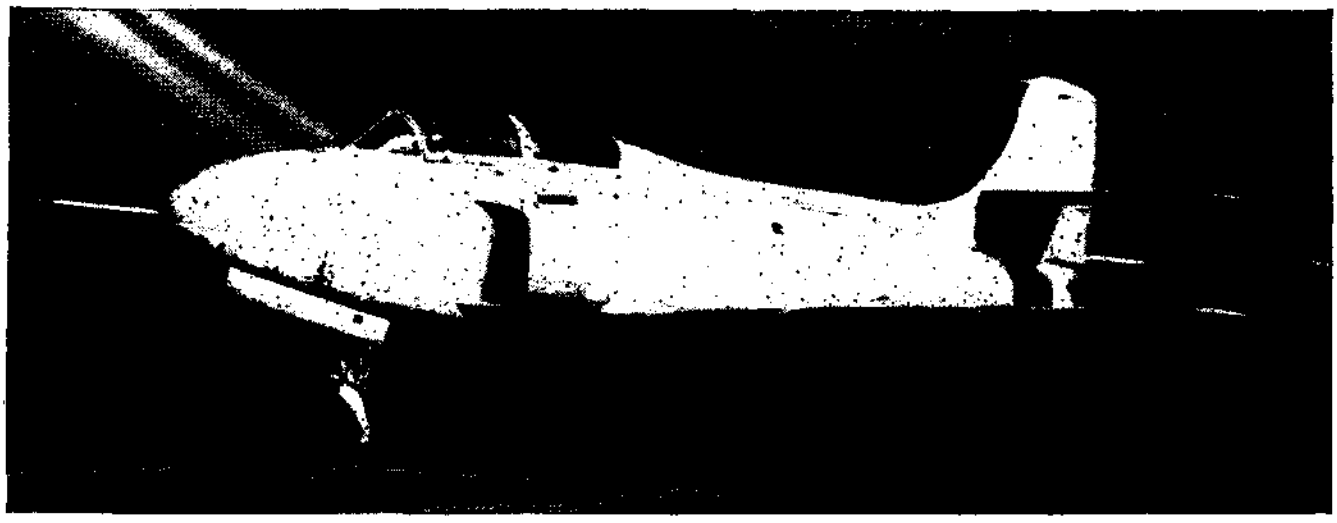


The French experimental Leduc 0.10, mounted on a LANGUEDOC 161, is powered by a 3,500-lb. *thrust ram-jet.*

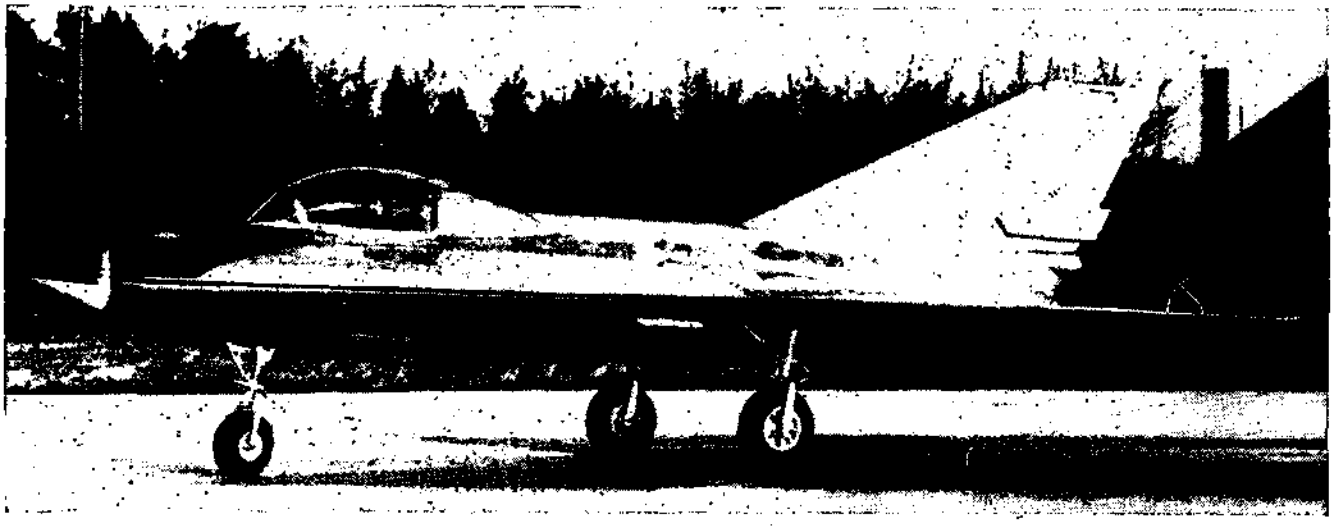
The French S.O. 95 CORSE II is a light transport.

The French S.O. 1120 ARIEL III is a jet helicopter.

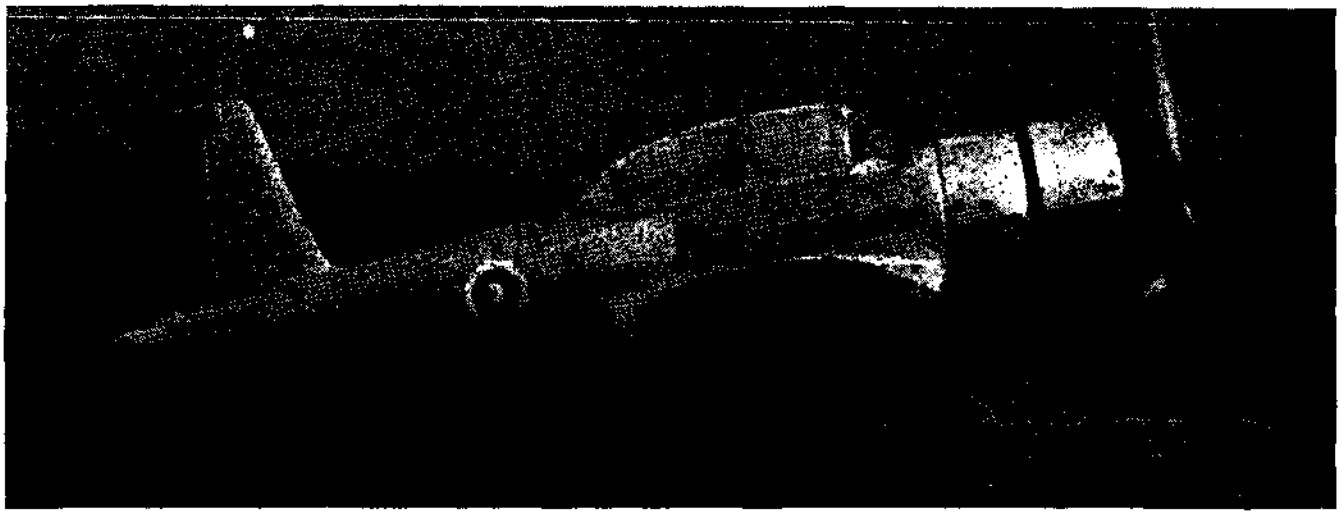
The French Fouga C.M. 170-R MAGISTOR is a two place, tandem type jet aircraft designed as a jet trainer for student pilots.



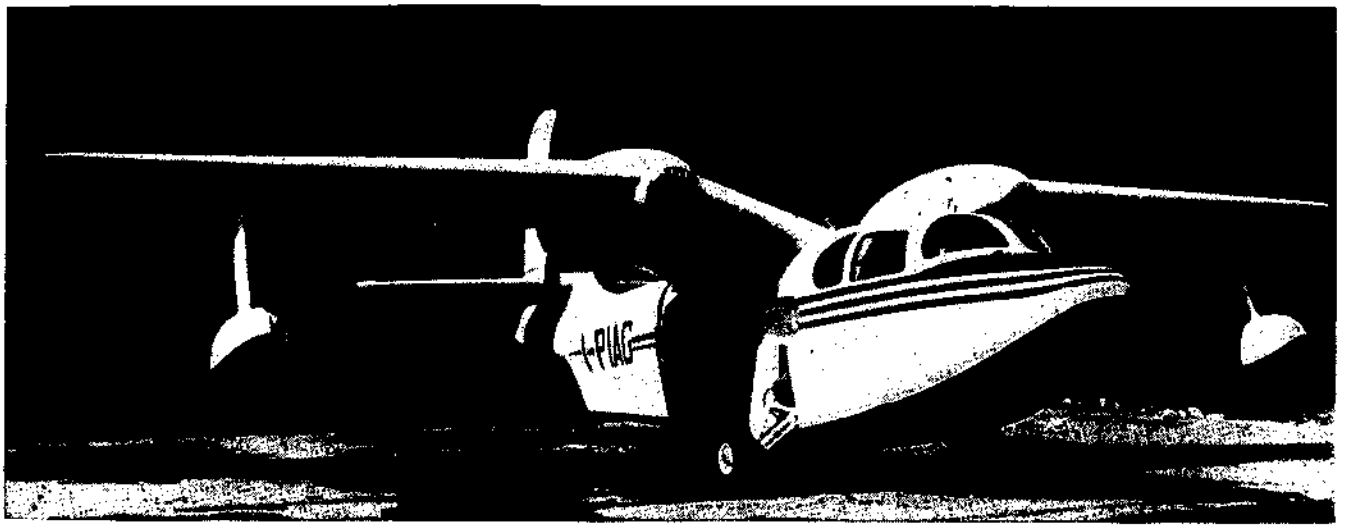
The Fiat G.80 trainer, Italy's first post-war jet, is powered by a Nene turbojet engine, has ejection seats, and is of all-metal construction.



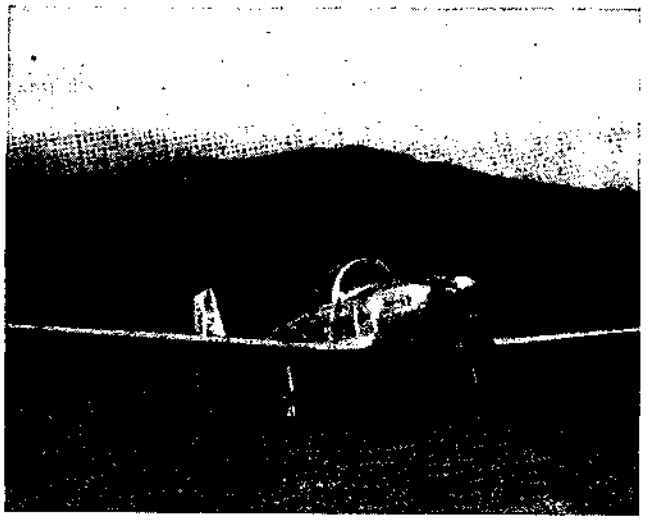
The Saab-210 DRAKEN, Sweden's first delta-wing jet (Adder), is a "flying laboratory" with a wide range of aero measuring equipment.



VIHURI is a Finnish designed and built trainer that features a transparent cockpit canopy, retractable landing gear, and a Bristol engine.

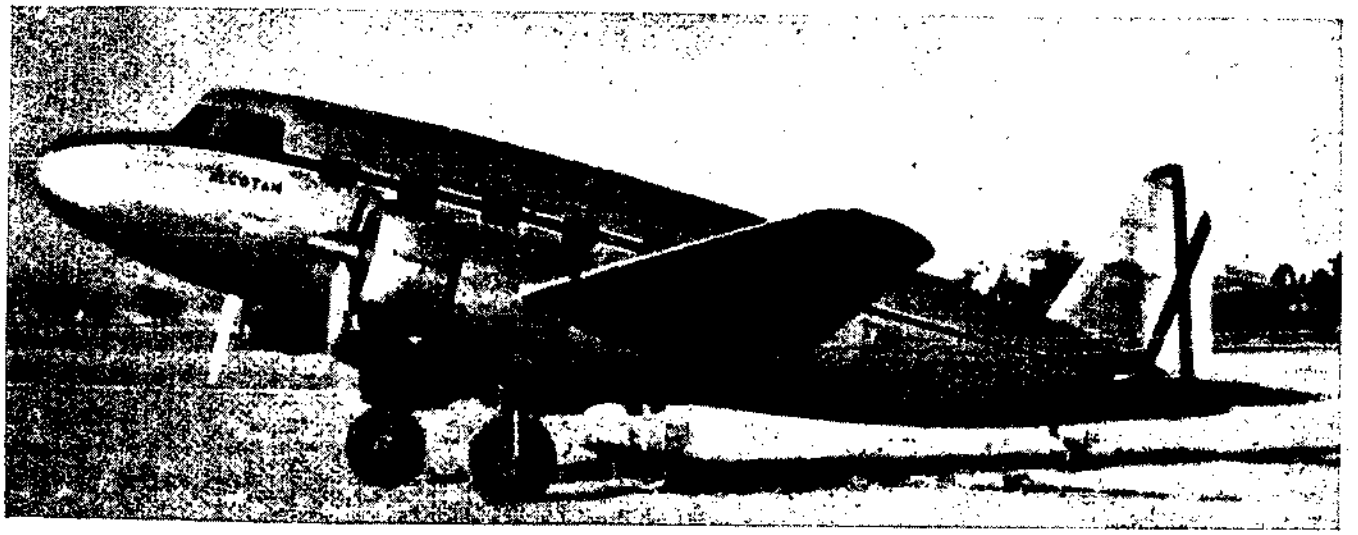


The small Italian Piaggio P.136 gull-winged twin-engined amphibian is in quantity production for the Italian Air Force.

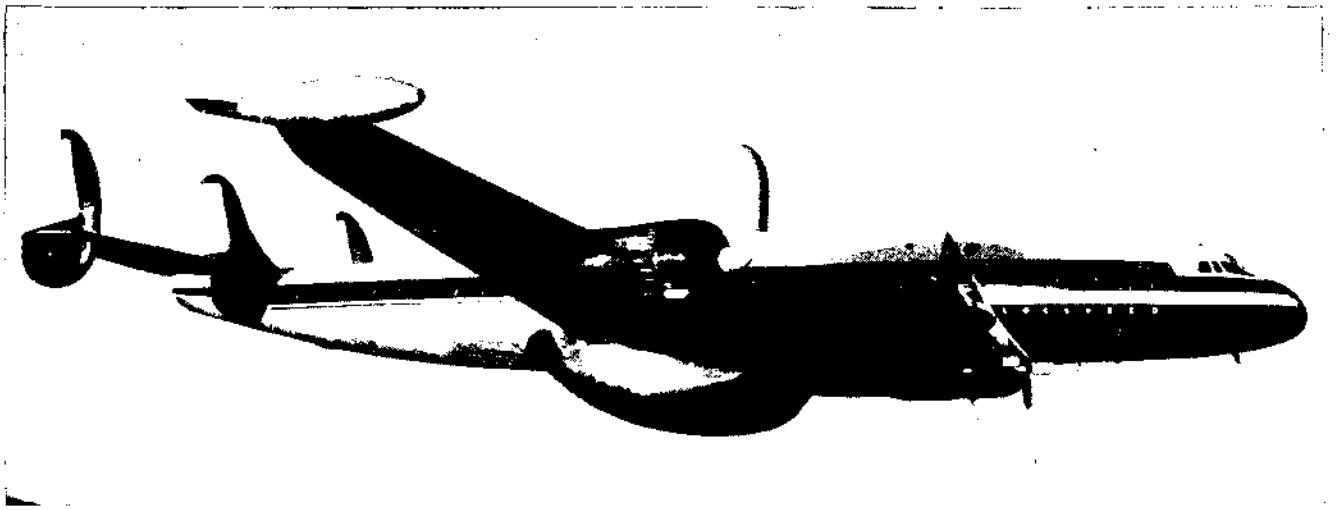


The Italian Piaggio P.148 is a primary trainer for the I.A.F.

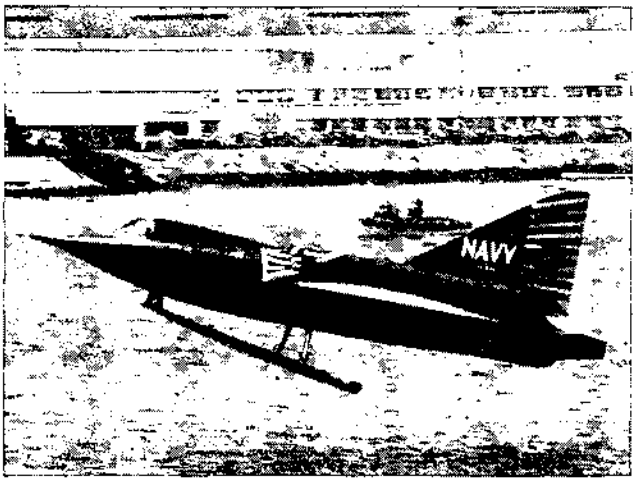
South Korean Navy rebuilt this T-6/SNJ and put it on floats.



The C.A.S.A. 201 ALCOTAN is the first twin-engined aircraft of Spanish design and construction; a larger version is the 202 HALCON.

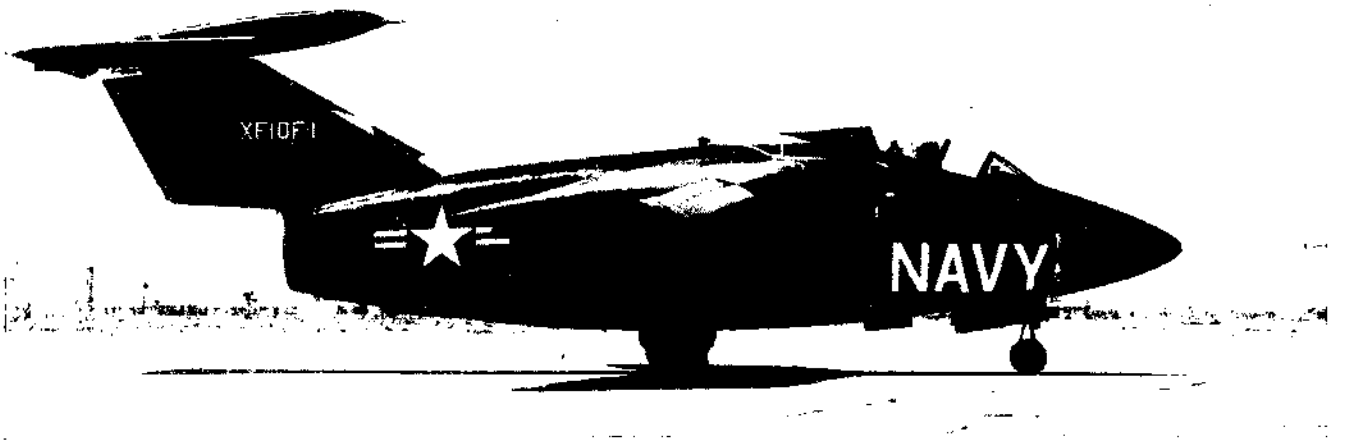


Lockheed's WV-2 (N), RC-121D(AF), is a special search and patrol airplane instrumented for airborne C. I. C.

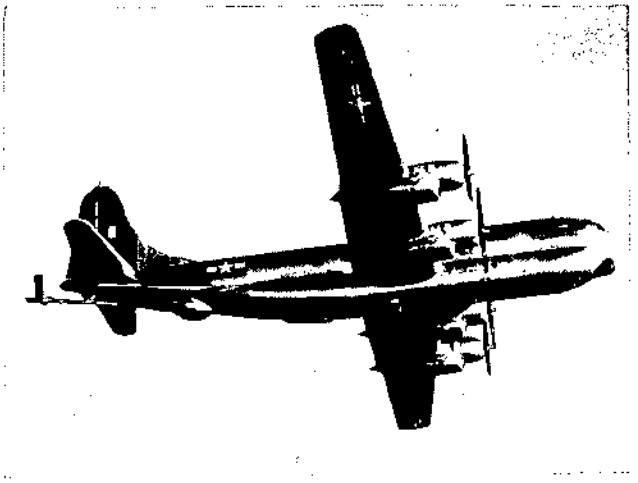


Convair's XF2Y SEA-DART jet fighter has hydro-skis.

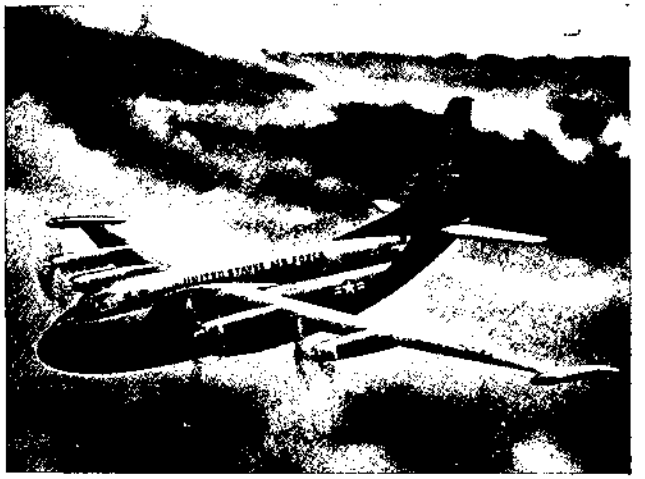
Grumann's S2F searches and attacks submarines.



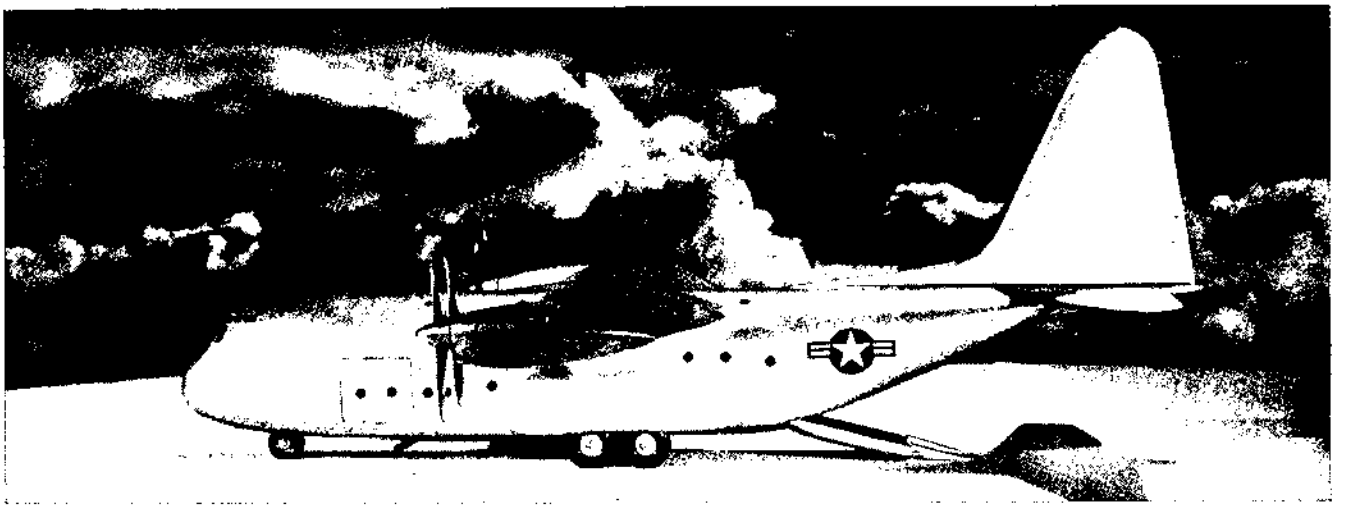
Grumann's XF10F JAGUAR Navy jet fighter has variable swept-wings, and a canard balanced horizontal tail.



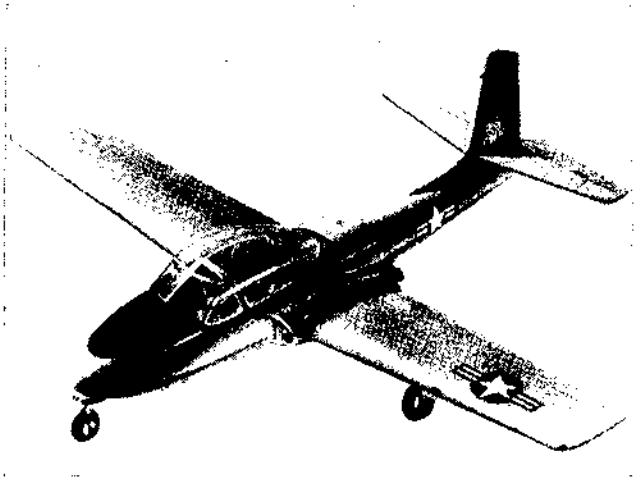
Boeing's KC–97 STRATOFREIGHTER, inflight refueling.



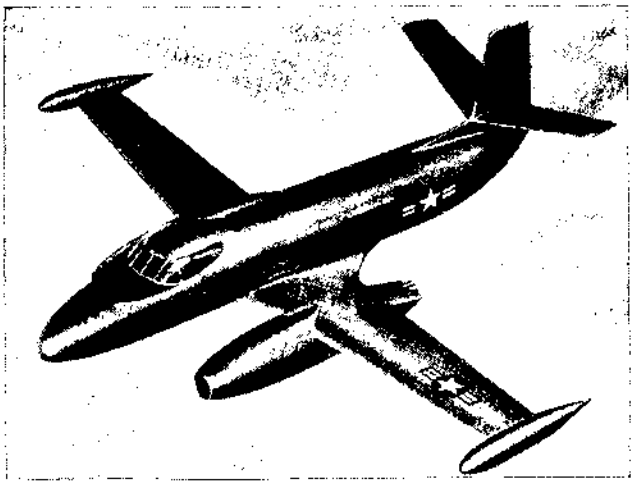
The Douglas C–132 is a turboprop logistic carrier.



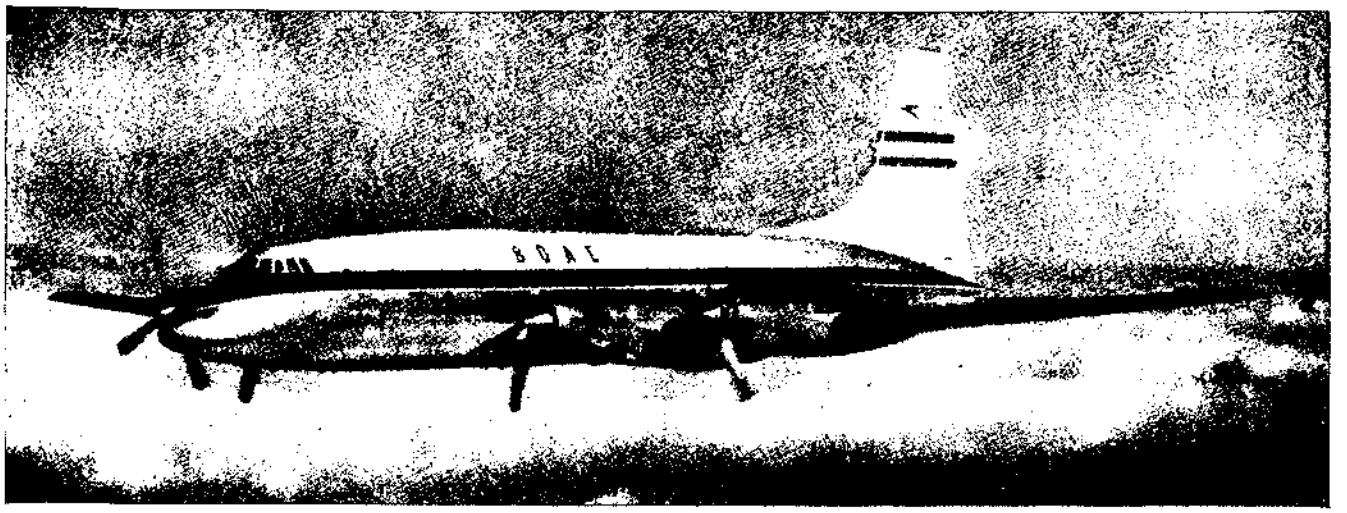
Lockheed's C–130 carries 35-passengers or cargo and has 4 YT56–A turboprop engines developing 3,500 s. h. p. each.



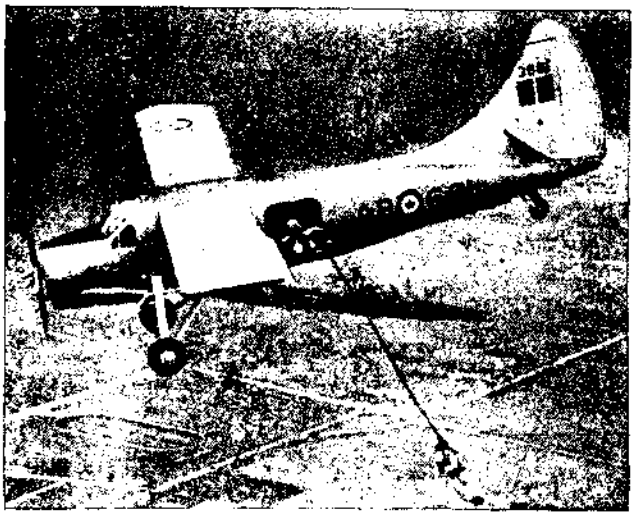
Cessna's Model 318 is a jet trainer.



Beechcraft's T-36X is a twin-jet trainer.



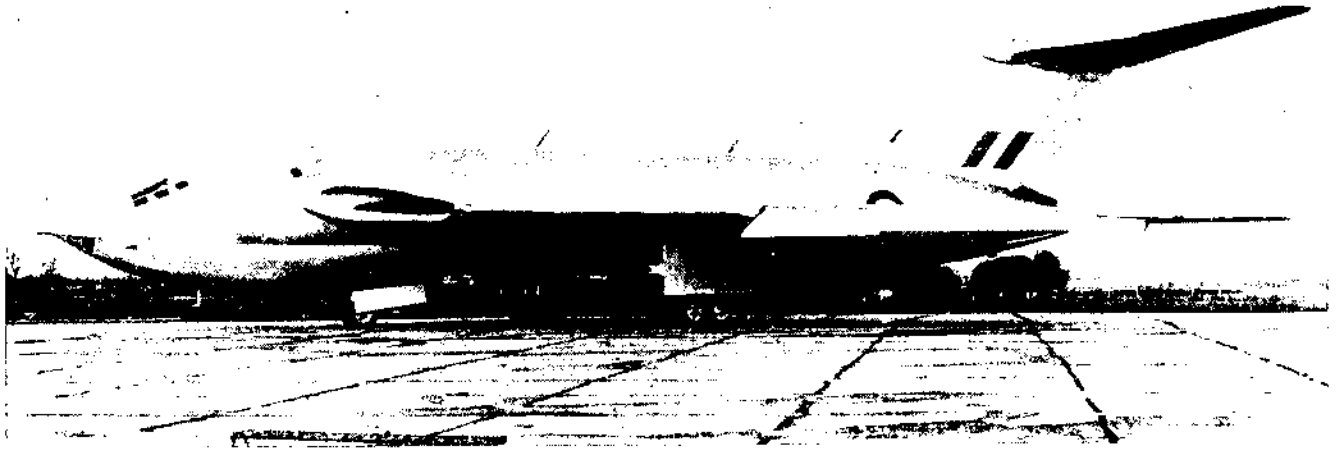
Britain's Bristol BRITANNIA turboprop transport has four Proteus engines, weighs 70 tons, and can carry 70 passengers.



Canada's DHC–3 OTTER carries 13 passengers.

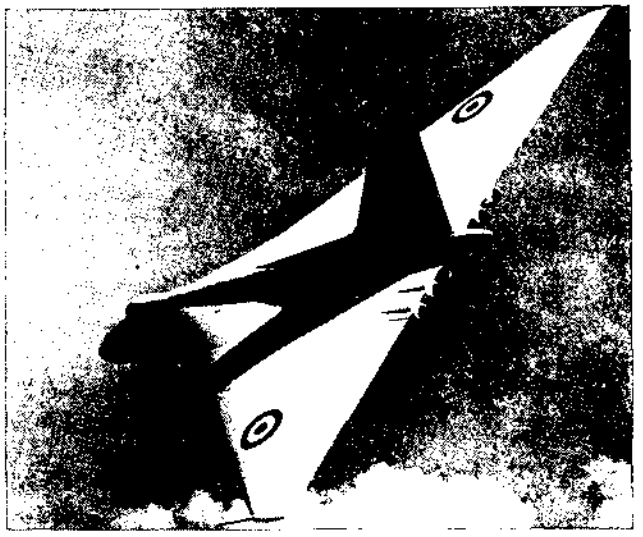
The British Comet 3 is a larger and more powerful version

Britain's Saunders-Roe PRINCESS has ten Proteus turboprop engines, 3,000 s. h. p. each, and weighs 140 tons.

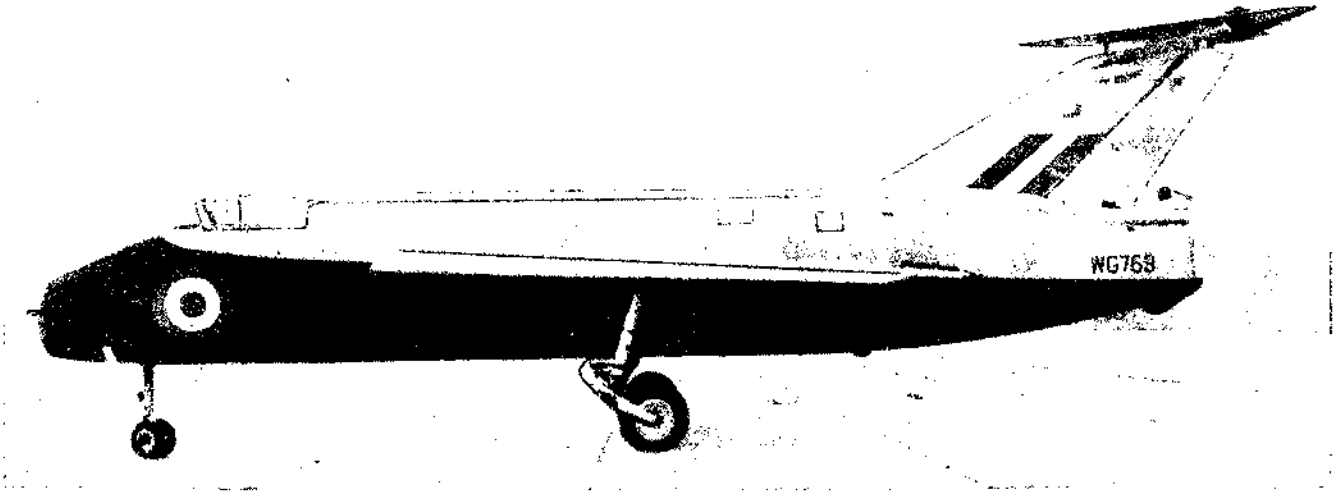


Britain's Handley Page H. P. 80 VICTOR, first crescent-wing bomber, has 4 Sapphire jets, and a speed of Mach. 0.9

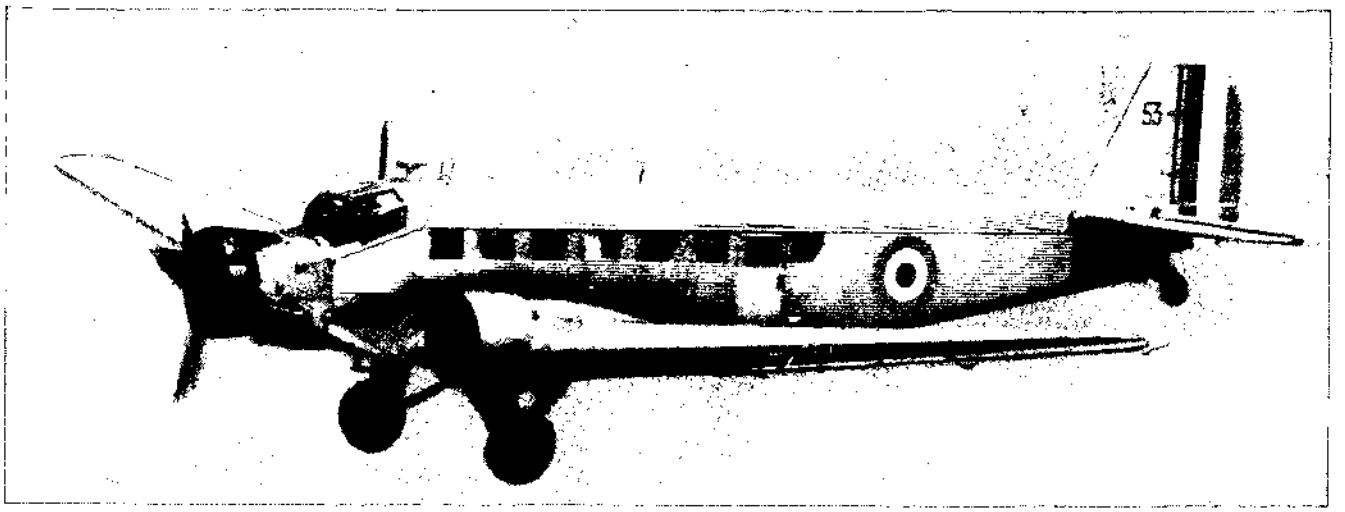
Britain's Saro SKEETER carries two passengers.



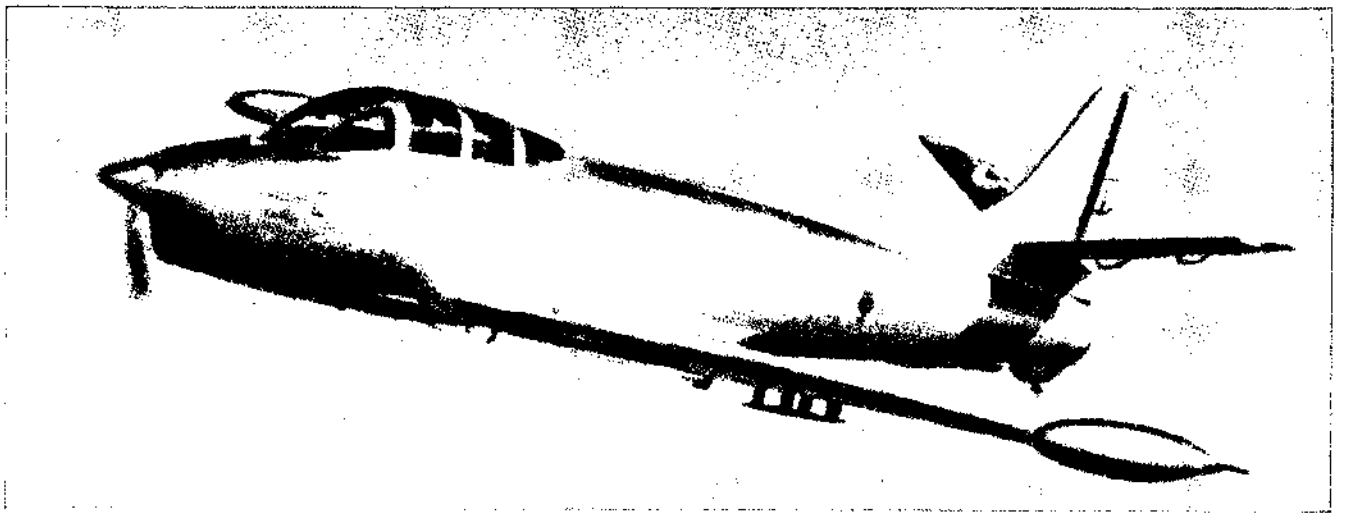
Britain's Avro 698 VULCAN is first delta-wing bomber.



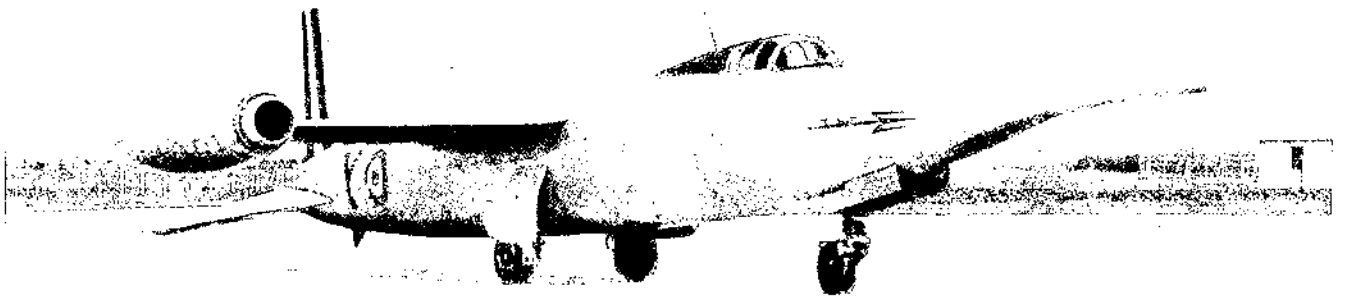
Britain's Short SB. 5 is a research aircraft with a single jet engine, fixed landing gear, swept-back wings and a high set tail.



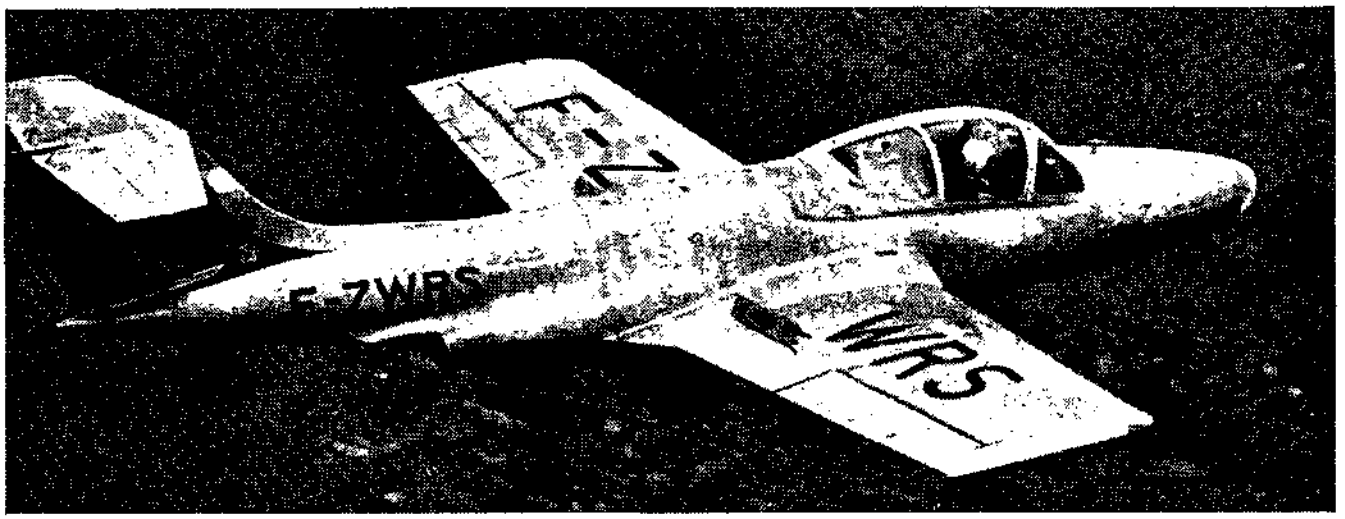
The famous Ju.52, designed by the Germans, was built in France during the war and has seen service in Indo-china.



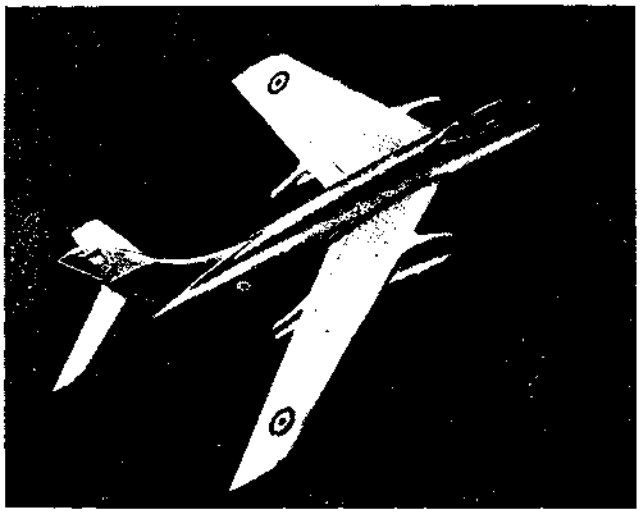
The French Breguet 960, a carrier aircraft powered by a Nene turbojet and a Mamba turboprop, has folding wings.



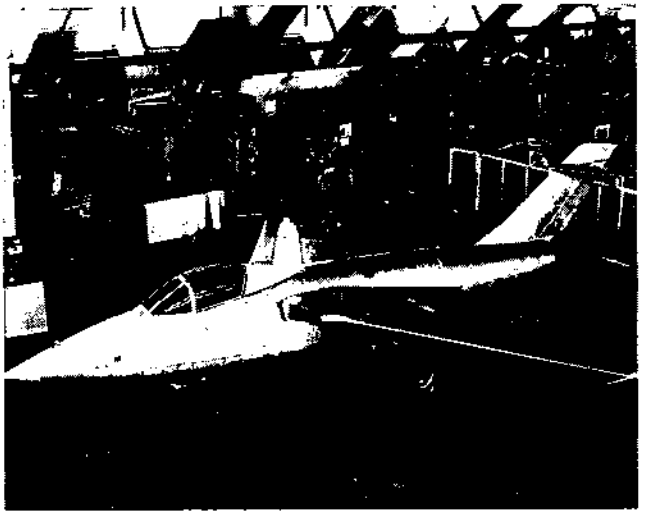
France's S. O. 9000 TRIDENT designed to reach supersonic speed in level flight, has ram-jets and a rocket motor.



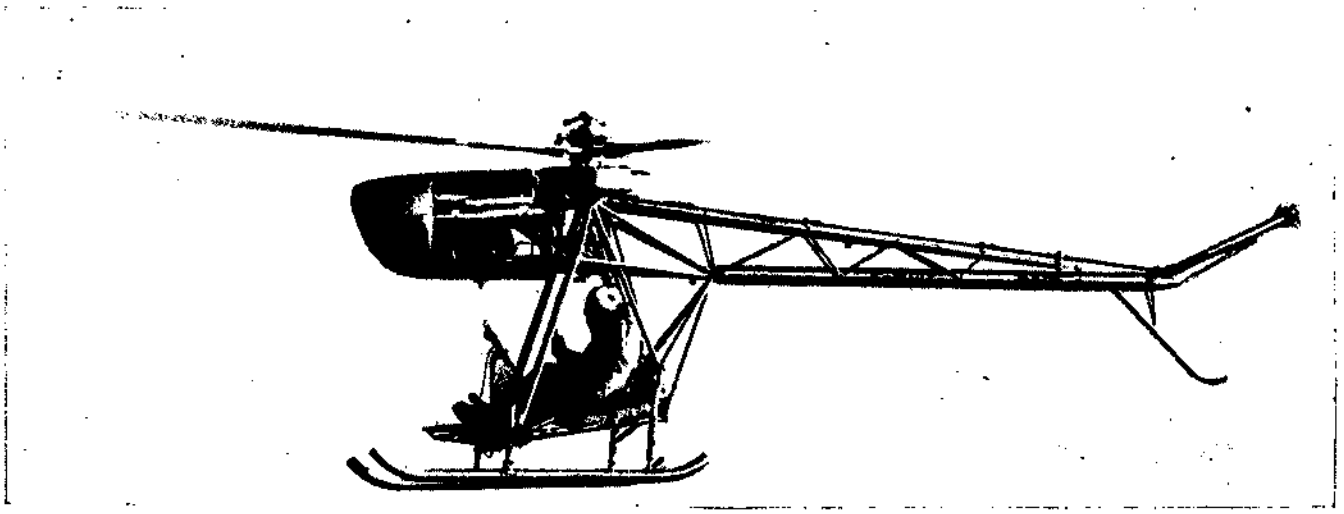
The French Morane Saulnier MS 755 FLEURET twin-jet trainer has reached a top speed of 390 knots in level flight.



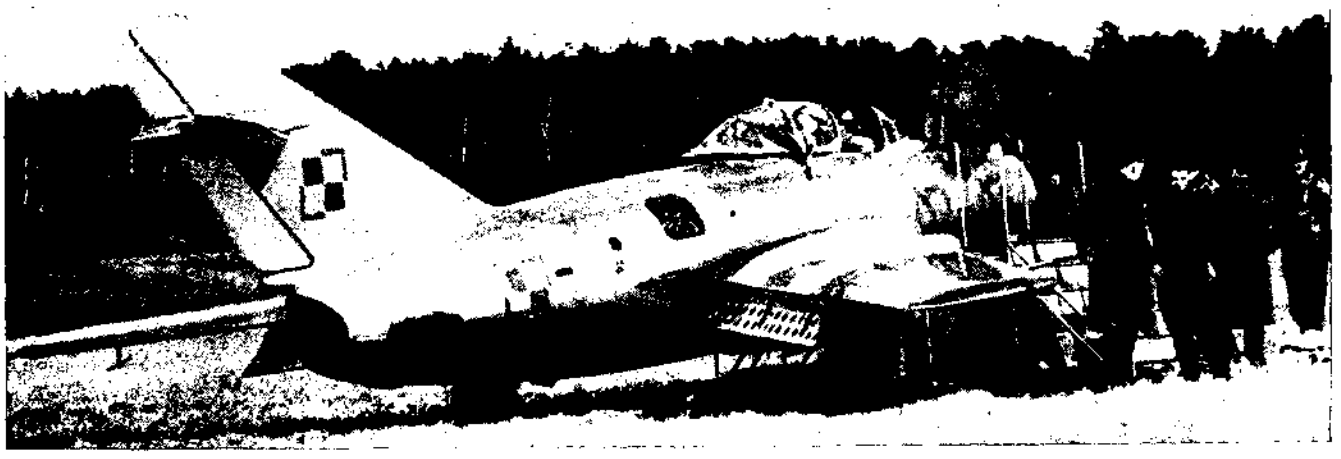
France's S. O. 4050 VAUTOUR is a twin-jet attacker.



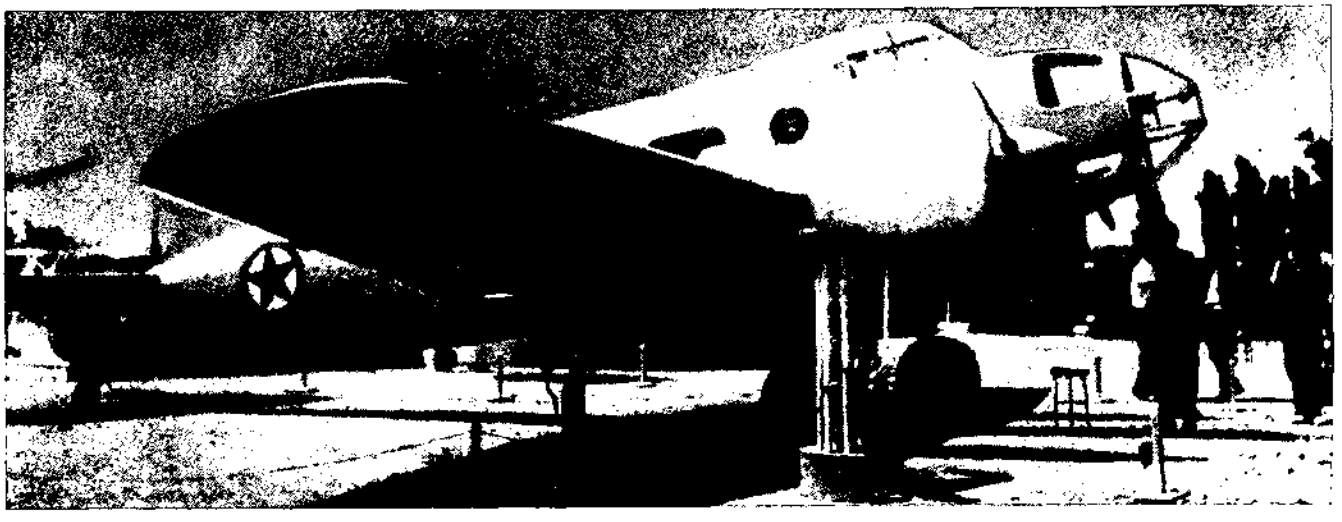
France's S. E. 5000 BAROUDEUR is a ground attack jet.



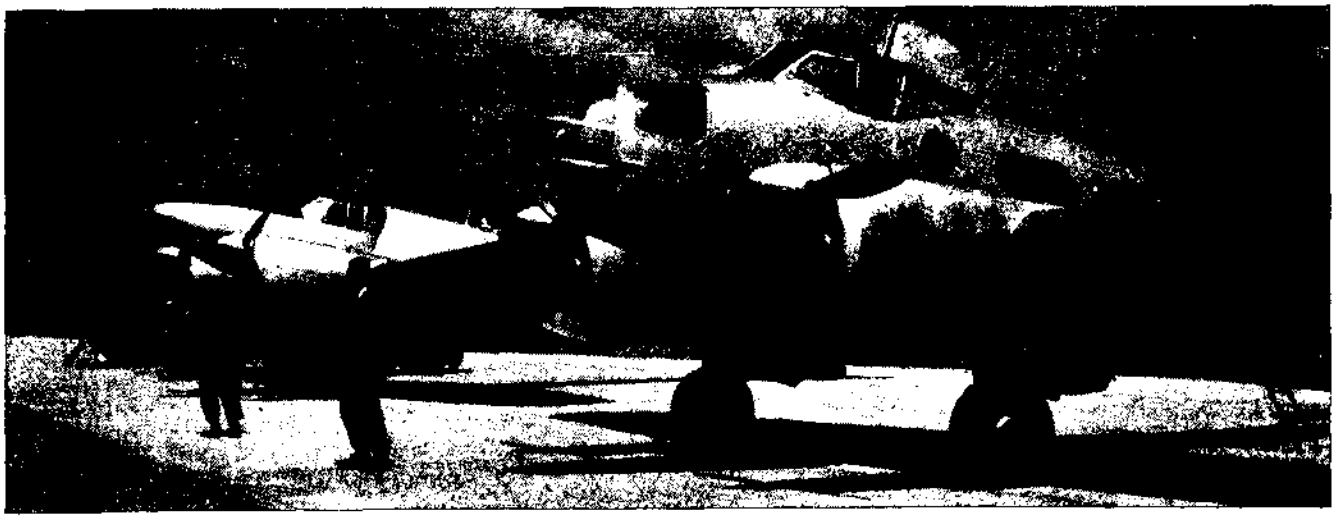
The French Matra-Cantinieau MC-101 helicopter with its engines forward and over the pilot made its first flight in 1952.



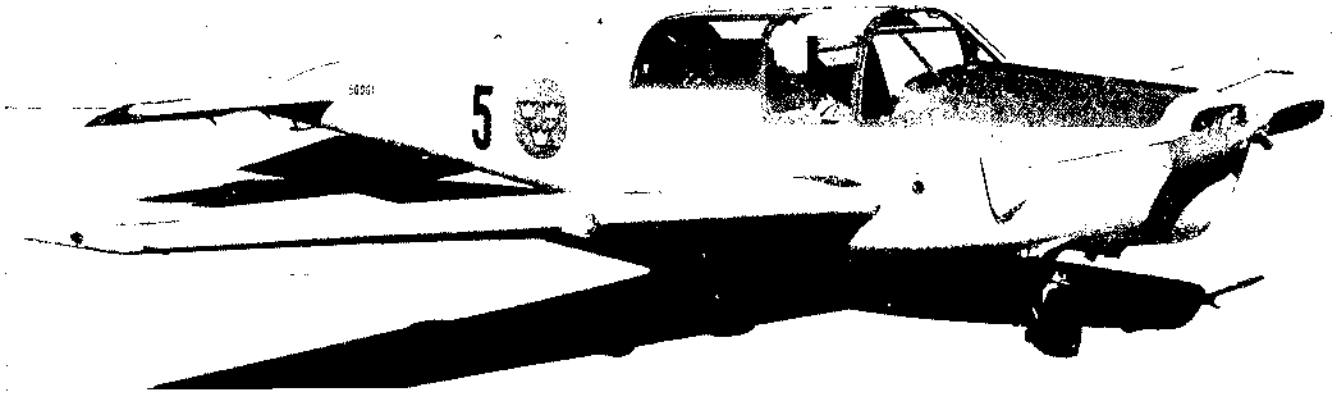
The Soviet built MIG–15 flown out of Poland by a defecting pilot is shown with Polish markings and extended flaps



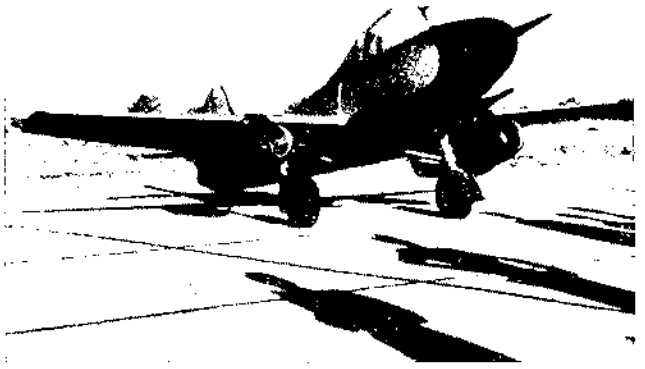
The Yugoslav navigator and bombardier trainer prototype 215 produced at Ikarus is still in the testing stage.



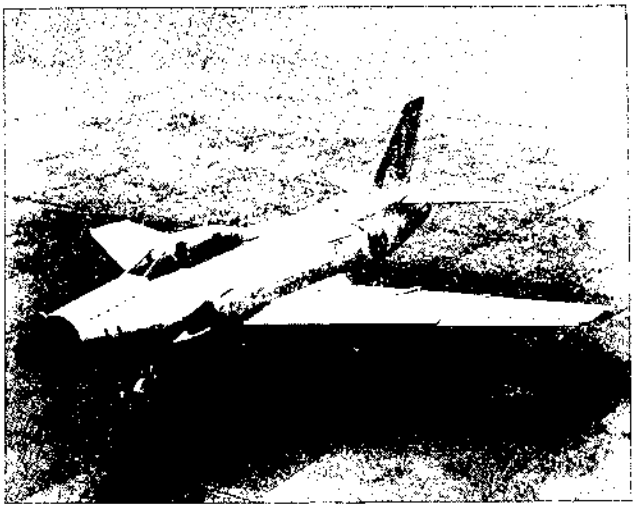
The Yugoslav 215, and the 214 bomber prototype in the background, use Ranger engines and many of the same parts.



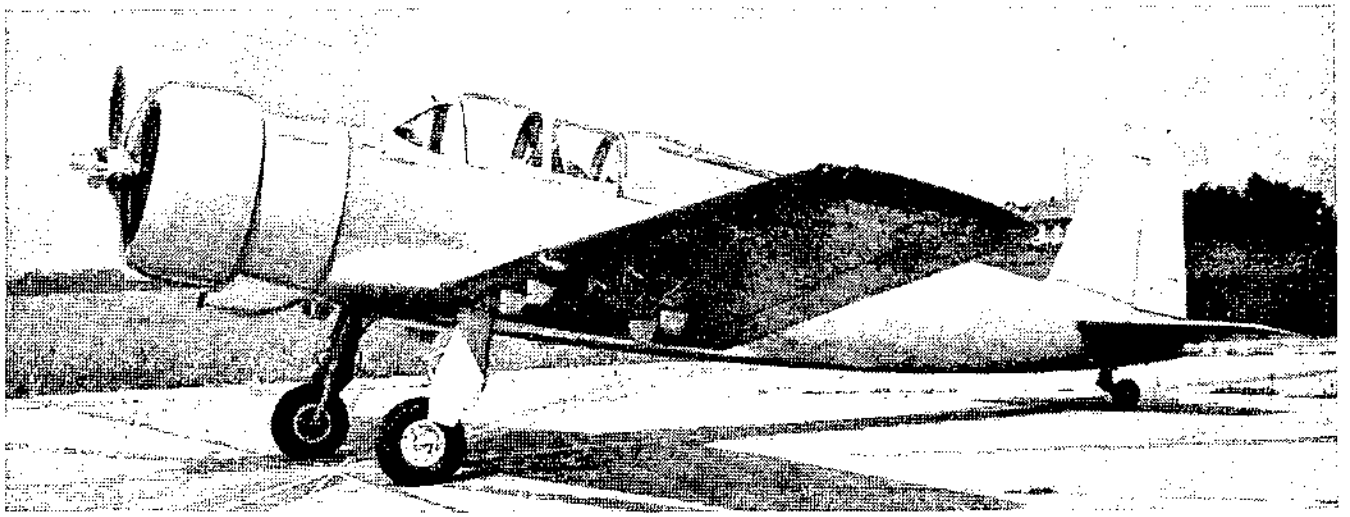
The Swedish SAAB-91B or SK-50 SAFIR trainer, produced under subcontract by the Dutch, has a Lycoming engine.



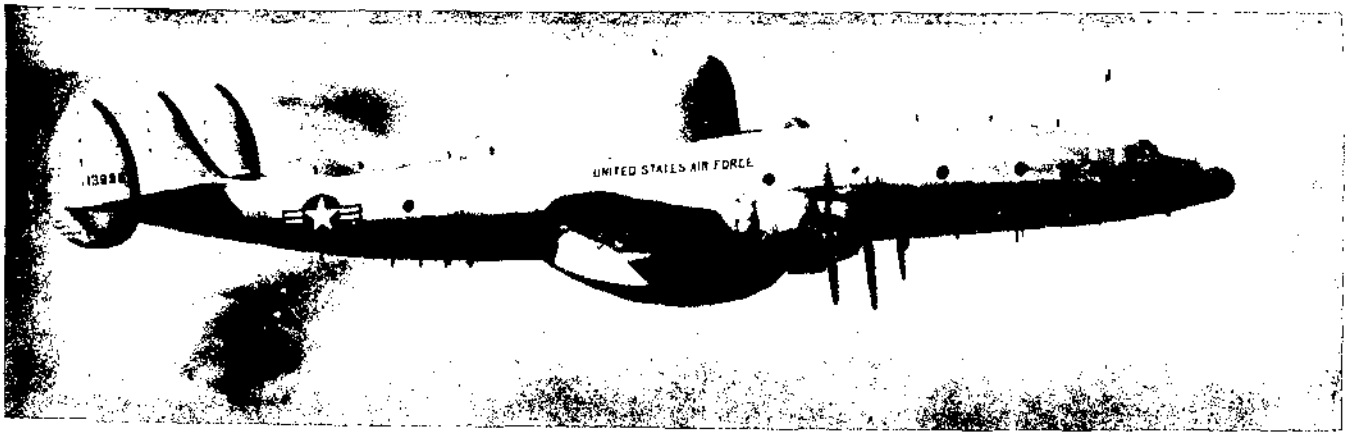
The Yugoslav prototype jet has two small French jets.



Sweden's SAAB A-32 LANSEN is a dual purpose jet.

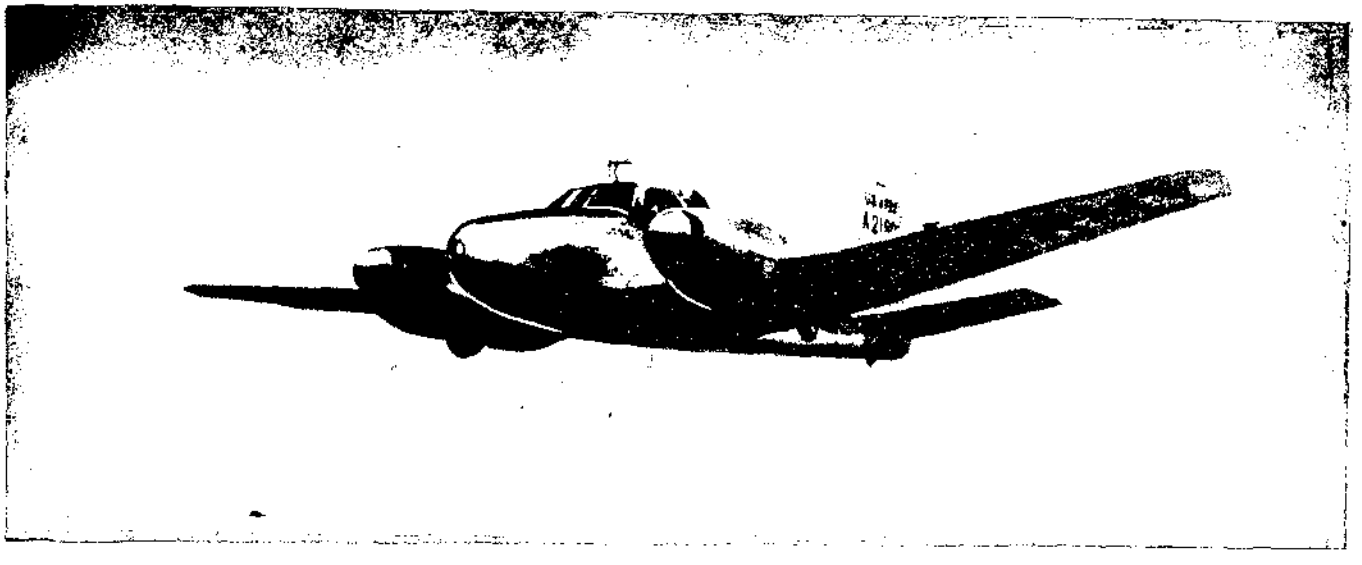


Italy's Fiat G.49 basic trainer has a 600 h. p. U. S. P & W, R-1340 engine and slight anhedral at the wing roots.



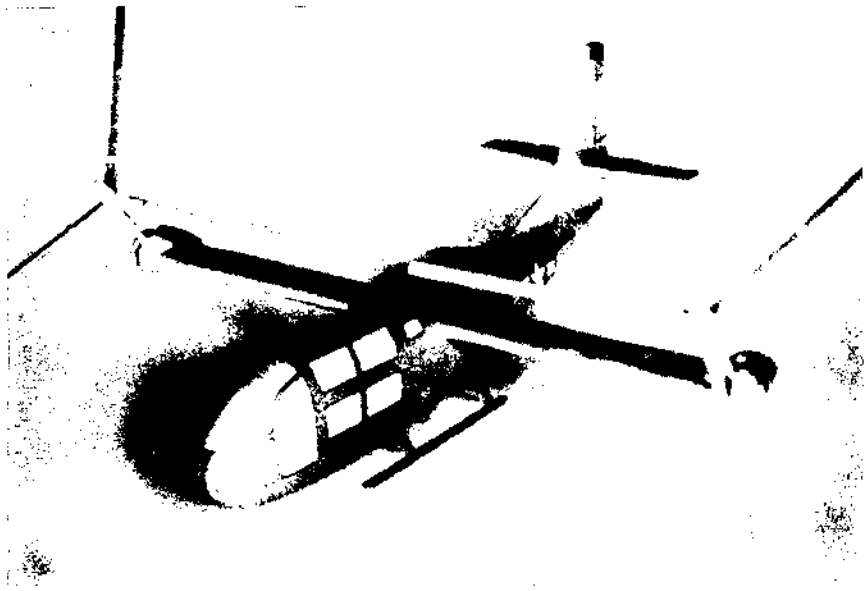
USAF | **RC-121D**
SUPER CONSTELLATION

The RC–121D Super Constellation is designed for radar searching at high altitudes over ocean and land. Except for a conning tower shape at center fuselage with a bulging tub-like shape beneath, it is similar to other super constellation models with its long, fish-like fuselage and three vertical stabilizers. Wing tip tanks also may be carried.
SPAN: 123′ LENGTH: 116′2″
ENGINE: 4/R–3350–34 Wright/3250 hp
MAXIMUM SPEED: 310 knots/19,000 ft.
RANGE: 3,110 nautical miles



US ARMY | **L-23A**
TWIN BONANZA

The L–23A is a low wing, twin-engine, six seat aircraft used by the U. S. Army Field Forces for staff transport and general liaison purposes. A rectangular shaped rudder atop a short fuselage is one identifying feature. The short, rounded nose appears as the characteristic recognition item.
SPAN: 45′3″ LENGTH: 31′6″
ENGINE: 2/GO–435–C2 Lycoming/260 hp
MAXIMUM SPEED: 180 knots RANGE: 837 nautical miles SERVICE CEILING: 20,000 ft.



CONVERTIPLANE

US ARMY

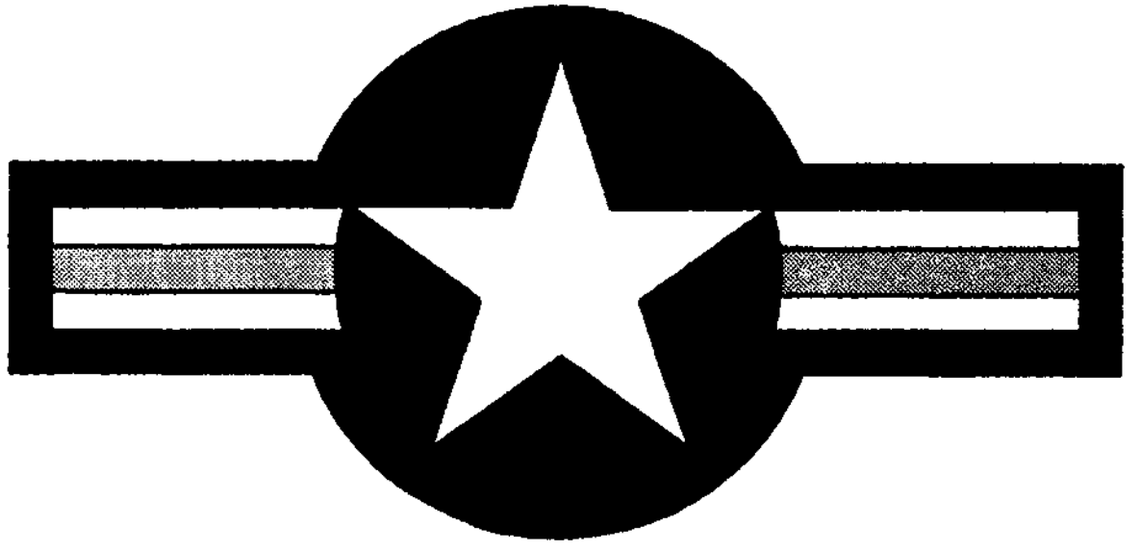
This 4-place helicopter/aeroplane had its first flight August 25, 1955. Tilting 3-blade combination rotors/propellers are mounted near the tips of the fixed wing. Rotors are tilted by electric motors. The XV-3 is powered by a P&W 450 horsepower engine. Maximum speed is estimated to be 140 knots.

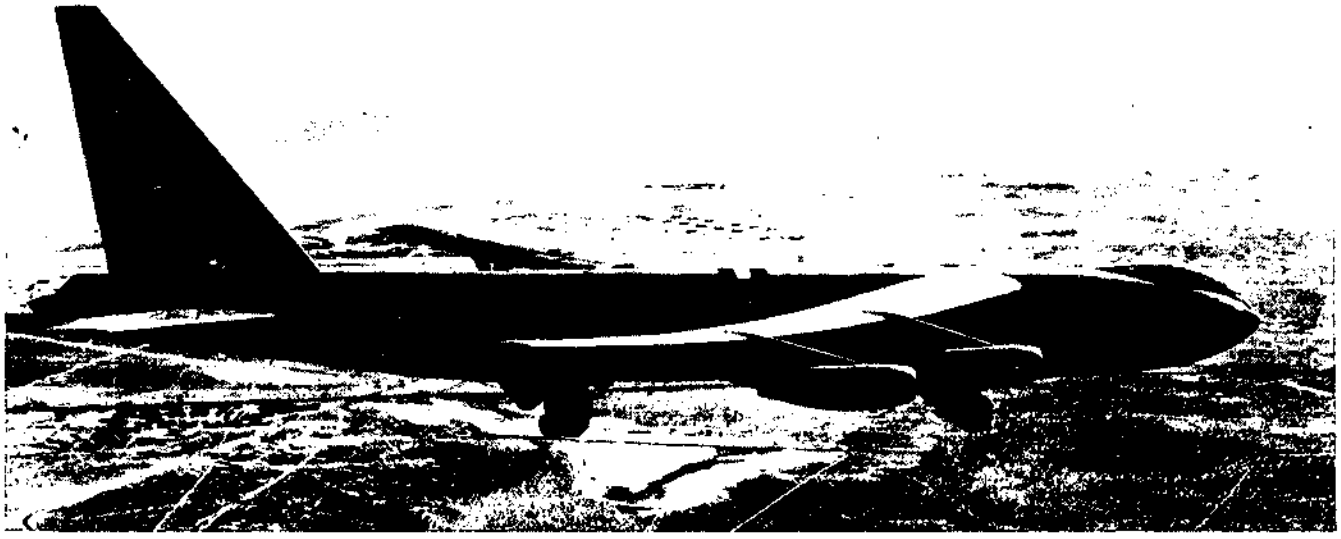
HELI-VECTOR

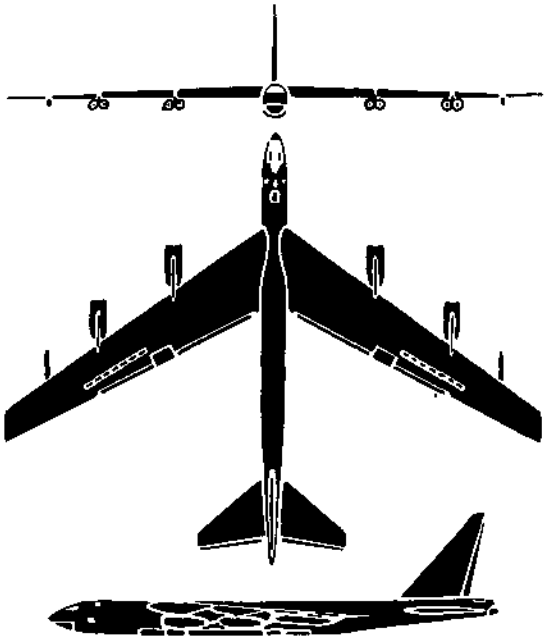
US ARMY

The DH-4 Heli-vector made its first flight January 22, 1955. A platform for the pilot is mounted above two 15 foot contra-rotating rotors. Below the rotors are a central air-bag and 4 outrigged air bags that permit landing on water or land. The rotors are driven by two Vee belts from a Kiekhaefer Mercury 30 horsepower, two-stroke outboard engine. Weight is 180 lbs.; range 15 miles; maximum speed 65 mph.

U. S. AIR FORCE AIRCRAFT

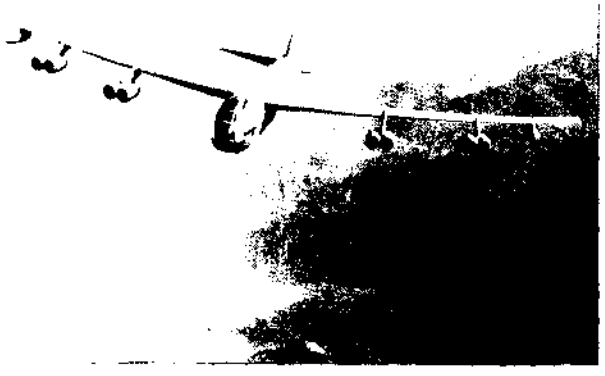


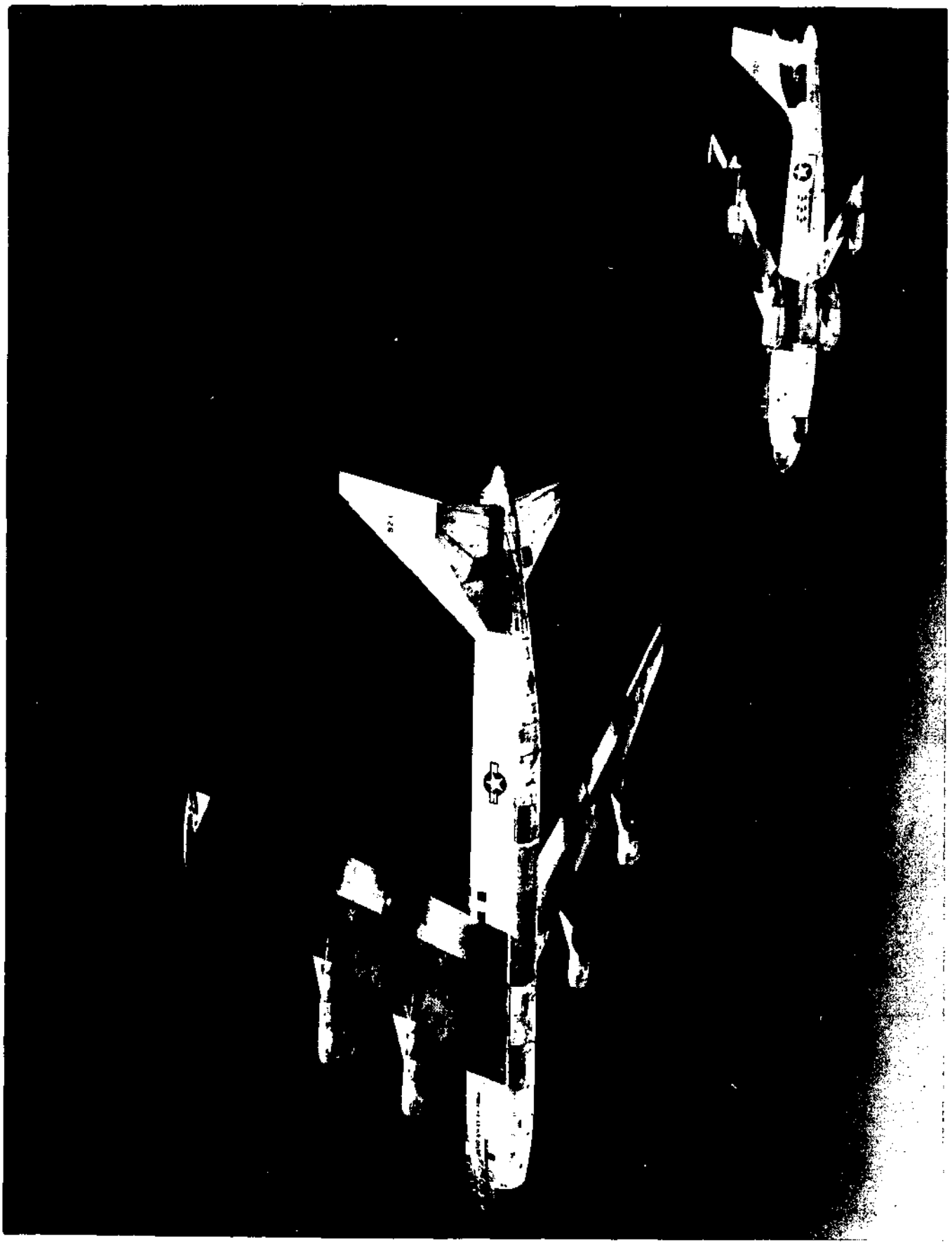


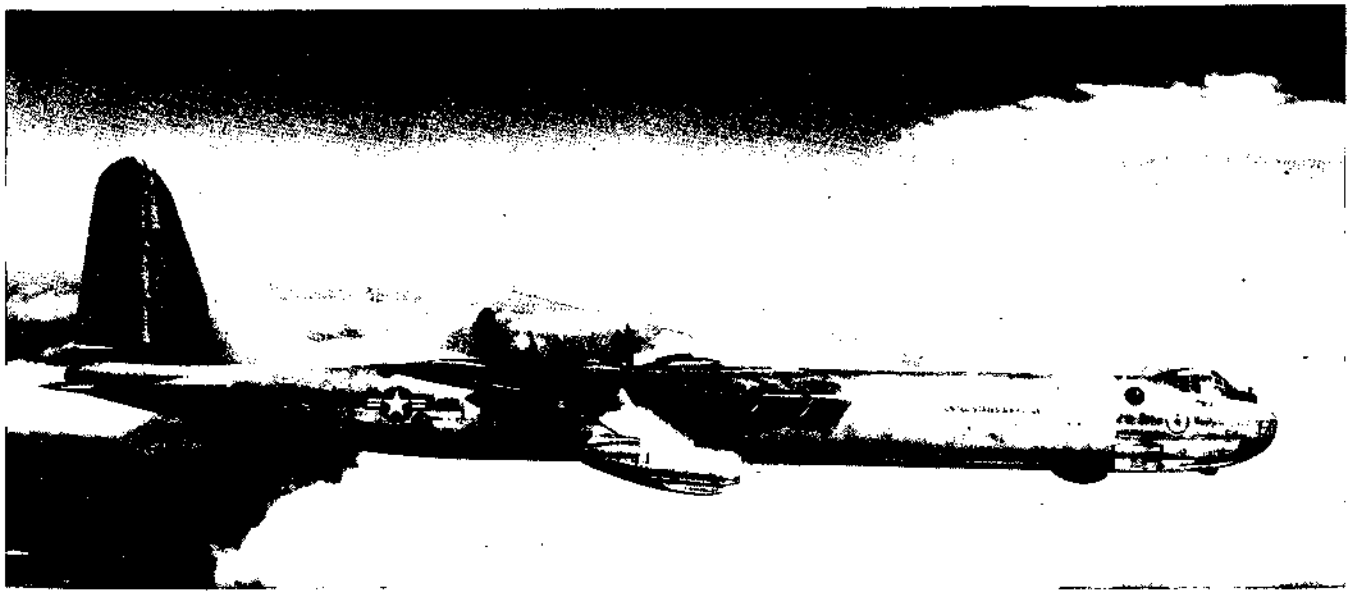


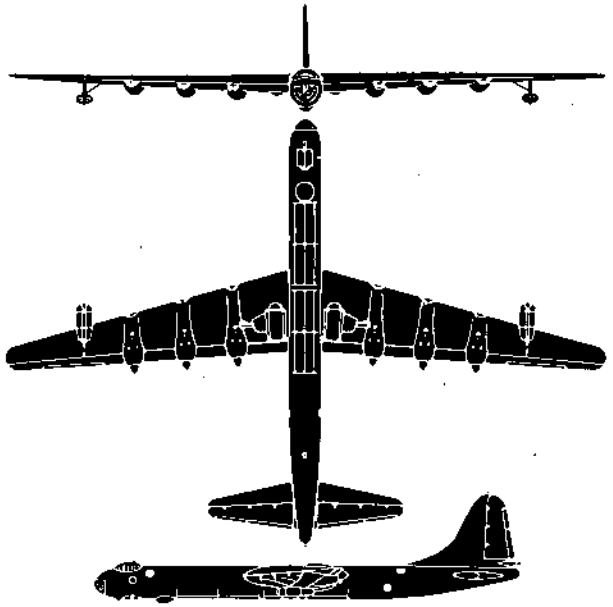
The B–52 Stratofortress is an eight-jet high swept-wing long-range heavy bomber. A prototype made its first flight in April 1952. The B–52 and the medium bomber B–47 are somewhat similar in appearance. Both bombers feature a 35° angle of wing sweepback, a tandem landing gear, and external jet engine pods. These pods are in contrast to the British and Soviet jet bombers which feature engines buried in wing nacelles. The shark-like fin and rudder present a rather angular appearance, since no curves or fairings are employed on the tail section. In fact the angularity of the whole aircraft is its main recognition feature. Boeing is building a transport version, the 707, which will also be used as an aerial tanker. The B–52 Stratofortress weighs well over 350,000 pounds at take-off.

SPAN: 185′0″ **LENGTH: 153′0″**
ENGINE: 8/J57–P/approx. 10,000-lb. thrust each.
MAX. SPEED:
RANGE:
ARMAMENT:



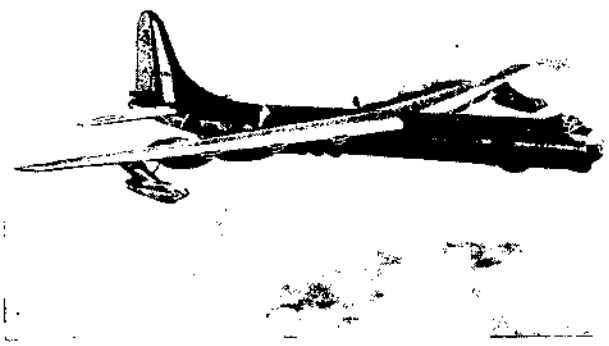


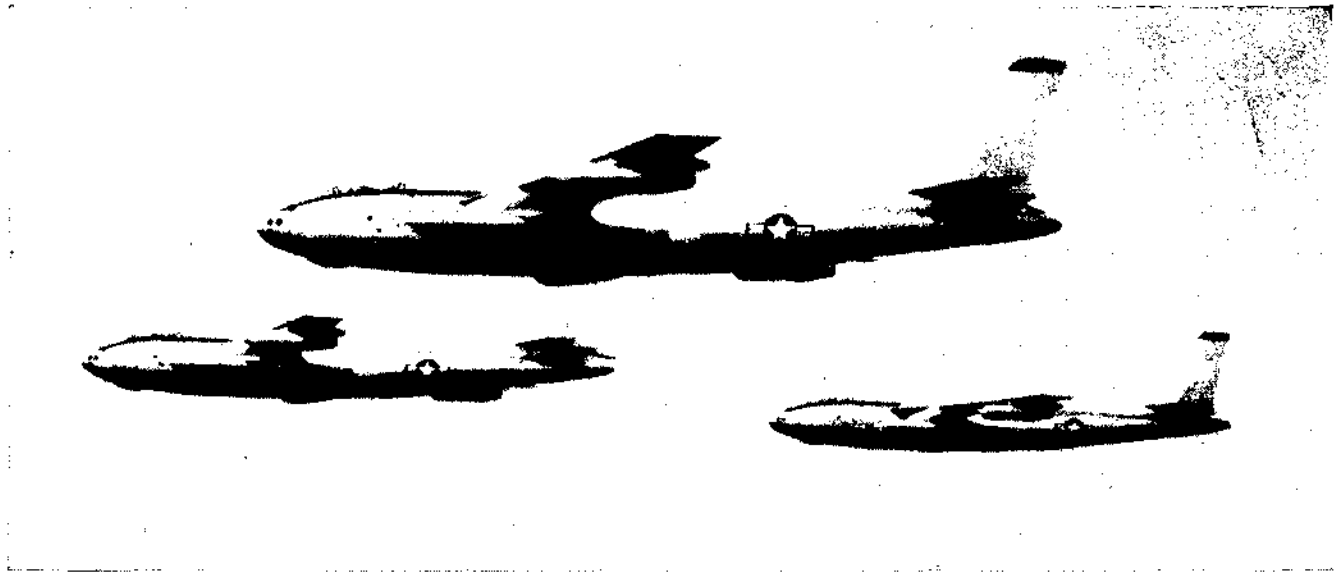


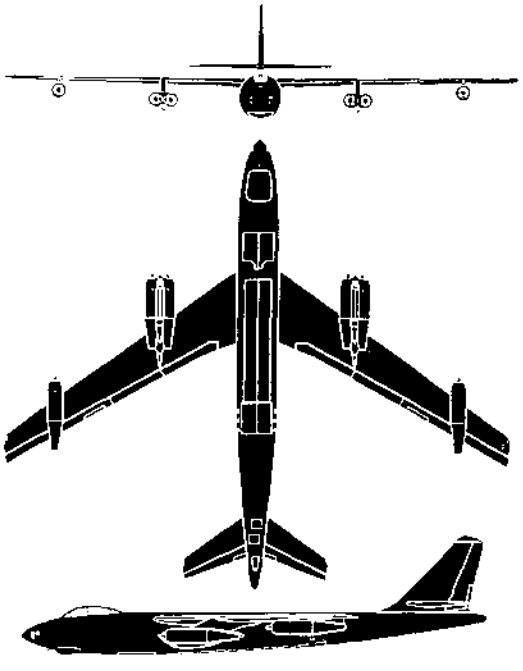


The B–36 is a long-range high-altitude very heavy bomber, powered by six pusher type radial engines mounted on the trailing edge of the wing. Additional power for the B–36D version is provided by four turbojet units mounted in two twin-pods slung beneath the wings outboard of the reciprocating engines. The wing, mounted slightly forward of the midpoint of the fuselage, has slight dihedral and considerable sweepback on the leading edge. A very large single fin and rudder is mounted at the end of the long round fuselage. The horizontal stabilizer is without dihedral. To date the B–36 is the largest and heaviest (357,500 lbs. loaded) bomber in operational service. It carries a crew of fifteen in pressurized and heated compartments. The illustrations show the B–36D.

SPAN: 230′0″. LENGTH: 162′2″.
ENGINE: 6/R–4360, radial/3,500 h. p. each; 4/J47–GE–19/5,200-lb. thrust each.
MAX. SPEED: 375 knots/34,500 ft.
RANGE: 6,300 nautical miles/180 knots.
ARMAMENT: 16 x 20 mm.; 2 x 43,000-lb. bombs.

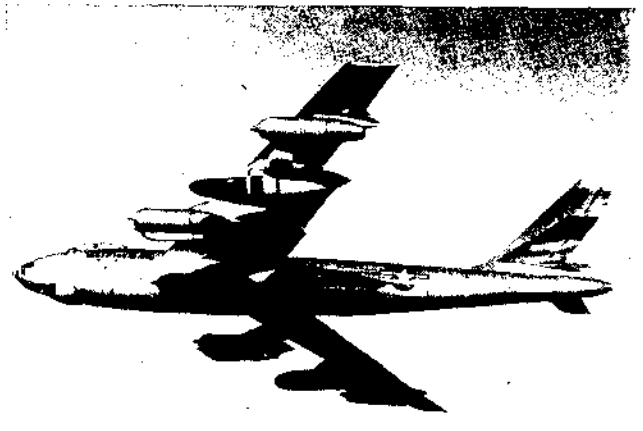


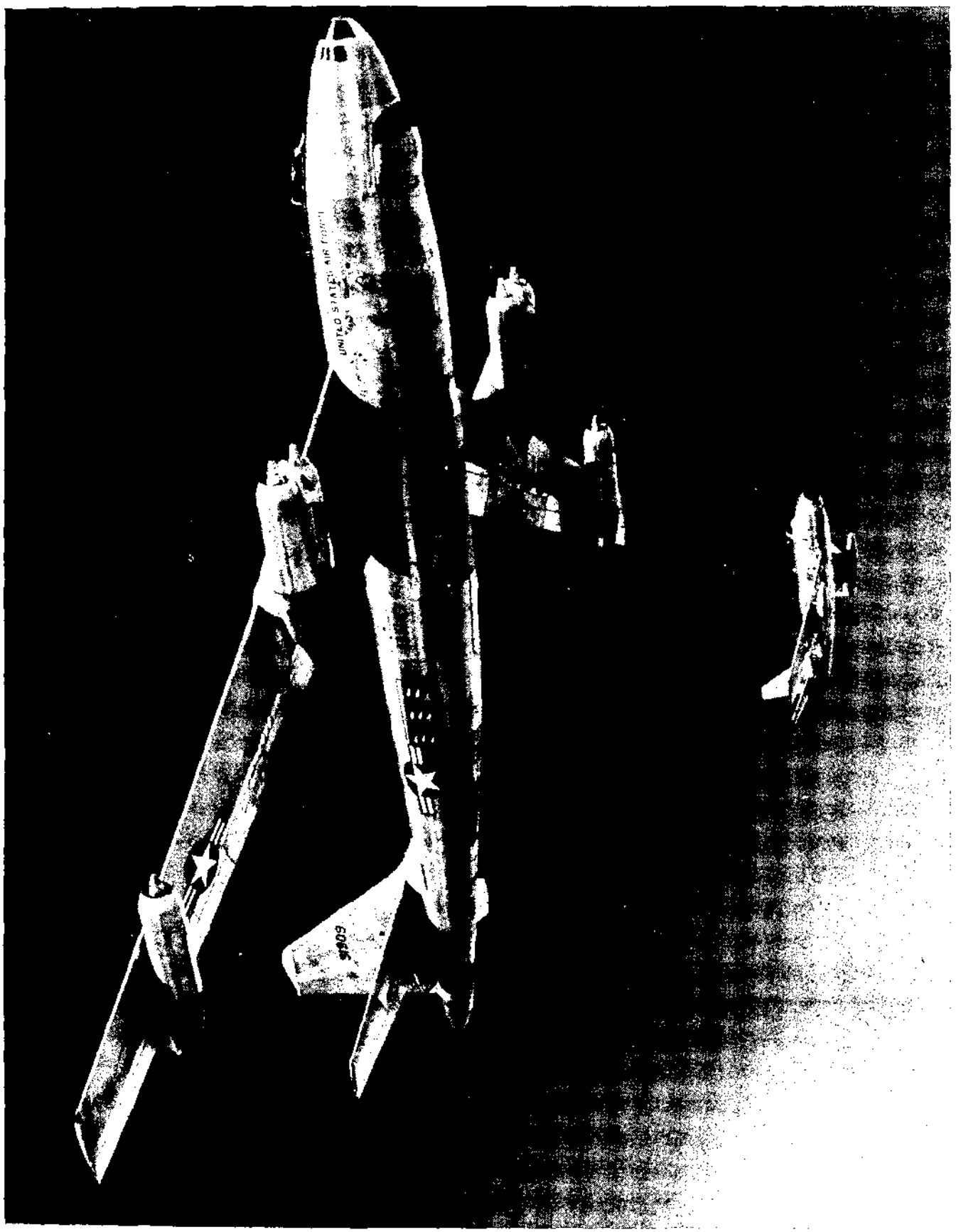


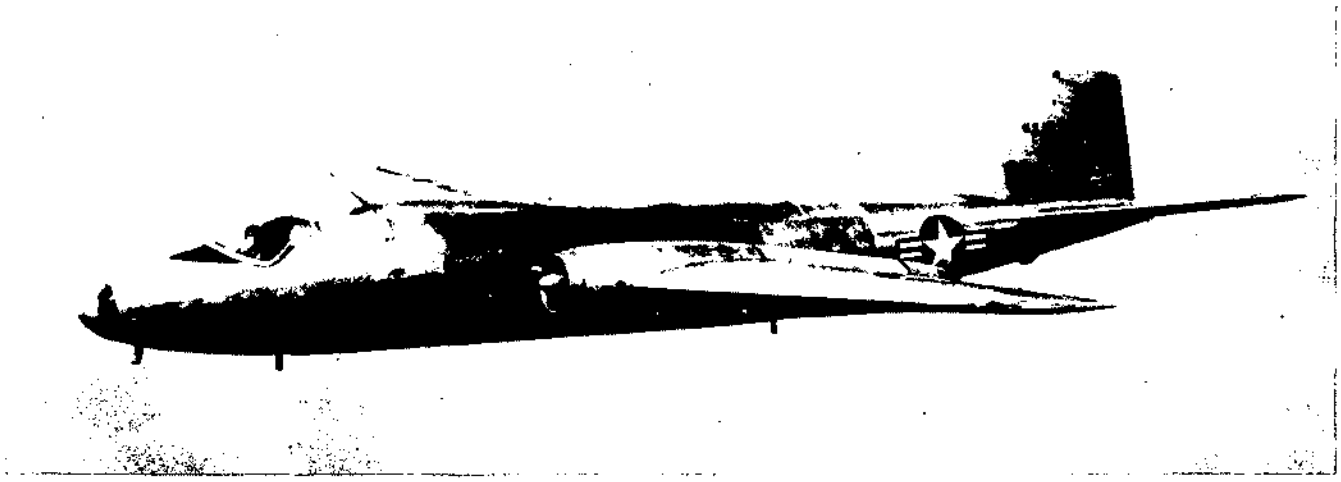


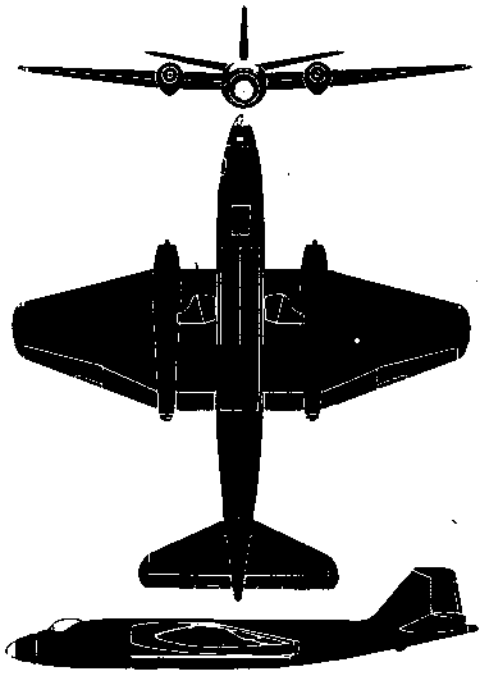
The Stratojet is a high-wing medium bomber powered by six jet engines slung beneath the wings. Two engines are mounted in a single nacelle outboard of the fuselage and a single engine nacelle is mounted near each wing tip. The wings and stabilizer are sharply sweptback giving an arrow-like appearance. Its fuselage is long and narrow with a tapering high fin, and a tail cone that extends beyond the rudder. The B–47 has a retractable bicycle landing gear composed of two wheel trucks with small wheels extending from the inboard nacelles for balance. There are RATO tube openings in the fuselage sides aft of the trailing edge of the wing. When loaded the B–47 weighs more than 180,000 pounds.

SPAN: 116′ 0″ **LENGTH: 106′ 6″**
ENGINE: 6/J-47-GE-11/5,200-lb. thrust each.
MAX SPEED: 540 knots/10,000 ft.
RANGE: 3,300 nautical miles/430 knots.
ARMAMENT: 2x.50 cal. in tail; 1 x 22,000-lb. bomb.



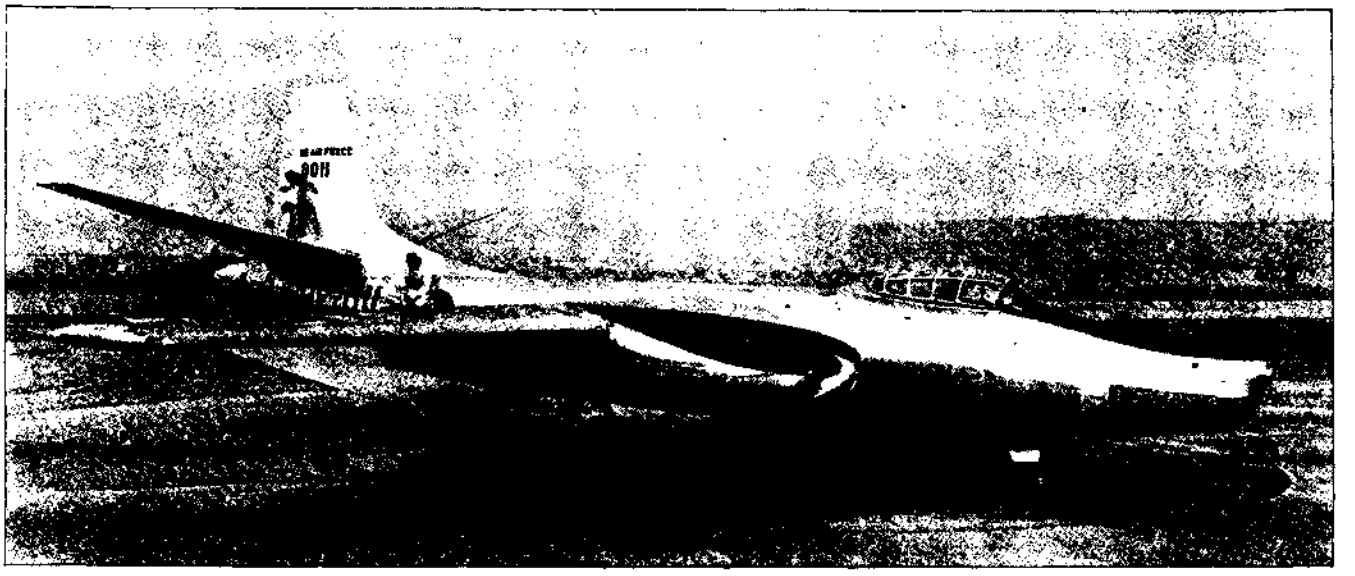


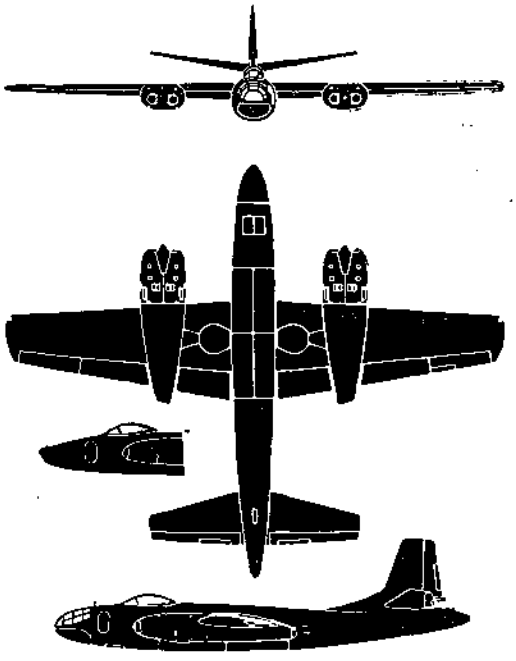




The B–57 Canberra is a twin-jet mid-wing night intruder bomber version of the English Electric Canberra. A considerable amount of redesign was undertaken by Martin to convert the Canberra to U. S. production methods. A U. S. feature is a pre-loaded revolving bomb-bay door which rotates through 180° just before the bombs are released, leaving no protruding doors to reduce speed on the bombing run. The first Martin Canberra flew in July 1953. A tactical version of the Canberra powered by Avon jets has been built in Australia. The British design has been built in a number of versions ranging from light bombers to photo-reconnaissance. All-metal construction is employed in the semi-monocoque fuselage. A retractable tricycle landing gear is fitted. The take-off weight of the night intruder Canberra is around 50,000 pounds.

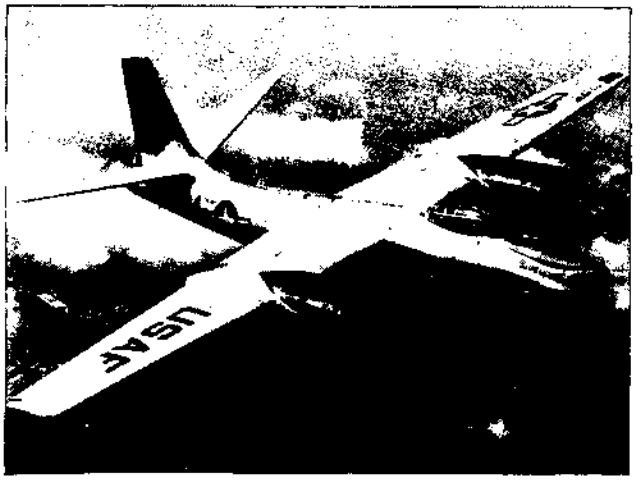
SPAN: 65′0″ **LENGTH: 64′0″**
ENGINE: 2/J65–W–S/7,200-lb. thrust each.
MAX. SPEED: 490 knots plus.
RANGE: Approx. 2,600 nautical miles/425 knots.
ARMAMENT:

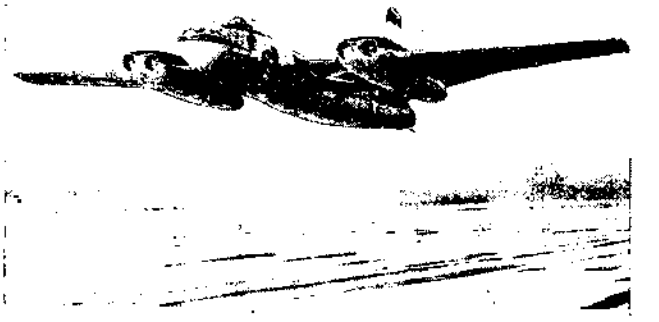


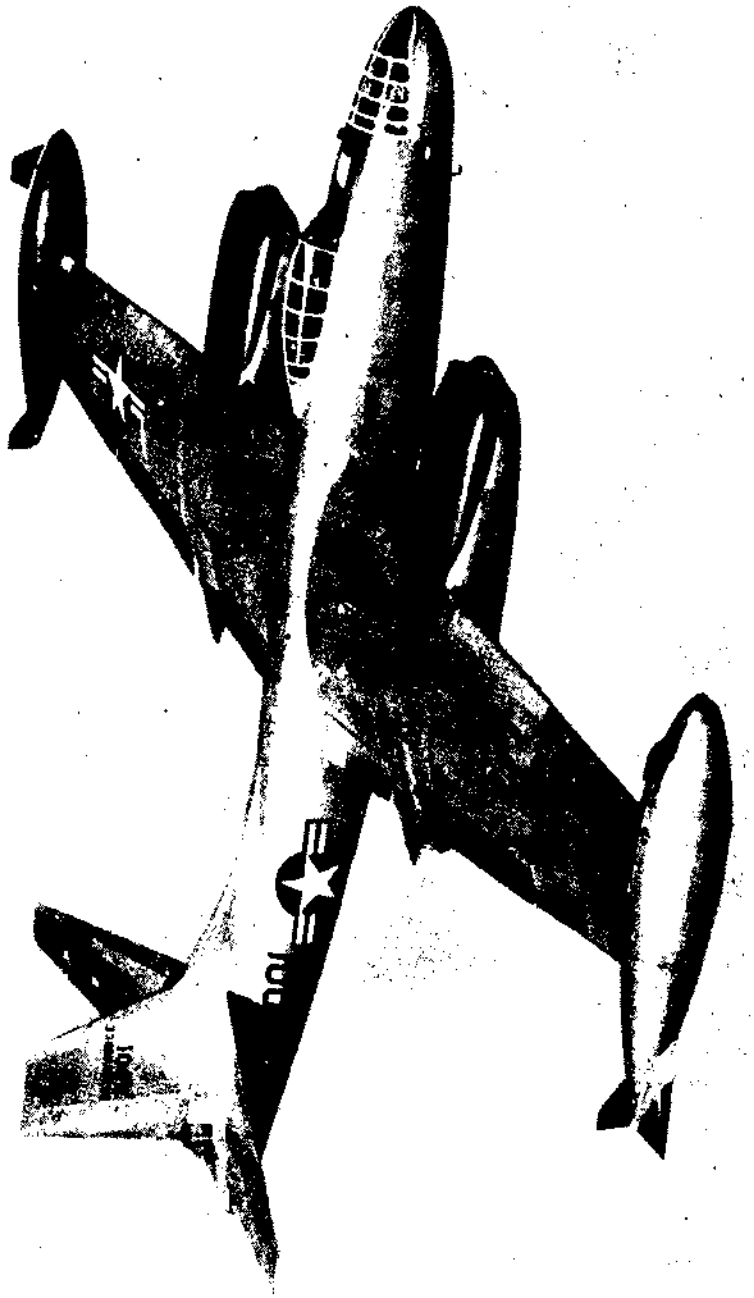


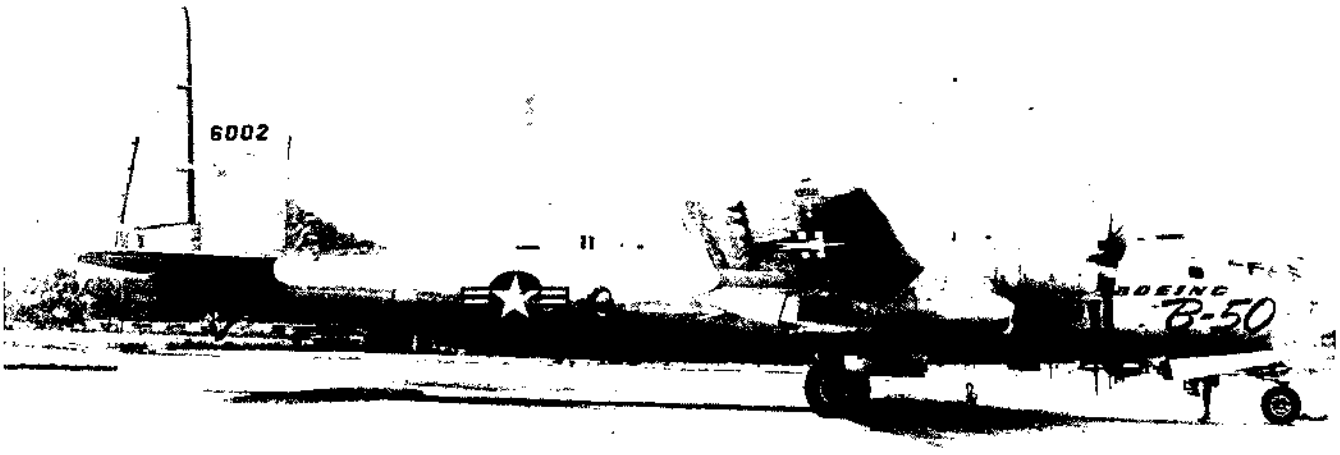
The B–45 Tornado is a light, four-engined jet bomber or reconnaissance aircraft. It features a shoulder wing with its engines divided into pairs underslung on each wing in single nacelles. The B–45 was the first U. S. multi-jet to fly and since its first flight in 1947 approximately 140 have been built. A reconnaissance version, the RB–45C, was in operational service in the Korean theater and flew many missions in the Yalu River area. The high-altitude photographic version has five camera stations capable of carrying ten different types of cameras. Its nose section and rear fuselage cone section have been redesigned to accommodate this gear. Equipment includes ejection seats and provisions for air-to-air refueling. Maximum take-off weight is around 110,000 pounds.

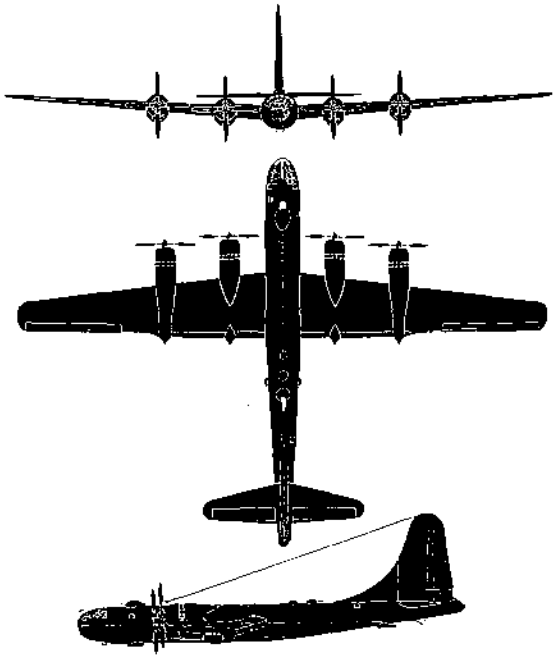
SPAN: 89′0″ **LENGTH: 75′2″**
ENGINE: 4/J47–GE/6,000-lb. thrust each plus 2/Aerojet/4,000-lb. thrust/60 sec.
MAX SPEED: 498 knots/sea level.
RANGE: 2,100 nautical miles/385 knots.
ARMAMENT: 2 x .50 cal; 1 x 22,000-lb. bomb.





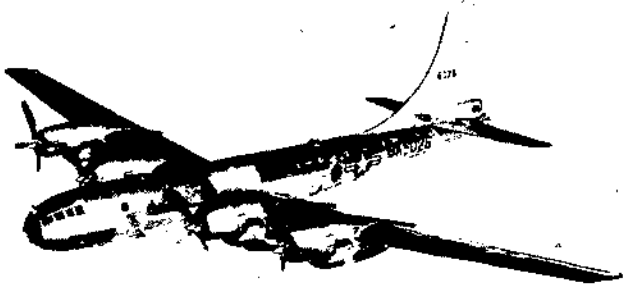


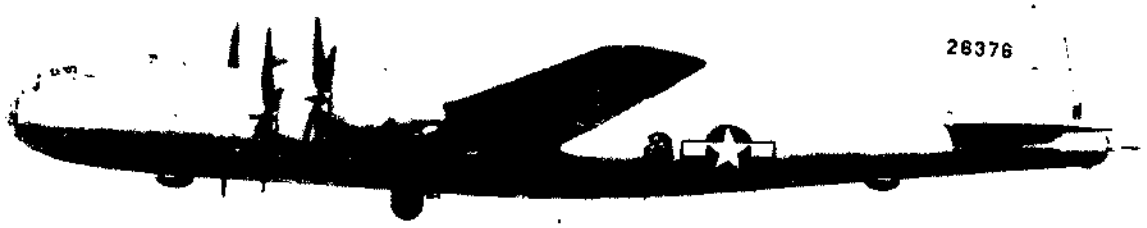


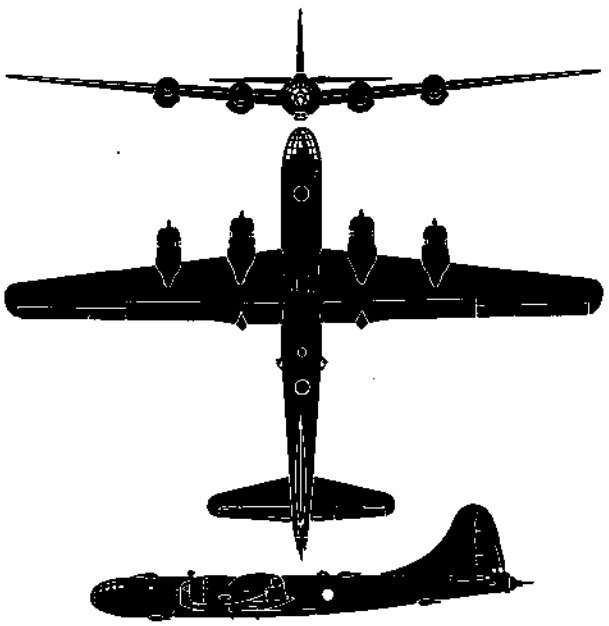


The Superbomber B–50 is a medium bombardment airplane powered by four radial type engines mounted in nacelles which extend beyond the wings straight trailing edge. The wing has slight dihedral and pronounced sweepback on leading edge. Notable is the B–50's very high single fin and rudder which can be folded when hangar clearance is needed. The fuselage is round and tapers gradually and smoothly to the horizontal stabilizer. Superficially it is similar to the B–29. It has a higher fin and rudder than the B–29, and the engine nacelles are larger. Crew compartments are pressurized and heated for high altitude flying.

SPAN: 141′2″. **LENGTH:** 99′0″.
ENGINE: R–4360/3,500 h. p.
SPEED: 353 knots/30,000 ft.
RANGE: 4,140 nautical miles/227 knots.
ARMAMENT: 13 x .50 cal.

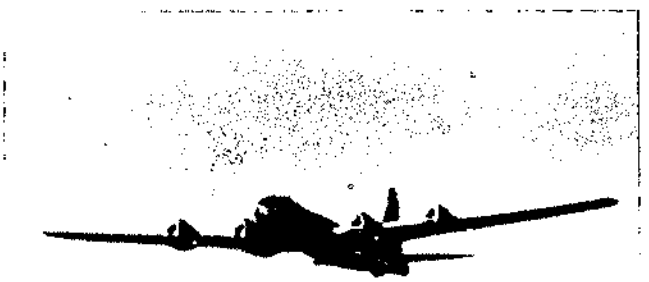


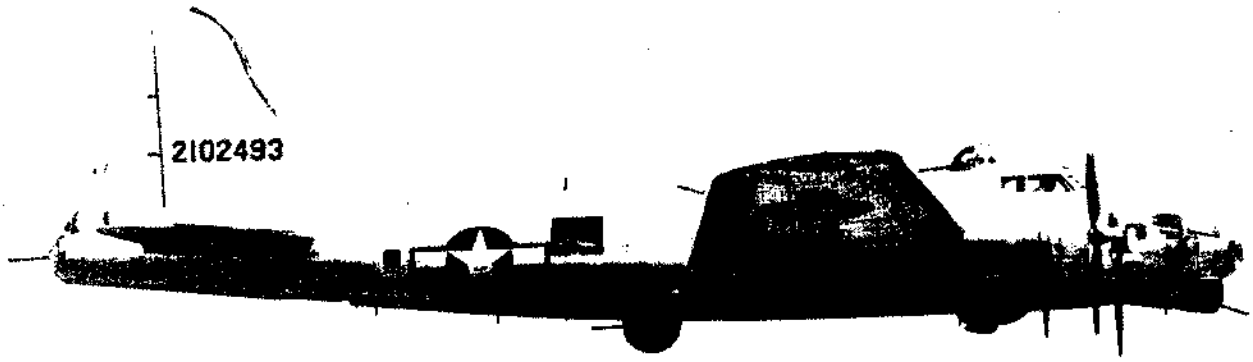


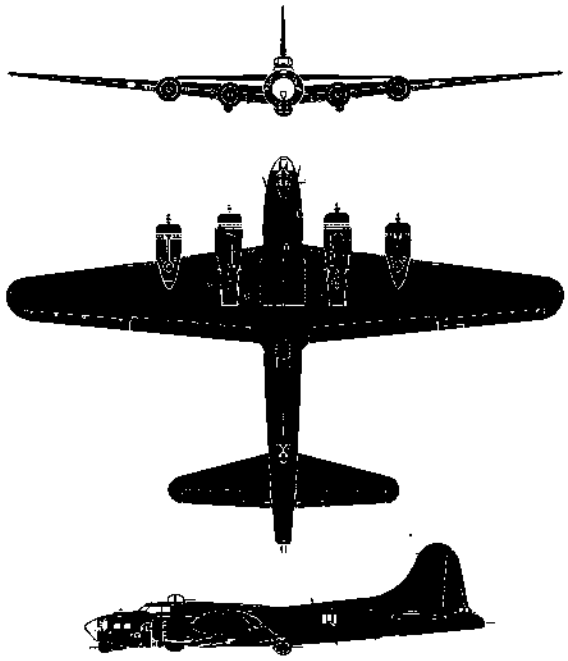


The Superfortress is a medium bombardment airplane with four radial engines. Engine nacelles extend well forward from the leading edge of the single wing. The wing has pronounced dihedral and sweepback and the trailing edge of the wing is practically straight. The fuselage is large and round, with gradual taper to the tail. A very large single fin extends well forward on the fuselage. The B–29 was used extensively in the Pacific theater during the latter stages of World War II, particularly in the bombing of Japan proper. This was the airplane used to drop the first atomic bomb. It has pressurized crew compartments for high altitude flying.

SPAN: 141′2″. **LENGTH:** 99′0″.
ENGINE: R–3350/2,200 h. p.
SPEED: 354 knots/34,400 ft.
RANGE: 3,960 nautical miles/208 knots.
ARMAMENT: 13 x .50 cal.

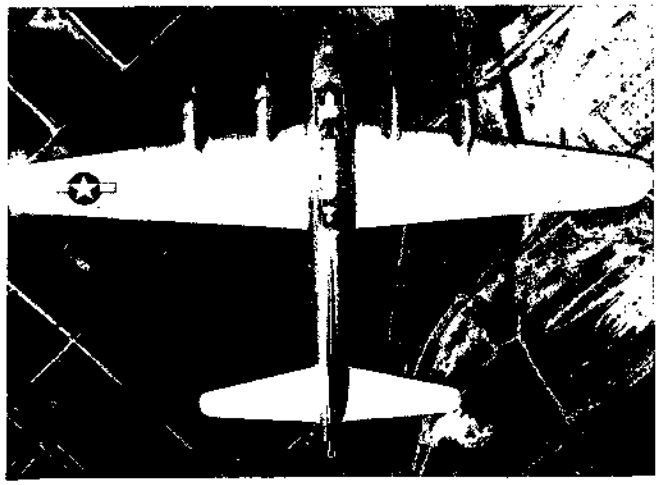


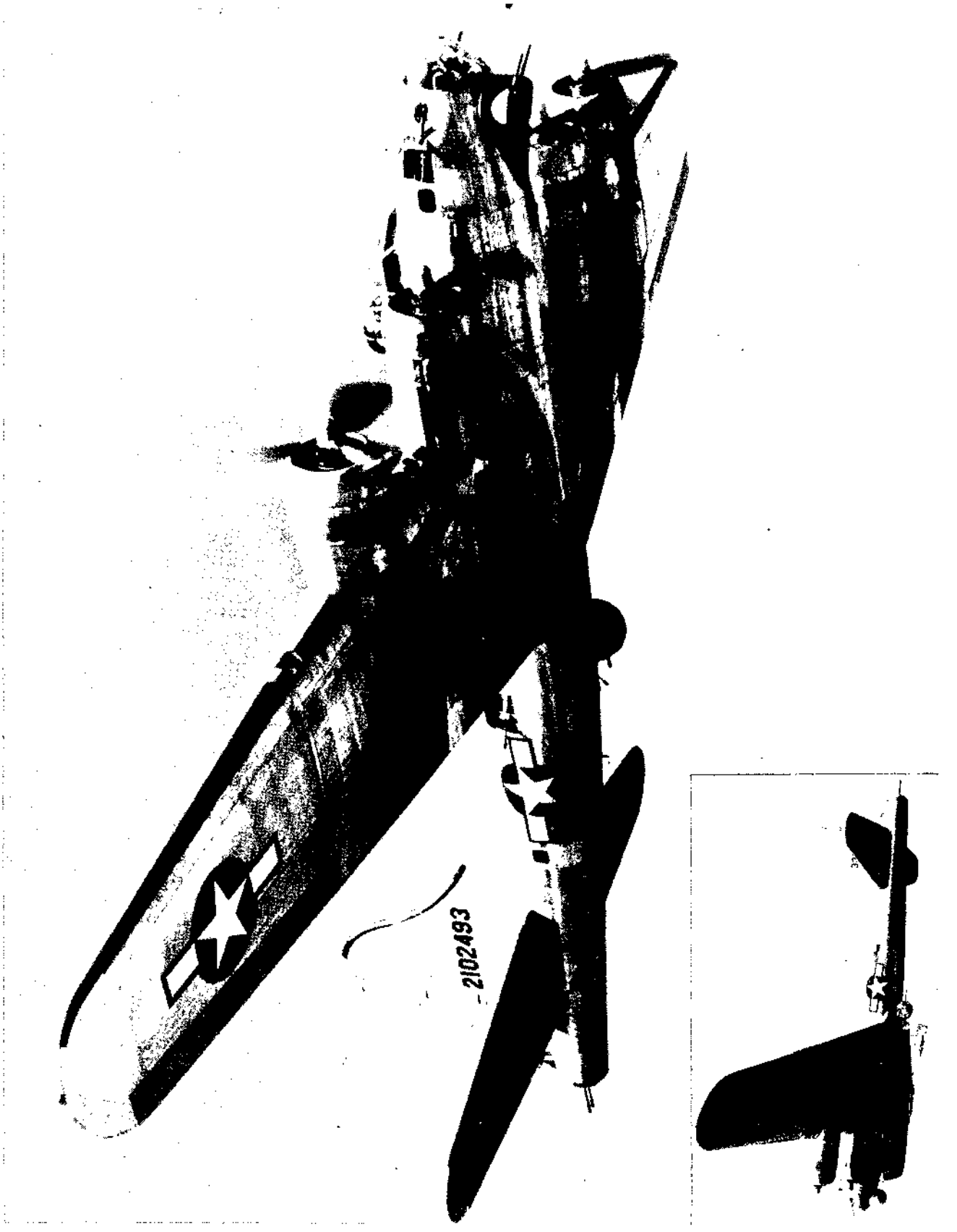




The Fortress is a low-wing, four-engined medium bomber that saw extensive action in all theaters during World War II. A first flight by the prototype was made on 28 July 1935, and the first B–17 was delivered to the Army Air Corps in March 1937. This forerunner of our present B–29, B–50 type bombers has been progressively modified. Today a major employment of this aircraft is designated B–17G and B–17H. The B–17H is a conversion of the B–17G for Air/Sea Rescue duties and it carries a lifeboat under the fuselage plus radar in the chin. Used by the Navy and Coast Guard these versions are designated PB–1 and PB–1W respectively. Aside from these duties the B–17 is currently used for many experimental duties.

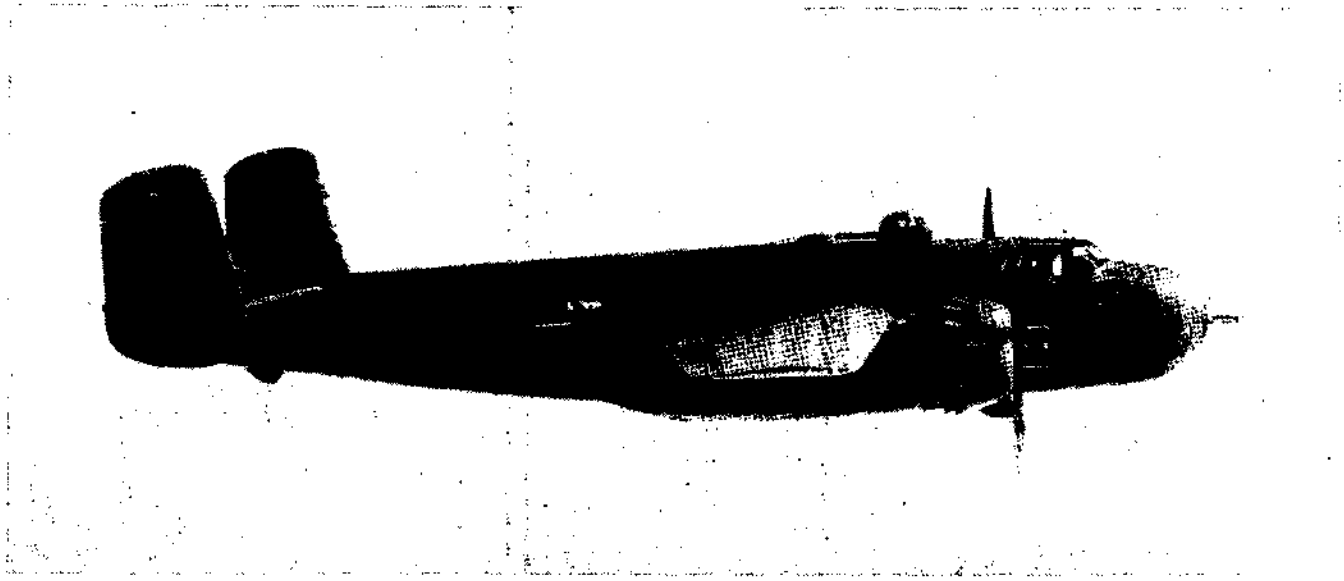
SPAN: 103'10''. **LENGTH: 74'9''.**
ENGINE: R–1820/1,200 h. p.
SPEED: 255 knots/25,000 ft.
RANGE: 1,000 nautical miles/190 knots.
ARMAMENT: 12 x .50 cal.; and 6,000 lb. bomb load.

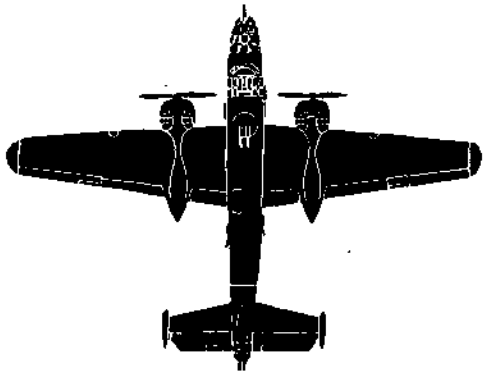




USA
JUNE 1950

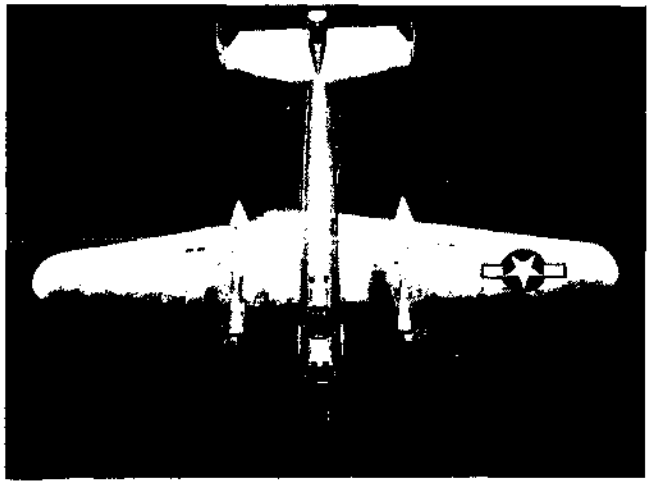
FM 30-30
OPNAV 32P-1200
AFM 50-40A





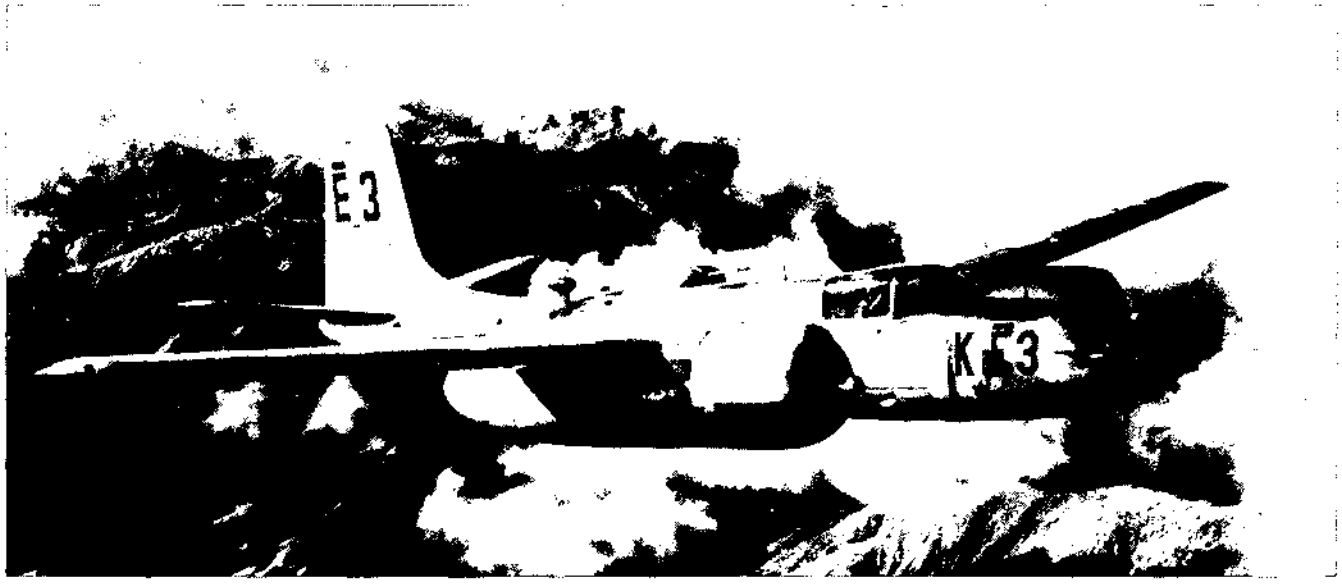
The Mitchell has two radial engines underslung below the wings with nacelles extending just beyond the wing's trailing edge. High outboard twin fins and rudders are sloped like a lopsided rectangle. The gull wing effect is due to positive dihedral on inboard panel only. The wings are tapered on both edges with more pronounced taper on the trailing edge. A rather long transparent nose is set well forward of the wing. The B–25 was used extensively in World War II, particularly in the Pacific theater. It is well remembered as the aircraft used by General Doolittle to bomb Japan from an aircraft carrier. Now used as a multi-engine trainer with interchangeable noses.

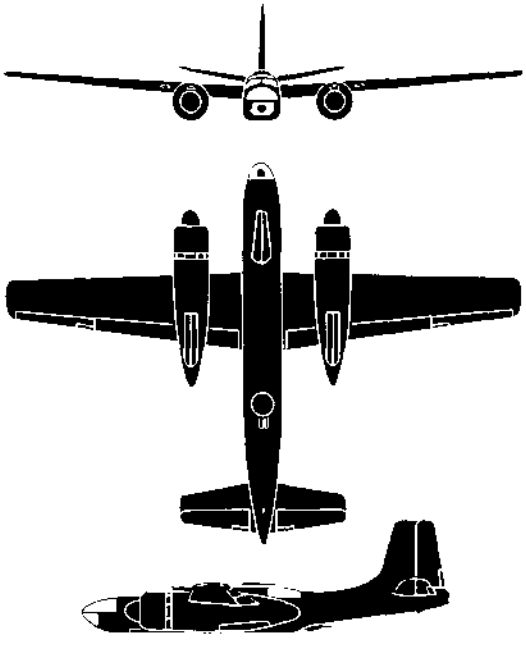
SPAN: 67′7″. **LENGTH:** 53′6″.
ENGINE: R–2600/1,700 h. p.
SPEED: 252 knots/12,600 ft.
RANGE: 1,130 nautical miles/168 knots.
ARMAMENT: 12 x .50 cal./4 turrets.



USA
MAY 1949

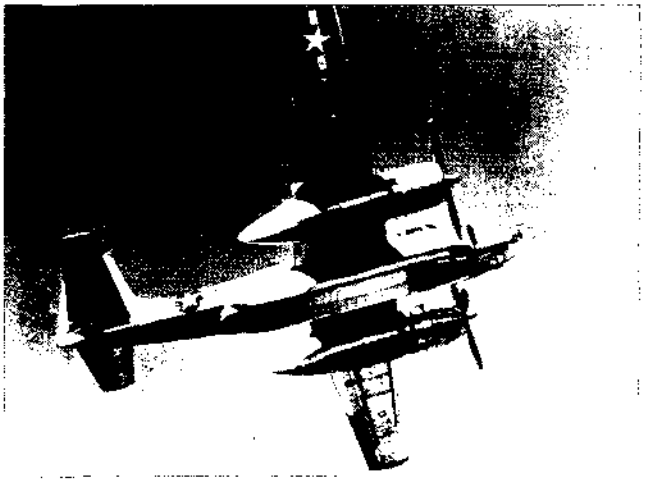
AFM 50-40
OPNAV 32P-1200

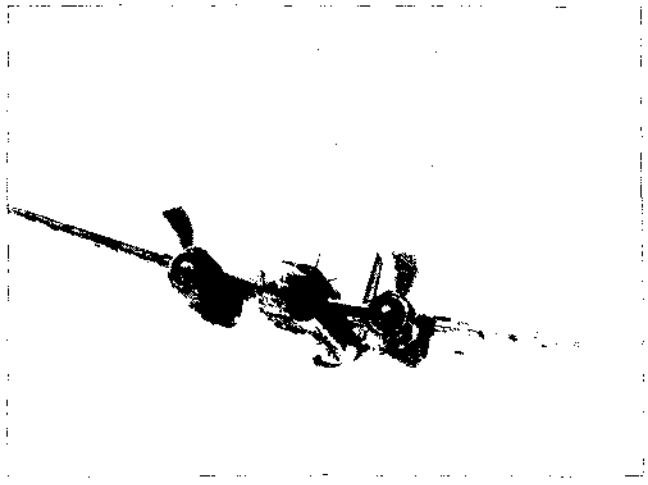




The Invader B–26 is a mid-wing light bomber fitted with twin radial engines protruding well beyond the trailing edge of the wings. The wings are long and narrow tapering to blunt tips with slight dihedral evident. The fuselage is straight and narrow and has a step-up aft. A large fin and rudder is set on the tapering tail. The stabilizer has dihedral. The B–26 was developed from the Havoc A–20 and is quite versatile. It can be fitted with a bombing nose or an all purpose attack nose. These noses are interchangeable. On June 26, 1946 an experimental version, the XA–26F, established a speed record of 413 mph over a 621 mile course.

SPAN: 70′0″. **LENGTH:** 51′2″.
ENGINE: R–2800/2,000 h. p.
SPEED: 250 knots/5,000 ft.
RANGE: 1,490 nautical miles/185 knots.
ARMAMENT: 11 x .50 cal.






K E3
E3
188456

USAF

B-58
HUSTLER

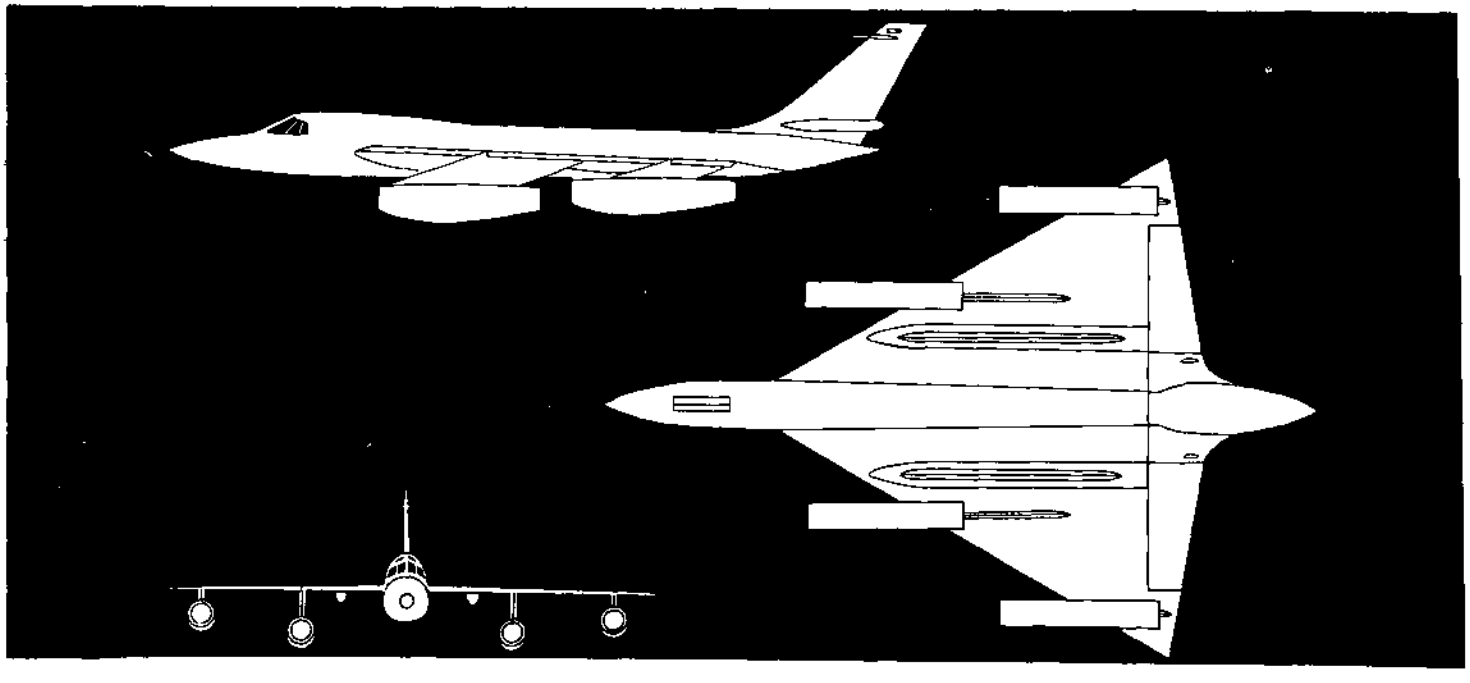
The B–58 is a delta-winged, supersonic bomber. Outstanding recognition features include the delta shaped, conical tipped wing, podded engines extending well in front of the wing leading edge, and a large, sharply swept back vertical stabilizer. Three separate cockpit canopies are mounted atop the fuselage.

SPAN: 55′ LENGTH: 95′
ENGINE: 4/GE J–79/Afterburners
MAXIMUM SPEED: Exceeds Mach I

CONVAIR

MULTI-JET

BOMBER

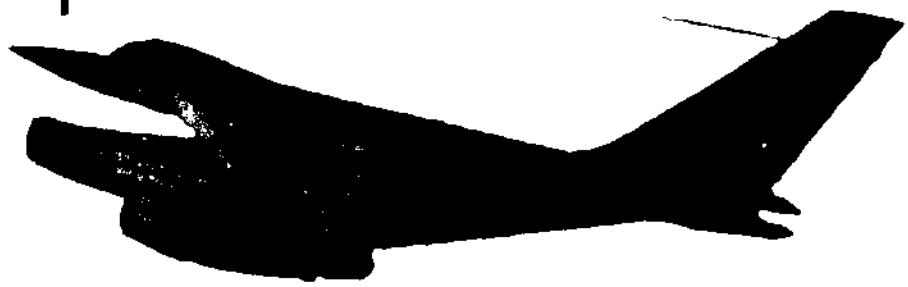


U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

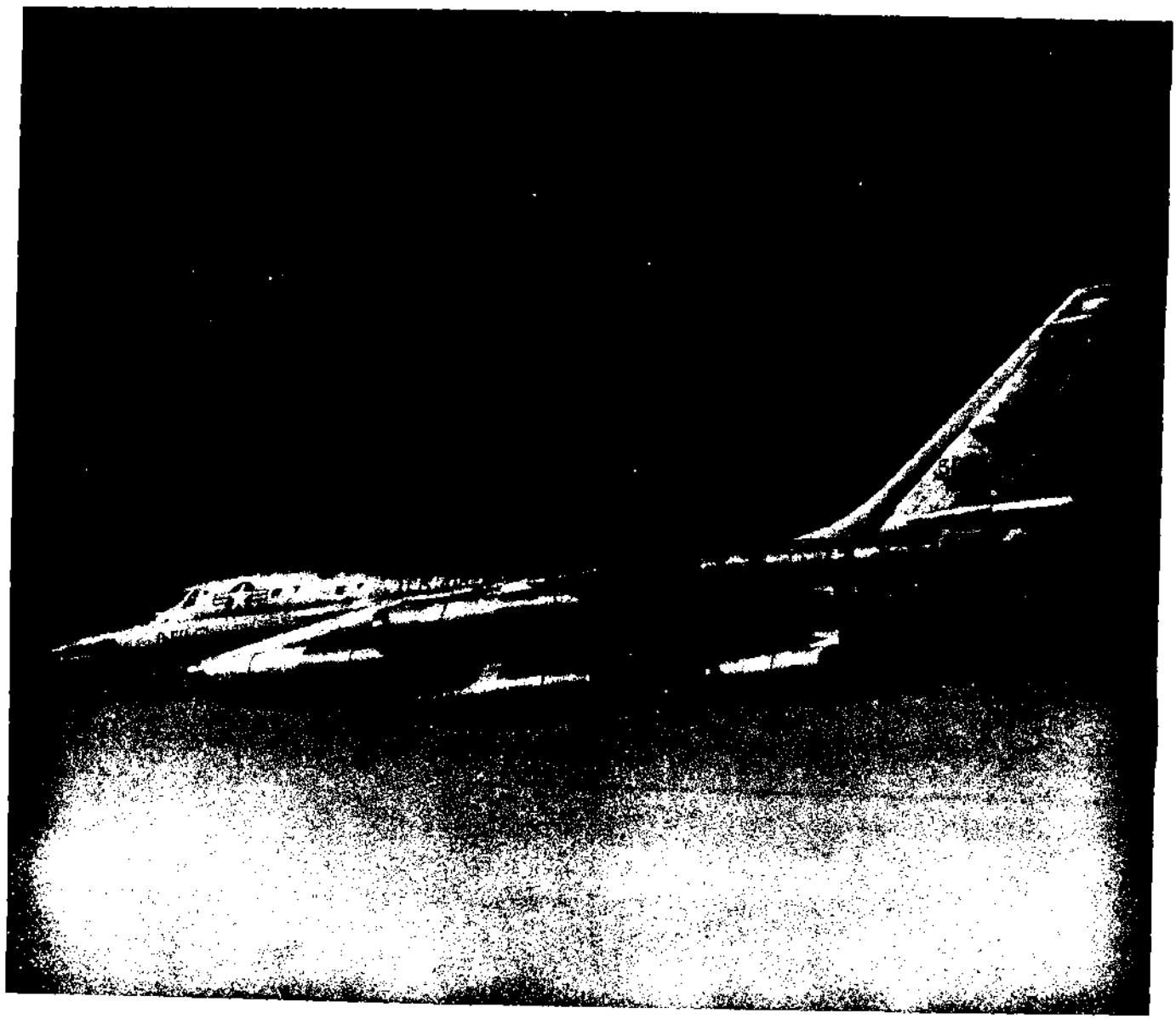
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

B-58
HUSTLER

USAF



ACCENTED DRAWING



U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

USAF

B-66
SKYWARRIOR

The B-66 Skywarrior/Navy A3D has tapered wings, shoulder mounted. The wings have several degrees of droop or anhedral. The engine pods are attached to forward-jutting struts beneath the wing. Features of the tail section include swept-back horizontal surfaces mounted well above the fuselage on the vertical stabilizer and a radar controlled gun turret. The horizontal stabilizer is set with considerable dihedral. The B-66 has a slide-type, under fuselage escape chute and an upper ditching hatch. A tricycle type landing gear is utilized. Speed brakes are fuselage mounted and hydraulically operated.

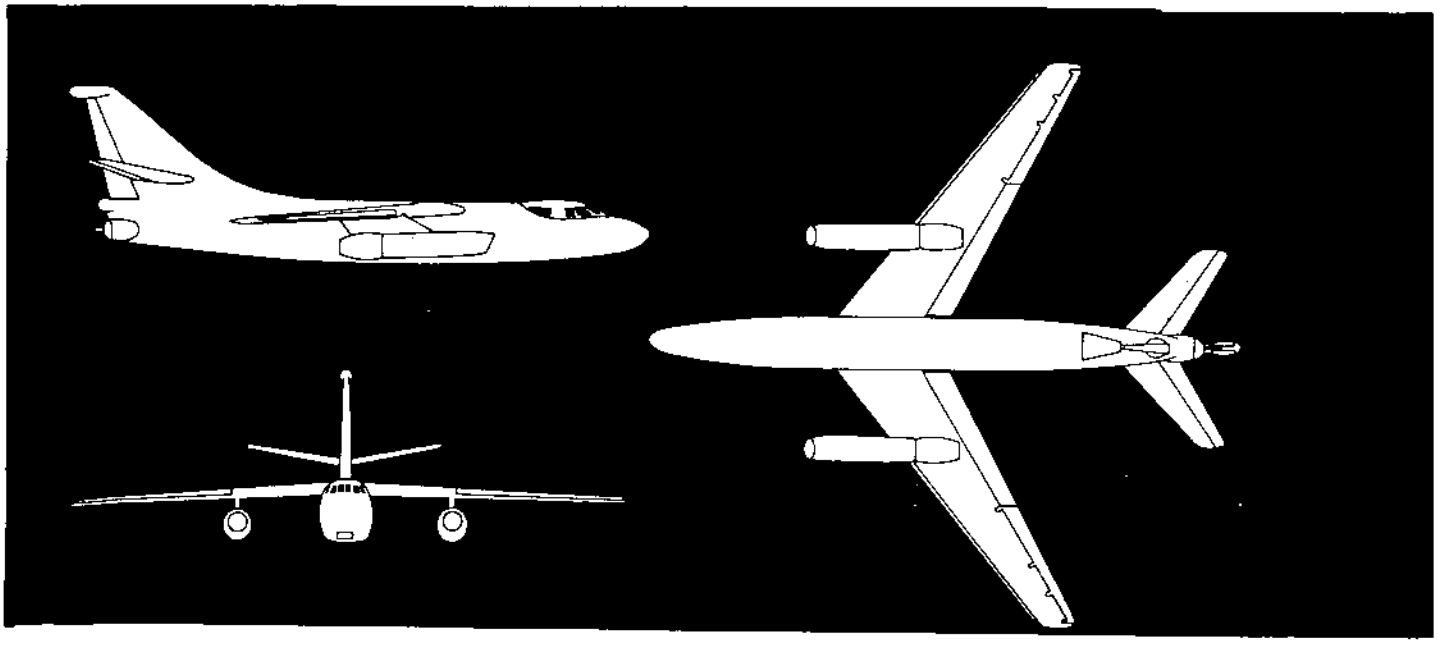
SPAN: 72'6" LENGTH: 75'11"
ENGINE: 2/J-71 Allison/10,000 lbs. thrust
MAXIMUM SPEED: More than 560 knots
RANGE: More than 2000 nautical miles
ARMAMENT: 2x20 mm cannon; bombs

DOUGLAS

TWIN-JET

RECONNAISSANCE-

BOMBER

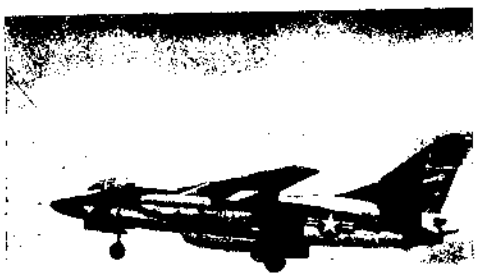


U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

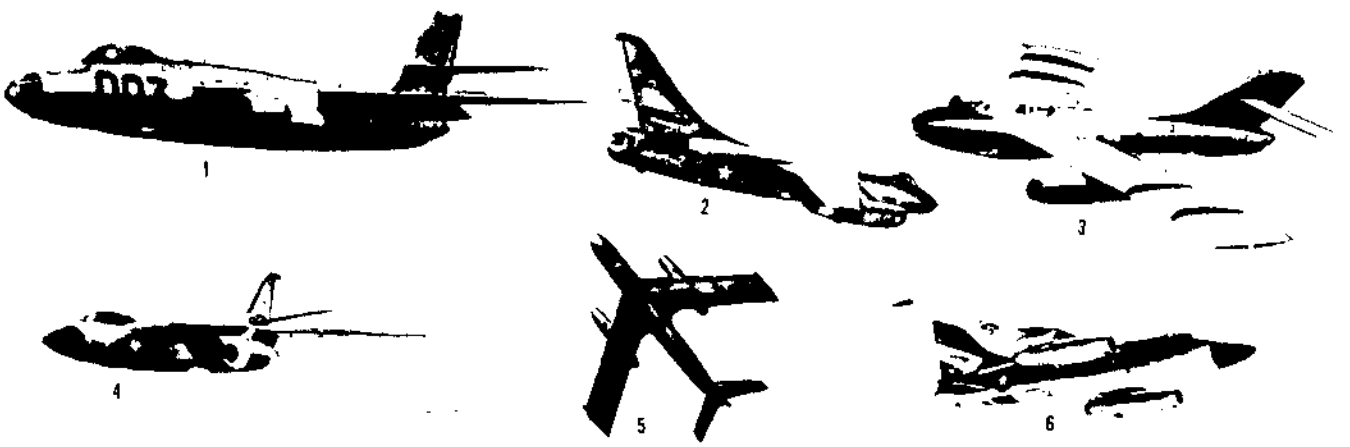
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

B-66 SKYWARRIOR | USAF

ACCENTED DRAWING

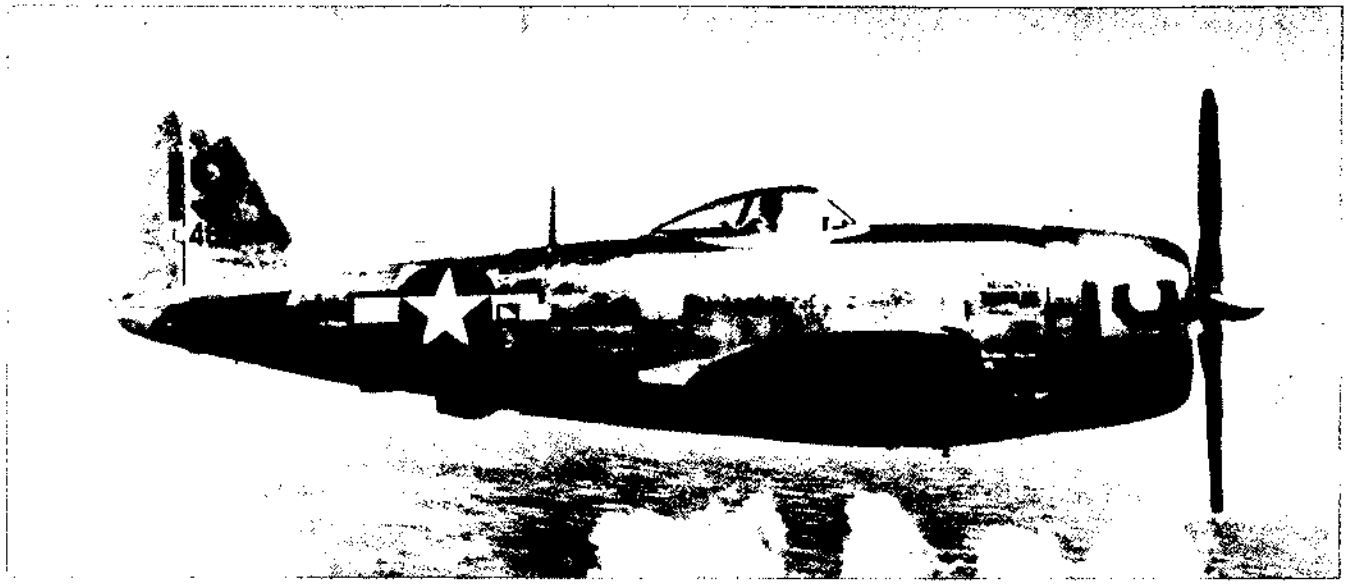


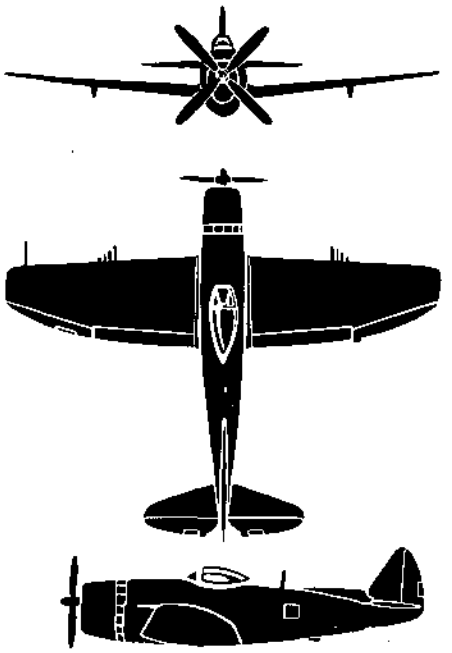
The B-66 shown with the US Navy version (Lower right photo)



Identify the aircraft shown above; correct answers are below

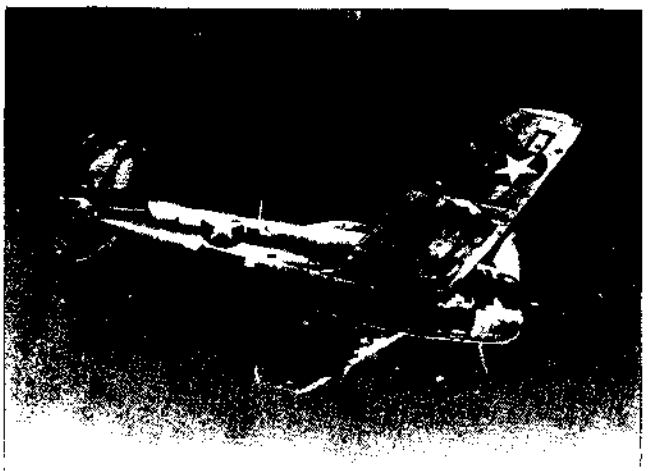
1. VAUTOUR 2. B-66 3. FLASHLIGHT 4. B-66 5. FLASHLIGHT 6. B-66

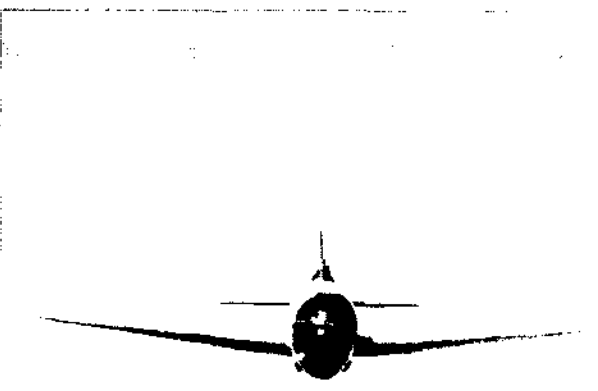




The Thunderbolt is a low mid-wing monoplane with single radial engine. The wing has a slightly tapered leading edge and curved trailing edge with blunt tips (earlier models had rounded tips) and full dihedral from roots. An oval shaped engine cowl with propeller hub set above center is faired into a rather thick fuselage with a sharp ridge down its sloping back. There is a single fin and rudder with pronounced taper on leading edge and curved trailing edge. The Thunderbolt was designed as a high altitude fighter in 1941, and was one of the largest and fastest single engine fighters of the USAF when America entered World War II.

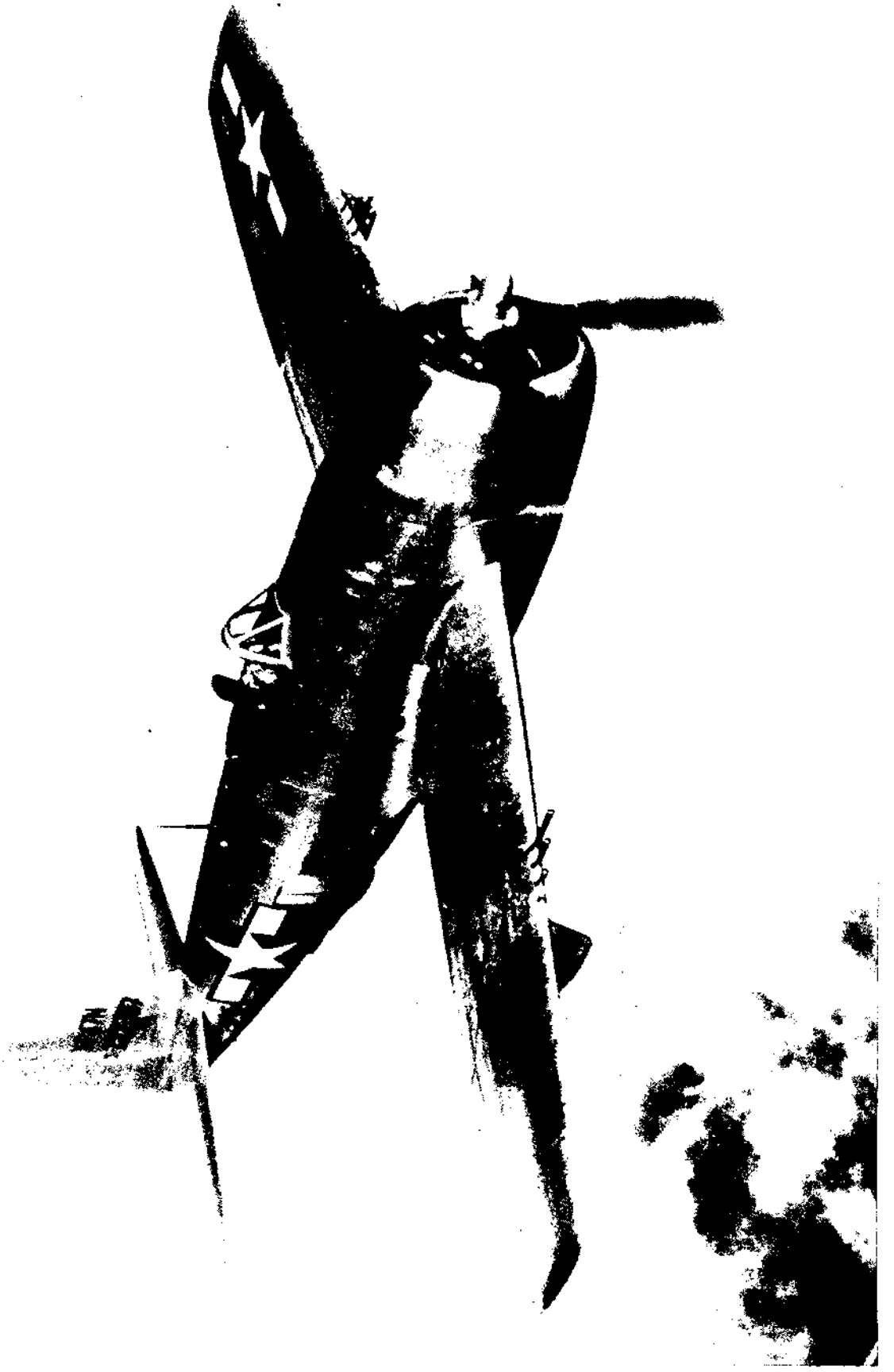
SPAN: 42'6". **LENGTH:** 36'1".
ENGINE: R–2800/2,100 h. p.
SPEED: 390 knots/35,000 ft.
RANGE: 2,020 nautical miles/244 knots.
ARMAMENT: 8 x .50 cal.





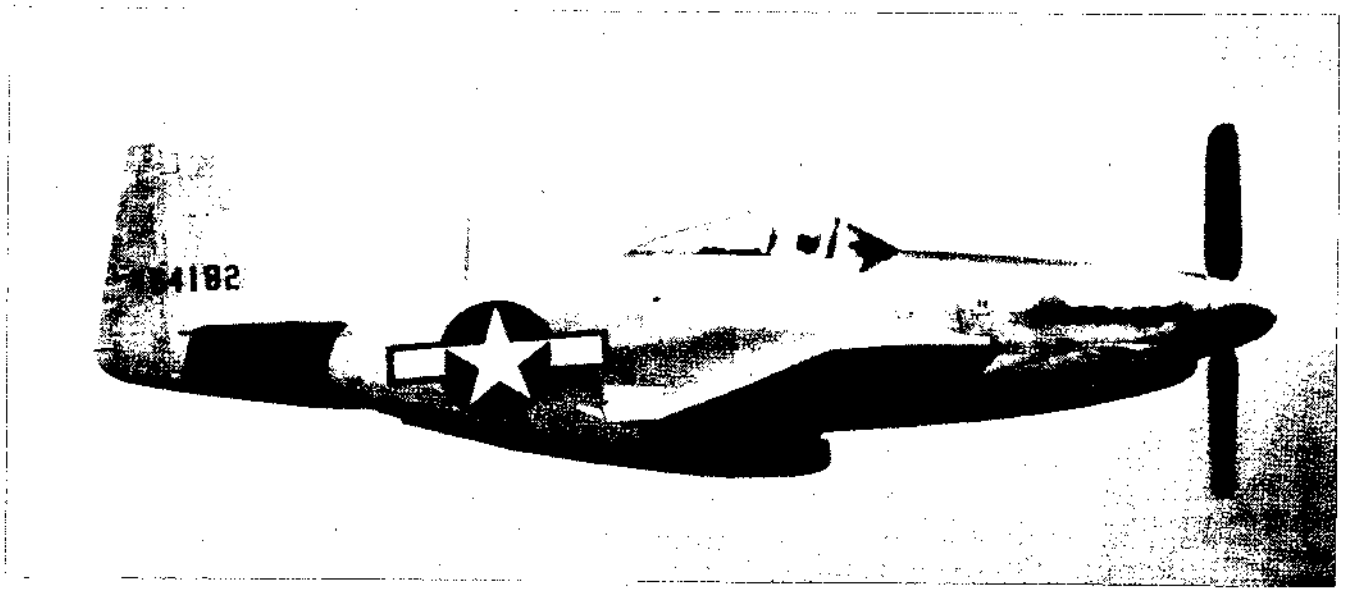
REPUBLIC

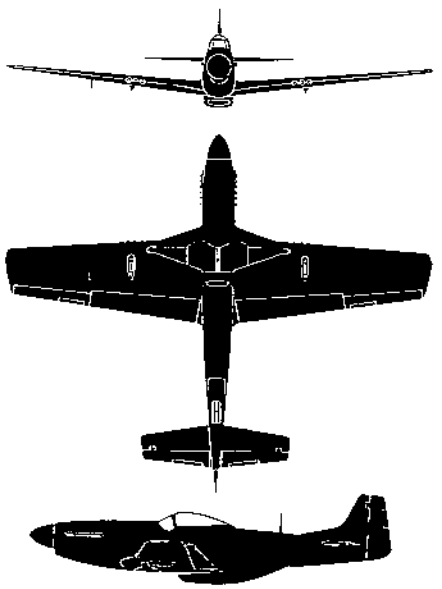
F-47 THUNDERBOLT



USA
MAY 1949

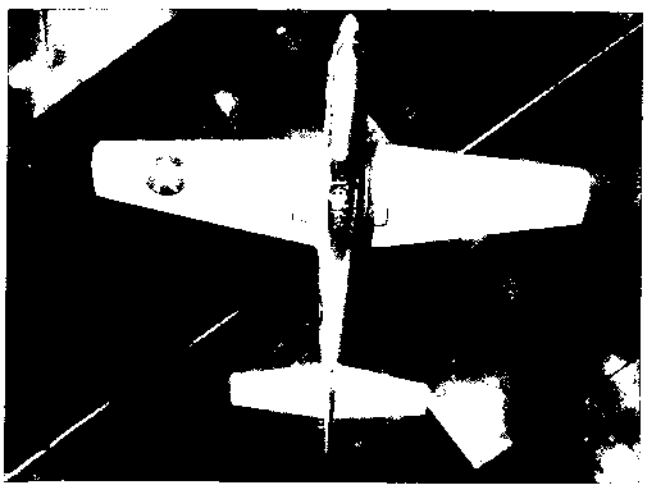
AFM 50-40
OPNAV 32P-1200

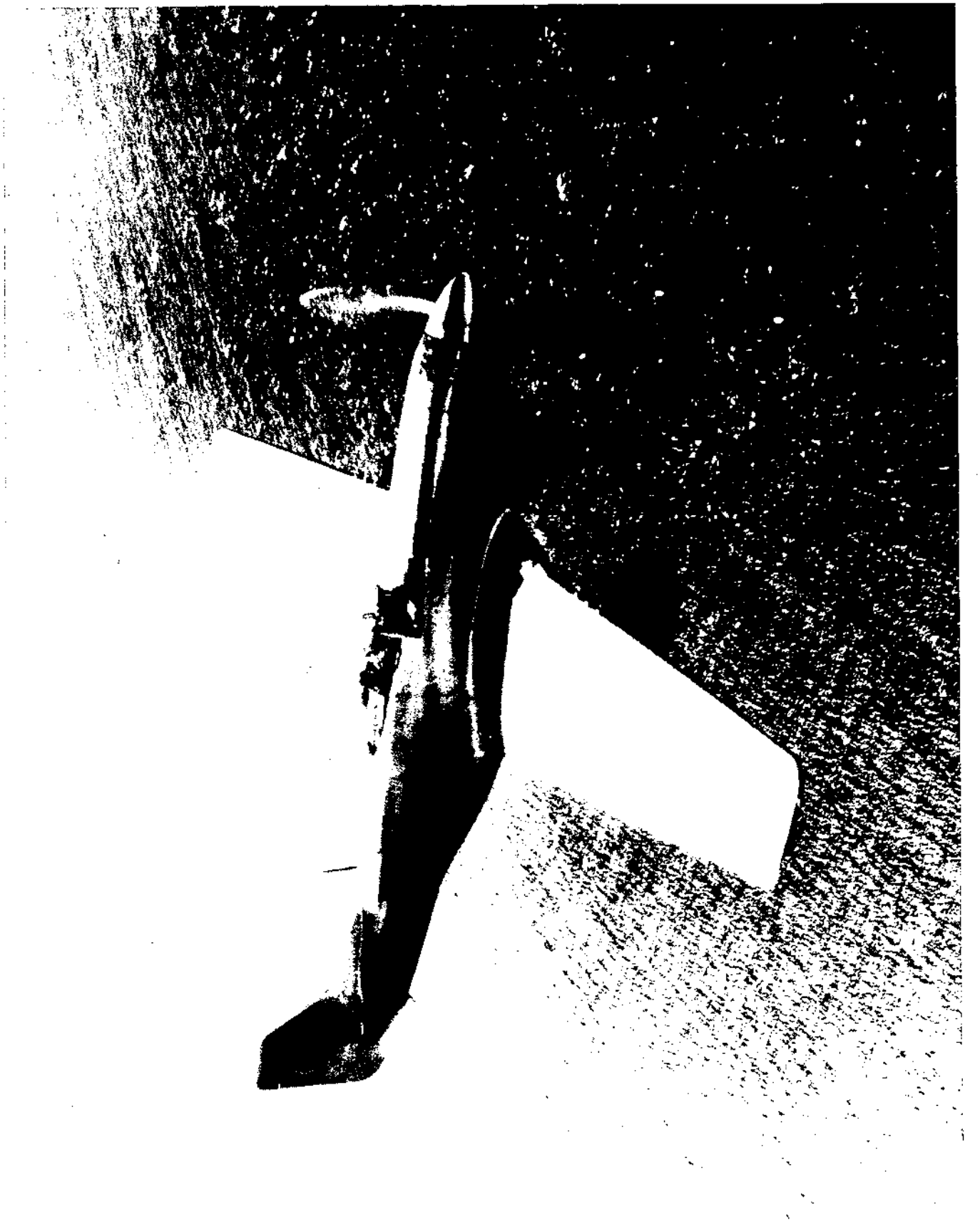


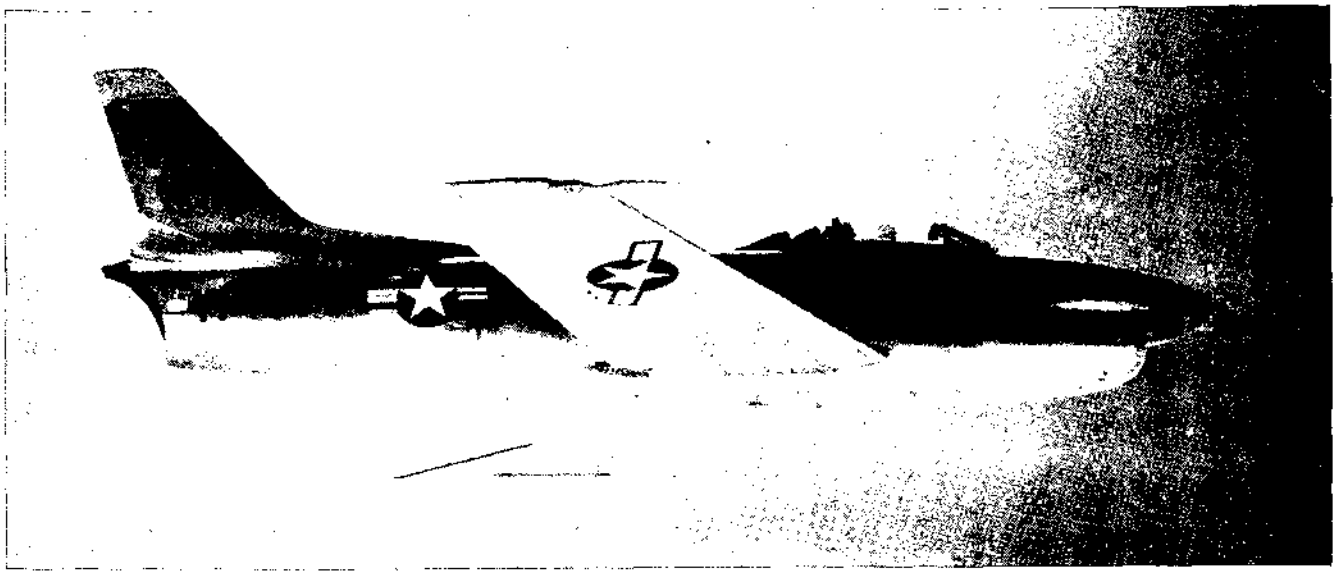


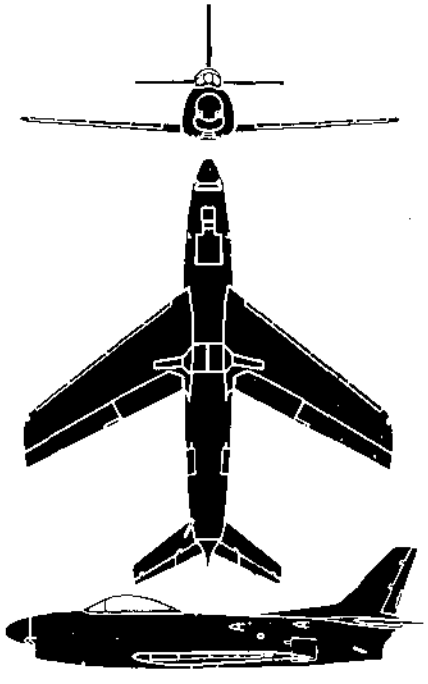
The Mustang is a low-wing monoplane powered by a single liquid-cooled engine. The radiator air scoop is a channel-section structure attaching under and forming the lower portion of the main fuselage. The wings have evenly tapered leading and trailing edges with square tips and full dihedral from the roots. The single fin and rudder is sharply tapered on the leading edge, with a square top, and slightly tapered trailing edge. The prototype model of the F–51 was designed, built and flown (October 1940) in 100 days and put into production before the end of 1940. It was valuable for reconnaissance and long range escort-fighter missions.

SPAN: 37′0″. **LENGTH:** 33′4″.
ENGINE: V–1650/1,495 h. p.
SPEED: 425 knots/22,700 ft.
RANGE: 1,720 nautical miles/236 knots.
ARMAMENT: 6 x .50 cal.



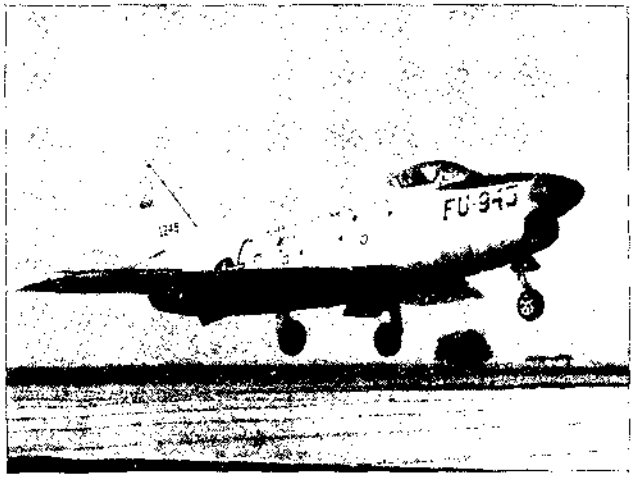


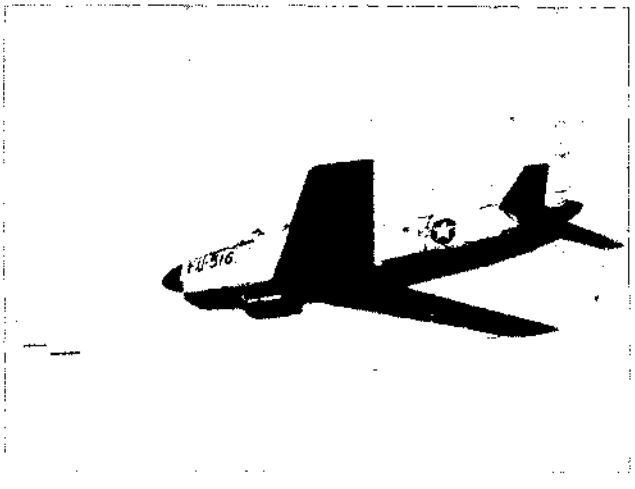


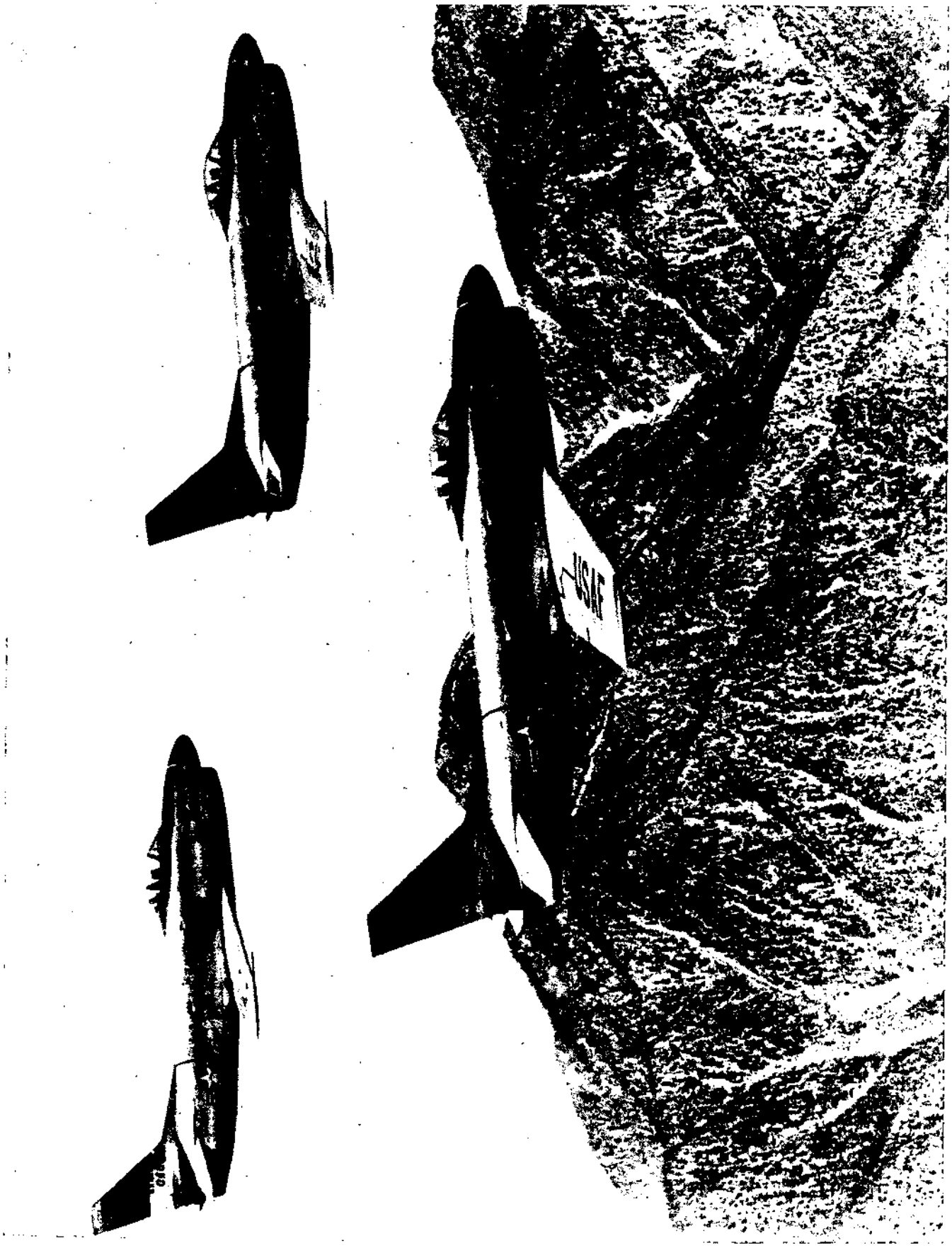


The F-86D is a single-seat interceptor designed to climb quickly for high altitude interceptions in all-weather operations. It is a development of the F-86A Sabre with its air intake repositioned under a shark-like nose, which now encloses a radar scanner. The F-86D differs from its predecessor by having a larger aft fuselage section to house its more powerful jet engine and after burner. Equipment includes a "Flying Tail", air intercept gear, armament-laying and tracking navigation, and an ejector seat. The cockpit canopy is a "clamshell" type, hinged at its rear end and jettisonable. Maximum take-off weight is around 17,000 pounds. An F-86D broke the world's record in July 1953, when it flew 715.7 m. p. h. with full military load.

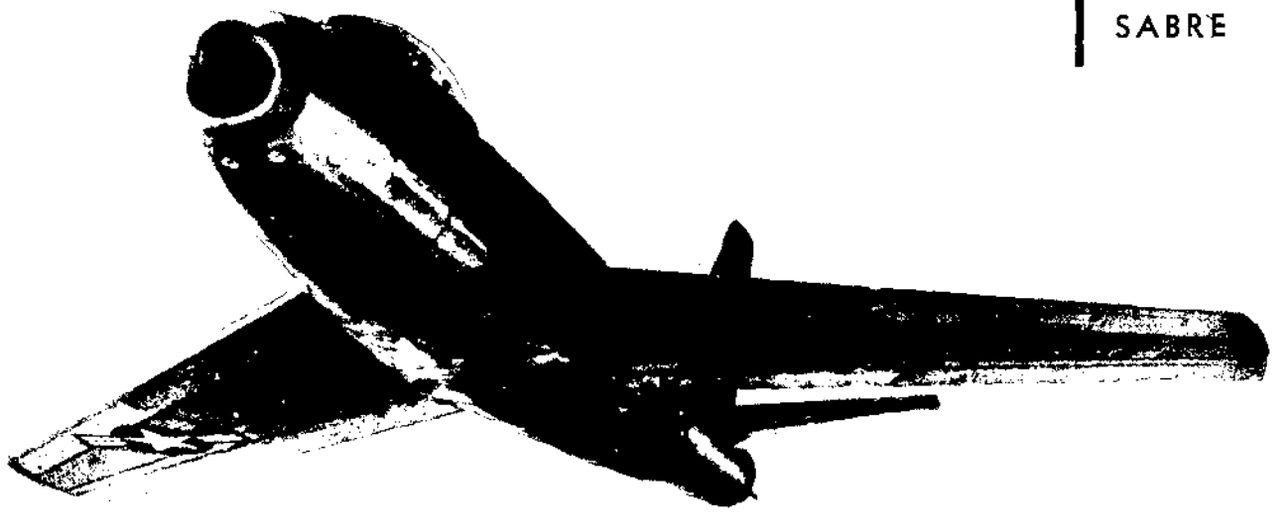
SPAN: 37'1" **LENGTH: 40'2"**
ENGINE: J47-GE-17/7,600-lb. thrust with A. B.
MAX. SPEED: 622 knots/sea level.
RANGE: 800 nautical miles/480 knots.
ARMAMENT: 24 x 2.75" rockets, retractable launcher.






USAF

USAF | **F-86H**
SABRE



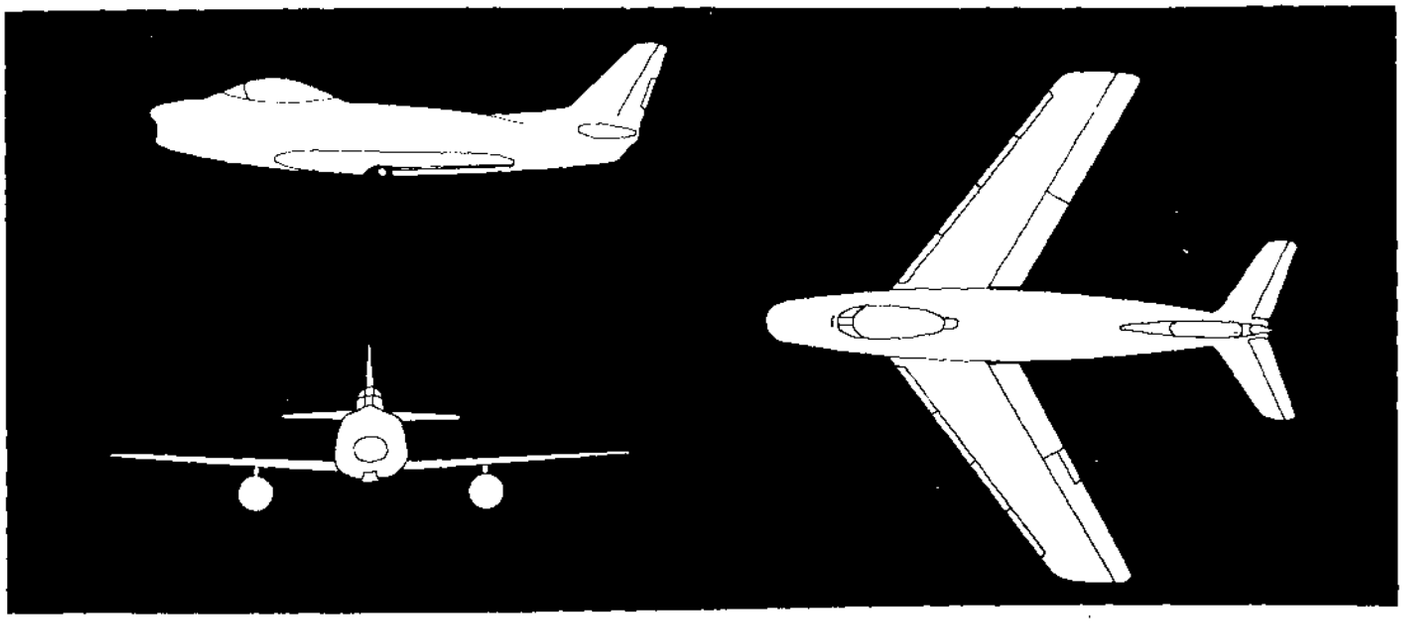
The F–86H, fifth model of the famed Sabre Jet series, is designed to carry out the dual missions of a fighter-bomber and day fighter. Slightly larger than earlier models, it incorporates the knowledge of fighting, bombing, ground support and aerial reconnaissance gained through thousands of missions in Korea by its predecessors, F–86A's, E's, and F's. The outstanding differences between the F–86H and its predecessors are the lack of dihedral in the horizontal tail surfaces and a slightly larger fuselage section. Special features of the "H" include hydraulically operated controls, electrically operated flaps, a geared elevator, modified wing with stationary extended leading edge, and a self-sufficient starter system. Over-all recognition configuration of the Sabre is that of a swept-wing, swept-tail shape, hung on a "fish-mouthed", sturdy fuselage.

NORTH AMERICAN

SINGLE-JET

FIGHTER

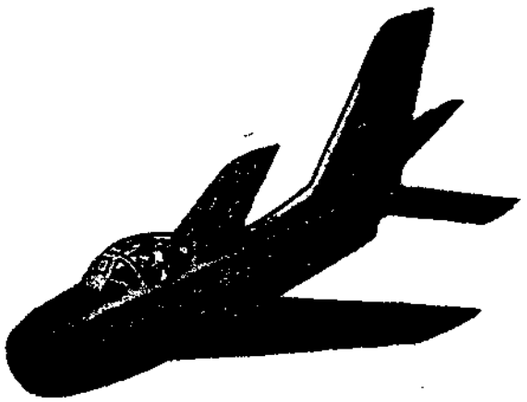
SPAN: 37'1" LENGTH: 38'8"
MAXIMUM SPEED: Over 615 knots
ENGINE: 1/J73–GE–3/9000 lbs. thrust
RANGE: More than 1470 nautical miles
SERVICE CEILING: Above 50,000 ft.
ARMAMENT: 4x20 mm. cannon; rockets and bombs



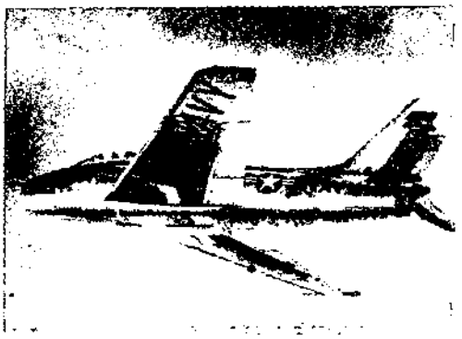
U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

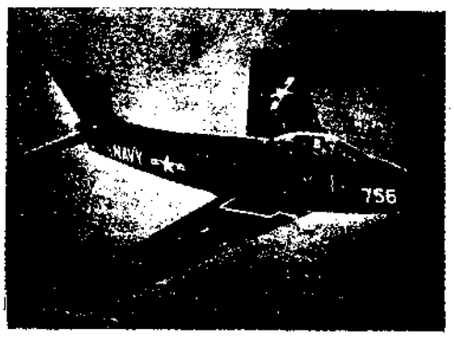
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

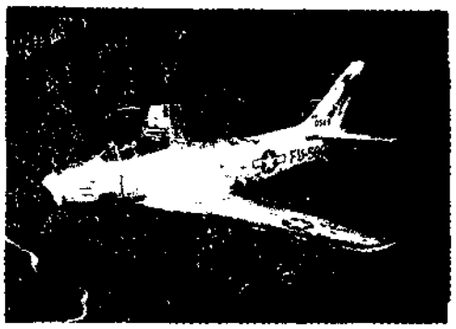
F-86H | USAF
SABRE

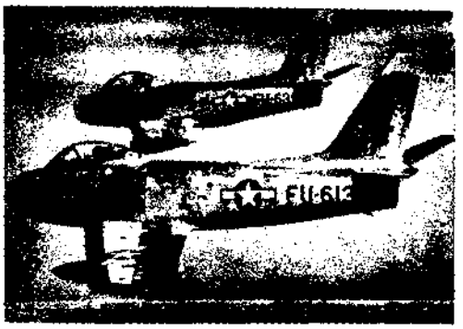


ACCENTED DRAWING

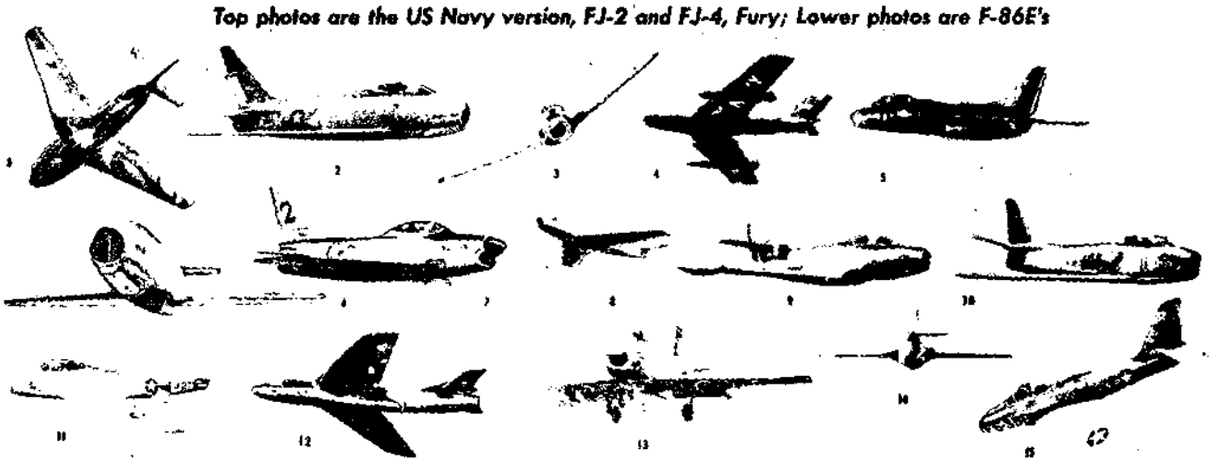








Top photos are the US Navy version, FJ-2 and FJ-4, Fury; Lower photos are F-86E's

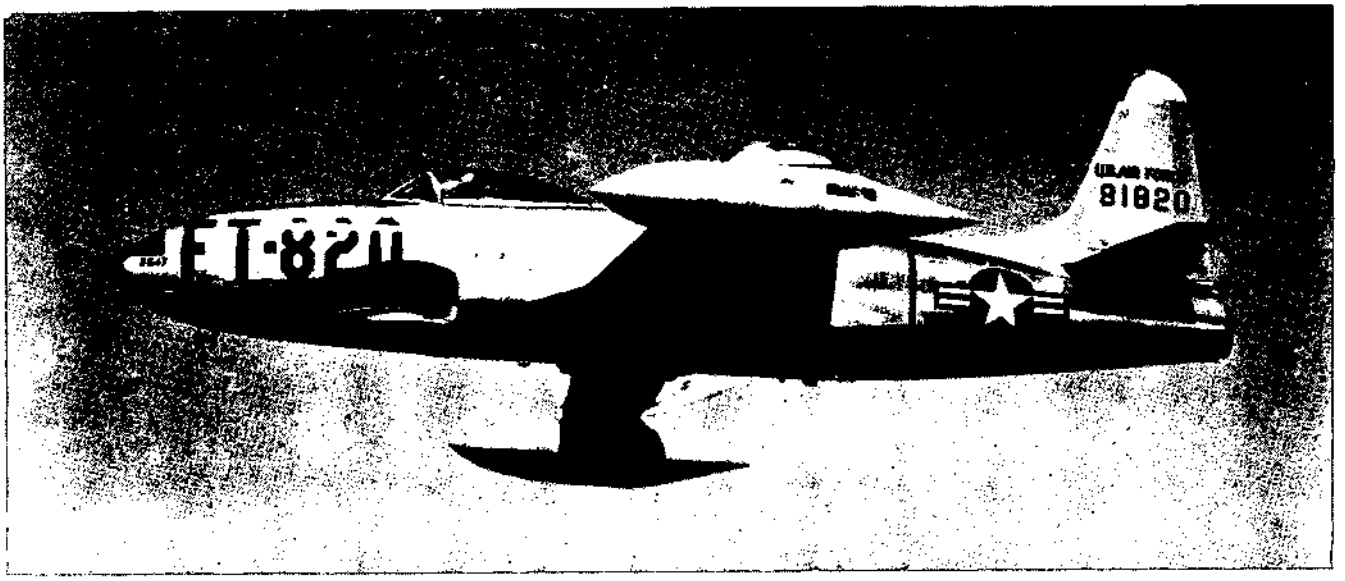


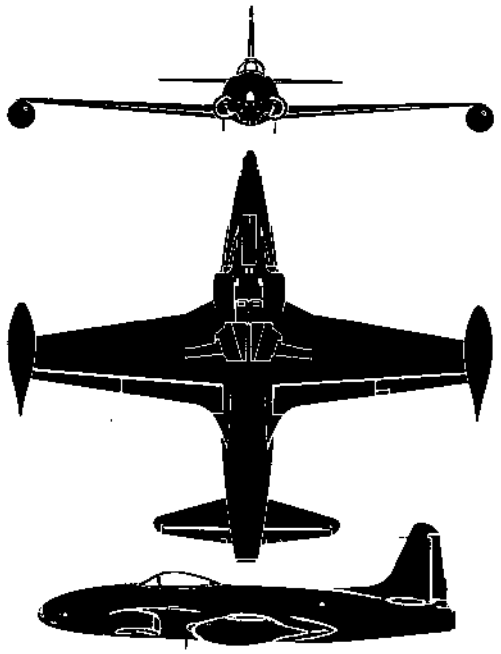
Identify the aircraft shown above; correct answers are below

1. HUNTER 2. FURY 3. F-86E 4. FURY 5. VAUTOUR 6. MYSTERE 7. F-86D 8. F-86H
9. OURAGAN 10. F-86E 11. F-86E 12. HUNTER 13. F-86E 14. HUNTER 15. F-84F

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G



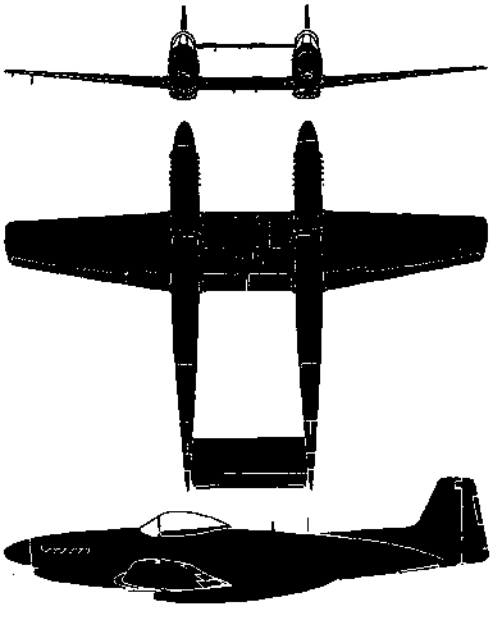


The distinction of being the first to shoot down a Soviet made MIG–15 goes to an F–80 Shooting Star pilot. Furthermore, these aircraft flying over Korea were the first jet aircraft in the annals of history to engage in jet aerial warfare. The F–80 has additional laurels in that it was the first jet-propelled combat aircraft to be accepted by the U. S. Army Air Forces. This low-wing fighter was designed around a British de Havilland H–1 jet unit which powered the prototype. The first flight of the XP–80 was made on 9 January 1944. Since then the Shooting Star has seen wide service in Korea where larger wing tanks have been fitted to extend its range. It has proved to be a sturdy aircraft capable of taking much punishment.

SPAN: 38'11". LENGTH: 34'6".
ENGINE: J33–A–23 or –35/5,400-lb. thrust (wet).
MAX. SPEED: 505 knots/7,000 ft.
RANGE: 1,200 nautical miles/380 knots.
ARMAMENT: 6 x .50 cal.; 8 x 5" HVAR rockets.

U.S.A.
SUPPLEMENT NO. 2
JUNE 1951

FM 30–30
OPNAV 32P–1200/2
AFM 50–40B



The Twin-Mustang is a low-wing monoplane with twin-engines and twin-fuselages. The fuselages are joined together by a constant-chord center section and rectangular stabilizer. The center section of the wing has a rather straight leading and trailing edge. Outer sections of the wing have evenly tapered leading and trailing edges and square tips. A single fin and rudder at the extremity of each fuselage has sharply tapered leading edge, square top, and slightly tapered trailing edge. High speed and large fuel capacity of the F–82 makes the airplane valuable for night interception and long-range reconnaissance missions.

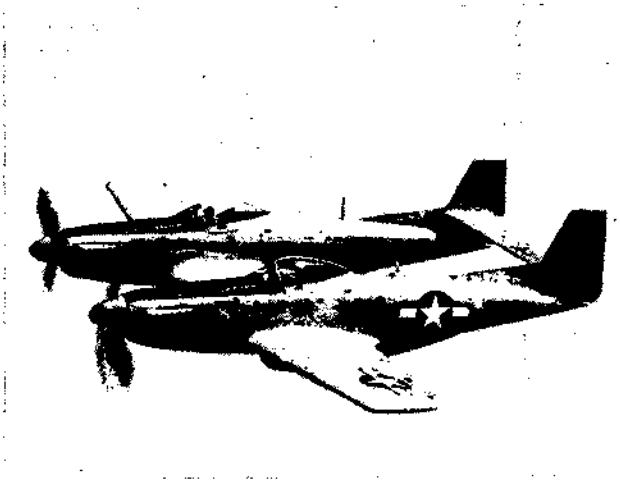
SPAN: 51′6″. **LENGTH:** 39′0″.

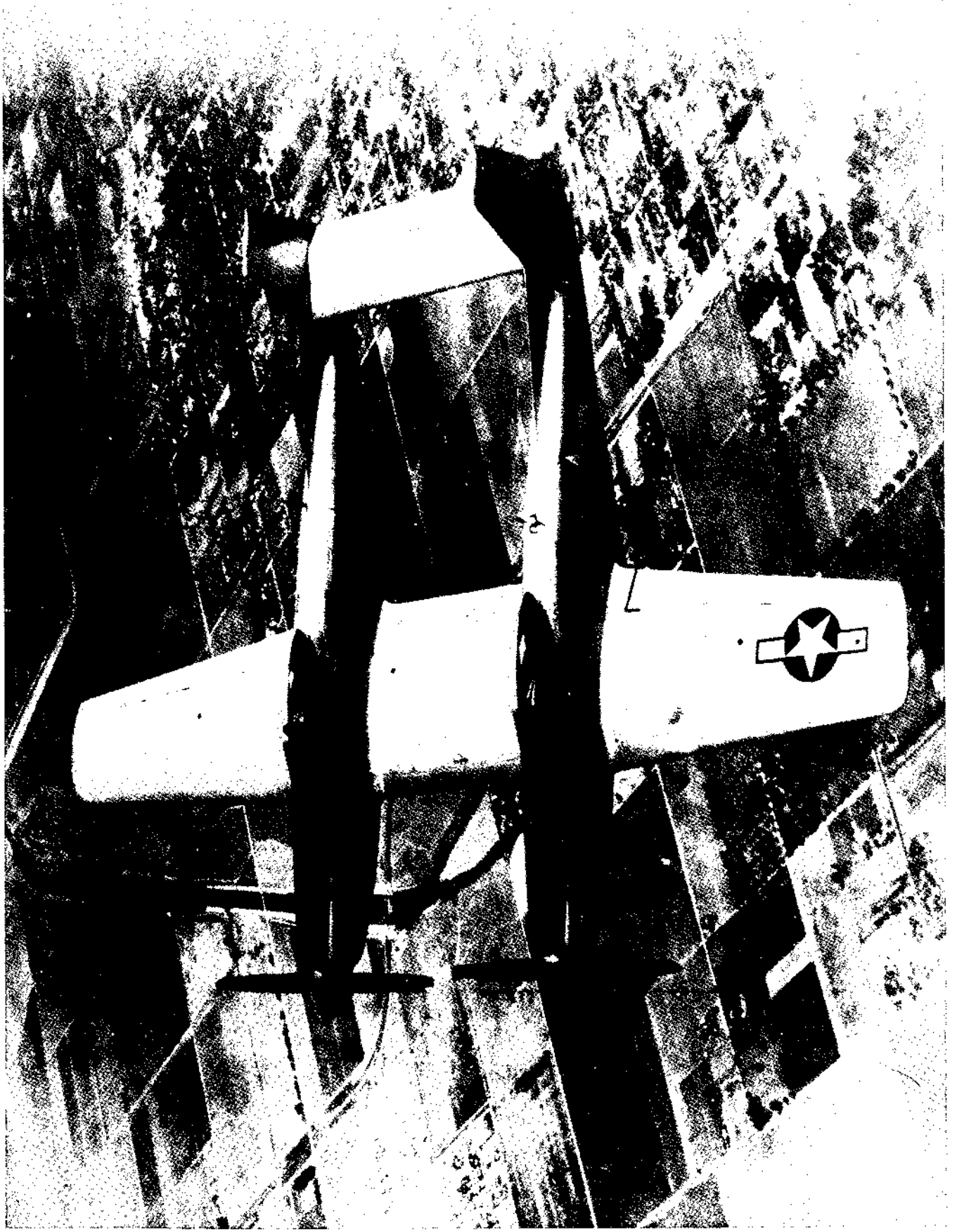
ENGINE: V–1710/1,600 h. p.

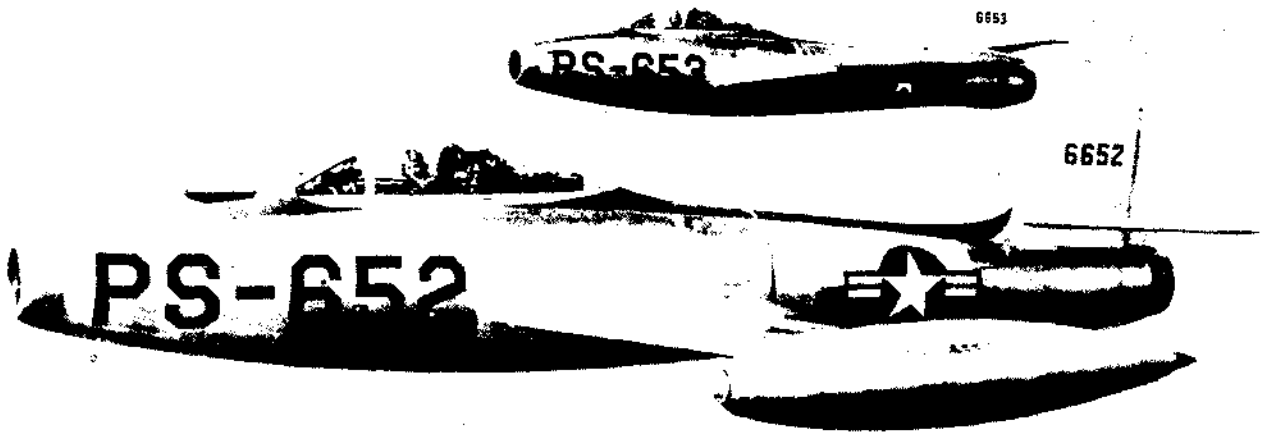
SPEED: 405 knots/16,400 ft.

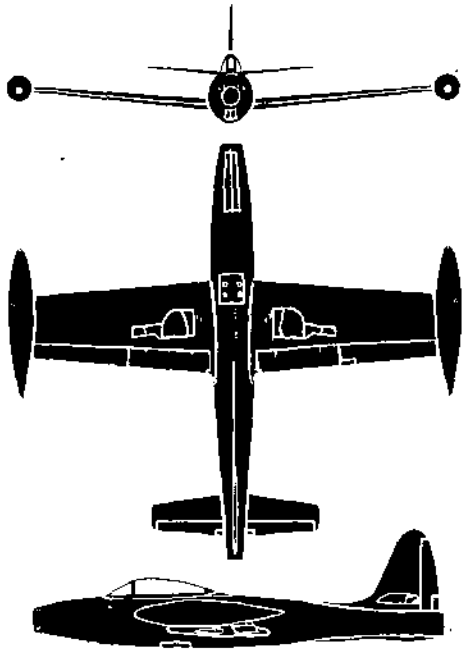
RANGE: 2,230 nautical miles/262 knots.

ARMAMENT: 6 x .50 cal.



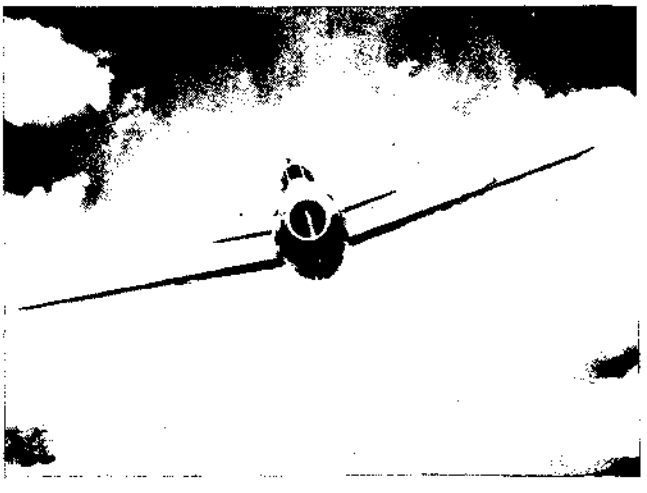


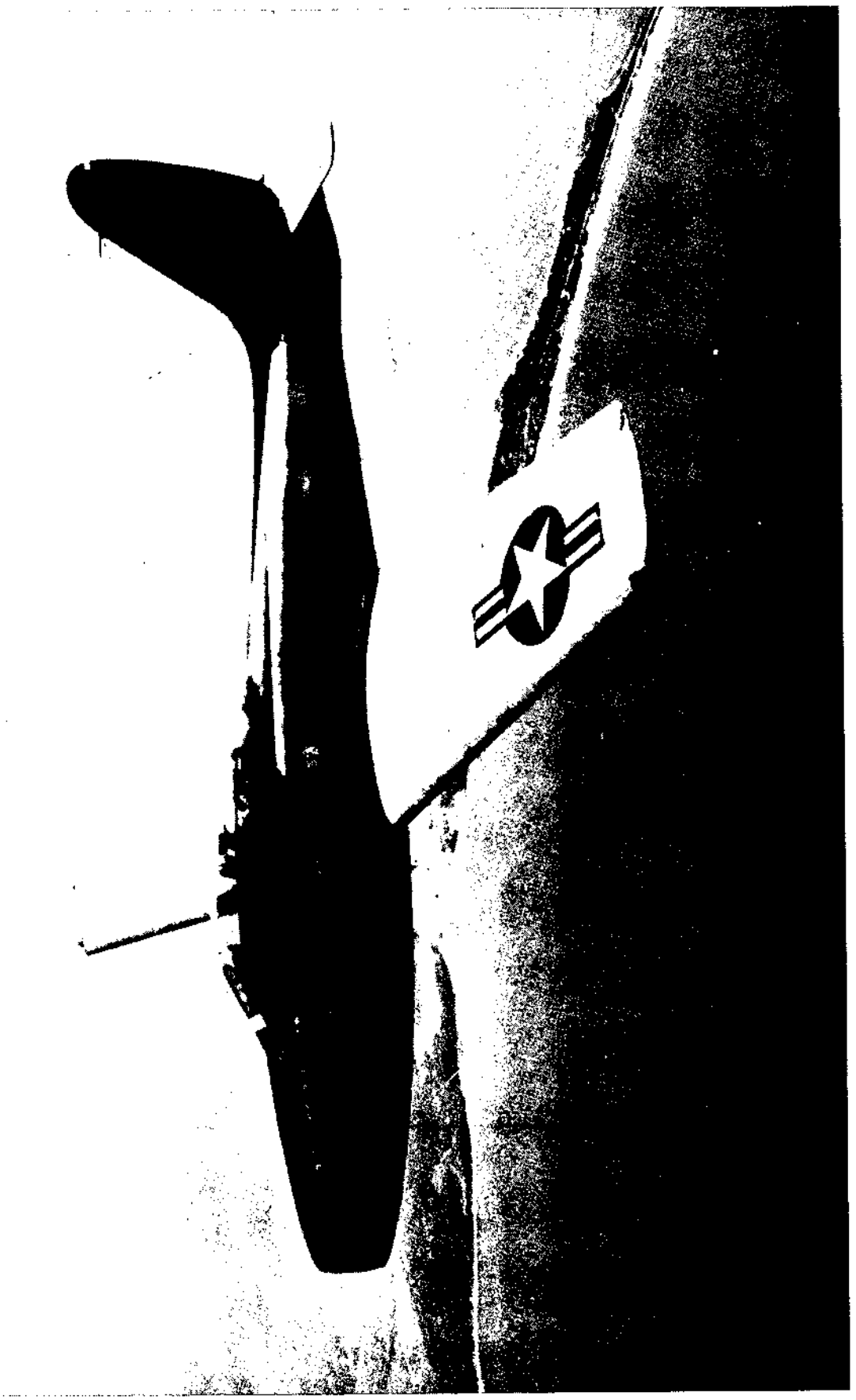


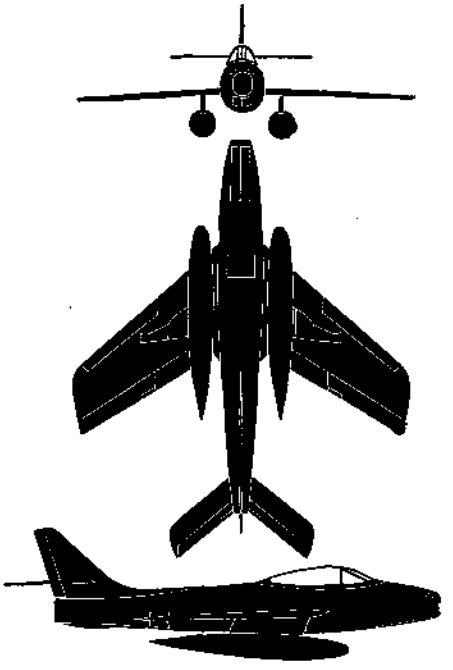


The Thunderjet is a low-mid-wing monoplane powered by a single turbo-jet engine mounted in a round fuselage with the air intake in the nose. The pilot's cockpit is located ahead of the wing's leading edge. Drop tanks are fitted to the wing tips. A single fin and rudder is rounded at top with a jet outlet in the tail extending slightly beyond the rudder's trailing edge. The original conception for the F–84 was a redesign of the F–47 fitted with a jet engine. In September 1946, a prototype XF–84 set an American speed record (611 mph). Retractable rocket mounts disappear into the wings after the rockets are fired. It is equipped with jettisonable pilot's seat.

SPAN: 36′5″. **LENGTH:** 37′2″.
ENGINE: J35–A–15/4,000-lb. thrust.
SPEED: 521 knots/sea level.
RANGE: 1,360 nautical miles/395 knots.
ARMAMENT: 6 x .50 cal.

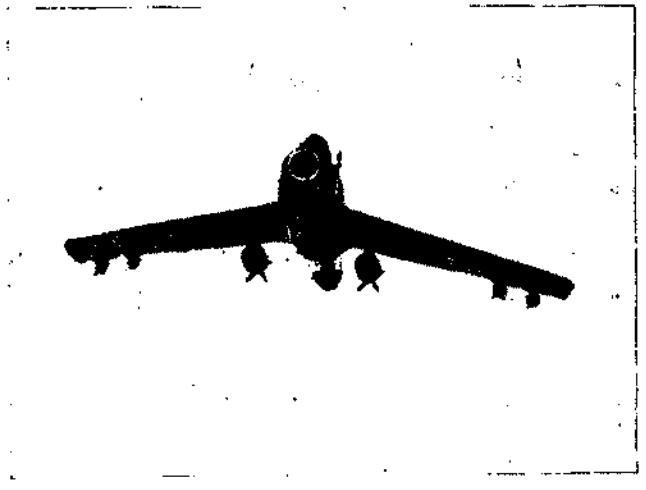


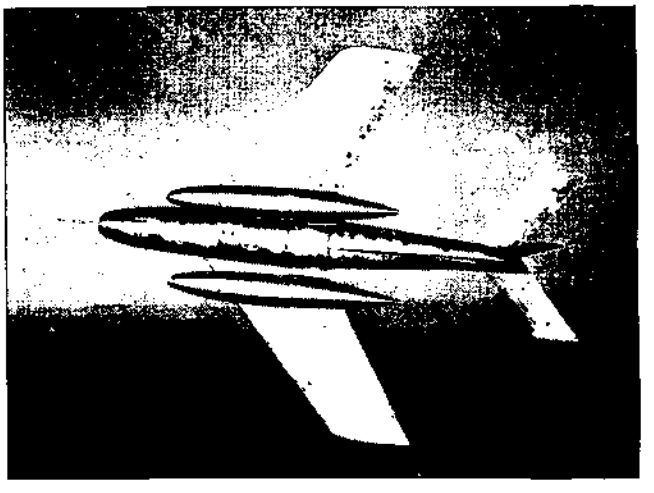


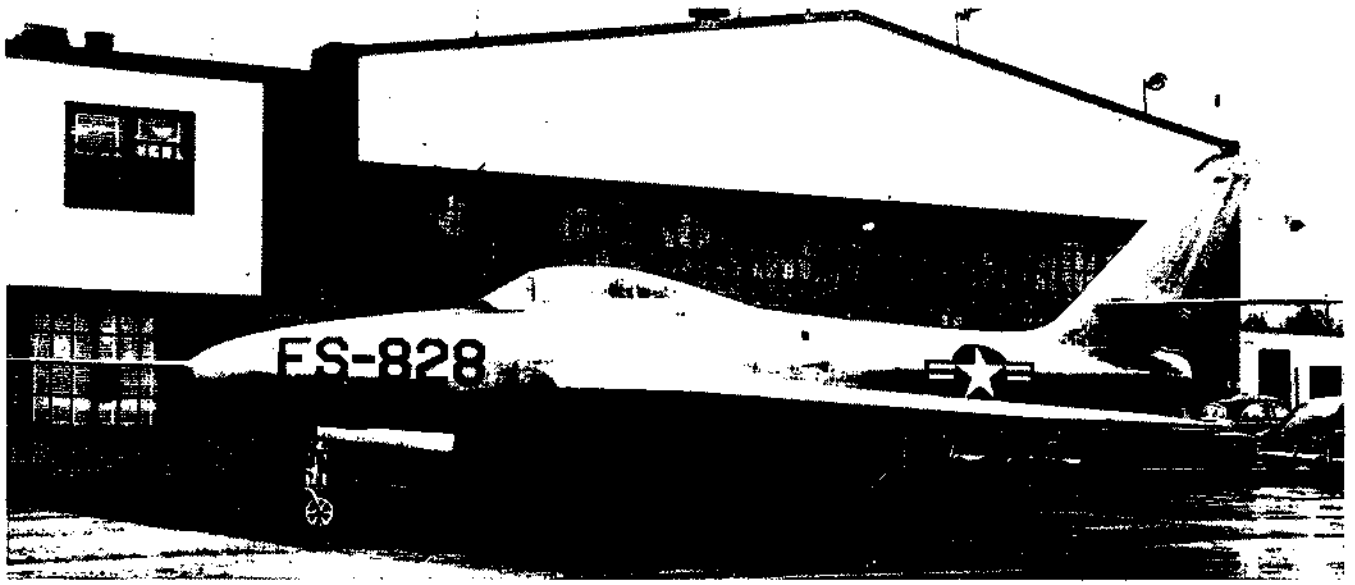


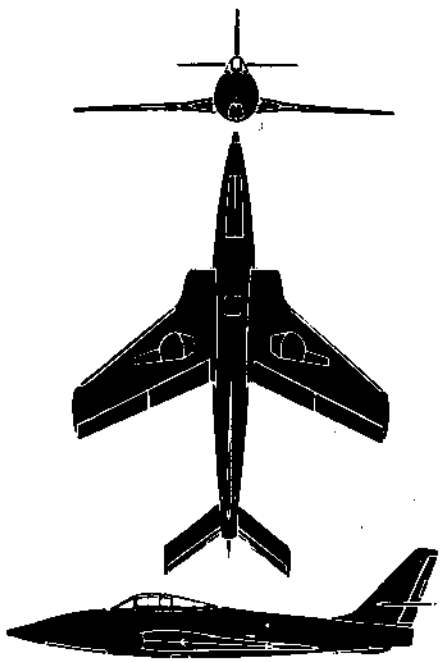
The F-84F Thunderstreak is a swept-wing and tail development of the Thunderjet fighter-bomber. Republic's "F" version was first flown on 3 June 1950, powered by an Allison J-53 jet engine. Later the more powerful British Sapphire engine, Wright J-65, was installed and this engine was selected for the production version. While in general this version closely resembles the straight-wing Thunderjet, there are a few differences such as the shape of the fin and rudder and the lack of wing-tip tanks on the swept-wing "F". Later production of the F-84F will shift from nose air inlets to wing root air intakes, similar to the RF-84F shown in the addenda. For long-range fighter escort duties two 450 U. S. gallon external tanks can be carried. Its maximum take-off weight is around 24,000 pounds.

SPAN: 34'6" **LENGTH: 43'3"**
ENGINE: J85-W-3/7,200-lb. thrust.
MAX. SPEED: 615 knots/sea level.
RANGE: 1,900 nautical miles/480 knots.
ARMAMENT: 6 x .50 cal; 28 x 5" HVAR rockets, 4,000-lb. bomb load.



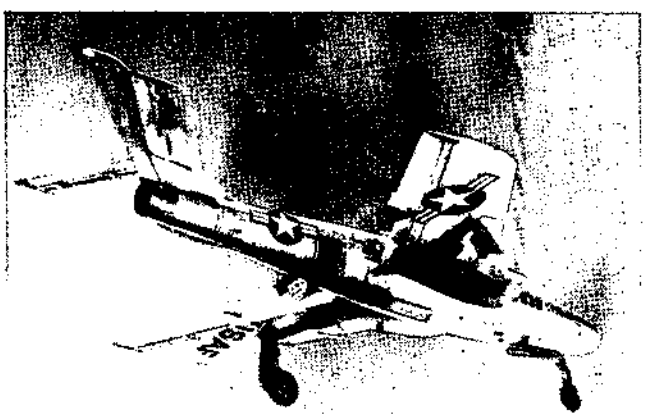


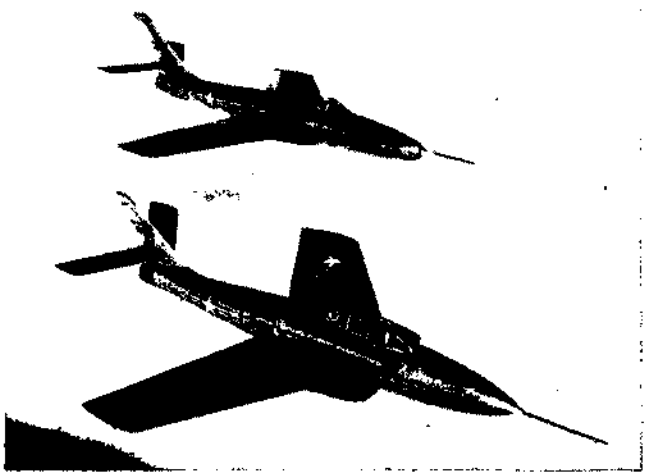




The RF–84F Thunderflash is a photographic reconnaissance version of the Thunderstreak with the air intake removed to the wing roots to permit the installation of camera equipment in the slightly elongated nose. Differences in construction and mission from the sister F–84F Thunderstreak fighter-bomber prompted the AF to change the RF–84F's name to Thunderflash. This version retains many of the F–84 family characteristics even though its wings and tail are sweptback. A noticeable departure is the cockpit fairing aft to the fin. The form of the photographic nose, cockpit enclosure and wing-root intakes and the shape and positioning of the boundary-layer fences are points to notice. When launched from a B–36, the Thunderflash is said to have an effective fighting radius of more than 5,000 miles. The Thunderflash's take-off weight is around 24,000 pounds. An early prototype is shown above.

SPAN: 33'6'' **LENGTH: 47'6''**
ENGINE: J65–W–3/7,200-lb thrust.
MAX. SPEED: 560 knots.
RANGE: 2,000 nautical miles 480 knots.
ARMAMENT: 4 x .50 cal.

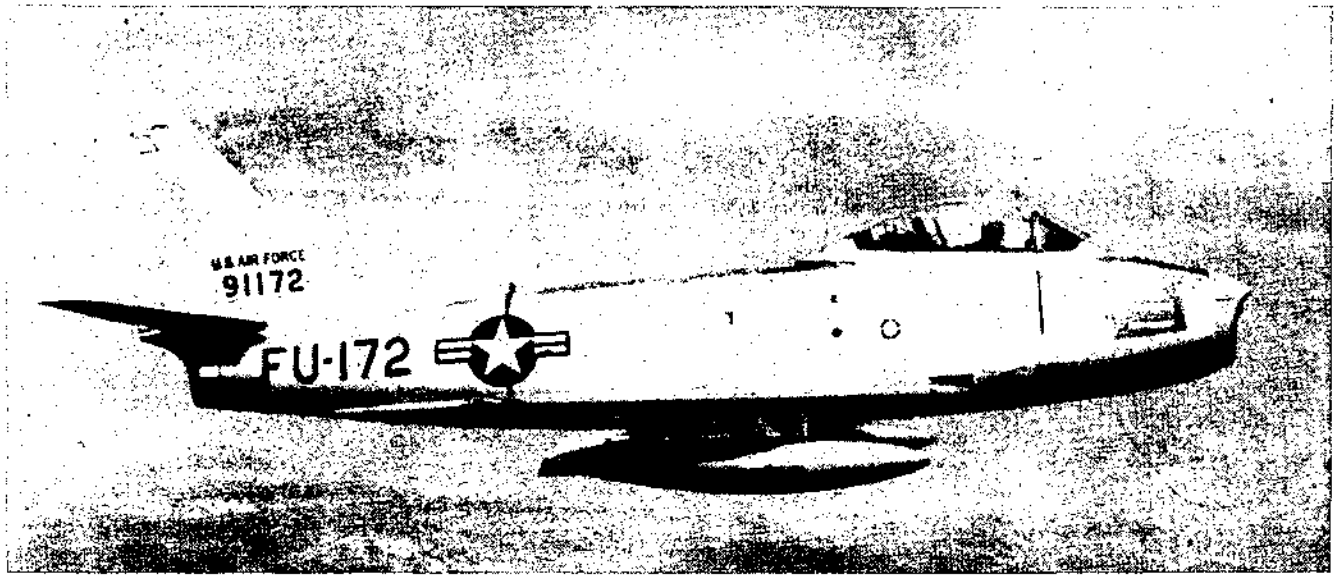


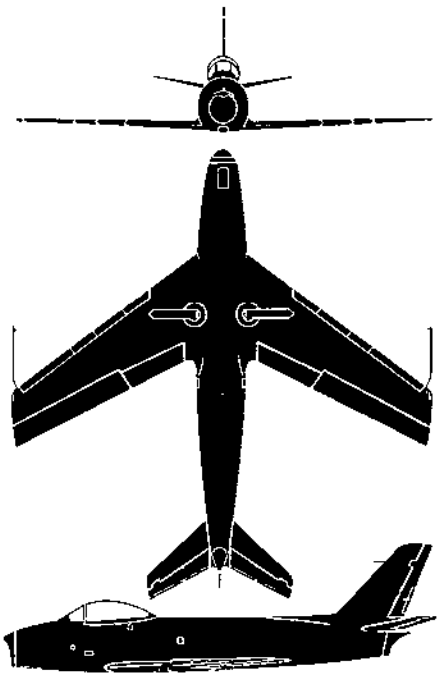


305799 O—54——4

U. S. A.
SUPPLEMENT NO. 5
JUNE 1954

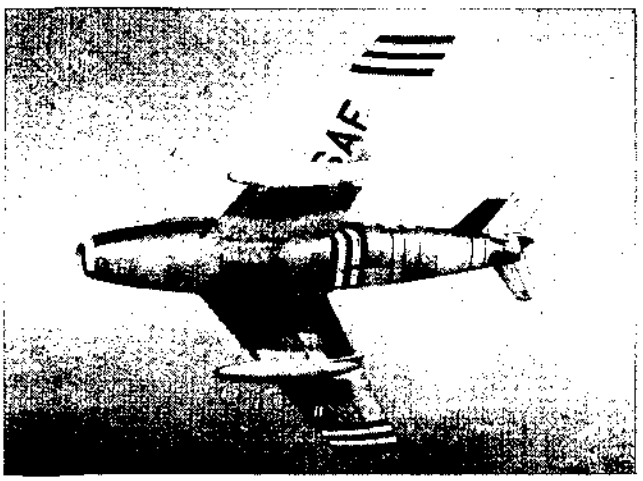
FM 30-30
OPNAV 32P-1200/5
AFM 50-40E

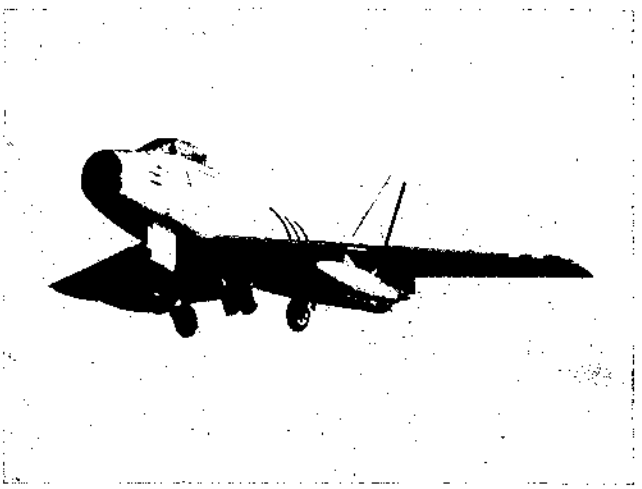


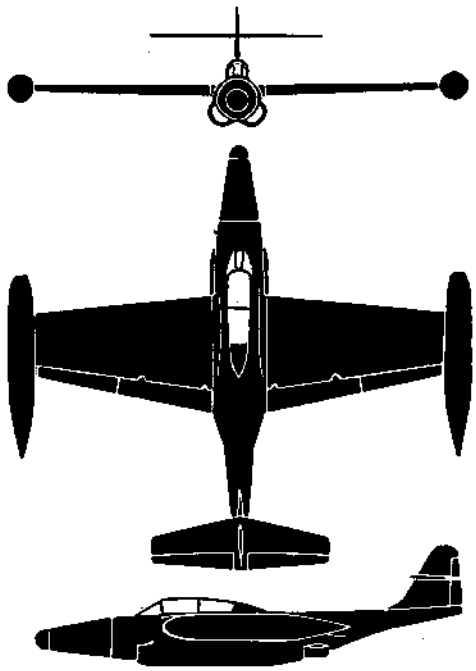


The F–86 Sabre is a single-seat, sweptback wing, jet fighter that has seen considerable action in the Korean theater. Sabre pilots have proved its ability by destroying numerous MIG–15's. The F–86 is America's first jet fighter designed with sweptback wings and tail surfaces. It has low mounted wings while the MIG–15's wings are mid-mounted. A marked difference is the MIG–15's high horizontal stabilizer while the F–86 has a small stabilizer with dihedral. The Sabre is fitted with a tricycle landing gear, and has a take-off weight of more than 16,000 pounds. It set an official world speed record of 669.8 m. p. h. in 1948 at Muroc. The F–86 is operational with the R. C. A. F. and R. A. F. A modified Sabre, the FJ–2 Fury, is flown by the U. S. Navy. The R. C. A. F. F–86 is known as the Star.

SPAN: 37′ 1″ **LENGTH: 37′ 6″**
ENGINE: J47–GE-13/6,000-lb. max. thrust.
MAX. SPEED: 590 knots/sea level.
RANGE: 1,000 nautical miles/455 knots.
ARMAMENT: 6 x .50 cal.; 16 x T–38 HVAR rockets.

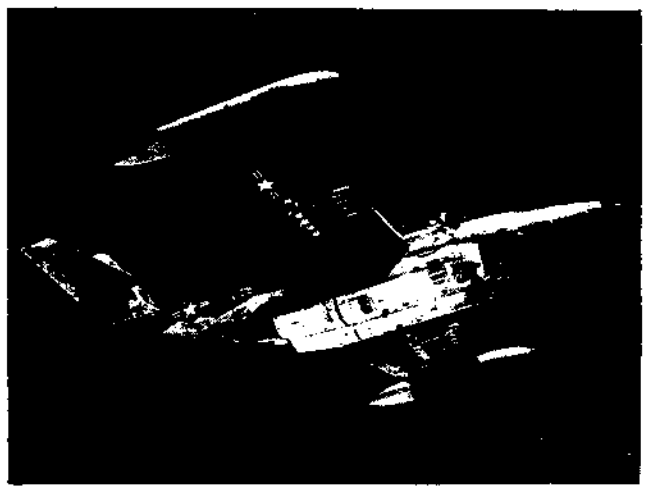




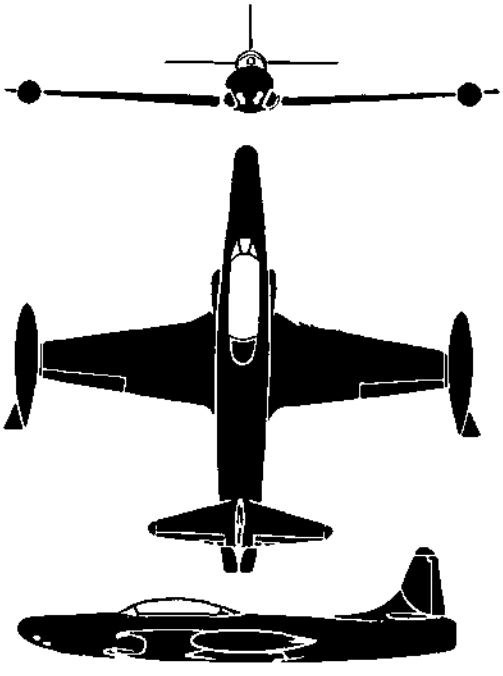


The Scorpion is a two-place high mid-wing all-weather interceptor powered by two turbojet engines half submerged below the fuselage. Integral fuel tanks are mounted on the tip of the extremely thin forward tapered wing. A new development, however, would substitute a combination rocket fuel wing tip pod installations in place of the wing tip tanks. A feature of the F–89 is its high fin with an elevated stabilizer fitted to a narrow tapering fuselage. This empennage arrangement bears a striking similarity to the Navy PBY. A crew of two, pilot and radar observer, sit in tandem beneath a long canopy. Ejection seats are provided and a tricycle landing gear is fitted. The take-off weight of the F–89 is more than 40,000 pounds.

SPAN: 57′ 10″ **LENGTH: 53′ 10″**
ENGINE: 2/J35–A–21, 33, & 35/7,200-lb. thrust each with afterburner.
MAX. SPEED: 560 knots/sea level.
RANGE: 1,000 nautical miles/450 knots.
ARMAMENT: 6 x 20 mm; 16 x 5″ HVAR rockets.

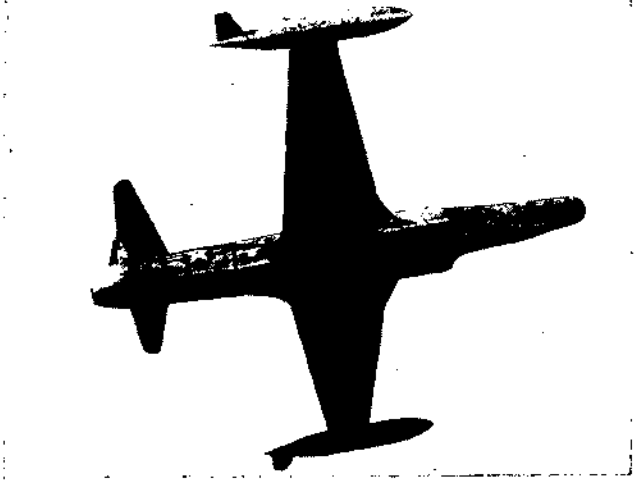


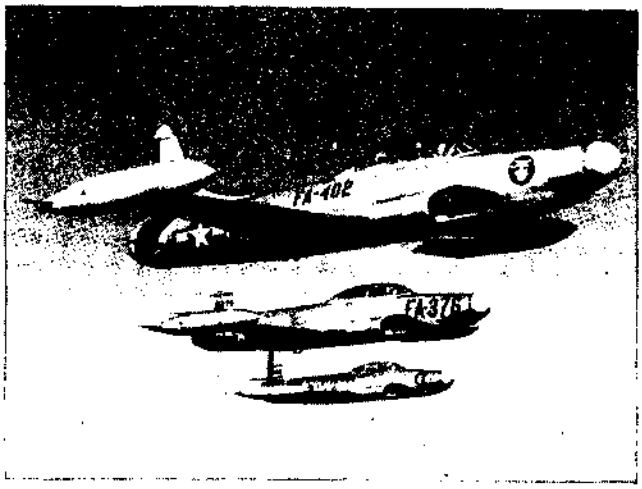

0744
0747

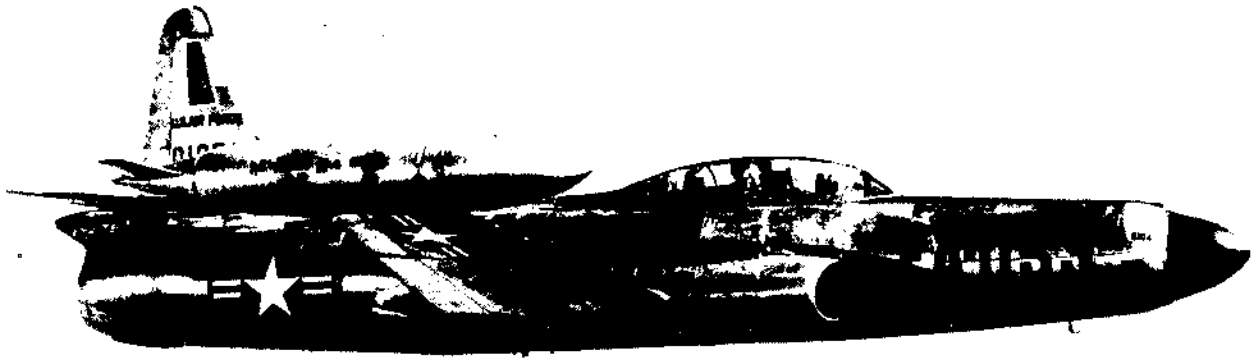


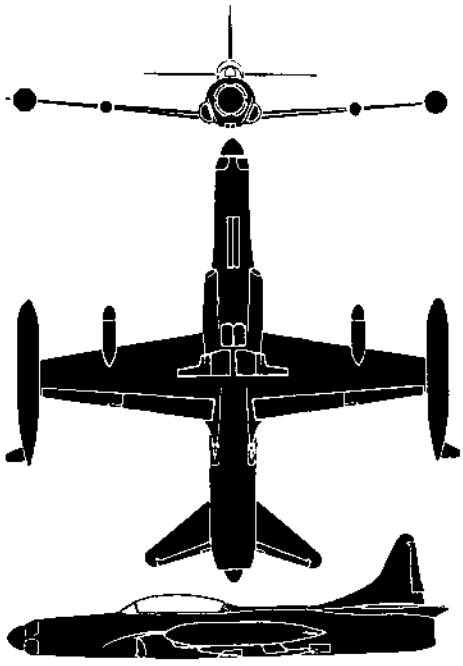
The F–94 Starfire is a two-place version of the F–80 Shooting Star modified to carry the necessary radar required for an interceptor. This aircraft basically resembles the T–33 (Navy TV–2) also a modified version of the Shooting Star. Aside from the cockpit canopy, the F–94 differs from the F–80 by having a slightly longer nose, which is required to house the radar. In addition, the after end of the F–94's fuselage is larger owing to the inclusion of an afterburner. Wings and tail surfaces are the same as those of the F–80. Provisions for two jettisonable 1,000-pound thrust RATO units are incorporated as well as ejector seats for the crew. The Starfire has seen service in Korea as a night fighter. Its take-off weight is 16,700 pounds.

SPAN: 37′ 6″ **LENGTH: 40′ 1″**
ENGINE: J33–A–33/6,000-lb. thrust with afterburner.
SPEED: 510 knots/sea level.
RANGE: 790 nautical miles/390 knots.
ARMAMENT: 4 x .50 cal.; 2 x 1,000-lb. bombs.



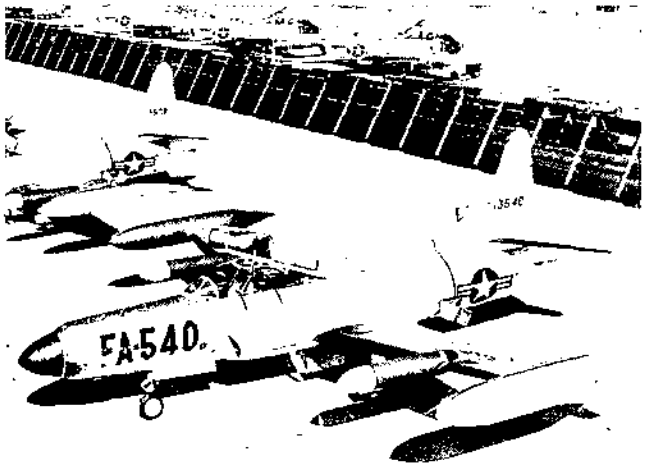


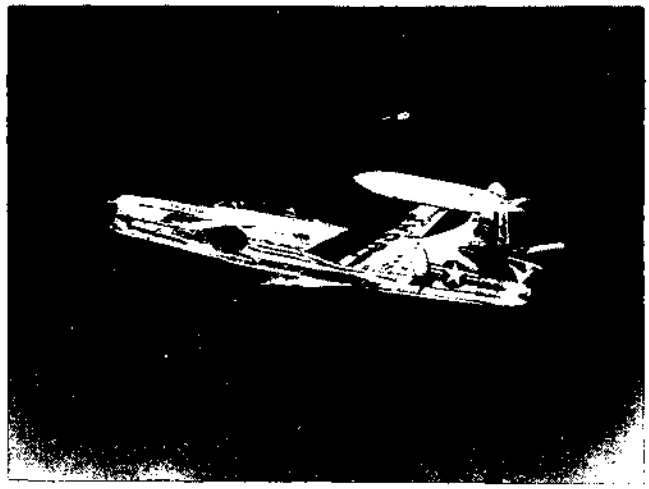




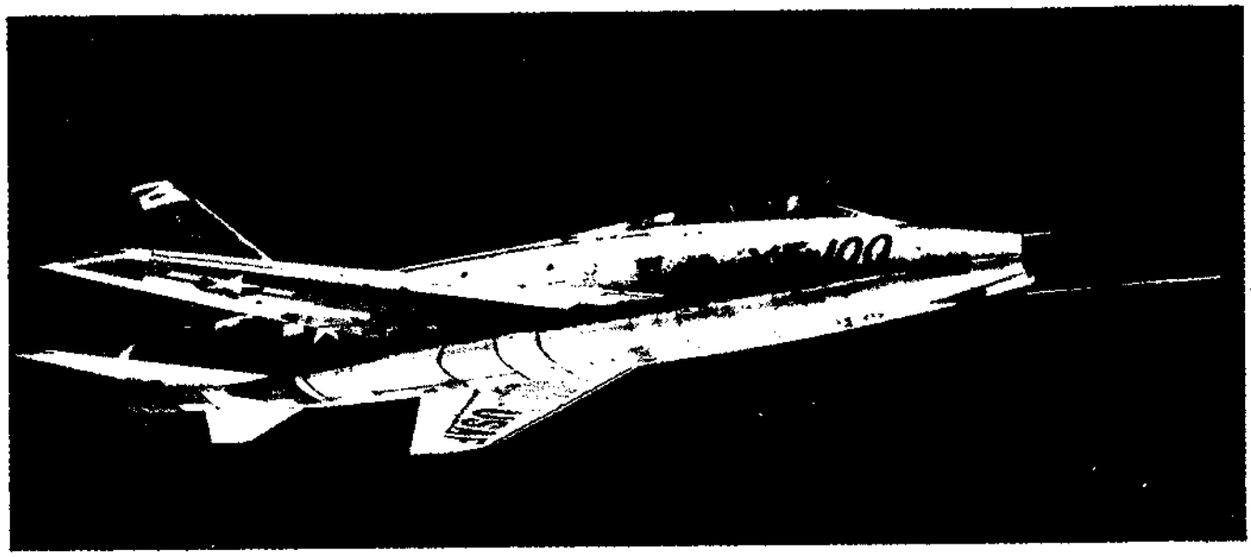
The F–94C Starfire is a two-place all-weather radar-equipped interceptor developed from the earlier A and B models. These earlier models are still in service, but they will eventually be replaced by F–94C's. The F–94C differs from the earlier models mainly in nose shaping and tail sweep. Other differences include a larger dorsal fin and a spine joining the fin and cockpit, and a pointed fairing overhanging the jet intakes. The final production model of the F–94C carries rocket pods on its wings. Fiberglass noses for these pods are fixed to disintegrate before the rockets leave the container. The F–94C basically resembles the T–33 (Navy TV–2), a modified version of the F–80 Shooting Star. Both aircraft have a thin straight-wing and a long clear cockpit canopy. The F–49C's take-off weight is more than 20,000 pounds.

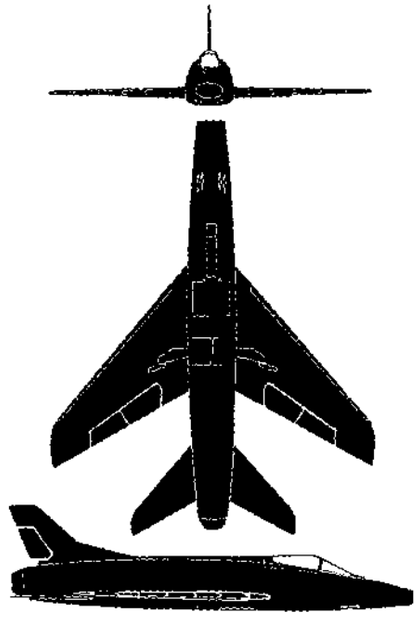
SPAN: 37′7″ **LENGTH: 41′ 6″**
ENGINE: J48–P/over 8,000-lb. thrust with A. B.
MAX. SPEED: 560 knots plus.
RANGE: 1,500 nautical miles.
ARMAMENT: 48 x 2.75″ rockets.





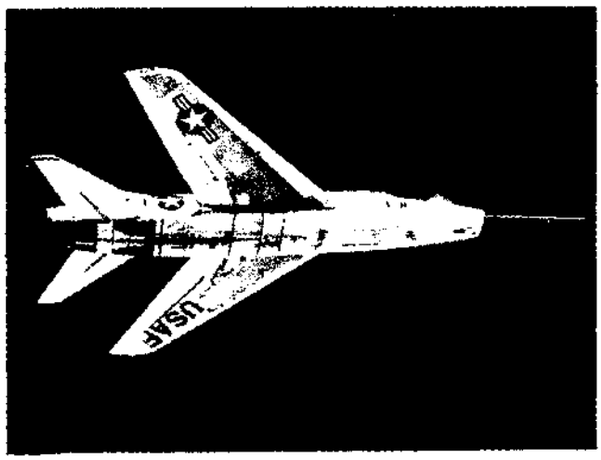

FT-176
STARFIRE

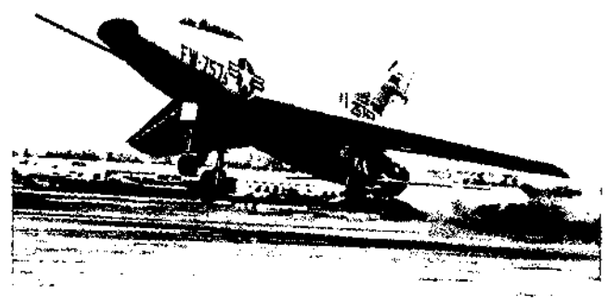


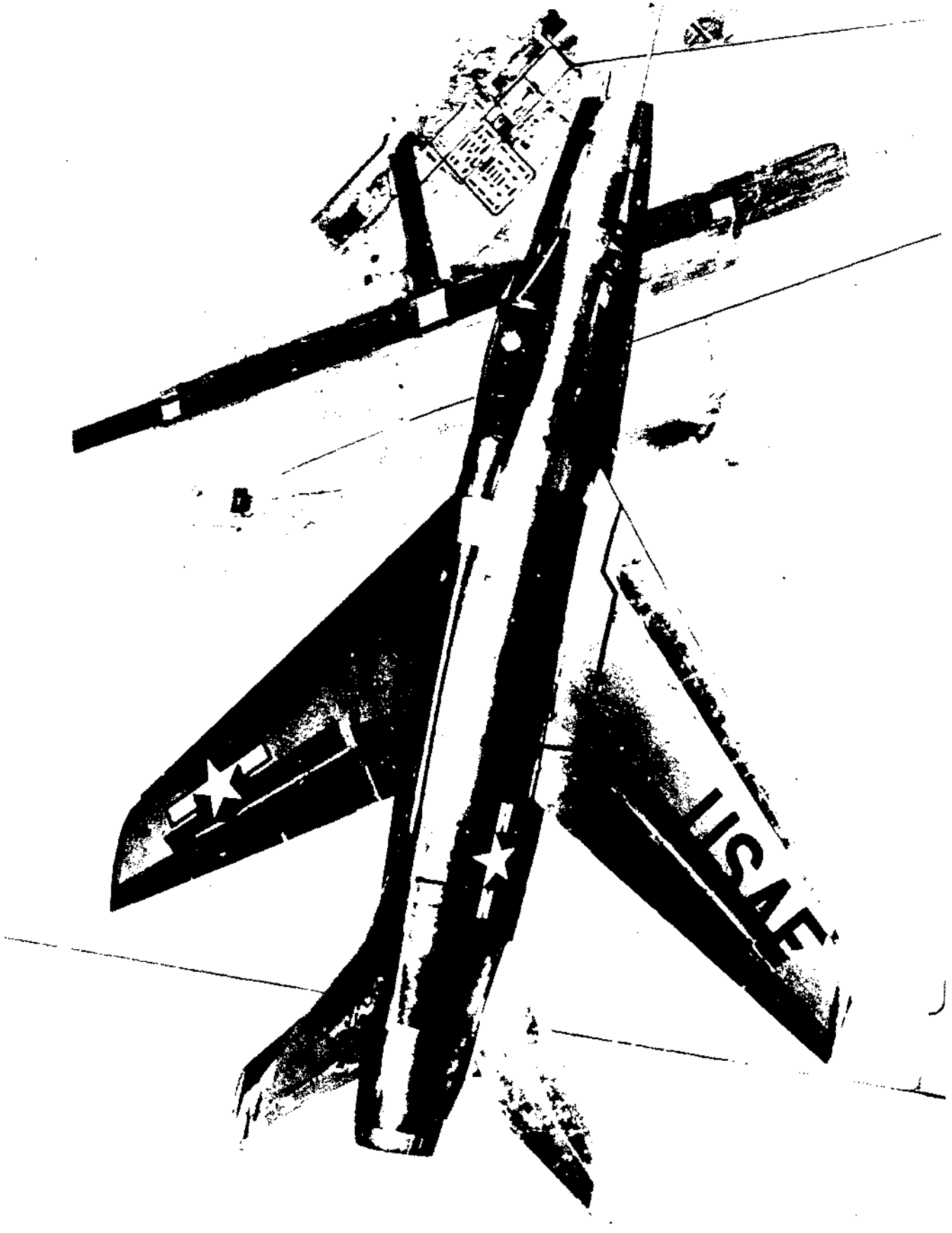


The F–100 Super Sabre is a low mid-swept-wing single-seat single-jet supersonic fighter. While it is not as graceful in appearance as the British Hunter, it conveys the impression of speed and effectiveness. It is a larger development of the F–86 Sabre, featuring sweepback of 45° as compared with the Sabre's 35°. Other differences include a flat oval air intake and a landing gear with dual main wheels. The horizontal stabilizer is a single surface located on the underside of the fuselage, and it is noticeable that the wing tips are behind the leading edge of the tail unit. A V-shaped landing brake hinged under the wing is used on landing and can be supplemented by a tail parachute of the ribbon variety. The cockpit is fitted with an ejector seat and is air conditioned. An F–100 set a world speed record over a 15 km. course at 755.149 m. p. h. It has an afterburner.

SPAN: 37'0" **LENGTH: 45'0"**
ENGINE: P&W J–57 turbojet/10,000-lb. thrust.
MAX. SPEED: 655 knots plus.
RANGE: More than 500 nautical miles.
ARMAMENT:







U. S. A.
SUPPLEMENT NO. 5
JUNE 1954

FM 30-30
OPNAV 39P-1200/5
AFM 50-40E

USAF | **F-101A**
VOODOO

The F–101A Voodoo is a swept-wing, twin-jet, long range fighter-interceptor developed from the McDonnell XF–88A and XF–88. Obvious recognition features of the Voodoo are the high horizontal tail surfaces, thin swept-wings, and the "binocular" appearance of the rear fuselage engine exhausts. Close view features include the midspan ailerons, all-flying tail and long, needle-tipped nose. The overall shape of the Voodoo suggests a long-nosed projectile, supported by a reverse W-shaped wing, with a delicately attached tail section trailing aft.

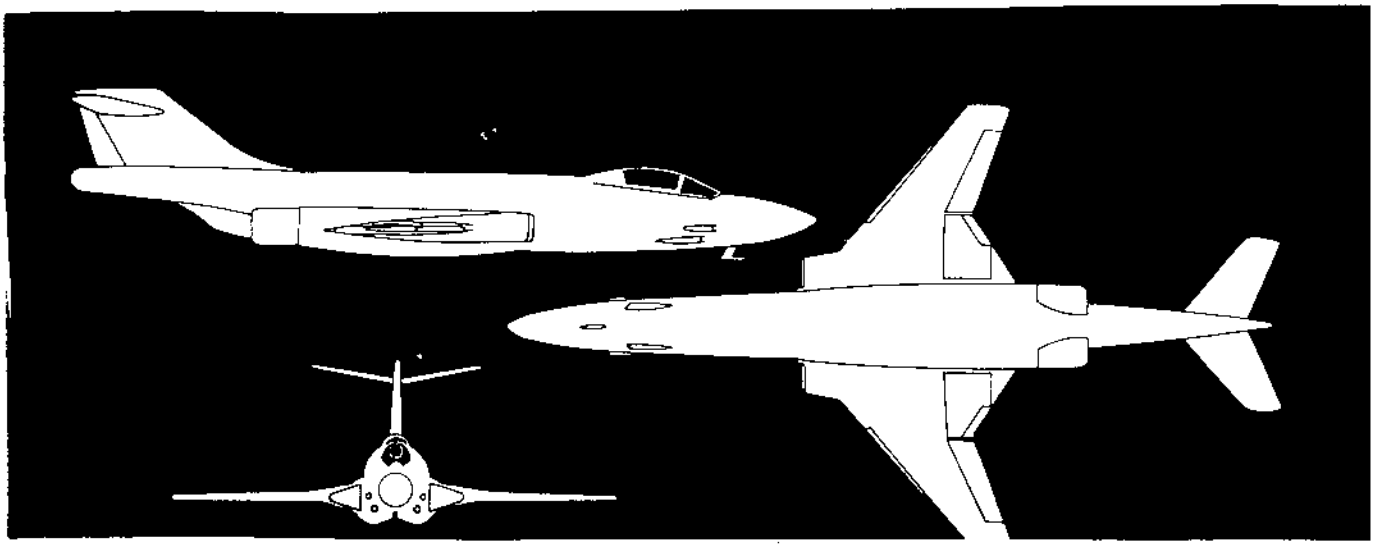
SPAN: 39′7″ LENGTH: 67′4″
MAXIMUM SPEED: Over 800 knots
ENGINES: 2/J57–P&W–13/10,000 lbs. thrust/ Afterburner
RANGE: Over 2500 nautical miles
ARMAMENT: 4x20 mm. cannon

McDONNELL

TWIN-JET

FIGHTER-

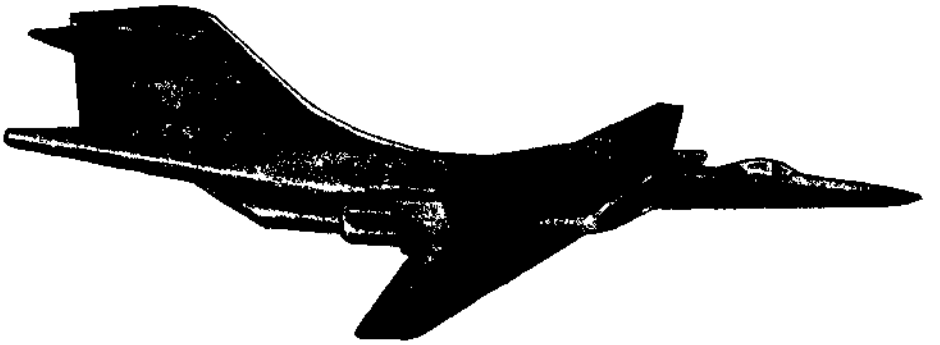
INTERCEPTOR



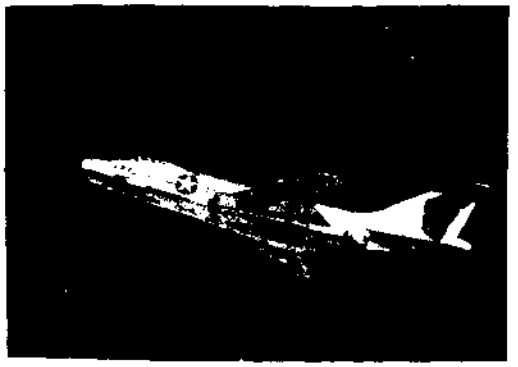
U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

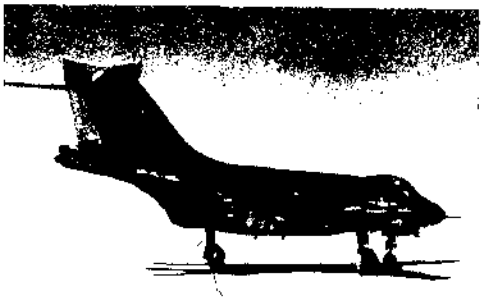
FM 30–30
OPNAV 32P–1200/6
AFM 50–40G

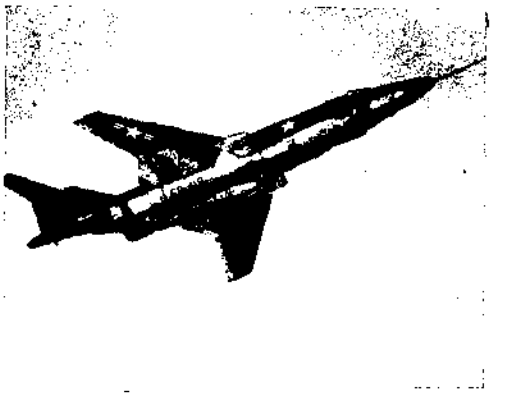
F-101A VOODOO | USAF



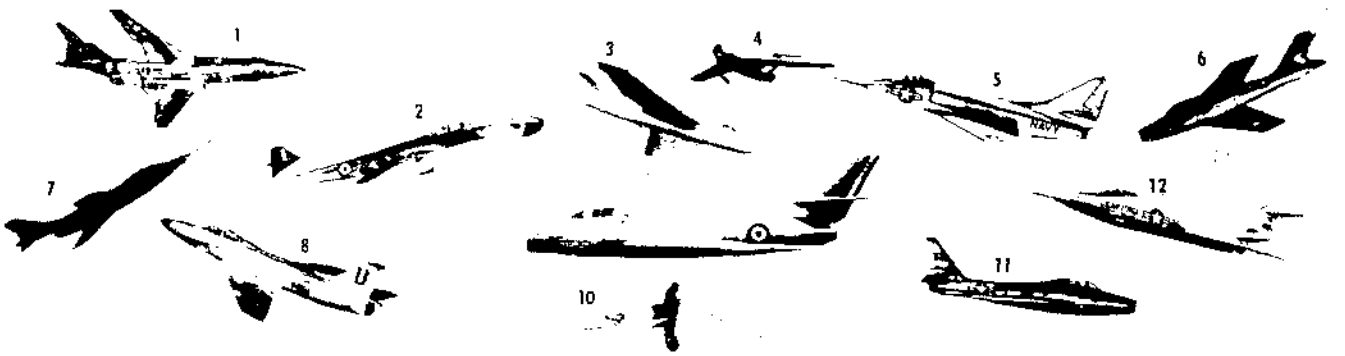
ACCENTED DRAWING







Miscellaneous views of the F-101A



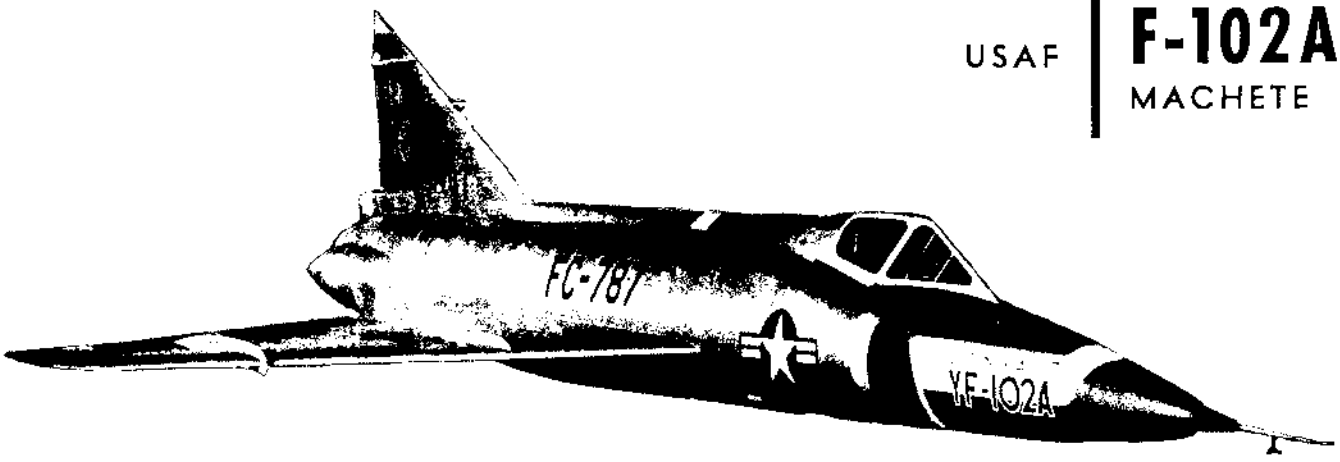
Identify the aircraft shown above; correct answers are below

1. F-101A
2. METEOR
3. HUNTER
4. FAGOT
5. SKYHAWK
6. F-84F
7. DEMON
8. LANSEN
9. MYSTERE
10. F-84F
11. F-84F
12. F-101A

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

USAF | **F-102A**
MACHETE



The supersonic F–102A is an all-weather delta-wing fighter interceptor. The principal recognition features are the triangular shaped wings, triangular vertical tail surface, and the lack of horizontal stabilizer and elevators. The long, narrow-waisted fuselage looks a bit overstuffed around the cockpit, but manages a needle nose and slightly tapered tailpipe exhaust. The oversize vertical fin atop the fuselage is set well forward of the tailpipe nozzle. The general appearance of the Machete is that of a triangle with an elongated apex and punctured base.

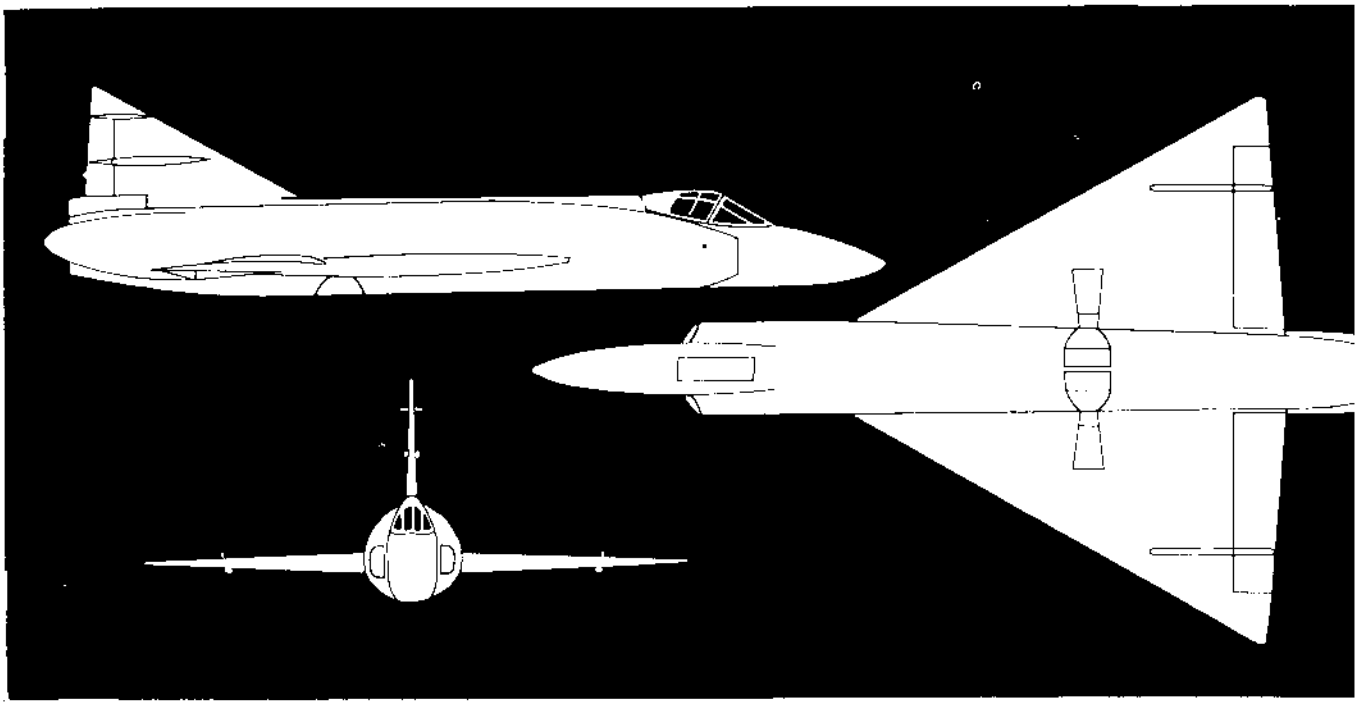
SPAN: 38'1" LENGTH: 68'3"
MAXIMUM SPEED: Over 680 knots
ENGINE: 1/J57-P&W-23/10,200 lbs. thrust/ Afterburner
RANGE: More than 950 nautical miles
ARMAMENT: Falcon missiles

CONVAIR

SINGLE-JET

FIGHTER-

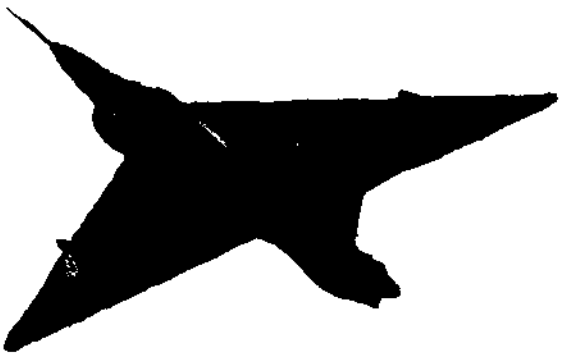
INTERCEPTOR



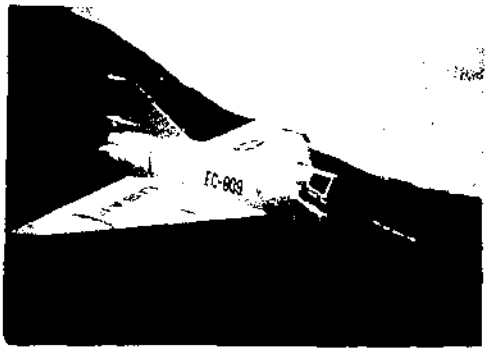
U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

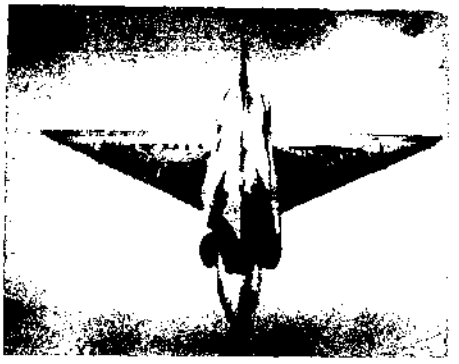
FM 30–30
OPNAV 32P–1200/6
AFM 50–40G

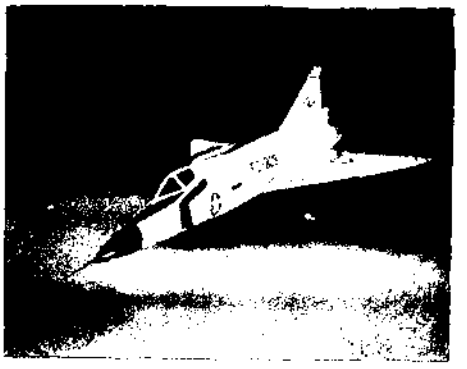
F-102A
MACHETE | USAF



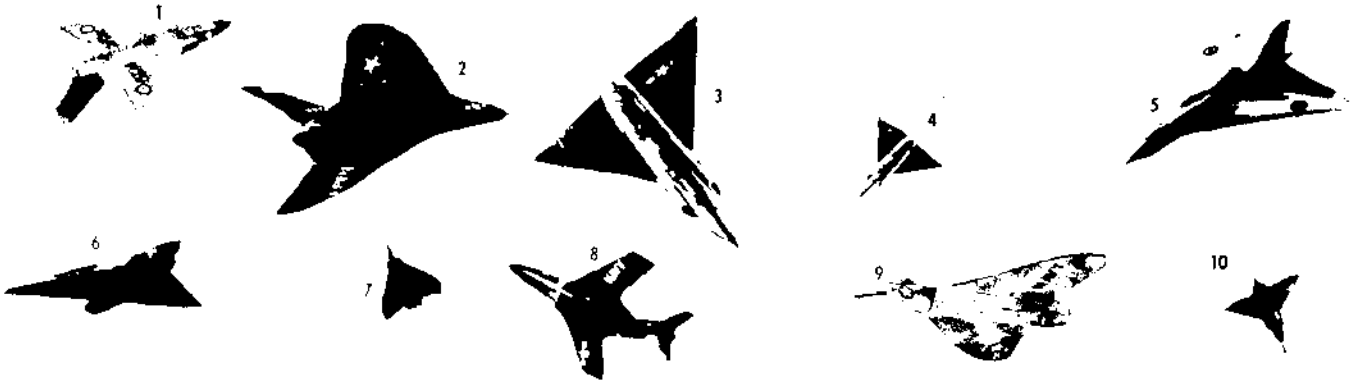
ACCENTED DRAWING







Miscellaneous views of the F-102 (Upper photo left is of TF-102)



Identify the aircraft shown above; correct answers are below

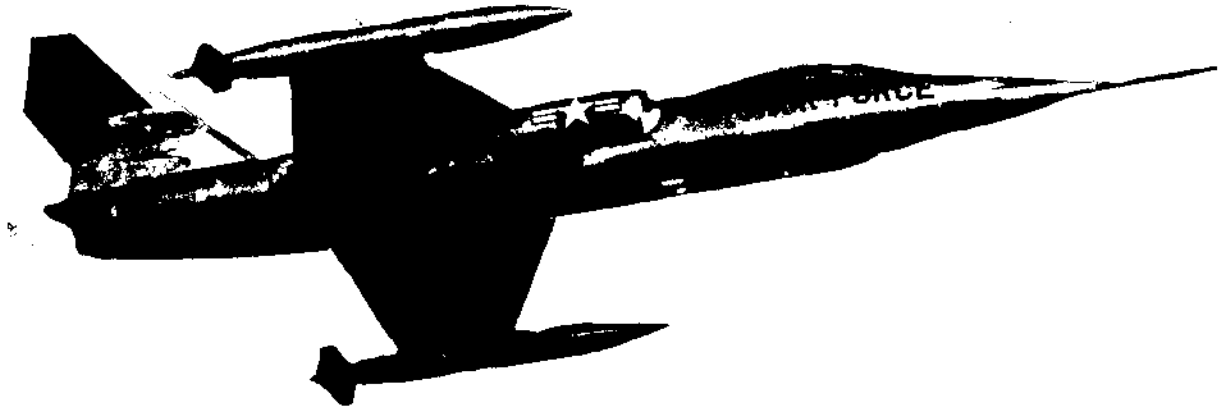
1. JAVELIN
2. SKYRAY
3. MACHETE
4. MACHETE
5. VULCAN
6. JAVELIN
7. SKYRAY
8. COUGAR
9. SKYRAY
10. MACHETE

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

USAF

F-104
STARFIGHTER



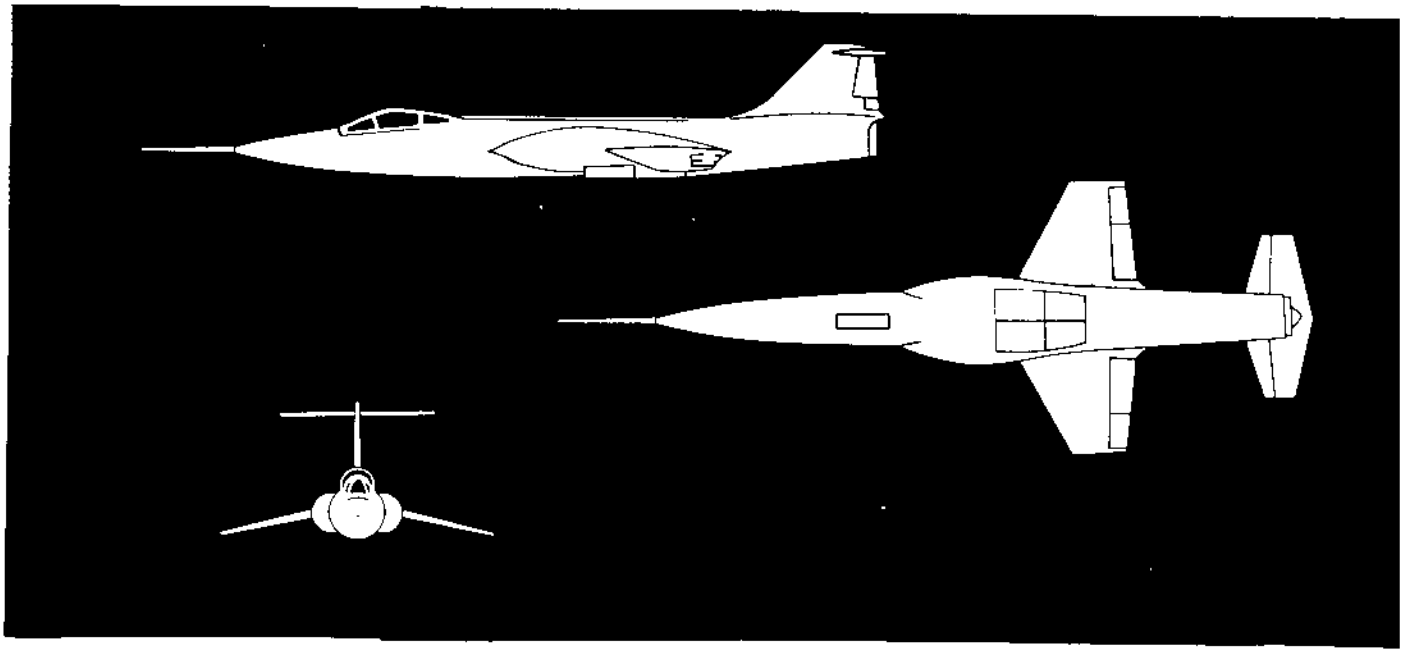
The Starfighter has the appearance of a guided missile. Its unmistakable configuration consists of extremely stubby, razor-thin wings, supporting elongated tip tanks. The anhedral of the mid-mounted wings is very pronounced. The massive vertical fin is intersected near the tip by a broad "flying" horizontal stabilizer. Engine air, inlet ducts jut forward of the leading edge of the wing. The long needle nose helps identify this Century fighter. This aircraft uses a downward ejection seat. The fuselage houses the landing gear.
SPAN: 21'11" LENGTH: 54'9"
MAXIMUM SPEED: Over 900 knots
ENGINE: 1/J79-GE-3/12,000 lbs. thrust/After-burner
SERVICE CEILING: 60,000 ft. ARMAMENT: 20 mm. cannon

LOCKHEED

SINGLE-JET

FIGHTER-

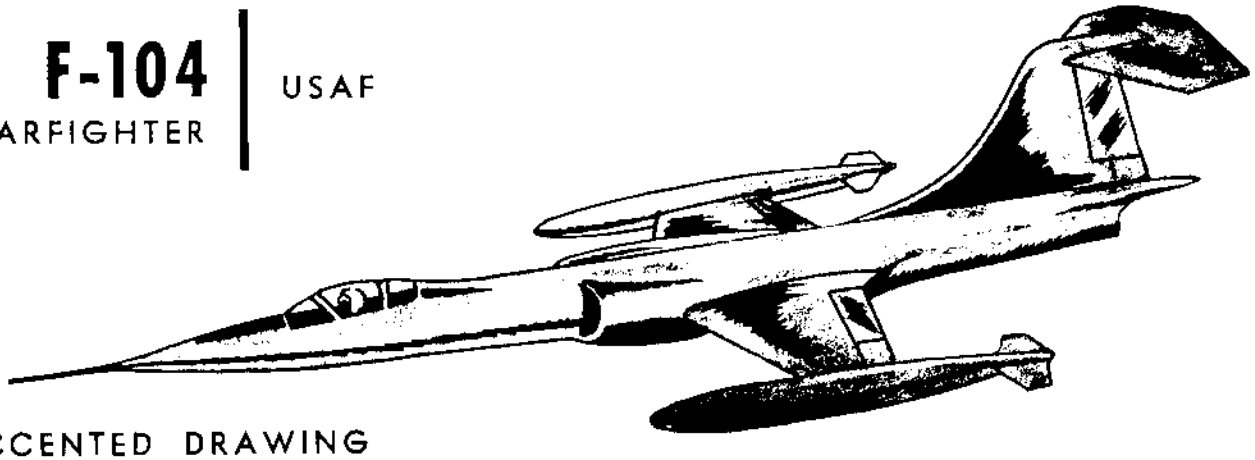
INTERCEPTOR



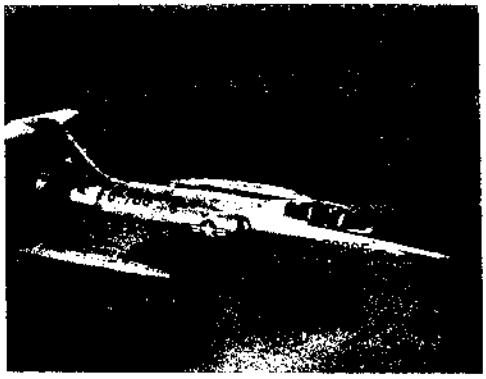
U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

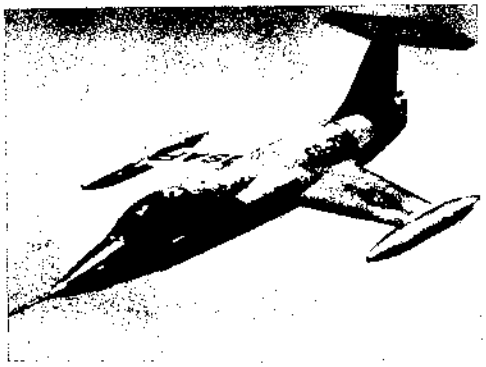
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

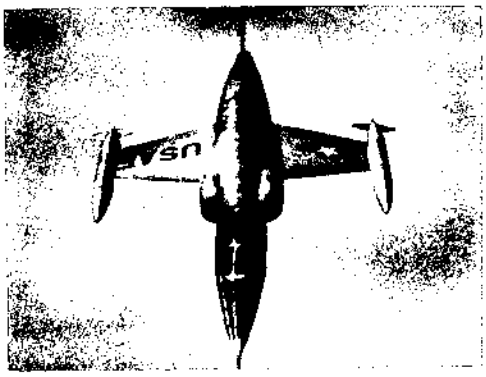
F-104 STARFIGHTER | USAF



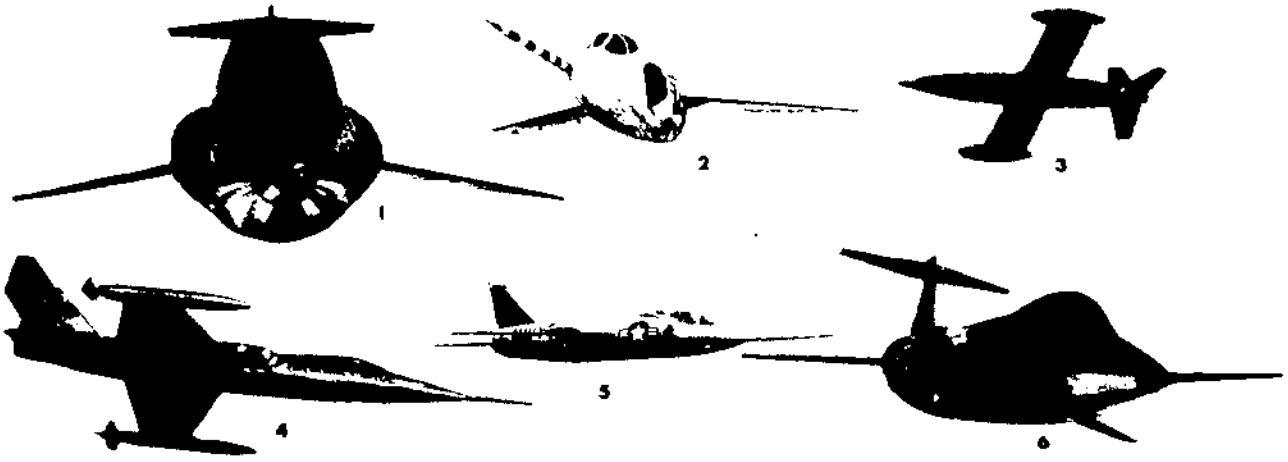
ACCENTED DRAWING







Miscellaneous views of the F-104 STARFIGHTER

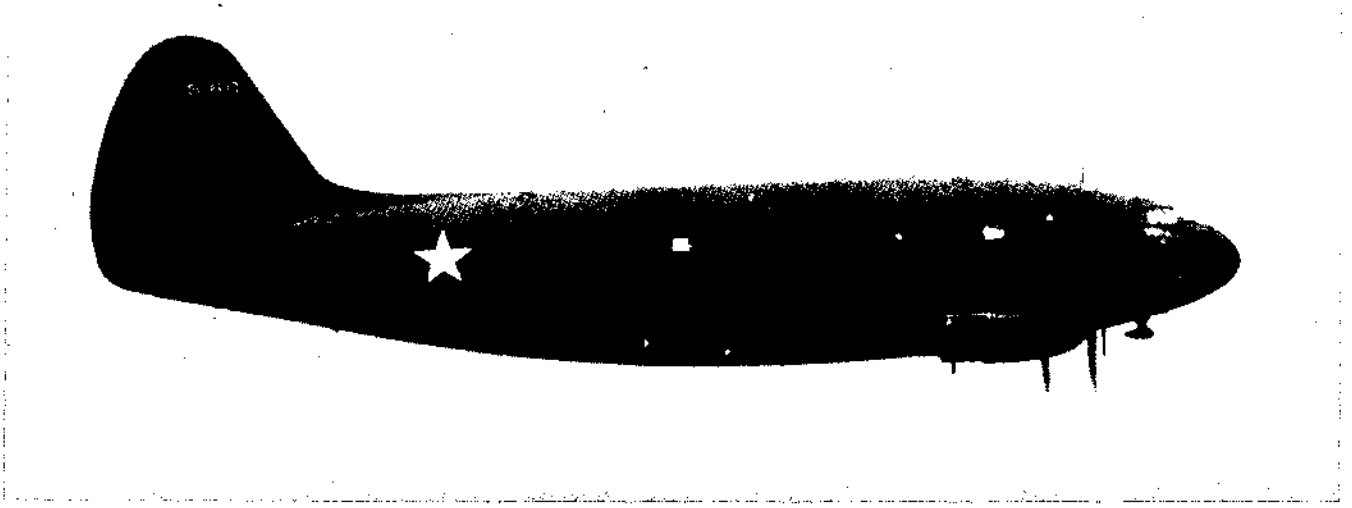


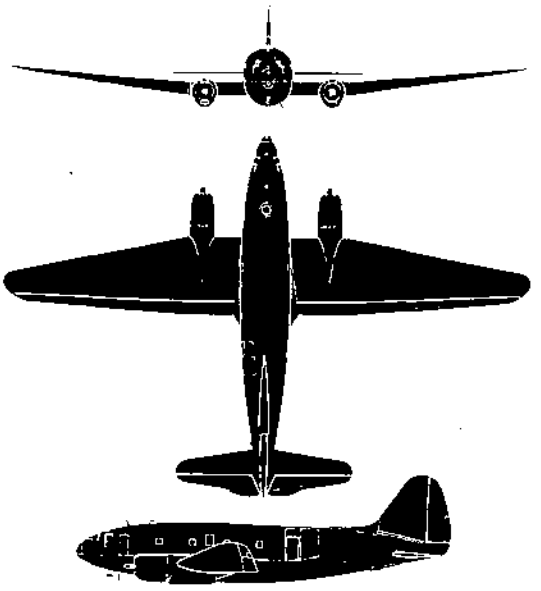
Identify the aircraft shown above; correct answers are below

1. F-104 2. F11F-1 3. TRIDENT 4. F-104 5. F11F-1 6. F-104

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

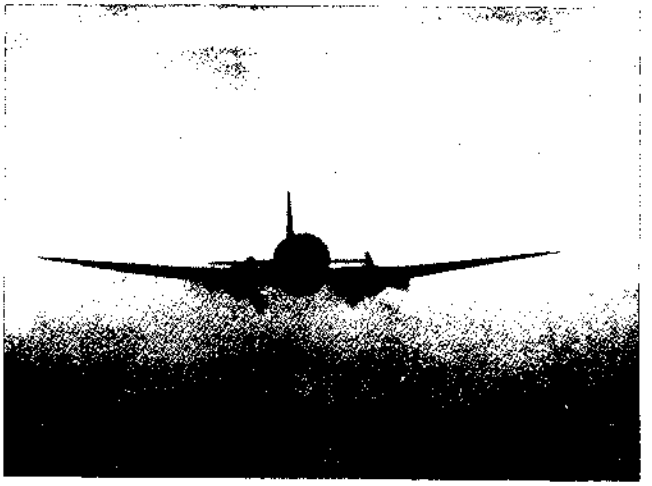
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

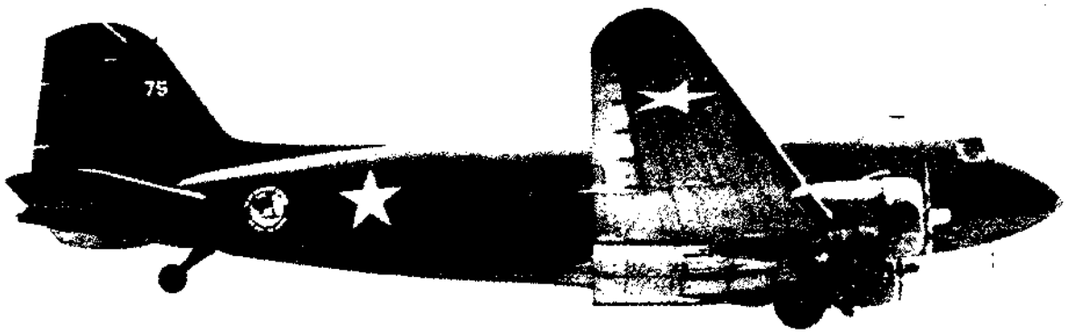


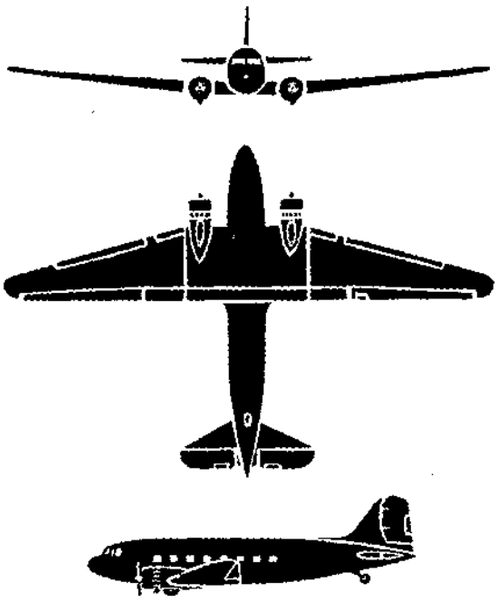


The Commando is a low-wing monoplane powered by two radial engines. The center section of the wing is rectangular while the outer wing sections have sharply tapered leading edges and slightly tapered trailing edges with distinct dihedral. The engine cowls are round with a propeller hub set in the middle of each cowl. There is no canopy extension above the top of the round fuselage. A high fin and rudder tapers sharply on the leading edge and has a curved trailing edge and round top. The C–46 was originally designed as a commercial airliner. Aside from carrying cargo, it has been used for glider towing and as an ambulance and paratroop carrier.

SPAN: 108′0″. **LENGTH:** 76′4″.
ENGINE: R–2800/2,000 h. p.
SPEED: 235 knots/13,300 ft.
RANGE: 1,880 nautical miles/151 knots.
ARMAMENT: None.







The Skytrain is a twin-engine low-wing monoplane. The center section of wing has no dihedral. The outer section of leading edge has sharp taper while the trailing edge is straight and the tips are sharply rounded. There is noticeable dihedral in the outer wing section. The tail fin is faired forward for about one-third the length of the fuselage. The horizontal stabilizer is sharply tapered at the leading edge. The C–47 is a military version of the Douglas DC–3, one of the best known and most widely used commercial aircraft in the world. In the Navy it is designated the R4D while in England it is called the "Dakota".

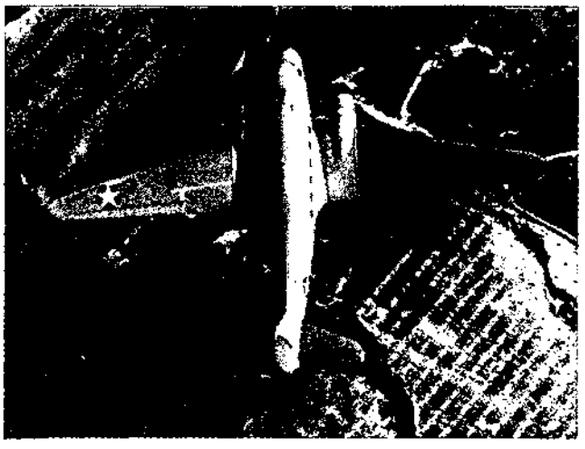
SPAN: 95′0″. **LENGTH:** 63′9″.

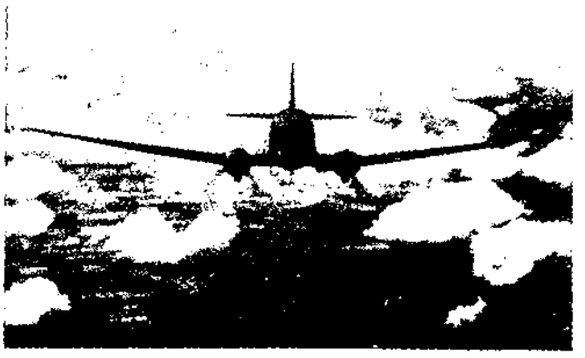
ENGINE: R–1830/1,200 h. p.

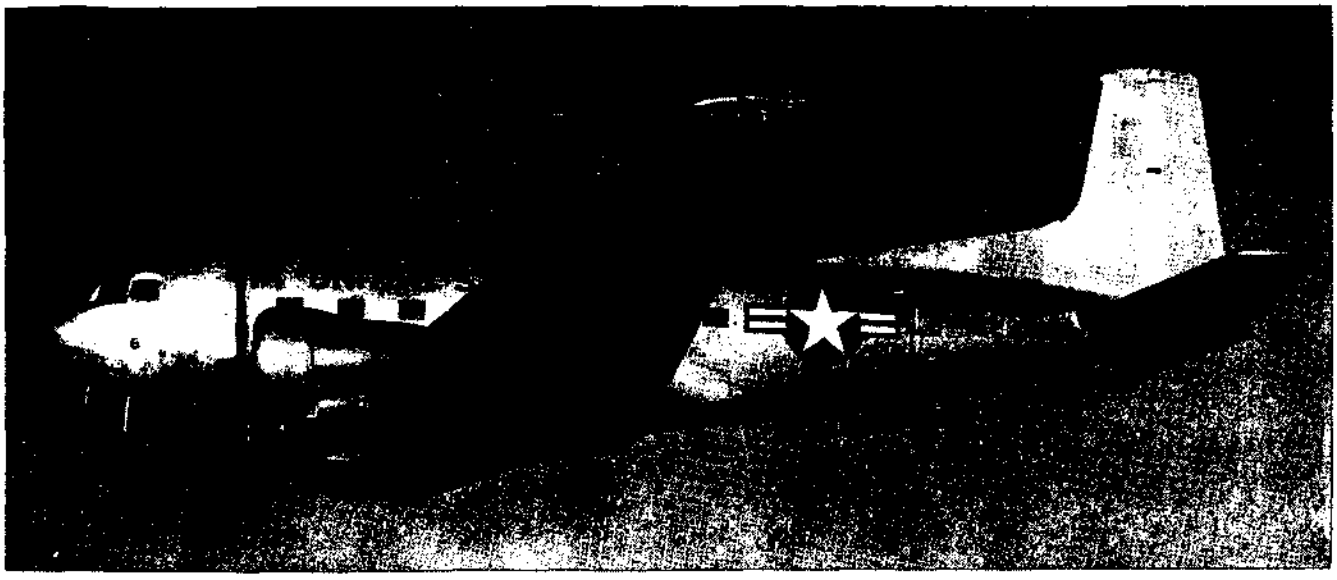
SPEED: 195 knots/6,250 ft.

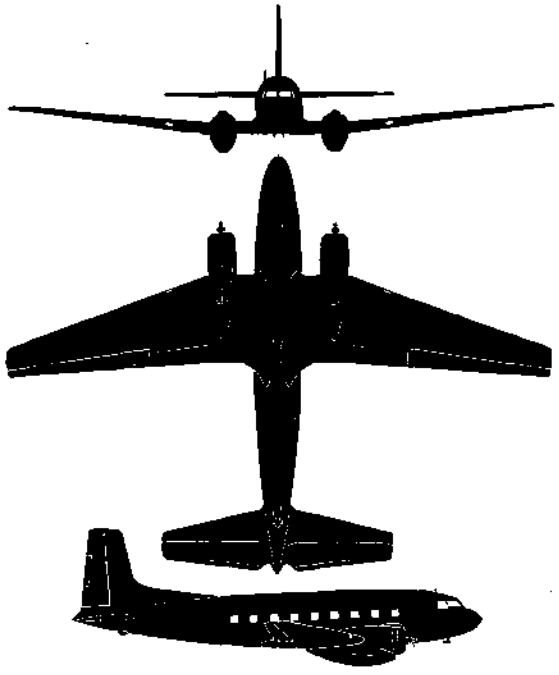
RANGE: 1,370 nautical miles/146 knots.

ARMAMENT: None.



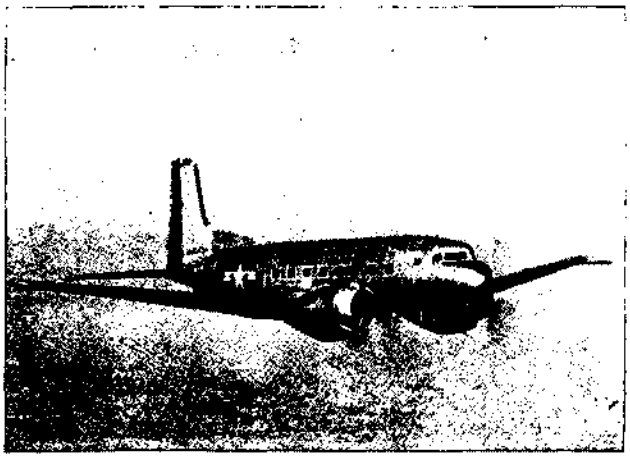


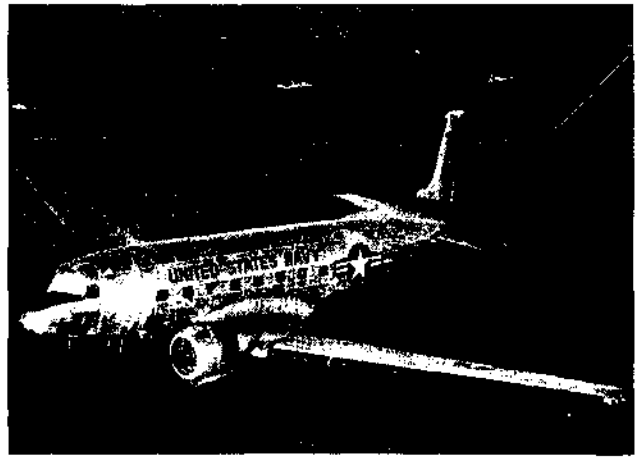


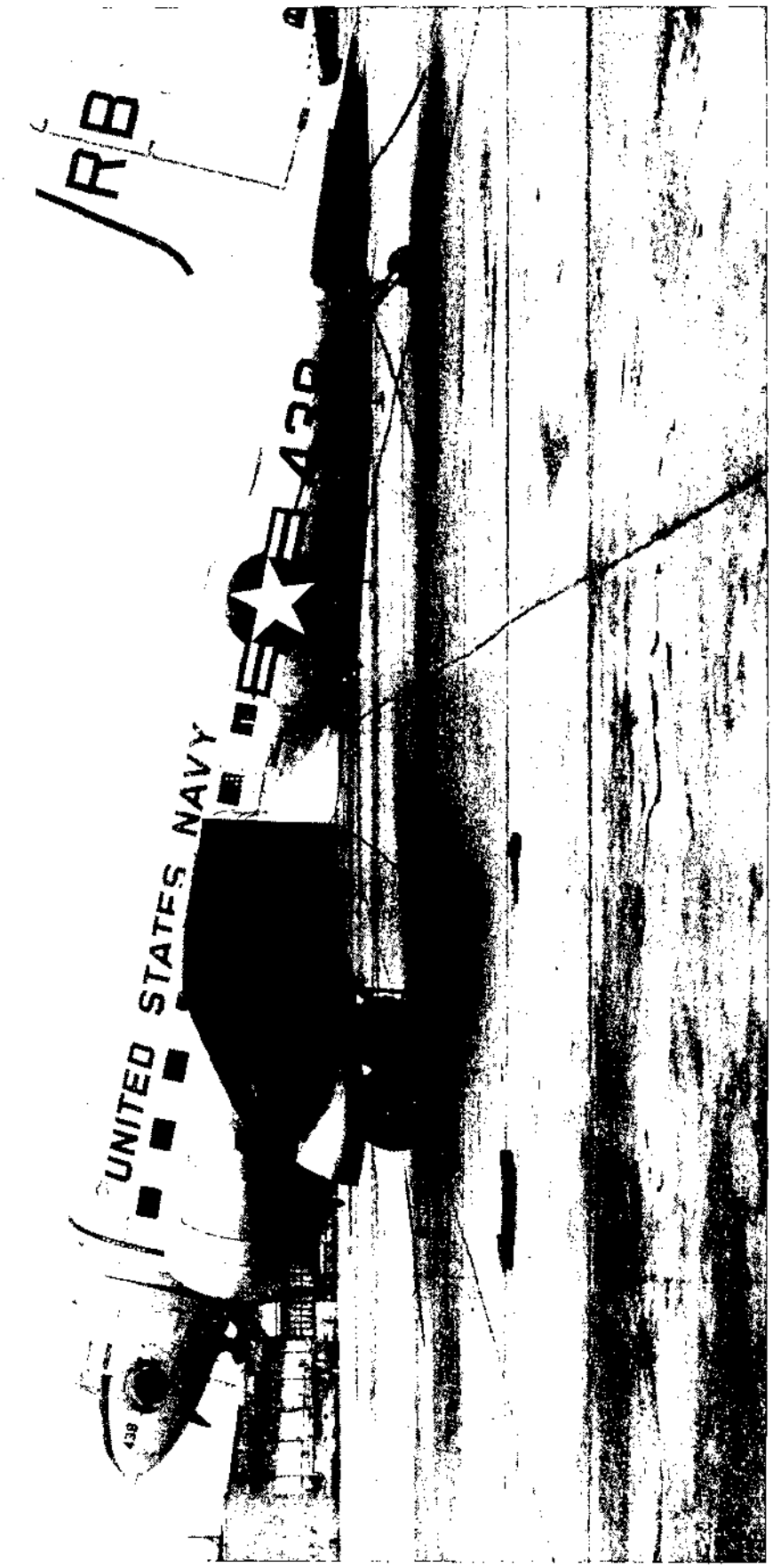


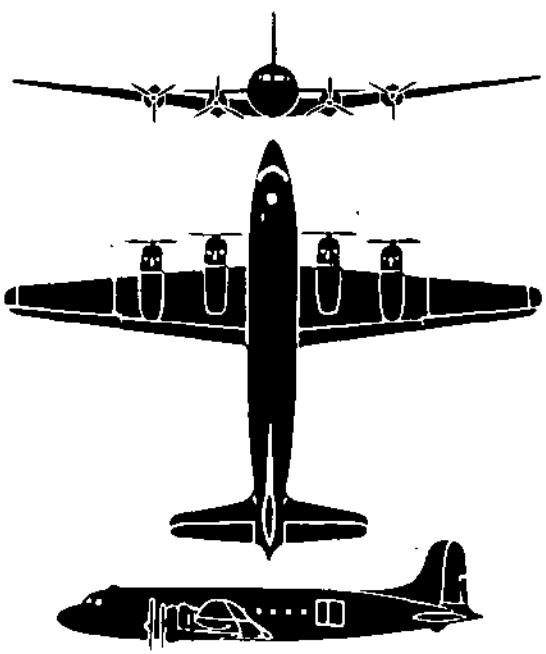
The R4D–8/C–47F Super Skytrain is a cargo transport adaptable to the transport of troops, passengers and litter patients. It is a converted Navy R4D or Air Force C–47. In commercial services the new Super Skytrain is designated the Super DC–3. The conversion from earlier Skytrain models includes strengthening the wing center section, fitting new outer wing panels having slotted flaps, and new ailerons. The wing tips are squared and there is 15.5° sweepback on the leading edge and 4° sweepback on the trailing edge. New horizontal and vertical tail surfaces with increased area and squared tips are installed. The fuselage has been reinforced and its length increased 39 inches. An extra cabin window is added on each side. More powerful engines and accommodations for 35 troops are provided.

SPAN: 90′0″ **LENGTH: 67′9″**
ENGINE: 2/R–1820–80/1,475 h. p. each.
MAX. SPEED: 233 knots/4,900 ft.
RANGE: 1,100 nautical miles/144 knots.
ARMAMENT: None.



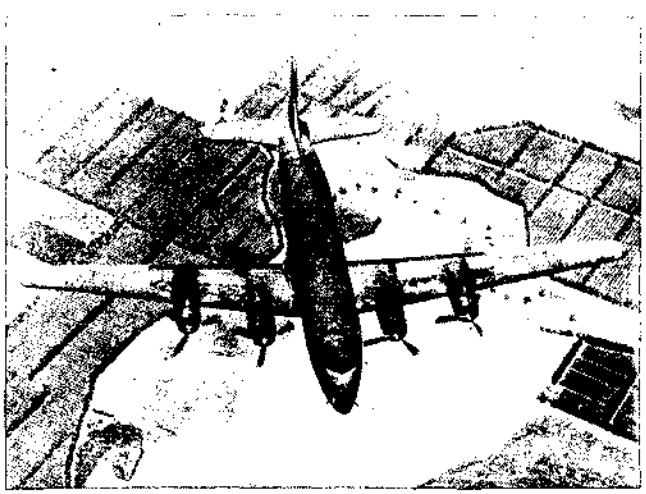


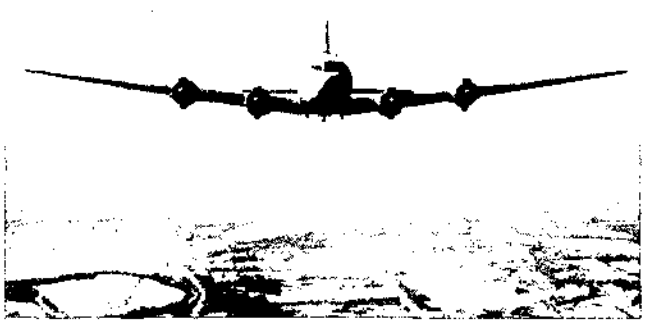

UNITED STATES NAVY



The Skymaster is a low-wing monoplane powered by four radial engines. The wings have dihedral from the roots with evenly tapered leading and trailing edges. The inboard engine nacelles are aligned slightly forward of the outboard engine nacelles. The rudder tapers evenly on the leading and trailing edges and has a rounded top. A pointed tail cone extends beyond the rudder at the end of the fuselage. The C–54 "Skymaster" carries a crew of five and has provisions for 49 troops or 36 litters. Its commercial designation is DC–4 and the Navy designation is R5D. This airplane is bearing the brunt of the burden of the "Berlin Airlift".

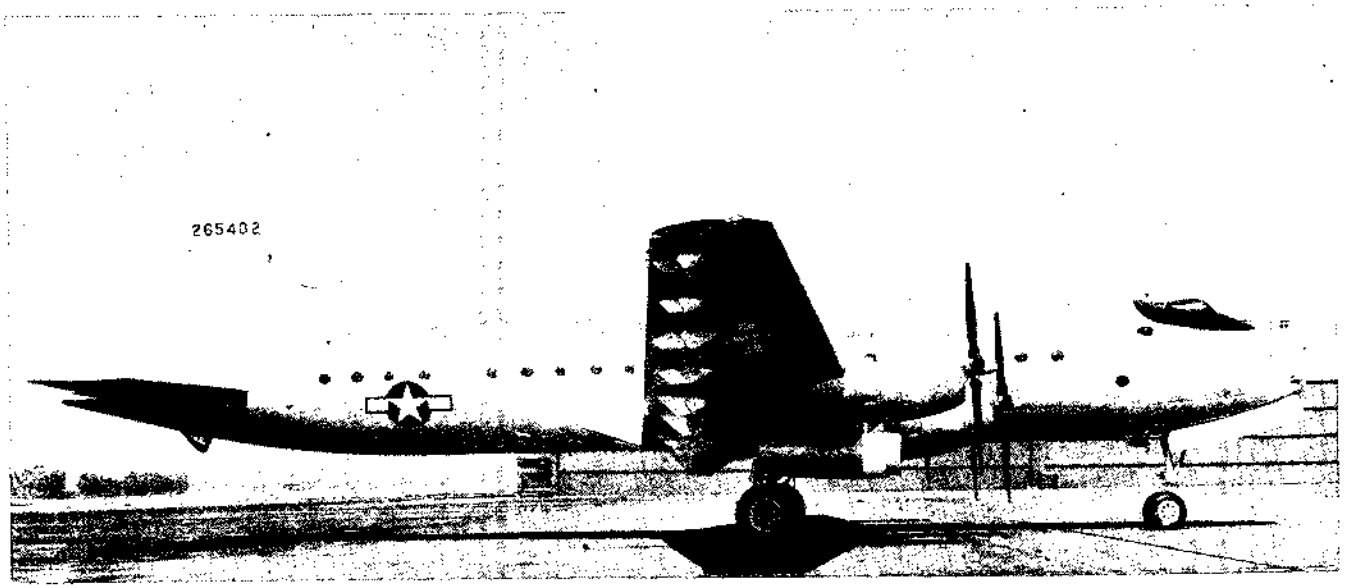
SPAN: 117′6″. **LENGTH:** 93′5″.
ENGINE: R–2000/1,450 h. p.
SPEED: 259 knots/19,800 ft.
RANGE: 1,650 nautical miles/190 knots.
ARMAMENT: None.

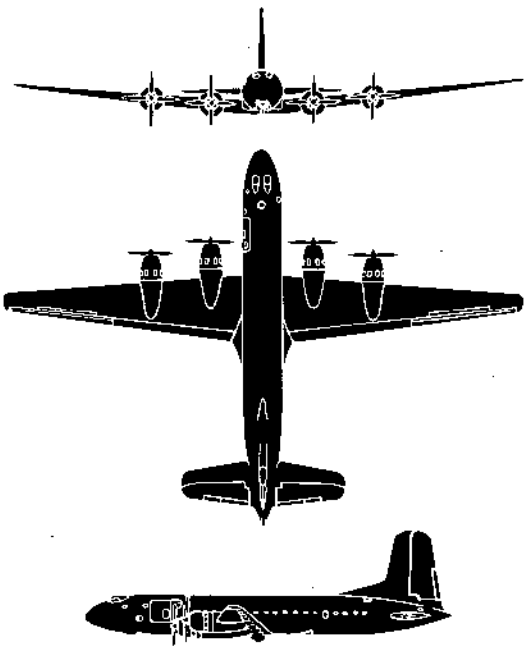




USA
MAY 1949

AFM 50-40
OPNAV 39P-1200





The Globemaster is a low-wing transport monoplane powered by four radial engines. The wings have evenly tapered leading and trailing edges with rounded tips and dihedral from the roots. The inboard engine nacelles are slightly forward of the outboard nacelles. The fuselage is long with a cockpit canopy placed high on the nose and a pointed tail cone extending beyond the rudder. A high fin and rudder tapers evenly on the leading and trailing edges and has a round top. The C–74 was designed for long range, combat transport missions. The prototype XC–74 made its first flight in September 1945. A crew of 13 is carried.

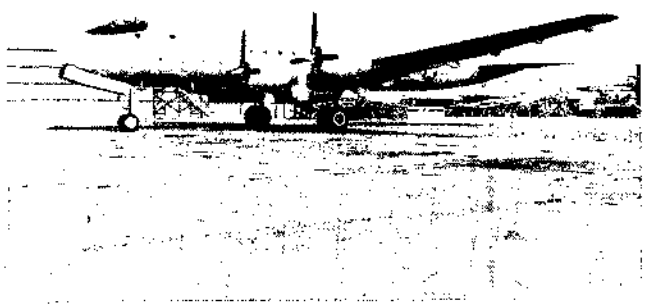
SPAN: 173′4″. **LENGTH:** 123′4″.

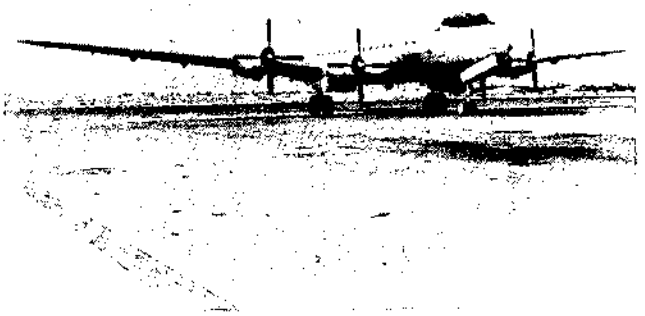
ENGINE: R–4360/3,000 h. p.

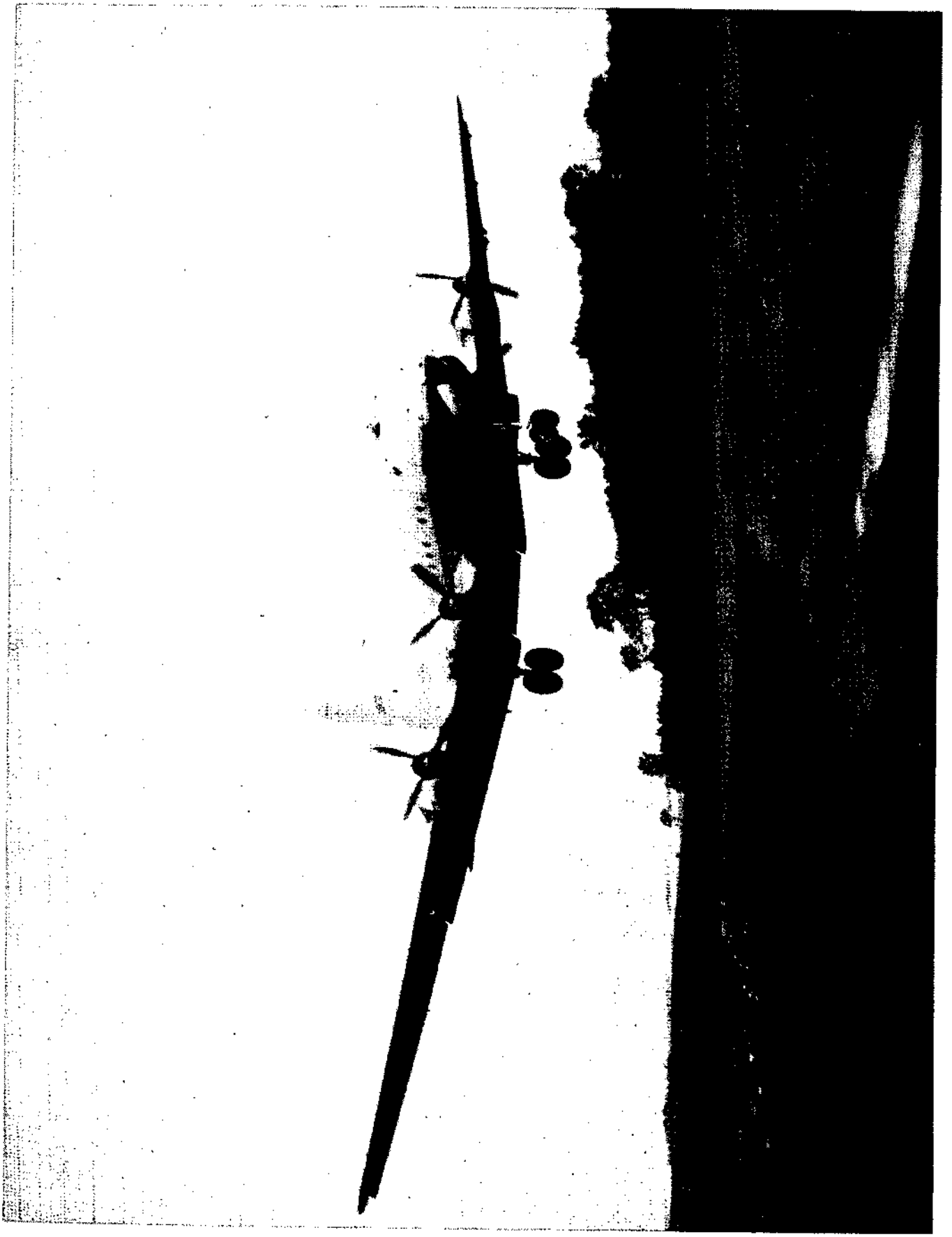
SPEED: 260 knots/15,000 ft.

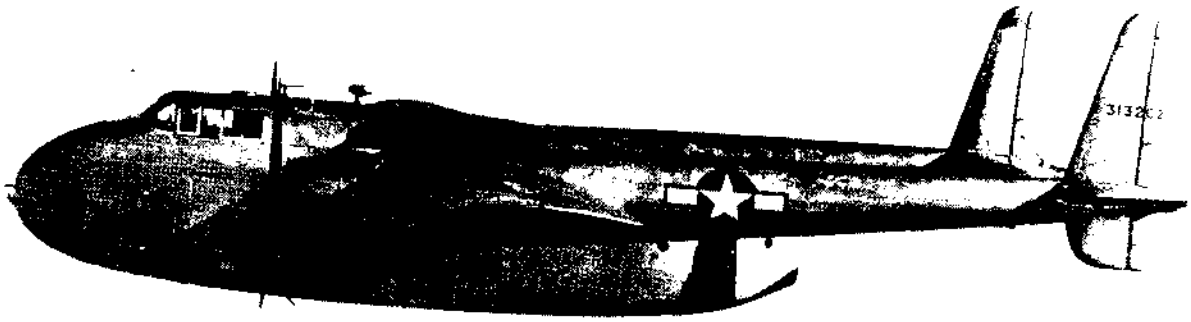
RANGE: 3,300 nautical miles/174 knots.

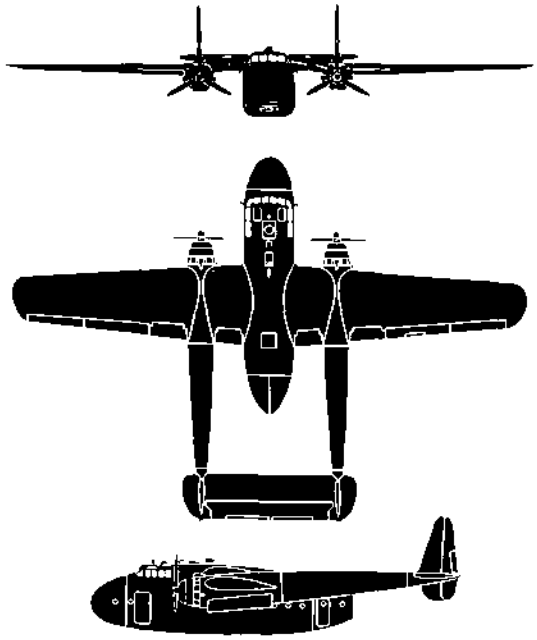
ARMAMENT: None.











The Packet C–82 is a twin-engine high-wing monoplane. The fuselage is suspended from the wing and has a squat box-like appearance. The engine nacelles are extended into twin-tail-booms. A tail plane joins the boom with a vertical stabilizer at the end of each boom. The fuselage extends almost equally fore and aft of the wing. The C–82 "Packet" is more popularly known as the "Flying Boxcar." Primary use is for cargo and troop transport being extensively used for paratroop operations at the present time. The rear doors of the fuselage open the full width of the fuselage to permit easy loading and unloading.

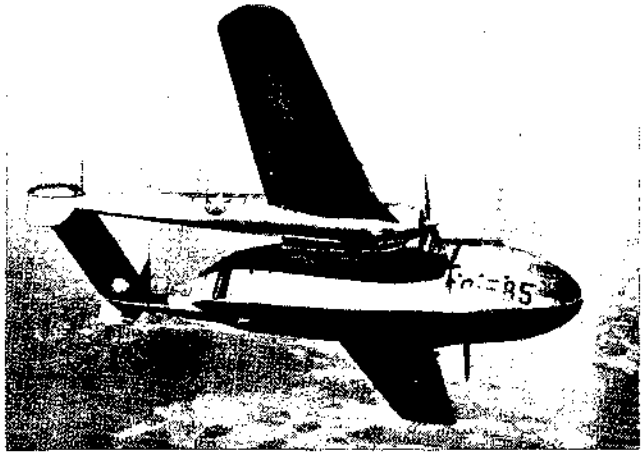
SPAN: 106'6". **LENGTH:** 77'1".

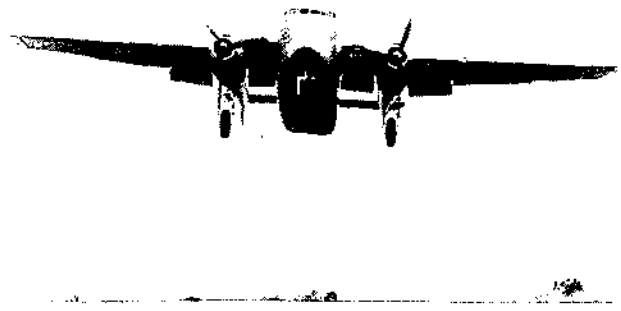
ENGINE: R–2800/2,100 h. p.

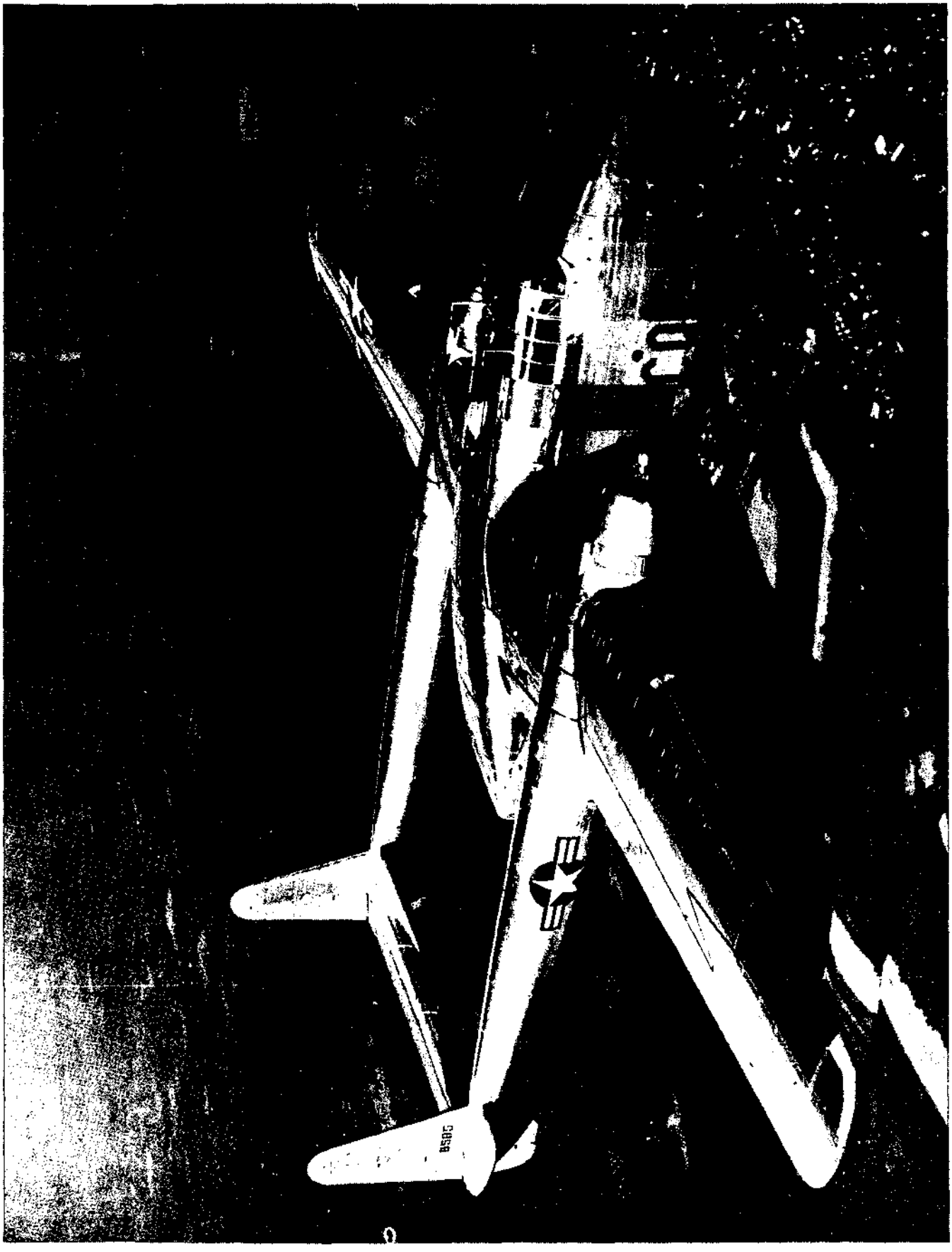
SPEED: 221 knots/17,500 ft.

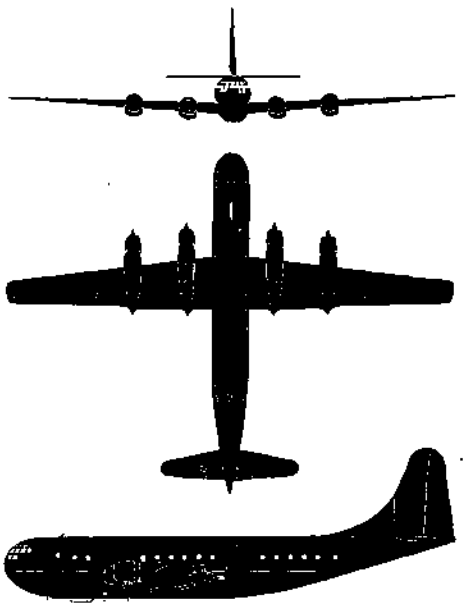
RANGE: 1,750 nautical miles/137 knots.

ARMAMENT: None.



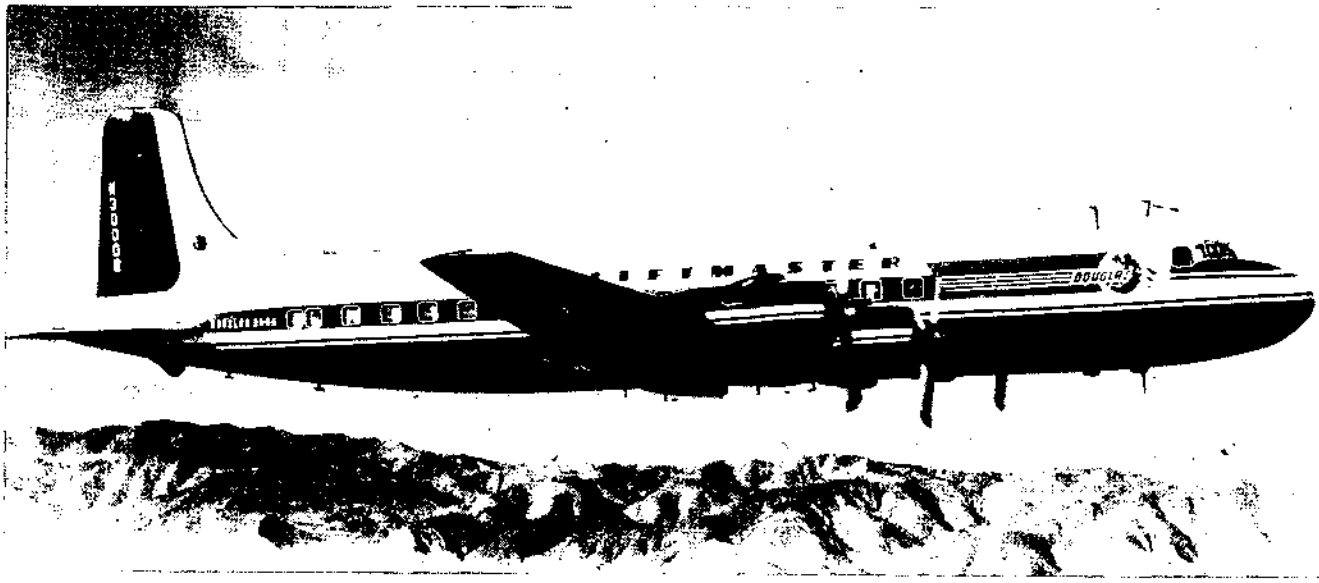


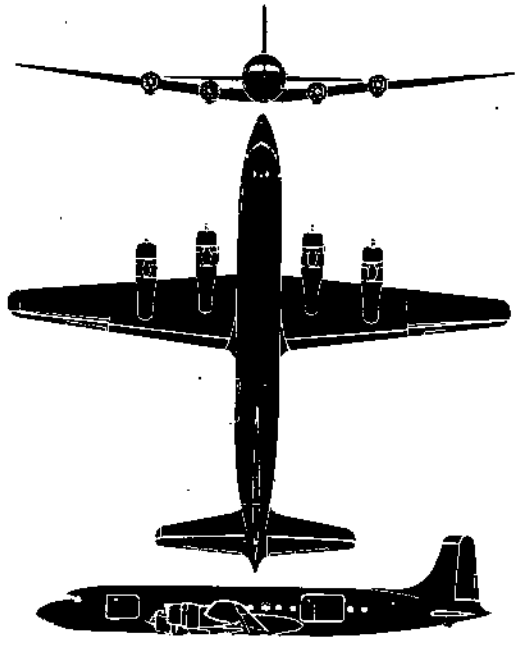




The Stratofreighter is a mid-wing heavy transport powered by four radial engines. The leading edge of the wing is sweptback, the trailing edge is straight and there is pronounced dihedral. The engine nacelles extend well forward of the leading edge with its inboard engines set slightly forward of the outboard engines. Inboard engine nacelles extend beyond the trailing edge. The fuselage is long and deep and resembles a figure 8 from the front. Pronounced taper from under the front of the fuselage terminates in a tail cone which extends beyond the large single rudder. The C–97 is a double-decked, high altitude cargo-personnel aircraft.

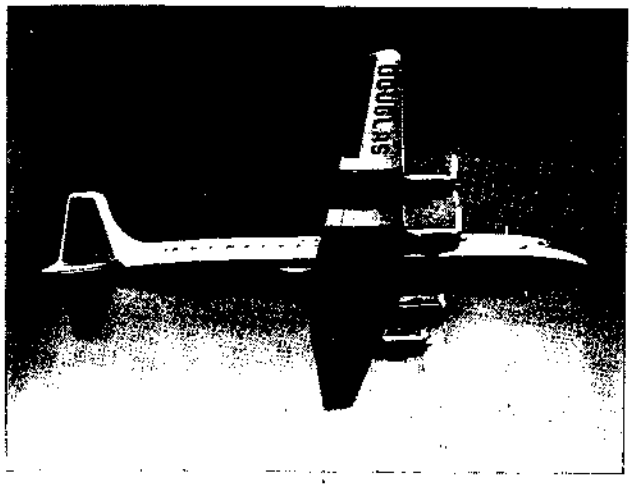
SPAN: 141′4″. **LENGTH: 110′4″.**
ENGINE: R–4360/3,500 h. p.
SPEED: 342 knots/28,400 ft.
RANGE: 1,640 nautical miles/222 knots.
ARMAMENT: None.

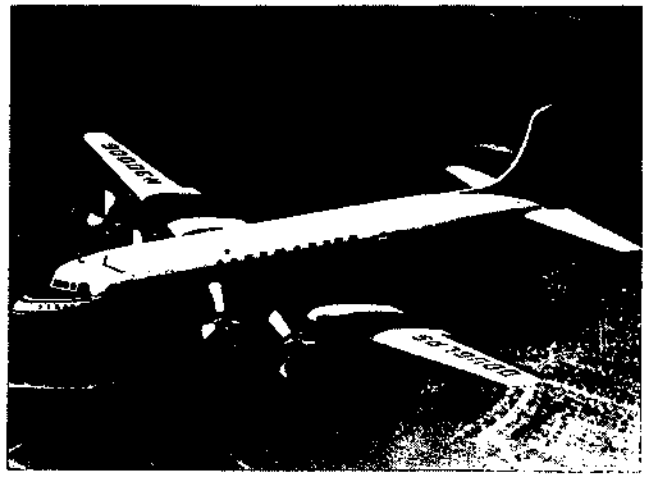


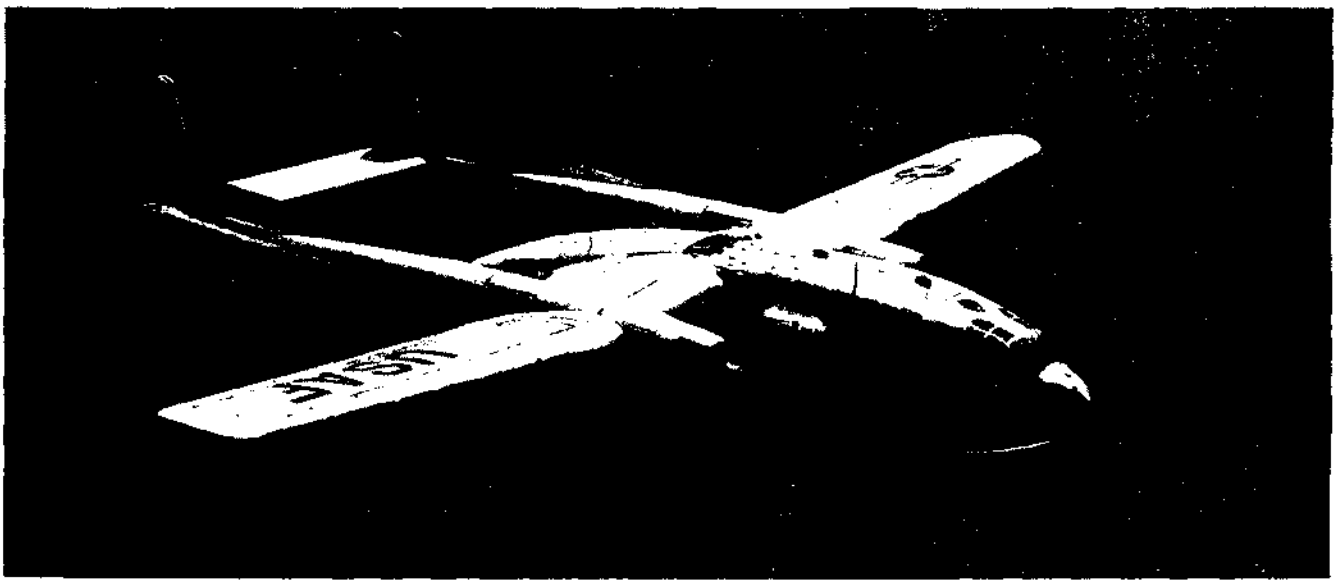


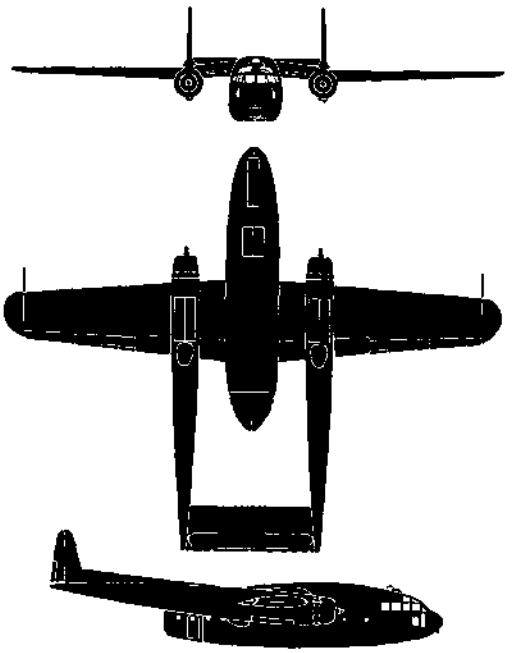
The C–118B/R6D Liftmaster was developed as a freight-carrying version of the standard DC–6. It uses the wings, tail-unit and landing gear of its commercial forerunner, the DC–6, but has an entirely new fuselage. The Liftmaster's fuselage is six feet longer than that of the DC–6. Commercially the Liftmaster is designated DC–6A (cargo) and DC–6B (passenger). It is equipped with automatically controlled cabin pressurization and air conditioning systems to permit high-altitude flight. As many as 92 passengers can be accommodated in the DC–6B version. Powered by its four engines the Liftmaster has a gross take-off weight of 102,000 pounds. The C–118B/R6D retains the C–54/R5D recognition features.

SPAN: 117'6". **LENGTH: 107'0".**
ENGINE: 4/R–2800/2,500 h. p. each.
MAX. SPEED: 310 knots/14,500 ft.
RANGE: 1,755 nautical miles/212 knots.
ARMAMENT: None.



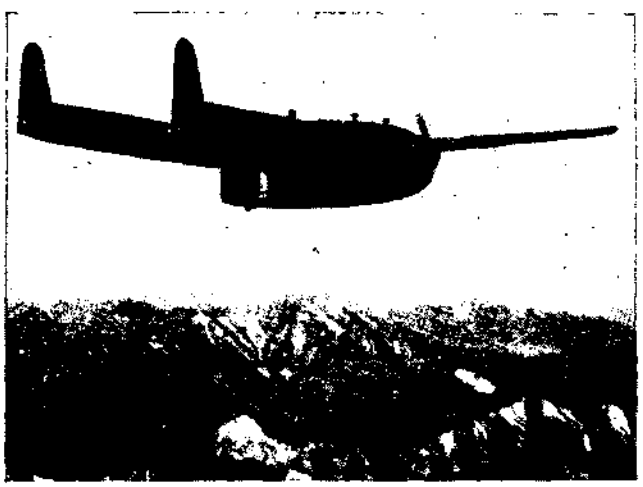


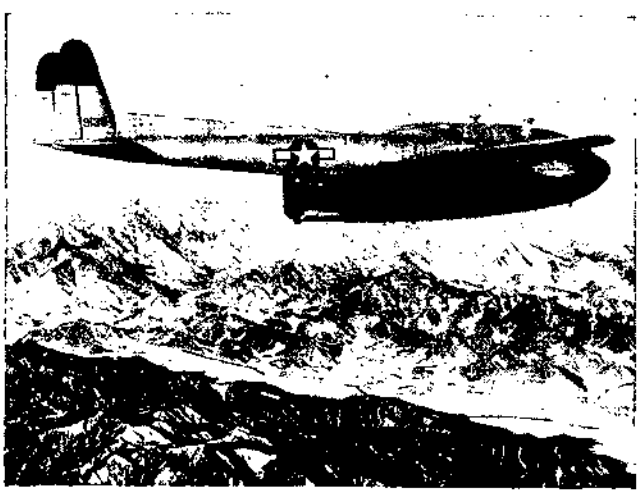


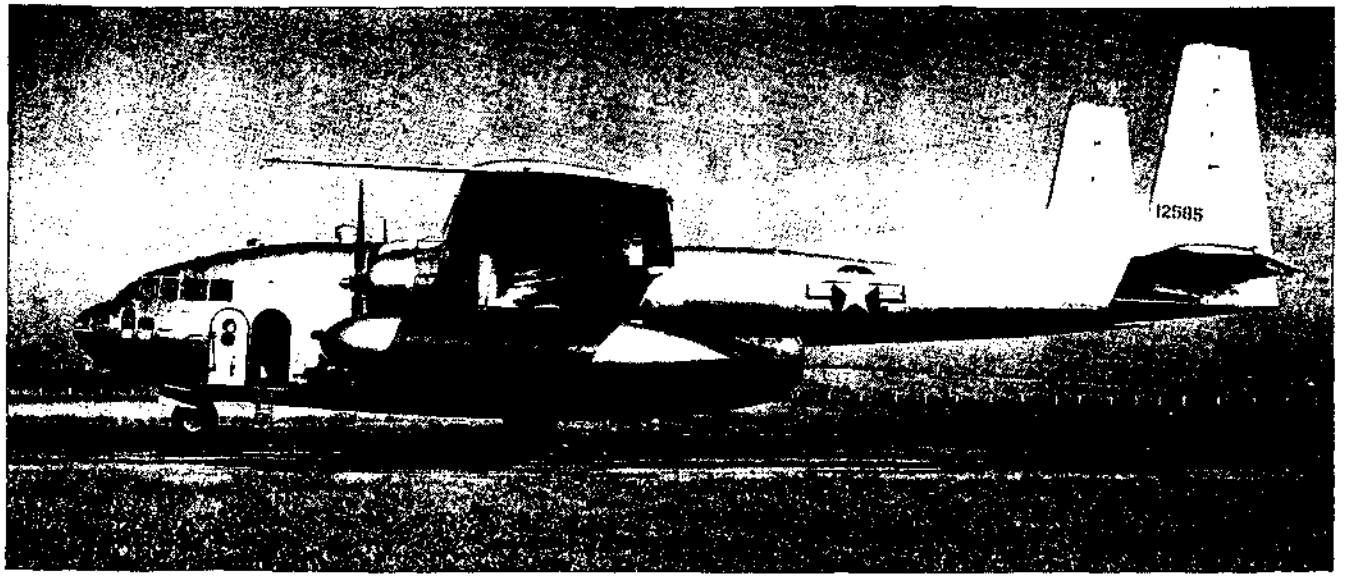


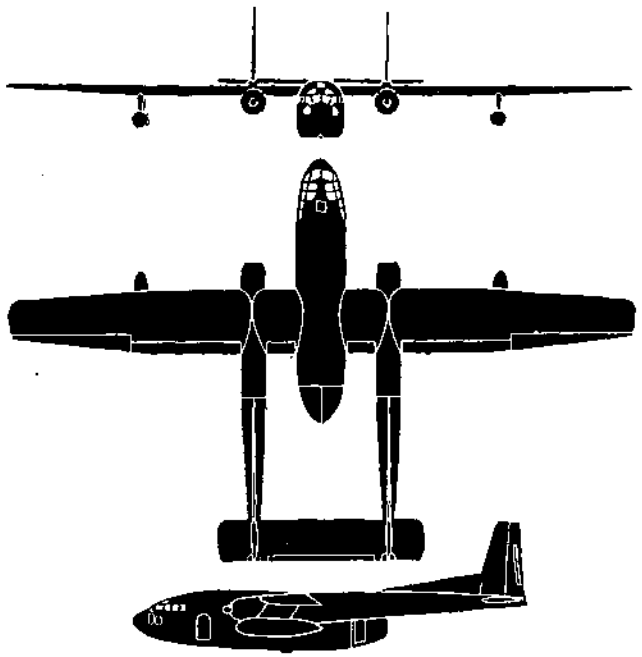
The Packet is a twin-engine high-wing cargo and troop transport. A secondary use is casualty evacuation. Its fuselage is suspended from the wing which gives it a squat box-like appearance. A number of modifications have been made in the tail surfaces of the C–119. Some have had ventral fins and stabilizer tips while the more recent Packet has deleted these in favor of a long dorsal fin fairings. Because of the position of the wing, the aricraft presents a nose heavy appearance. The C–119, often called the "Flying Boxcar", is an improved version of the C–82 featuring a relocated flight deck for improved vision. The doors in the rear of the fuselage open the full width of the fuselage. Its take-off weight is around 70,000 pounds.

SPAN: 109′ 3″ **LENGTH: 86′ 6″**
ENGINE: 2/R–4360–20/3,250 h.p. each.
MAX. SPEED: 245 knots/17,000 ft.
RANGE: 1,370 nautical miles/180 knots.
ARMAMENT: None.



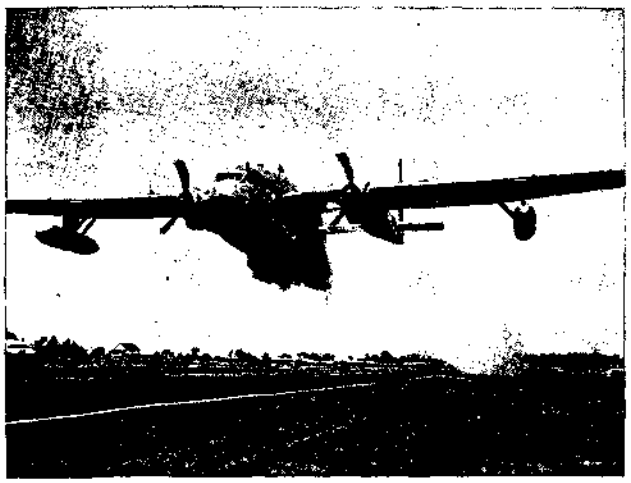


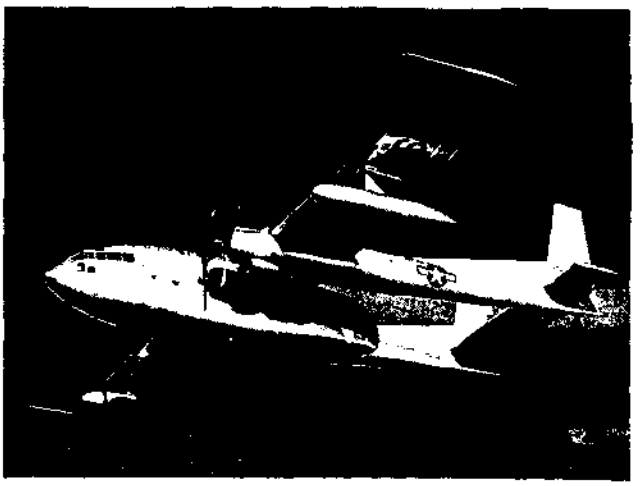




The C–119H military transport is a redesigned Packet with new wings of increased span, increased boom length, new tail with square-tipped extensions outboard of booms, new landing gear, and new Wright Cyclone compounded engines. Its permanent under-wing fuel pods are noteworthy since they eliminate internal carriage of fuel and reduce fire-hazard. This feature is a 600 pound weight saver through elimination or reduction of fittings, etc. Its cargo capacity has been increased to approximately 23,000 pounds; however, in lieu of cargo 62 troops can be carried. The C–119H's maximum takeoff weight is 86,000 pounds. Take-offs over a 50-foot obstacle can be made within 2,600 feet and landings can be made within a distance of 1,300 feet. Squarish lines are its chief recognition feature.

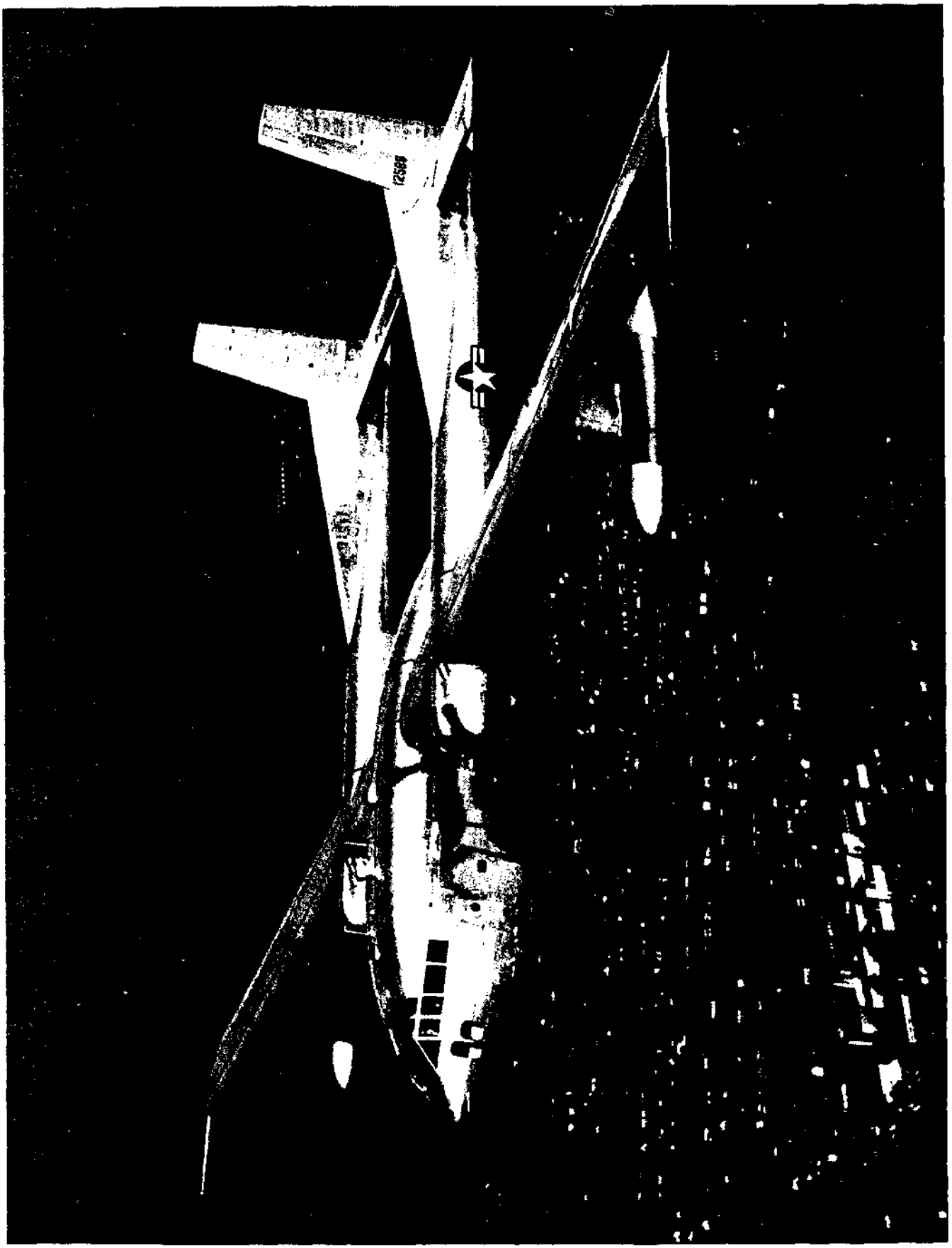
SPAN: 147′6″ **LENGTH: 95′6″**
ENGINE: 2/R–3350–85/3,500 h. p. each.
MAX. SPEED: 240 knots/15,500 feet.
RANGE: 950 nautical miles/150 knots.
ARMAMENT: None.

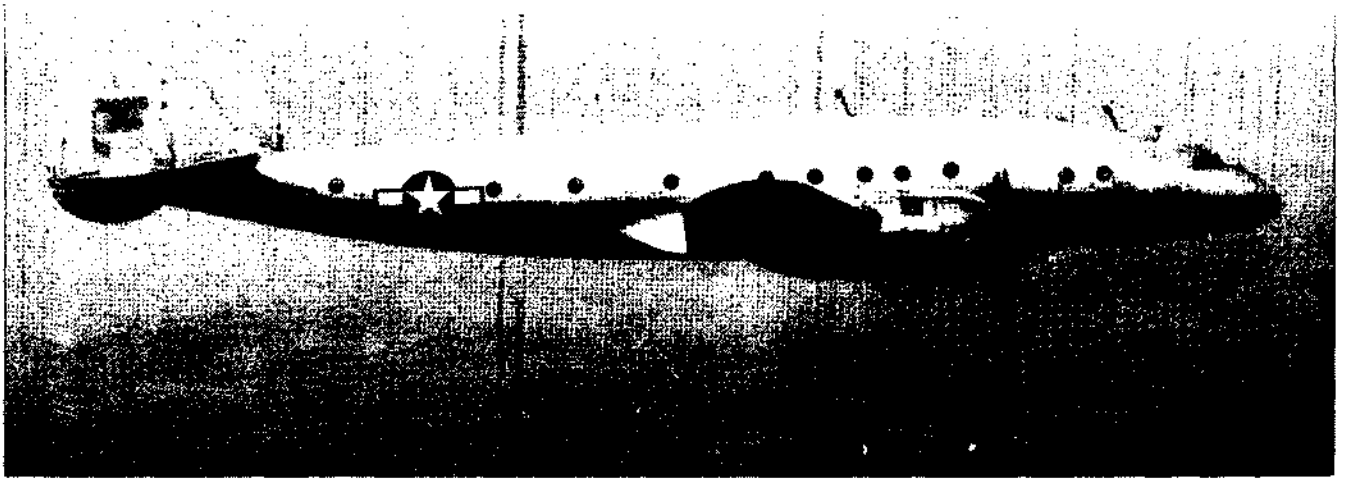


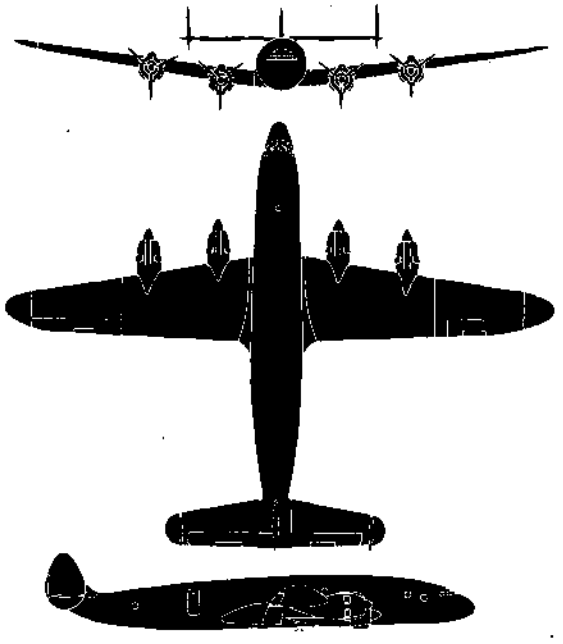


U. S. A.
SUPPLEMENT NO. 4
JUNE 1953
259944°—53——4

FM 30-30
OPNAV 32P-1200/4
AFM 50-40D

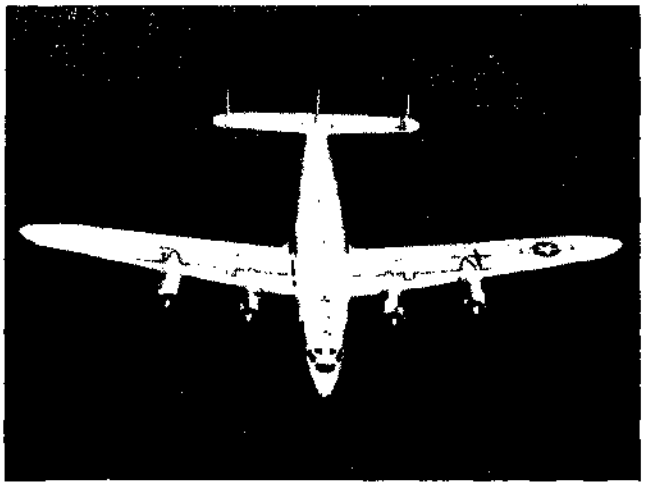






The Constellation is a low-wing monoplane with four underslung radial engines. The wings have pronounced sweepback and dihedral with slightly tapered trailing edges. The empennage incorporates three fins and three rudders with the horizontal stabilizer extending beyond the outboard fins and rudders. A silhouette of the fuselage resembles the cross section of an airfoil. The C–121 is an improved version of the original C–69 which was developed during World War II. The commercial counterpart is the Model 749. It carries 44 to 64 passengers and a crew of 9. As a cargo carrier, it contains 2,844 cubic feet of cargo space.

SPAN: 123′0″. **LENGTH:** 95′4″.
ENGINE: R–3350/2,200 h. p.
SPEED: 330 knots/15,700 ft.
RANGE: 1,605 nautical miles/189 knots.
ARMAMENT: None.

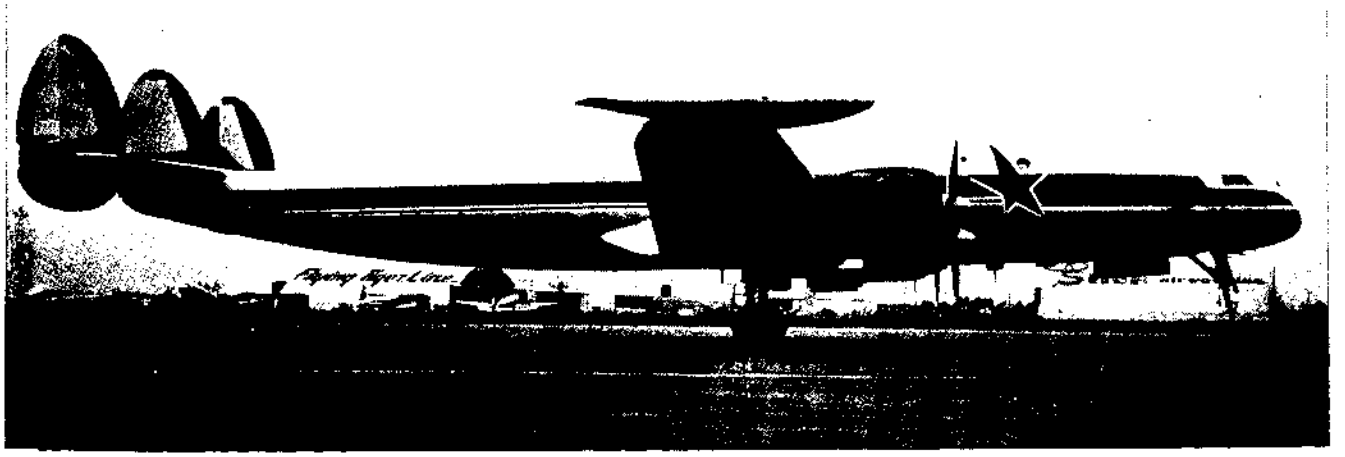


LOCKHEED

C-121 CONSTELLATION

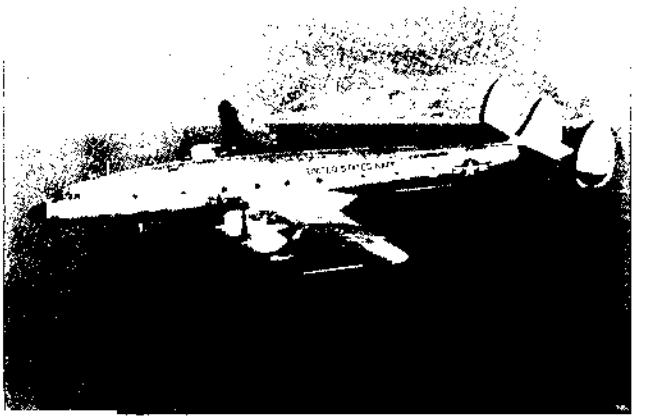
USA
MAY 1949

AFM 50-40
OPNAV 32P-1200

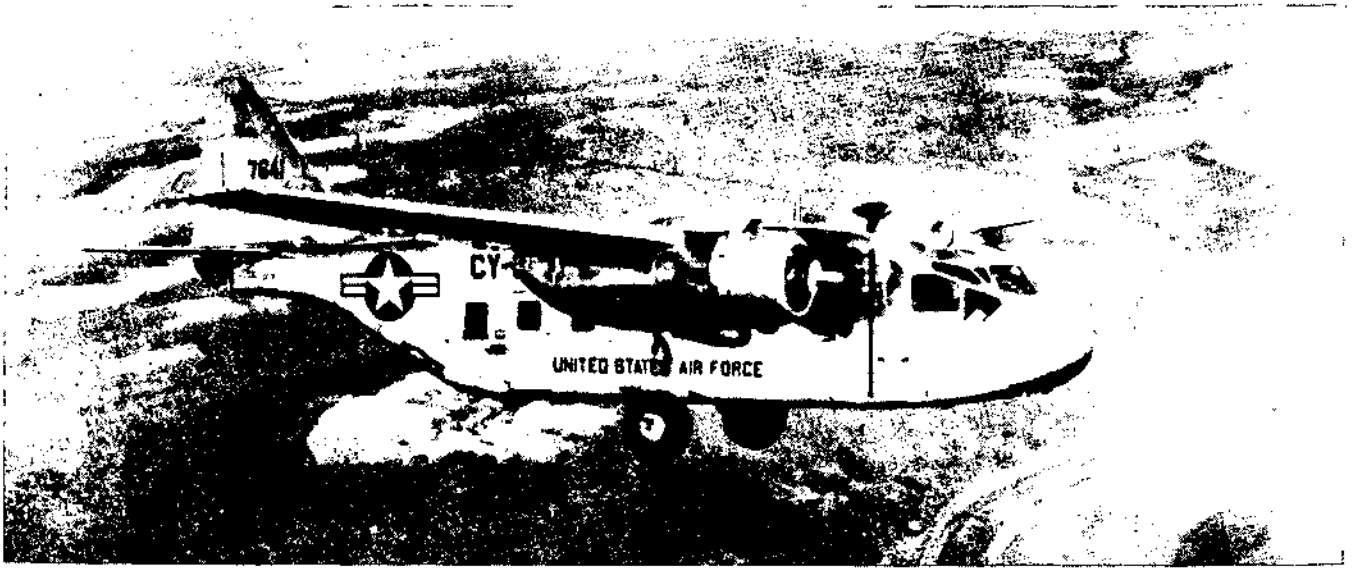


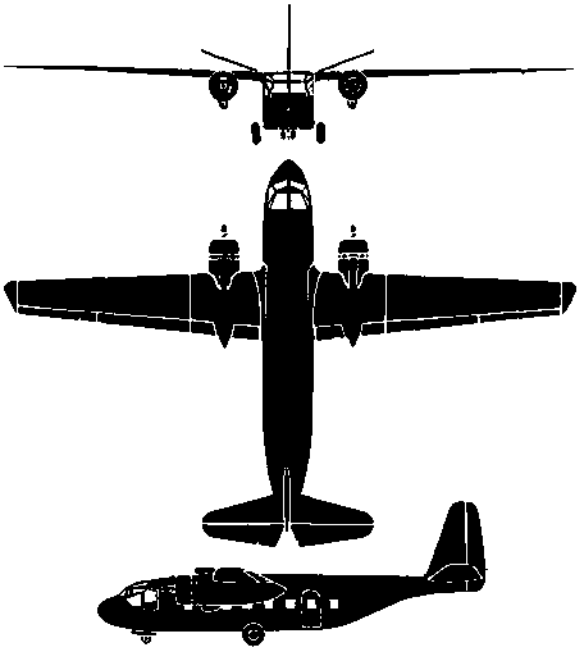
The Super Constellation is a high-speed long-range cargo, passenger, litter transport aircraft. It has been adapted for service use by the Navy (R7V) and Air Force (C–121C) from the Lockheed commercial "Super Constellation." From a recognition viewpoint it is practically identical to its forebearer, the Constellation, retaining all of the typical features. In fact, the first prototype Super Constellation was a conversion of the original C 69 Constellation prototype. The new transport differs in having a longer fuselage which will accommodate up to 110 passengers at a take-off weight of 145,000 pounds. In addition to being faster, it is designed for conversion to turbojet engines capable of improving its speed to more than 350 knots.

SPAN: 123′0″ **LENGTH: 116′2″**
ENGINE: 4/R–3350 -34/3,250 h. p. each.
MAX. SPEED: 310 knots/19,500 ft.
RANGE: 3,110 nautical miles/216 knots.
ARMAMENT: None.



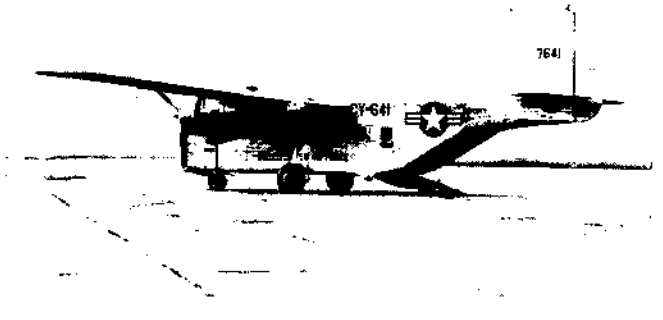

Super Constellation

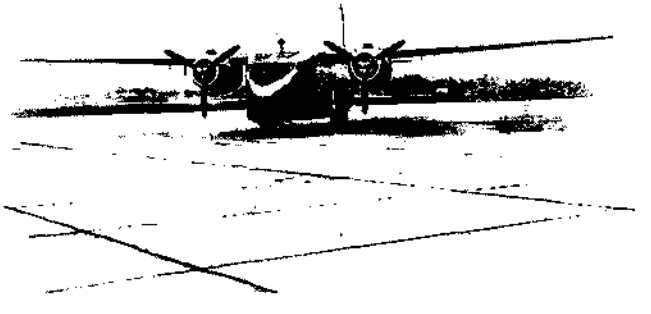


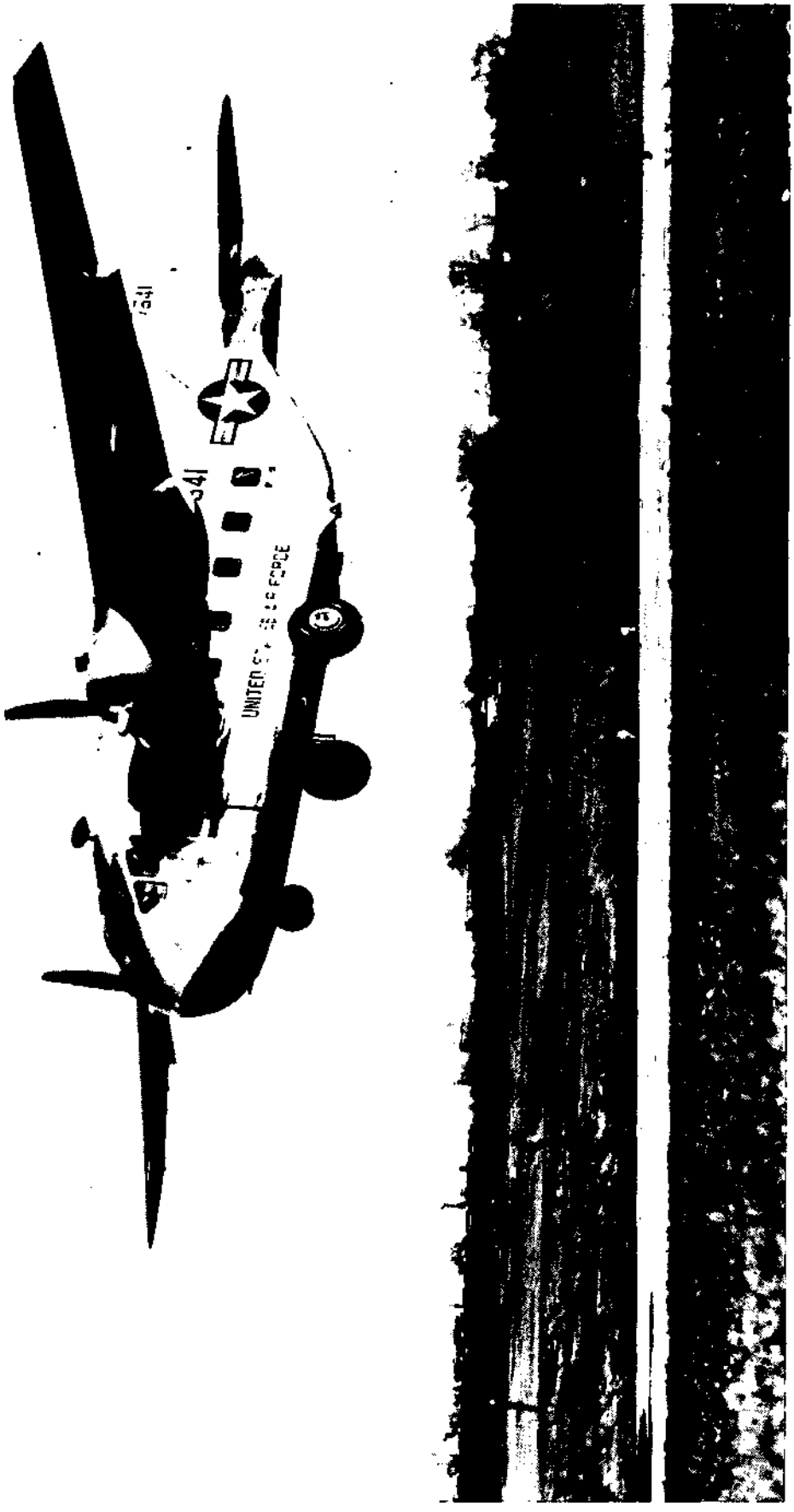


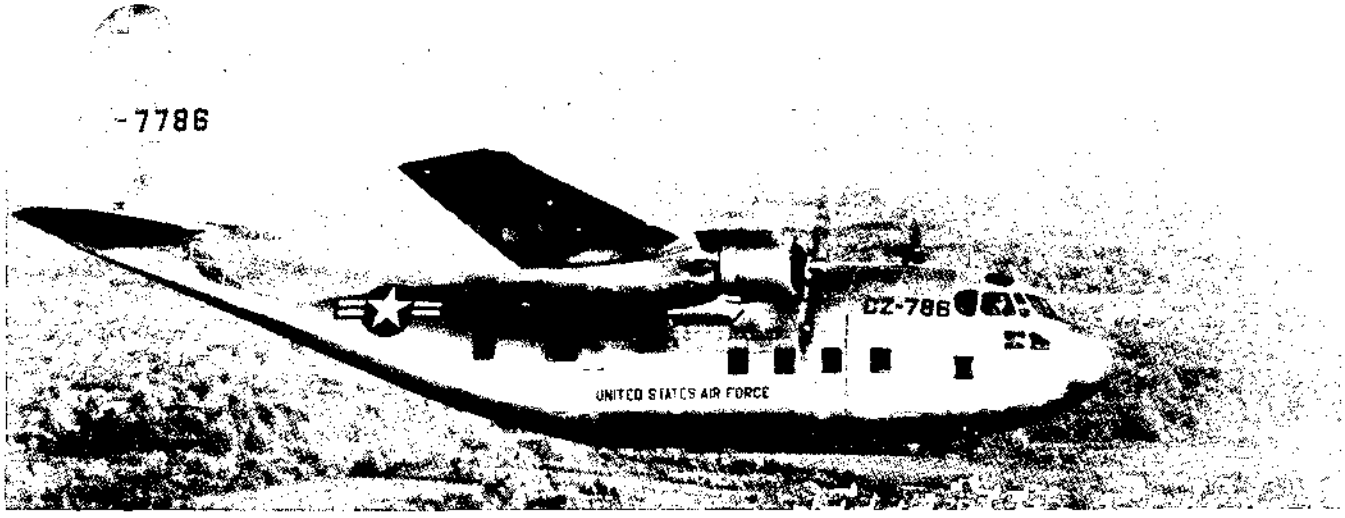
The C–122 is a high-wing, twin-engined transport with a soup-ladle fuselage profile. It is very similar to its predecessor the XCG–18A Avitruk glider. This transport was flown for the first time on the 18th of November 1949. The leading edge of the C–122's wing has a slight constant taper to a rounded wing tip; the trailing edge has more noticeable taper to the tip. Twin radial engines are hung below the wing and close to the square boxlike fuselage. Both fin and stabilizer have rounded tips; dihedral is noticeable in the stabilizer. Access for loading is by the after end of the up-swept fuselage via a lowered ramp. A tricycle landing gear is employed with the two main wheels fixed and the nose wheel retractable.

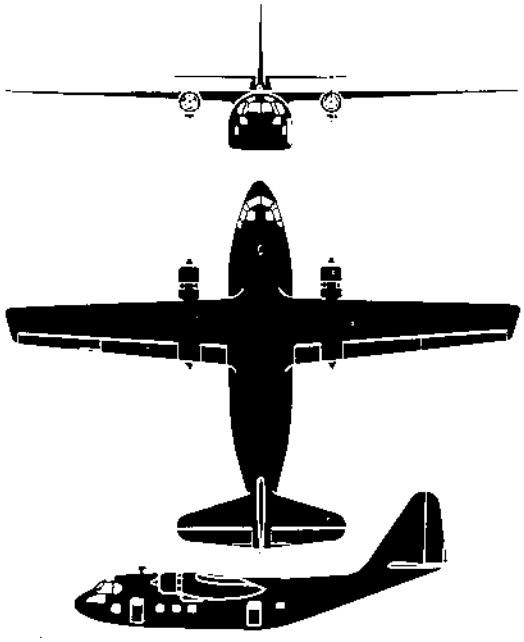
SPAN: 95′7″. **LENGTH: 61′6″.**
ENGINE: R–1820–101/1,425 h. p.
SPEED: 216 knots/11,600 ft.
RANGE: 865 nautical miles/150 knots.
ARMAMENT: None.





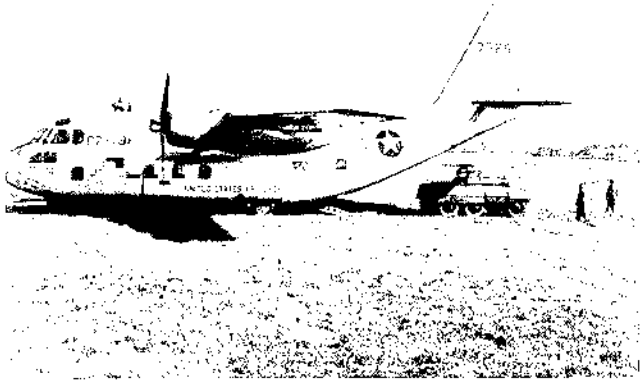


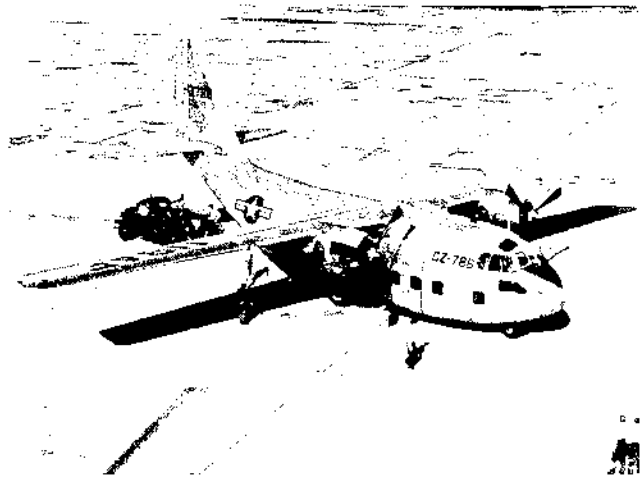


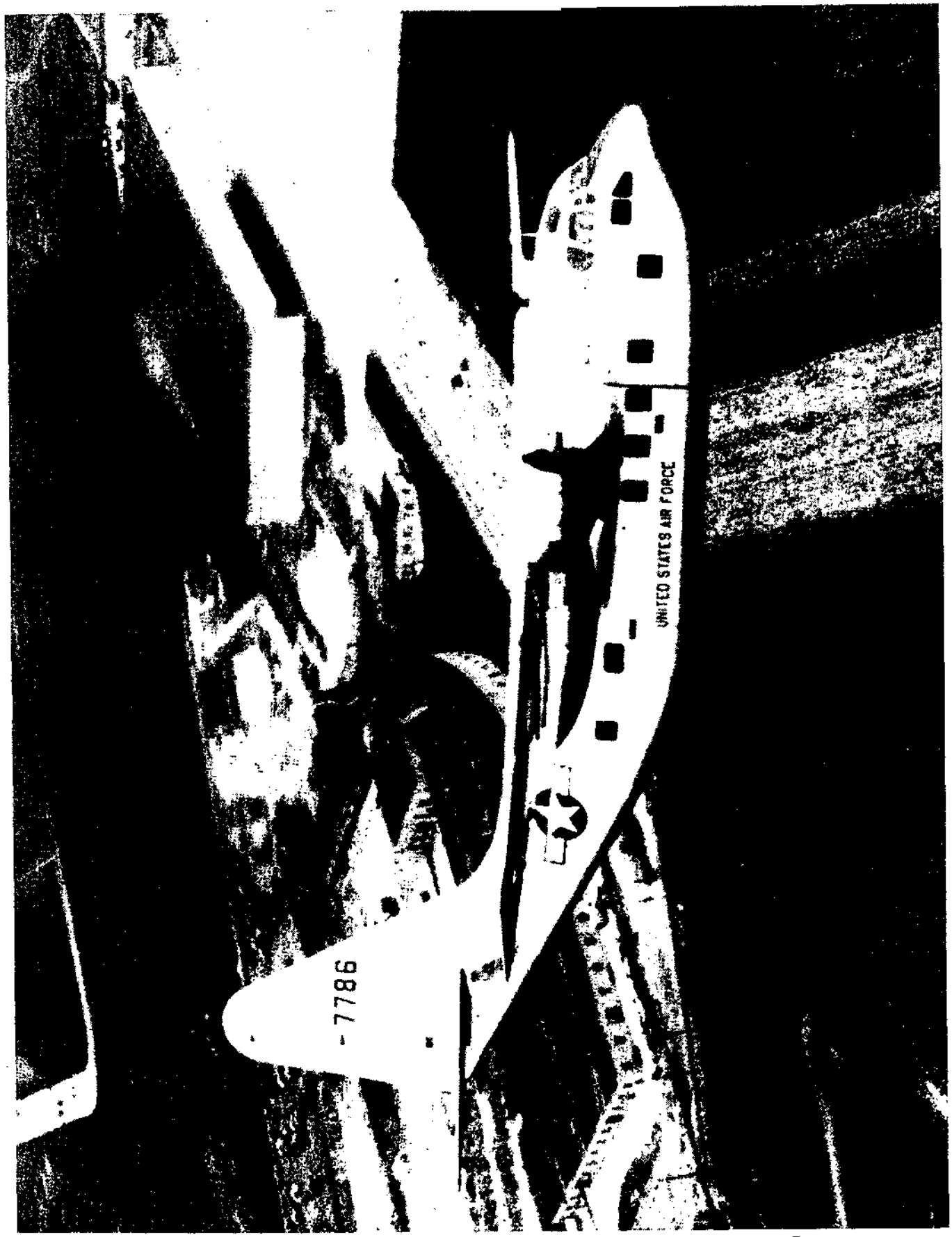


The C–123 is a high-wing, twin-engined transport which was designed to transport combat personnel and engineering equipment for airborne assault troops into small unprepared fields. Twin engines are mounted in special nacelles which can be quickly disconnected from the wings permitting rapid engine change. The wings are narrow with slight forward taper. A high mounted tail assembly is fitted on the upswept after end of the fuselage. Unlike its predecessor the C–122, the C–123 has a fully retractable tricycle landing gear. A power-operated ramp provides for rear loading of heavy wheeled vehicles. The ramp can be adjusted to any truck-bed height for loading.

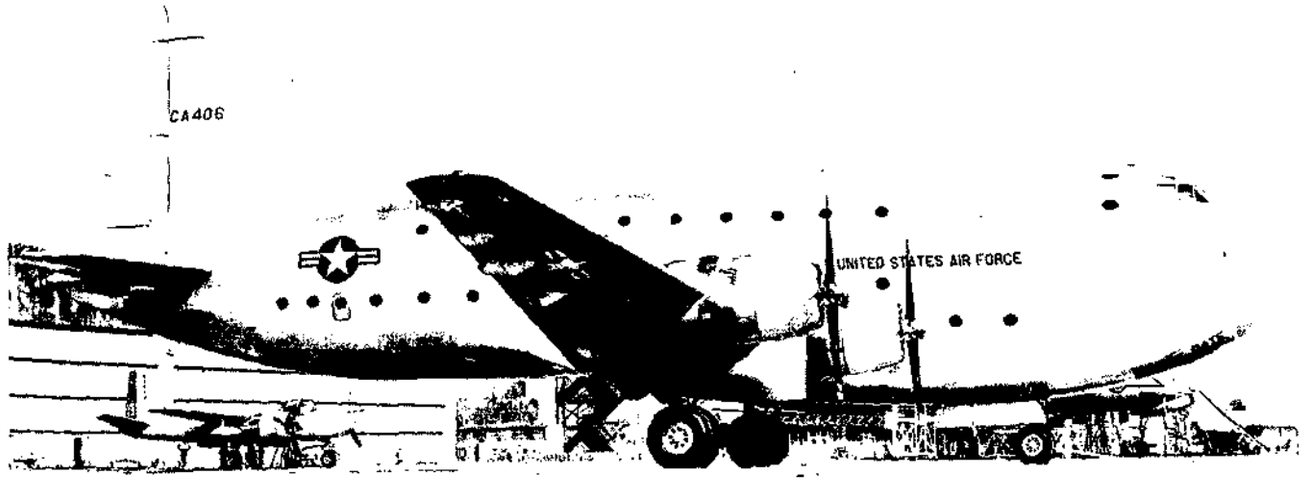
SPAN: 110′0″. **LENGTH: 77′1″.**
ENGINE: R–2800 83/2,100 h. p.
SPEED: 233 knots/16,000 ft.
RANGE: 650 nautical miles/134 knots.
ARMAMENT: None.

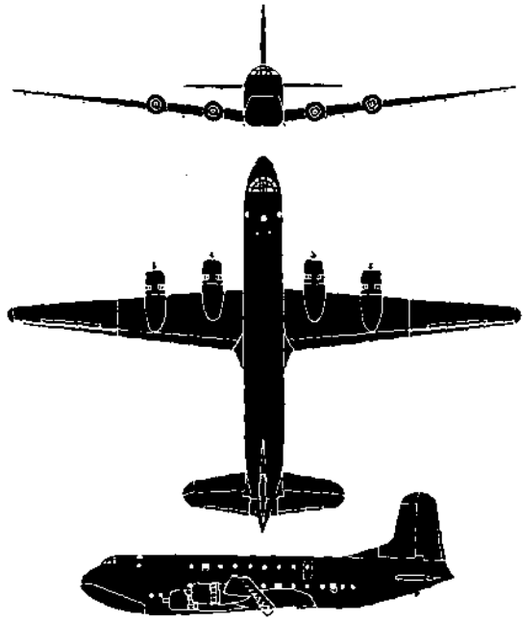





UNITED STATES AIR FORCE
-7786

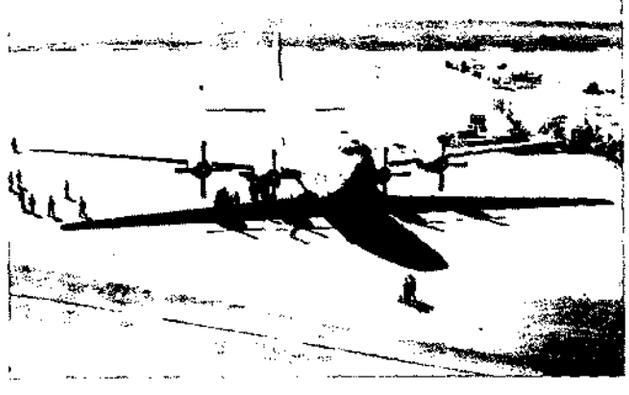
DOUGLAS C-124 GLOBEMASTER II





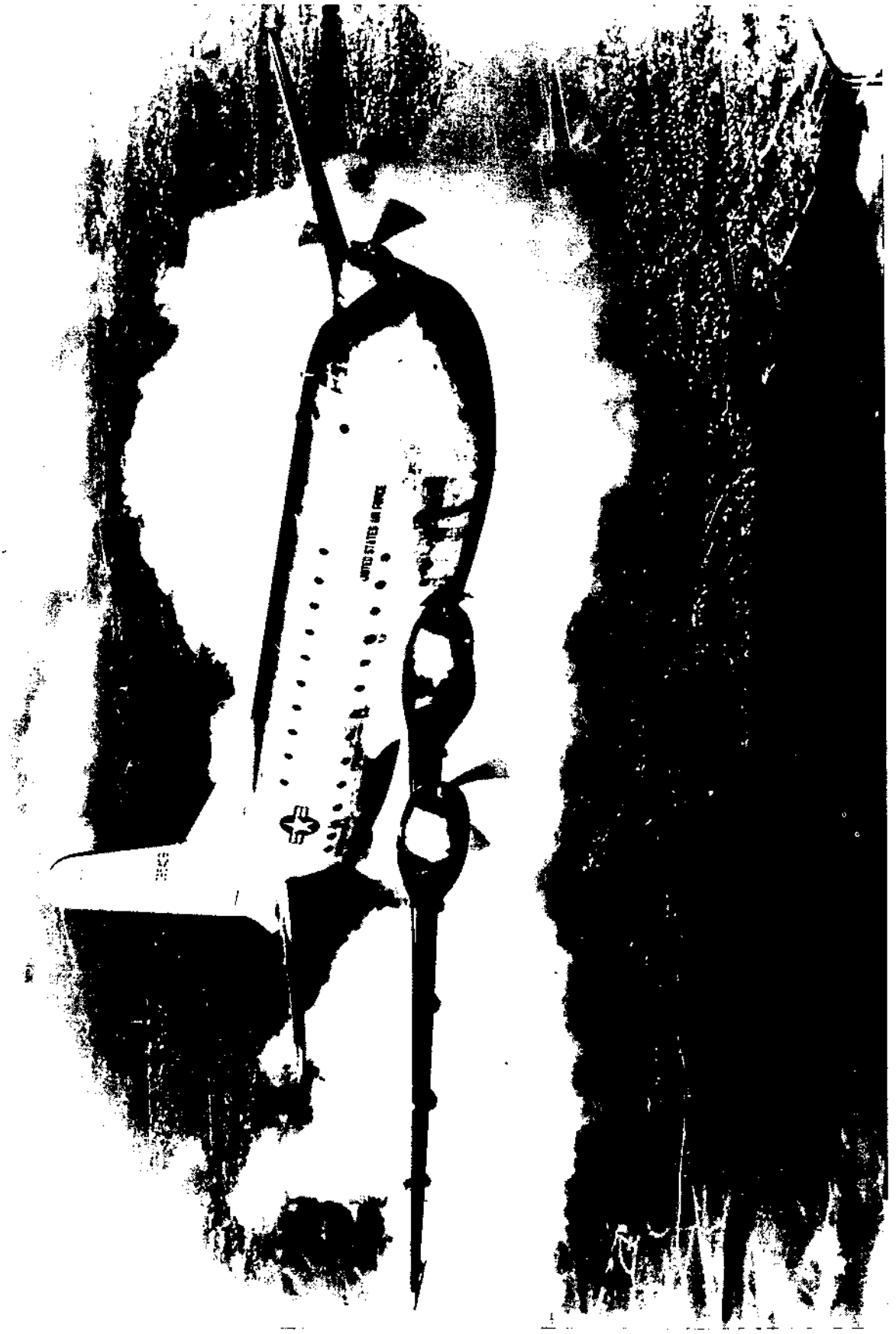
The Globemaster II is a low-wing, four-engined heavy transport, which was designed to transport troops, general cargo, and very heavy equipment such as tanks, field guns, and fully loaded trucks. Huge clam-shell doors in the nose can be opened and a ramp lowered which will permit wheeled objects to drive or be rolled aboard. To load static cargo, an electrically operated elevator can be lowered to the ground from the center of the cargo section. By quick conversion into a double-deck personnel carrier, the Globemaster II will accommodate 200 troops and their field equipment. Recognition features include a thick fuselage profile forward of the wing's leading edge tapering to a rounded section midway and aft to a conical tail piece.

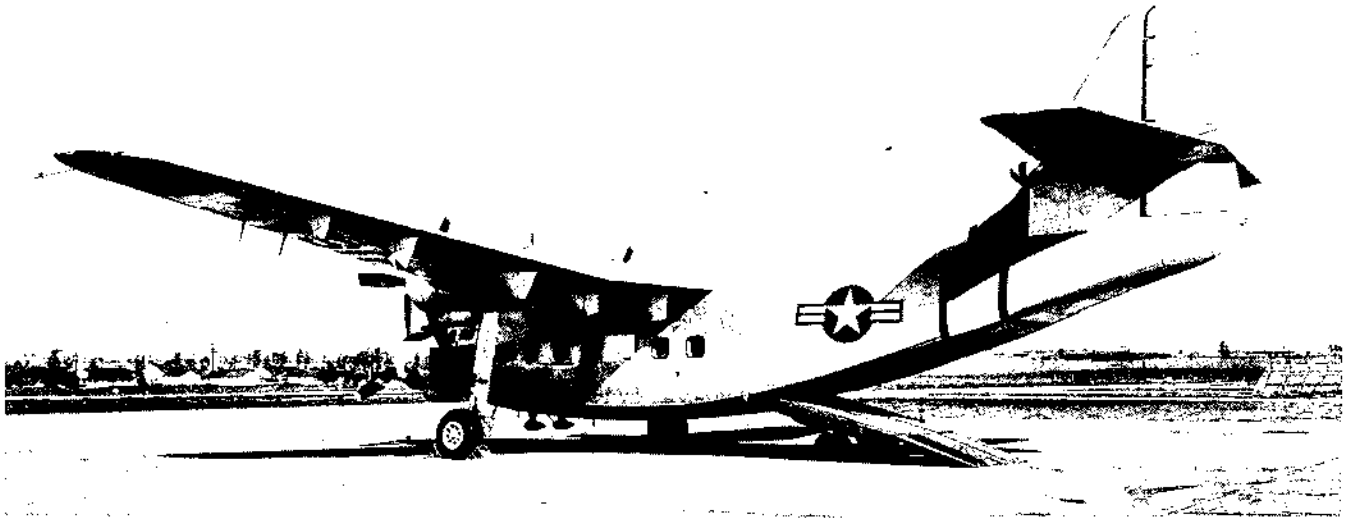
SPAN: 173′4″. **LENGTH: 127′1″.**
ENGINE: R-4360/3,250 h. p.
SPEED: 282 knots/15,000 ft.
RANGE: 3,000 nautical miles/172 knots.
ARMAMENT: None.

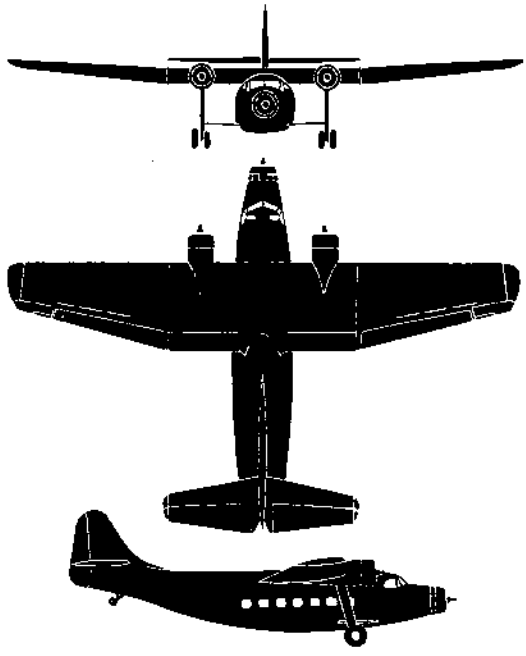


USA
JUNE 1950

FM 30-30
OPNAV 32P-1200
AFM 50-40A

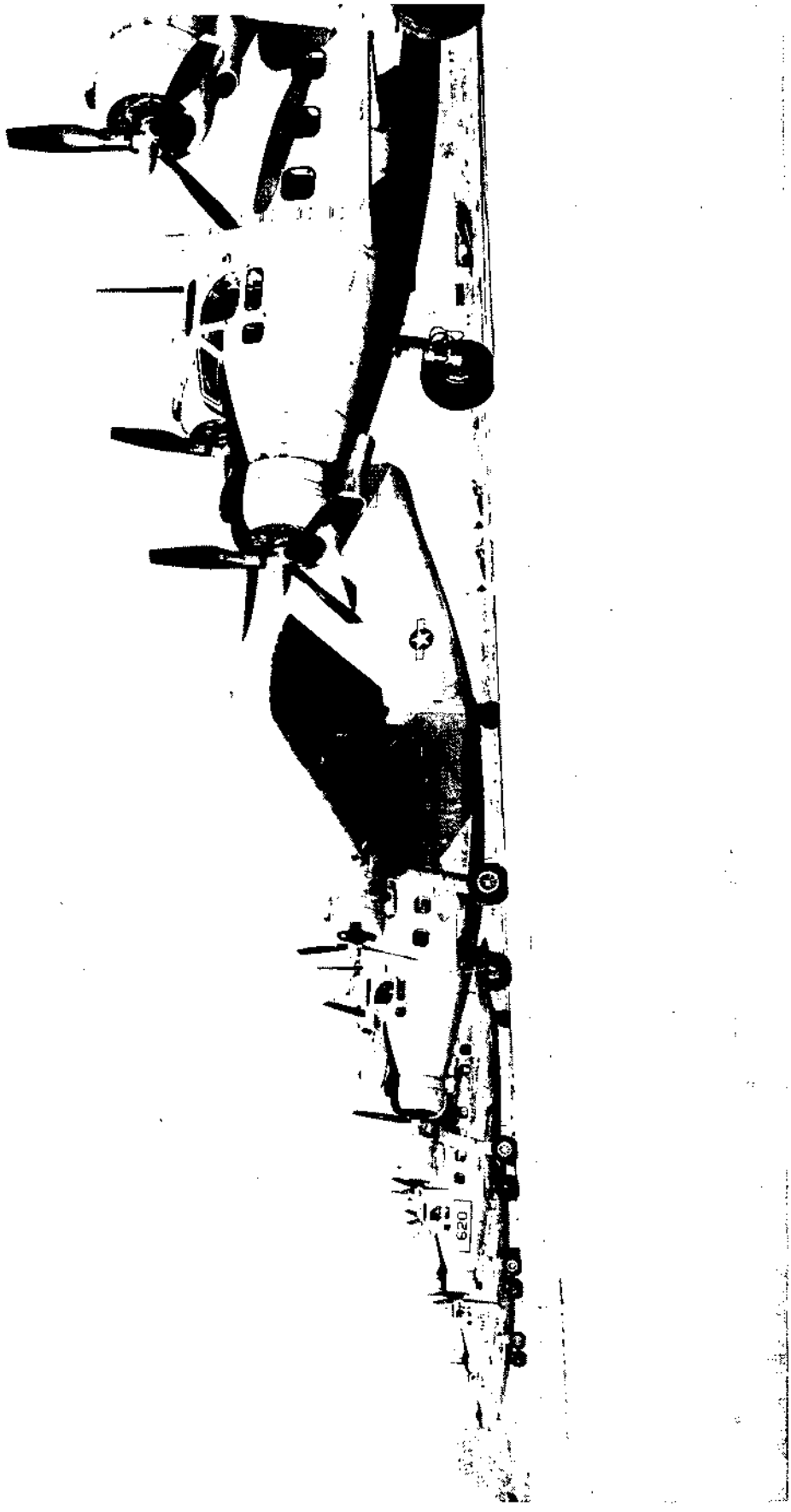


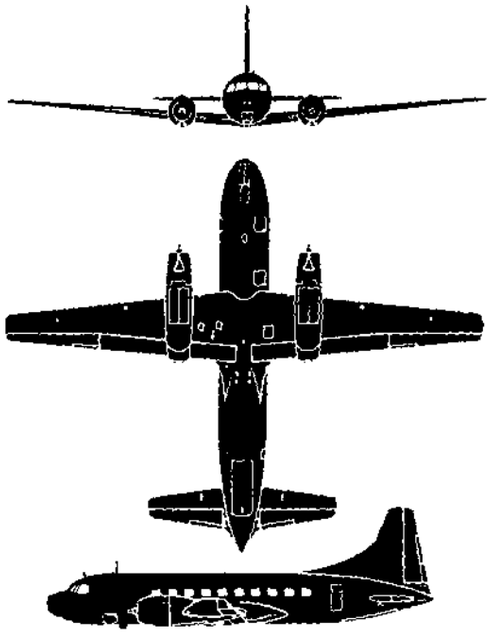




The Raider is a high-wing, three-engined transport which was designed to operate from improvised airstrips and to replace the glider as an airborne assault vehicle. In addition, it is to be used as an Arctic Rescue aircraft. The fuselage of the C–125 is near rectangular in cross-section to give maximum cargo space. When the rear fuselage has been raised by the hydraulic jack, a part of the tail wheel assembly, an under-fuselage ramp will permit the loading of wheeled or tracked vehicles as well as cargo. A two wheel type landing gear is fixed and supported by long struts. The wing has a straight leading edge to rounded tips while the trailing edge is straight in the fuselage area to out board of the engines, then it tapers sharply.

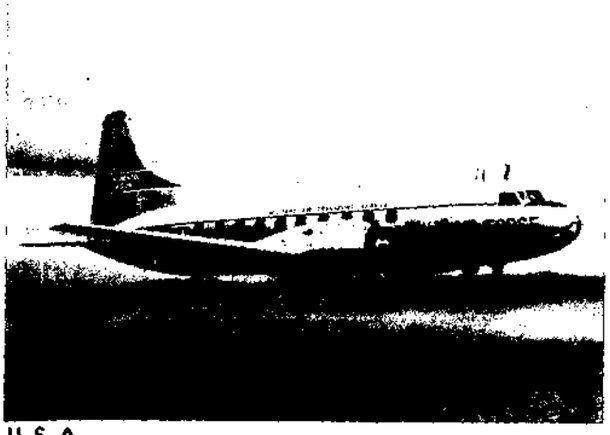
SPAN: 86′5″. **LENGTH: 67′1″.**
ENGINE: R–1820/1,200 h. p.
SPEED: 177 knots/5,200 ft.
RANGE: 1,000 nautical miles/133 knots.
ARMAMENT: None.

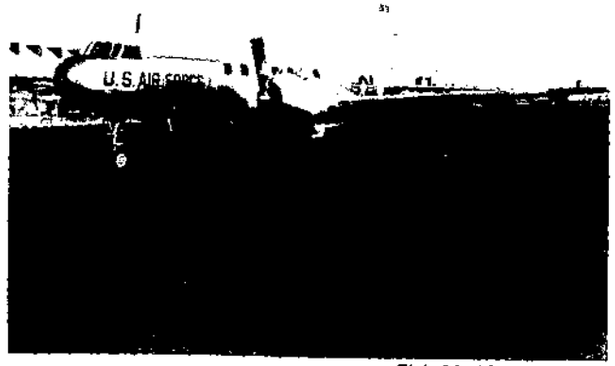




The C–131/R4Y Samaritan is a military transport version of the twin-engined Convair-Liner. There are two versions, the C–131A based on the Convair-Liner 240, and the C–131C based on the Convair-Liner 340. The T–29 is an aircrew trainer version of the 240. Although based on the 240, the 340 is largely a new aircraft with greater wing span, a longer fuselage, more powerful engines, and heavier take-off weight. The extra fuselage length permits the addition of four extra seats. Both the Convair 240 and 340 are flown by air lines the world over. The Samaritan version can carry as many as 40 passengers or 27 stretcher cases. A hydraulically operated loading door facilitates its adaptability for cargo duties. The take-off weight of the A version is 43,000 pounds while the C version is 47,000 pounds.

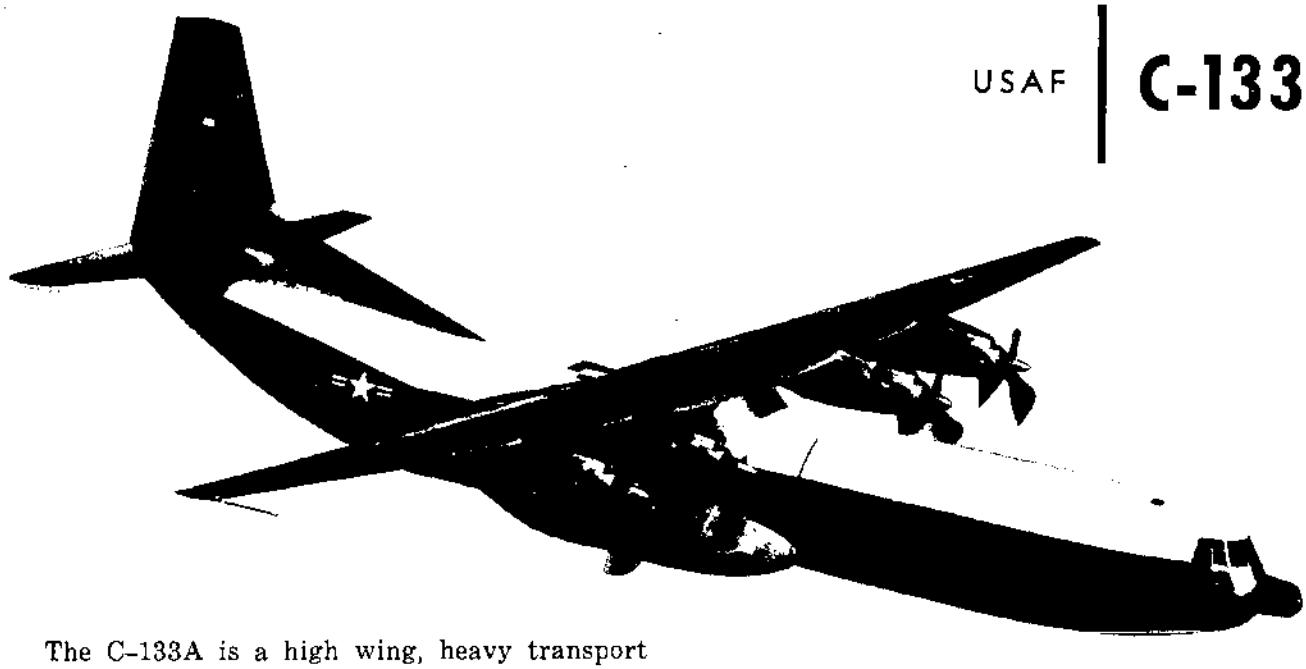
SPAN: 91′9″ (A)
105′4″ (C) LENGTH: 74′8″ (A); 79′2″ (C)
ENGINE: 2/P&W R–2800/2,500 h. p. each (A).
MAX. SPEED: 285 knots/16,000 ft. (A).
RANGE: 2,285 nautical miles/170 knots.
ARMAMENT: None.






Convair-Liner 340

USAF | **C-133A**



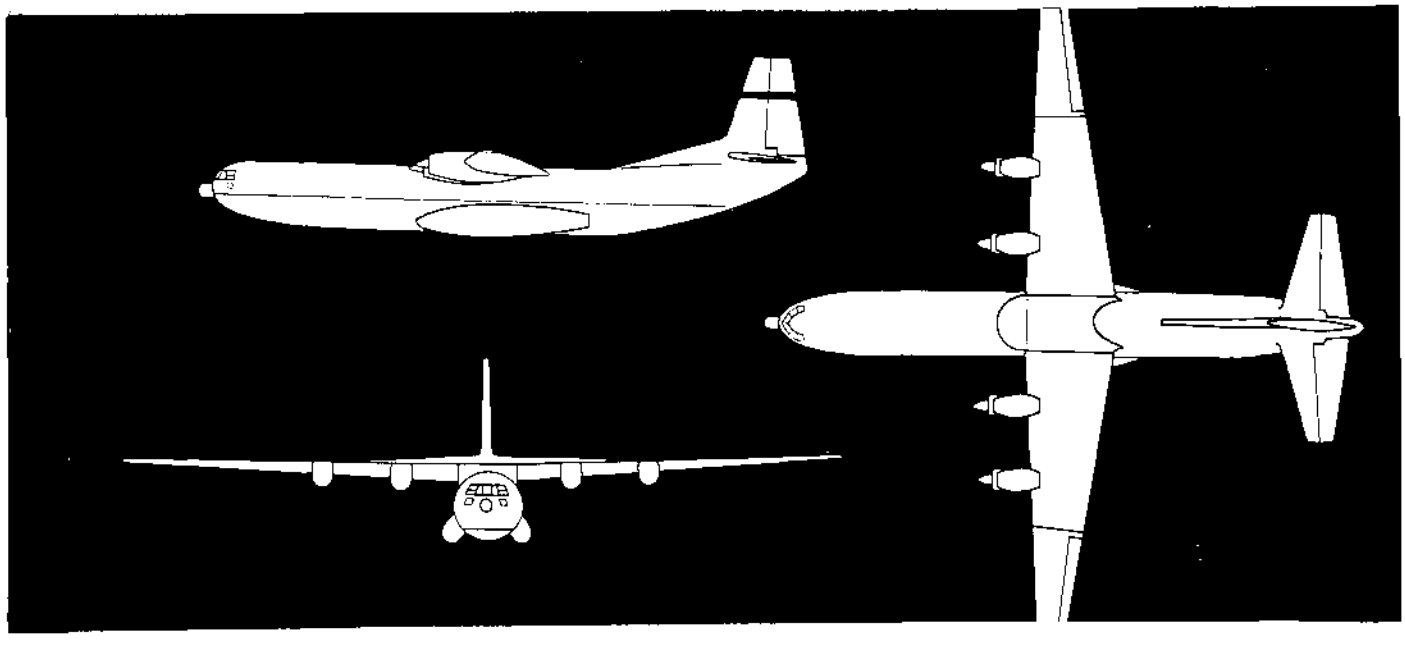
The C-133A is a high wing, heavy transport that can airlift more than 80,000 pounds of pay load. Its recognition features include a high, straight wing with four underslung engine nacelles; a conventional tail group distinguished by the fillet-ridge extending from fin over latter third of the fuselage; two landing gear pods on the outside of the lower fuselage; and a long fuselage that begins with a radar thumb-nose and ends with an upswept aft section. The main landing gear consists of four sets of two wheels designed so the fore and aft sets of wheels can be retracted independently.

SPAN: 179'8" LENGTH: 148'2" CREW: 4
ENGINES: 4/P&W T34-P-3 Turboprops/6,000 hp. each
DESIGN GROSS WEIGHT: 255,000 lbs.
FUEL CAPACITY: Approx. 16,800 gallons

DOUGLAS

TURBO-PROP

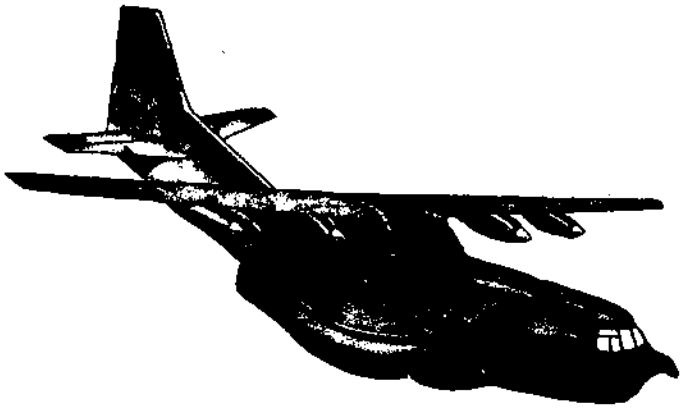
TRANSPORT



U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

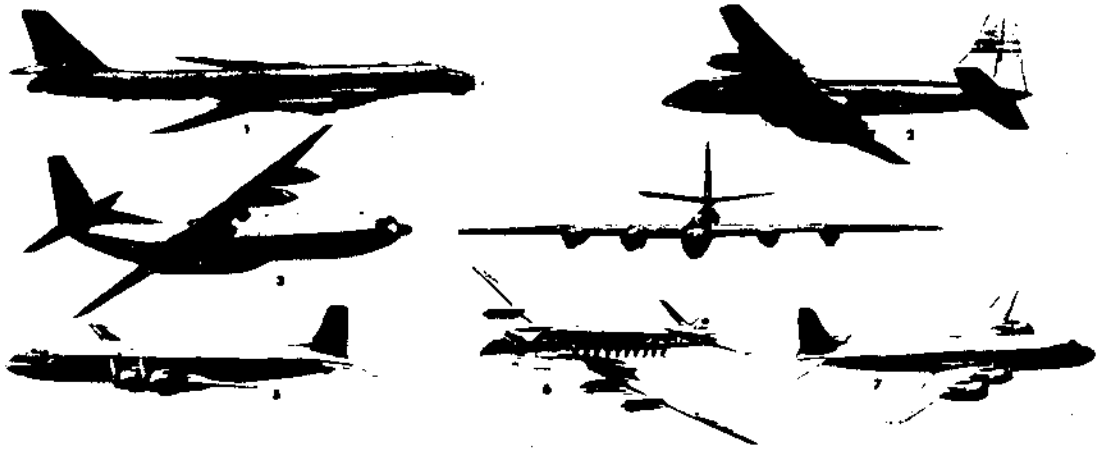
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

C-133A
TRANSPORT | USAF



ACCENTED DRAWING

Miscellaneous views of C-133A



Identify the aircraft shown above; correct answers are below

1. BEAR
2. BRITANNIA
3. C-133A
4. BEAR
5. DC-7
6. VISCOUNT
7. DC-7

USAF

KC-135
STRATOTANKER

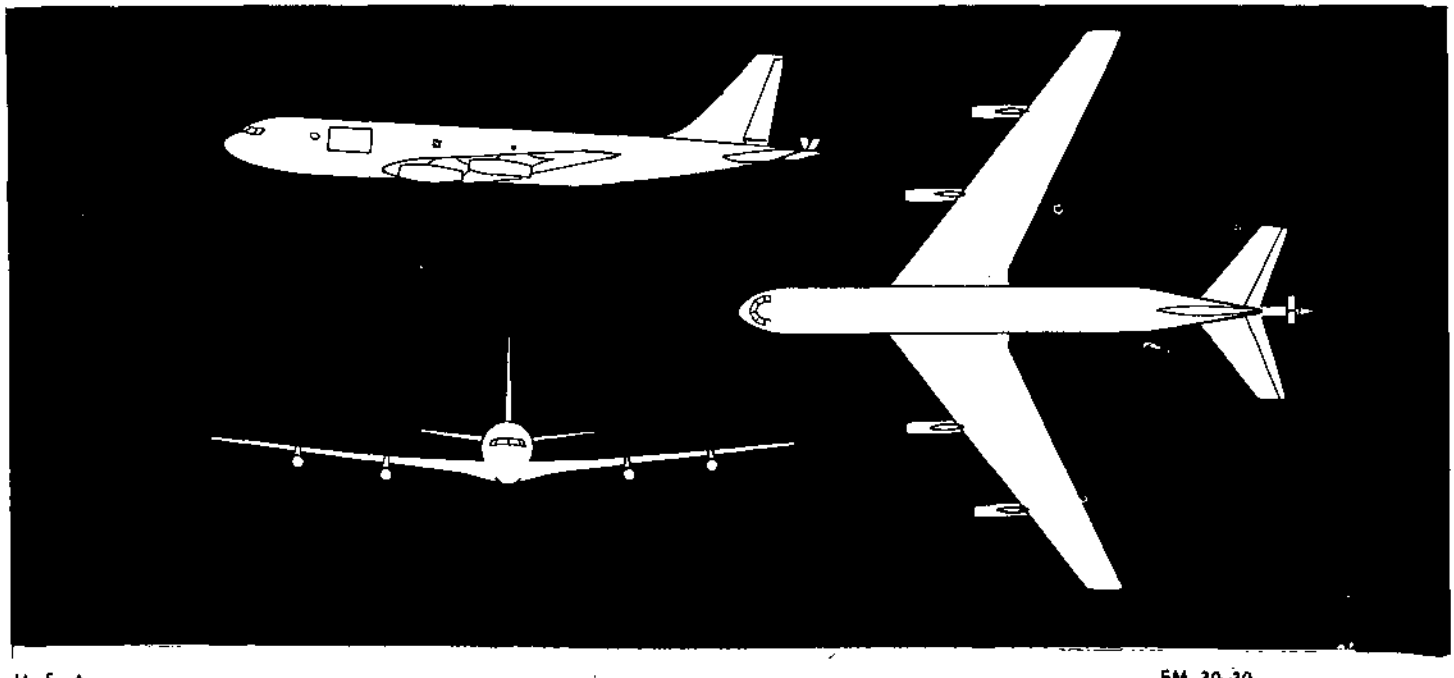
The KC–135 is a four-jet, swept-wing tanker-transport type aircraft. It has a low wing design with jet engine pods extending ahead of and beneath the wing. Recognition features include conventional tail surfaces, low-mounted swept wing, underslung strut-supported engine pods, and sharply tapered tail fuselage section. The Stratotanker is equipped with a tricycle landing gear, the main gear being four-wheel "trucks".
SPAN: 130′ LENGTH: 128′
MAXIMUM SPEED: Over 500 knots
ENGINES: 4/J57-P&W/10,000 lbs. thrust
SERVICE CEILING: Over 42,000 ft.

BOEING

FOUR-JET

TANKER-

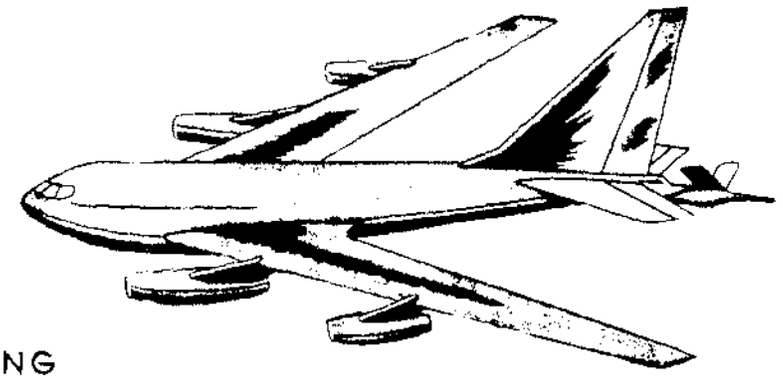
TRANSPORT



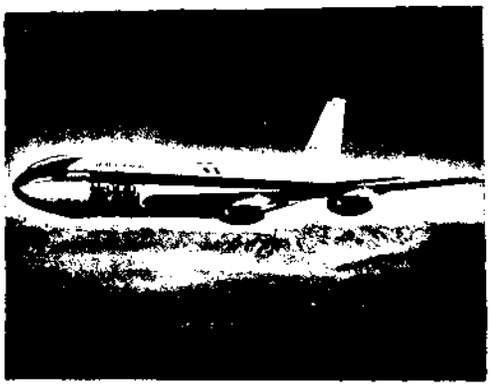
U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

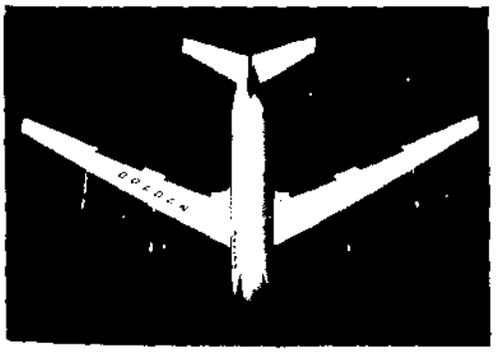
FM 30-30
OPNAV 32P-1200/c
AFM 50-40G

KC-135
STRATOTANKER | USAF

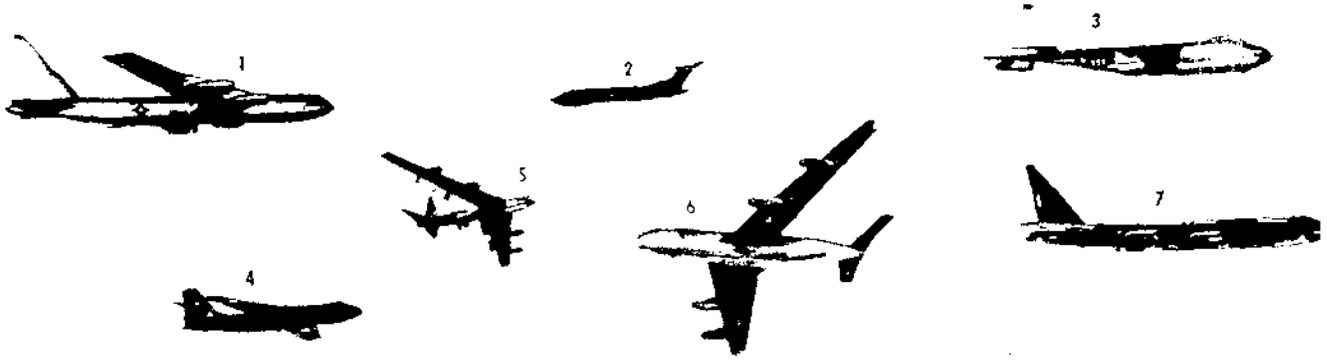


ACCENTED DRAWING



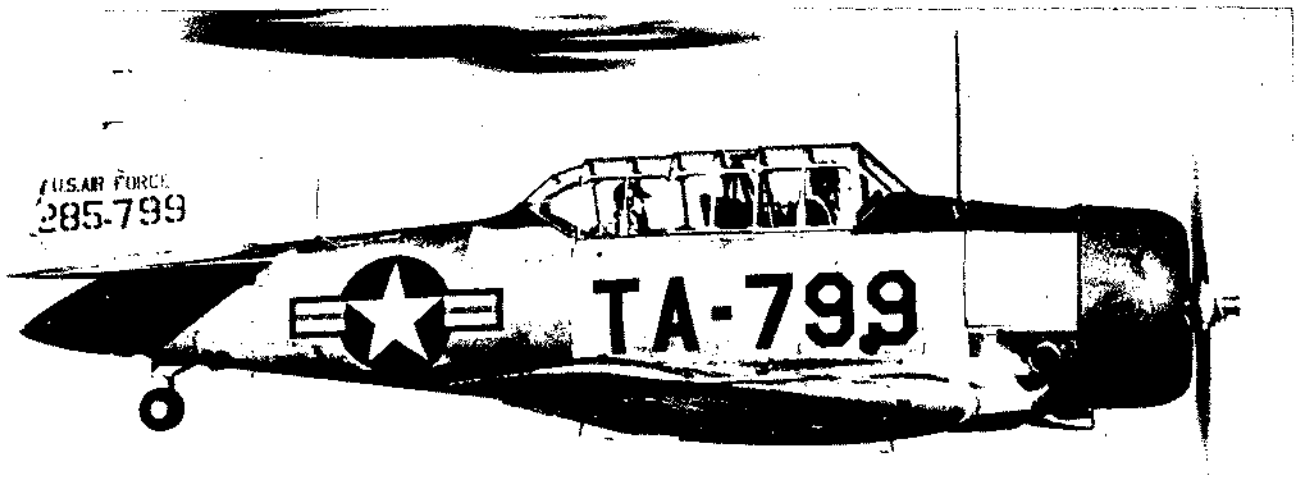


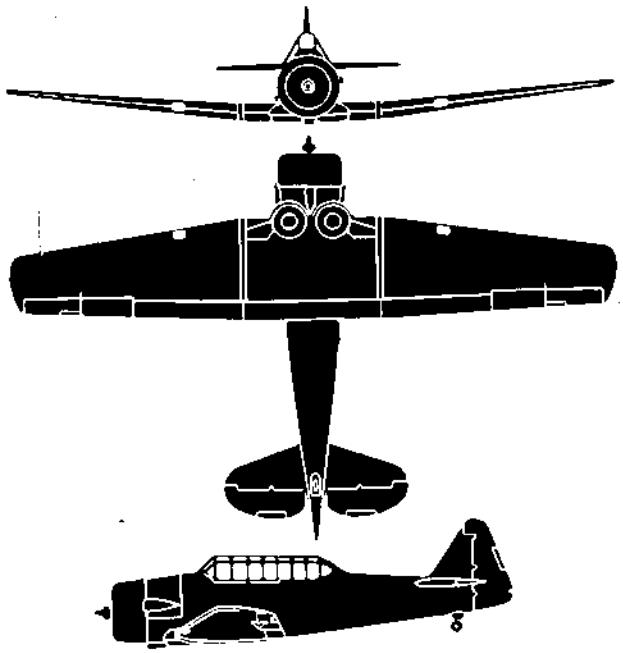
Miscellaneous views of the KC-135 (Boeing 707)



Identify the aircraft shown above; correct answers are below

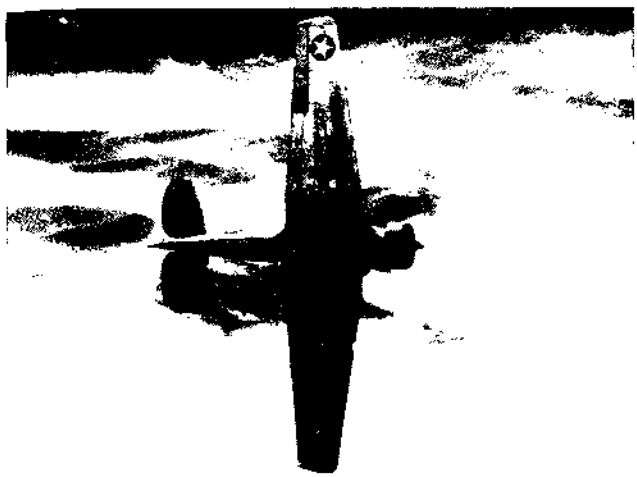
1. B–52
2. VICTOR
3. B–47
4. VALIANT
5. B–52
6. BOEING 707
7. B–52

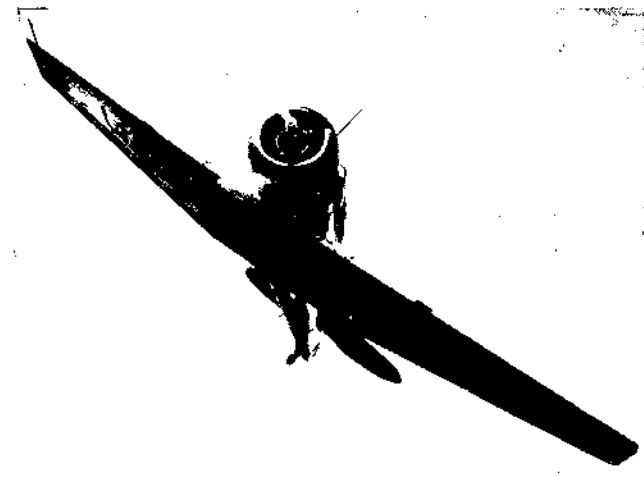


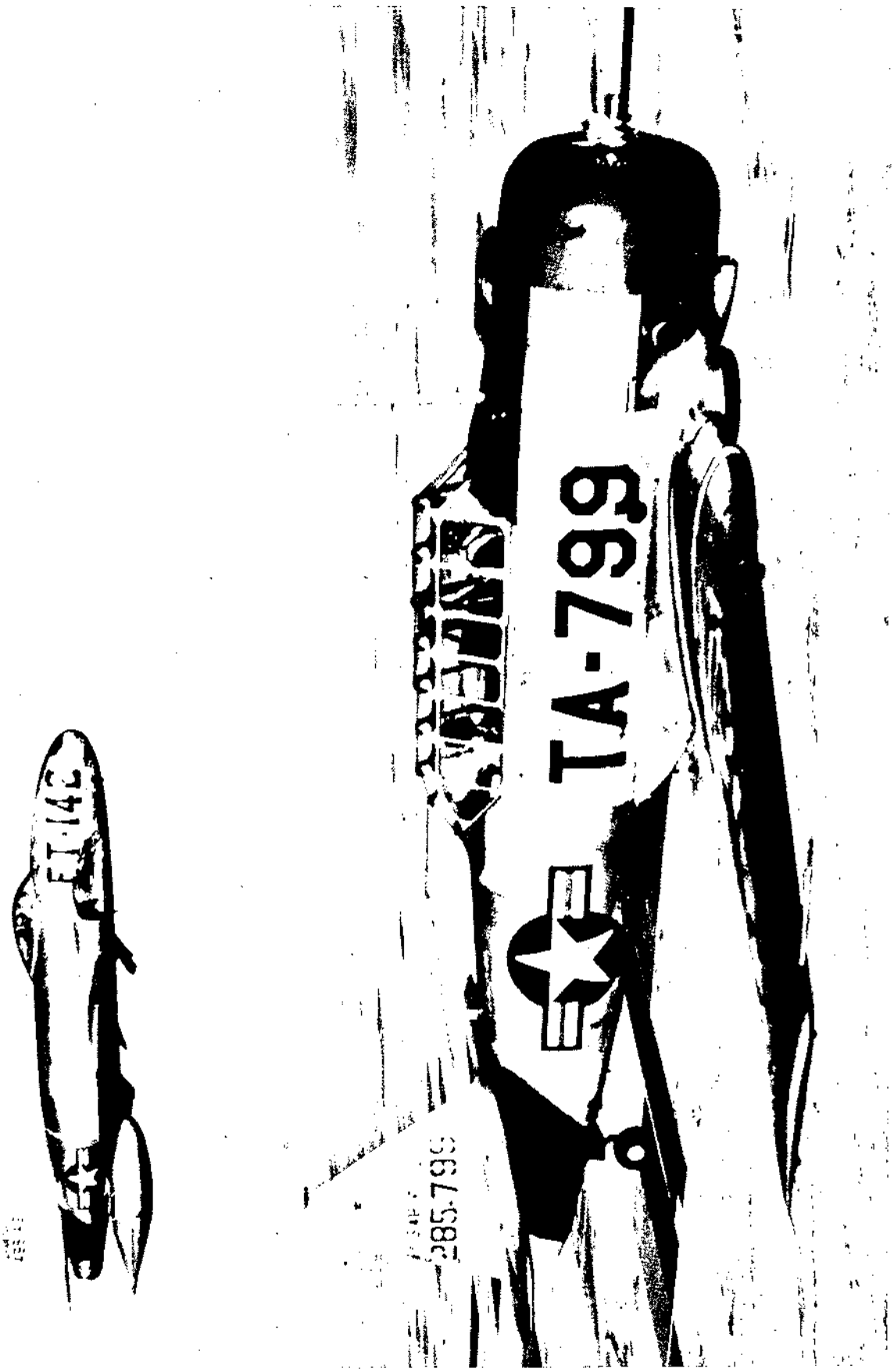


The venerable Texan continues to play a vital role in pilot training throughout many parts of the world. In addition, it is being used in Korea for multiple purposes including spotting and strafing enemy troops. This sturdy aircraft is powered by a single radial engine, and has a maximum take-off weight of 5,600 pounds. It is of all-metal construction with a cantilever wing and a retractable landing gear. The outer section of its low wing has marked dihedral with pronounced taper on the leading edge. With squarish wing tips and high triangular fin and rudder it is easy to spot. The Texan was manufactured in Australia and called the Wirraway. In England it is called the Harvard. The T–6G is a modernized Texan.

SPAN: 42'0". **LENGTH:** 29'6".
ENGINE: R–1340–AN/600 h. p.
MAX. SPEED: 184 knots/3,900 ft.
RANGE: 655 nautical miles/125 knots.
ARMAMENT: 2 x .30 cal.; 4 x 100-lb. bombs.

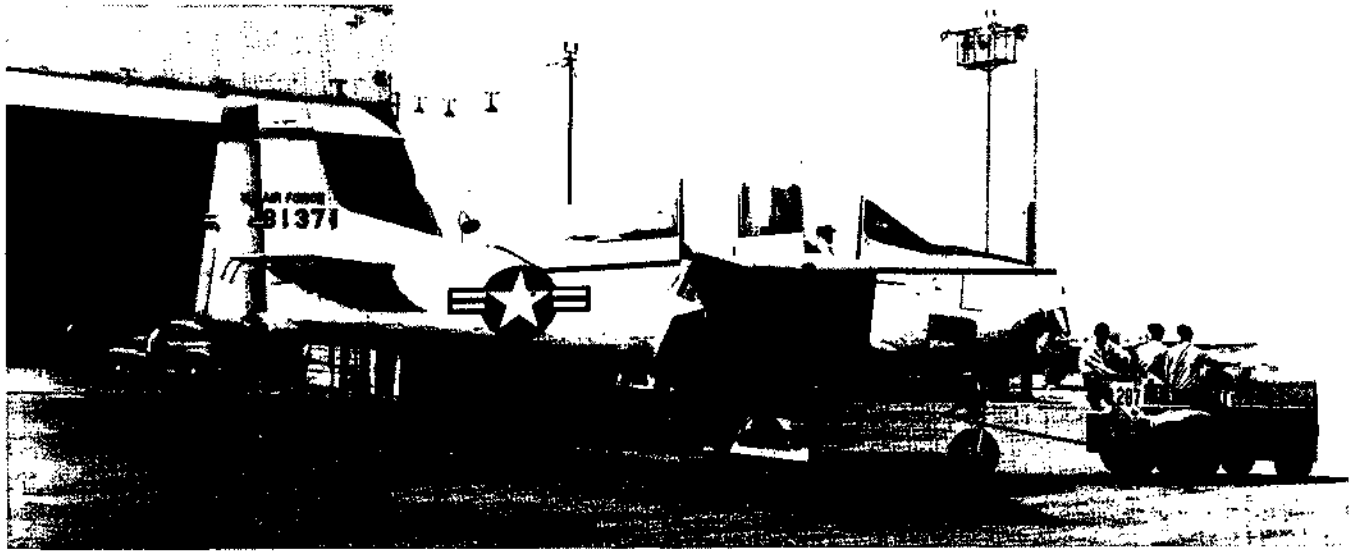


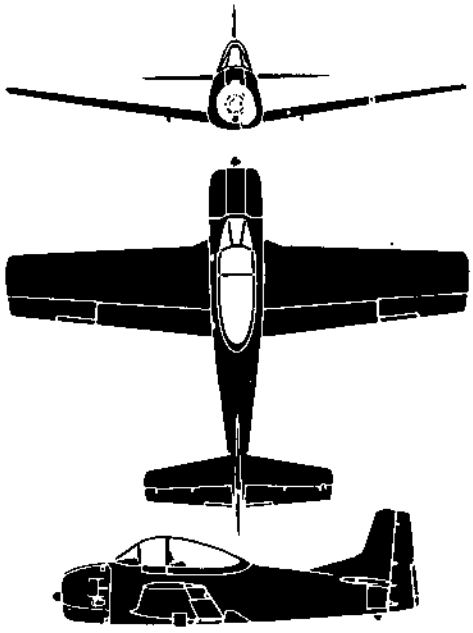




U.S.A.
SUPPLEMENT NO. 2
JUNE 1951

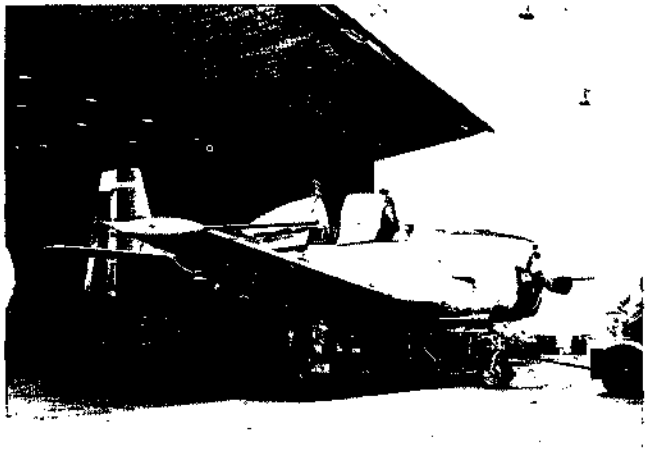
FM 30-30
OPNAV 32P-1200/2
AFM 50-40B

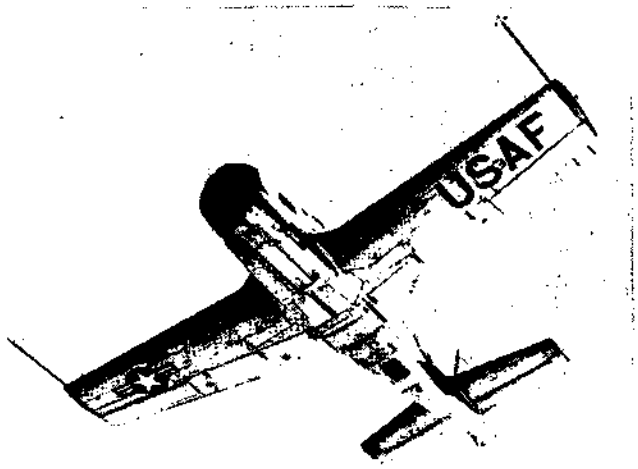


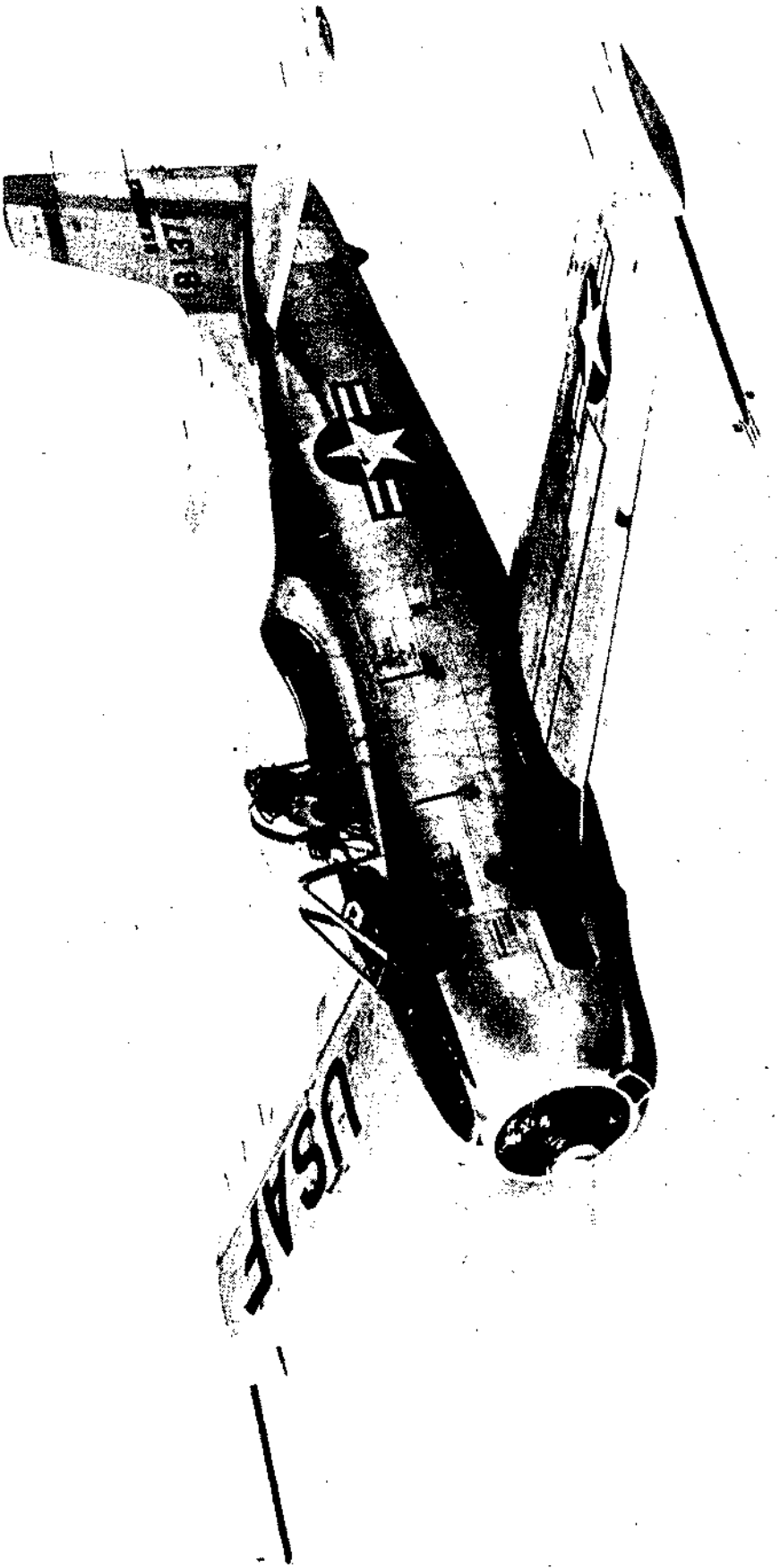


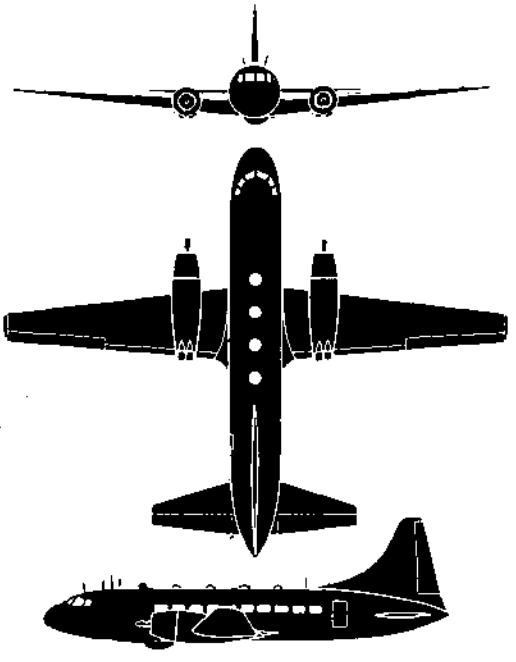
The T–28 is a single-engine, low-wing monoplane, designed to replace the former Air Force advanced trainer, the T–6 Texan (Navy SNJ). Changes in Air Force pilot training methods since the war have eliminated what used to be known as primary training. Instead, cadets begin training in the Texan, a basic trainer. After advanced training in the T–28, they are trained in tactical type aircraft such as the F–80 and B–25. The T–28 is the first U. S. military trainer to be fitted with a tricycle landing gear. Seating arrangement for the pilot and student is tandem under a continuous canopy. Flight controls are dual and either occupant can steer the nose wheel.

SPAN: 40′10″. **LENGTH: 32′4″.**
ENGINE: R–1300/800 h. p.
SPEED: 250 knots/5,900 ft.
RANGE: 705 nautical miles/139 knots.
ARMAMENT: 2 x .50 cal.; or 2 x 100-lb. bombs; or 6 x 2.25 rockets.



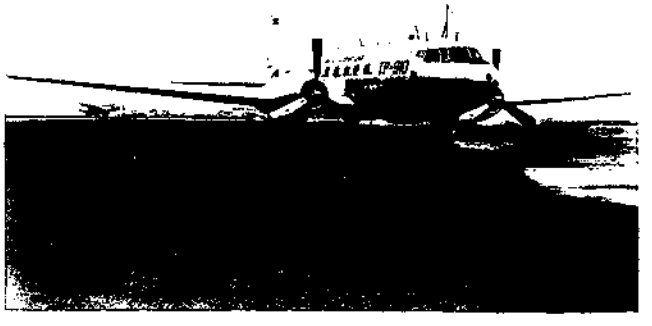






The T–29 is a twin-engined, low-wing, transport type aircraft adapted for the training of Air Force student navigators and radar operators. Arrangement of the unpressurized cabin include stations for these trainees together with necessary equipment. This aircraft is a version of the Convair-Liner used on airlines the world over. In the military version four dorsal astrodomes and a ventral radome have been added which change the contours of the fuselage. The T–29 has probably the world's largest fin-fairing and, as is so often the case, the fin and rudder shape provides the best single signpost to identity. Tapering narrow wings are dwarfed by the length of the nose and the overhanging engines. A tricycle landing gear is fitted.

SPAN: 91'9". **LENGTH: 74'0".**
ENGINE: R–2800/2,400 h. p.
SPEED: 270 knots/26,100 ft.
RANGE: 1,135 nautical miles/187 knots.
ARMAMENT: None.

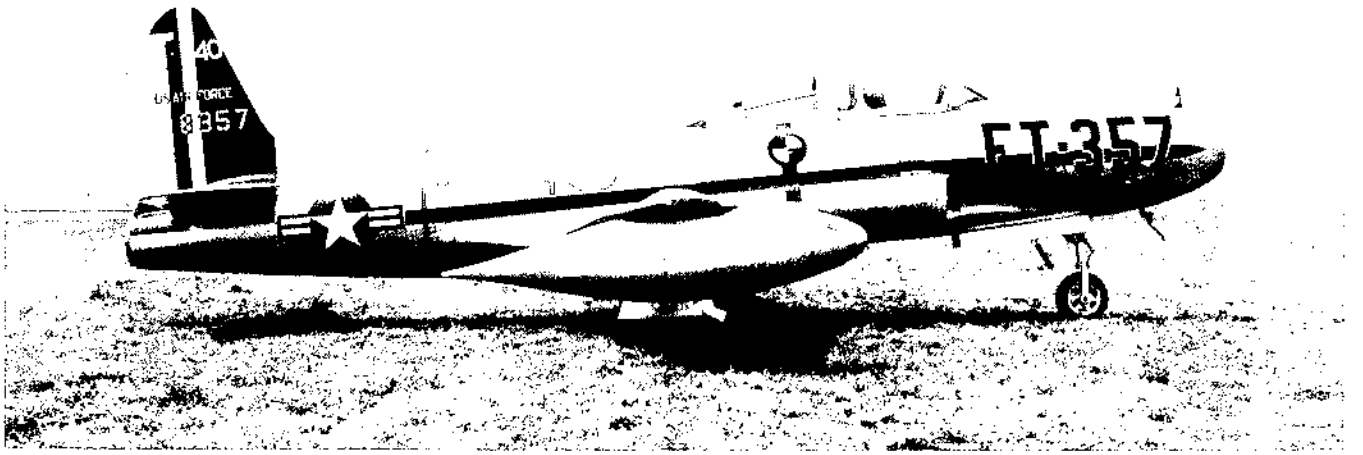


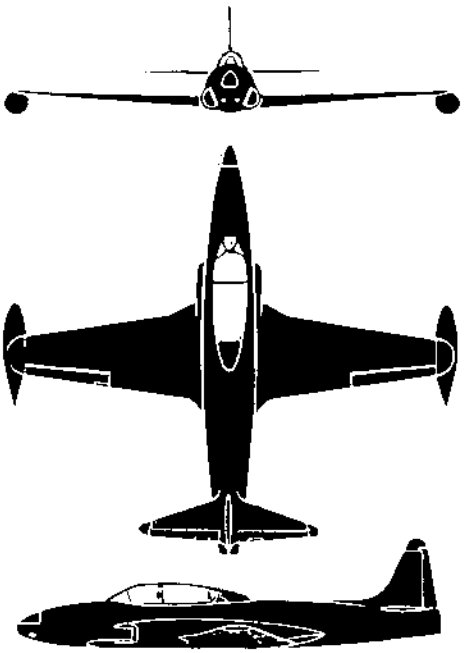
USA
JUNE 1950

FM 30-30
OPNAV 32P-1200
AFM 50-40A

803857 O—50——5

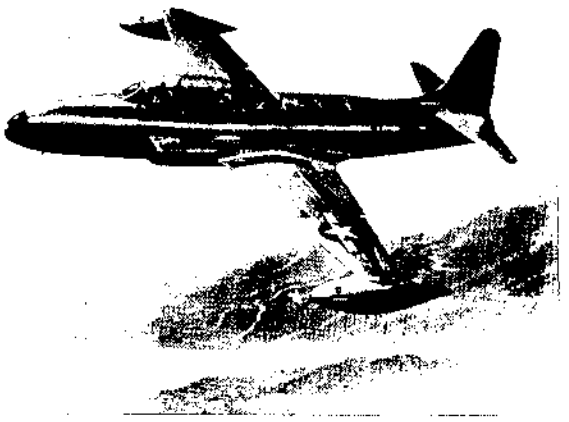

TP-910
691

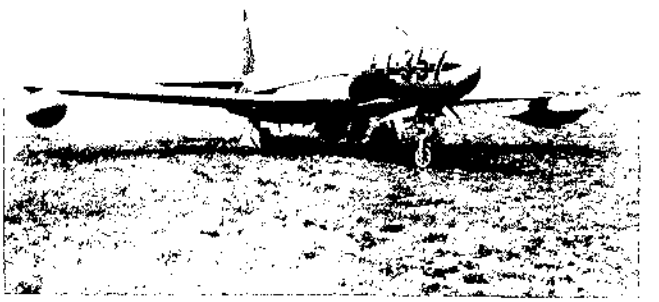




The T–33 is a two-place trainer version of the F–80 Shooting Star modified for the mission of transition and training of pilots for jet type fighter aircraft. This aircraft basically resembles the F–94 and F–97 also versions of the Shooting Star. The T–33 does not have an after burner as does the F–94 and F–97. Wings and tail surfaces are the same as those of the F–80. Provisions for two jettisonable 1,000 pound thrust Rocket Assist take-off units (RATO) are incorporated in the bottom of the fuselage. The cockpit utilizes a pressurization system, "G" suit provisions and ejector seats. Navy designation of the T–33 is TO–2.

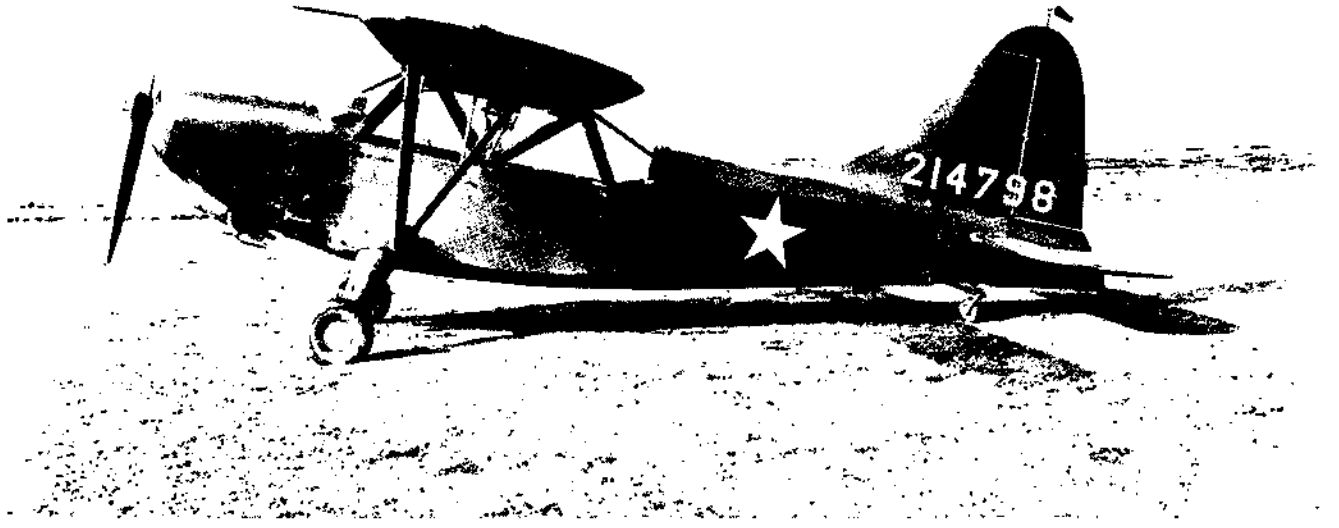
SPAN: 38′9″. **LENGTH: 37′8″.**
ENGINE: J33–A 23/5,400-lb. thrust.
SPEED: 504 knots/7,000 ft.
RANGE: 1,086 nautical miles/381 knots.
ARMAMENT: 2 x .50 cal.

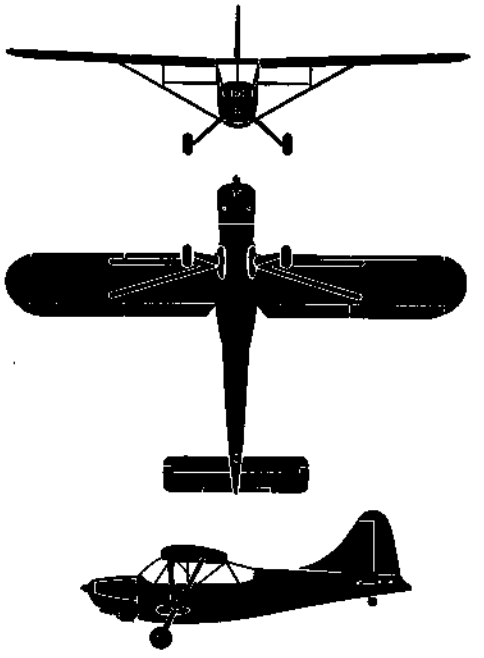




USA
JUNE 1950

FM 30-30
OPNAV 32P-1200
AFM 50-40A



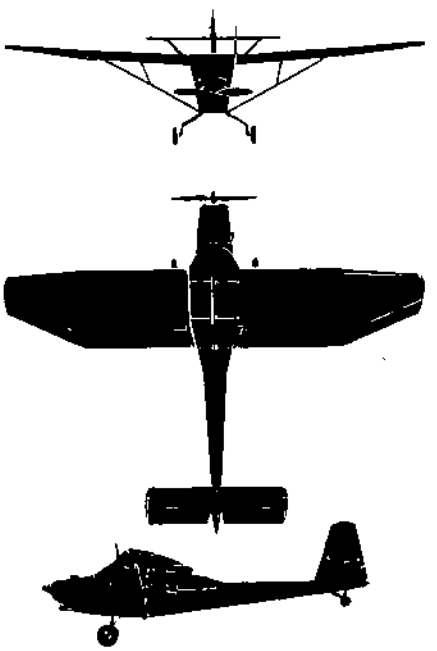


The Sentinel is a high-wing, single-engine liaison communications and reconnaissance aircraft. Power is provided by a single opposed engine in the nose. Wings are straight on leading and trailing edge to rounded wing tips. Double "V" type struts brace the wings to the fuselage. The rocker shaped fuselage tapers to a conventional straight edge rounded tip tail. Plexiglass surrounds the cockpit area and on top in the wing root area. The landing gear is fixed with no bracing. This aircraft is a development from the original Stinson 105. An adaptation of the L–5 is fitted to carry one stretcher case or light cargo up to a maximum of 2,000 pounds. This version's fuselage aft of the rear wing spar is deeper.

SPAN: 34′0″. **LENGTH: 24′1″.**
ENGINE: 0–435–11/190 h. p.
SPEED: 111 knots/sea level.
RANGE: 313 nautical miles.
ARMAMENT: None.

USA
JUNE 1950

FM 30-30
OPNAV 32P-1200
AFM 50-40A



The L–13 is a high-wing liaison monoplane powered by a single radial engine. The wings are braced to lower fuselage longerons by single steel tube struts on each side and can be folded for storage. The outer sections of the wings have a sharp taper on the trailing edge and a slightly swept-back leading edge with square tips. Tailplane is mounted halfway up the fin and is braced to the fuselage on each side. The fin and rudder, evenly tapered on leading and trailing edges, has a square top. Designed as a general liaison, observation, photographic, and ambulance aircraft with steep take-off and landing angles.

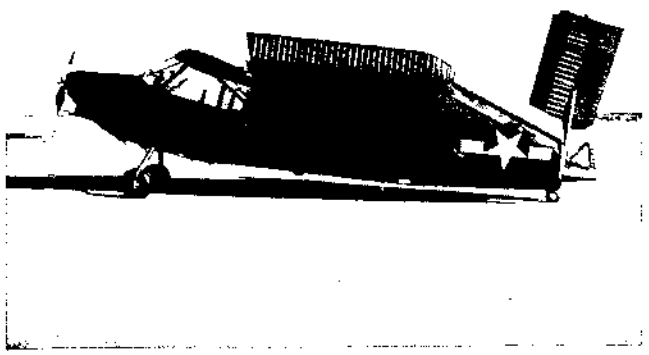
SPAN: 40′6″. **LENGTH:** 31′10″.

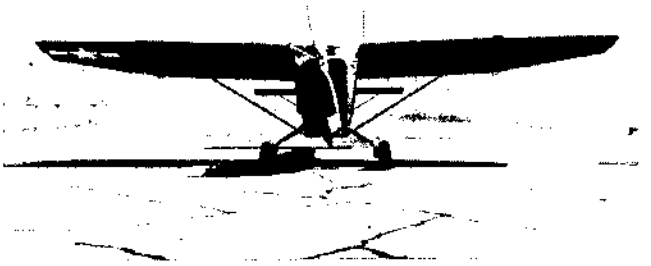
ENGINE: O–425/250 h. p.

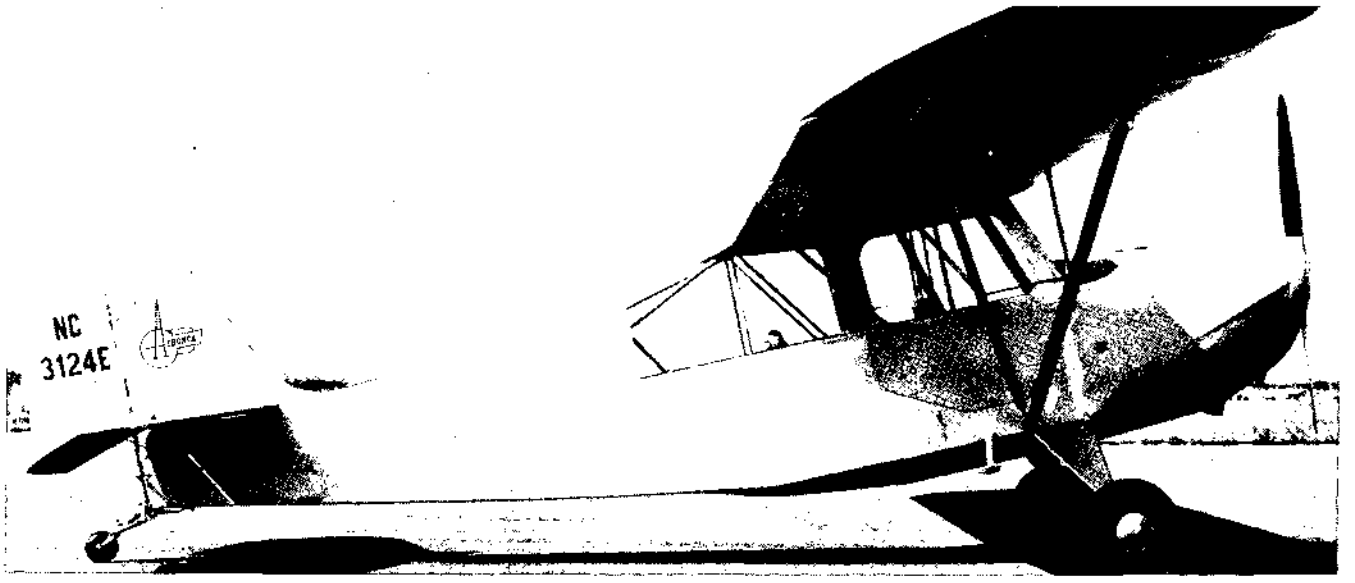
SPEED: 102 knots/sea level.

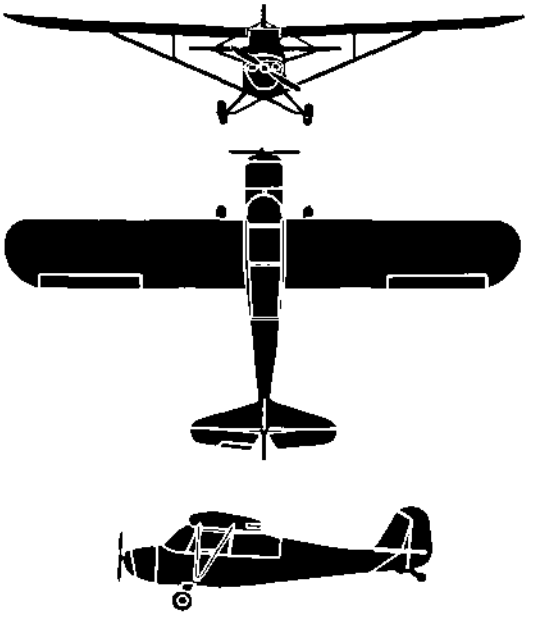
RANGE: 333 nautical miles/75 knots.

ARMAMENT: None.



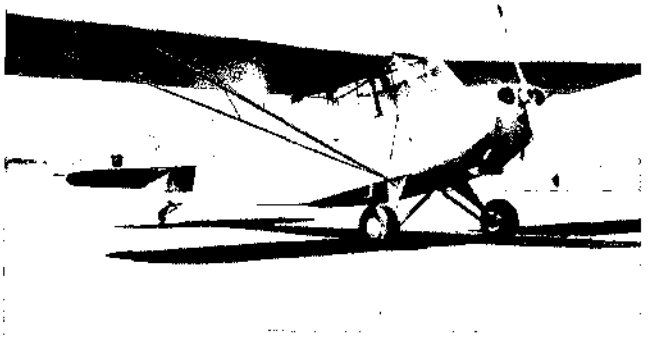


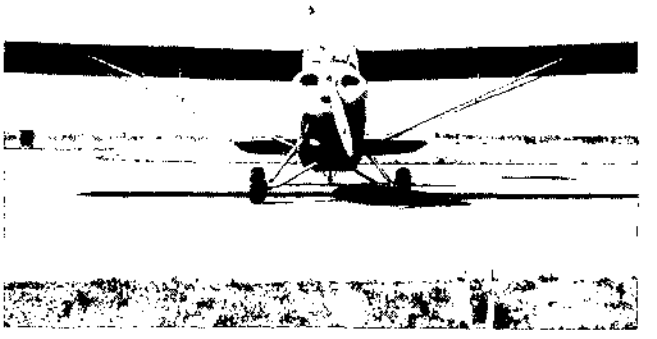


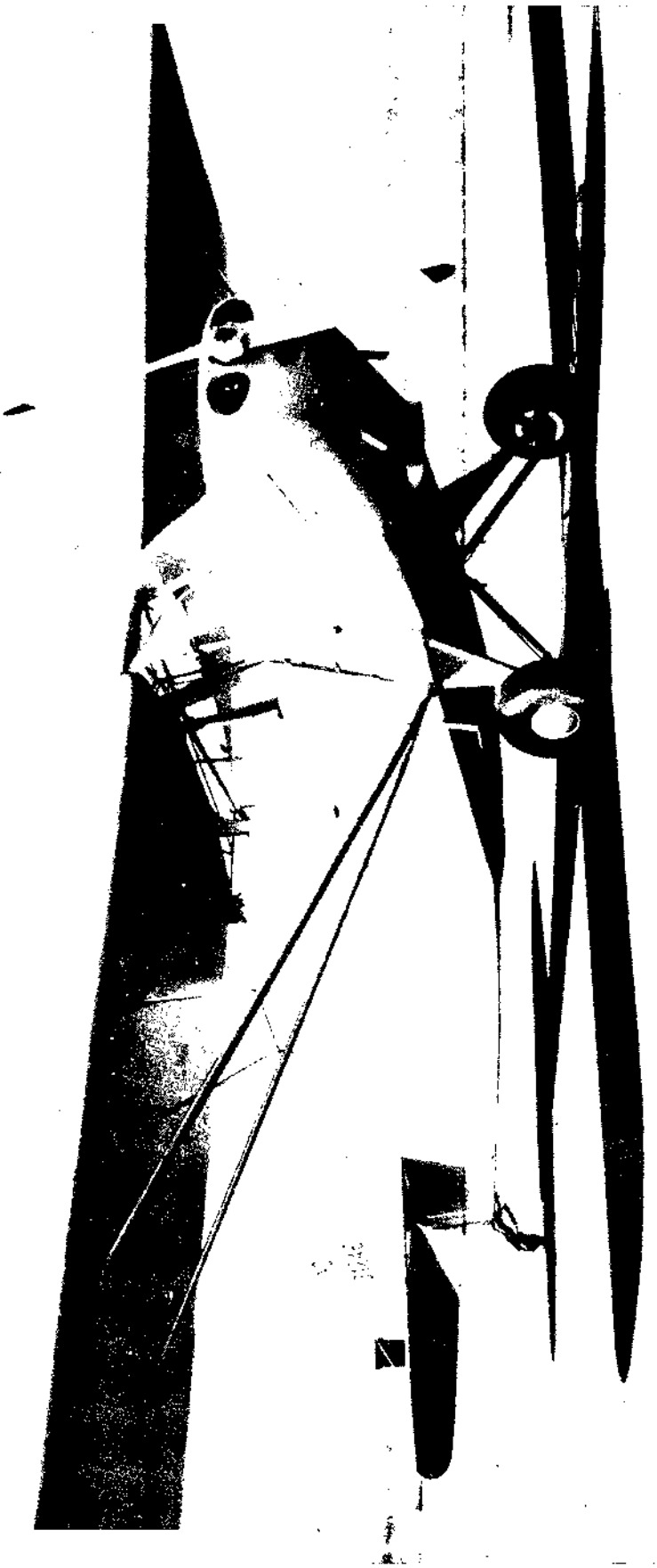


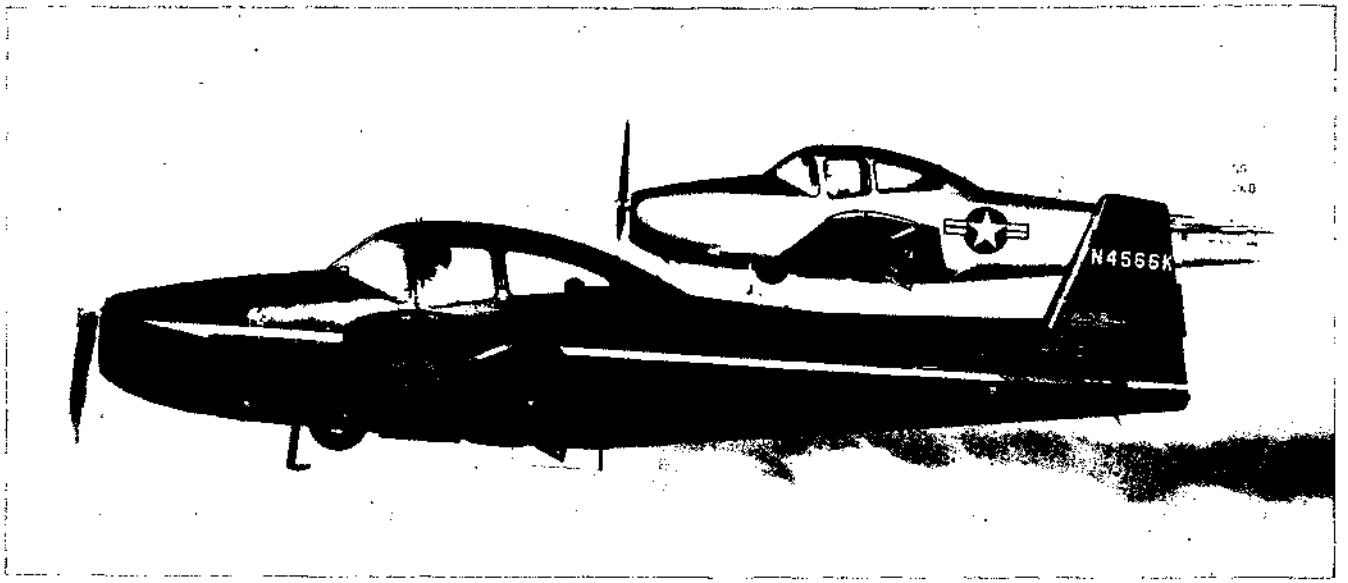
The Champion is a high-wing liaison airplane powered by a single radial engine. The propeller hub is set high on an engine cowl. The wings have slight dihedral and the leading and trailing edges of the wings are straight with rounded tips. A single fin and rudder has a curved leading edge, a rounded top, and a rather straight trailing edge. This Aeronca built airplane is capable of operating from small sod or turf runways and can land and take off from small landing fields. The L–16 performs the following liaison aircraft functions: short range observation, light cargo, courier service, and air evacuation. Used primarily by Army Ground Forces.

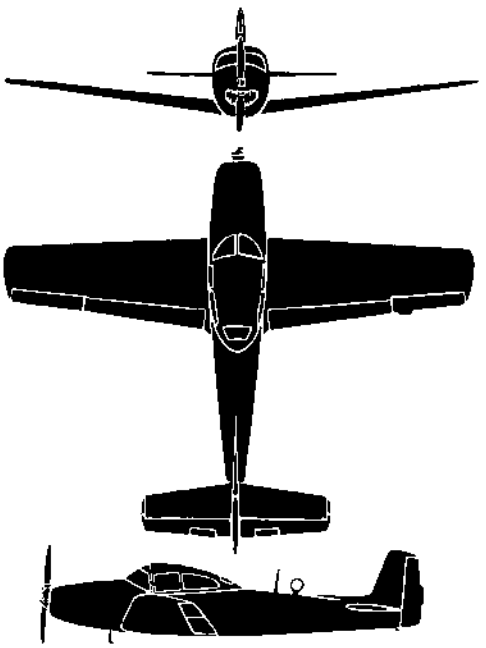
SPAN: 35′2″. **LENGTH:** 21′5″.
ENGINE: O–190–1 (C–85–8FJ)/85 h. p.
SPEED: 83 knots/sea level.
RANGE: 145 nautical miles/61 knots.
ARMAMENT: None.











The Navion is a four-passenger, low-wing liaison airplane powered by a single radial engine. The fuselage, from engine to rear of cockpit canopy, resembles a streamlined automobile. The engine cowl is round with a propeller hub set near the top of the cowl. The wings have distinct dihedral with rather straight leading edge and evenly tapered trailing edge with square wing tips. A single fin and rudder has a sharply tapered leading edge with a square top and slightly tapered trailing edge. The L–17 has a steerable nose wheel, hydraulically actuated landing gear and wing flaps, and variable-pitch propeller.

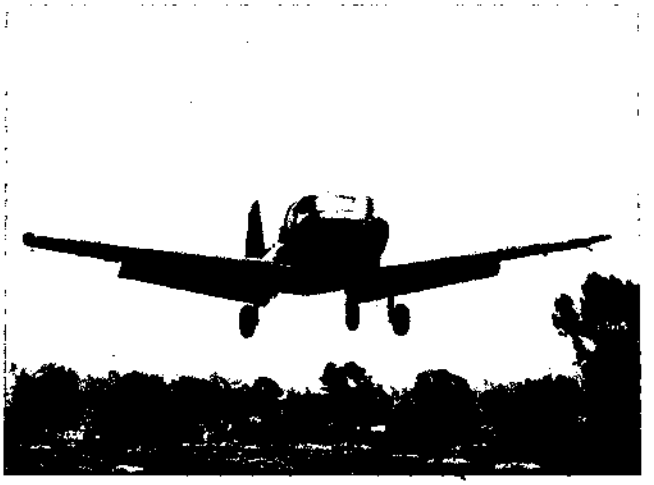
SPAN: 33′5″. **LENGTH:** 27′4″.

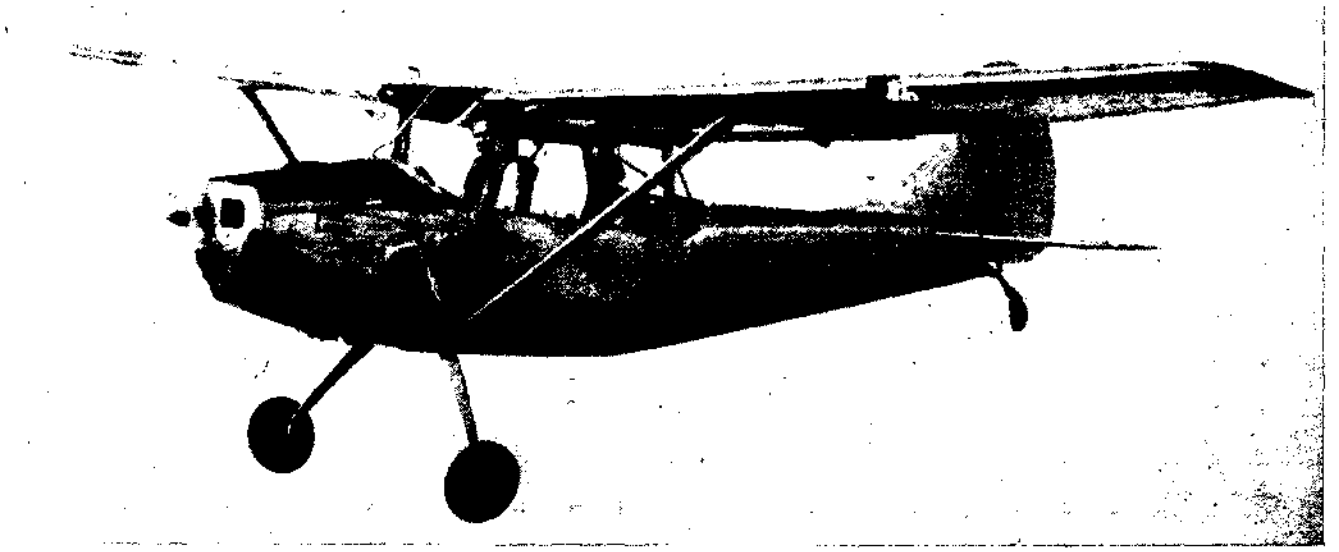
ENGINE: 0–470–7/267 h. p.

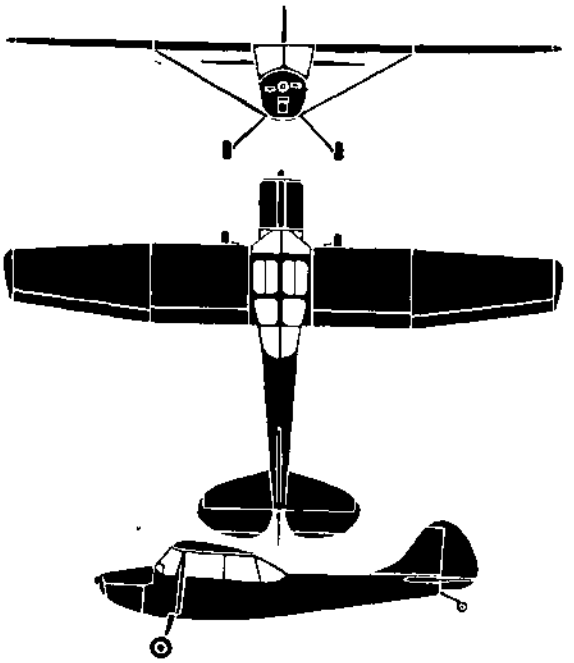
SPEED: 135 knots/sea level.

RANGE: 539 nautical miles/knots.

ARMAMENT: None.

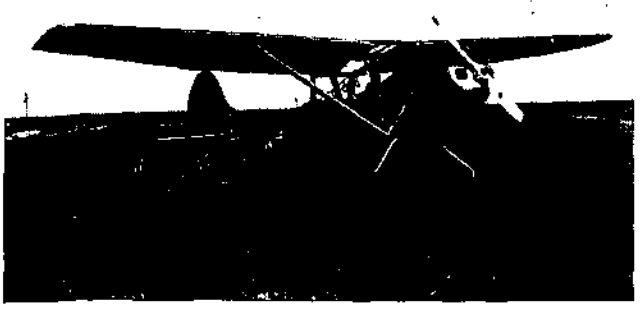


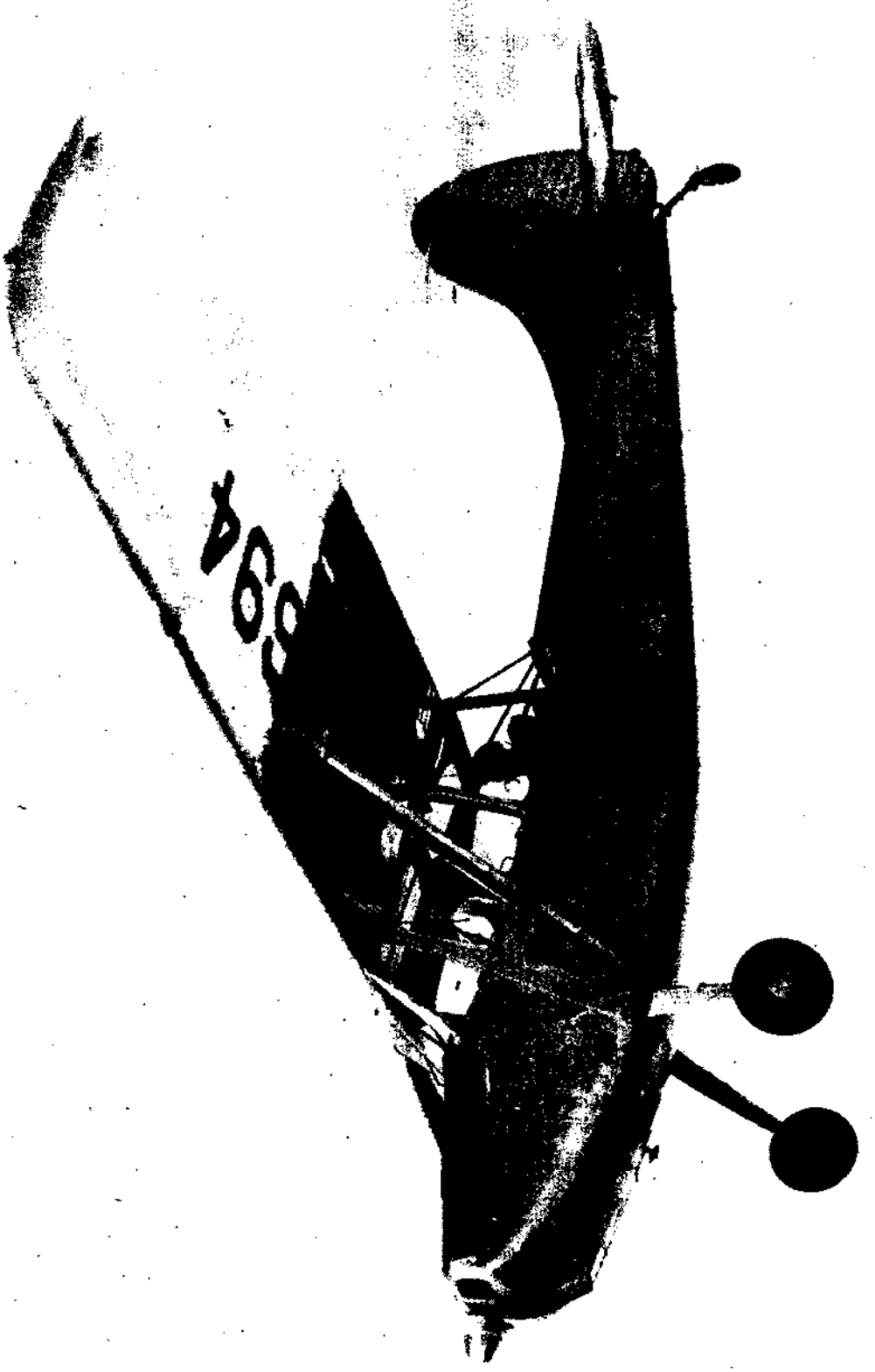


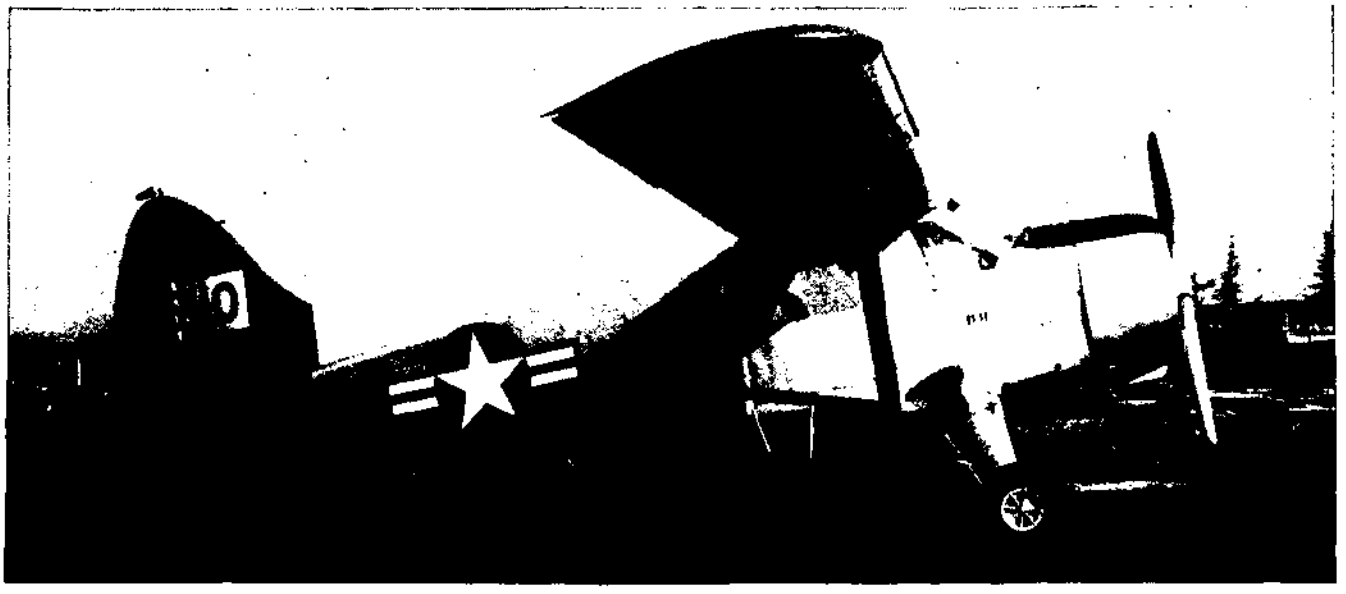


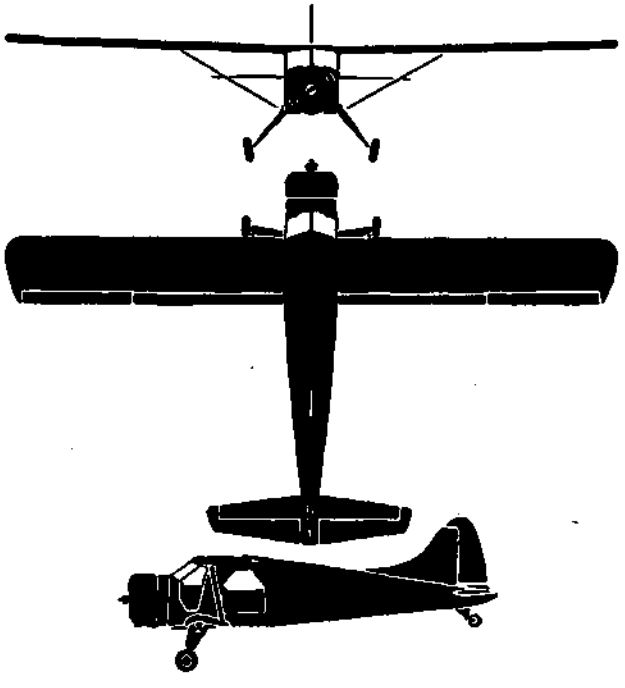
The L–19 is a dual controlled all-metal high-wing aircraft of semi-monocoque construction. Its principal missions are reconnaissance and observation. Another mission includes a wire laying capability. High lift slotted flaps are provided. The landing gear consists of two spring steel leaves with provisions for attaching cross wind landing gear and skis or flotation gear. The rear seat is adjustable for either forward or rearward facing observer. A six-cylinder air-cooled engine is fitted. It can be converted for ambulance or cargo use. The normal crew consists of a pilot and an observer or one litter patient in lieu of the observer. Maximum take-off weight is 2,400 pounds.

SPAN: 36′ 0″ **LENGTH: 25′ 0″**
ENGINE: 0–470–11/213 h.p.
MAX. SPEED: 101 knots/sea level.
RANGE: 435 nautical miles/85 knots.
ARMAMENT: None.



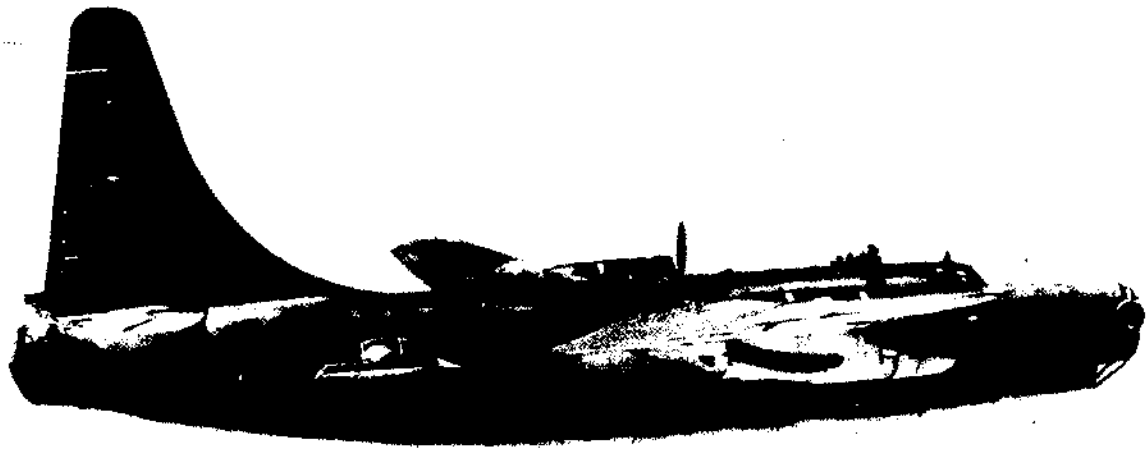




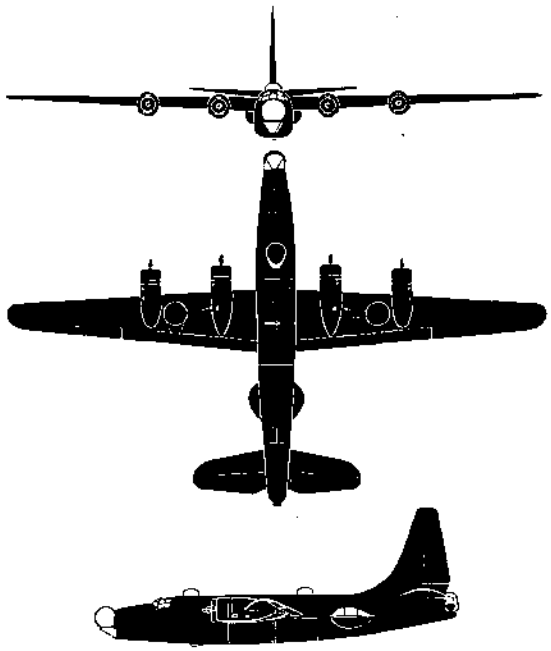


The prototype Beaver was designed and built in Canada by de Havilland. Final layout of the aircraft was based on the results of a survey of some eighty Canadian bush operators. It flew for the first time on 16 August 1947, only 10 months after the design was begun. After considerable testing the Air Force ordered the L-20 for liaison and Arctic rescue work. It is powered with a radial engine and can carry seven persons or 1,000 pounds of cargo. The Beaver's maximum take-off weight is 4,820 pounds and it performs well on wheels, skis, or floats, which are easily and quickly interchangeable. In addition to its U. S. insignia, it will carry Arctic red tail and wing markings. A winter nose cowl and a belly tank are provided.

SPAN: 48′ 0″ **LENGTH: 30′ 2″**
ENGINE: R-985-AN/450 h.p.
SPEED: 140 knots/3,000 ft.
RANGE: 520 nautical miles/85 knots.
ARMAMENT: None.

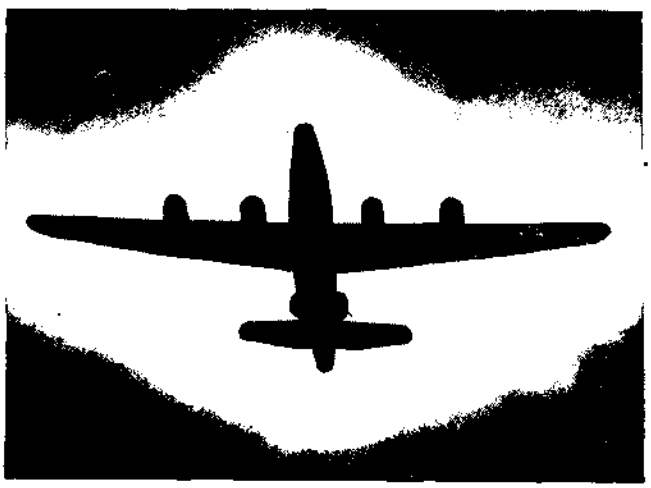


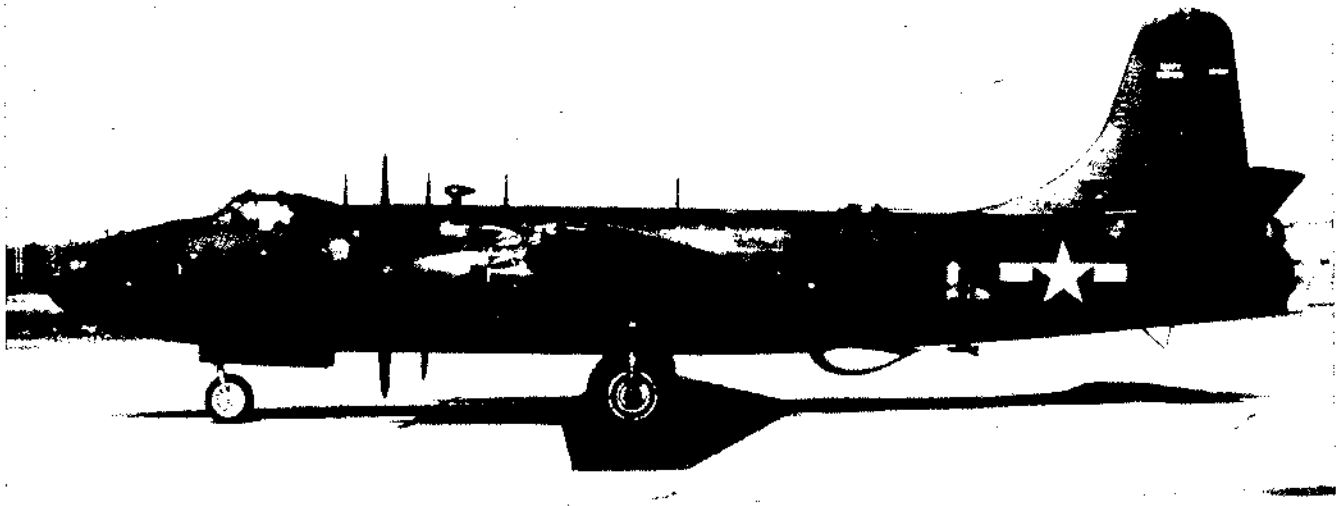
U.S. NAVY

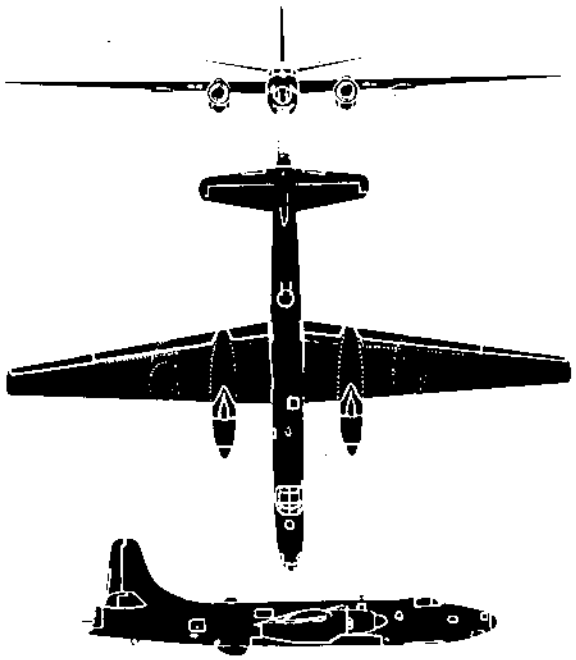


The Privateer, similar to the PB4Y–1 except for the single fin and rudder and longer fuselage, is one of the Navy's standard patrol planes. The wing is long, slender and mounted high and far back on the fuselage. The fin and rudder is very tall and fairs into the dorsal side of the fuselage. The "tear-drop" side blisters are very apparent from the plan view. The fuselage is of a "boxcar" shape with turrets in both the nose and tail. The PB4Y–2 has a shorter take-off distance than its predecessor, the PB4Y–1, requiring only 2,550 feet as compared to 5,400 feet required for the older type. The PB4Y–2 is longer by 6 feet and higher by 12 feet.

SPAN: 110'0". **LENGTH:** 74'7".
ENGINE: R–1830/1,350 h. p.
SPEED: 206 knots/13,750 ft.
RANGE: 2,700 nautical miles/121 knots.
ARMAMENT: 12 x .50 cal.

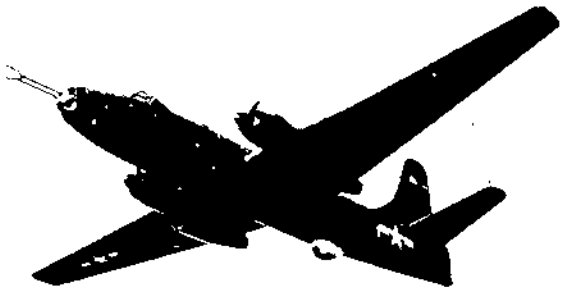


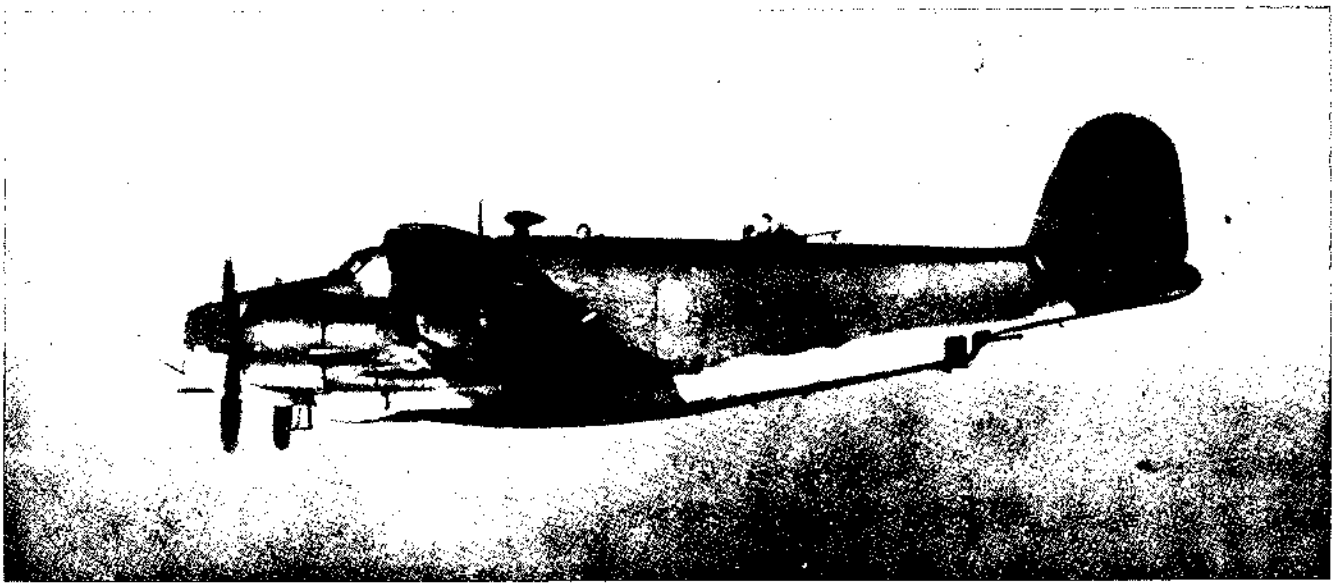


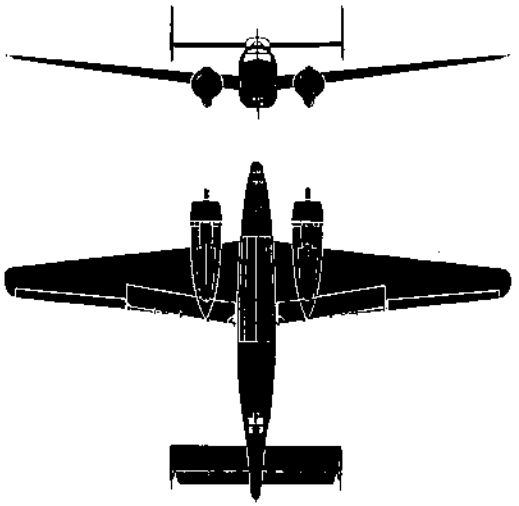


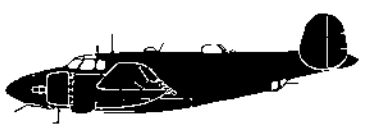
The Mercator is a mid-wing long range high altitude patrol and search plane; designated the P4M. It is powered by two radial reciprocating engines and two jet engines. The jets are housed in the nacelles directly below the reciprocating engines. The long rather narrow tapering wing is located midway along the fuselage and the undercarriage retracts into the wings outboard of the engines. A nose wheel is situated below the pilot's cockpit. A high vertical fin fairs smoothly into the fuselage and there is a tail gunner position just aft of the rudder. The stabilizer has even taper with rounded tips and considerable dihedral.

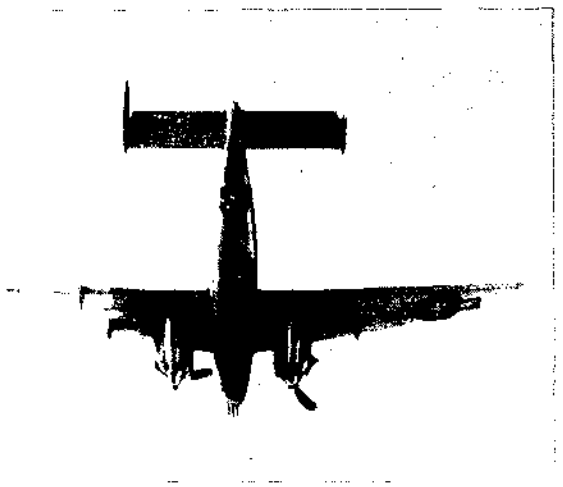
SPAN: 113'10". **LENGTH:** 86'3".
ENGINE: R–4360/2,650 h. p.; J33–A–10, 2,300-lb. thrust.
SPEED: 356 knots/20,000 ft.
RANGE: 2,730 nautical miles/154 knots.
ARMAMENT: 4 x 20 mm.; 2 x .50 cal.











The PV–2 Harpoon, basically an improved PV–1 Ventura, stemmed from the Lockheed 14 commercial transport of prewar days. It is a twin-engine mid-wing monoplane with twin fins and rudders mounted high on the tail of the fuselage. The long, narrow wing tapers to rounded tips and has dihedral from the roots. The engine nacelles are low-mid-mount on the wing and are close to the fuselage. The fuselage has a pointed nose, a deep center section and a pointed tail. A turret rises abruptly from the even dorsal fuselage line and a belly turret interrupts the smooth upsweep of the ventral fuselage line.

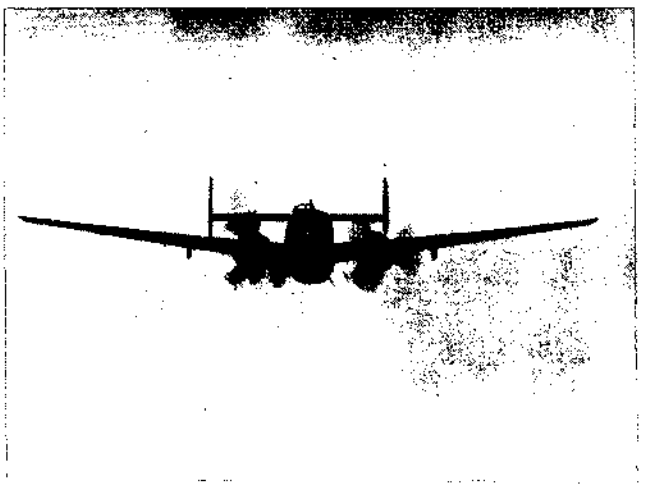
SPAN: 75′0″. **LENGTH:** 52′1″.

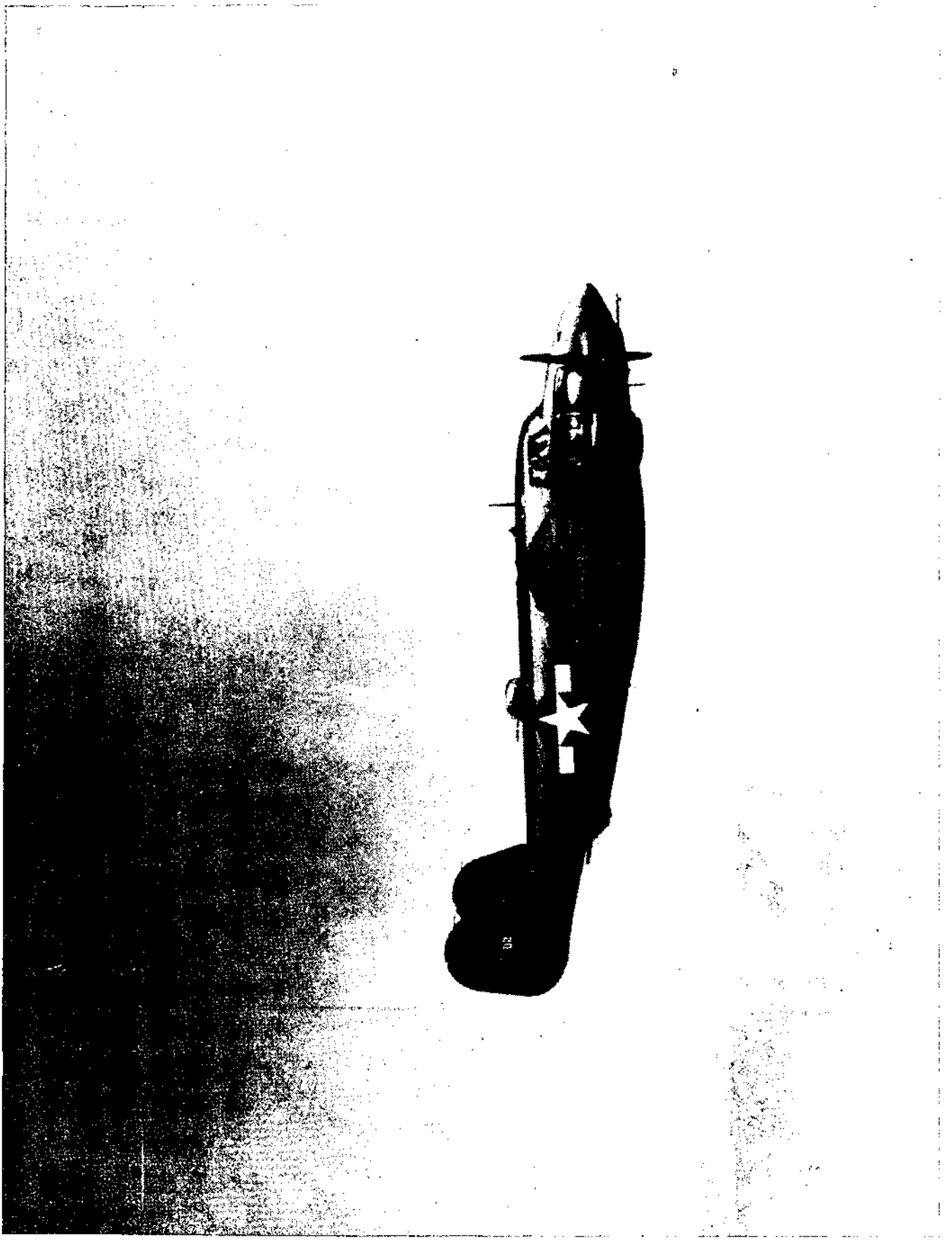
ENGINE: R–2800/2,000 h. p.

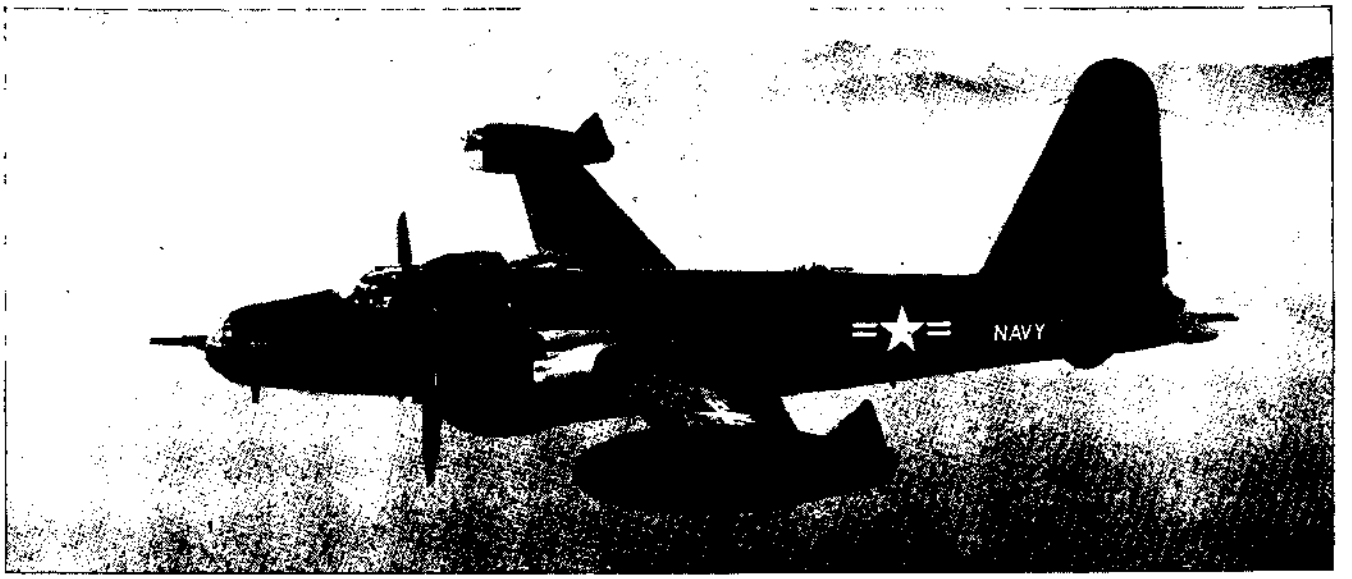
SPEED: 266 knots/15,200 ft.

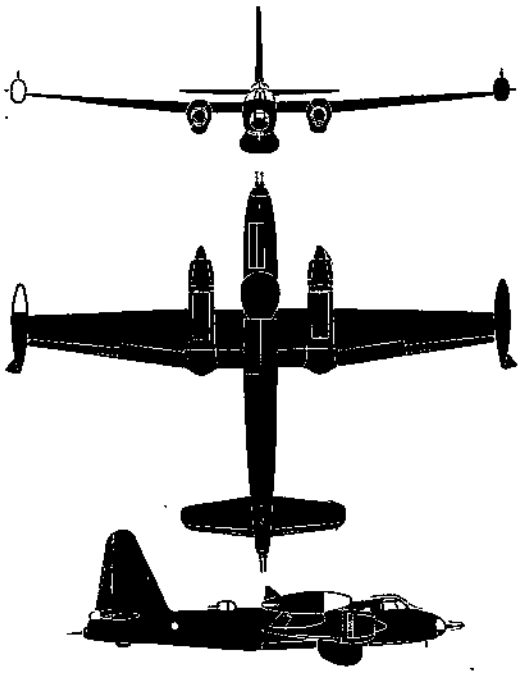
RANGE: 1,650 nautical miles/143 knots.

ARMAMENT: 9 x .50 cal



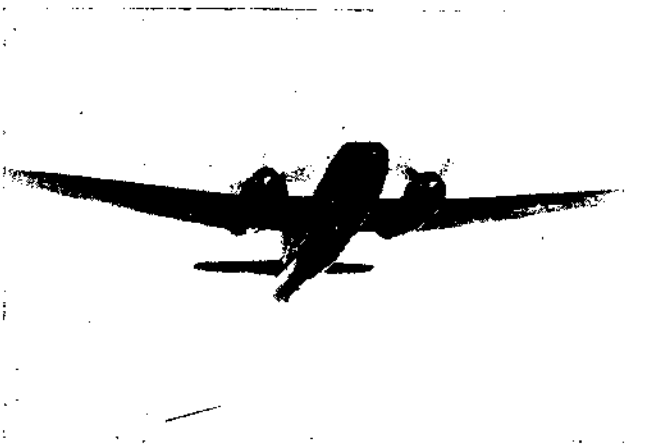






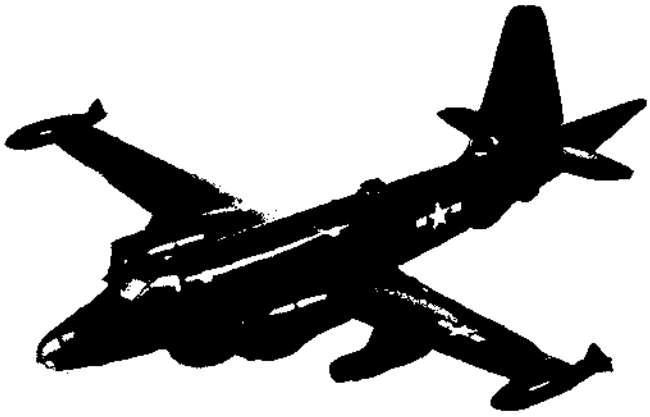
The Neptune is a landbased anti-submarine and anti-surface vessel, long-range patrol plane. It is in service in the U. S. Navy, the RAF, RAAF, and the French Air Force. The principal versions are the P2V–1 with a short nose, this model set a distance record of 11,235 miles between Ohio and Australia in 1946; P2V–2 with longer nose, 2½ feet, for radar gear; P2V–3, –3W with more powerful engines; P2V–4 with compounded engines, maximum take-off 80,000 pounds, and large external radome; P2V–5 with flexible nose gun turret, larger wing-tip tanks carrying radar and searchlight as well as extra fuel; P2V–6 for long range mine laying, similar to P2V–5. Neptune aircraft were active in the Korean theater.

SPAN: 100′0″ **LENGTH: 75′4″ to 77′11″**
ENGINE: 2/R–3350–8, –24W, –26W, –30W/2,500 to 3,250 h. p. each.
MAX SPEED: 295 knots/14,000 feet.
RANGE: 3,250 nautical miles/155 knots.
ARMAMENT: (–1) 6 x .50 cal; (–2) 6 x 20 mm, 4 x .50 cal; (–3) (–4) 8 x 20 mm, 2 x .50 cal; (–5) (–6) 4 x 20 mm, 2 x .50 cal; bombs, torpedoes, etc.



US NAVY

P2V-7
NEPTUNE

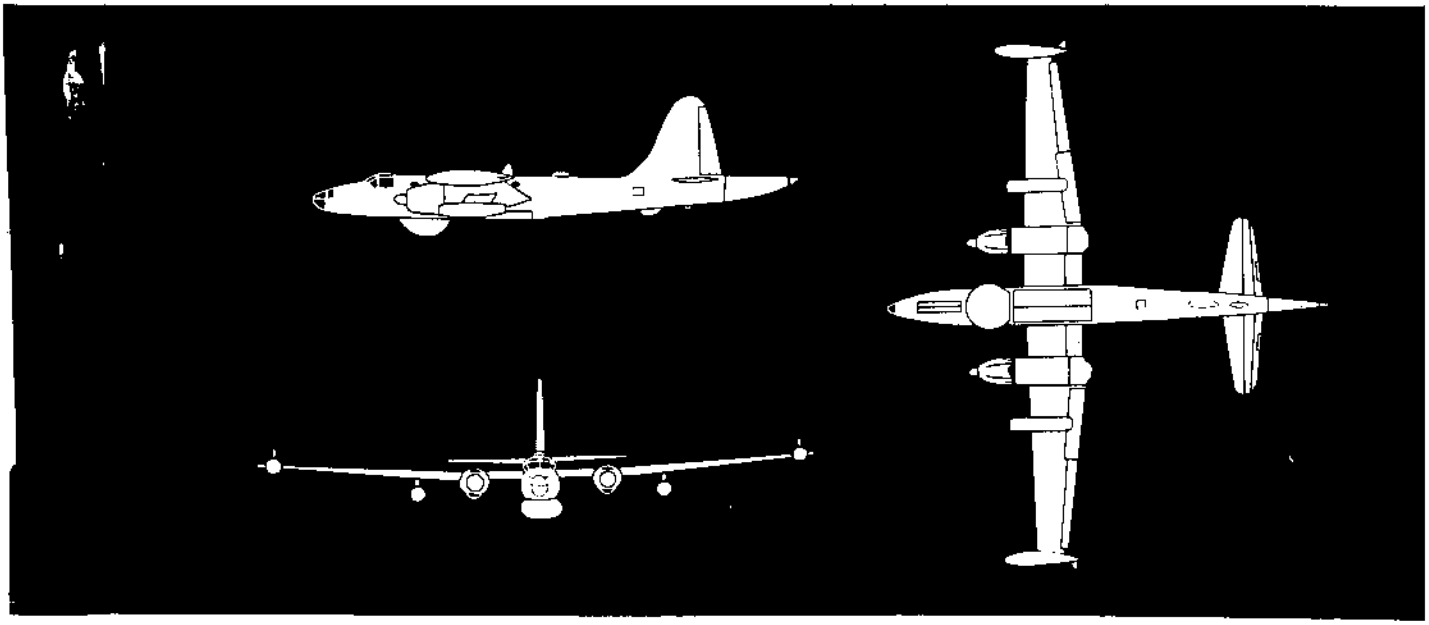


The P2V–7 Neptune is a two engine, mid-wing, Navy patrol airplane, equipped with two additional turbojet engines to augment take-off and combat performance. The turbojet engines are mounted in pods outboard of the reciprocating engines, beneath the wing. The tapering, straight wing has wing tip pods that carry radar and landing lights in addition to fuel. Enlarged crew space, bulging cockpit canopy, modified nose landing gear, re-designed wing tip pods and a simplified multifunction control system are added features of the –7 model. The P2V–7 is used for patrol, mine-laying or torpedo-bomber duties. The main recognition features are the long straight wing, tall bell-shaped fin and rudder, and narrow aft fuselage extending rearward beyond the tail surfaces.

SPAN: 104′ LENGTH: 97′10″

LOCKHEED TWIN-ENGINE AND TWIN-JET SUB KILLER

MAXIMUM SPEED: 340 knots
ENGINES: 2/R-3350-3R-Wright-piston Compound/3700 h.p.
2/J34-Westinghouse-21-Turbojet/3400 lbs. thrust
RANGE: More than 3000 nautical miles
ARMAMENT: 6x20 mm. cannon

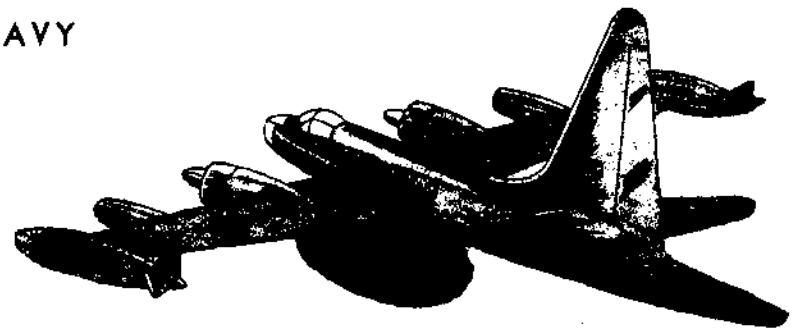


U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

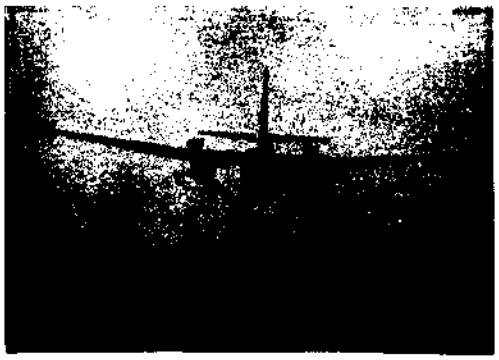
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

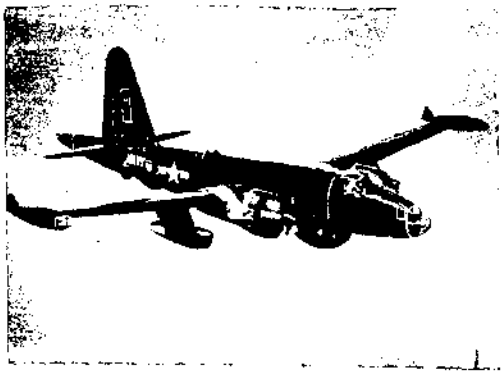
P2V-7
NEPTUNE

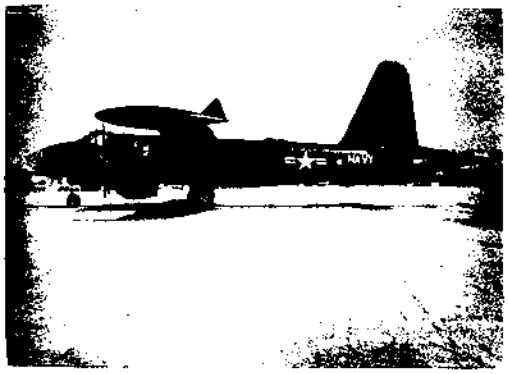
US NAVY



ACCENTED DRAWING







Miscellaneous views of the P2V-7 Neptune

Identify the aircraft shown above; correct answers are below

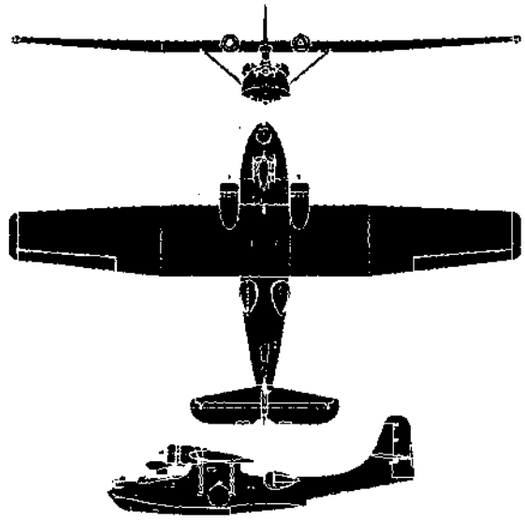
1. P2V-7 NEPTUNE
2. AV8○ SHACKLETON
3. P2V-7 NEPTUNE
4. BUCK
5. MOSQUITO
6. P2V-7 NEPTUNE
7. MOSQUITO

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

CONVAIR

PBY-6A CATALINA



The fabulous "Cat" is probably the most famous patrol plane in existence. Its exploits range over five oceans, from patrols to night torpedo operations, from evacuating the only person from Wake Island to trailing the German battleship Bismarck until it was sunk. Its design is a direct development of the PY–1 boats of 1928. The XP3Y–1, prototype PBY, first flew in the spring of 1935, and after tests, it established an international distance record by flying non-stop from Norfolk to San Diego via Coco Solo, a distance of 3,443 miles. It is characterized by broad, shallow, sweeping hull, broad parasol wing and high horizontal tail plane.

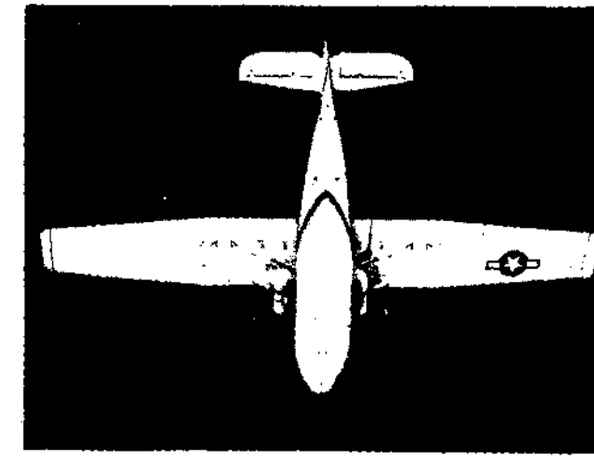
SPAN: 104'0". **LENGTH:** 63'10".

ENGINE: R–1830/1,200 h. p.

SPEED: 160 knots/17,000.

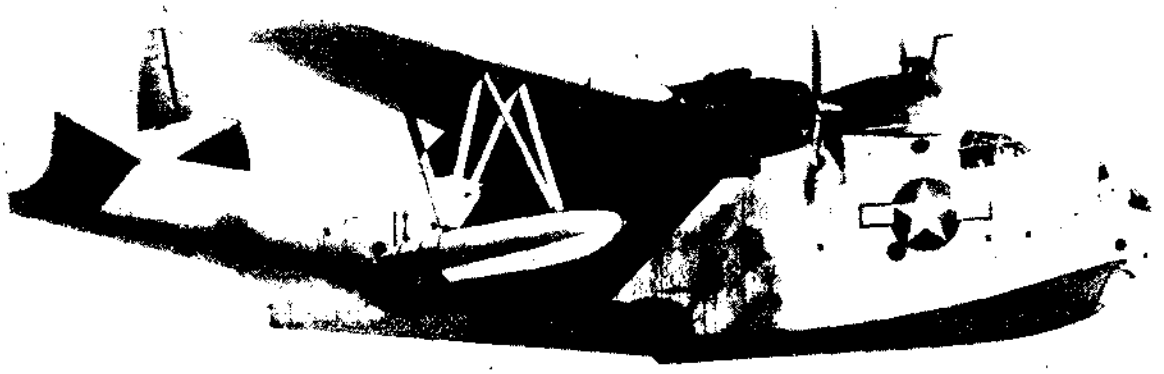
RANGE: 2,214 nautical miles/102 knots.

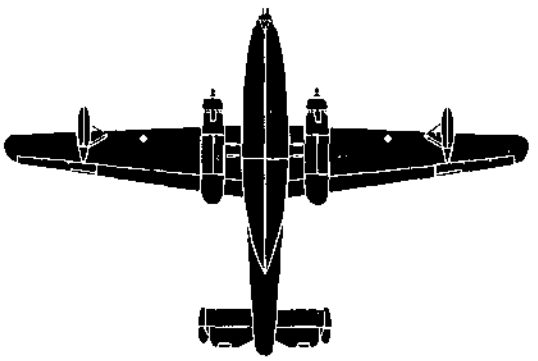
ARMAMENT: 3 x .30 cal.; 2 x .50 cal.

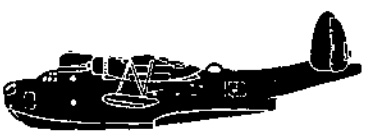


USA
MAY 1949

AFM 50-40
OPNAV 32P-1200

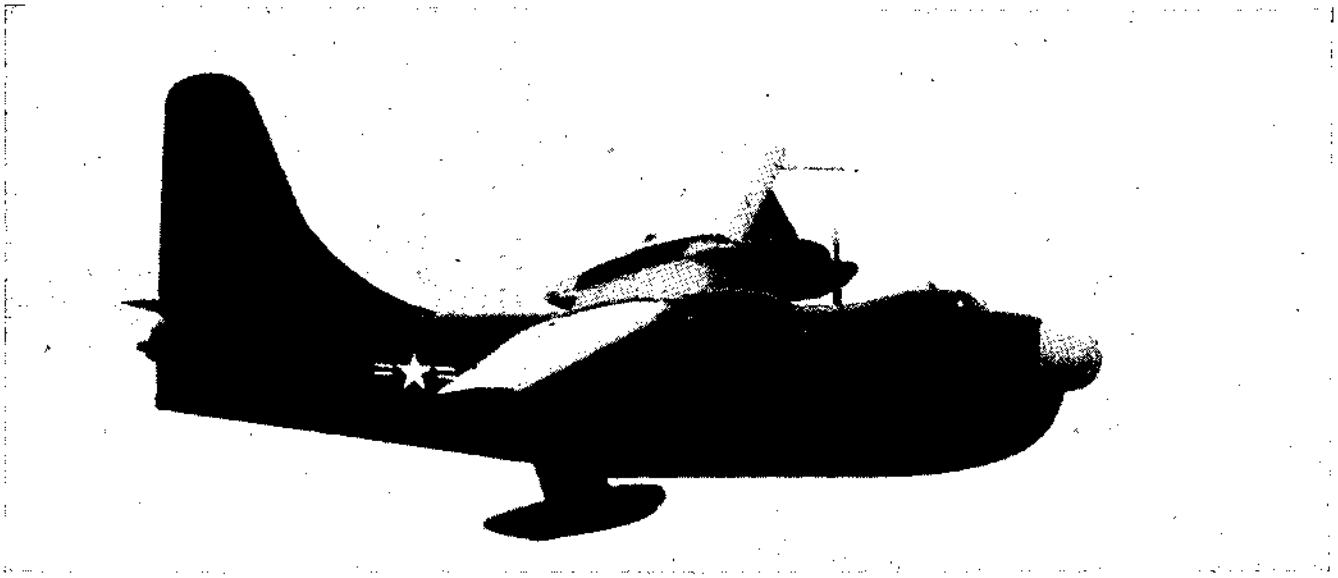


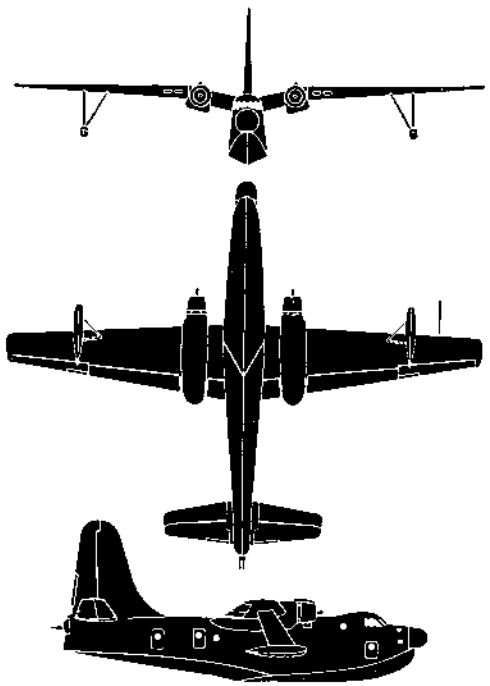




The Mariner is a nine place patrol bomber and cargo transport with twin canted fins and rudders, and wing floats. An amphibious version, PBM–5A, has a retractable tricycle landing gear. The PBM is the world's largest twin-engined flying-boat and is noted for its long range, and seaworthiness. The hull is deep with blunt nose and with upsweep to the ventral line aft of the second step. The PBM played an important role in World War II, having been used for long range patrols out of newly won bases and for anti-submarine missions. A large number are still in service; it is expected to be one of the standard patrol planes for the immediate future.

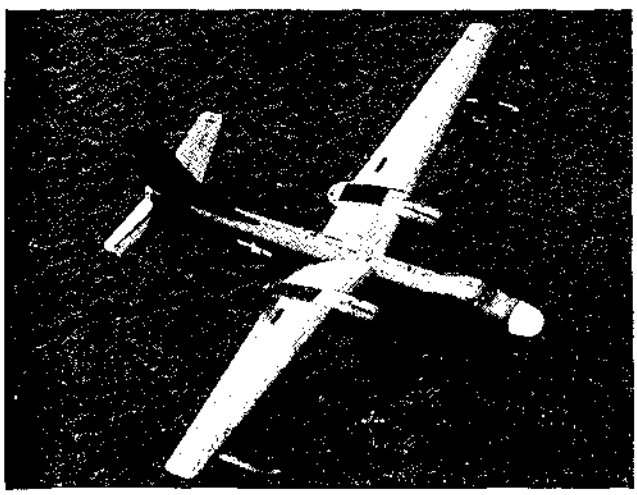
SPAN: 118′0″. **LENGTH:** 79′10″.
ENGINE: R–2800/2,100 h. p.
SPEED: 183 knots/16,100 ft.
RANGE: 2,058 nautical miles/115 knots.
ARMAMENT: 8 x .50 cal.

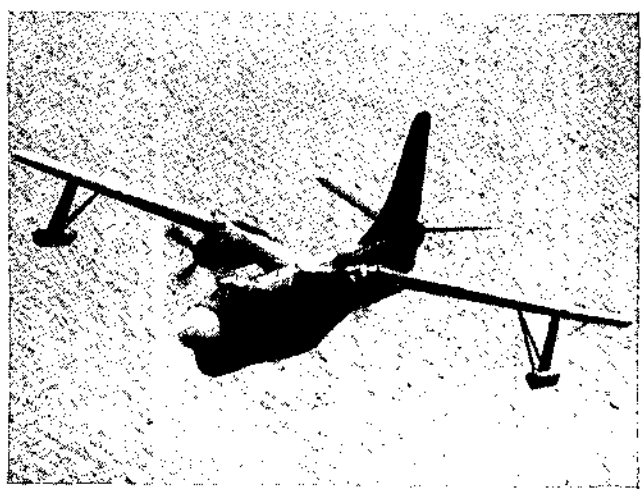


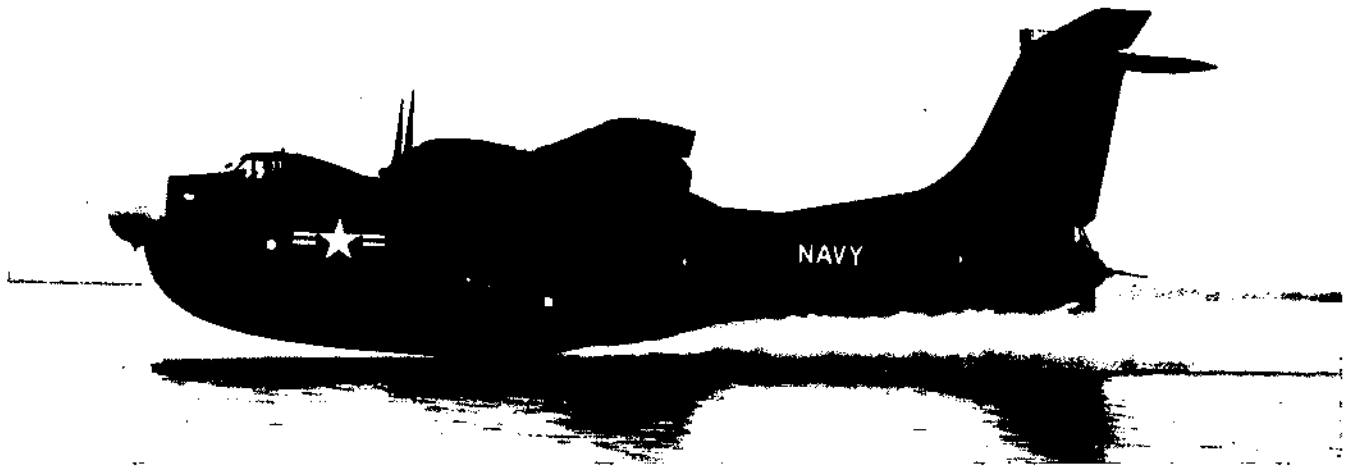


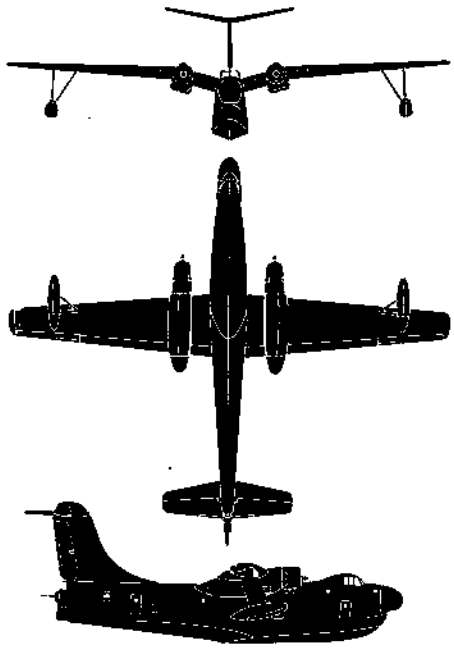
The Marlin is a twin-engined gull-wing patrol boat designed primarily for ASW. Other duties include long range radar mapping, mine laying, and open sea rescue. A feature of the P5M is the length and depth of the hull aft of the main Vee step which permits softer landings in rough seas without excessive pitching and bouncing, and reduces normal take-off time and distance. It is equipped with hydroflaps (underwater flaps) which aid in maneuvering in restricted areas. The P5M is the first twin-engine flying boat developed for the Navy since the war. From a front view the Marlin resembles the PBM Mariner and the P5M's stabilizer is interchangeable with P4M Mercator's. The P5M carries a crew of 11 and has a slightly greater gross weight than the PBM.

SPAN: 118′ 2″ **LENGTH: 91′ 1″**
ENGINE: 2/R-3350-30/3,250 h.p. each.
MAX. SPEED: 230 knots/16,500 ft.
RANGE: 1,900 nautical miles/135 knots.
ARMAMENT: 2 x 20 mm; 8 x 5″ HVAR rockets.



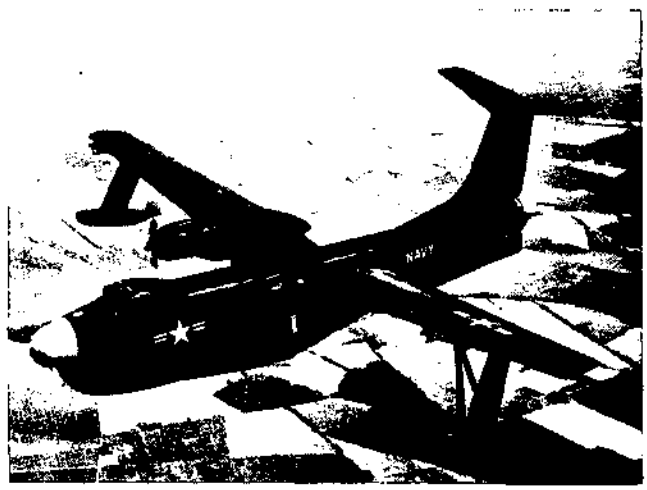


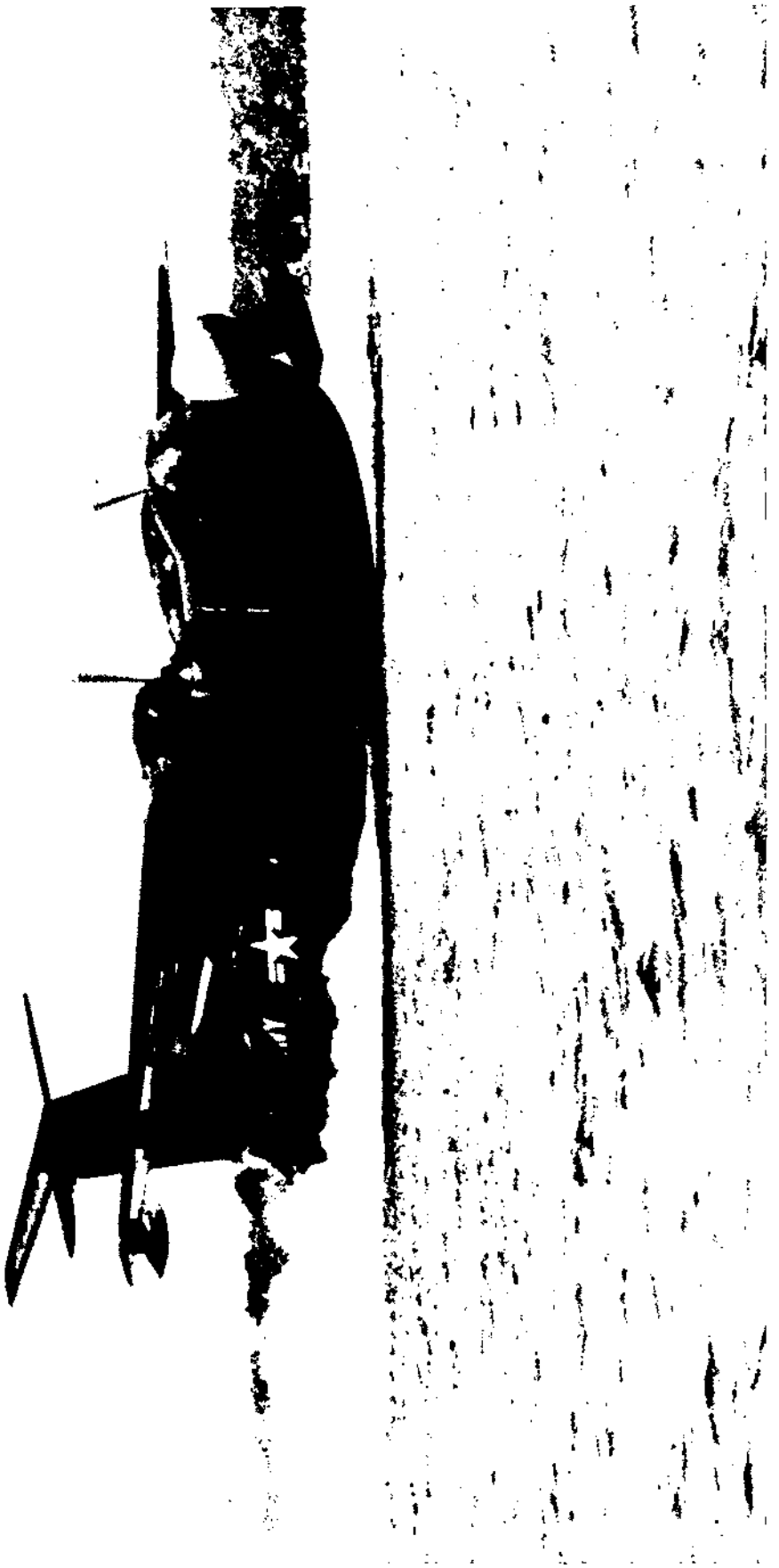




The P5M–2 Martin, an anti-submarine seaplane, is an advance version of the P5M–1. It is readily distinguished from the early P5M–1 by the high-mounted T-tail. The P5M–2 is the first seaplane using the T-tail in which control surfaces are mounted atop the vertical fin. Some of the advantages over the conventional design are less tail area being required. It is more efficient with resulting decreases in both structural weight and aerodynamic drag. Spray damage to the horizontal tail is eliminated. The bow chine line has been lowered effecting a reduction in spray height which will facilitate overload take-offs and increase the life of the props. The P5M–2 engines have greater horsepower than those of the P5M–1. A long object projecting behind the stabilizer houses electronic gear.

SPAN: 118′2″ **LENGTH: 91′1″**
ENGINE: 2/R3350–32W, turbo-compound/3,400 h. p. each.
MAX. SPEED: Approx. 230 knots.
RANGE: 1,900 nautical miles/135 knots.
ARMAMENT: 2 x 20 mm; 8 x 5″ HVAR rockets; bombs and mines.





US NAVY

P6M-1
SEAMASTER

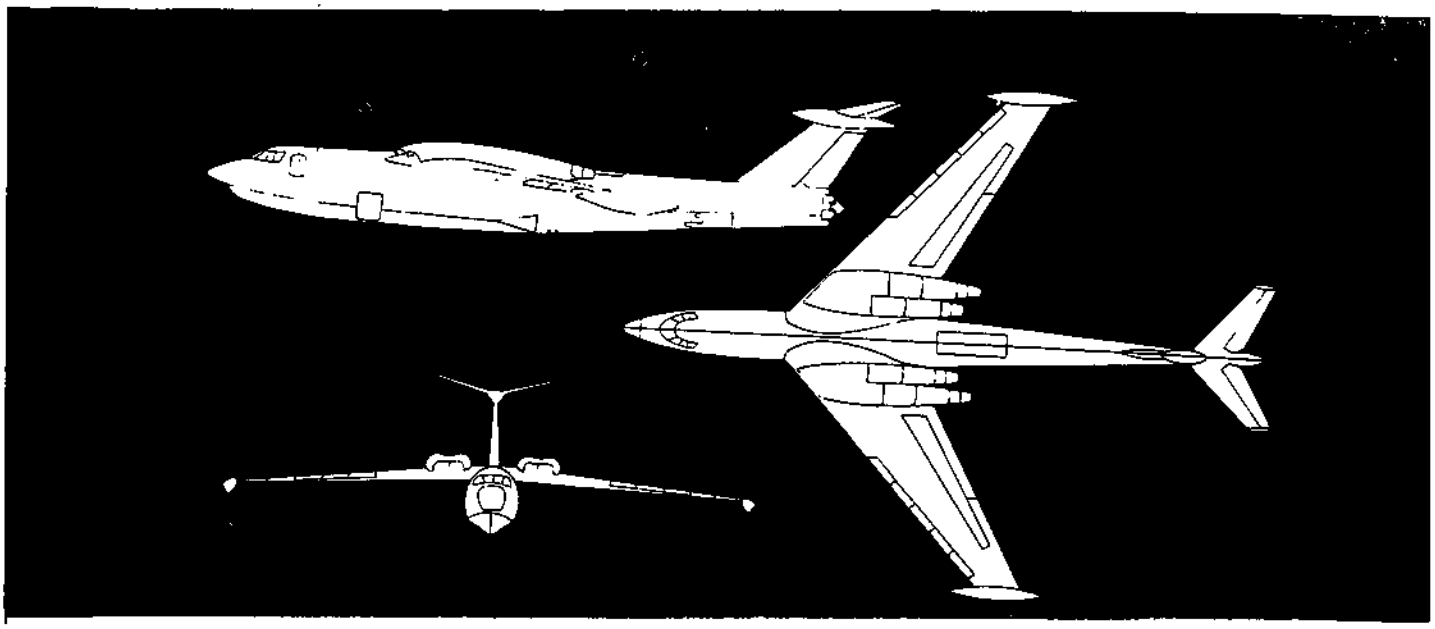
The Seamaster is a Navy multi-jet attack seaplane. Its primary mission is minelaying. Recognition characteristics include long, shoulder-mounted swept back wings equipped with wing tip floats; four engines, two each mounted in box-like nacelles above each wing at the wing roots with combined intakes and dual exhausts; and a very large T-shaped tail surface, the horizontal tail surface being attached at the top of the vertical stabilizer.
SPAN: 102'7" LENGTH: 133'5"
MAXIMUM SPEED: Over 550 knots
ENGINES: 4/J71-Allison-4/9,400 lbs. thrust/ Afterburner
RANGE: Over 2400 nautical miles
SERVICE CEILING: Above 40,000 ft.

MARTIN

MULTI-JET

ATTACK

SEAPLANE



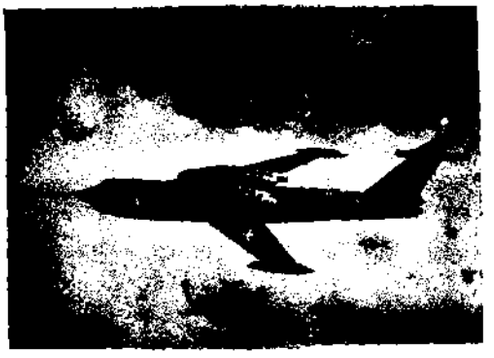
U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

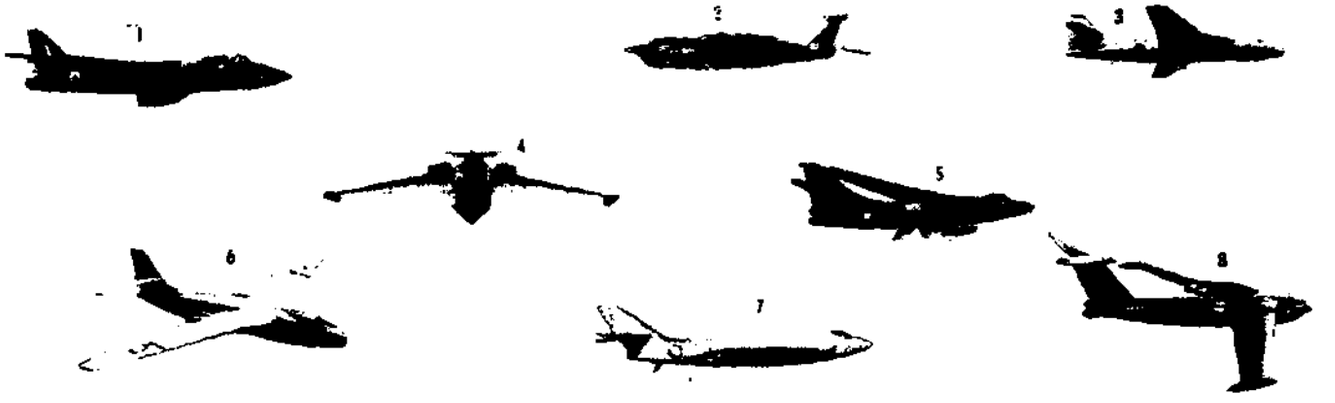
P6M-1
SEAMASTER

US NAVY

ACCENTED DRAWING



Miscellaneous views of the P6M, Seamaster

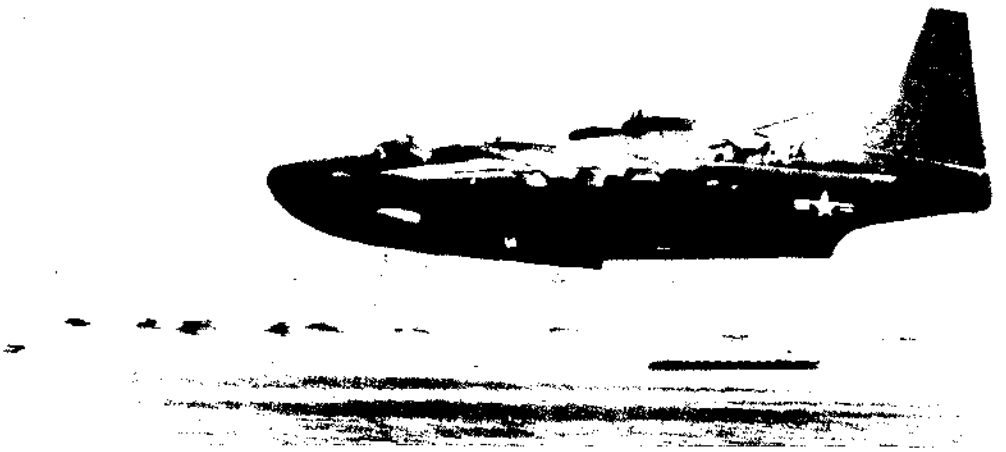


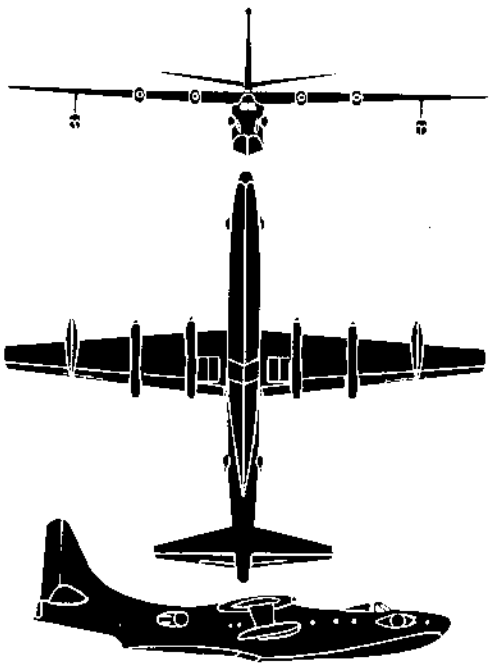
Identify the aircraft shown above; correct answers are below

1. HUNTER
2. SEAMASTER
3. VALIANT
4. SEAMASTER
5. A3D
6. VALIANT
7. SUPERMARINE 525
8. SEAMASTER

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G





The R3Y/P5Y Tradewind is a cantilever high-wing flying boat. It features two fixed auxiliary floats and a single tail. The hull is of high length/beam ratio design and incorporates a large cargo door on the after portside. Two versions of the aircraft are under development. The principal mission of the R3Y is to transport cargo, passengers, troops or litter patients, while the P5Y is an all-weather long-range patrol and reconnaissance flying boat. Pressurized, air conditioned, and sound proofed equipment is provided in the R3Y. The 60-ton flying boat can carry 80 passengers or troops seated in backward-facing chairs. Although the Tradewind is smaller than the Mars, it will carry an equivalent payload. Later R3Y's will be powered by larger T-54 Allison (coupled T-56's) turboprop engines.

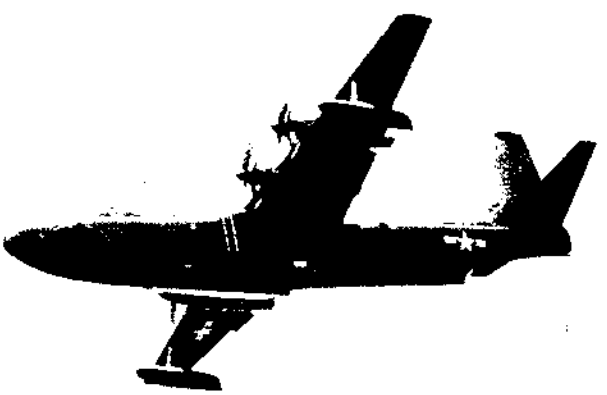
SPAN: 145'10" **LENGTH: 142'6"**

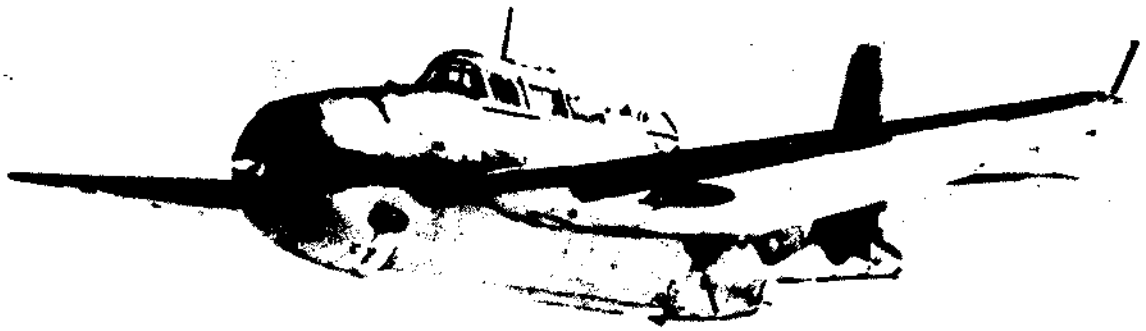
ENGINE: 4/T40-A-10, coupled turboprops/5,100 S. H. P. each.

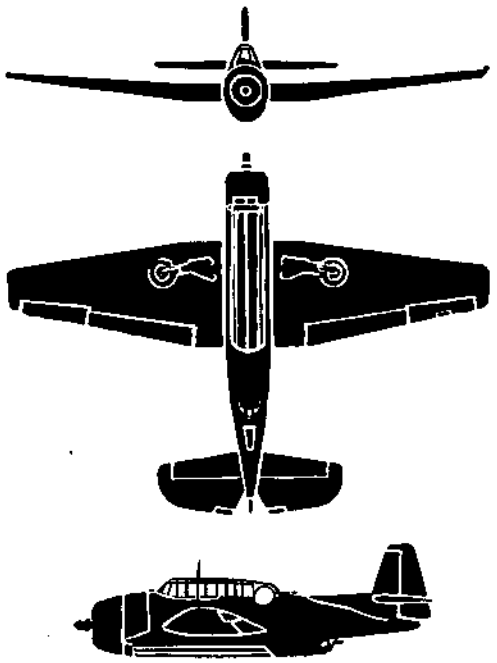
MAX. SPEED: 300 knots.

RANGE: More than 2,500 nautical miles.

ARMAMENT: (P5Y) 10 x 20 mm, bombs rockets, torpedos, mines.

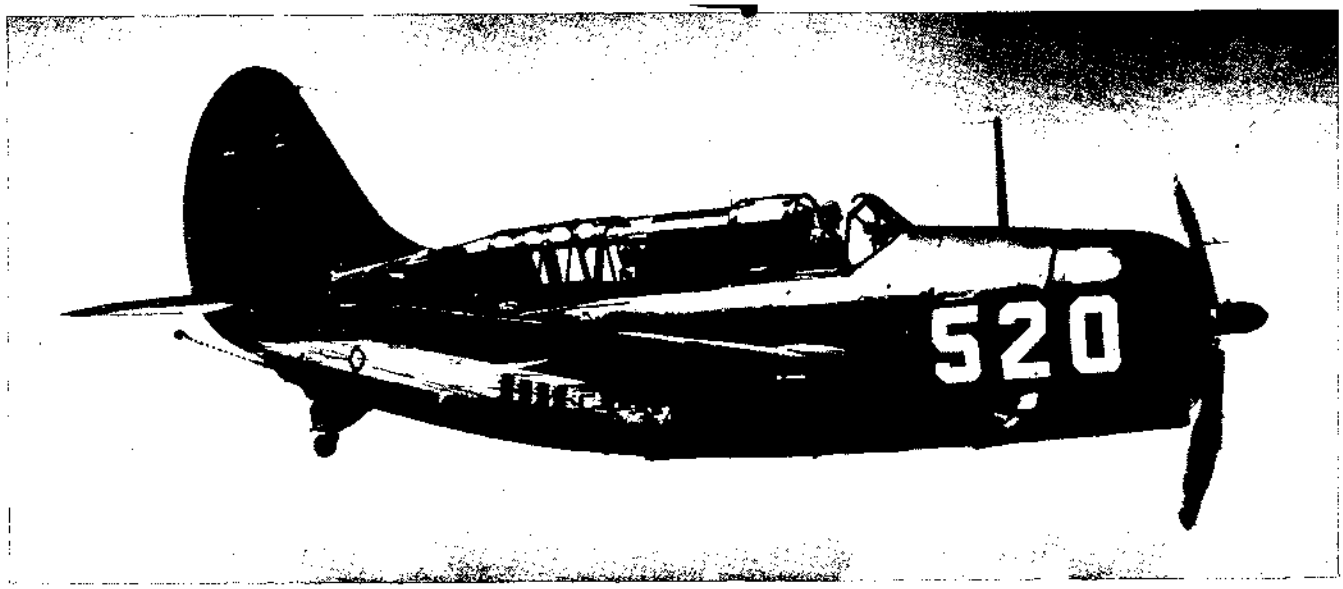


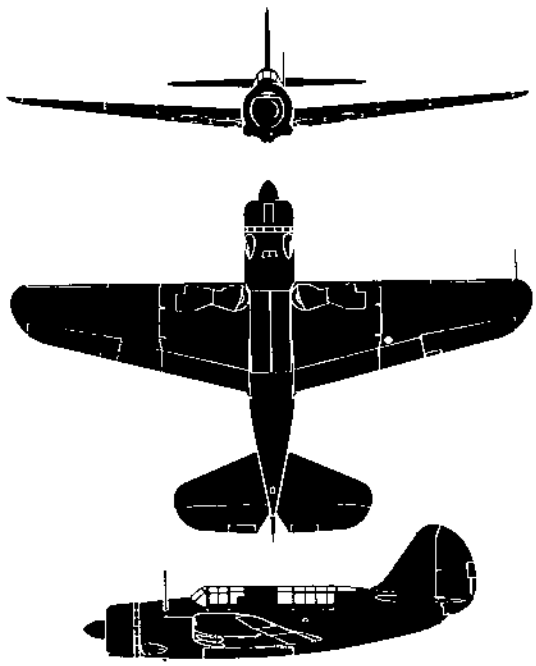




The TBM Avenger is a Grumman design (F) later manufactured by General Motors (M), and was the world's best torpedo bomber during World War II. It first gained wide publicity in the Battle of Midway. This versatile aircraft is still widely used in the fleet but is being replaced by single seat type attack aircraft. The Avenger can be recognized by its tall squarish fin and rudder sharply faired into the oversized dorsal turret greenhouse, and the break in the ventral side of the fuselage aft of the trailing edge of the wing. The tapered wing has straight inboard panels and dihedral on the tapered square tipped outboard panels.

SPAN: 54'2". **LENGTH:** 40'11".
ENGINE: R–2600/1,800 h. p.
SPEED: 235 knots/16,500 ft.
RANGE: 1,510 nautical miles/128 knots.
ARMAMENT: 3 x .50 cal., 1 x .30 cal.





The Helldiver is a single radial engine low-mid-wing monoplane. The wing has a straight leading edge and tapered trailing edge with full dihedral. A long cockpit enclosure extends aft nearly to the high broad fin and rudder. The ventral side of the fuselage has a continuous curve from nose to tail. The SB2C was one of the largest operational single engine aircraft used in the last years of World War II. It was designed to carry bombs, depth charges, mines or torpedoes and to operate from a carrier. The SB2C replaced the SBD as the standard carrier based dive bomber, but is now rapidly being replaced by single seat attack type aircraft.

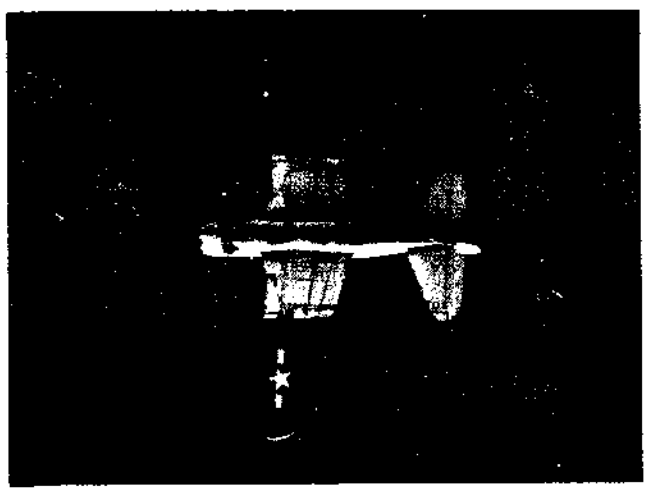
SPAN: 49′8″. **LENGTH:** 36′8″.

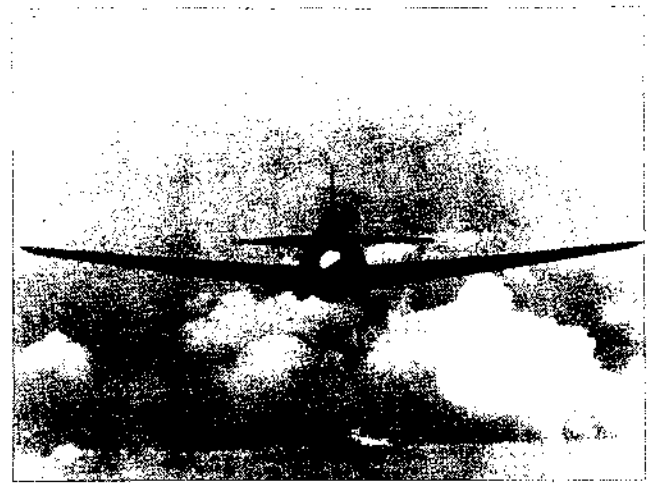
ENGINE: R-2600/1,900 h. p.

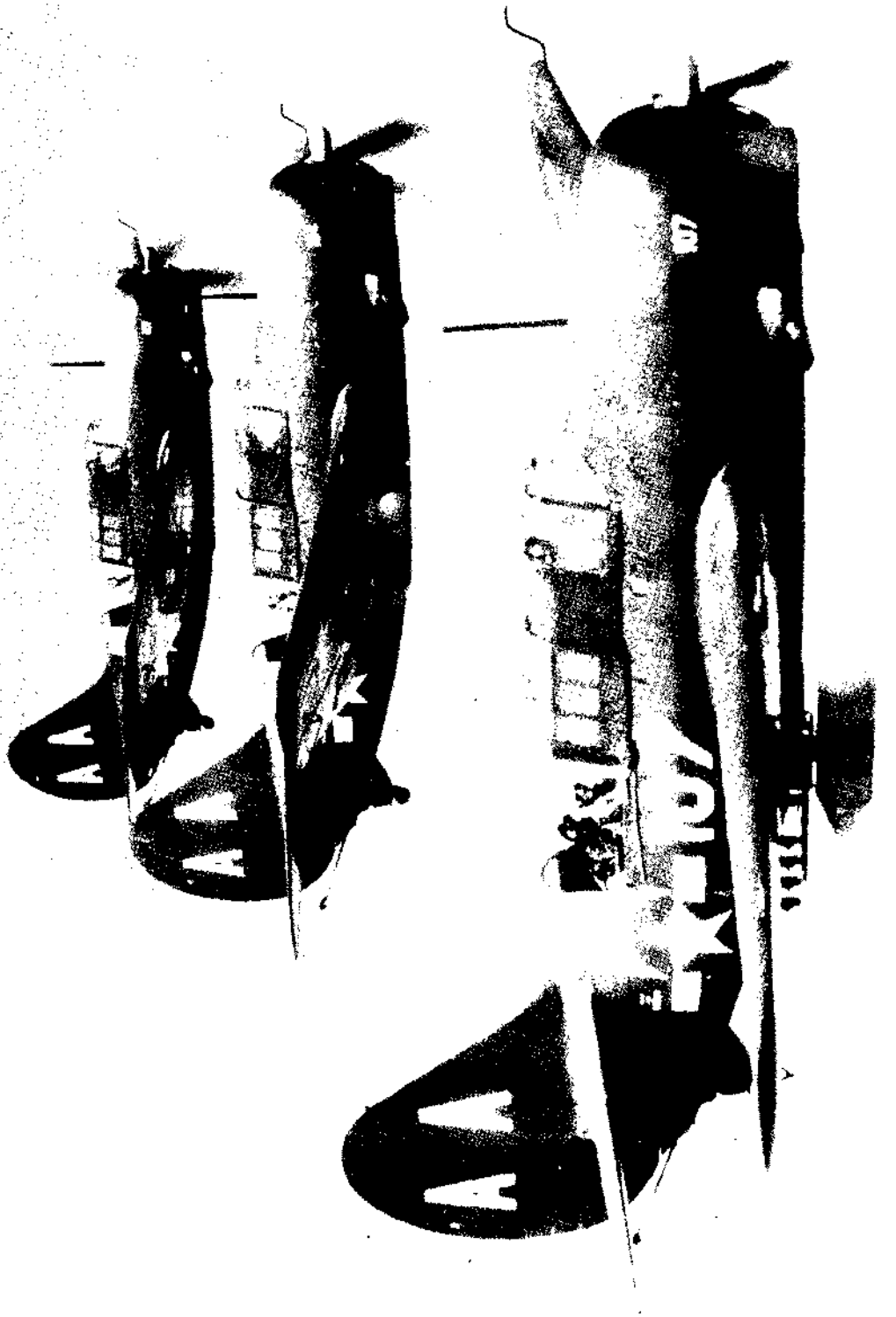
SPEED: 258 knots/16,700 ft.

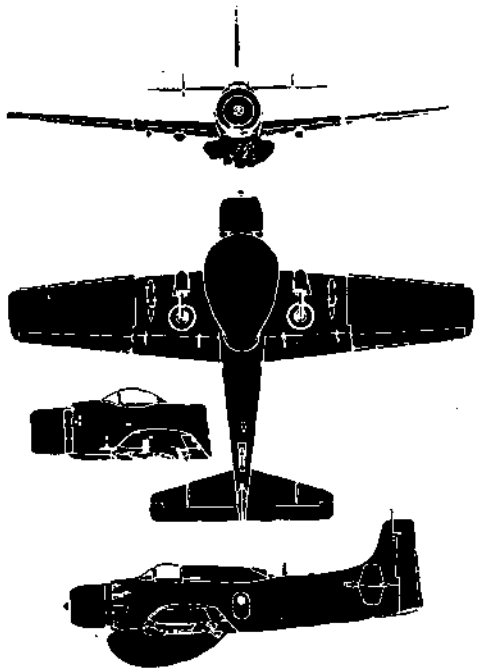
RANGE: 1,245 nautical miles/135 knots.

ARMAMENT: 2 x 20 mm.; 2 x .30 cal.



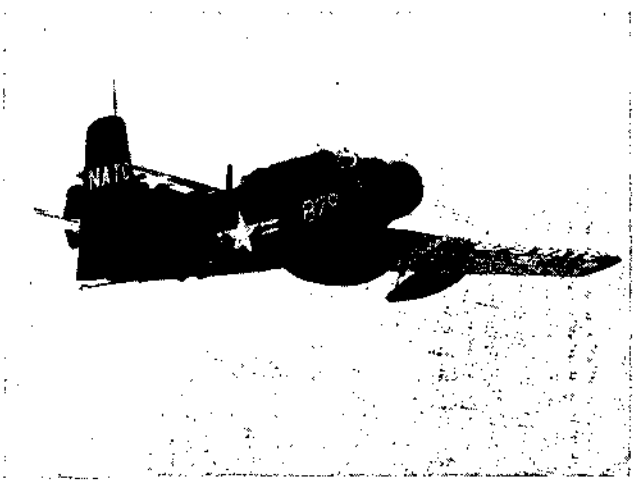


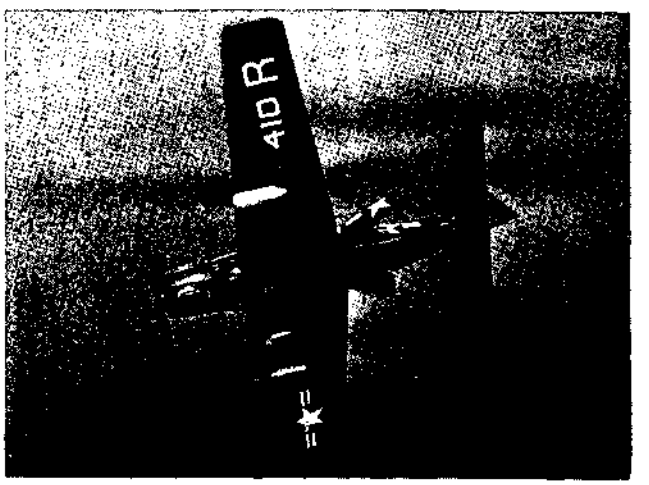




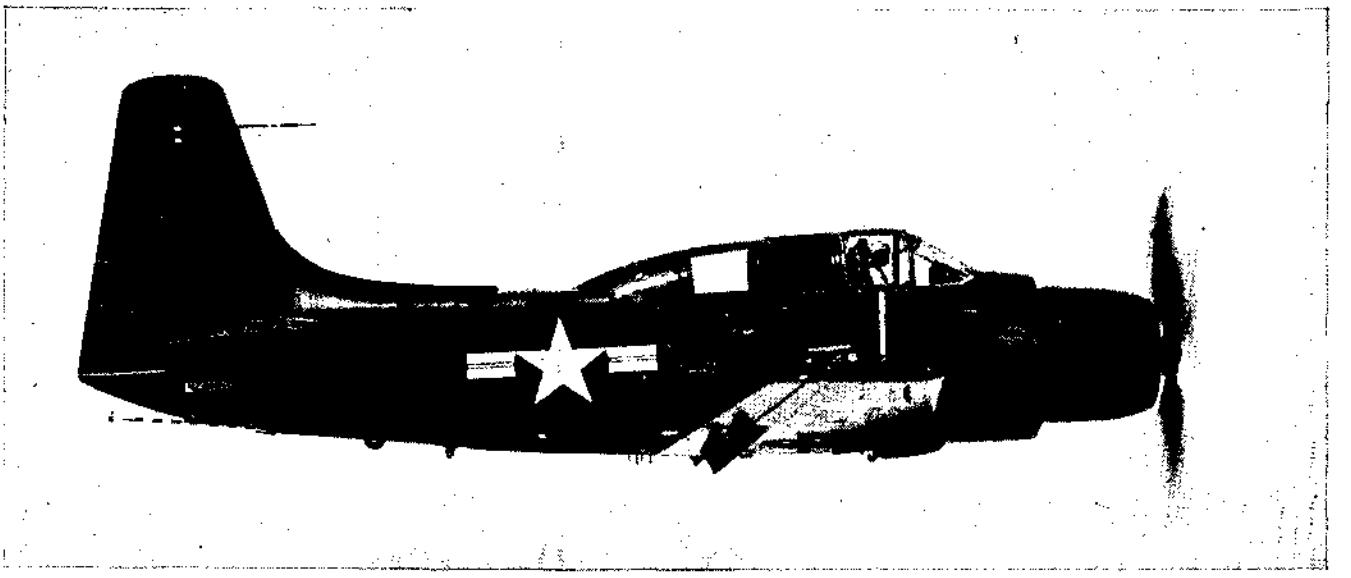
The AD Skyraider has undergone considerable development resulting in the AD-2, AD-3, AD-4, and AD-5. In addition to these principal versions, a number of "E," "N," "Q," and "W" modifications have been produced. These aircraft differ by changes in the shape of the cockpit canopy, the addition of fins on the stabilizer, a large radar bulge under the fuselage, and various electronic gear, torpedo fittings and rocket mountings for ordnance. The AD is equipped with fuselage dive brakes opening from both the sides and bottom of the slab-sided fuselage. During dive bombing attacks, bombs are forced clear of the propeller arc by firing a cartridge. Maximum take-off weight of the various AD's is approximately 19,000 pounds. AD aircraft have been turned over to the British Navy under MDAP.

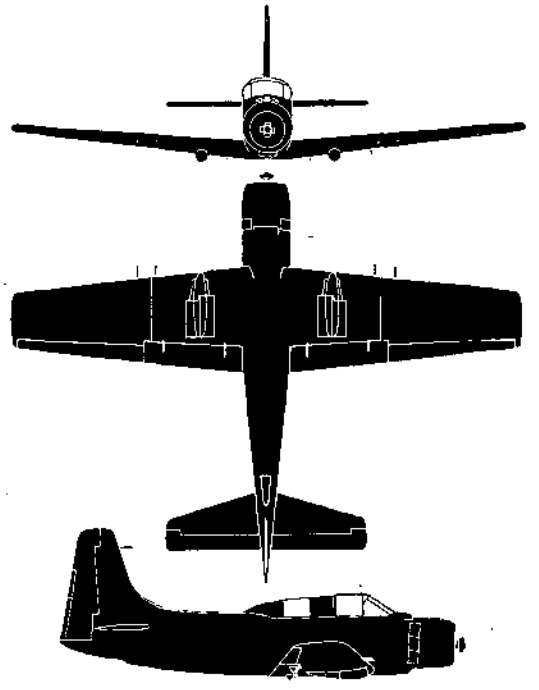
SPAN: 50′0″ **LENGTH: 38′2″**
ENGINE: R-3350/2,700 h. p.
MAX SPEED: 325 knots/10,000 feet.
RANGE: 1,500 nautical miles/180 knots.
ARMAMENT: 2 x 20 mm; 12 x 5″ HVAR rockets; 2,000-lb. bomb or torpedo.





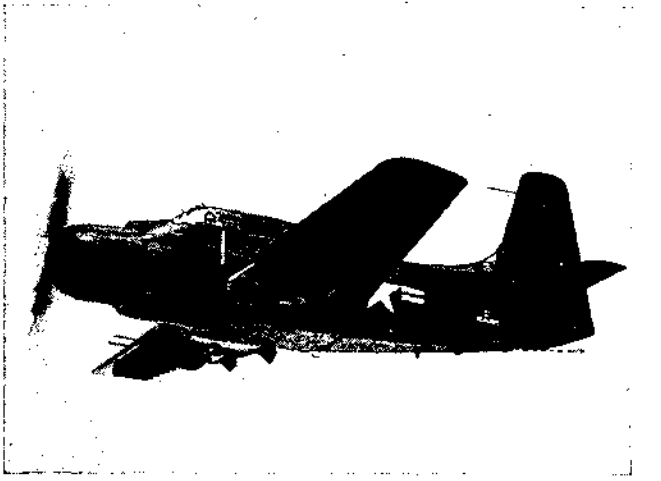

01
NR
02
NR
03
NR
NR

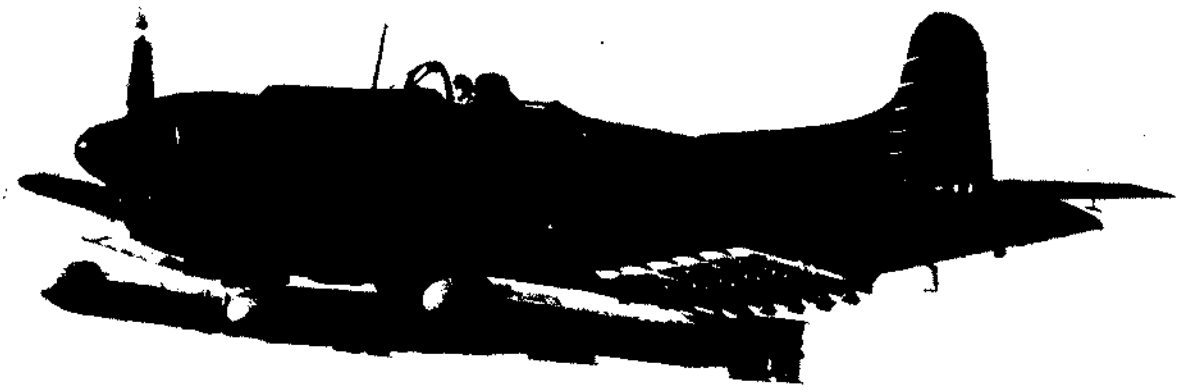


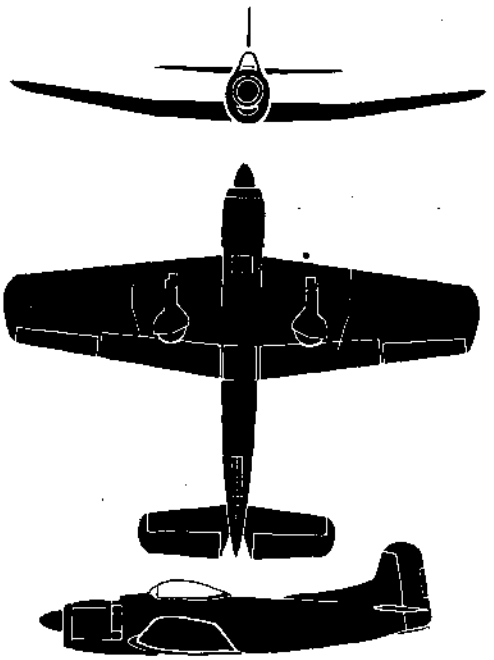


The AD–5 Skyraider is a development of the AD series and incorporates side-by-side seating for an assistant pilot, increased armament, improved equipment arrangement, enlarged vertical tail, and improved aerodynamic characteristics. Its principal mission is that of general purpose attack and ground support. The AD–5 is also an effective torpedo, mine layer, or scout airplane operable from carrier or land base. Since the structural and armament provisions of all AD–5 series are identical, the basic aircraft may be converted with standard kits to any one of twelve or more combat or tactical versions, including day or night attack, photographic reconnaissance, target-type, G, N, W, and S special radar-equipped multi-seaters, eight passenger carrier and ambulance. The Skyraider has served in Korea.

SPAN: 50′0″ **LENGTH: 40′0″**
ENGINE: R–3350/2,700 h. p.
MAX. SPEED: 305 knots/17,000 ft.
RANGE: 650 nautical miles/200 knots.
ARMAMENT: 4 x 20 mm; 12 x 5″ HVAR rockets; maximum bomb load 9,000 lbs.

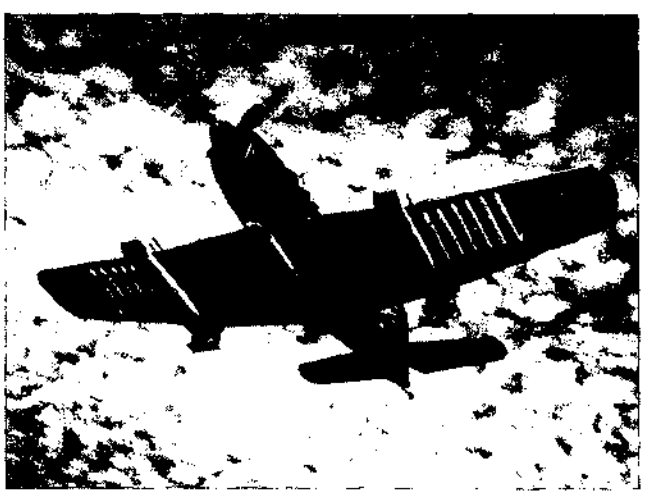




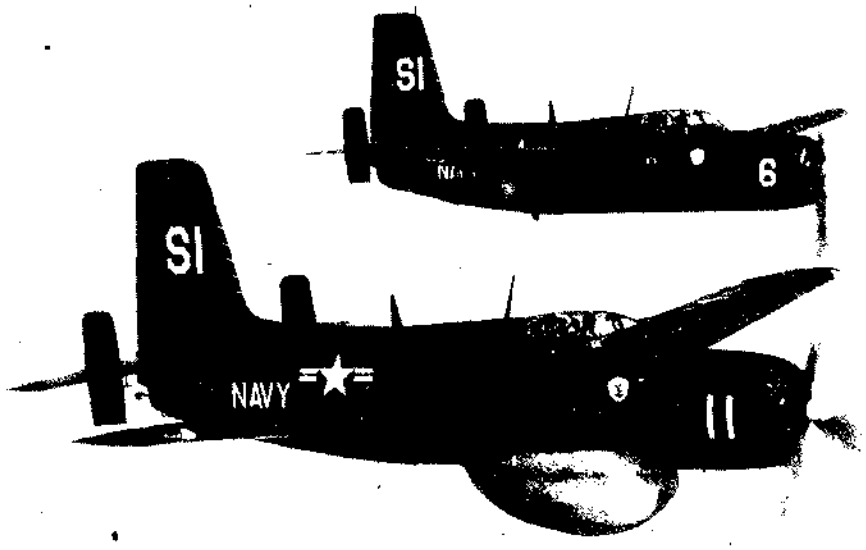


The Mauler is a single-seat attack aircraft, powered by one of the most powerful reciprocating engines in operation. It is to be noted for recognition that the AM's assembly is sweptforward with a large dorsal fairing. The bubble canopy is just above the low, evenly tapered wing which has a straight inboard panel with dihedral outboard and blunt wing tips. This very clean design by Martin combines an all metal construction with bulletproof tanks, armor protection and flak resisting glass. It can carry an armament load of more than 9,000 pounds. The AM–1 was designed for use aboard the large CVB aircraft carriers of the Midway Class.

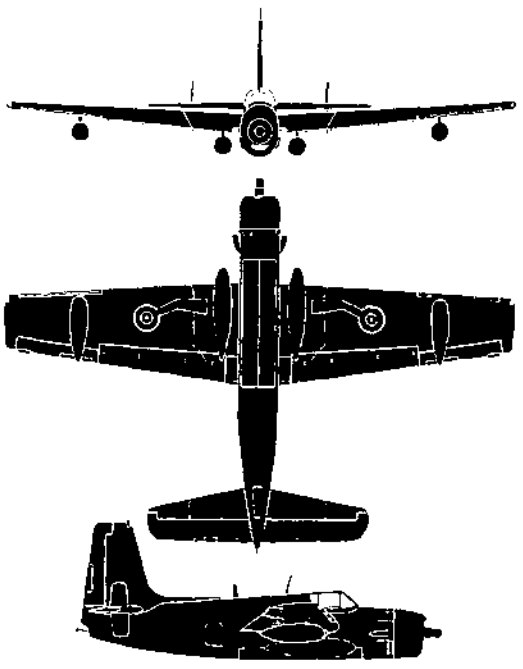
SPAN: 50′0″. **LENGTH:** 41′2″.
ENGINE: R–4360/3,500 h. p.
SPEED: 319 knots/16,000 ft.
RANGE: 1,330 nautical miles/155 knots.
ARMAMENT: 4 x 20 mm & rockets.



AF-2S

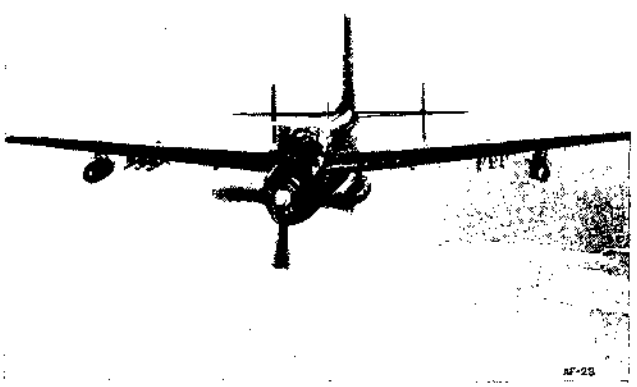


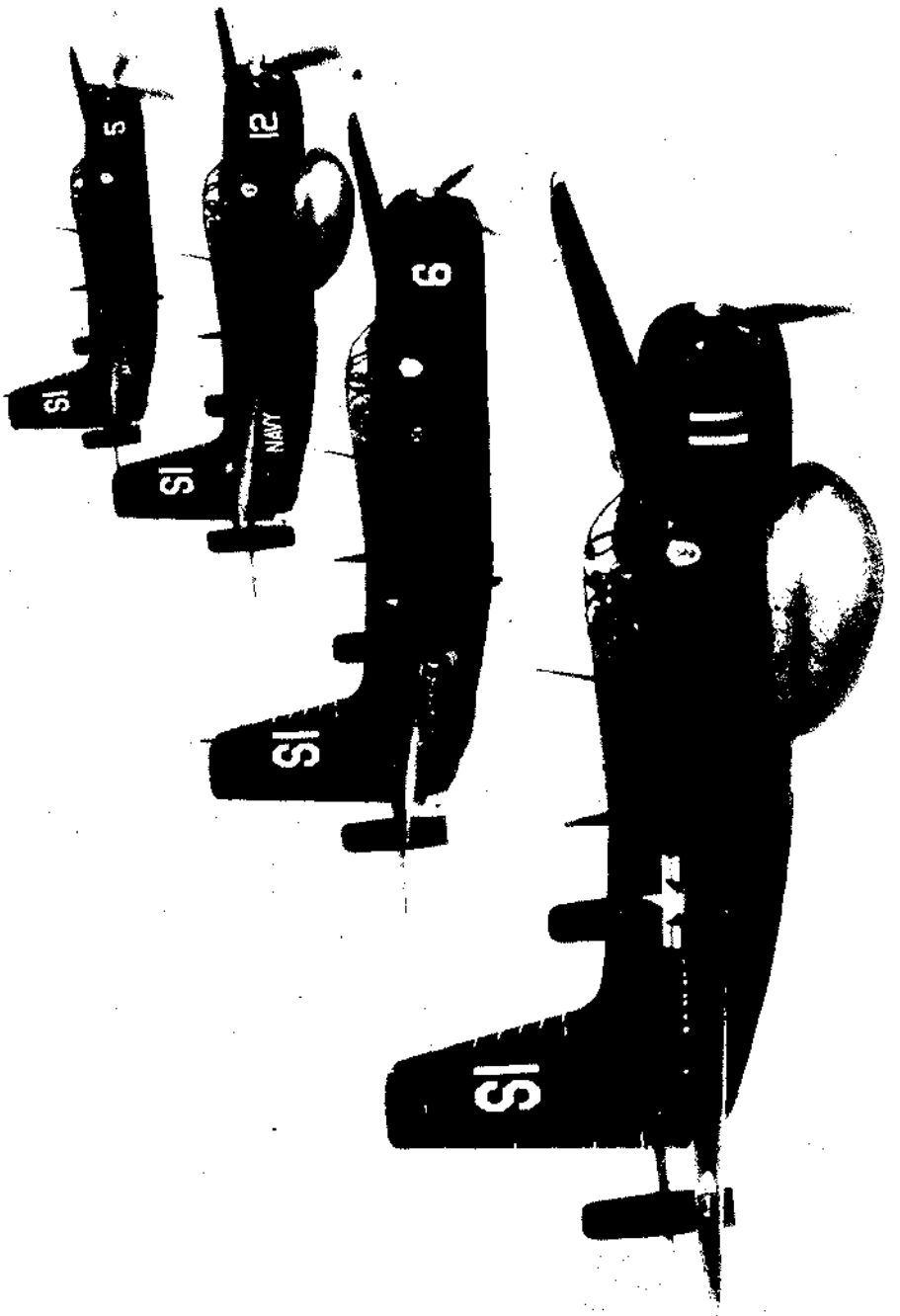
AF-2W

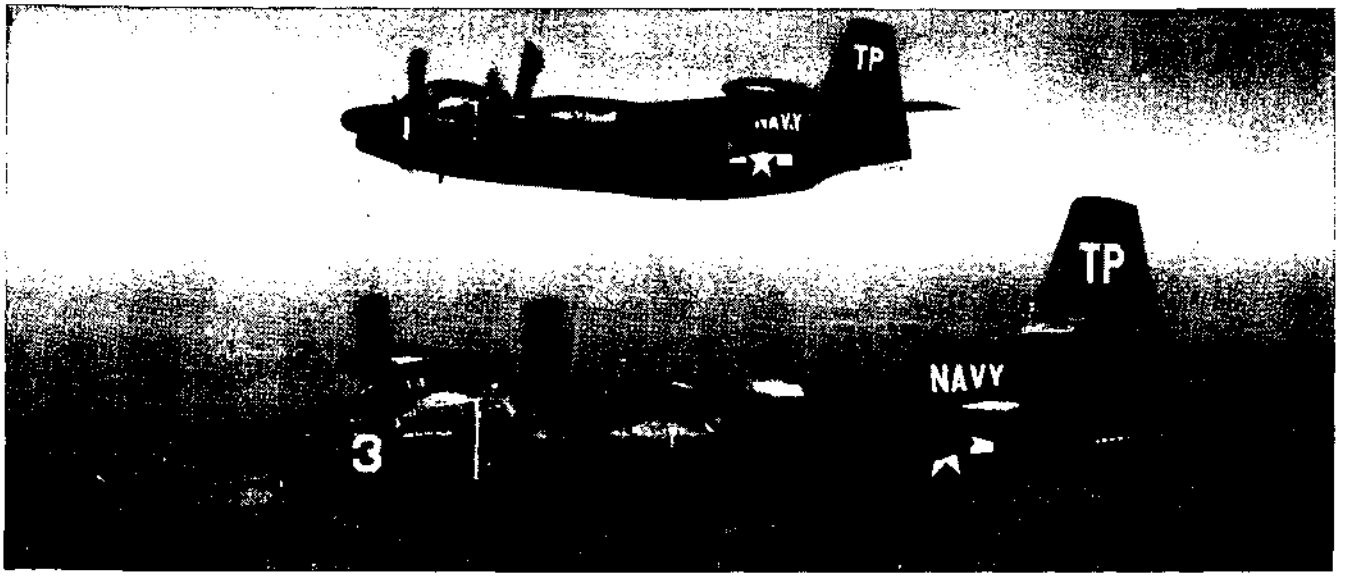


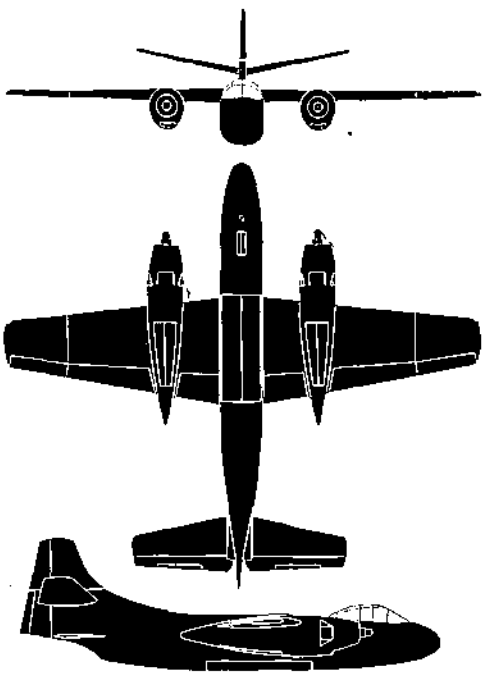
The AF–2W and AF–2S are companion aircraft which differ in appearance in that the 2W, a search version, is equipped with a large underslung "Guppy" housing for electronic gear. Sometimes referred to as the hunter/killer team, the AF–2W after detection of the submarine, directs its companion aircraft, the AF–2S attack version, onto the target to launch the attack. The Guardian is a mid-wing carrier or shore based aircraft with accommodations for a crew of four in the 2W and three in the 2S. Wings have slight dihedral and fold backward for carrier stowage. The fin is high with a dorsal fairing. A tail wheel type landing gear is fitted. Originally the Guardian was designed for a composite power plant. The take-off weight is around 20,000 pounds.

SPAN: 60′ 0″ **LENGTH: 43′ 5″**
ENGINE: R–2800–48/2,300 h.p.
MAX. SPEED: 240 knots/4,000 ft.
RANGE: 795 nautical miles/144 knots.
ARMAMENT: 6 x 5″ rockets; 4 x 500-lb. bombs HVAR or 1 torpedo (AF–2S).



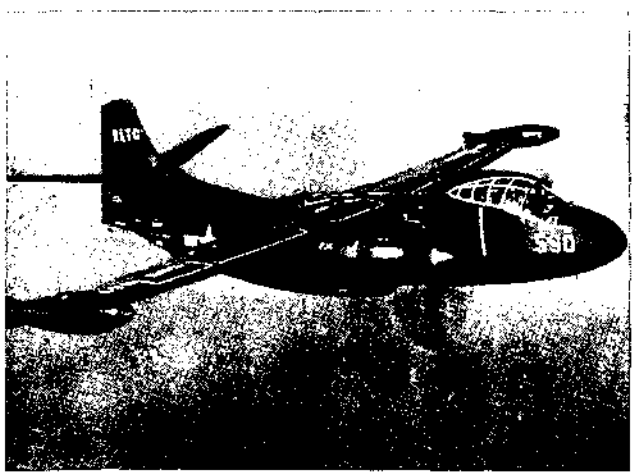

SI
5
SI
NAVY
12
SI
6
SI
11

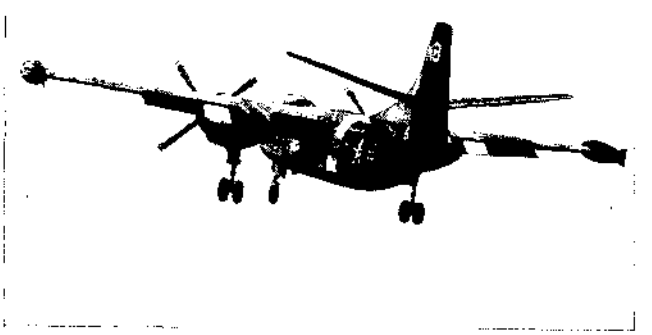


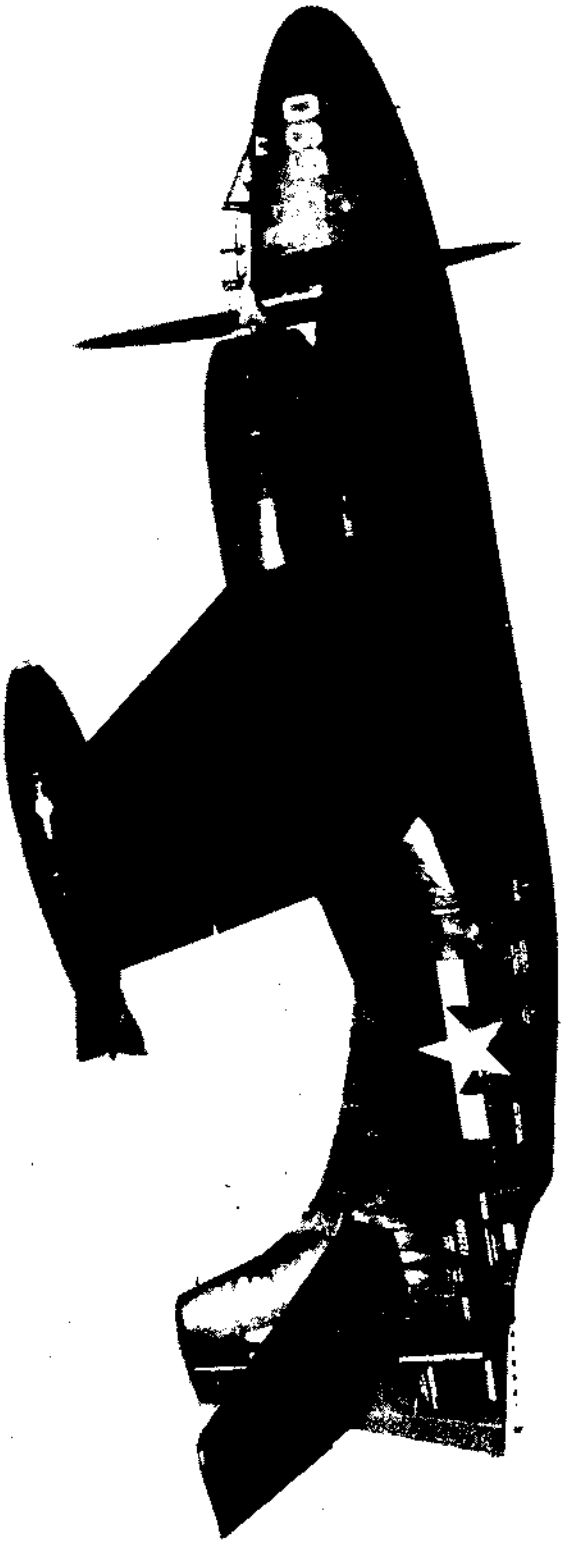


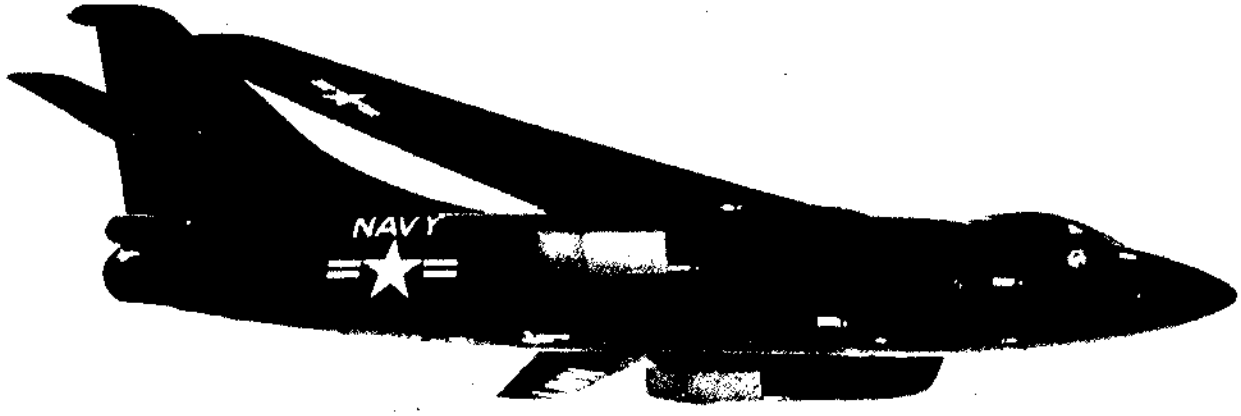
The AJ Savage is a composite-powered carrier-based attack aircraft capable of carrying an atomic bomb. A later development, the AJ-2, has a higher vertical fin and the dihedral removed from the horizontal stabilizer. The AJ 2P photographic version has a refaired nose section for camera gear. Its overall fuselage length is two feet greater than the AJ–1 while the AJ–2 is just a foot longer. The AJ carries a crew of three. Its wings and vertical tail surfaces fold for carrier stowage. The AJ has two reciprocating engines for normal operations and a jet engine in the fuselage for additional power. Jet air intake is located on the dorsal side of the fuselage just forward of the wing's trailing edge. Maximum take-off weight is around 53,000 pounds. A later version, the A2J, has two turboprop engines.

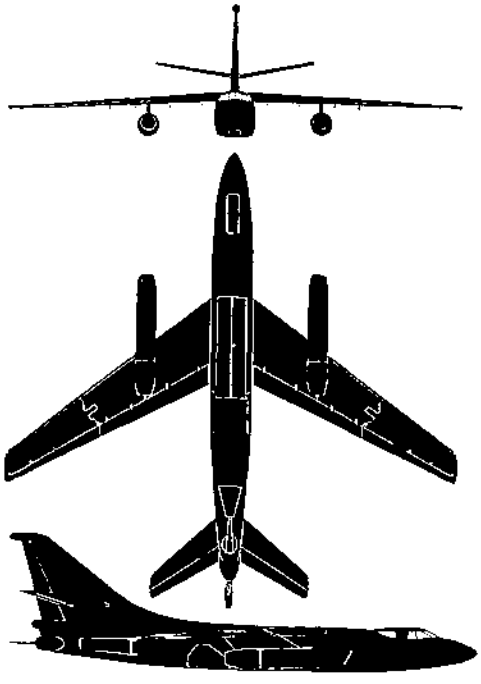
SPAN: 71′5″ **LENGTH: 63′1″**
ENGINE: 2/R–2800/2,300 h. p. each; J33–A–10/4,600-lb. thrust.
MAX. SPEED: 415 knots/35,000 ft.
RANGE: 1,400 nautical miles/235 knots.
ARMAMENT: 12,000-lb. maximum bomb load.







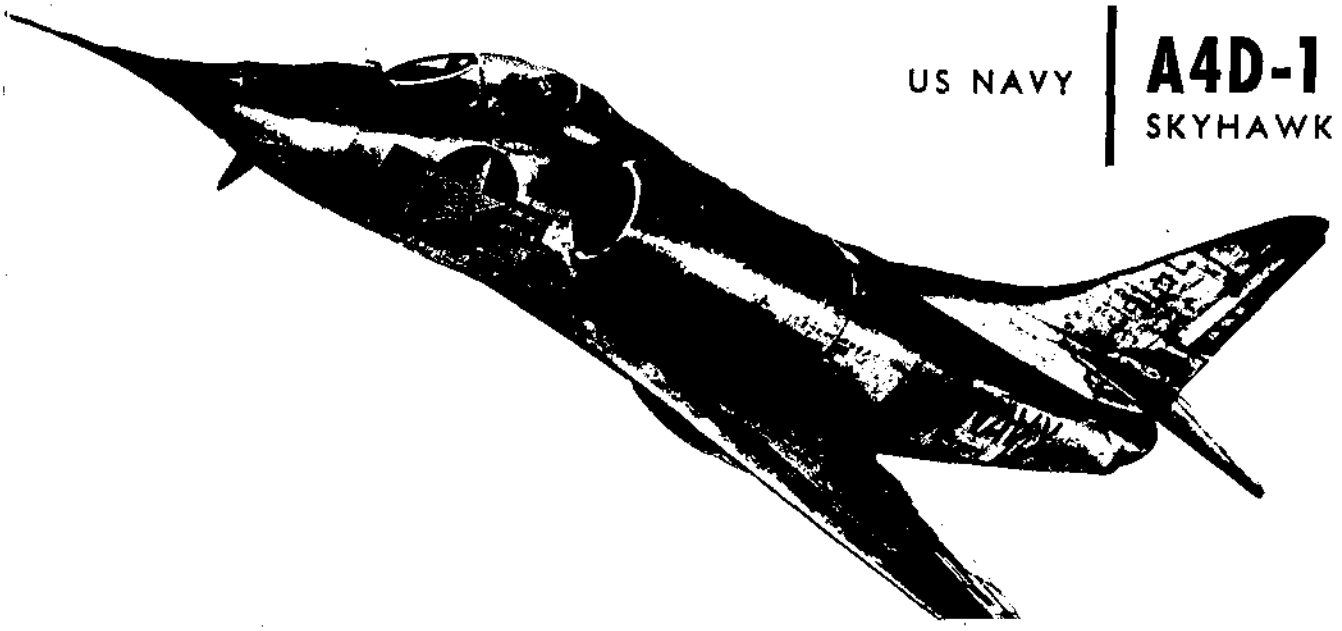




The A3D is a twin-engined swept-wing jet attack aircraft designed to operate from large aircraft carriers. A slightly heavier Air Force version is designated B-66. Its two jet engines are enclosed in under-wing nacelles. The aircraft is of all-metal construction with a semi-monocoque fuselage. Provisions are made for a three-man crew, a pilot, a co-pilot navigator, and a bombardier-radar operator. The wings of the A3D fold to permit more compact stowage aboard aircraft carriers. A tricycle landgear is fitted and an "A" frame with a tail wheel is attached for hard landings. The horizontal stabilizer is adjustable for trim in flight. Power boost controls are featured. This aircraft, like the AJ, is capable of carrying the atom bomb. The arresting hook is located midway on the fuselage.

SPAN: 72'6" **LENGTH: 75'11"**
ENGINE: 2/J40-WE/9,500-lb. thrust each.
MAX SPEED: More than 560 knots.
RANGE: More than 2,000 nautical miles.
ARMAMENT: 2 x 20 mm in tail; bombs.


NAVY



US NAVY

A4D-1
SKYHAWK

The Skyhawk is a single-seat, low-wing, Navy attack bomber. Outstanding recognition features are its small size (less than half the size of many current operational jet fighters), the short, stubby delta wing, the triangular vertical tail surface, and the sharply tapered, short, needle nose. Two large fairings on the underside of the wings house the main landing gear. A large air scoop is mounted high on each side of the fuselage directly behind the canopy. The large vertical fin is probably the best recognition item, as it literally "sticks up like a monument on a pimple."

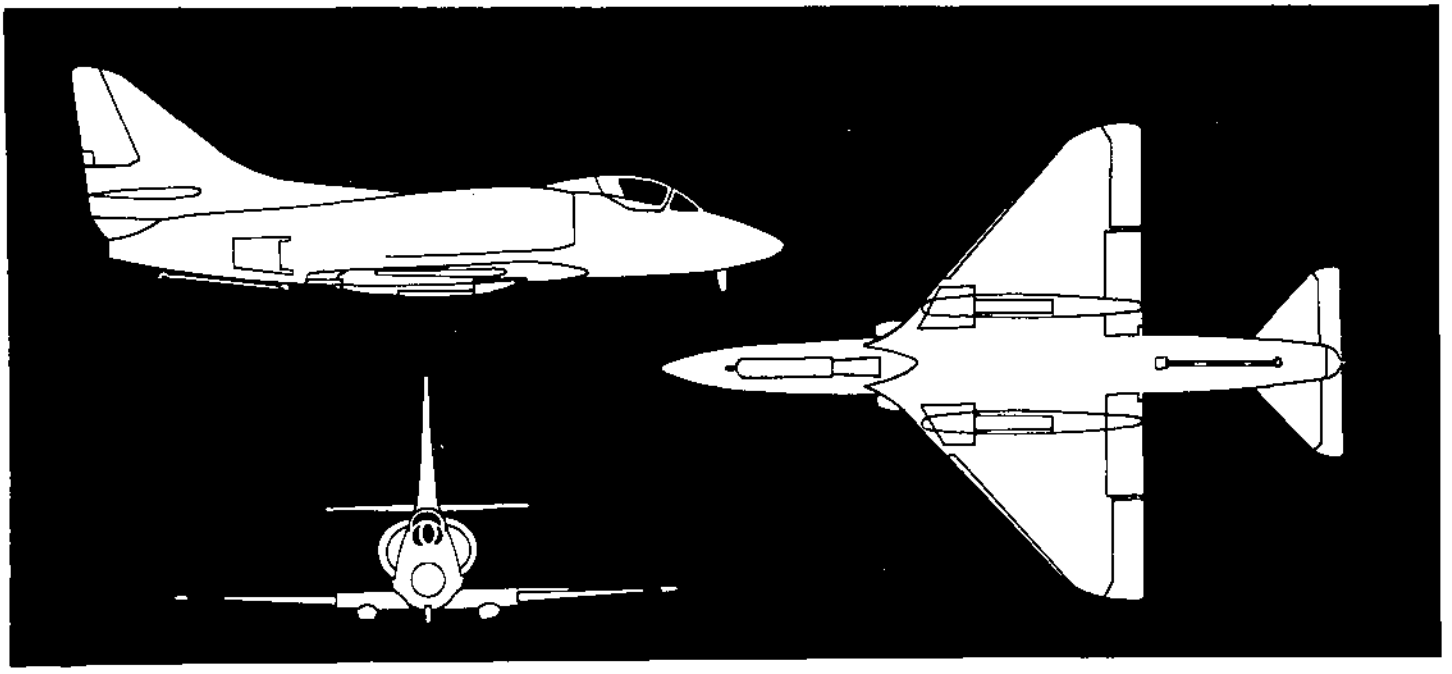
SPAN: 27′ LENGTH: 39′
MAXIMUM SPEED: Over 590 knots
ENGINE: 1/J65-Wright-2/7,200 lbs. thrust
RANGE: More than 1100 nautical miles
ARMAMENT: Bombs

DOUGLAS

SINGLE-JET

ATTACK

BOMBER

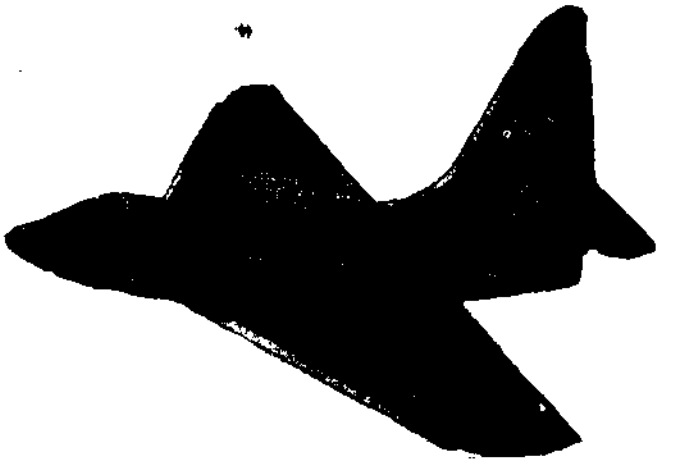


U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

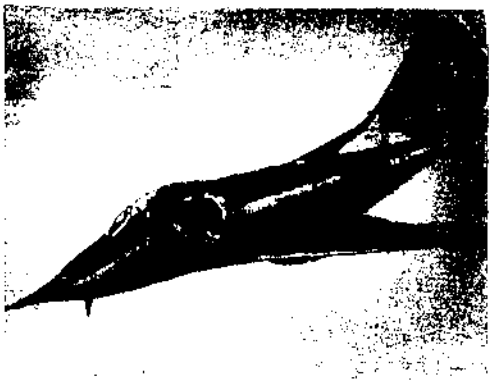
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

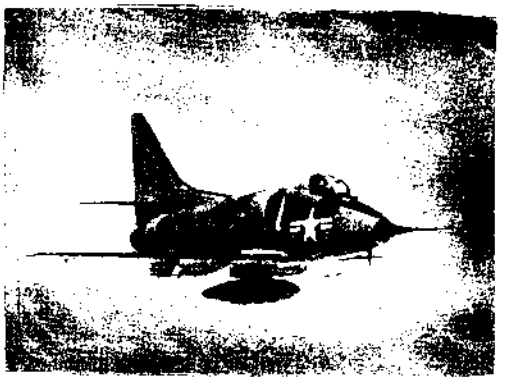
A4D-1
SKYHAWK

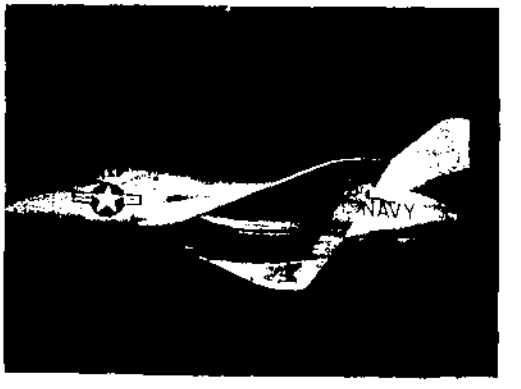
US NAVY



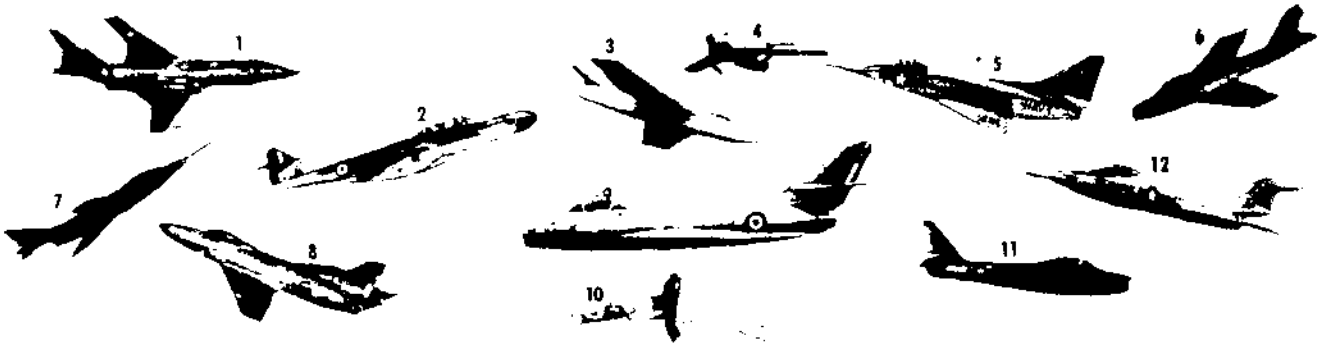
ACCENTED DRAWING







Miscellaneous views of the A4D Skyhawk

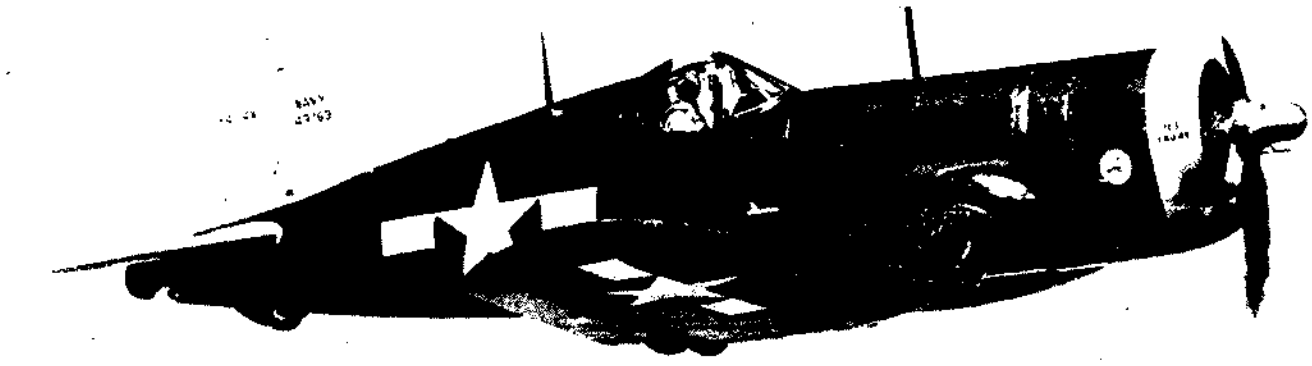


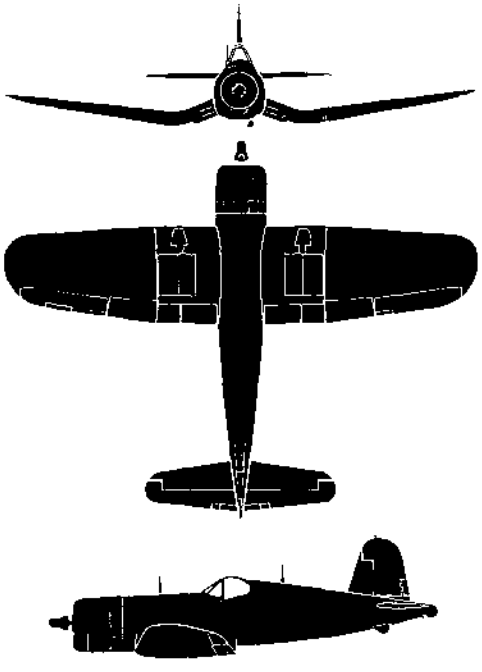
Identify the aircraft shown above; correct answers are below

1. VOODOO 3. HUNTER 5. SKYHAWK 7. DEMON 9. MYSTERE 11. F-84F
2. METEOR 4. FAGOT 6. F-84F 8. LANSEN 10. F-84F 12. VOODOO

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

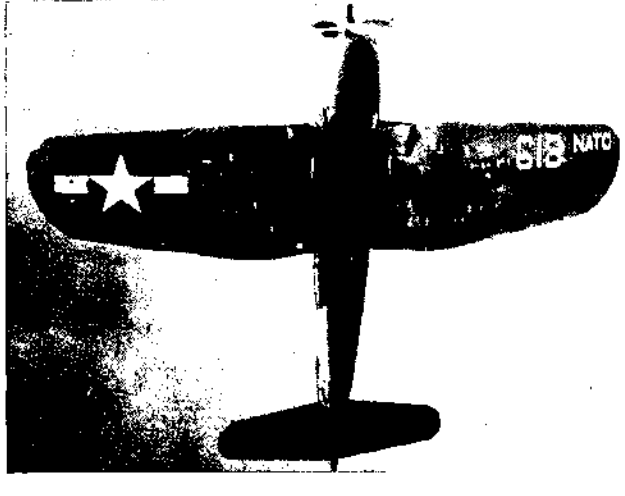
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

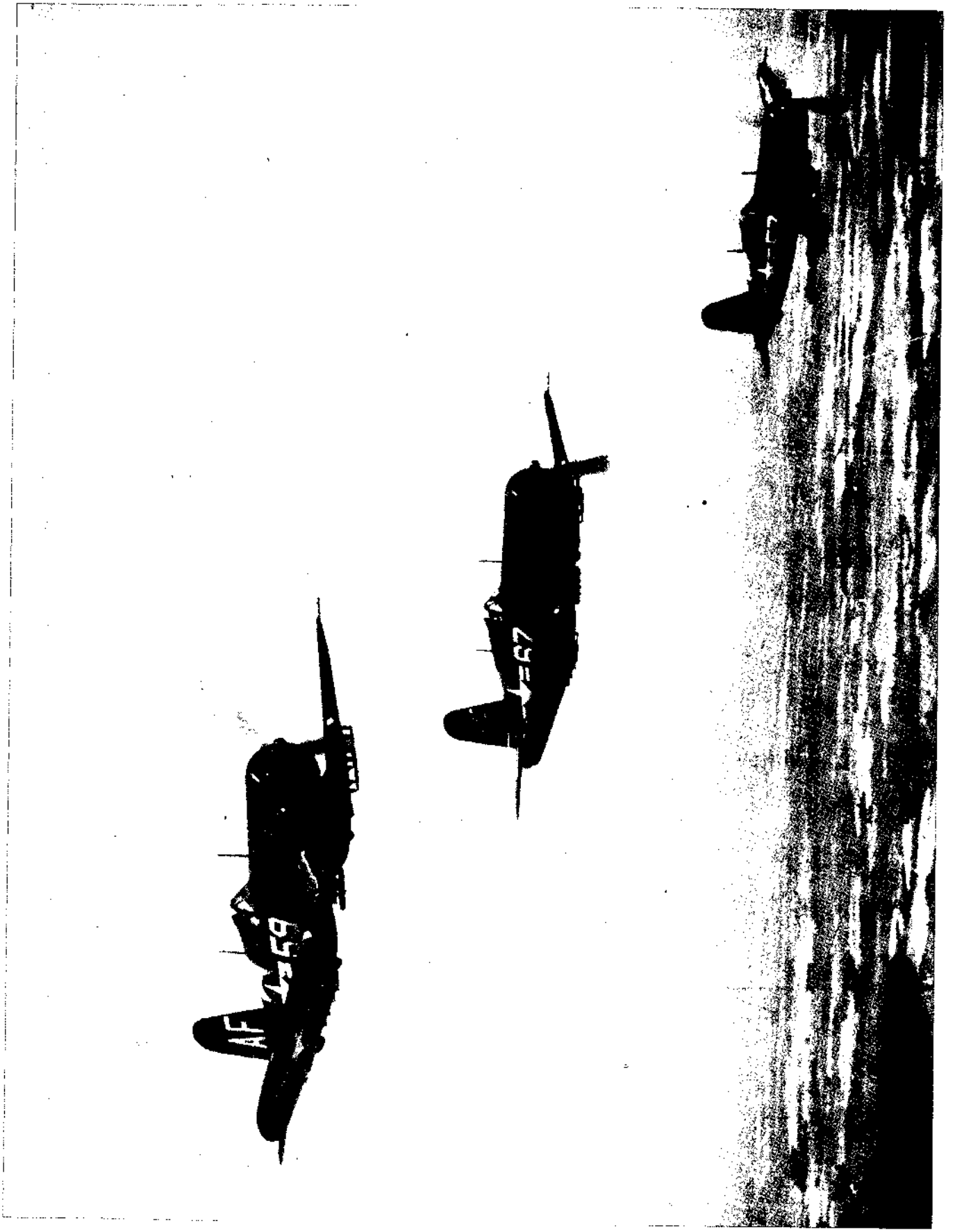


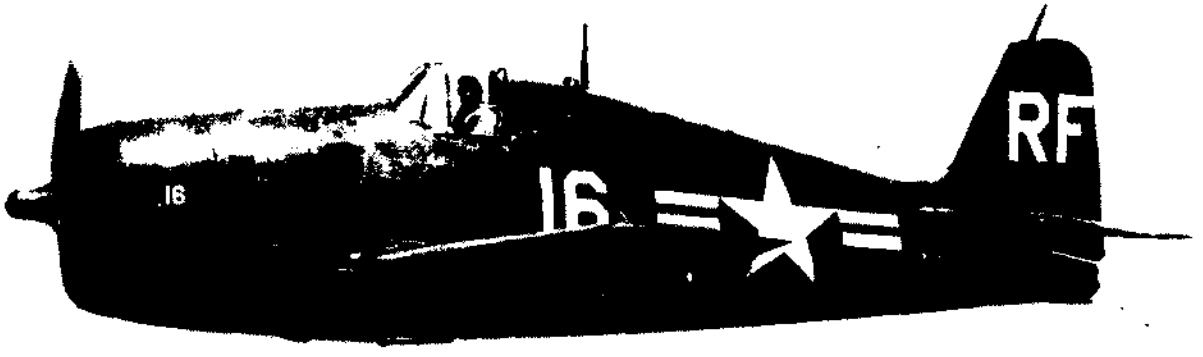


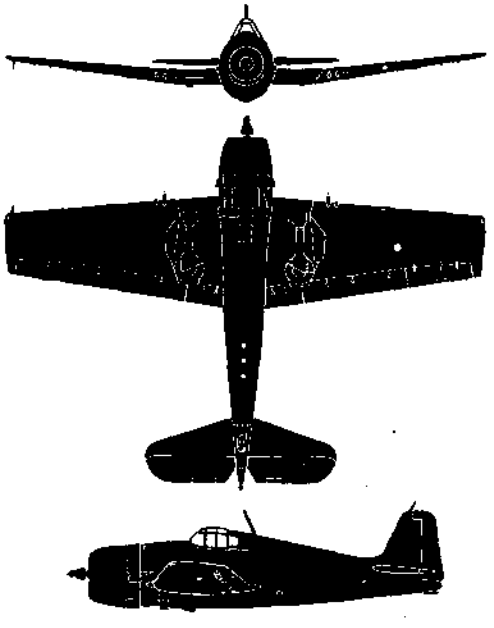
The Corsair, a World War II fighter, is still widely used aboard carriers and in land based fighter squadrons. It is easily recognized by the inverted gull wing and fin and rudder set well forward of the projecting fuselage tip. The gull wing in addition to permitting the use of short landing gear struts, also is interesting from a technical viewpoint, as it is a major factor in lowering the F4U's landing speed to below 70 knots. The wings acting with flaps, "cup" the air, causing actual compression a few feet before the landing. Between June 1942 and the end of the war over 10,000 F4U's had been delivered. Model F4U-5 is now in delivery to operational units.

SPAN: 41'0". **LENGTH:** 33'3".
ENGINE: R-2800/2,700 h. p.
SPEED: 401 knots/31,400 ft.
RANGE: 1,190 nautical miles/164 knots.
ARMAMENT: 4 x 20 mm & rockets.



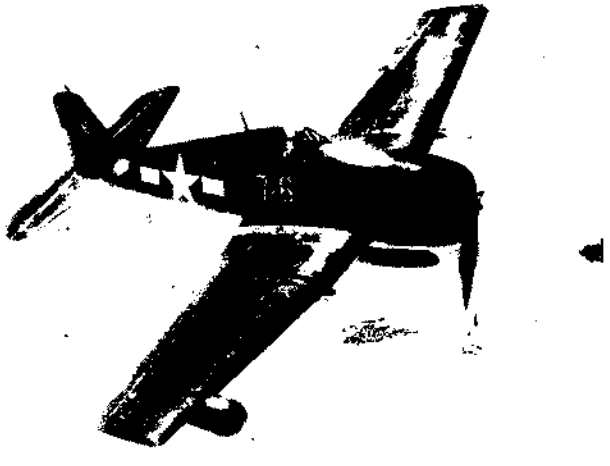


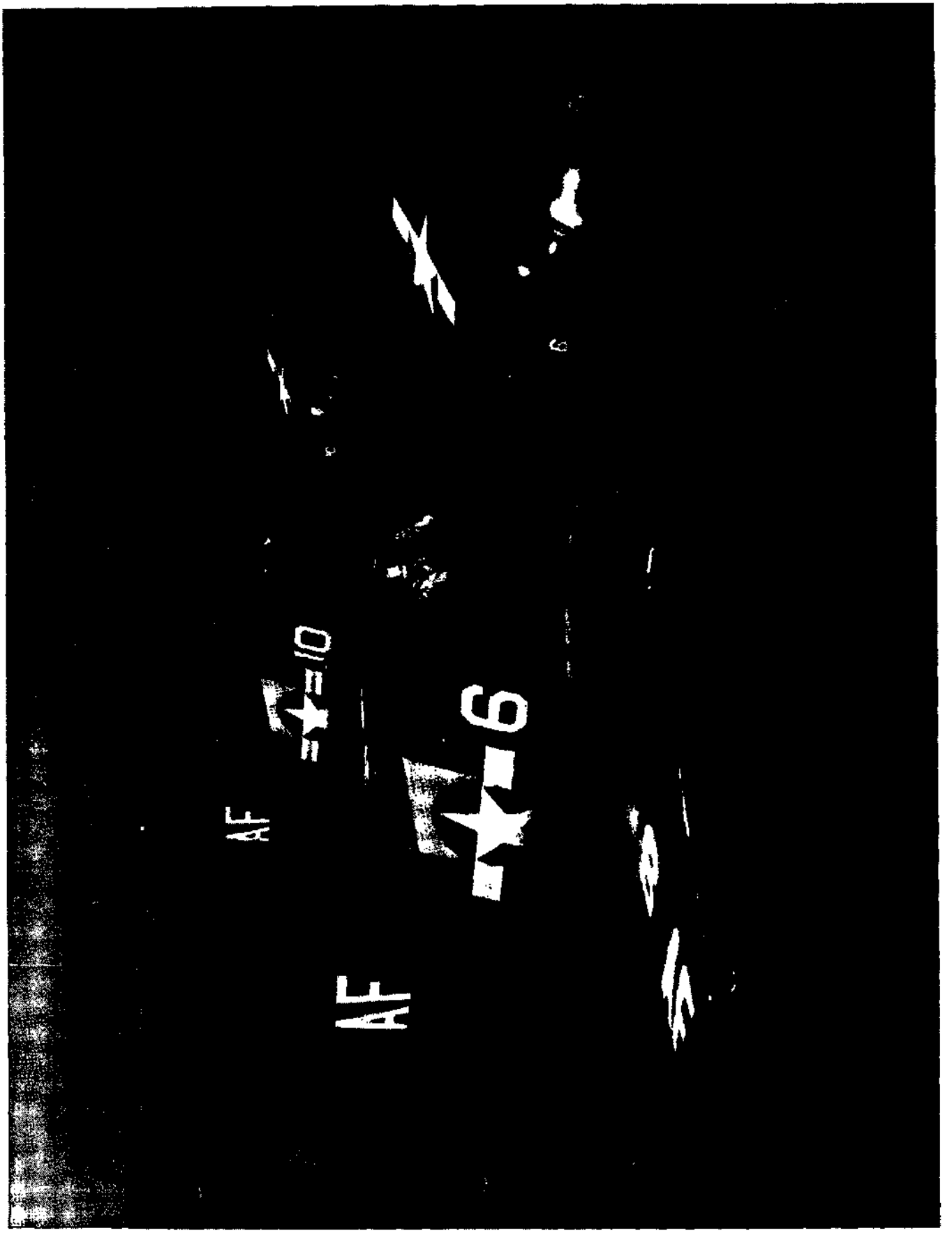


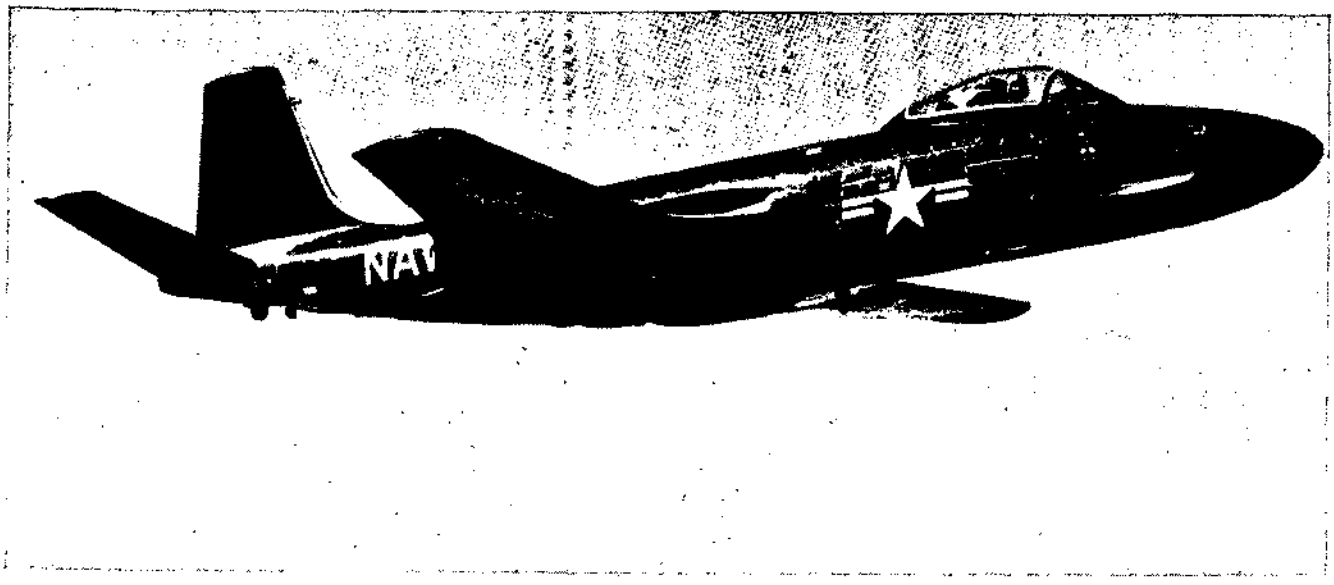


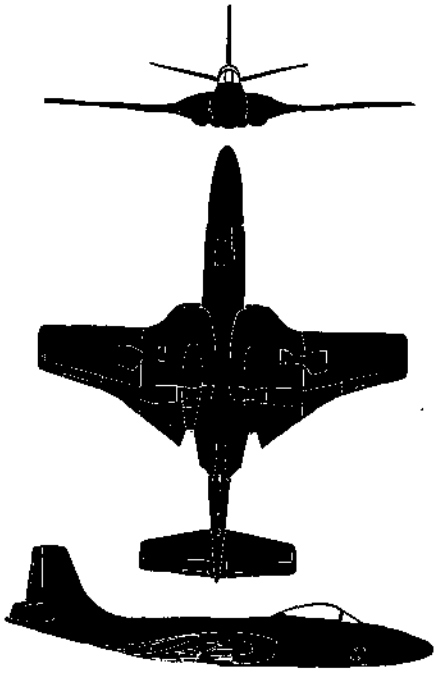
The F6F Hellcat is a radial engine, low-mid-wing monoplane. The inboard panels of the wing are horizontal and the outboard panels have dihedral. From a head on view the fuselage is deep egg-shaped with a high narrow cockpit. In the side view the dorsal side of the fuselage fairs into the high cockpit canopy and the fin and rudder tip is blunt. In the plan view the wing is evenly tapered with blunt tips; stabilizer and elevator are long with tapered leading edge, straight trailing edge and rounded tips. This famous fighter of World War II and successor to the F4F, is now used largely by reserves and has been replaced in the fleet by newer type aircraft.

SPAN: 42'10". **LENGTH:** 33'7".
ENGINE: R–2800/2,250 h. p.
SPEED: 335 knots/17,400 ft.
RANGE: 1,080 nautical miles/143 knots.
ARMAMENT: 6 x .50 cal & rockets.



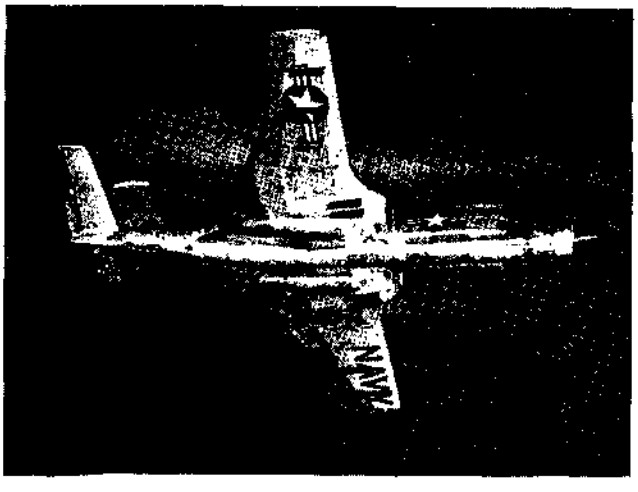


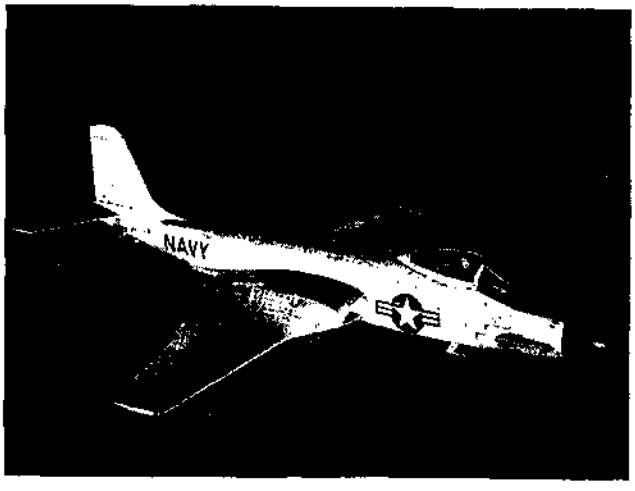


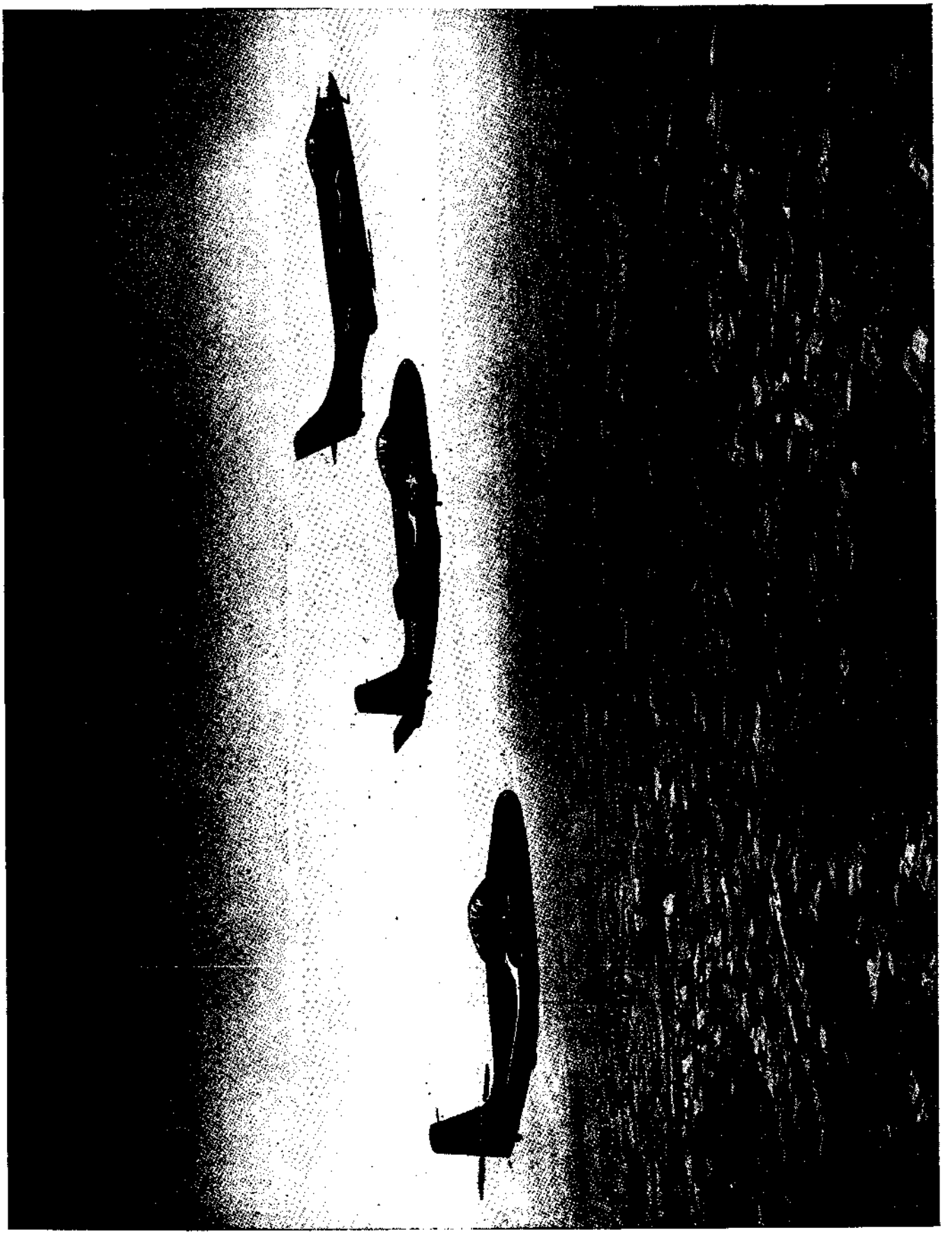


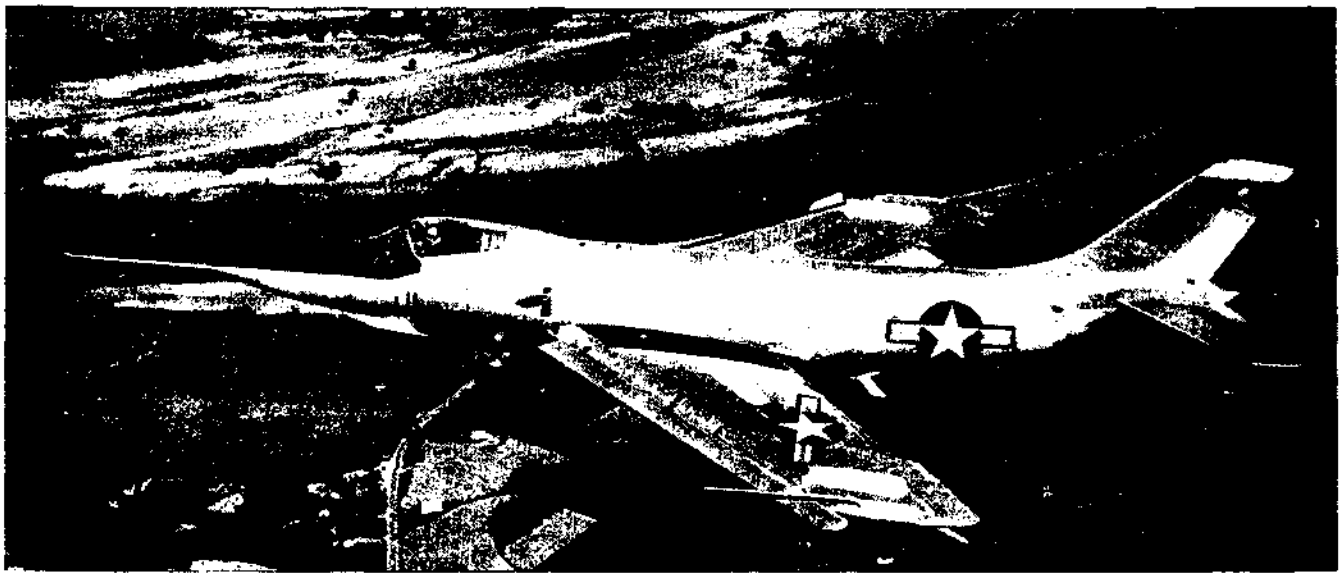
The F2H–3 Banshee is a modified version of the F2H. Its features have been changed outwardly by lengthening the fuselage, altering the fin slope, and putting dihedral in the stabilizer. The F2H–3 is classed as a single place all-weather fighter designed for either land or carrier based operations. Its internal fuel capacity has been increased to obviate the use of tip tanks for carrier operations. Equipment includes automatic pilot, ejection seat, cockpit pressurization, and power actuation with artificial feel forces for the aileron and elevator. The F2H–3's take-off weight is a little more than the earlier Banshee's 20,000 pounds. In the F2H series the jet units are placed close to the center line of the aircraft so that very little yaw results when one engine is shut off.

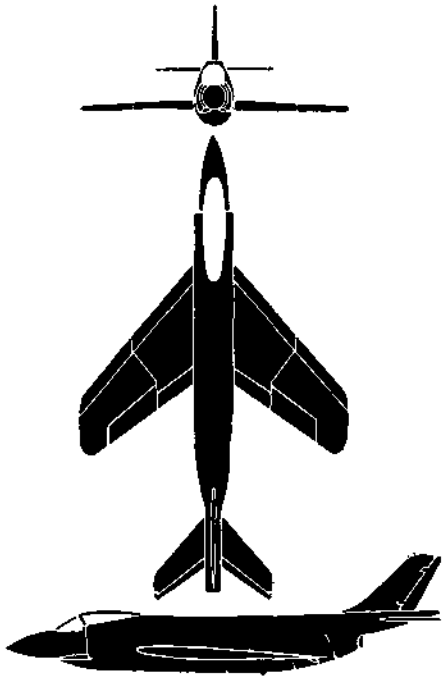
SPAN: 41′9″ **LENGTH: 48′2″**
ENGINE: 2/J34–WE–34/3,250-lb. thrust each.
MAX. SPEED: 505 knots/sea level.
RANGE: 1,100 nautical miles/395 knots.
ARMAMENT: 4 x 20 mm; 8 x 5″ HVAR rockets.





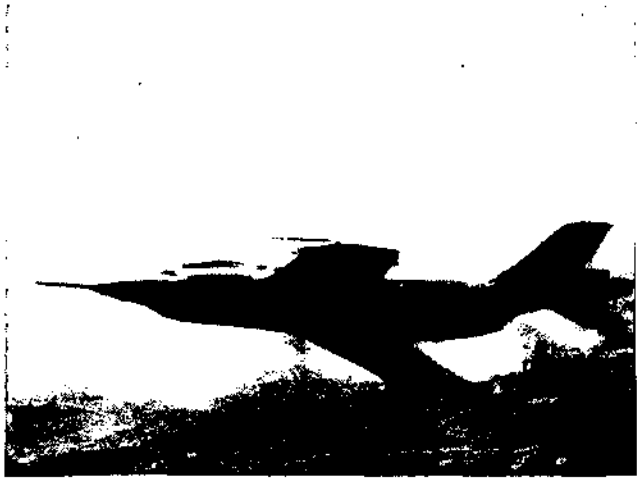


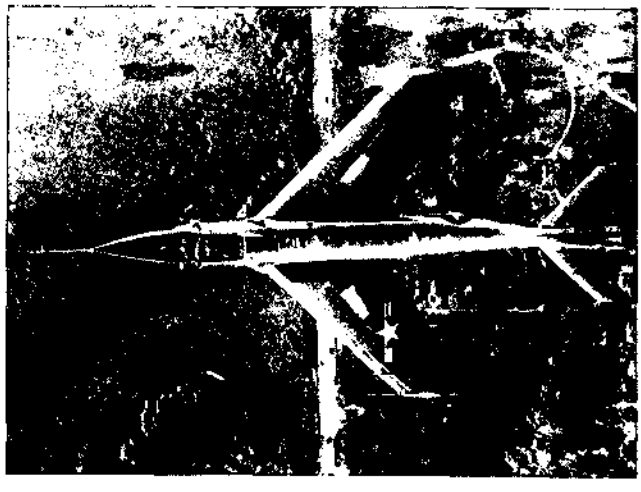




The F3H Demon is a single-place swept-wing jet fighter designed for land or carrier operations. A prototype was first flown in August 1951. The sharply swept-back wings have a 45° sweepback and can be folded for carrier stowage. Equipment includes automatic pilot, ejection seat, and pressurized cockpit. An auxiliary power unit may be carried externally to provide for engine starting when operating from advance bases. Air intake for its single jet engine is through side cheek scopes with the exhaust outlet in a ventral position below the tail surfaces. Lift for landing and take-off is aided by power actuated leading edge slats and trailing edge slotted flaps. Speed brakes and power actuated controls with artificial feel forces are employed. This aircraft resembles the earlier F-88.

SPAN: 35'4" **LENGTH: 59'0"**
ENGINE: J40-WE/13,700-lb. thrust with A. B.
MAX. SPEED: More than 600 knots.
RANGE: More than 1,000 nautical miles.
ARMAMENT: 4 x 20 mm; rockets and bombs.



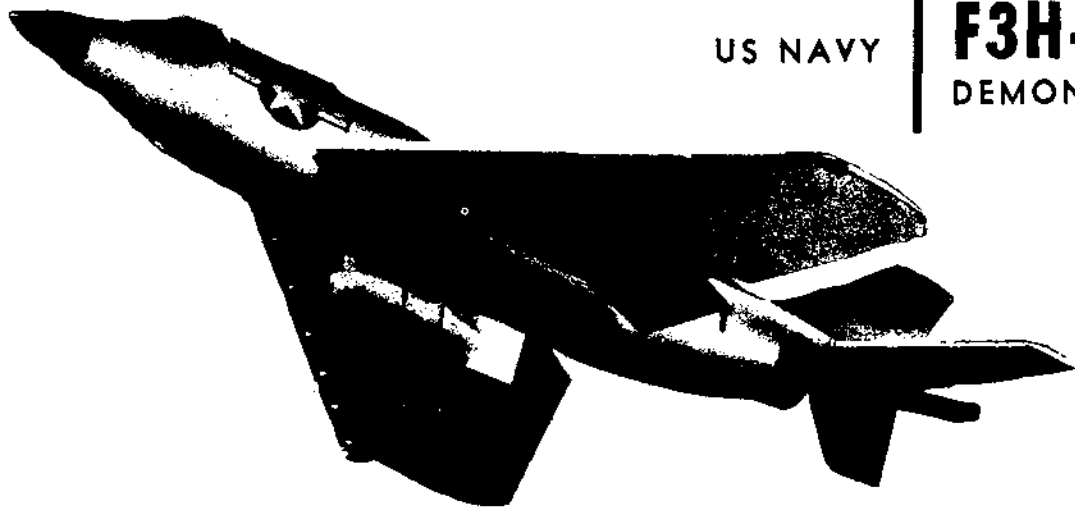


U. S. A.
SUPPLEMENT NO. 4
JUNE 1953

FM 30-30
OPNAV 32P-1200/4
AFM 50-40D

US NAVY

F3H-2N
DEMON



The F3H-2N Demon is a single-seat, carrier based all-weather Navy fighter designed from the Banshee and F-88. Close-up recognition features include 45° swept-wing and tail surfaces, wing leading-edge slats and trailing-edge slotted flaps, and a sharp slanting, short fuselage nose. The horizontal stabilizer is movable and can be reset for various speeds. The over-all appearance of the Demon is that of a needle-nosed projectile with an undercut tail section trailing far aft — as though it were attached to a towrope.

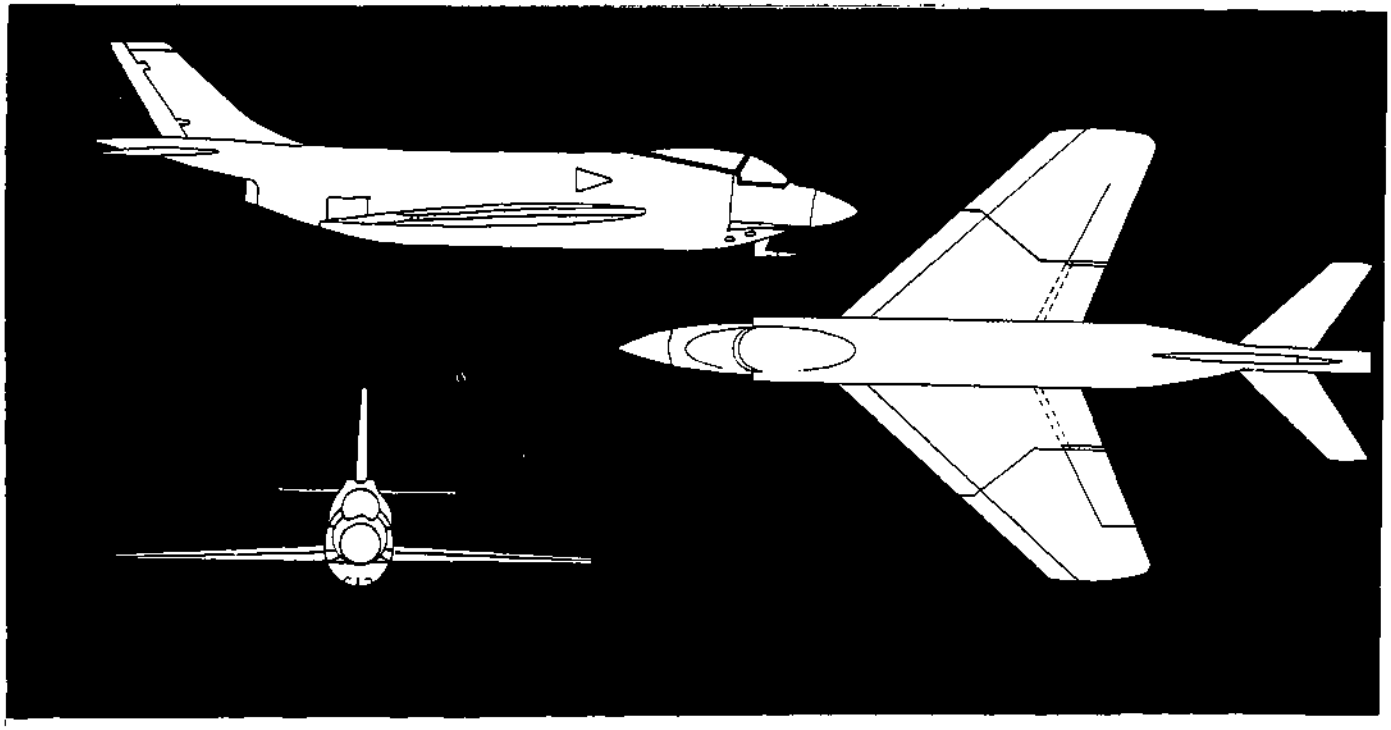
SPAN: 35'4" LENGTH: 58'11"
MAXIMUM SPEED: Over 651 knots
ENGINE: 1/J71-Allison-2/10,200 lbs. thrust Afterburner
RANGE: More than 1000 nautical miles
ARMAMENT: 4x20mm. cannon; rockets

McDONNELL

SINGLE-JET

ALL-WEATHER

FIGHTER

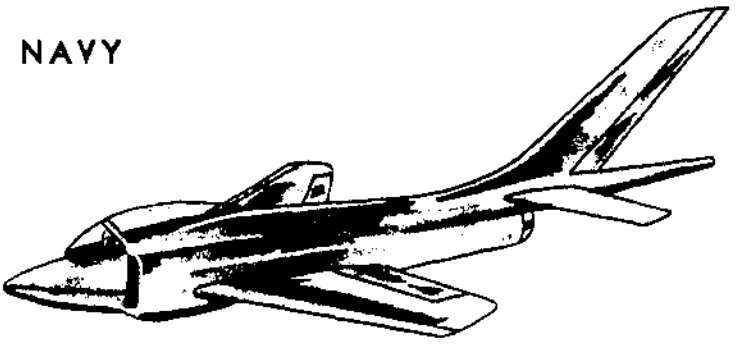


U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

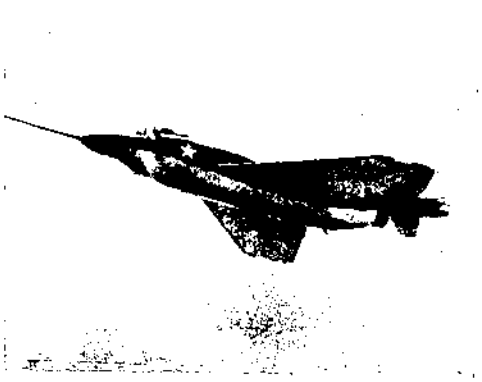
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

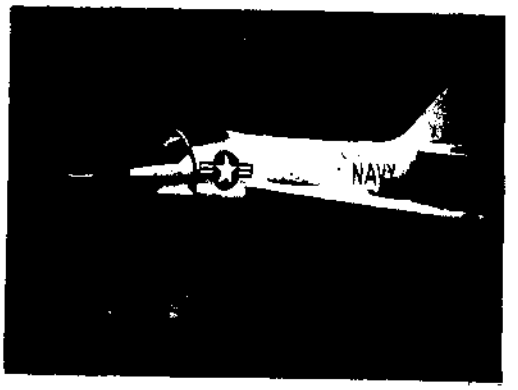
F3H-2N
DEMON

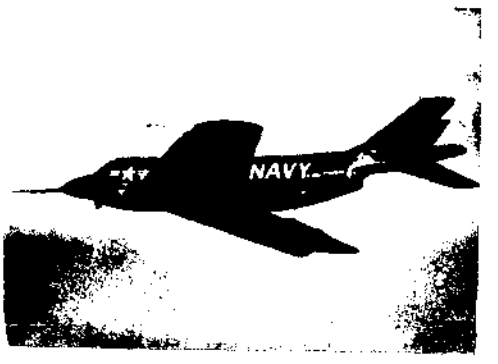
US NAVY



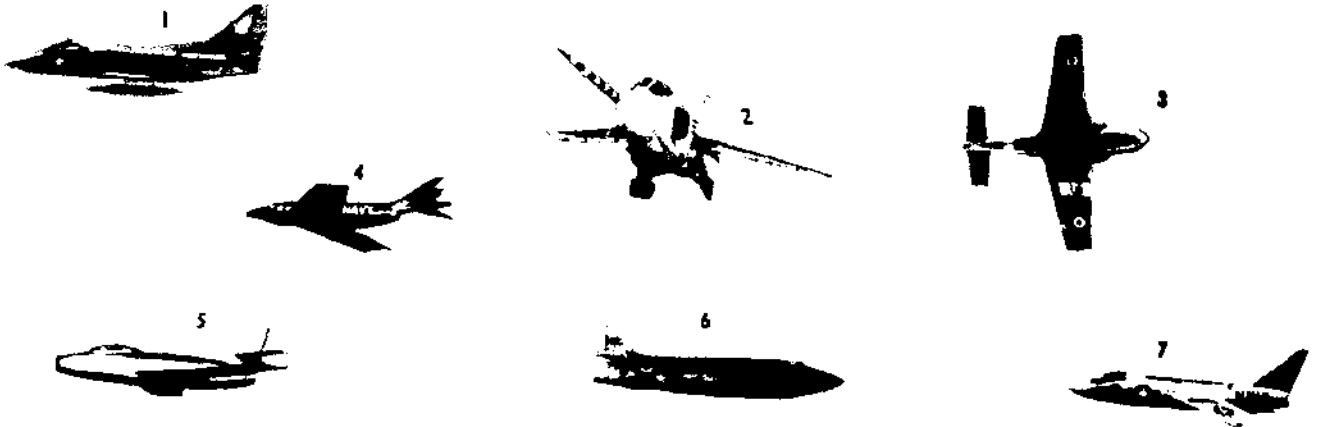
ACCENTED DRAWING







Miscellaneous views of the F3H-2N DEMON

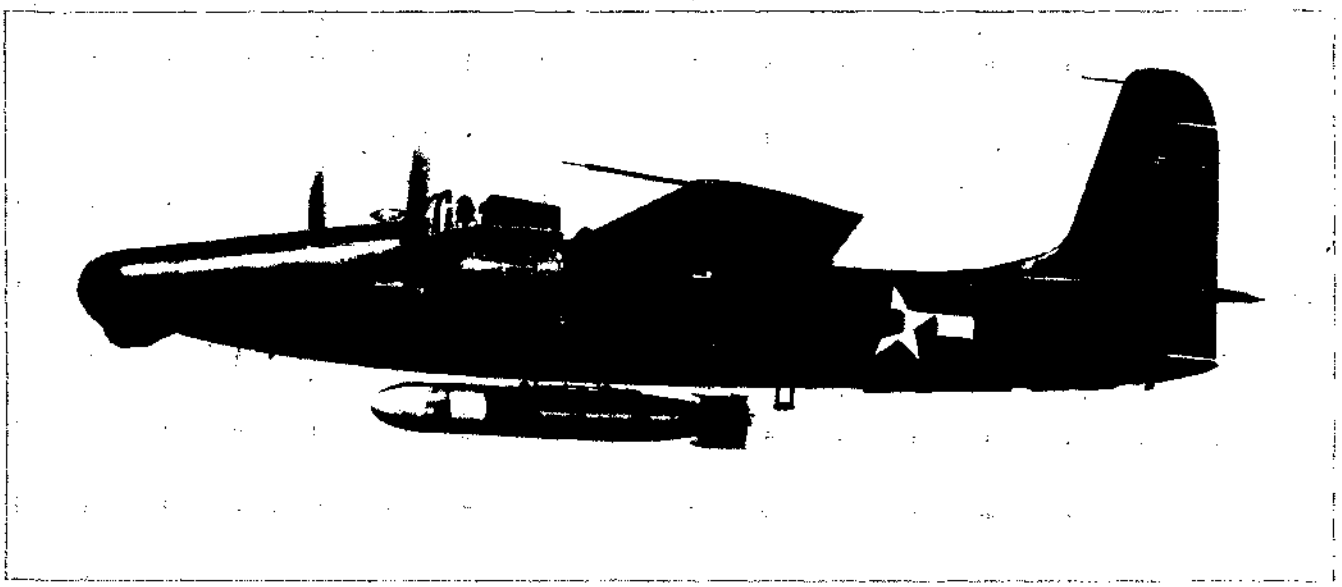


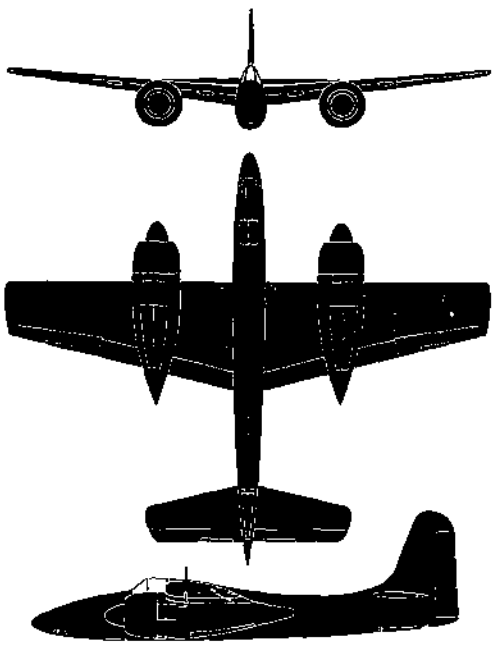
Identify the aircraft shown above; correct answers are below

1. A4D SKYHAWK
2. F11F-1 TIGER
3. JET PROVOST MK.1
4. DEMON
5. MYSTERE IV
6. BELL X-1A
7. F11F-1 TIGER

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

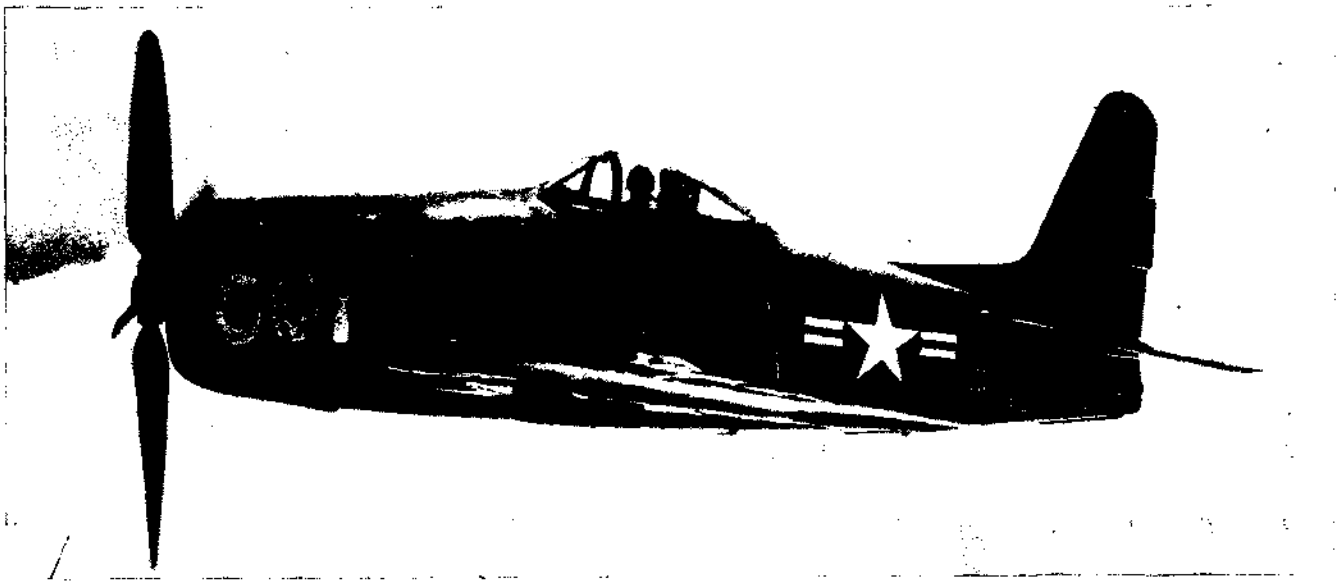


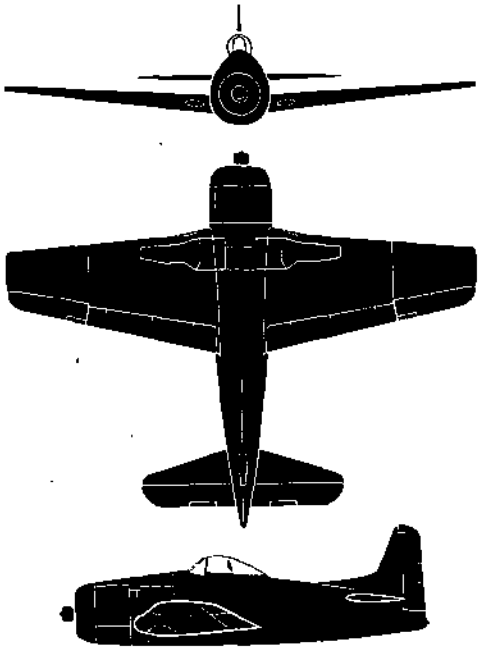


The F7F Tigercat is a mid-wing monoplane with single fin and rudder, high mid-mount wing with straight leading edge, sharply tapered trailing edge and squared off tips. Large underslung nacelles project beyond the trailing edge of the wing. The fuselage is long and narrow with a two section cockpit. The long horizontal stabilizer has slightly tapered leading edge and raked tips. This is Grumman's first twin-engine fighter design since the experimental F5F Skyrocket appeared in 1940. The F7F was developed for use from carrier decks but is now used primarily as a land based night fighter by the Navy and Marines.

SPAN: 51'6". **LENGTH:** 45'4½".
ENGINE: R-2800/2,380 h. p.
SPEED: 370 knots/19,200 ft.
RANGE: 1,360 nautical miles/190 knots.
ARMAMENT: 4 x 20 mm.; 4 x .50 cal.

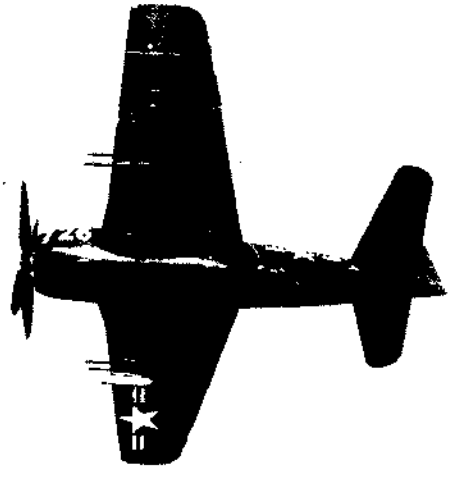

469

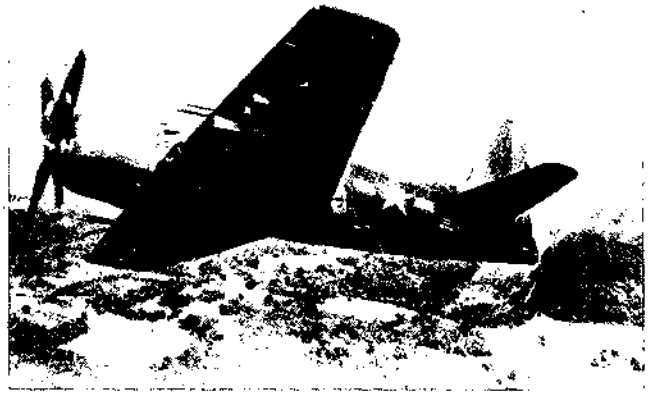




The evolution of the Grumman fighter has produced this high speed, very maneuverable little fighter, which was with fleet units just prior to VJ-day, but too late for actual combat. Powered with the same horsepower engine as its predecessor, the Hellcat, the Bearcat is lighter, smaller and much cleaner in design. Along with the Corsair it is the Navy's first line conventional engine carrier based fighter. Recognition characteristics are the familiar Grumman stubby fuselage, high bubble canopy and tapered low mid-mount wing with blunt tips. The F8F–2 shown here is actually the same as the F8F–1 with the exception of two 20-mm. cannon.

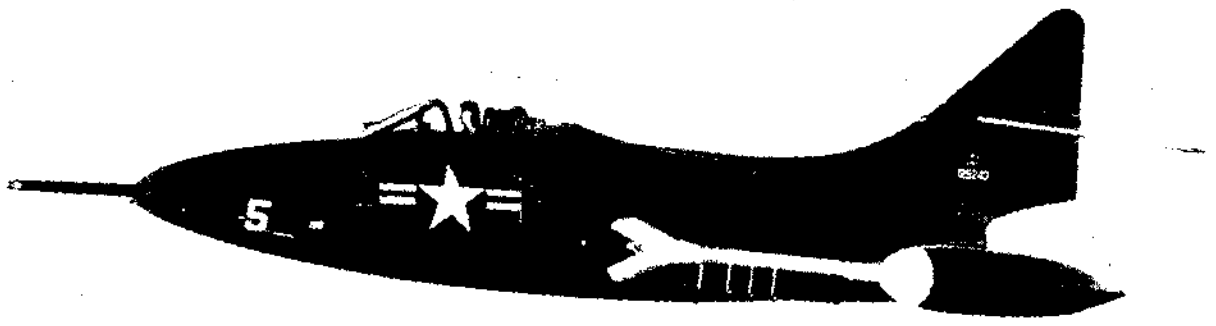
SPAN: 35'6". **LENGTH:** 27'6".
ENGINE: R–2800/2,380 h. p.
SPEED: 370 knots/19,900 ft.
RANGE: 1,140 nautical miles/140 knots.
ARMAMENT: 4 x .50 cal. or 4 x 20 mm.



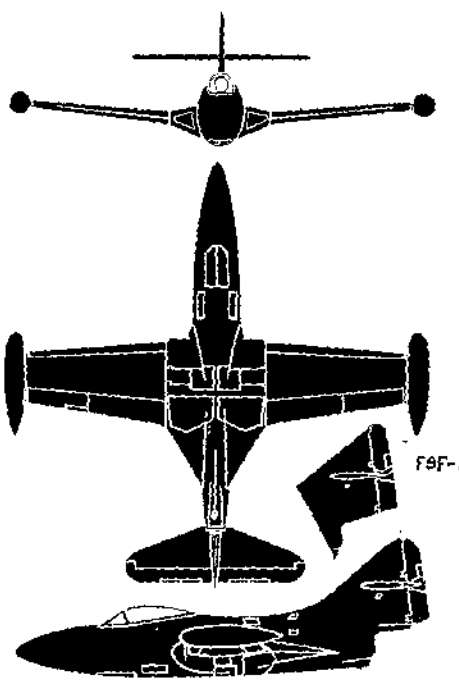


USA
MAY 1949

AFM 50-40
OPNAV 32P-1200



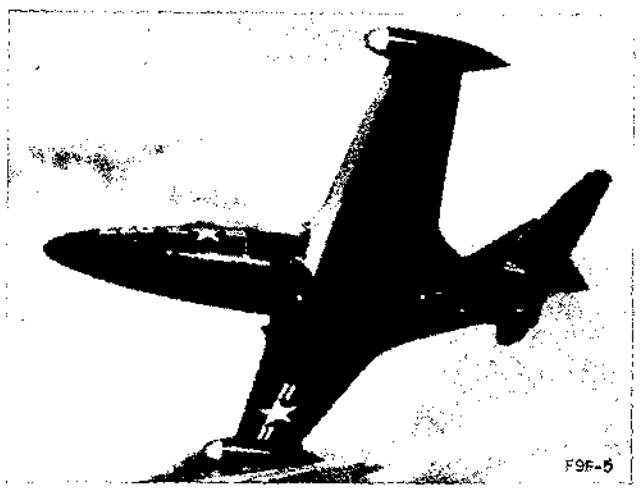
F9F-5



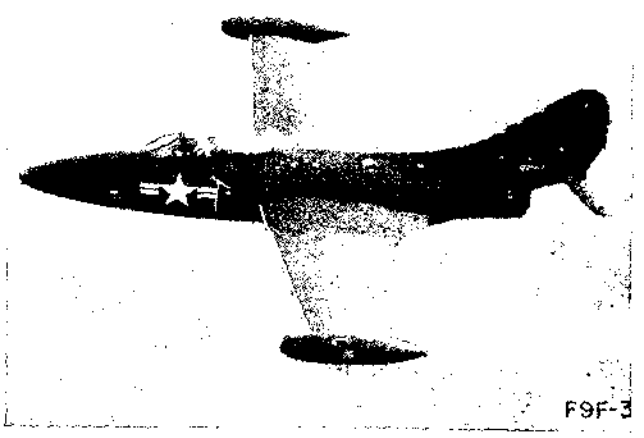
F9F-5

The Panther is a carrier based single-seat jet fighter that has appeared in a number of modifications. Most of the external changes, with the exception of the swept-wing F9F-6, have been slight. A recognition difference, however, is the higher more pointed vertical fin and rudder of the later F9F-4, -5, modifications. The Panther, the first jet produced by Grumman, has very few of the familiar Grumman recognition characteristics. A droop snoot wing is incorporated to improve landing and take-off characteristics. A removable nose section permits rapid changes of armament, electronic or camera equipment to suit the type of mission. The tip tanks are not droppable in flight. The take-off weight of the Panther is more than 16,000 pounds.

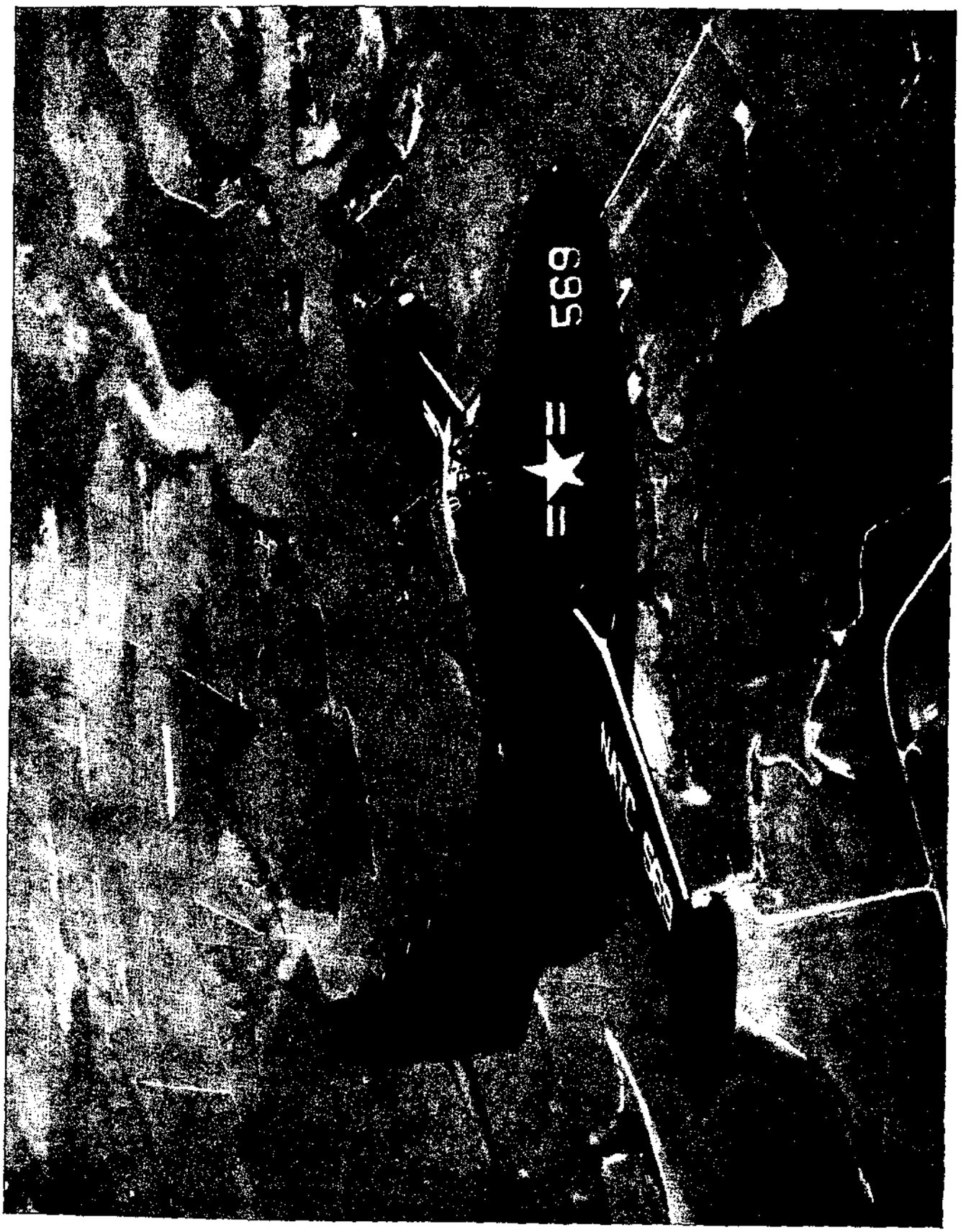
SPAN: 38′ 0″ **LENGTH: 38′ 10″**
ENGINE:(-2)/J42-P-8/5,000-lb.; (-3)/J33-A-8/4,-600-lb.; (-4)/J33-A-16/5,850-lb.; (-5)/J48-P-6/6,250-lb.
MAX. SPEED: (-4)/520 knots/sea level.
RANGE: 1,500 nautical miles/400 knots.
ARMAMENT: 4 x 20 mm.



F9F-5

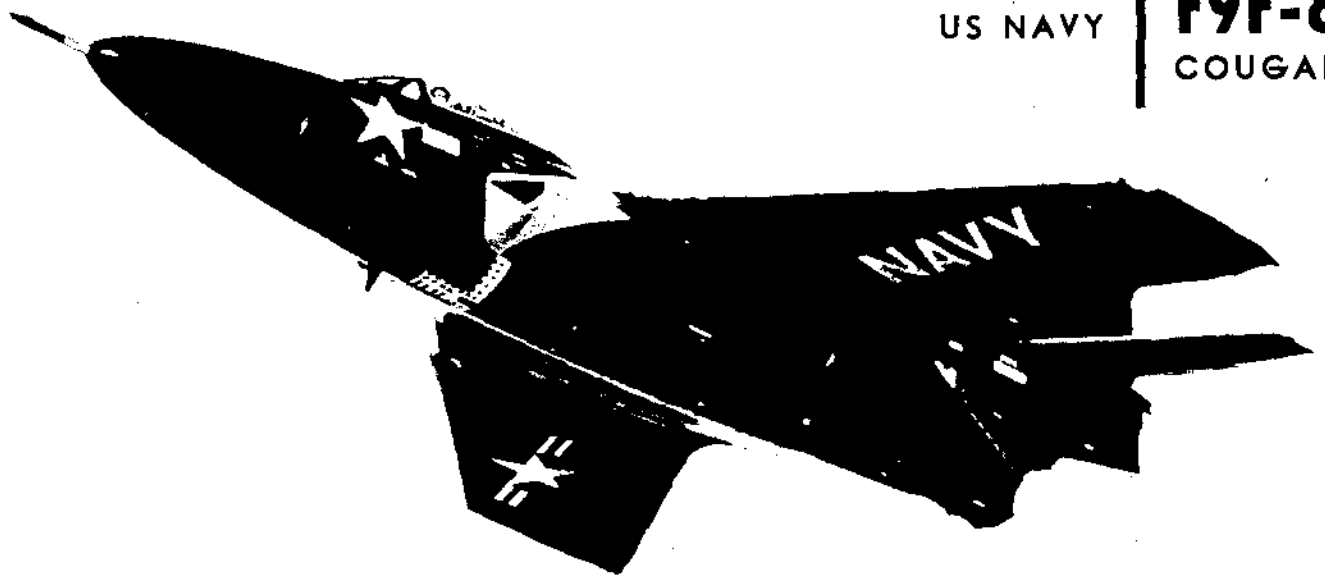


F9F-3


595

US NAVY

F9F-8
COUGAR



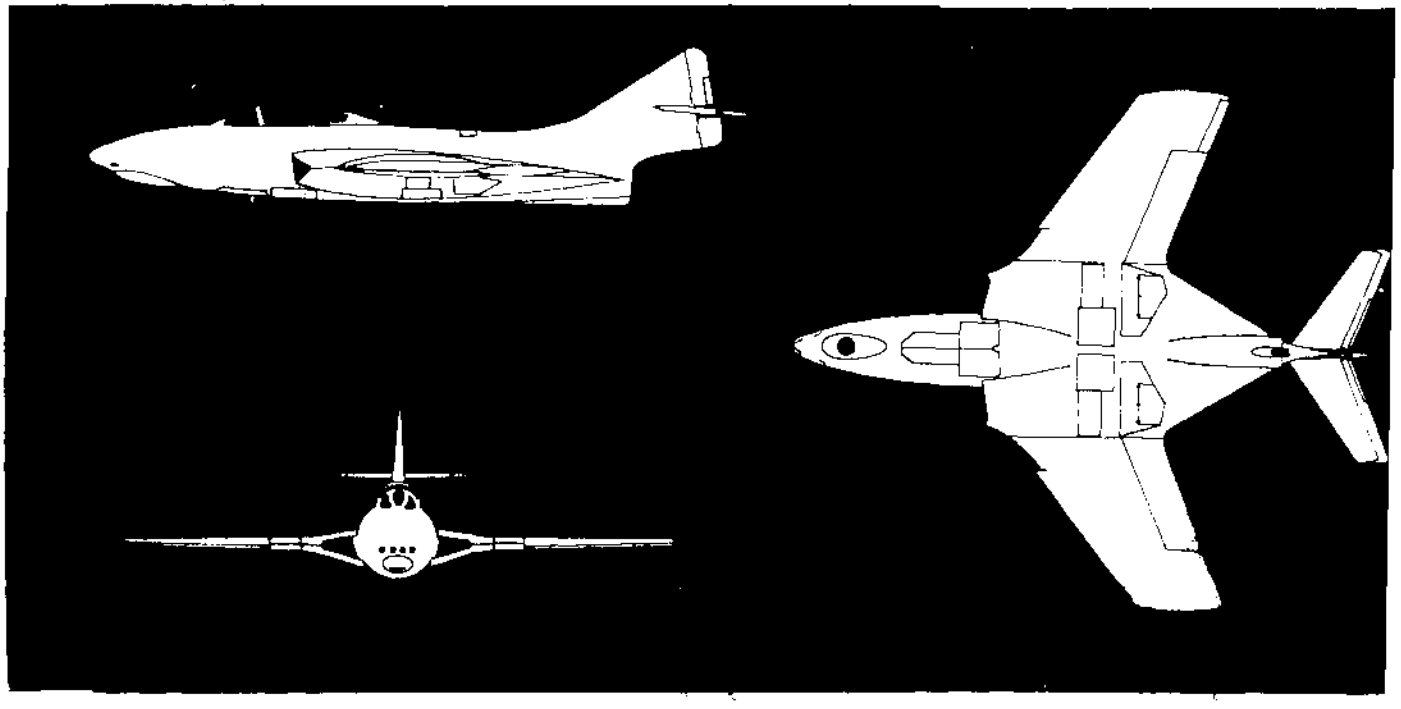
The F9F–8 Cougar is the latest in the series of Navy fighters developed from the F9F–6. Compared with its predecessors, the F9F–8 has a larger swept-back wing with cambered leading-edge extensions outboard of the wing fences. Wing slats are omitted. Increased fuselage length provides space for added fuel capacity. The overall appearance features the broad center-section wing, with its giant fillets, and the high chopped-in tail that looks as if it is being "towed by a string".

SPAN: 34'6" LENGTH: 40'11"
MAXIMUM SPEED: Over 564 knots
ENGINE: 1/J48–P&W–8/7,000 lbs. thrust
RANGE: More than 1000 nautical miles

GRUMMAN

SINGLE-JET

FIGHTER

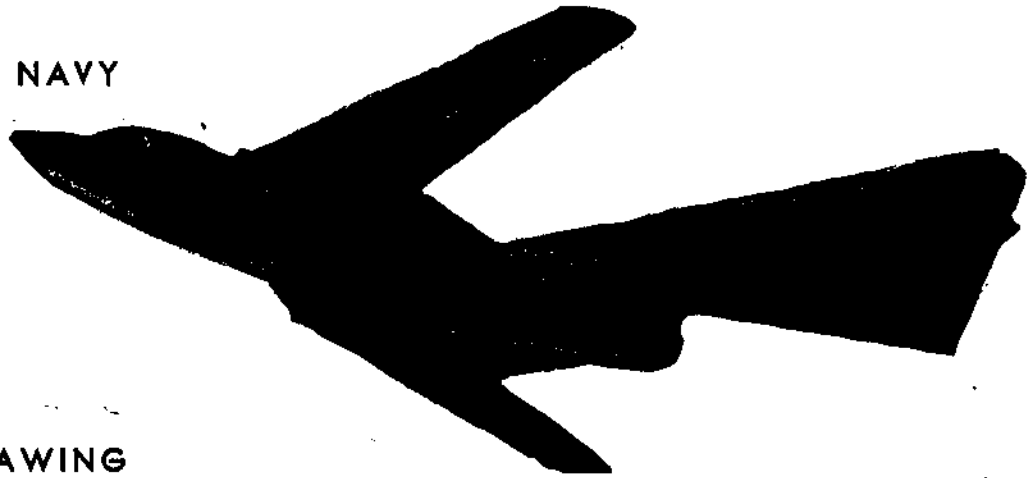


U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

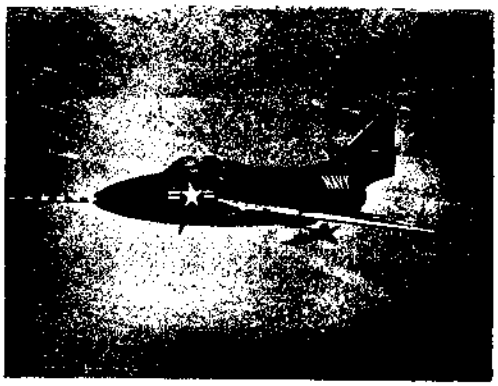
FM 20-30
OPNAV 32P-1200/6
AFM 80-40G

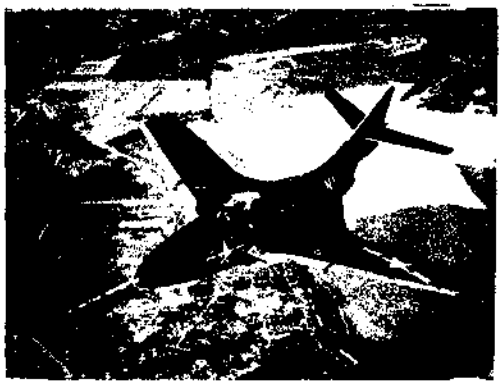
F9F-8 COUGAR

US NAVY

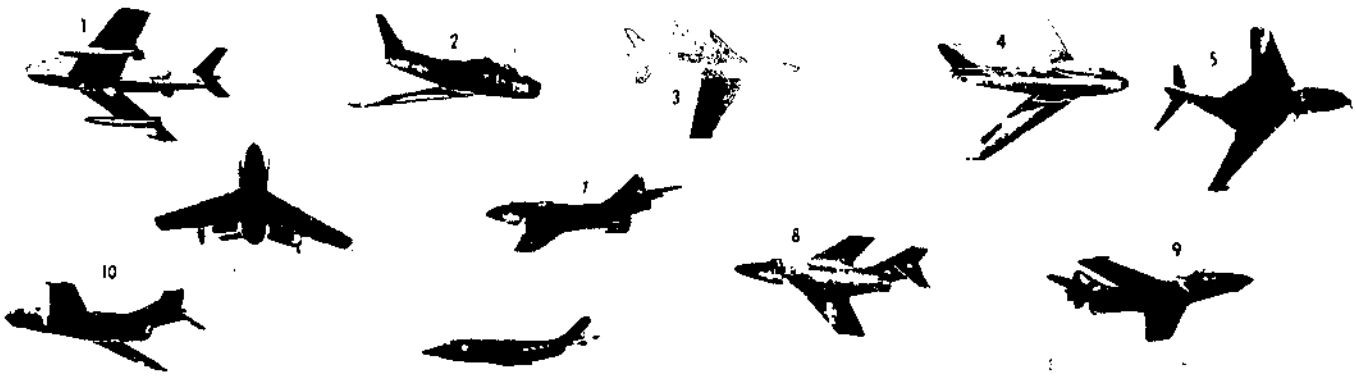


ACCENTED DRAWING





Miscellaneous views of the F9F-8 (Lower right photo and upper left are earlier models, F9F-6)



Identify the aircraft shown above; correct answers are below

1. FURY
2. FURY
3. DEMON
4. FURY
5. COUGAR
6. LANSEN
7. COUGAR
8. COUGAR
9. COUGAR
10. COUGAR
11. DEMON

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

US NAVY

F11F-1
TIGER

The F11F-1 is a single-seat, mid-wing supersonic fighter equipped with an "all-flying" tail and thin, sweptback wings that fold manually. A tricycle type landing gear is used with all wheels retracting into the fuselage.

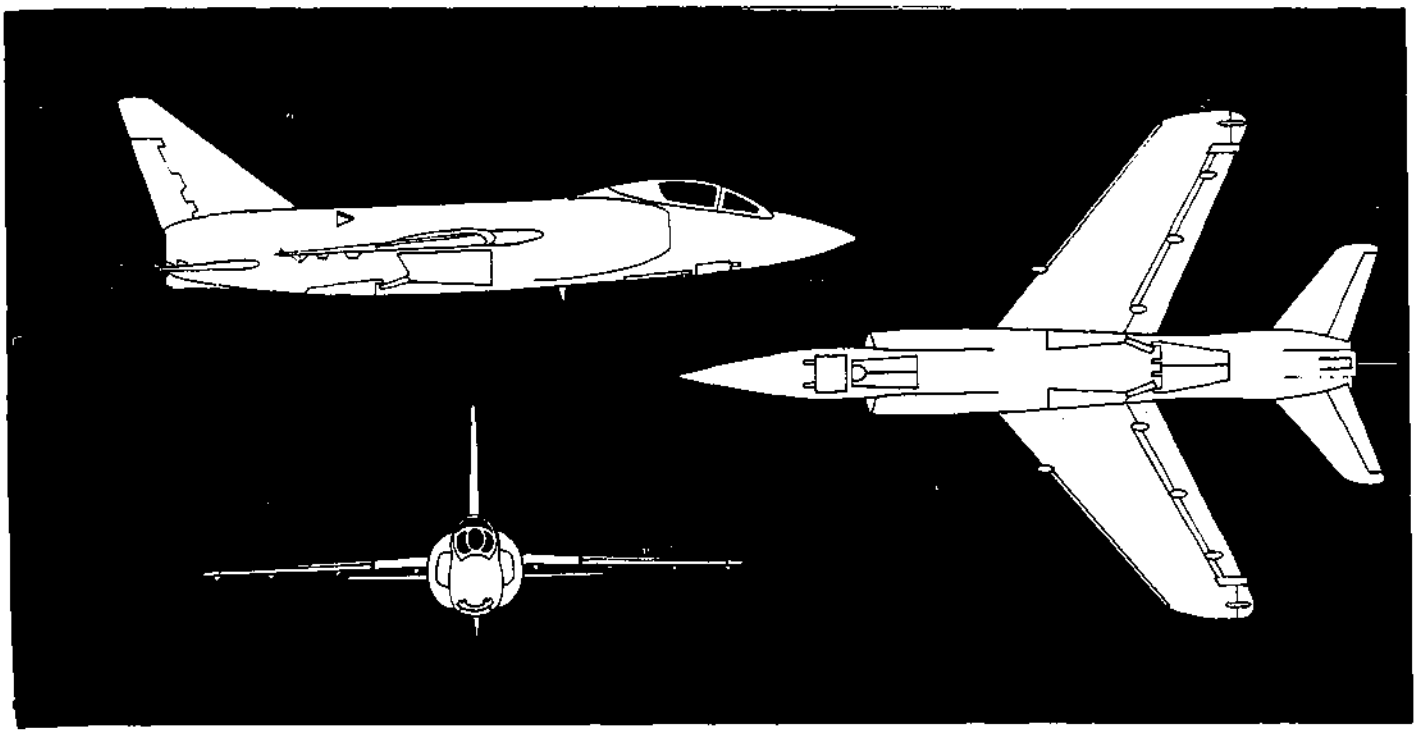
Recognition features include the low-set horizontal stabilizer on the lower quarter of the aft fuselage and the sharply tapered large vertical tail that overhangs the tailpipe exhaust. The swept wings have rounded tips, distinctive droop-snoot leading edges, and abbreviated wing fences inboard of the wing tips. The fuselage is a bit on the "bulgy" side, being fattened forward of the wings by the side air inlet ducts. The long nose is smoothly tapered into a needle-type point.

GRUMMAN

SINGLE-JET

FIGHTER

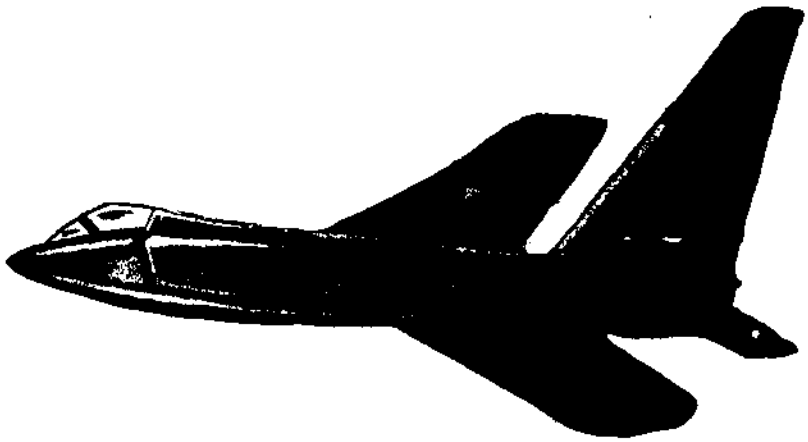
SPAN: 31'8" LENGTH: 41'8"
MAXIMUM SPEED: Over 660 knots
ENGINE: 1/J65-Wright-6/11,000 lbs. thrust
RANGE: More than 1300 nautical miles
ARMAMENT: 4x20mm. cannon



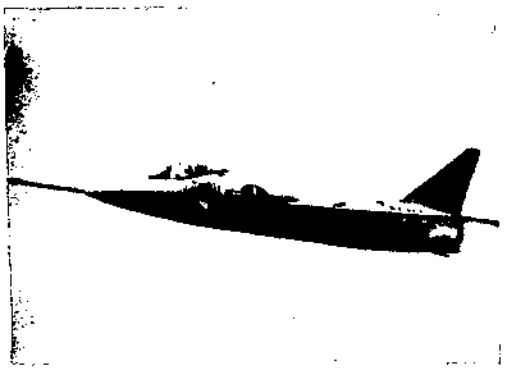
U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

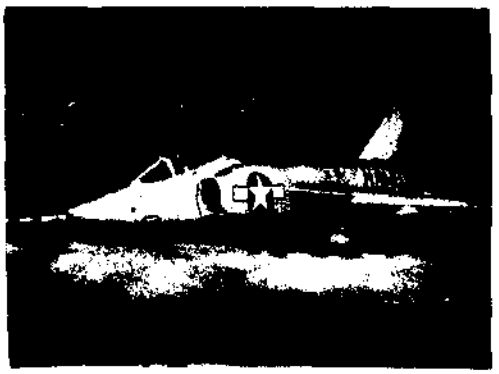
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

F11F-1 TIGER | US NAVY

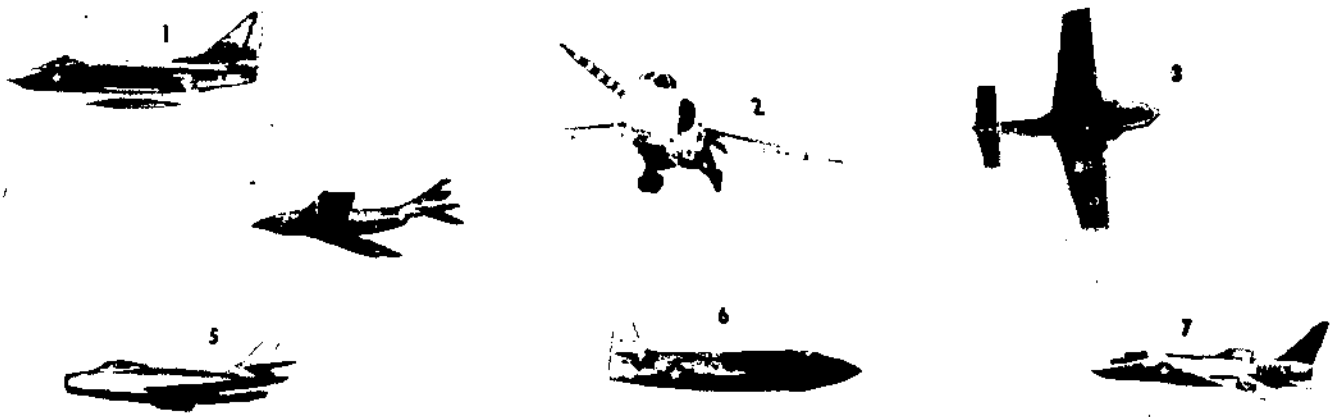


ACCENTED DRAWING





Miscellaneous views of the F11F-1 TIGER

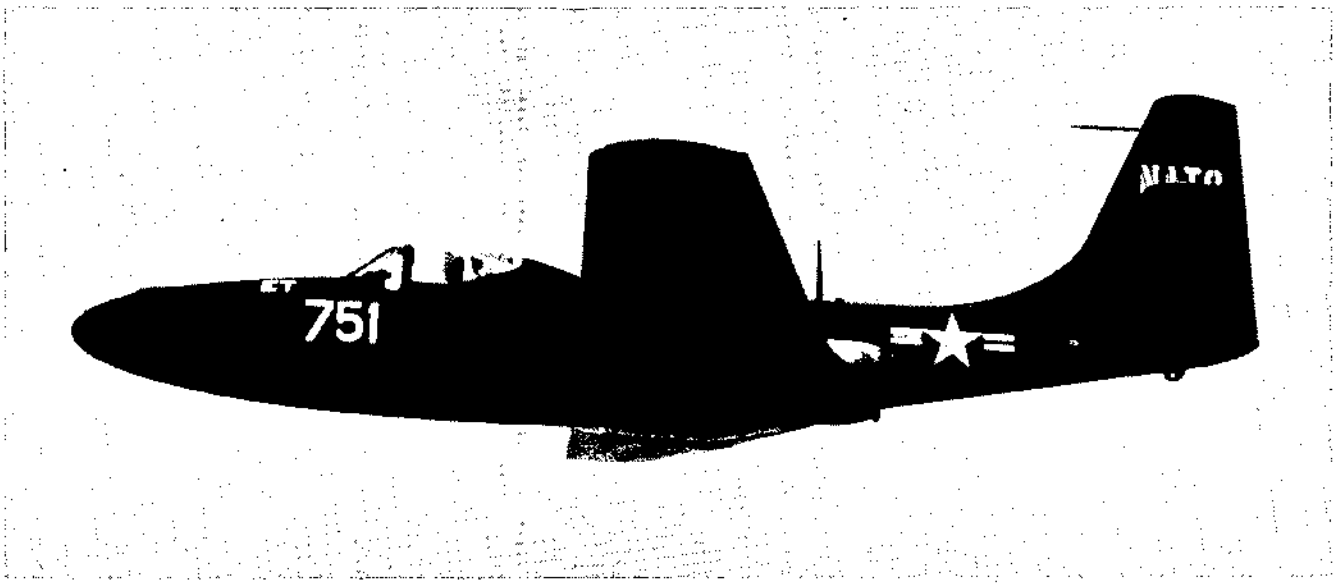


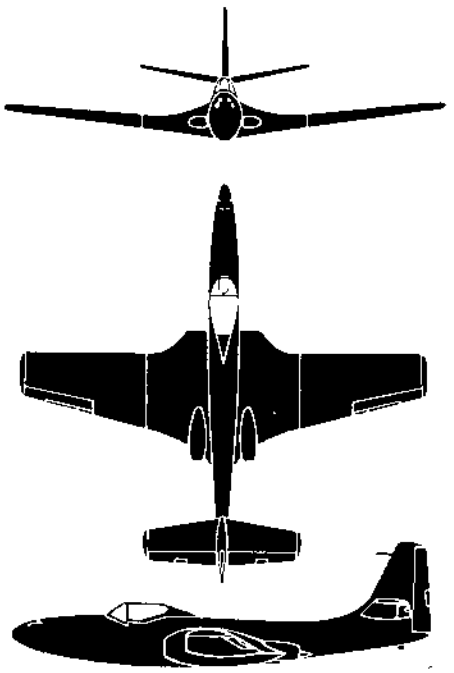
Identify the aircraft shown above; correct answers are below

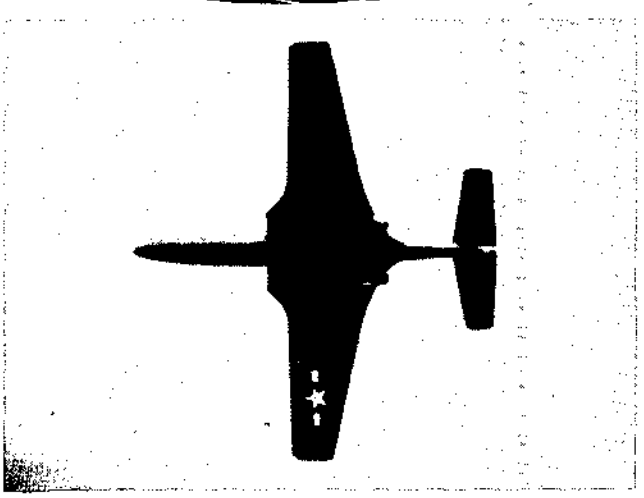
1. A4D SKYHAWK
2. F11F-1 TIGER
3. JET PROVOST MK.1
4. DEMON
5. MYSTERE IV
6. BELL X-1A
7. F11F-1 TIGER

U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

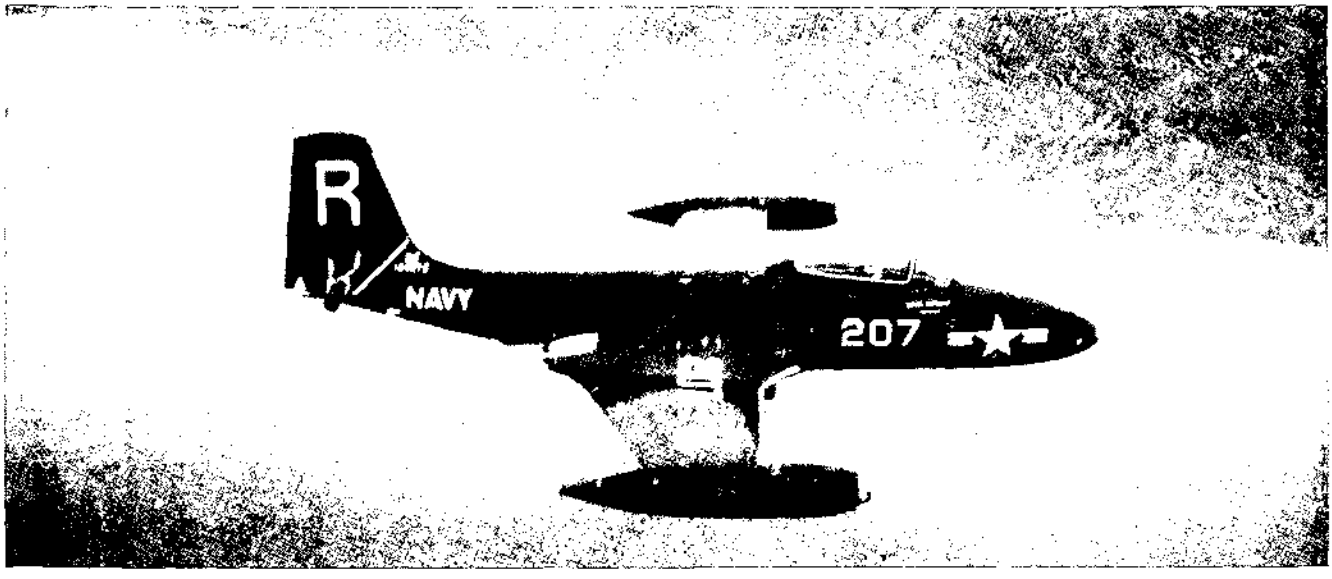


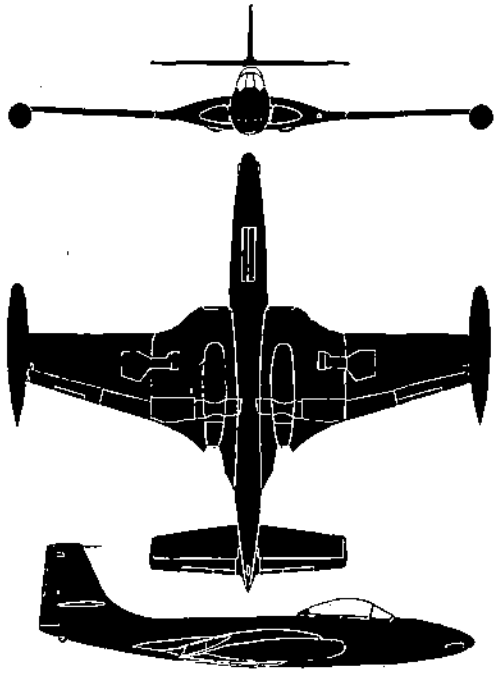




The Phantom is a twin-jet, low-wing, Navy fighter plane. Two jet engines are mounted in the wing roots forming very massive wing root sections. The wings are set well back on a thin fuselage causing the aircraft to appear extremely long nosed. The dihedral stabilizer is set high to avoid the jet blast and the cockpit canopy is forward of the wing affording excellent visibility. In the plan view the leading edge of the wing is straight, with intakes forward of the wing breaking the straight line, and the trailing edge is tapered. All airfoil extremities are squared. The FH–1 was the Navy's first all-jet plane to operate from a carrier.

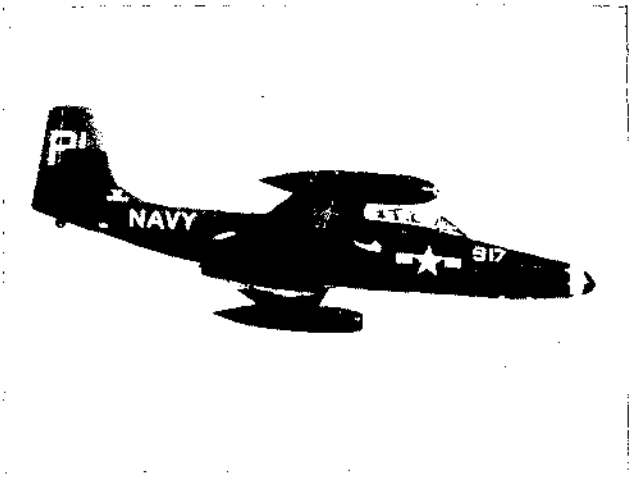
SPAN: 42′0″. **LENGTH:** 37′2″.
ENGINE: J30–WE/1,600-lb. thrust.
SPEED: 400 knots/25,000 ft.
RANGE: 600 nautical miles.
ARMAMENT: 4 x .50 cal.

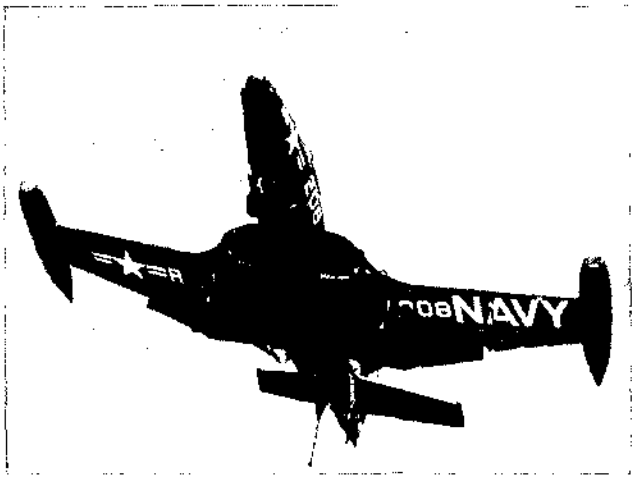


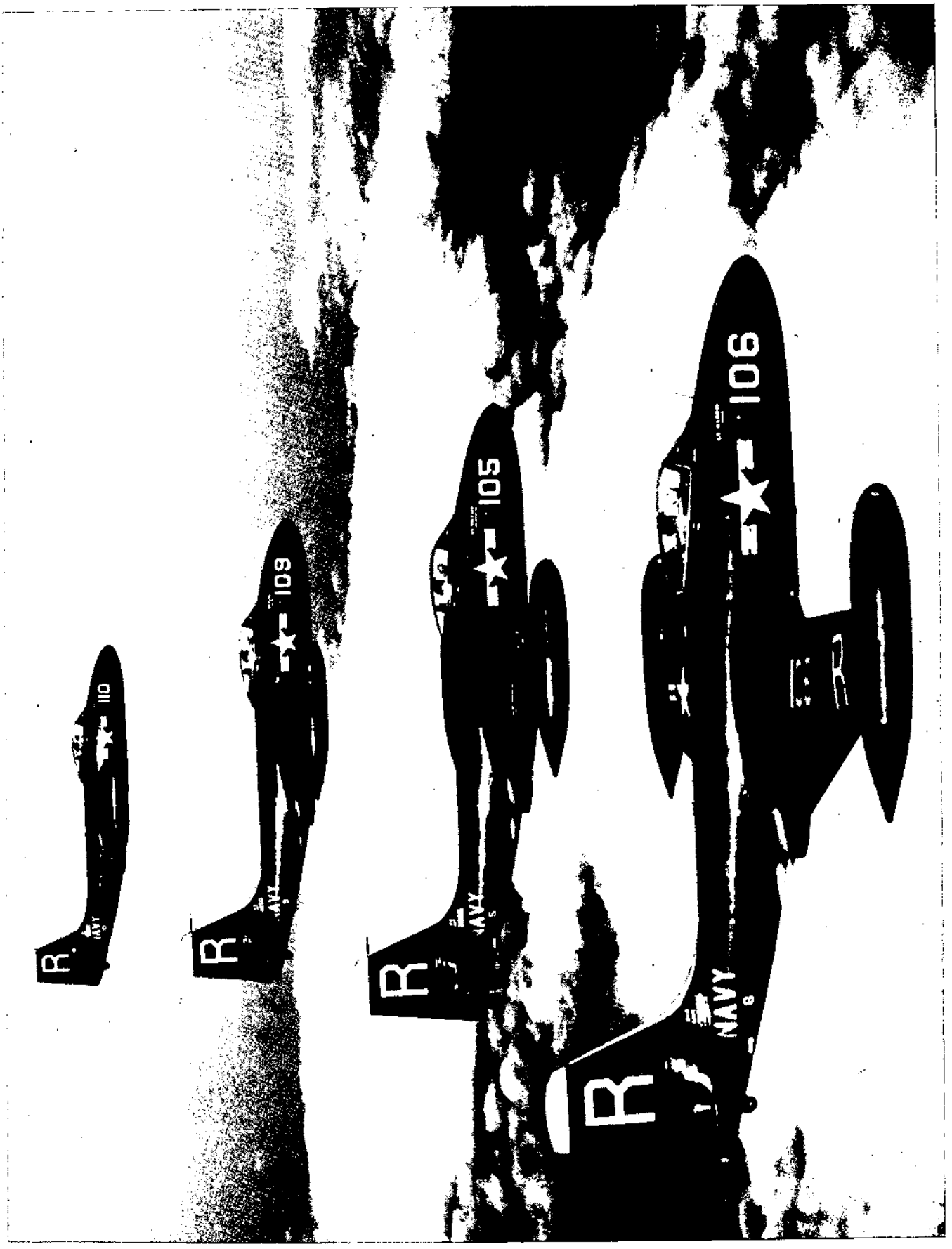


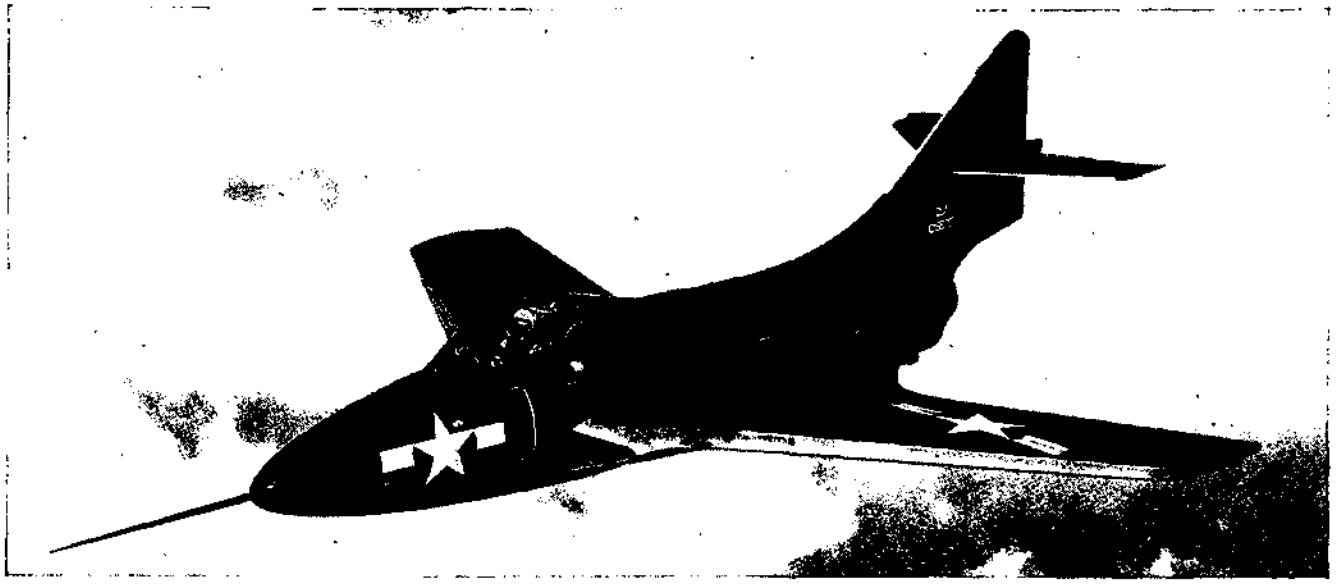
The F2H Banshee is a single-place twin-jet fighter similar in appearance to its predecessor the Phantom. A recognition difference is the absence of dihedral in the stabilizer of the Banshee. Its engines are almost twice as powerful as the Phantom's. Both aircraft can cruise on one or two engines. Several versions of the F2H have been produced including the F2H–2 with wing-tip tanks, F2H–2N night fighter version with longer nose for air intercept radar, F2H–2P photographic reconnaissance version with a longer heated nose for cameras. Independent retraction of the nose gear to kneel, permits compact spotting on the flight deck. Equipment includes an ejection seat and cabin pressurization. Maximum take-off weight is approximately 18,000 pounds.

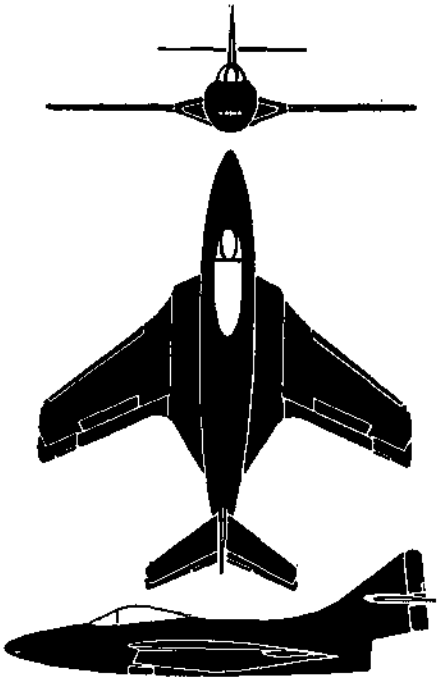
SPAN: 41′7″ **LENGTH: 40′2″**
ENGINE: 2/J34–WE–34/3,250-lb. thrust each.
MAX SPEED: 515 knots/sea level.
ARMAMENT: 4 x 20 mm; 8 x 5″ HVAR rockets; 1,540-lb. maximum bomb load.





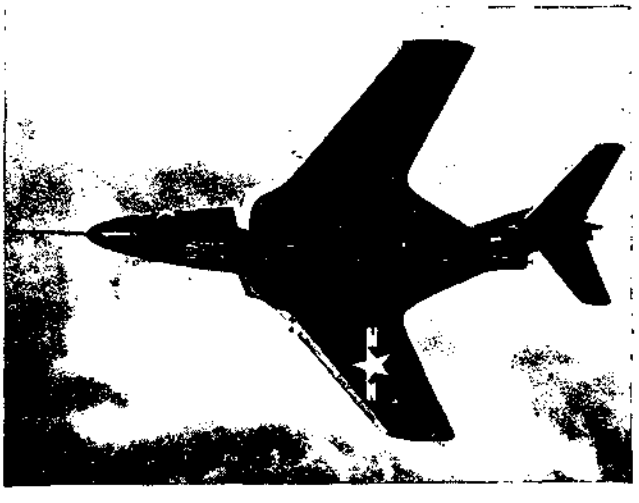

110
109
105
106
NAVY

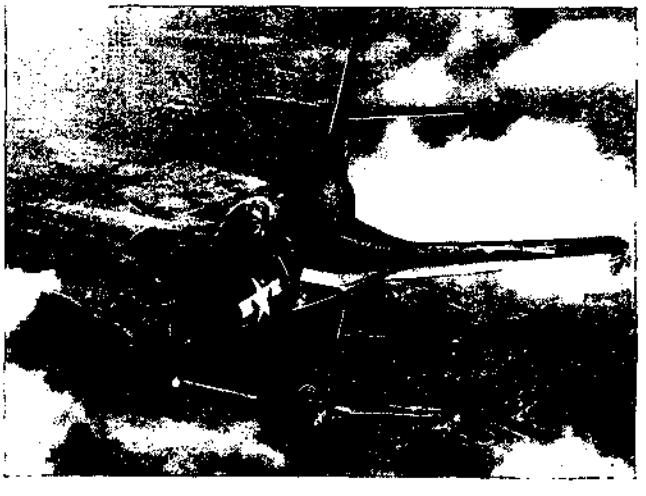


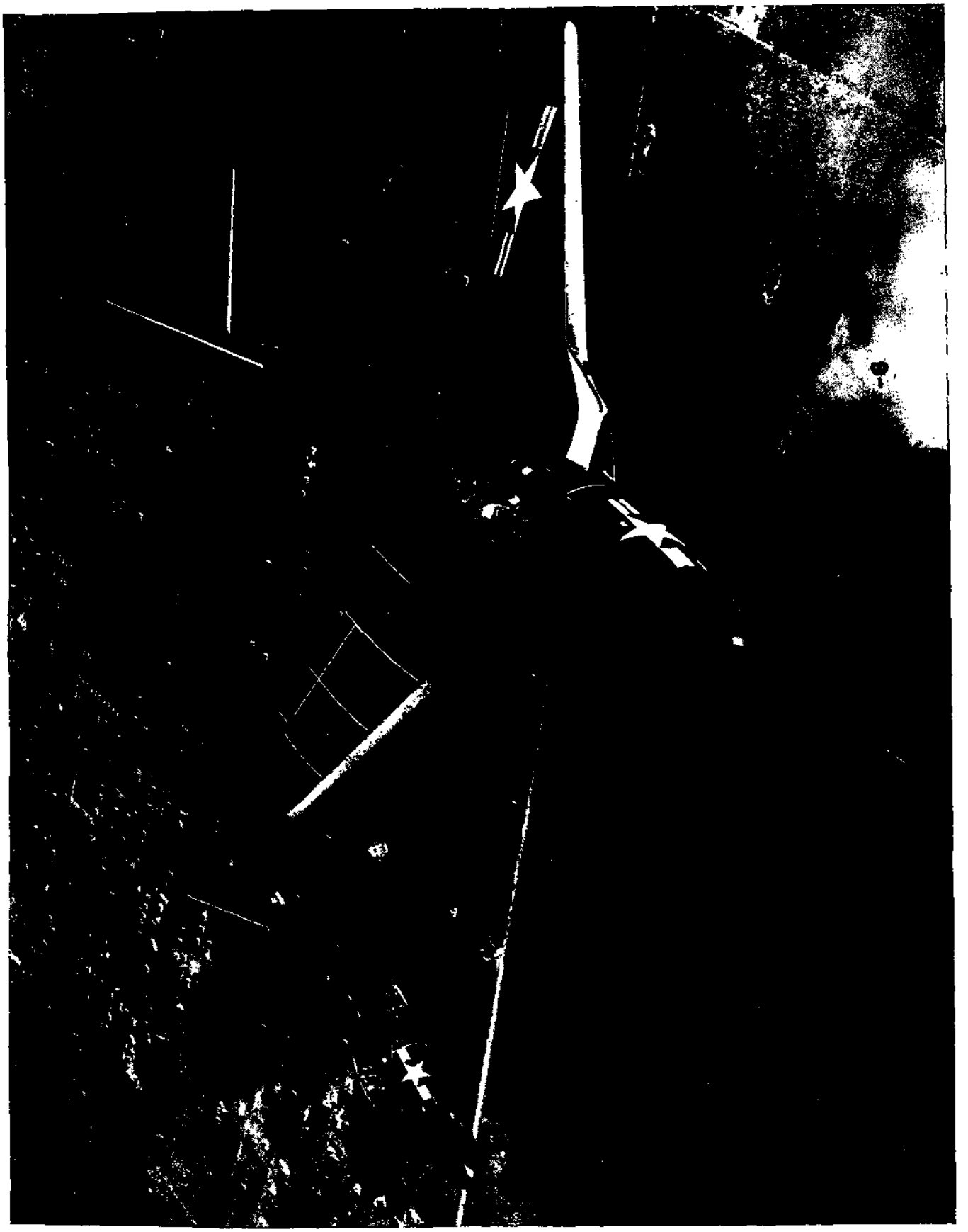


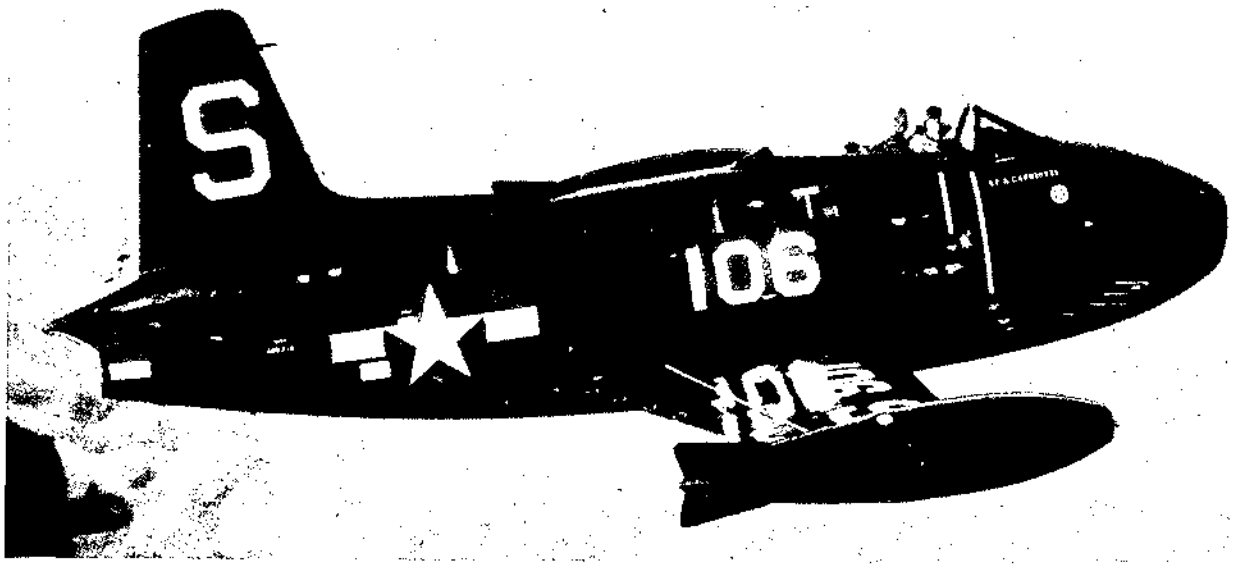
The F9F–6 Cougar is a swept-wing higher performance modification of the Panther fighter. Its horizontal stabilizer is sweptback and the jet duct entrances have been modified. The new outer wing panel carries jettisonable fuel in internal bladder type cells. The Cougar has leading edge slots, under-fuselage split flaps, and wing slotted flaps. Dive brakes are installed under the fuselage. The cockpit is pressurized with temperature control and an ejection seat is fitted. A movable nose section which slides forward houses the guns and radio. The centrifugal turbojet engine is serviced or changed by removal of the tail section of the fuselage. A tricycle landing gear is fitted in the same position as earlier F9F's. The take-off weight of the Cougar is a little greater than that of the Panther.

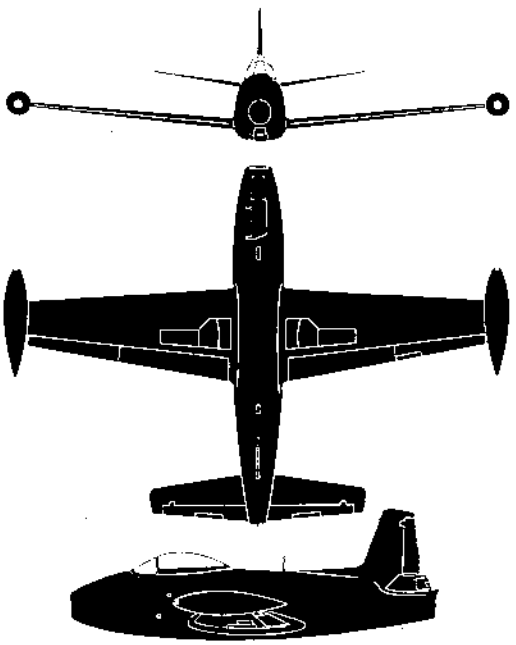
SPAN: 34′ 6″ **LENGTH: 40′ 11″**
ENGINE: J48–P–6/6,250-lb. thrust.
MAX. SPEED: 560 knots/sea level.
RANGE: 900 nautical miles/465 knots.
ARMAMENT: 4 x 20 mm.











The Fury is a single-engine, single-seat low-wing monoplane with short stubby, thin, high speed laminar flow wings and resembles a high "flying bomb". Air intake is located in the nose while the single-engine and fuel tanks are enclosed within the fuselage. The Fury has a high square fin and rudder, the horizontal stabilizer has dihedral and is mounted high for increased stability. For all around visibility, the cockpit has been located forward of the leading edge of the wing. The FJ-1 with its enormous fuselage dwarfs little jets, such as, the FH-1.

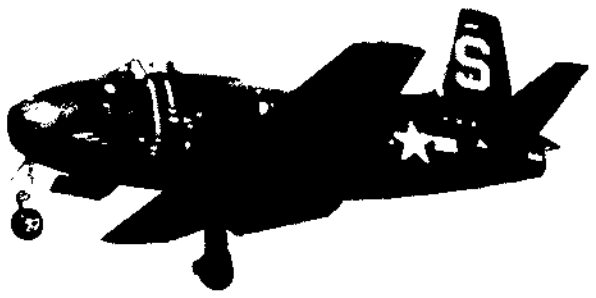
SPAN: 41'0". **LENGTH:** 33'8".

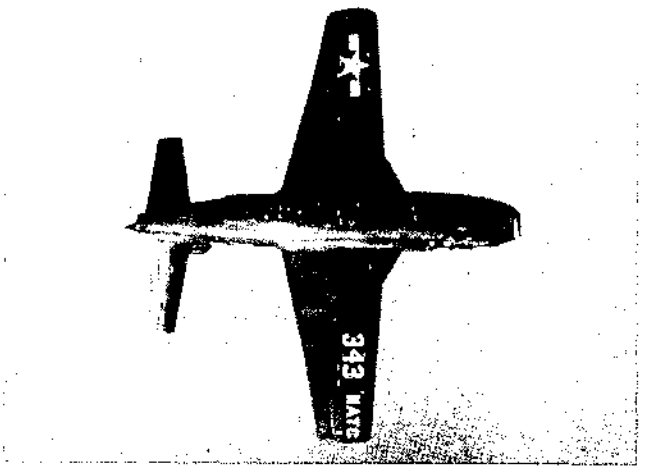
ENGINE: J35-A/3,820-lb. thrust.

SPEED: 510 knots/sea level.

RANGE: 1,190 nautical miles/278 knots.

ARMAMENT: 6 x .50 cal.



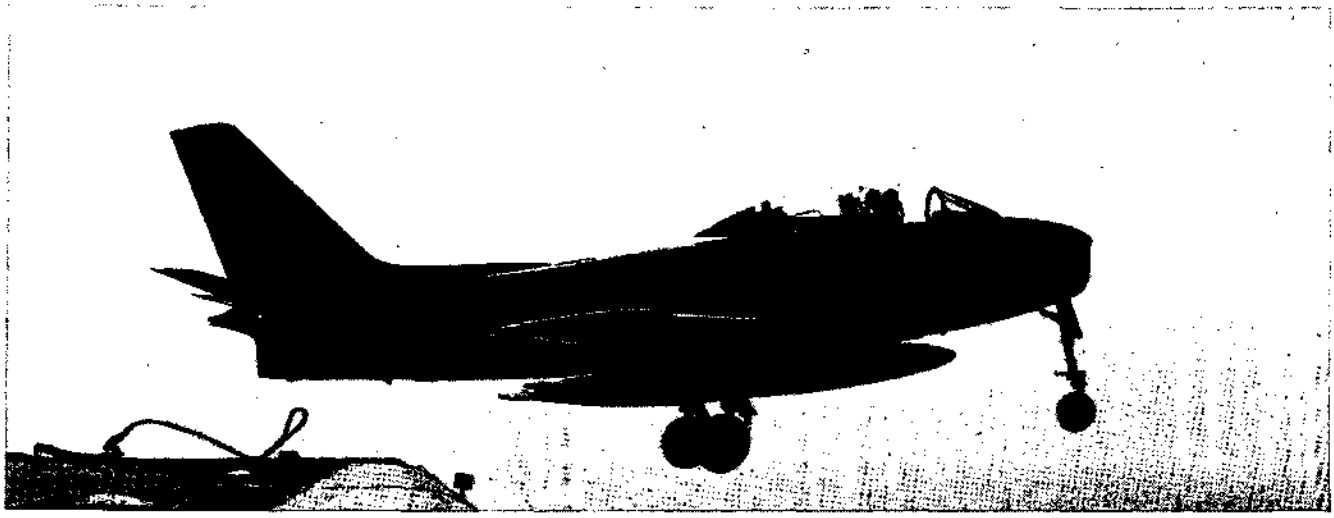


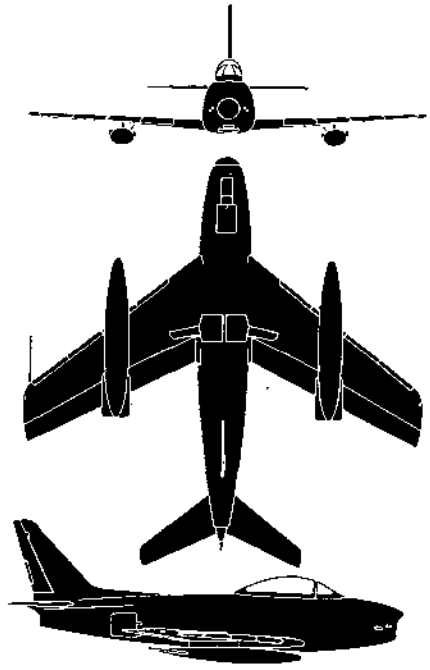
NORTH AMERICAN

FJ-1 FURY

USA
MAY 1949

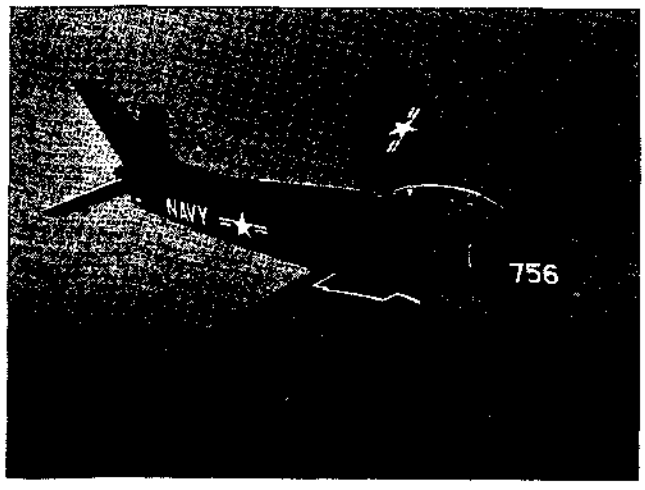
AFM 50-40
OPNAV 32P-1200

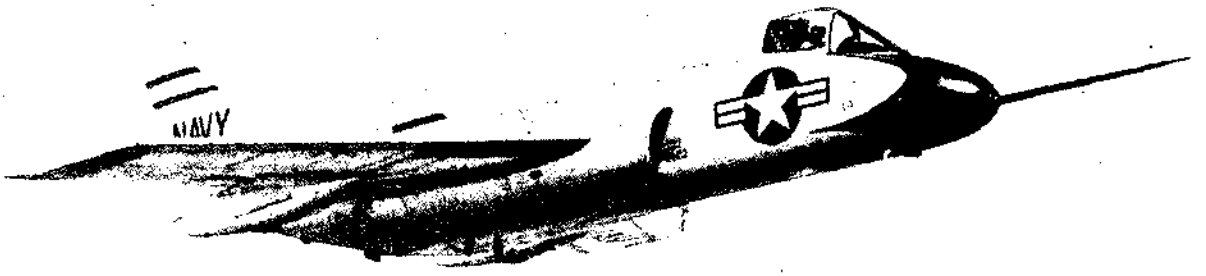


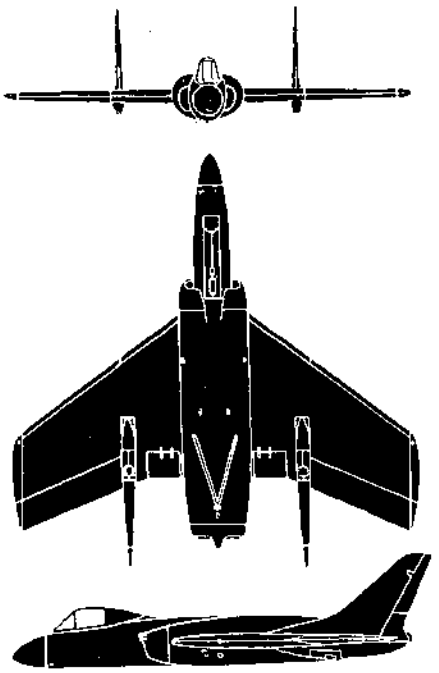


The FJ-2 Fury is a navalized F-86 Sabre with many engineering changes inside its fuselage. Actually the swept-wing Sabre is an outgrowth of aeronautical findings in the earlier straight-wing FJ-1 Fury. Like the first Fury, it has a tricycle landing gear, but does not have the kneeling nose wheel mechanism of the straight wing model. Its normal nose-up attitude can be increased for carrier deck catapulting. The cockpit is an entirely new design covered with an advanced designed sliding, jettisonable canopy. A Navy ejection seat is used. An improved Navy gunsight, 20 mm cannons, folding wings, and new homing radio equipment are included in the fighter's design changes. Its maximum take-off weight is 18,000 pounds. The later FJ-3 is powered with a more powerful J-65 Sapphire engine.

SPAN: 37'1" **LENGTH: 37'7"**
ENGINE: J47-GE-2/6,000-lb. max. thrust.
MAX. SPEED: 595 knots/sea level.
RANGE: 1,045 nautical miles/455 knots.
ARMAMENT: 4 x 20 mm.

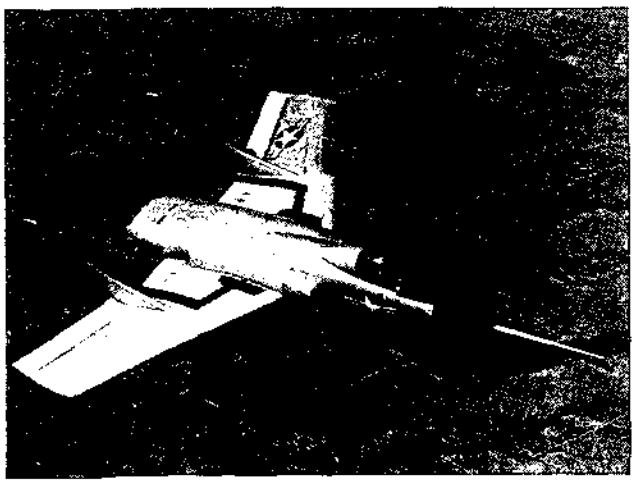


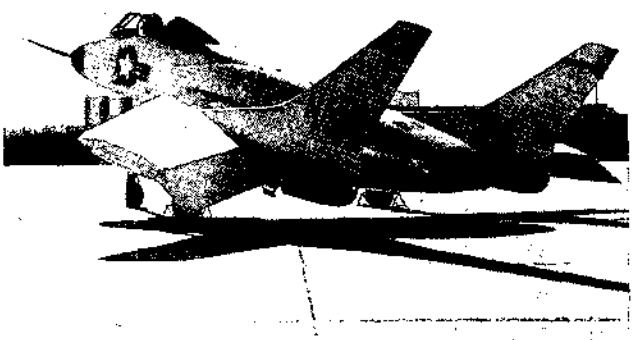


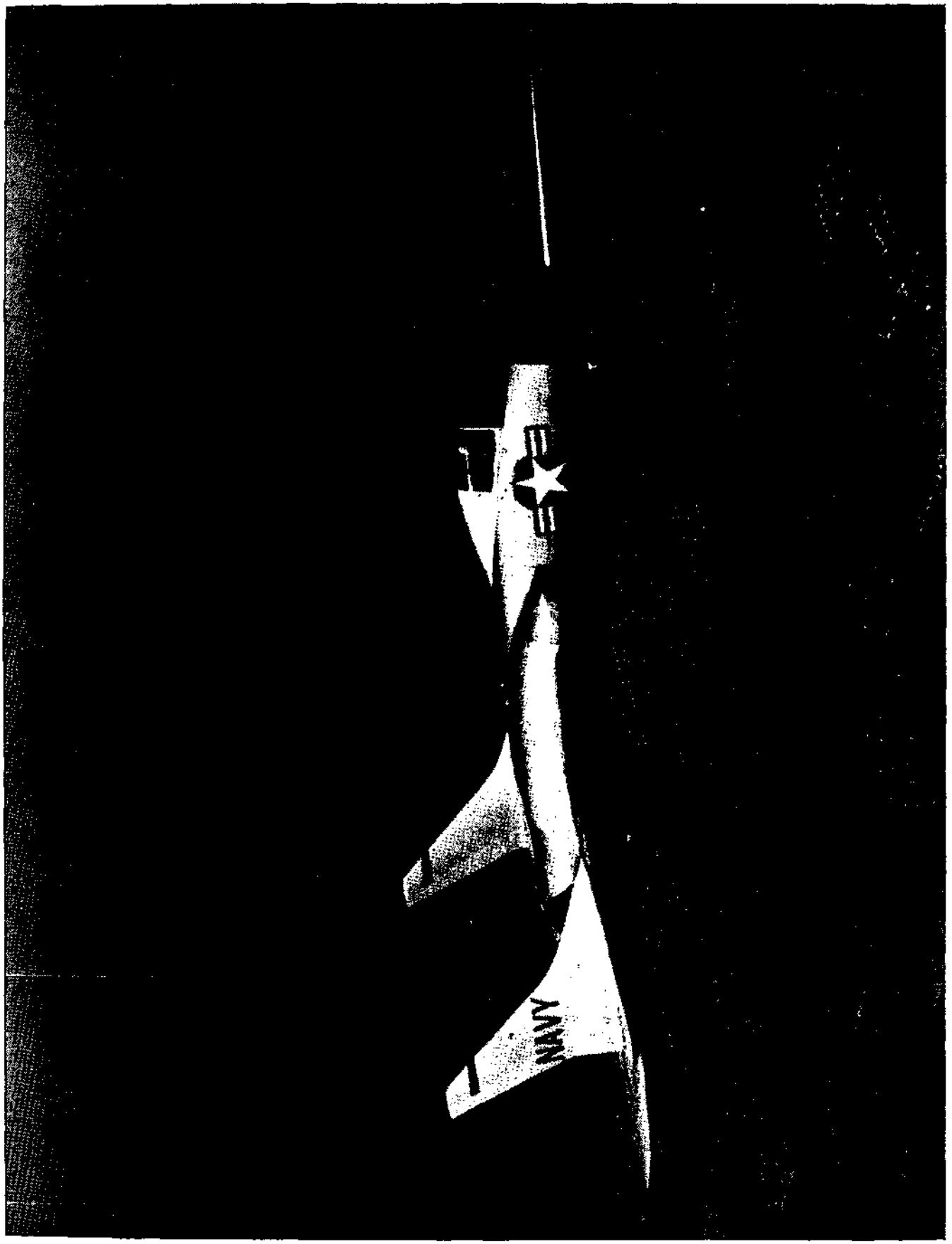


The Cutlass is a twin-jet, single-seat, tailless, swept-back wing carrier and land based fighter. It first flew in 1948 followed by carrier landings in 1951. Control is obtained by the use of "ailevators" which combine the function of elevators and ailerons. Landing flaps in the center section trailing edge are used as speed brakes. The main gear of the tricycle landing gear retracts into the lower vertical fin stubs. An ejection seat is fitted. Two pylons may be attached to the wing for carrying bombs, rockets and missiles, and a center-line rocket package can be installed under the fuselage. Modifications include the F7U-3's high vertical fins. Maximum take-off weight is approximately 26,000 pounds. The A2U is an attack version.

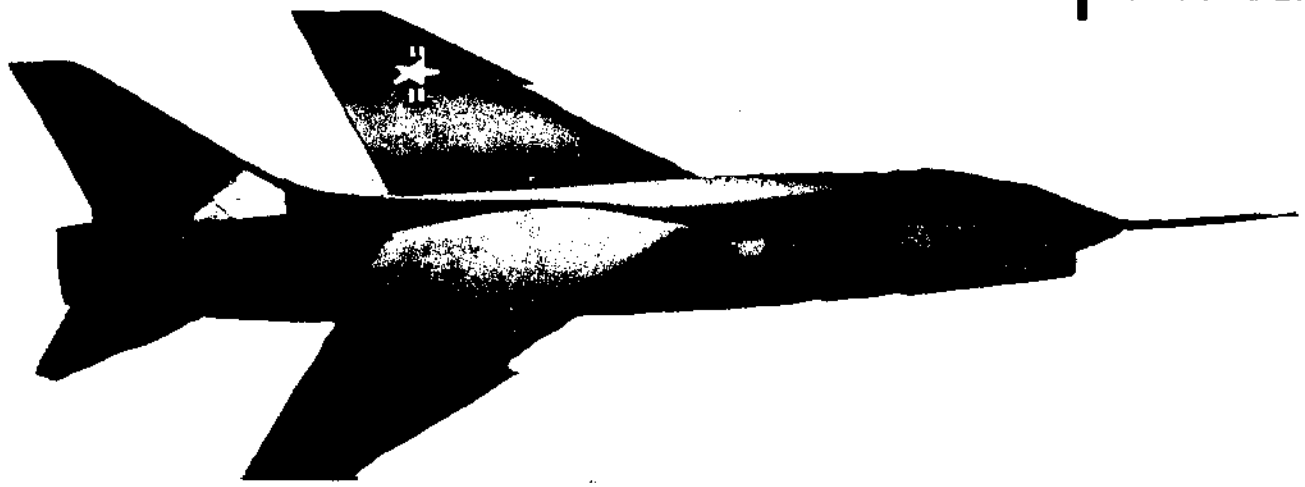
SPAN: 39'9" **LENGTH: 43'2"**
ENGINE: 2/J46-WE-8/5,800-lb. thrust each with A. B.
MAX. SPEED: 605 knots/sea level.
RANGE: 800 nautical miles/490 knots.
ARMAMENT: 4 x 20 mm; 44 x 2.75" rockets; 6,000-lb. maximum bomb load.






NAVY

US NAVY | **F8U-1**
CRUSADER

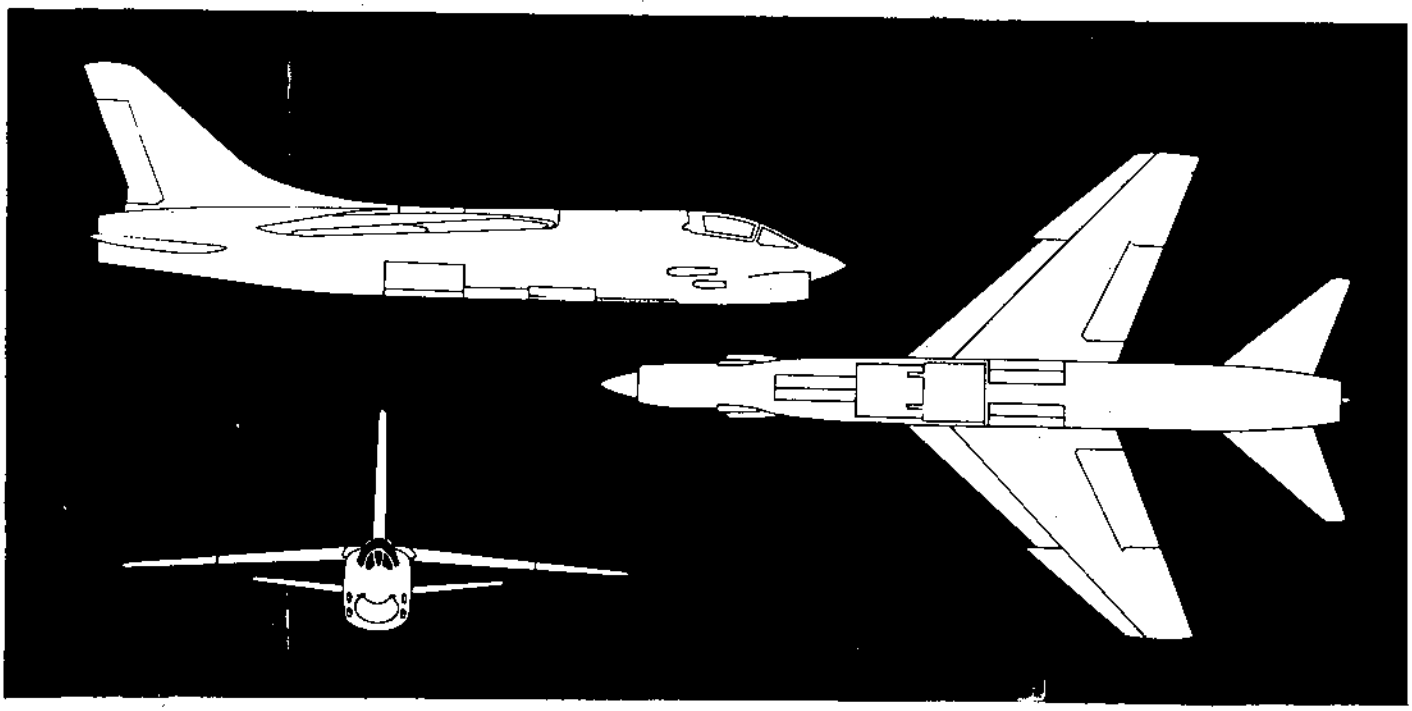


The F8U–1 Crusader is a single-seat, swept-wing, fighter designed for use by the Navy. Design features include high thin swept wings, a rather large, faired vertical tail surface, a low fuselage-mounted horizontal tailplane, and a tricycle landing gear that retracts into the fuselage. Performance data is classified, but the Crusader is probably above the 600 knot class.
SPAN: 35'8" LENGTH: 54'2"
MAXIMUM SPEED: Supersonic
ENGINE: J57–P&W–4/10,000 lbs. thrust/Afterburner

CHANCE VOUGHT

SINGLE-JET

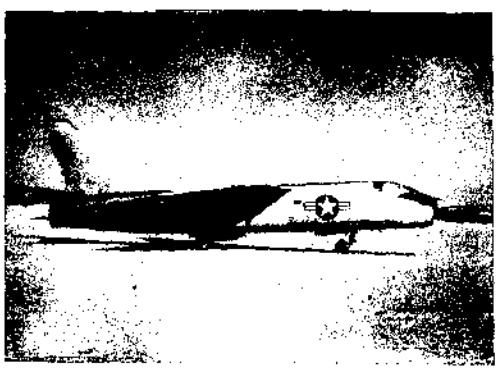
FIGHTER

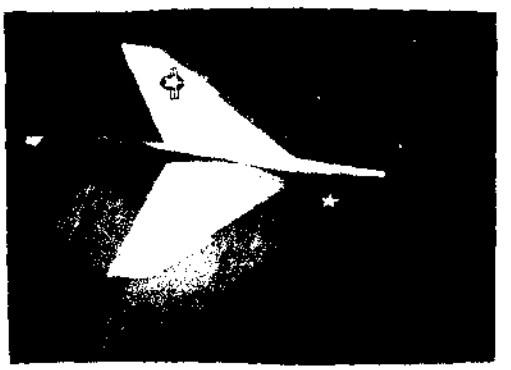


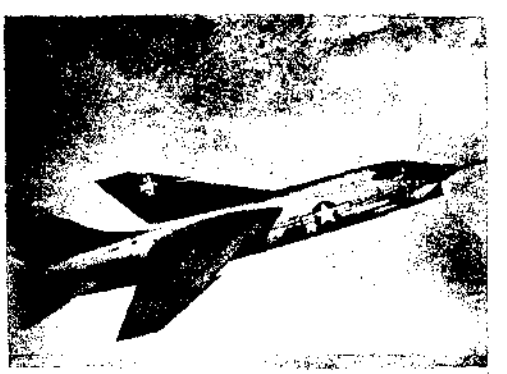
F8U-1
CRUSADER

US NAVY

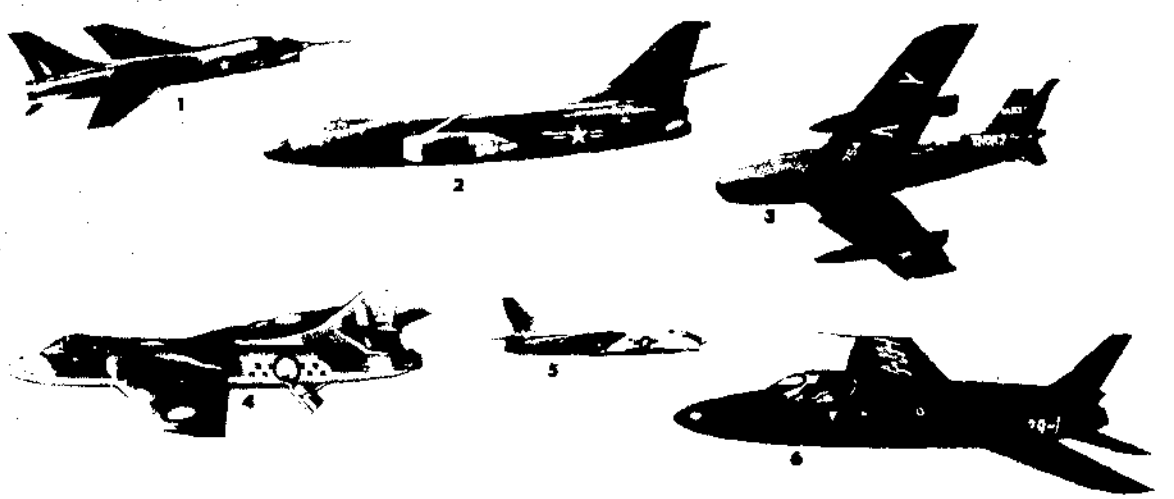
ACCENTED DRAWING







Miscellaneous views of the F8U-1, CRUSADER

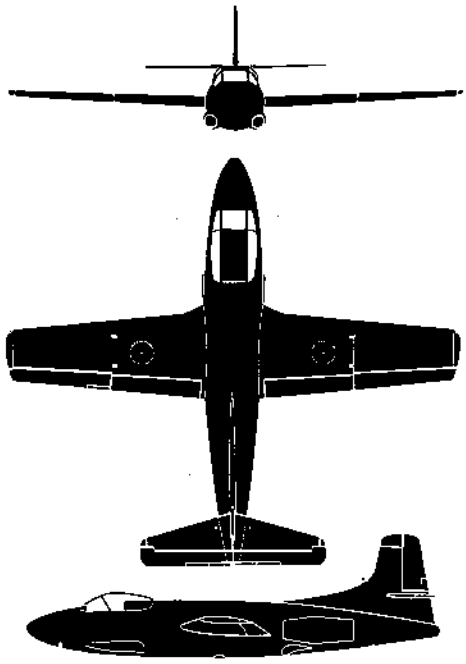


Identify the aircraft shown above; correct answers are below

1. F8U-1
2. A3D-1
3. FJ-3
4. HUNTER
5. F8U-1
6. GNAT

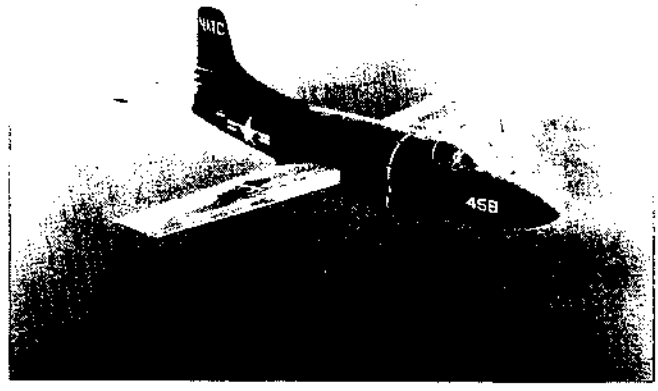
U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G



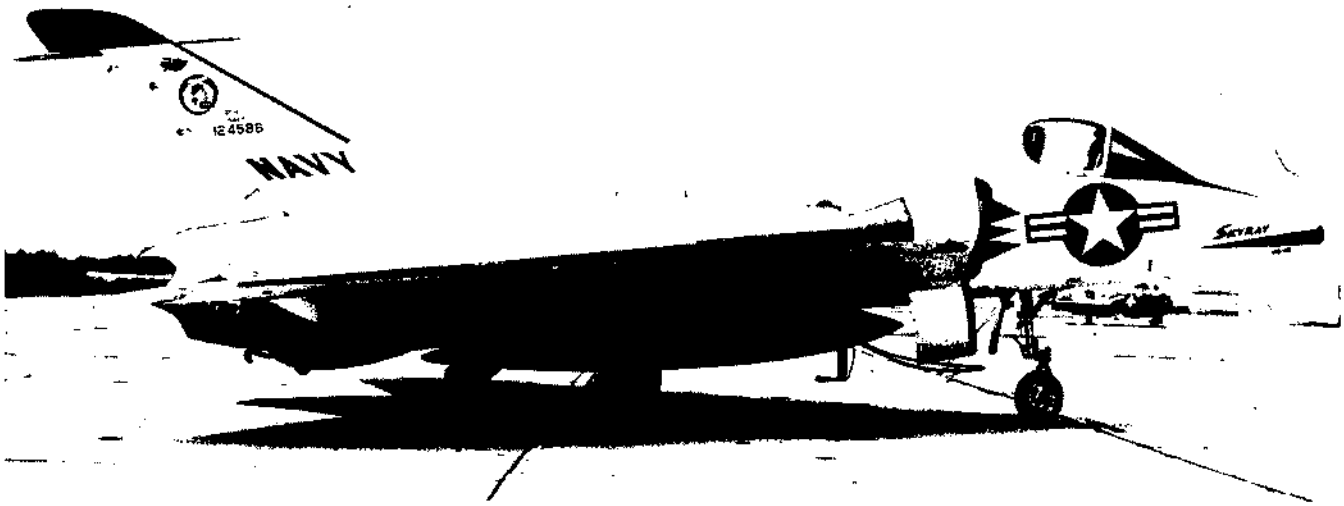
The Skynight's principal mission is to search out and destroy enemy aircraft in all weather conditions, night or day. It is a straight, mid-wing, fighter designed to operate from aircraft carriers with the aid of a catapult or from land bases. The powerplant consists of two jet engines mounted semi-externally on either side of the lower fuselage. A large pressurized cockpit is located forward on the fuselage with the pilot and radar operator seated side by side. The cockpit has a flat armored windscreen, armored canopy roof and bulged sides. Pilot emergency escape provisions are furnished both through the power operated escape hatch and through a special high-speed, bail-out chute on the bottom of the fuselage. Speed brakes are attached just forward of the tail.

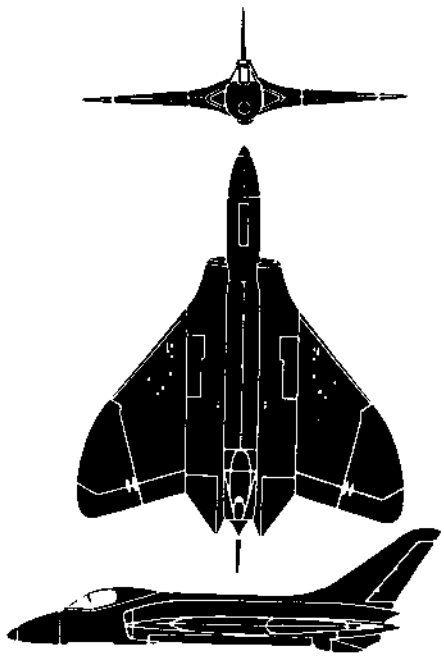
SPAN: 50'0''. **LENGTH: 45'5''.**
ENGINE: 2 J34–WE–38/3,500-lb. thrust each.
SPEED: 482 knots/11,000 ft.
RANGE: 1,560 nautical miles/375 knots.
ARMAMENT: 4 x 20 mm.



USA
JUNE 1950

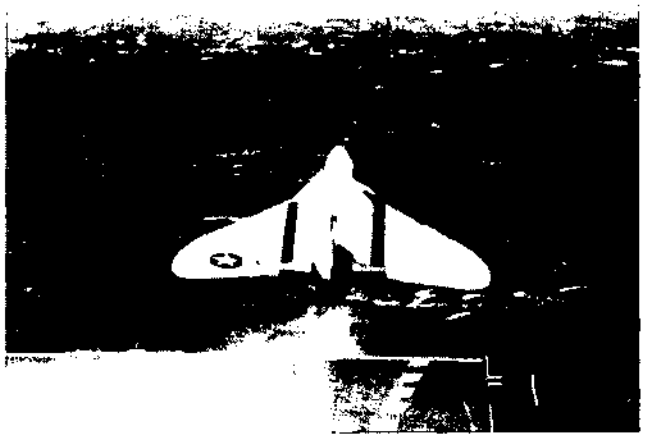
FM 30-30
OPNAV 32P-1200
AFM 50-40A

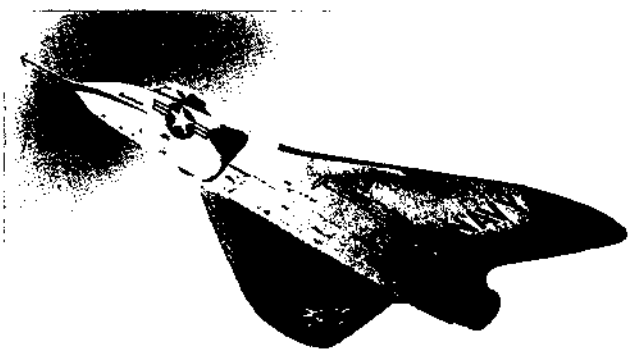


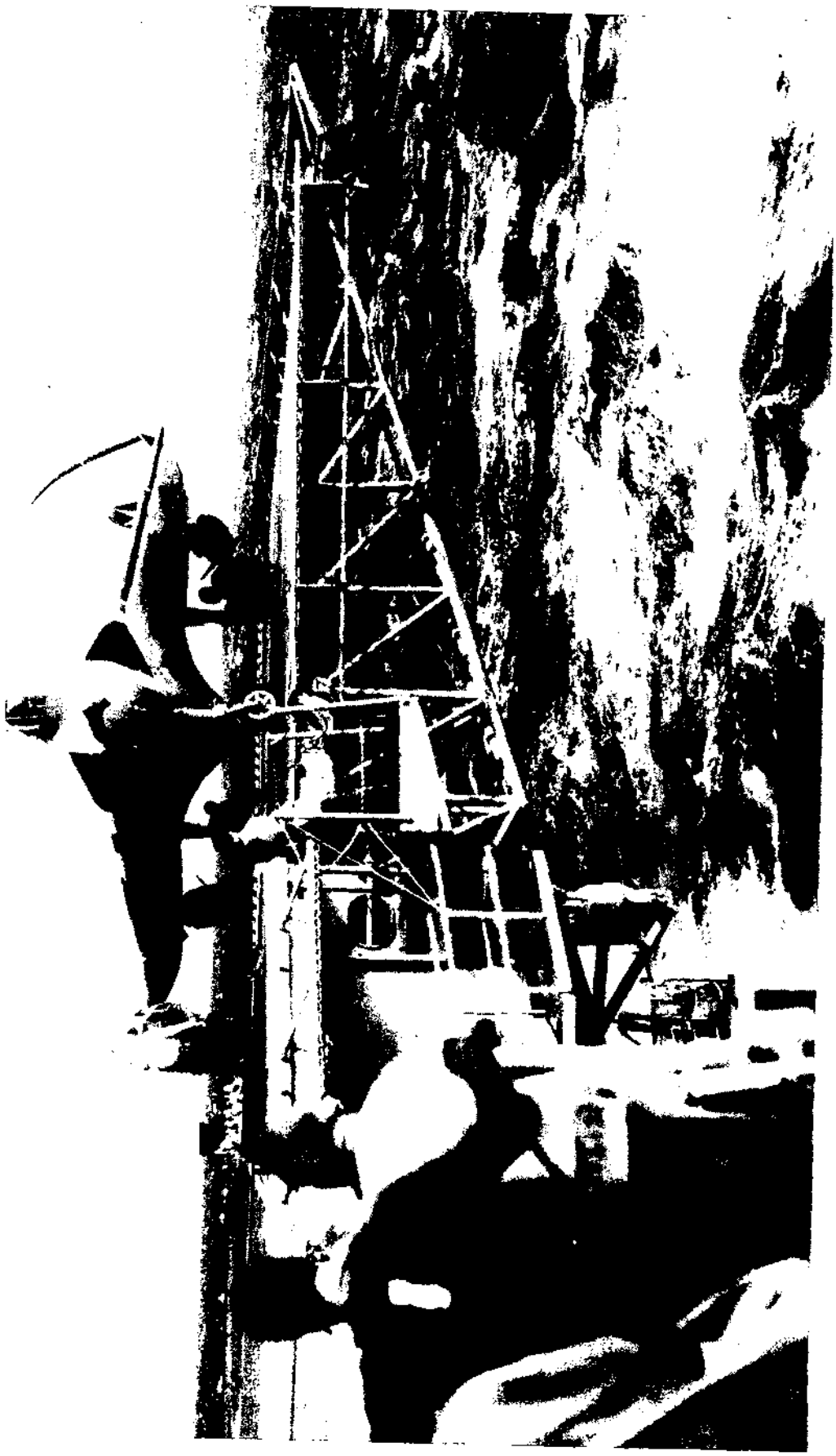


The F4D Skyray is a tailless low aspect ratio single-seat carrier jet fighter. A single turbojet engine with an afterburner is installed in the fuselage. Air intakes are located in the wing roots while exhaust is made through a single tail pipe. The primary mission of the F4D is the interception and destruction of enemy aircraft. While the Skyray is not a delta-wing aircraft, it does resemble one in certain attitudes. Flight control is provided by means of power operated elevons. In operation these elevons perform the functions of elevators and ailerons. The outer wing panels fold up for carrier storage. A single fin is fitted, while its stablemate, the F7U tailless fighter, has two fins. Landings and takeoffs are made on a conventional tricycle landing gear. The F4D Skyray set a world speed record of 752.9 m.p.h. over a 1.863 mile course.

SPAN: 33′6″. LENGTH: 45′8″
ENGINE: P&W J57–P–2, axial/9,600-lb. thrust; 15,000-lb. thrust with A. B.
MAX. SPEED: 655 knots plus.
RANGE: More than 600 nautical miles.
ARMAMENT: 4 x 20 mm; rockets.





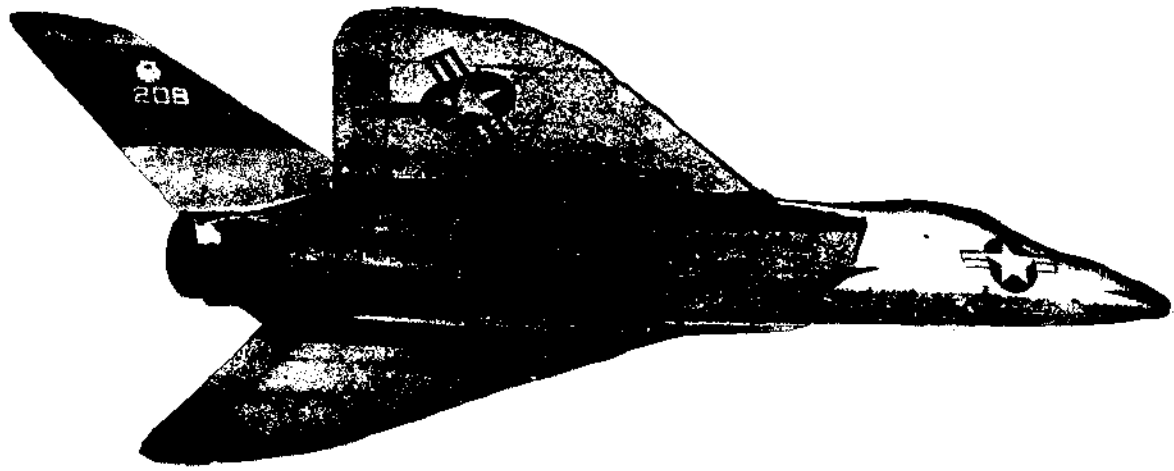


U. S. A.
SUPPLEMENT NO. 5
JUNE 1954

FM 30-30
OPNAV 32P-1200/5
AFM 50-40E

US NAVY

F5D-1
SKYLANCER

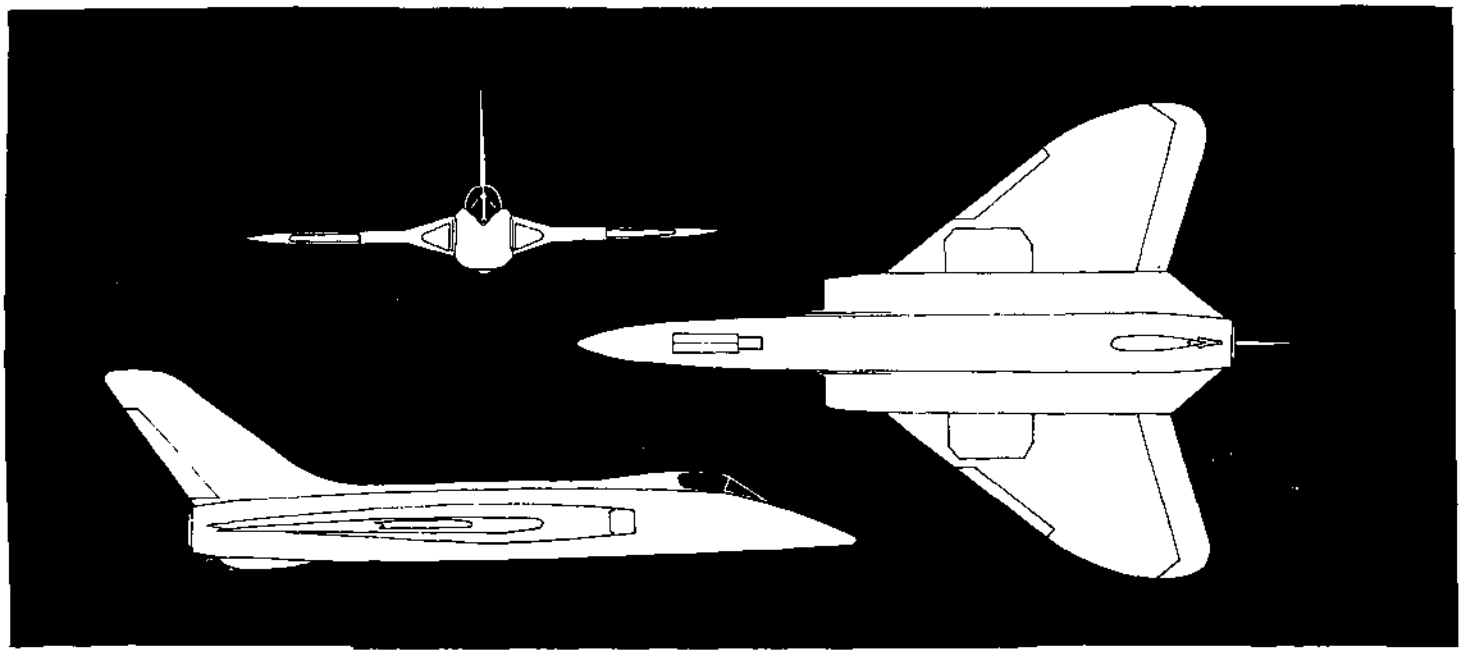


The F5D Skylancer is a low aspect ratio, single seat jet fighter. The Skylancer is not a true delta-wing design, though it does resemble one in certain attitudes. Most of the Skylancer recognition features are the same as the F4D Skyray, except the tail surfaces, which appear to extend aft of the tail pipes, and a pointed canopy.

DOUGLAS

SINGLE-JET

FIGHTER

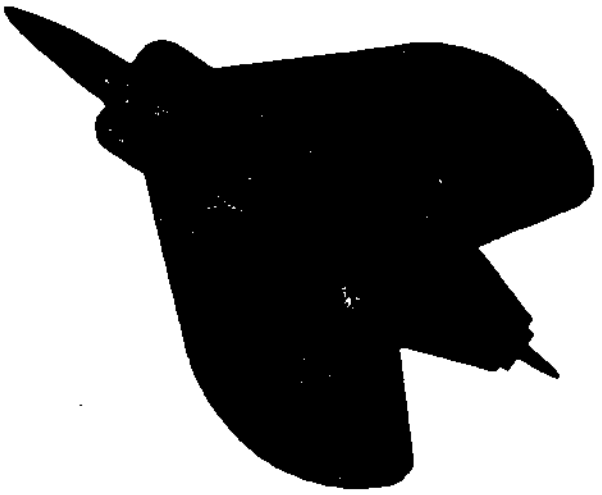


U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

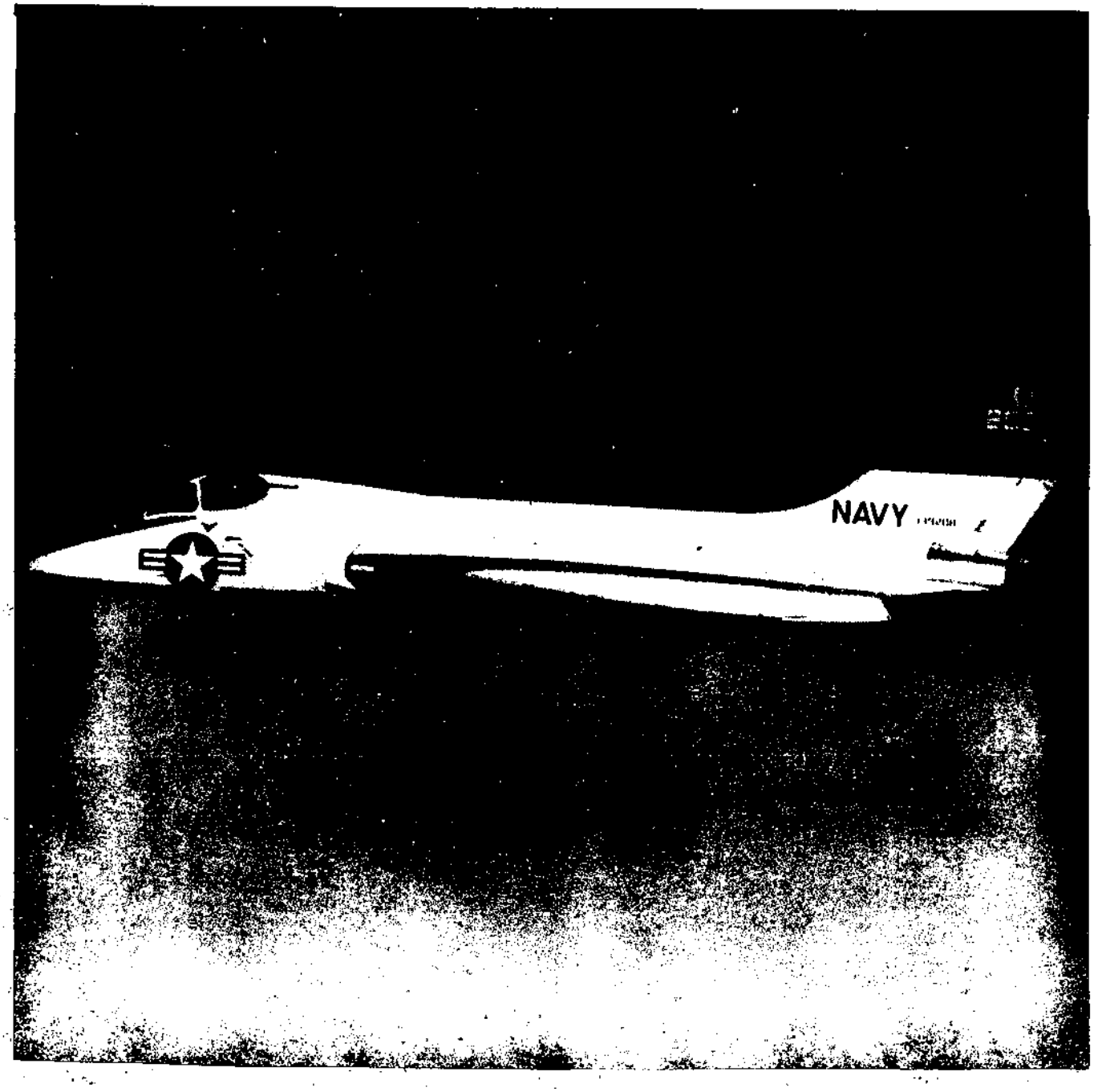
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

F5D-1
SKYLANCER

US NAVY

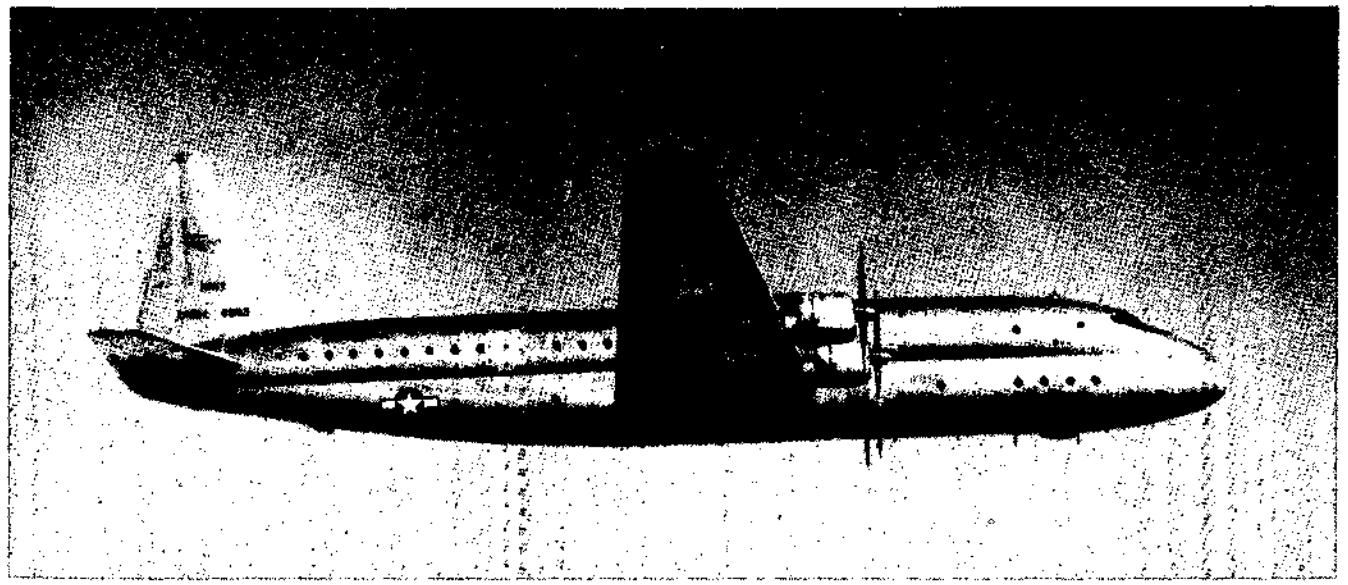


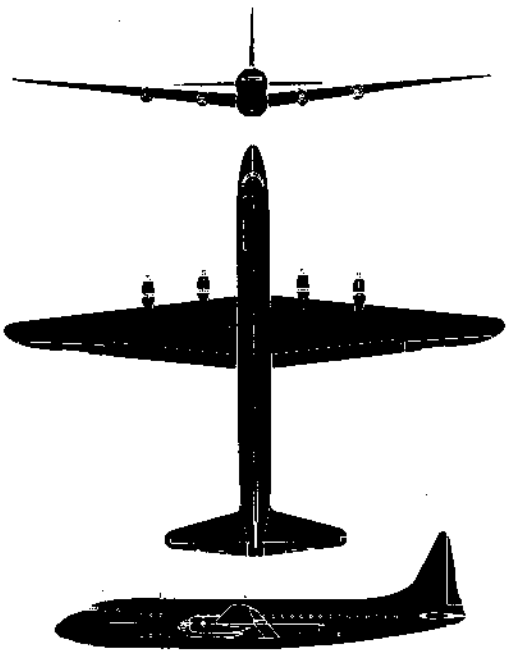
ACCENTED DRAWING



U. S. A.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G





The Constitution, a 92-ton giant, is the Navy's largest transport accommodating a crew of 12 and a total of 168 passengers. It is characterized by the double-deck, figure eight fuselage and the sharply tapered fin and rudder with narrow, rounded tip. The evenly tapered wings are set well back on the fuselage and are low mid-mount with full dihedral from the roots. Four P&W engines with reversible pitch inboard propellers, extend far forward of the wing's leading edge. Its short take-off requirement and long range were designed especially for operation in the Pacific areas.

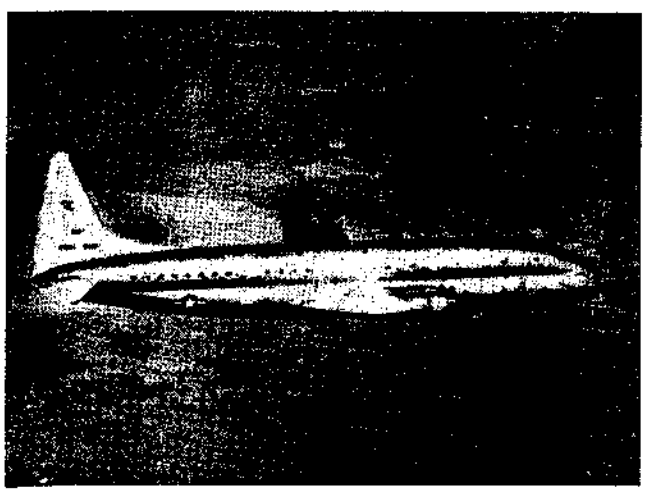
SPAN: 189'1". **LENGTH:** 156'1".

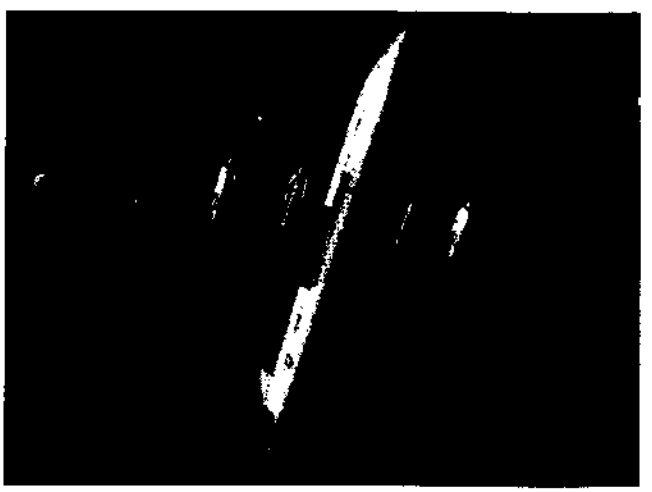
ENGINE: R–4360/3,000 h. p.

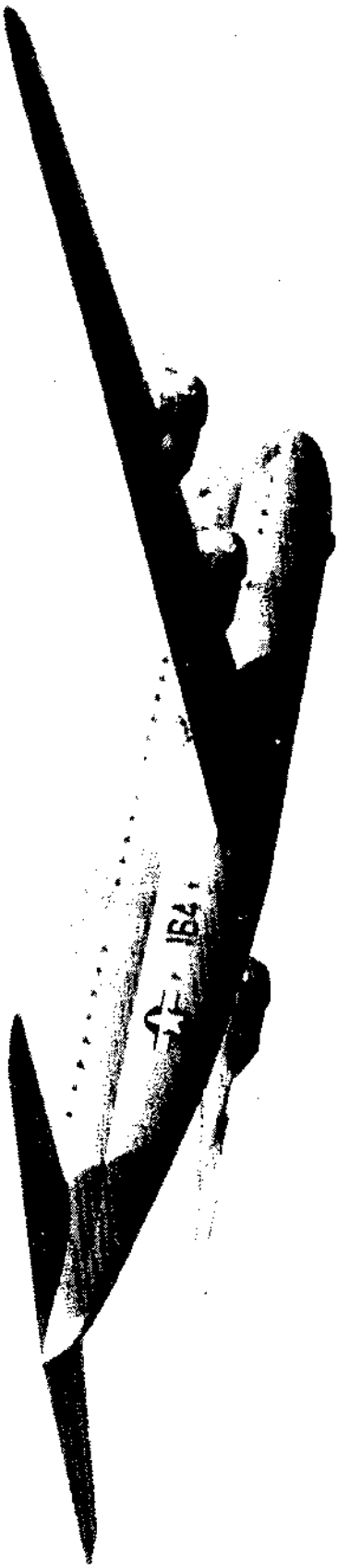
SPEED: 266 knots/25,000 ft.

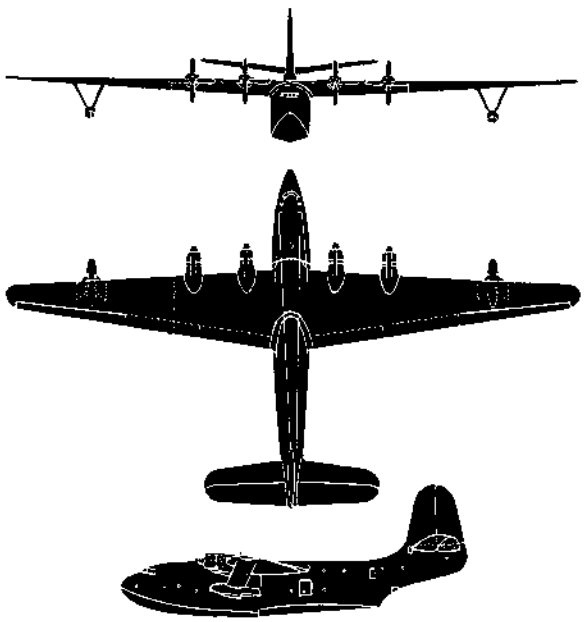
RANGE: 4,315 nautical miles/200 knots.

ARMAMENT: None.



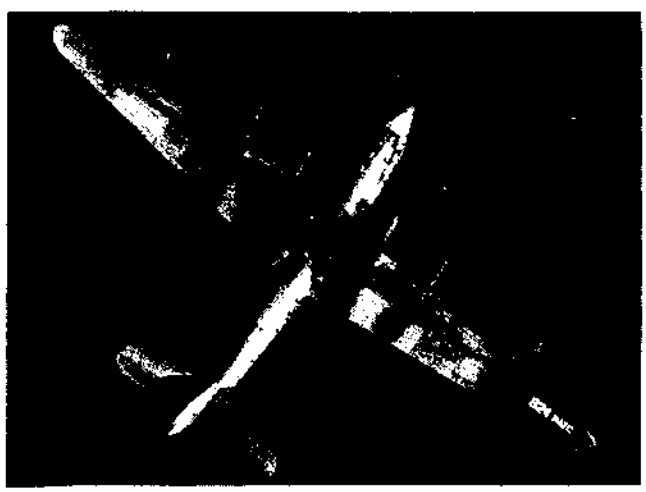


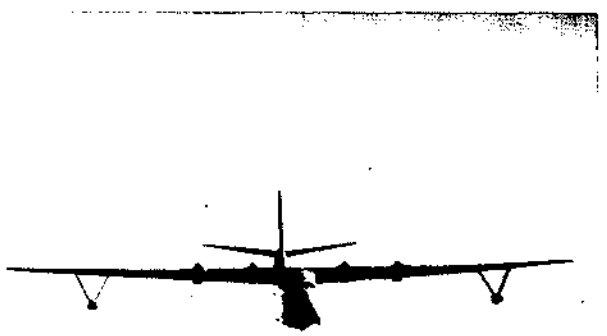


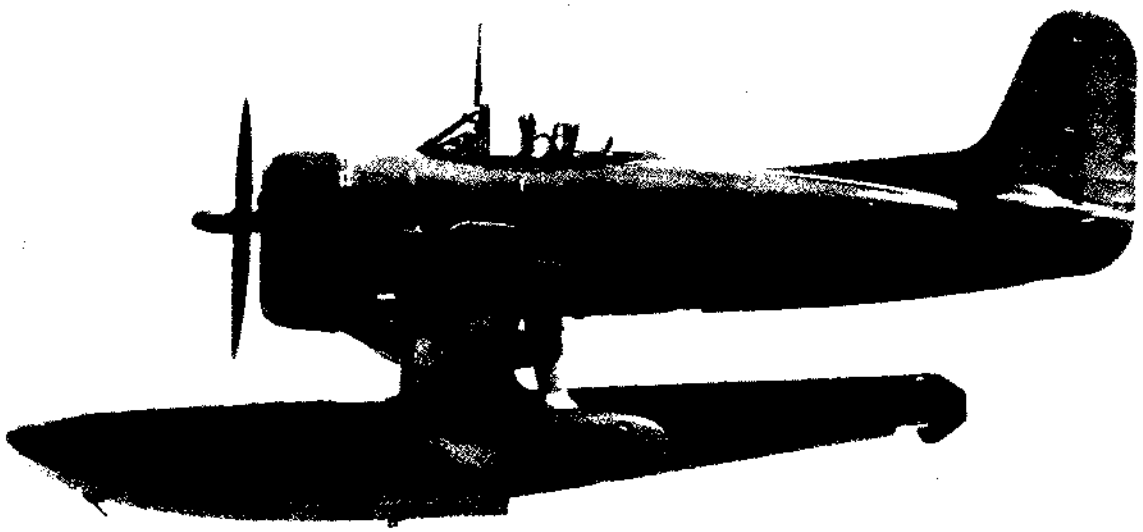


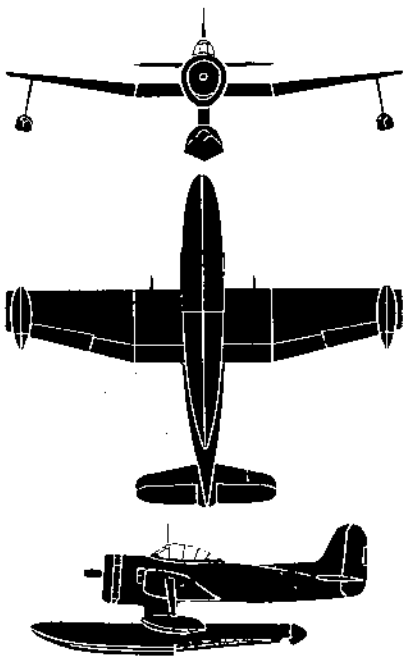
The latest Mars, bigger and faster than her prototype, the "Martin Mars", is a veritable warehouse with large cargo spaces and cargo doors large enough to load with ease a 20-ton tank. It has two complete decks extending almost the whole length of the fuselage and can carry cargo equivalent to four R4D's. The four engines are mid-mount and access is provided to the interior of each nacelle in flight through the wing. A total of 133 fully equipped troops can be carried in canvas bench seats which can be converted into 27 bunks. The JRM–2 has a high-mount tapered wing, single fin and rudder and a long slender hull. Wing tip floats are fixed.

SPAN: 200'0". **LENGTH:** 120'3".
ENGINE: R–3350/2,100 h. p.
SPEED: 191 knots/13,900 ft.
RANGE: 2,870 nautical miles/135 knots.
ARMAMENT: None.



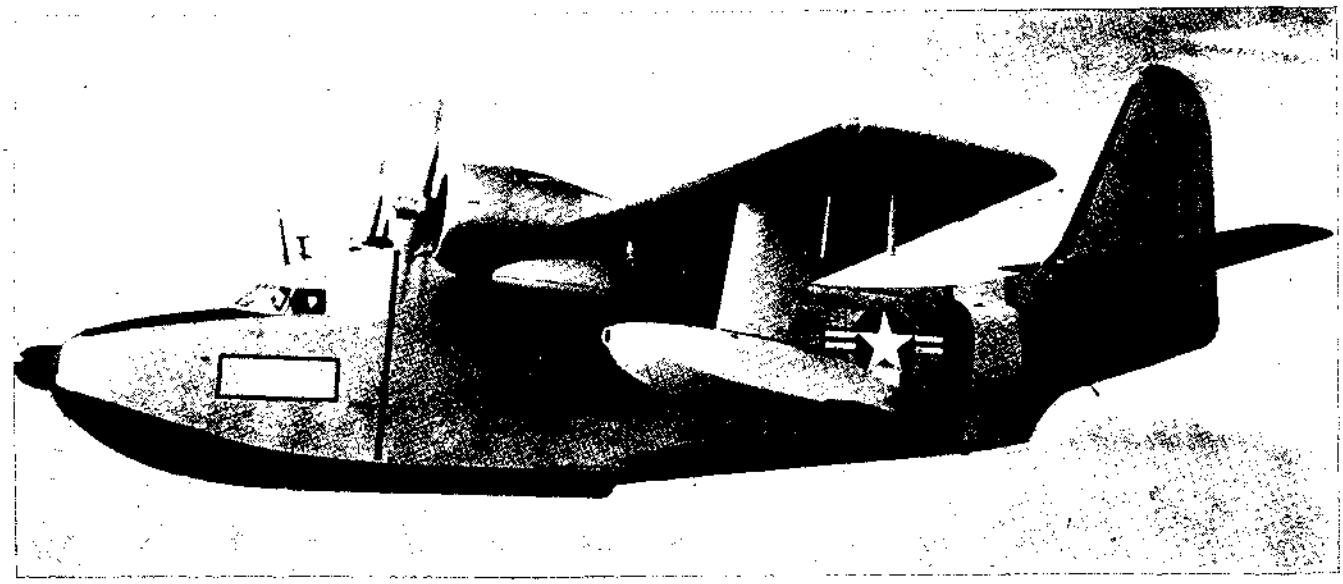


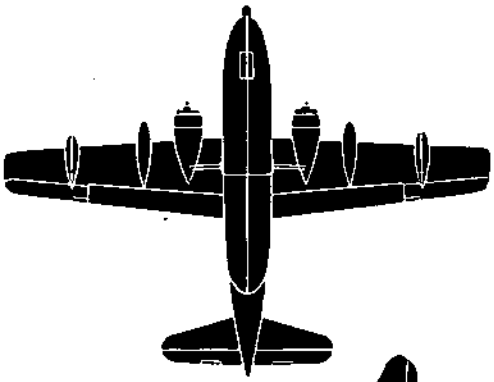




The Sea Hawk is a single-engine low-wing monoplane with a long single float and fixed wing tip floats. Fin and rudder are tall and narrow while the nose of the fuselage is short and blunt. Both inboard panels of the wing are straight, with dihedral in the outboard panels. The leading edge of the wing is straight as is the trailing edge on the inboard panel. The outboard panel has a tapered trailing edge with square wing tips. The SC is the standard scout plane aboard cruisers and battleships. However, tests are under way with helicopters as possible replacements for the SC. A version with fixed landing gear is used for land operation and is illustrated as the SC–2.

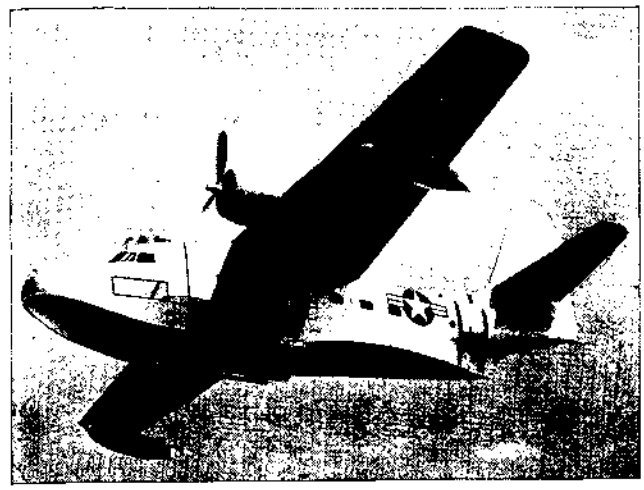
SPAN: 41′0″. **LENGTH:** 36′4″.
ENGINE: R–1820/1,350 h. p.
SPEED: 210 knots/2,300 ft.
RANGE: 725 nautical miles/115 knots.
ARMAMENT: 2 x .50 cal.

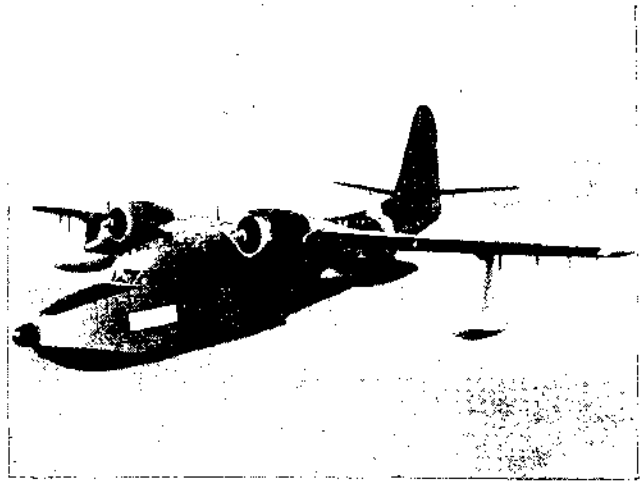


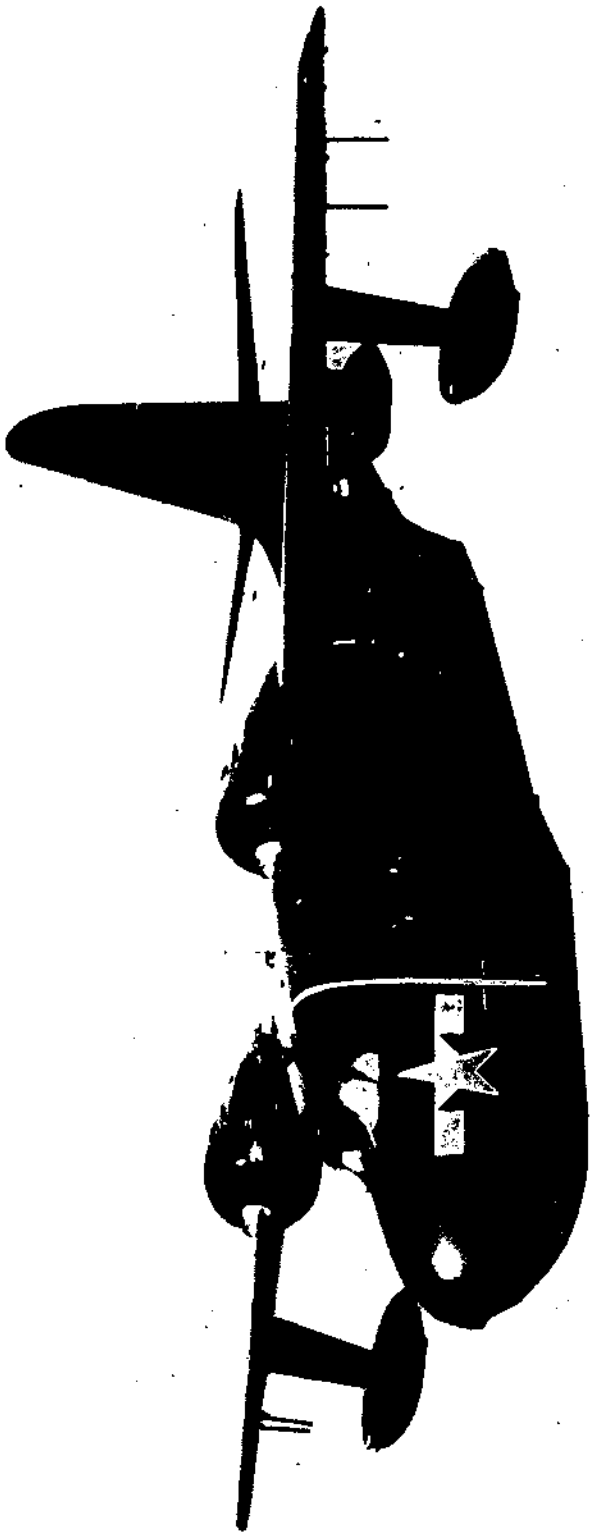


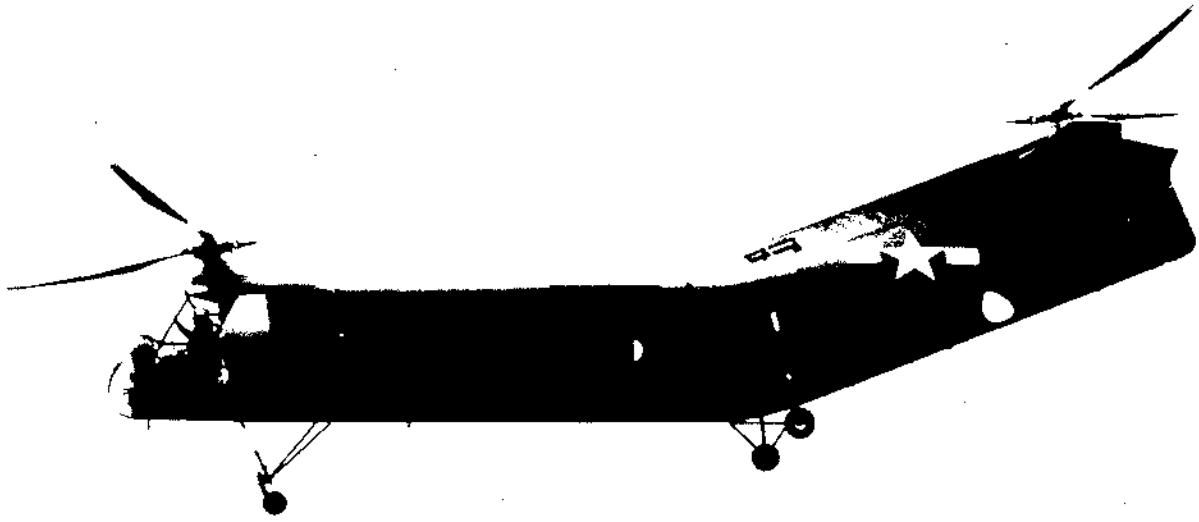
The UF Albatross is a twin-engined general purpose utility amphibian designed for personnel and cargo transport, litter evacuation, and rescue operations. This aircraft originally designated XJR2F, is in service with the Navy, Air Force and Coast Guard. The Air Force designation of the slab-sided amphibian is SA–16. The main wheels retract upward into the side of the hull, and the nose wheel retracts completely into the bottom of the hull. It has a take-off weight of around 33,000 pounds. Equipment varies: the radome may be seen under the port wing instead of on the nose, and the external tanks may be absent or replaced by bombs or depth charges. The Albatross has been quite active in rescuing downed airmen in Korea.

SPAN: 80′ 0″ **LENGTH: 60′ 7″**
ENGINE: 2/R–1,820–76A/1,425 h.p. each.
MAX. SPEED: 220 knots/16,300 ft.
RANGE: 2,060 nautical miles/140 knots.
ARMAMENT: 2 x 325-lb. D. B.





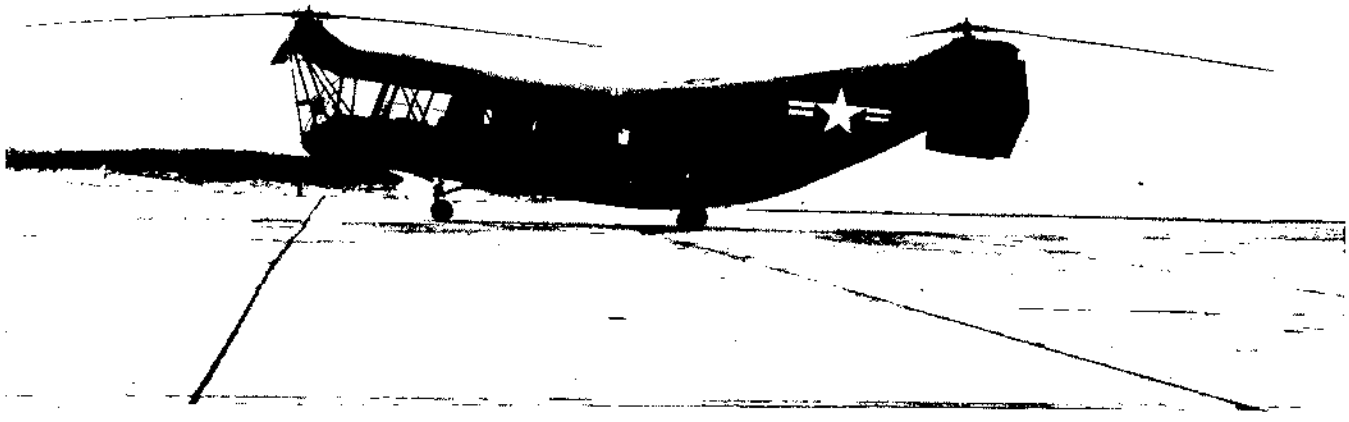




PIASECKI **HRP–2 (N) & H–21 (AF)**

ROTOR SPAN: 44′0″. **LENGTH: 54′0″.**
ENGINE: R–1820–76/1,425 h. p.
SPEED: 117 knots.
RANGE: 529 nautical miles.

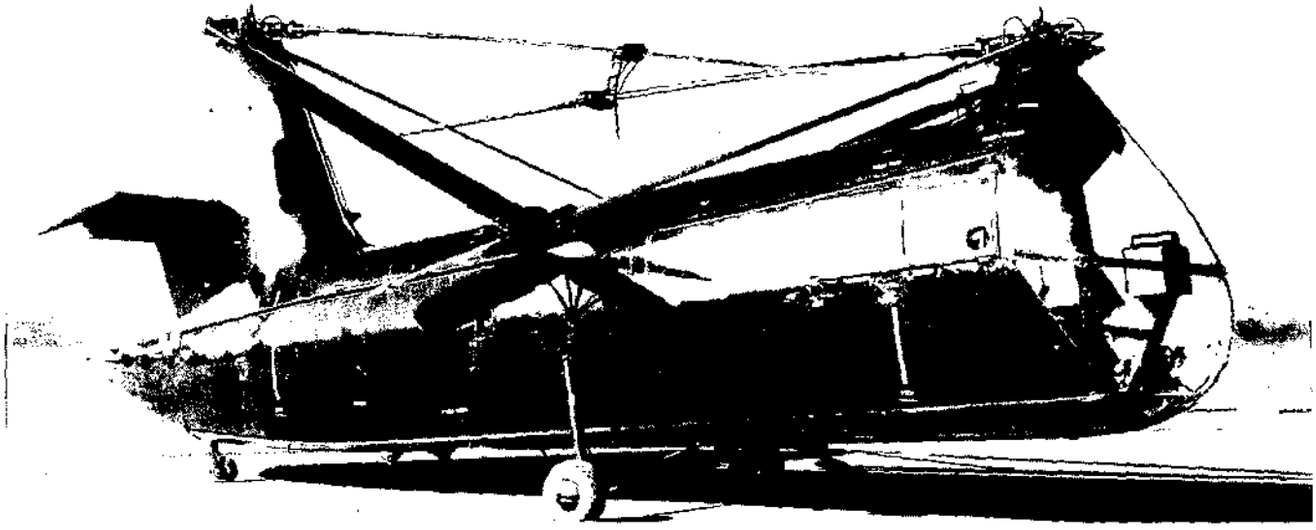
Piasecki's Streamlined "Flying Banana" is a tandem overlapping rotor, single-engine, helicopter used by both the Navy and Air Force. Developed out of the original and famous "Flying Banana," the aluminum-fuselage seats eight passengers plus the pilot and co-pilot seated side-by-side. It is suitable for rescues and for troop-carrying assault tactics in the Marine Corps. The fuselage has a flattened V shape, fairing into a vertical fin.



PIASECKI **HRP–1**

ROTOR SPAN: 41′0″. **LENGTH: 48′0″.**
ENGINE: R–1340/600 h. p.
SPEED: 105 knots/2,500 ft.
RANGE: 260 nautical miles.

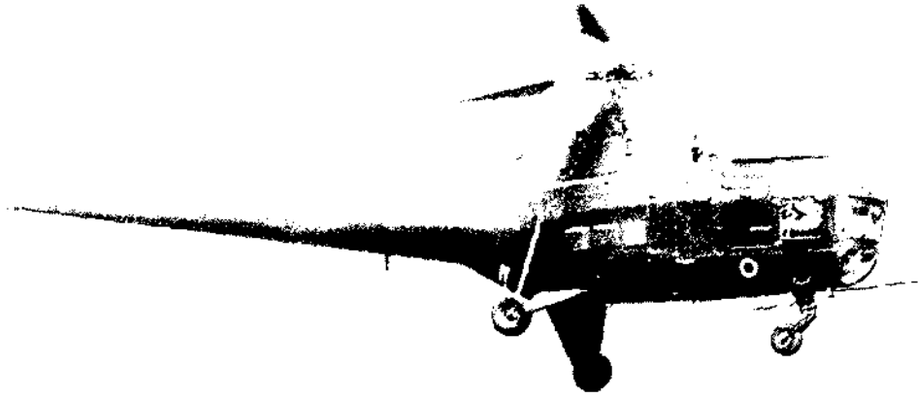
The HRP–1 sometimes called the "Flying Banana" is in service with the Navy, Marine Corps and Coast Guard. It is a large fabric covered cargo or passenger transport helicopter and the first successful tandem rotor craft to be put into production. Designed to carry a crew of two and eight passengers, the HRP–1 can also be used as an ambulance to carry six stretcher cases or to serve as a medium-range rescue helicopter.



PIASECKI **HUP–1**

ROTOR SPAN: 35′0″. **LENGTH:** 31′7″.
ENGINE: R–975/525 h. p.
SPEED: 120 knots.
RANGE: 382 nautical miles.

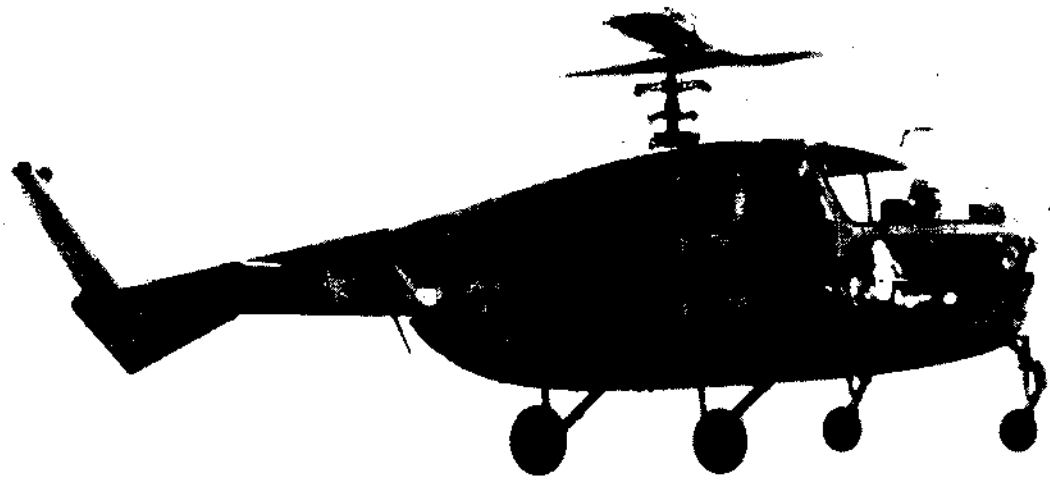
The HUP–1, first helicopter to loop, is an overlapped tandem rotor, single engine helicopter designed to meet requirements for shipboard operation. A fleet use for the helicopter is that of plane guard duty with aircraft carriers. Pictured here with blades folded the HUP–1 occupies the minimum of space. The all-metal soundproof fuselage has normal accommodations for a crew of two and five passengers.



SIKORSKY **HO3S–1 (N) & H–5 (AF)**

ROTOR SPAN: 48′0″. **LENGTH:** 41′3″.
ENGINE: R–985/450 h. p.
SPEED: 89 knots/7,500 ft.
RANGE: 380 nautical miles/68 knots.

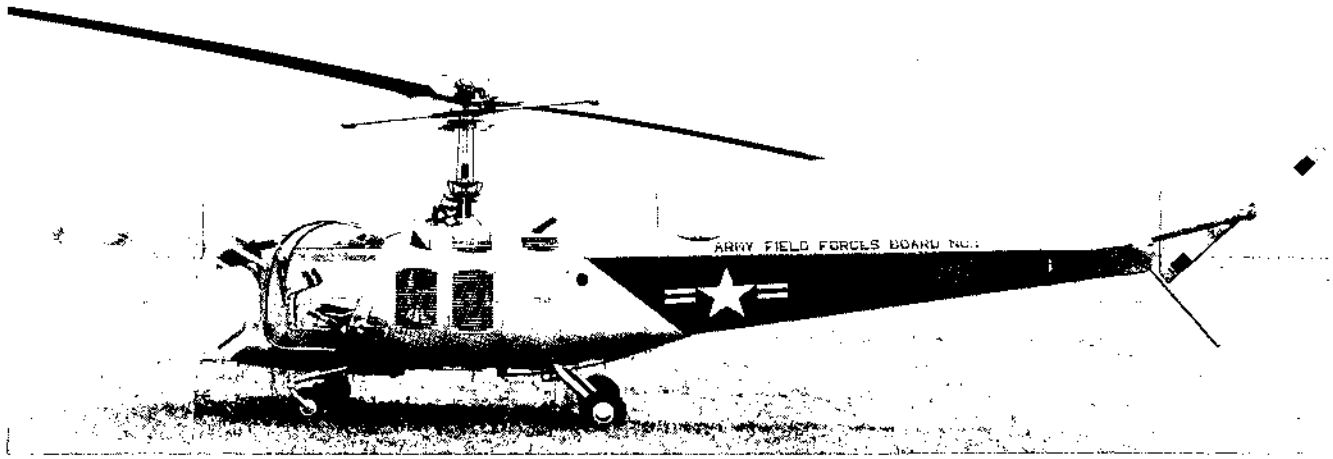
This conventional main rotor and tail torque rotor Sikorsky helicopter bears the civil designation S–51. It was the first Sikorsky helicopter to be licensed by the C. A. A. for commercial operations. In addition to its many applications in the U. S. the HO3S–1 (N) or H–5 (AF) is built in England under license by Westland-Sikorsky. In England it is fitted with a 500 h. p. Alvis Leonides engine. The mission is observation, liaison and rescue.



BELL **H–12**

ROTOR SPAN: 47′6″. **LENGTH:** 39′7″.
ENGINE: R–1340/550 h. p.
SPEED: 90 knots.
RANGE: 300 nautical miles.

The Bell H–12 is a conventional main rotor and tail torque rotor helicopter designed for rescue with the Air Force. Its first hovering flight was made on 22 November 1949. The main rotor is supported by a shaft from the mid-point of the fuselage while the tail rotor is extended upward off the tail boom on an arm. A fixed quadricycle landing gear is fitted to a squat rectangular shaped fuselage which is wider than it is high.



BELL **HTL–2 (N) & H–13B (AF)**

ROTOR SPAN: 35′2″. **LENGTH:** 41′3″.
ENGINE: O–335/178 h. p.
SPEED: 80 knots/sea level.
RANGE: 176 nautical miles/72 knots.

The Bell HTL–2 (N), H–13B (AF), a two-place, single-engine helicopter intended for training purposes, has a conventional two-bladed, see-saw main rotor with a gyroscopic action stabilizer bar. A fixed quadricycle landing gear is fitted. Improvements over the HTL–1 (N) helicopter include improved engine cowling and a split type bubble canopy for open cockpit operation. In all, there are around 300 Bell helicopters flying.

SIKORSKY **HO5S (N) & H–18 (AF)**

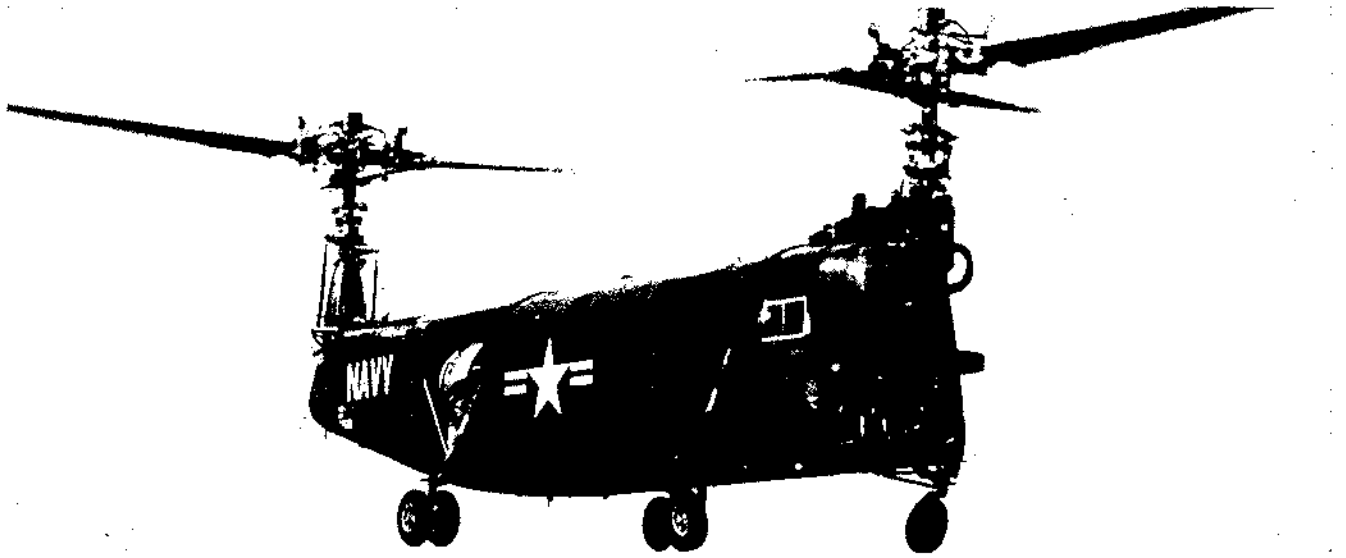
ROTOR SPAN: 33′0″. **LENGTH: 27′6″.**
ENGINE: O–425/245 h. p.
SPEED: 109 knots.
RANGE: 260 nautical miles.

The Sikorsky HO5S (N), H–18 (AF) is a conventional main rotor and tail torque rotor helicopter. In use by both Navy and Air Force it will accommodate a pilot, a co-pilot and two passengers or two litters. A fixed quadricycle landing gear is fitted. This helicopter made its first flight in April 1950 and an earlier version the S–52 was the first U. S. helicopter to be fitted with all-metal rotor blades.

SIKORSKY **HO4S (N) & H–19 (AF)**

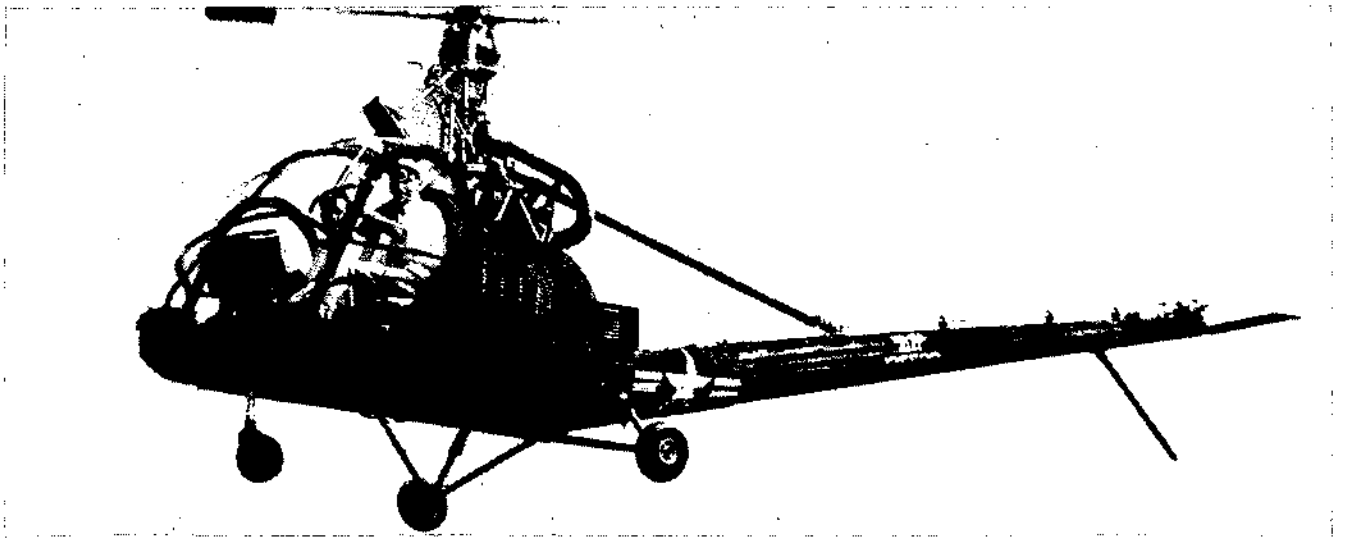
ROTOR SPAN: 53′0″. **LENGTH: 40′11″.**
ENGINE: R–1340/600 h. p.
SPEED: 90 knots.
ENDURANCE: 3 hours.

The Sikorsky HO4S (N), H–19 (AF) pictured with its clam-shell maintenance doors ajar is a conventional main rotor and tail torque rotor helicopter. Its mission is search, rescue, and liaison. This helicopter, evolved from the smaller H–5H, has a fixed quadricycle landing gear. The main fuselage section is boxlike with a round nose and accommodates eight litters and one attendant. A stabilizing fin extends out from the tail tube.



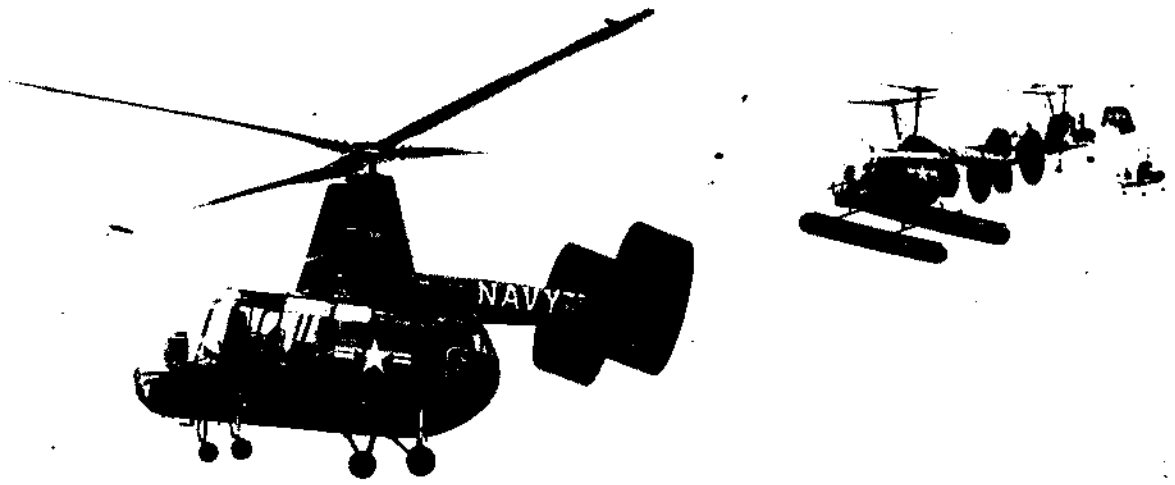
BELL **HSL**
ROTOR SPAN: 37′6″ **LENGTH: 39′10″**
ENGINE: R-2800/1,900 h. p.
MAX. SPEED: 135 knots/sea level.
RANGE: 405 nautical miles.
ARMAMENT: 1 x Mk.24 800-lb. mine.
GROSS WEIGHT: 14,700-lbs.

The Navy Bell HSL is an overlapped tandem rotor, single engine helicopter designed as a search helicopter. It carries electronic and radio equipment and a crew of three on flights which involve hovering stops a few feet above the water in order to detect the presence of submarines. The HSL's primary mission is to detect, identify, track and/or destroy enemy submarines. It may also be used for ship-to-ship, ship-to-shore liaison. The HSL is designed to operate from shipboard under all weather conditions.



HILLER **HTE (N) & H-23 (A)**
ROTOR SPAN: 38′8″ **LENGTH: 38′8″**
ENGINE: 0 335/178 h. p.
MAX. SPEED: 73 knots/sea level.
RANGE: 100 nautical miles.
GROSS WEIGHT: 2,300-lbs.

The HTE/H-23 is a conventional main rotor and tail torque rotor helicopter. It is manufactured in two military models, one for the Navy as a two-seat training helicopter with a four-wheel landing gear. The other model for the Army is employed as an air ambulance and field evacuation helicopter. A heated litter installation accommodates two folding type litters, one on each side of the cabin. The Army's model has a wide-track skid landing gear for greater ground stability and rough terrain operation



KAMAN **HOK**
ROTOR SPAN: 50'6" **LENGTH: 21'11"**
ENGINE: R–975/525 h. p.
MAX. SPEED: 99 knots/sea level.
RANGE: 280 nautical miles.
GROSS WEIGHT: 4,500-lbs.

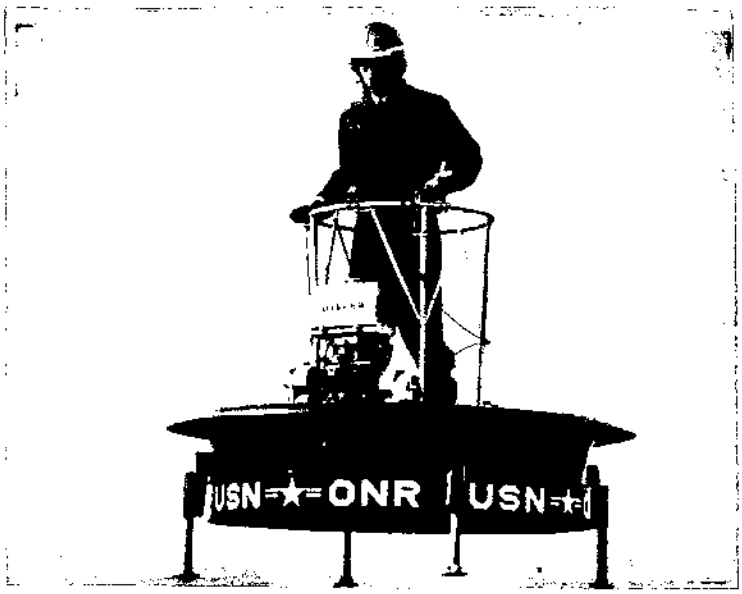
The Navy Kaman HOK is a side-by-side intermeshing rotor helicopter with two blades. Control is maintained by means of aerodynamic servo control flaps actuated by conventional controls. A hoist of 400 pounds capacity is installed on the fuselage. The rotor blades can be positioned parallel to the fuselage to facilitate stowage. As a utility helicopter it can carry two litters internally. The port side of the nose bubble swings open for loading and unloading.

KAMIN **HTK**
ROTOR SPAN: 44'8" **LENGTH: 21'11"**
ENGINE: 0–435/255 h. p.
MAX. SPEED: 77 knots/sea level.
RANGE: 125 nautical miles.
GROSS WEIGHT: 2,900-lbs.

The Navy Kamin HTK is a smaller brother of the HOK and operates on the same principle. The HTK's primary mission is training; however, it may be used in combat areas for general utility. A pilot, co-pilot and a student, or a litter patient plus pilot and attendant may be carried. When carrying a litter the nose bubble swings open for loading and unloading.

US NAVY

FLYING PLATFORM

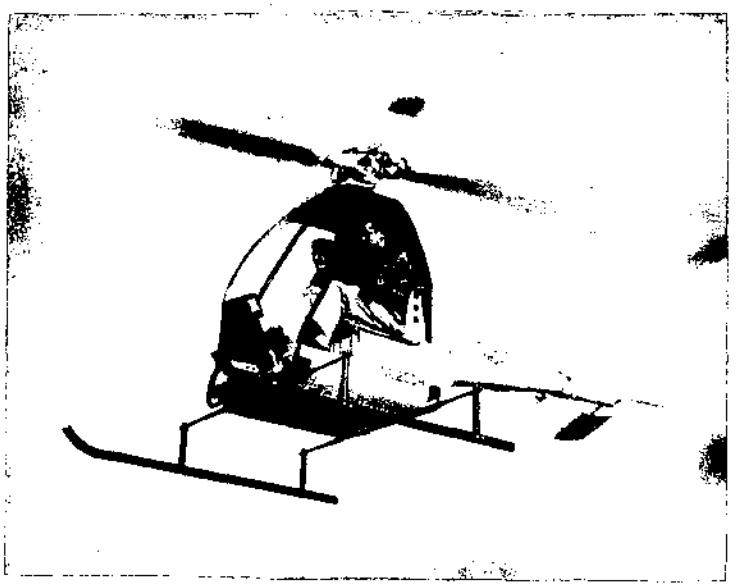


The Flying Platform made its first flight February 4, 1955. The Nelson H–56 air-cooled engines drive co-axial contra-rotating fans enclosed in a ring or duct, the upper lip of which is flared outward. The fans create a low pressure over the lip, making pressure under the lip greater (ducted fan principle). Pilot leans in direction he wishes to travel.

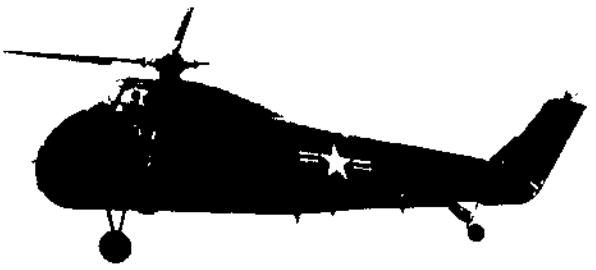
US ARMY

H-32

The H–32/Navy HOE–1 is a two-place rotary wing aircraft. Its 23 foot rotor blades are driven by small ram-jet engines located at the blade tips. The H–32 can lift more than its own weight, which is slightly over 500 pounds. Possible uses of the Hornet include training, command liaison, wire laying and aerial photography.



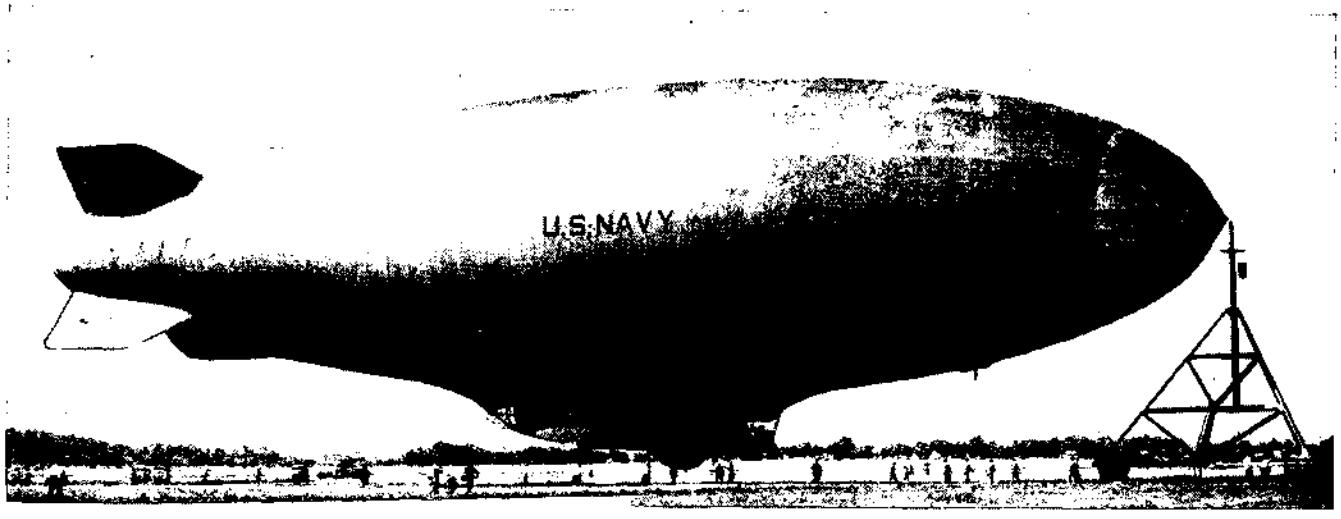
H-34A | US ARMY



The U. S. Army Sikorsky H-34A/Navy HSS-1 is a single rotor type helicopter. The main rotor and tail anti-torque rotor each have four blades. The tail section folds forward of the pylon for storing the aircraft where space is limited. The H-34A will carry 16 passengers. Navy version of the H-34A is equipped with electronic submarine detection devices.

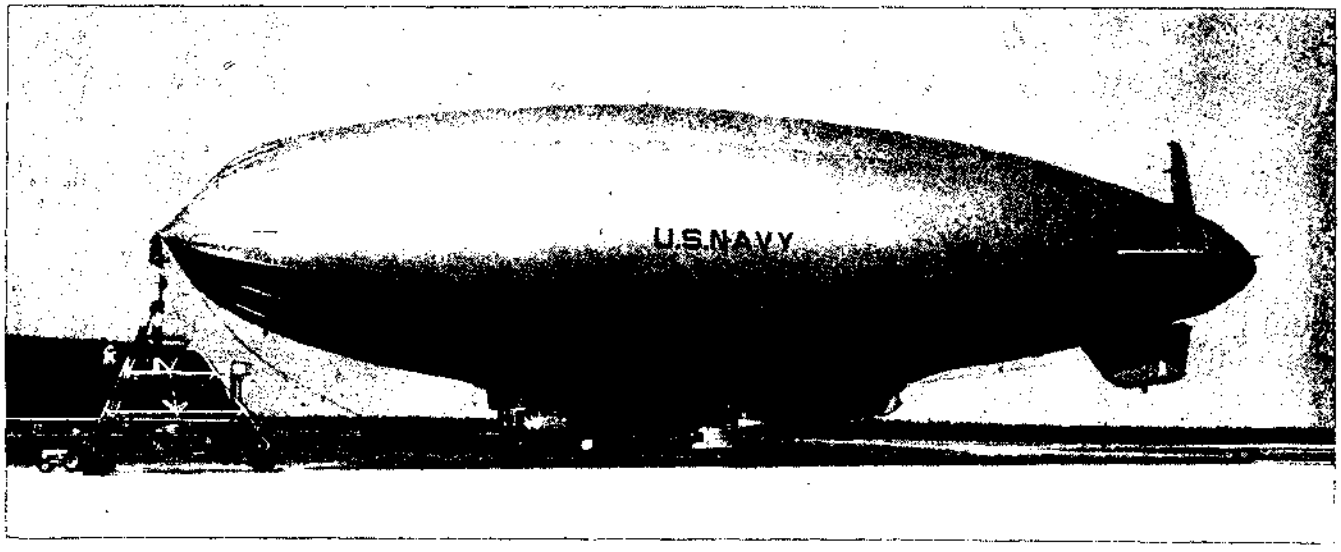
H-37A | US ARMY

The H-37/Navy HR2S-1 is a twin-engine, single five-blade rotor, transport helicopter. It is designed to carry twenty-six combat equipped troops or an equivalent cargo. Hydraulically operated nose doors are provided for loading bulky cargo or heavy equipment. Power provided by two Pratt & Whitney, R-2800 engines, give the H-37 a maximum speed of 132 knots.



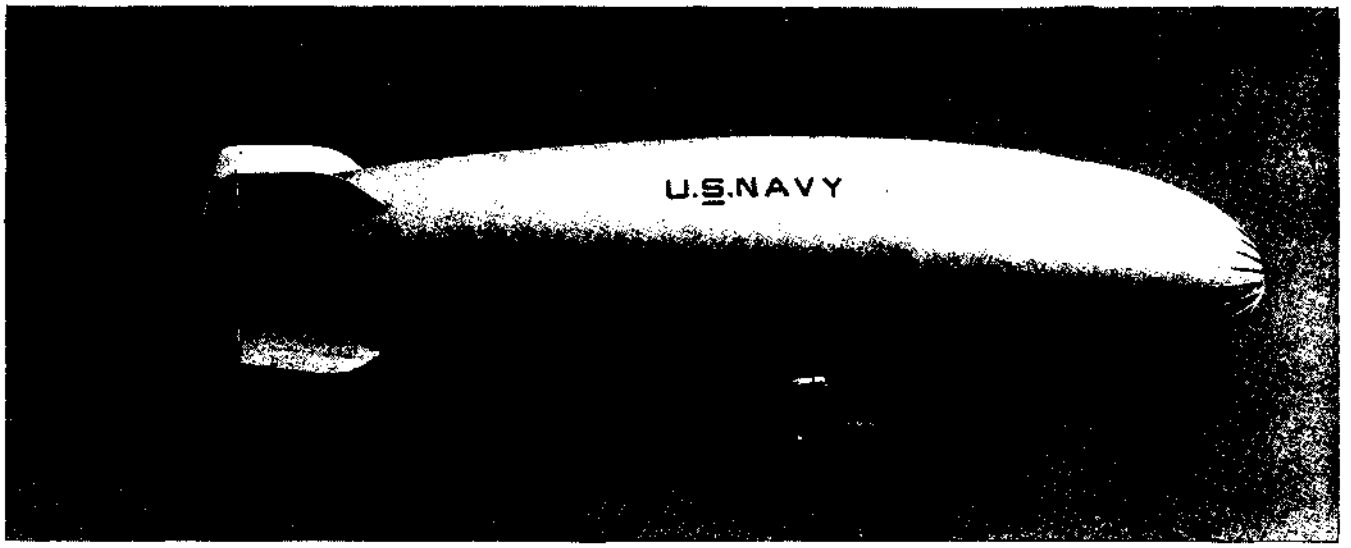
GOODYEAR **ZPN**
LENGTH: 324′5″ **WIDTH: 71′4″**
GAS VOLUME: 825,000 cu. ft.
ENGINE: 2/R–1300/800 h. p. each.
MAX. SPEED: 75 knots.
RANGE: 1,475 nautical miles/50 knots.
ARMAMENT: 2 x Mk. 41 mines; 2,400-lb. max. bomb load.

The ZPN was designed to cooperate with other ASW air and surface craft to detect and track fast submarines by sonar, MAD, radar and radio equipment. While the "Nan" is the world's fastest blimp, it nevertheless can hover practically motionless. Provision is made for surface-to-air refueling and for reballasting through pickup of ocean water. Unlike earlier blimps, a single pilot may fly the ZPN. Its two engines are mounted inside the engine room of the car and can be serviced in flight. Either engine can drive both props if necessary. Normal crew is 14.



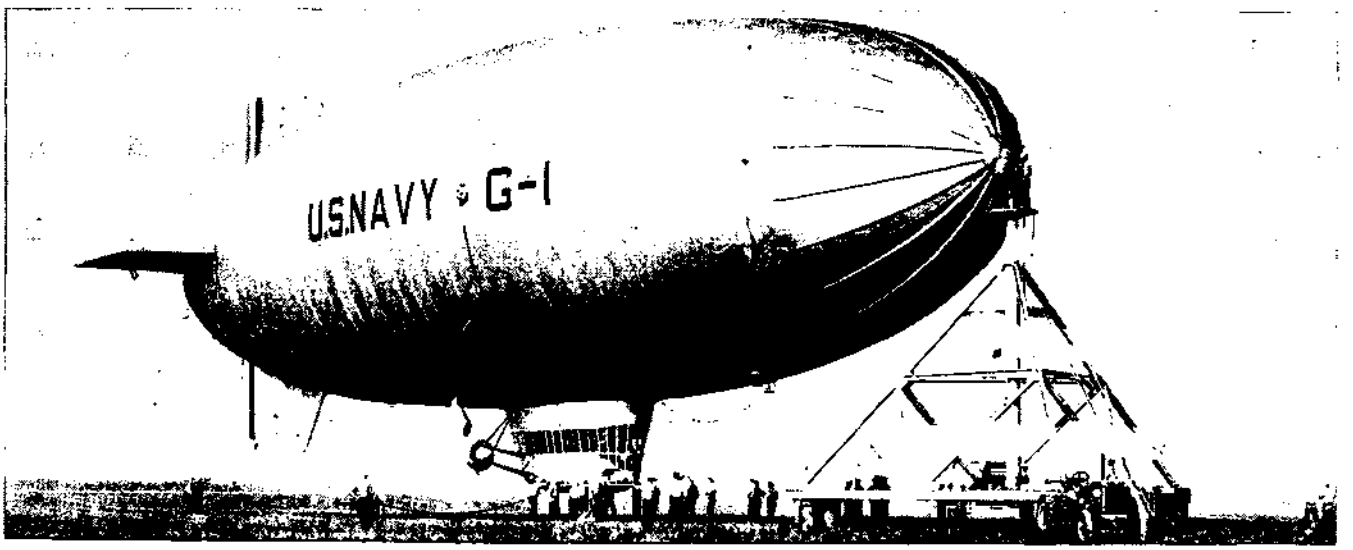
GOODYEAR **ZPM**
LENGTH: 310′0″ **WIDTH: 72′6″**
GAS VOLUME: 725,000 cu. ft.
ENGINE: 2/R–1340/600 h. p. each.
MAX. SPEED: 67 knots.
RANGE: 1,420 nautical miles/50 knots.
ARMAMENT: 1 x .50 cal; 2,600-lb. max. bomb load.

The ZPM is used for patrol and antisubmarine warfare. This blimp class established the world's duration record after more than a week of sustained flight. In the "M" and "K" class blimps the pilot works a large wheel that operates the elevators for horizontal control, while the co-pilot's wheel operates the rudder for turning. Equipment includes radar and MAD for detecting and tracking submarines, bicycle landing gear, and crew accommodations. There are four ballonets instead of the usual two and the normal compliment is ten.



GOODYEAR **ZPK and ZP2K**
LENGTH: 253′0″ **WIDTH: 65′0″**
GAS VOLUME: 456,000 cu. ft.
ENGINE: 2/R–1340/600 h. p. each.
MAX. SPEED: 67 knots.
RANGE: 930 nautical miles/50 knots.
ARMAMENT: 1 x .50 cal; 2,000 lb. max. bomb load.

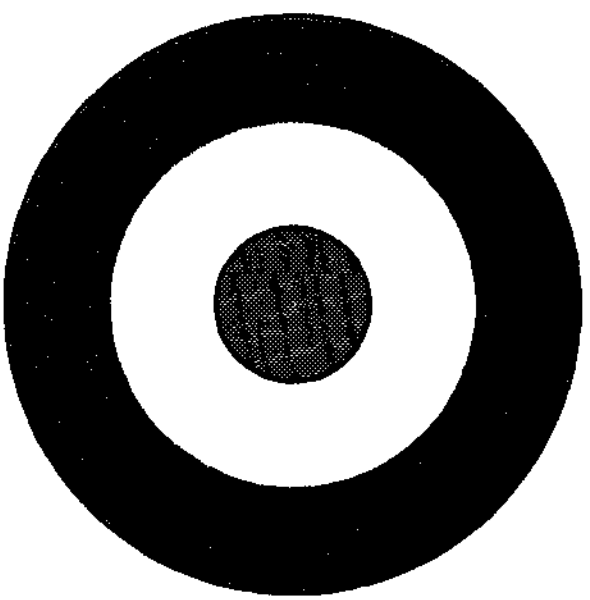
The ZPK and ZP2K airships are identical in appearance and differ only in that the ZP2K is a modernized version. All ZPK's in time will be modernized. The ZP2K's modifications include new electronic equipment and other minor changes. Its engines remain the same. The mission of this class of blimps is patrol and antisubmarine warfare especially patrol and convoy escort in coastal waters. Normal crew is eight accommodated in a short car attached to the envelope. Envelope pressure is maintained by two air ballonets with scoops in the slip stream.



GOODYEAR **ZPG**
LENGTH: 192′0″ **WIDTH: 53′6″**
GAS VOLUME: 196,700 cu. ft.
ENGINE: 2/R–670/220 h. p. each.
MAX. SPEED: 53 knots.
RANGE: 350 nautical miles/40 knots.
ARMAMENT: None.

The ZPG was designed for training and utility. In addition to serving as an advance trainer, it has been used for experimental purposes. The first "G" ship was built in 1936. Its envelope is made of three-ply fabric from which the car is suspended by a combination of internal and external suspension. The car has a framework of aluminum alloy box guides with a covering of aluminum sheet and fabric. Normal crew is 5. Blimps are overhauled every two years, and each part is weighed and recorded before it goes back into the ships.

BRITISH COMMONWEALTH
OF NATIONS
AIR FORCES AND AIRCRAFT



R.A.F.

GREAT BRITAIN

(The United Kingdom of Great Britain and Northern Ireland)

The Royal Air Force

The Royal Air Force is administered by the Air Council, which is the controlling authority of the Air Ministry which, in turn, derives its authority from Parliament.

The President of the Air Council, the Secretary of State for Air, is assisted by three Air Members of the Council and the Permanent Under-Secretary of State for Air (Vice-President) comprising the four department heads among whom the administrative duties of the Air Ministry are divided.

The Marshal of the Royal Air Force is H. M. King George VI.

The Royal Air Force is divided into Home Commands and Overseas Commands.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Medium Bomber	Lincoln B. Mk. 2	A. V. Roe	G.B.
	Washington (B-29)	Boeing	U.S.A.
Light Bomber	Canberra	English Electric	G.B.
	Brigand B. Mk. 1	Bristol	G.B.
	Lancaster B. Mks. 1, 7	A. V. Roe	G.B.
	Mosquito B. Mks. 35, 6	de Havilland	G.B.
Fighter	Hornet F. Mk. 3	de Havilland	G.B.
	Meteor Mks. 4, 8, 9, 11	Gloster	G.B.
	Mosquito N. F. Mks. 30, 36, 38	de Havilland	G.B.
	Spitfire F. Mks. 14, 16, 18, 21, 22, 24	Vickers-Armstrongs	G.B.
	Tempest Mks. 2, 5, 6	Hawker	G.B.
	Vampire Mks. 1, 3, 5	de Havilland	G.B.
Reconnaissance	Anson Mk. 19	A. V. Roe	G.B.
	Brigand Met. Mk. 3	Bristol	G.B.
	Halifax Met. Mk. 6	Handley Page	G.B.
	Hastings Mk. 1	Handley Page	G.B.
	Lancaster P. R. Mk. 1	A. V. Roe	G.B.
	Lancaster G. R. Mk. 3	A. V. Roe	G.B.
	Lincoln Mk. 2	A. V. Roe	G.B.
	Mosquito P. R. Mk. 34	de Havilland	G.B.
	Meteor P. R. Mk. 10	Gloster	G.B.
	Shackleton M. R. Mk. 1	A. V. Roe	G.B.
	Spitfire P. R. Mk. 19	Vickers-Armstrongs	G.B.
	Sunderland Mk. 5	Short Bros.	G.B.
Transport	Dakota (Skytrain C-47/R4D)	Douglas	U.S.A.
	Devon	de Havilland	G.B.
	Hastings Mk. 1	Handley Page	G.B.
	Valetta	Vickers-Armstrongs	G.B.
	Viking Mk. 2	Vickers-Armstrongs	G.B.
	York	A. V. Roe	G.B.
Trainer	Anson	A. V. Roe	G.B.
	Athena T. Mk. 2	A. V. Roe	G.B.
	Balliol T. Mk. 2	Boulton Paul	G.B.
	Buckmaster	Bristol	G.B.
	Chipmunk	de Havilland	G.B.
	Harvard (Texan T-6/SNJ)	North American	U.S.A.
	Martinet	Miles	G.B.
	Meteor T. Mk. 7	Gloster	G.B.
	Mosquito T. Mk. 3	de Havilland	G.B.
	Oxford	Airspeed	G.B.
	Prentice	Percival	G.B.
	Proctor	Percival	G.B.
	Wellington T. Mk. 10, 18	Vickers-Armstrongs	G.B.
Liaison and Utility	Auster	Auster	G.B.
	Anson	A. V. Roe	G.B.
Helicopter	Hoverfly	Sikorsky	U.S.A.
	Dragonfly (S-51)	Westland/Sikorsky	G.B.

Naval Aviation

British Naval Aviation is administered by the Board of Admiralty through the Fifth Sea Lord (Air) who is a Vice Admiral. A Vice Admiral, subordinate to the Fifth Sea Lord (Air) is the Flag Officer (Air) (Home) and there is a Vice Admiral Commanding the Reserves.

Naval Aviation afloat and overseas is administered by the various Commands, the second in command of which is usually a Vice Admiral (Air).

Fleet Carriers (36,800 tons): active, *Eagle.* Fleet Carriers (23,000 tons): active, *Indomitable, Indefatigable,* and *Illustrious;* in reserve, *Implacable,* and *Formidable;* undergoing modernization, *Victorious;* undergoing construction one 36,800-ton carrier, *Ark Royal.*

Light Fleet Carriers (14,000 tons): active, *Glory, Ocean, Theseus, Triumph, Vengeance,* and *Warrior;* undergoing construction, *Albian, Bulwark, Centaur,* and *Hermes.*

Equipment

Type	Designation	Manufacturer	Country
Attack	Avenger (TBF)	Grumman	U.S.A.
	Barracuda Mk. 3	Fairey	G.B.
	Firebrand Mk. 5	Blackburn	G.B.
	Firefly Mks. 1, 5	Fairey	G.B.
	Gannet	Fairey	G.B.
	Mosquito Mks. 6, 34	de Havilland	G.B.
	Sea Mosquito Mks. 33, 37	de Havilland	G.B.
Fighter	Attacker	Vickers-Armstrongs	G.B.
	Firefly N. F. Mk. 1	Fairey	G.B.
	Seafire Mks. 15, 17, 45, 47	Vickers-Armstrongs	G.B.
	Sea Fury F. B. Mks. 10, 11	Hawker	G.B.
	Sea Hawk	Hawker	G.B.
	Sea Hornet Mks. 20, 21	de Havilland	G.B.
	Sea Vampire Mks. 20, 21	de Havilland	G.B.
	Vampire Mk. 5	de Havilland	G.B.
	Wyvern T. F. Mks. 2,4	Westland	G.B.
Reconnaissance	Mosquito P. R. Mk. 16	de Havilland	G.B.
	Sea Otter A.S.R. Mk. 2	Vickers-Armstrongs	G.B.
Trainer	Anson	A. V. Roe	G.B.
	Firefly T. Mk. 1, 2, 3	Fairey	G.B.
	Harvard (Texan T-6/SNJ)	North American	U.S.A.
	Martinet	Miles	G.B.
	Meteor T. Mk. 7	de Havilland	G.B.
	Mosquito T. Mks. 3, 39	de Havilland	G.B.
	Oxford	Air Speed	G.B.
	Sea Fury T. Mk. 20	Hawker	G.B.
	Sea Prince	Percival	G.B.
	Tiger Moth	de Havilland	G.B.
Liaison and Utility	Dominie	de Havilland	G.B.
	Expeditor (Voyager C-45/JRB)	Beechcraft	U.S.A.
	Auster	Auster	G.B.
Helicopter	Hoverfly	Sikorsky	U.S.A.
	Dragonfly (S-51)	Westland/Sikorsky	G.B.

AUSTRALIA

(The Commonwealth of Australia)

The Royal Australian Air Force

The Royal Australian Air Force (R. A. A. F.) is an independent service equal in status to the Royal Australian Navy and the Commonwealth Military Forces. It is administered by the Department of Air through the Air Board. The organization of the R. A. A. F. is patterned after the British R. A. F.

A member of the Australian Parliament is The Minister of State for Air. An Air Marshal is the Chief of the Air Staff.

Equipment

Type	Designation	Manufacturer	Country
Medium Bomber	Lincoln Mk. 30	A. V. Roe	Australia
Light Bomber	Canberra	English Electric	Australia
	Liberator B-24 PB4Y	Convair	U.S.A.
Attack	Beaufighter Mk. 21	Bristol	G.B.
	Mosquito Mk. 40	de Havilland	G.B.
Fighter	Meteor Mk. 8	Gloster	G.B.
	Mustang F-51	North American	Australia
	Vampire Mk. 30	de Havilland	Australia
	Vampire Mks. 2, 5	de Havilland	G.B.
	Wirraway	Commonwealth	Australia
Reconnaissance	Lincoln	A. V. Roe	Australia
	Mosquito Mk. 41	de Havilland	G.B.
	Catalina PBY/A-10	Convair/Boeing	U.S.A.
	Kingfisher OS2U	Chance Vought	U.S.A.
	Mustang F-51	North American	U.S.A.
Transport	Dakota (Skytrain C-47/R4D)	Douglas	U.S.A.
	Viking	Vickers-Armstrongs	G.B.
Trainer	Anson	A. V. Roe	G.B.
	Mosquito T. Mk. 43	de Havilland	G.B.
	Oxford	Airspeed	G.B.
	Tiger Moth	de Havilland	G.B.
	Wirraway	Commonwealth	Australia
Liaison and Utility	Auster	Auster	G.B.
	Freighter	Bristol	G.B.
Helicopter	Dragonfly (S-51)	Westland/Sikorsky	G.B.

Australian Naval Aviation

The Air Arm is a postwar establishment of the Royal Australian Navy (R. A. N.) and is based on two light fleet carriers the H. M. A. S. *Sydney* and the H. M. A. S. *Melbourne*.

A Commander is in charge of Australian Naval Aviation.

Equipment

Type	Designation	Manufacturer	Country
Fighter	Sea Fury	Hawker	G.B.
Reconnaissance	Firefly	Fairey	G.B.

CANADA

(The Dominion of Canada)

The Royal Canadian Air Force

The Royal Canadian Air Force (R. C. A. F.) is an autonomous arm administered by the Department of National Defense, through the Minister of National Defense, who is advised by the Air Council.

A member of the Canadian Parliament is the Minister of National Defense and the President of the Air Council. An Air Marshal is the Chief of the Air Staff.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Lancaster	A. V. Roe	Canada
	Mitchell B–25/PBJ	North American	U.S.A.
Fighter	Canuck CF–100	A. V. Roe	Canada
	Mustang F–51	North American	U.S.A.
	Saber F–86E	C.C.F.	Canada
	Vampire Mks. 2, 3	de Havilland	G.B.
Reconnaissance	Canso PB2B (Catalina PBY)	Boeing (Subsidiary)	Canada
	Dakota (Skytrain C–47/R4D)	Douglas	U.S.A.
	Lancaster Mk. 10	A. V. Roe	G.B.
	Norseman UC–64	C.C.F.	Canada
	Ventura PV–1/B–34	Lockheed	U.S.A.
Transport	North Star (Skymaster Type C–54)	Canadair	Canada
	Dakota (Skytrain C–47/R4D)	Douglas	U.S.A.
	Expeditor (Voyager C–45/JRB)	Beechcraft	U.S.A.
	Goose JRF	Grumman	U.S.A.
Trainer	Chipmunk	de Havilland	Canada
	Anson	A. V. Roe	G.B.
	Harvard (Texan T–6/SNJ)	North American	U.S.A.
Liaison and Utility	Chipmunk	de Havilland	Canada
	Auster	Auster	G.B.
	Expeditor (Voyager C–45/JRB)	Beechcraft	U.S.A.
	Norseman UC–64	C.C.F.	Canada
Helicopter	Dragonfly (S–51)	Sikorsky	U.S.A.
	HTL/H–13	Bell	Canada

Canadian Naval Aviation

The Royal Canadian Navy (R. C. N.) retains an air section in its postwar organization. A captain is the director of the Naval Air Division.

There are two air groups which operate in turn from a light fleet carrier, the H. M. C. S. *Magnificent.*

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Attack	Firefly Mks. 1, 5	Fairey	G.B.
	Avenger TBF	Grumman	U.S.A.
Fighter	Seafire Mk. 15	Vickers-Armstrongs	G.B.
	Sea Fury Mk. 11	Hawker	G.B.
Trainer	Anson	A. V. Roe	G.B.
	Firefly T. Mk. 1	Fairey	G.B.
	Harvard (Texan T–6/SNJ)	North American	U.S.A.

INDIA

(The Republic of India)

The Indian Air Force

In August 1947 the Royal Indian Air Force became an independent service, when self-government was granted to India. On 26 January 1950, with India's assumption of Republican status within the British Empire the Royal Indian Air Force became the Indian Air Force.

The organization of the I. A. F. is patterned along R. A. F. lines. An Air Marshal is the Chief of the Air Staff and the officer commanding the Air Force. He is directly responsible to the Government of India, with headquarters at Delhi.

Equipment

Type	*Designation*	*Manufacturer*	*Country*	*Type*	*Designation*	*Manufacturer*	*Country*
Light Bomber	Liberator B–24/ PB4Y	Convair	U.S.A.	Transport	Dakota (Skytrain C–47/R4D)	Douglas	U.S.A.
	Dakota (Skytrain C–47/R4D)	Douglas	U.S.A.		Dove/Devon	de Havilland	G.B.
Fighter	Tempest Mk. 2	Hawker	G.B.	Trainer	Harvard (Texan T–6/SNJ)	North American	U.S.A.
	Spitfire Mk. 18	Vickers-Armstrongs	G.B.		Prentice	Percival	G.B.
	Vampire Mk. 3	de Havilland	G.B.		Tiger Moth	de Havilland	G.B.
Reconnaissance	Harvard (Texan T–6/SNJ)	North American	U.S.A.	Liaison and Utility	Auster	Auster	G.B.
					Dakota (Skytrain C–47/R4D)	Douglas	U.S.A.

NEW ZEALAND

(The Dominion of New Zealand)

The Royal New Zealand Air Force

The Royal New Zealand Air Force (R. N. Z. A. F.) is constituted as a separate branch of the Defense Forces of the Dominion and it is administered by the Ministry of Defense through the Air Board.

A member of the New Zealand Parliament is the Minister of Defense and the President of the Air Board. An Air Vice Marshal is the Chief of the Air Staff and the officer commanding the Air Force. The organization of the R. N. Z. A. F. is patterned after the R. A. F.

Equipment

Type	*Designation*	*Manufacturer*	*Country*	*Type*	*Designation*	*Manufacturer*	*Country*
Light Bomber	Mosquito Mk. 6	de Havilland	G.B.		Aerovan	Miles	G.B.
	Hudson (B–34)	Lockheed	U.S.A.		Dove/Devon	de Havilland	G.B.
Attack	Avenger TBF	Grumman	U.S.A.	Trainer	Harvard (Texan T–6/SNJ)	North American	U.S.A.
Fighter	Mustang F–51	North American	U.S.A.		Mosquito T. Mk. 3	de Havilland	G.B.
	Vampire	de Havilland	G.B.		Oxford	Airspeed	G.B.
Reconnaissance	Canso PB2B (Catalina PBY)	Boeing (Subsidiary)	Canada		Tiger Moth	de Havilland	G.B.
Transport	Dakota (Skytrain C–47/R4D)	Douglas	U.S.A.	Liaison and Utility	Auster	Auster	G.B.

PAKISTAN

(The Dominion of Pakistan)

The Royal Pakistan Air Force

The Royal Pakistan Air Force (R. P. A. F.) was created in August 1947 when self-government was granted to India. It is an autonomous branch of service under the Ministry of Defense.

The organization of R. P. A. F. follows closely that of the R. A. F. An Air Vice Marshal is the commander in chief and he is directly responsible to the Pakistan Government.

The headquarters of the Pakistan Air Force are at Mauripur.

Equipment

Type	*Designation*	*Manufacturer*	*Country*	*Type*	*Designation*	*Manufacturer*	*Country*
Light Bomber	Halifax	Handley Page	G.B.		Freighter Mk. 21	Bristol	G.B.
					Viking	Vickers-Armstrongs	G.B.
Fighter	Attacker	Vickers-Armstrongs	G.B.	Trainer	Auster	Auster	G.B.
	Fury	Hawker	G.B.		Harvard (Texan T–6/SNJ)	North American	U.S.A.
	Tempest Mk. 2	Hawker	G.B.		Tiger Moth	de Havilland	G.B.
Transport	Dakota (Skytrain C–47/R4D)	Douglas	U.S.A.		Fury T. Mk. 20	Hawker	G.B.

SOUTH AFRICA

(The Union of South Africa)

The South African Air Force

The South African Air Force is an integral part of the Union Defense Force (U. D. F.) under the Chief of Staff. It is administered by the Minister of Defense through the Chief of the General Staff.

A general is the Chief of the Union Defense Forces Staff. A brigadier is the Director-General of the S. A. A. F., with headquarters at Voortrekkerhoogte, Pretoria.

Equipment

Type	*Designation*	*Manufacturer*	*Country*	*Type*	*Designation*	*Manufacturer*	*Country*
Light Bomber	Ventura PV–1/B–34	Lockheed	U.S.A.	Transport	Dakota (Skytrain C–47/R4D)	Douglas	U.S.A.
	Anson	A. V. Roe	G.B.		York	A. V. Roe	G.B.
Fighter	Mustang F–51	North American	U.S.A.	Trainer	Harvard (Texan T–6/SNJ)	North American	U.S.A.
	Spitfire Mk. 9	Vickers-Armstrongs	G.B.		Tiger Moth	de Havilland	G.B.
	Vampire Mk. 5	de Havilland	G.B.	Liaison and Utility	Auster	Auster	G.B.
Reconnaissance	Sunderland Mk. 5	Short	G.B.		Tiger Moth	de Havilland	G.B.
	Ventura PV–1/B–34	Lockheed	U.S.A.				

BRITISH AIRCRAFT DESIGNATIONS

A British aircraft is best known by its proper or popular name. Immediately upon acceptance for production this name is assigned and the specification number goes out of usage. The specification number is assigned by the Ministry of Supply to a proposed aircraft requirement which is submitted by the Air Ministry in the form of a request for an aircraft of certain operational capabilities. The specification number consists of a symbol letter, a project number, and the year. Usually the symbol letter indicates the type of the design, or it may be an "N" which implies naval aircraft design. For example, E. 10/44 was on experimental aircraft, project number 10, drawn up in the year 1944. This developed into the Supermarine "Attacker." Similarly N. 19/48 became the navalized "Attacker" F. Mk. 1.

Proper names are assigned by the manufacturer and approved by the Ministry of Supply. Usually the manufacturer's proper names run in sequence, but there are exceptions to the rules. Nevertheless, certain well-defined "families" of names are apparent, the lines of demarkation are more noticeable between functional groups rather than between the products of the various manufacturers. These functional groups, categorized would include bombers, transports, fighters, trainers, flying-boats, naval aircraft, jet engines, and miscellaneous.

BOMBERS—Since before World War II R. A. F. bombers, with a few exceptions, have been named after towns and cities, mainly of England. A few, for example, are: Wellington, Stirling, Halifax, Washington, and Canberra.

TRANSPORTS—This group is named after towns or counties, such as: York, Devon, Valetta, etc.

FIGHTERS—Recently a great variety of names has been given to British fighters with no over-all theme apparent. The Hawker firm has displayed consistency in naming the Hurricane, Tornado, Typhoon, Tempest and Fury. Included in this class is Westland's Whirlwind. On the other hand Boulton Paul, Bristol and Supermarine have adopted an aggressive theme with the Defiant, Beaufighter, Spitfire, Spiteful, and Attacker. More recently the jet aircraft, Vampire, Meteor, Venom and Swift have set new styles in the naming of R. A. F. fighters.

TRAINERS—These aircraft are named after scholastic terms or establishments: Magister, Martinet, Mentor, Oxford, Dominie, Provost, Harvard, Balliol, Athena, etc. Exceptions are the Tiger Moth and the Chipmunk. The latter was designed and named in Canada and has retained its name in the R. A. F. Radio controlled target trainers: Queen Bee, Queen Wasp, Queen Martinet.

FLYING BOATS—Named after seaports: Southampton, Scapa, Rangoon, Perth, London, Lerwick, Sunderland, Seaford, etc.

NAVAL AIRCRAFT—The navy employs the names of birds: Baffin, Skua, Roc, Seagull, Seahawk, Wyvern, Gannet, etc. Named after fish: Swordfish, Barracuda, Shark, etc. Named after sea mammals: Seal, Walrus, Sea Otter.

Conversions from R. A. F. aircraft (prefixed Sea-): Seafire, Sea Fury, Sea Mosquito, Sea Hornet, Sea Prince, Sea Venom, Sea Meteor, Sea Balliol, etc. Irregularities in naming naval aircraft are confined to the Firebrand, Firefly, and the Attacker. The Attacker was named, but not adopted, by the R. A. F. and has therefore not taken a "Sea" prefix for its exclusively naval use.

JET ENGINES—Rolls-Royce, for example, name their jet engines after British rivers: Nene, Derwent, Avon, etc.

MISCELLANEOUS — Helicopters: Hoverfly, Dragonfly, Sycamore, Skeeter. Troop gliders: Hamilcar, Hadrian, Horsa, Hengist.

R. A. F. aircraft of the past decade or so that have not fallen into any of the foregoing categories are mostly named after famous persons of the past: Anson, Shackleton, Beaufort, Brigand, etc.

Of extreme importance are the mark numbers which appear in numerical sequence. The prolific "Mosquito" is a splendid example of how numerous mark numbers can become. Today there are

about a dozen different versions of this aircraft still in operational service in the Royal Air Force and in other air forces throughout the world. "Mosquito" mark numbers run from 1 to 43, including the Canadian- and Australian-built versions.

Naval versions of certain R. A. F. aircraft have their initial mark number stepped up fairly high to allow for the individual expansion of each series: Seafire Mks. 45, 46, 47; Sea Fury Mks. 10, 11, 20; Sea Vampire Mks. 20, 21; etc.

Additional mark numbers are introduced when major modifications occur in the basic type. These modifications are made to effect a change of operational role, substantially improved performance or the construction of the type by manufacturers abroad. In the latter case the purpose is to allow for flexibility of design away from the parent manufacturer without confusion on spare parts. Apparent irregularities of mark numberings become obvious with these overseas versions which, like the Navy types, commence their series of mark numbers at 10, or multiples of 10 up to 60. Mark numbers were formerly indicated by Roman numerals up to 20, and afterwards by Arabic numerals; since 1948 Arabic numerals are used exclusively.

In order to indicate the function of the aircraft, it often happens that a type symbol is interposed between the general name and the mark number. For instance the complete designation of a well known de Havilland long-range photographic reconnaissance aircraft is "Mosquito" P. R. Mk. 34. Likewise, the first production "Sea Mosquito," a naval adaptation of the R.A.F. "Mosquito" fighter bomber Mark 6, was designated "Sea Mosquito" T. F. Mk. 33.

Meanwhile, there are the manufacturers' designations (Vickers 660, SR. 45, etc.). These are of secondary importance and have no bearing on the military designations. Nevertheless, it remains that the manufacturers do maintain a prerogative of assigning designations to their aircraft, but they are primarily used as serial numbers for factory references and records. For instance the "Mosquito" built by de Havilland has a manufacturer's designation D. H. 98. These designations usually consist of the manufacturers' symbol or complete name, followed by a number. Moreover, they cannot be ignored for in print it is not uncommon to see the manufacturers' designation preceding the military designation. Thus, the complete story can be told in the following diagram:

D.H. 98—Sea Mosquito—T. F.—Mk. 33

Manufacturer's Designation	Proper Name	Type (Torpedo Fighter)	Version No.

Actually there is little difference between R.A.F. and Fleet Air Arm designations. The prime difference is to be found in the type symbol used for the aircraft's mission. The following is a combined list of these symbols and their explanations:

Type symbol:	*Purpose*
A	Light Military
A.O.P	Air Observation Post
A.S	Anti-Submarine
A.S.R	Air-Sea Rescue
B	Bomber
C	Transport
C.X	Transport Glider
E	Experimental
F	Fighter
F.B	Fighter Bomber
F.E	Far East Operations
F.R	Fighter Reconnaissance
G.R	General Reconnaissance
G.T	Glider Tug
H.C	Helicopter Casualty
H.F	High Altitude Fighter
H.R	Helicopter Reconnaissance
L.F	Low Altitude Fighter
MET	Meteorological Reconnaissance
M.R	Maritime Reconnaissance
N	Navy
N.F	Night Fighter
P.R	Photo Reconnaissance
R	Reconnaissance
R.F	Reconnaissance Fighter
S	Amphibian, Helicopter
T	Trainer
T.B.R	Torpedo Bomber Reconnaissance
T.F	Torpedo Fighter
T.F.B	Torpedo Fighter Bomber
T.R	Torpedo Reconnaissance
T.T	Target Towing
T.X	Training Glider

The majority of aircraft, when manufacturers' designations appear, are characterized by the manufacturers' names, such as Supermarine builder of the "Attacker," and only a few manufacturers use symbolic letters.

Airspeed	A.S.
Armstrong Whitworth	A.W.
A. V. Roe	Avro.
Blackburn & General	B.
de Havilland	D.H.
Elliotts of Newbury	Eon.
General Aircraft	G.A.L.
Handley Page	H.P.
Martin-Baker	M.B.
Miles	M.

Percival	P.
Saunders Roe (Saro)	SR.
Short Bros. & Harland (Short)	S; SA.
Vickers	V.C.

Definite establishment of a British naval aircraft's home base can be determined by a letter or letters carried on the fin. These denote the aircraft carrier or air station to which the aircraft belongs. The following list of letters are those worn by aircraft from carriers operated by the Royal Navy:

A	H.M.S. Indomitable
B	H.M.S. Indefatigable
C	H.M.S. Implacable
D	H.M.S. Illustrious
F	H.M.S. Formidable
G	H.M.S. Victorious
K	H.M.A.S. Sydney (Royal Australian Navy)
O	H.M.S. Ocean
P	H.M.S. Triumph
Q	H.M.S. Vengeance
R	H.M.S. Glory
T	H.M.S. Theseus
V	H.M.S. Venerable
W	H.M.S. Warrior
X	H.M.C.S. Magnificent (Royal Canadian Navy)
Y	H.M.S. Unicorn

Naval aircraft operating from shore bases carry the following combinations of letters:

AC	Abbottsinch
AH	Authorne
CH	Culham
CW	Culdrose
DO	Donibristle
FD	Ford
GJ	Gospart
JA	Stretton
JB	St. Merryn
JR	Eglington
LM	Lossiemouth
LP	Lee-on-Solent
VL	Yeovilton

Royal Navy and Royal Air Force aircraft in prototype form have a large circled Ⓟ on the side of the fuselage.

CANADA

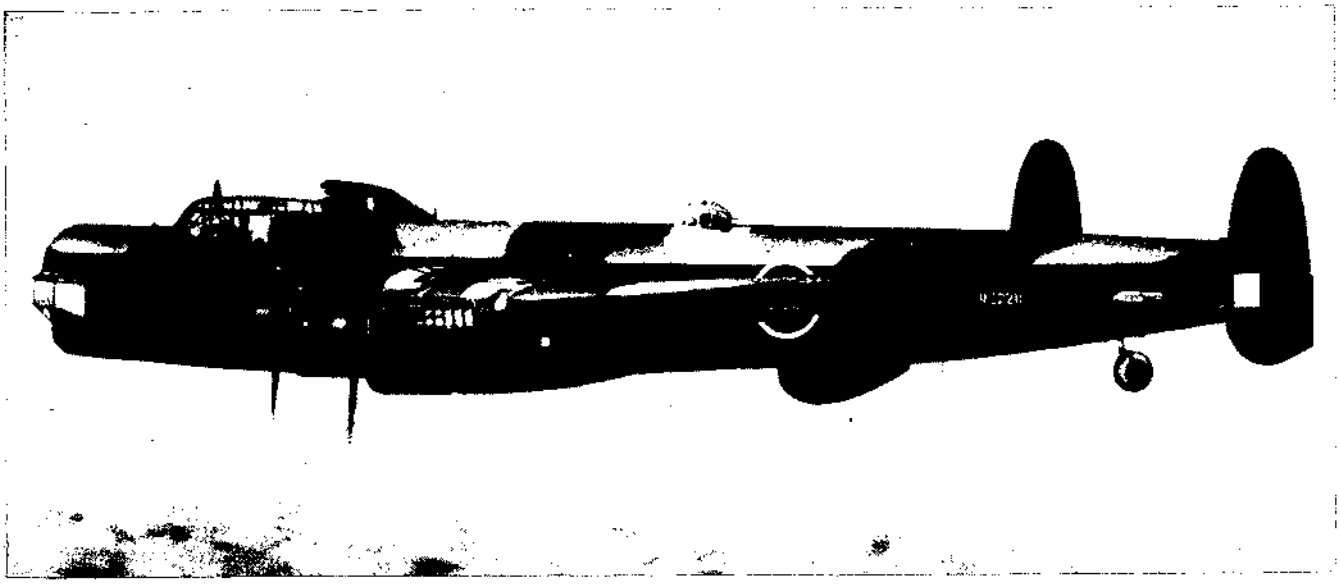
Canada uses both American and British principles in aircraft designation. The Canadair DC–4M, Canadian-built "Skymaster" C–54/R5D type with Rolls-Royce engines, is known in the Royal Canadian Air Force as the C–54GM, while the DHC–1 manufactured by the de Havilland Aircraft of Canada is known as the "Chipmunk." Canada's newest transport constructed by A. V. Roe, is designated Avro C–102 Jetliner. It has the distinction of being the first all-jet commercial aircraft to be designed, built and flown in the Western Hemisphere. An experimental twin-jet all-weather fighter designated CF–100 Canuck is another of Avro's projects. Factory designations are abbreviated as follows:

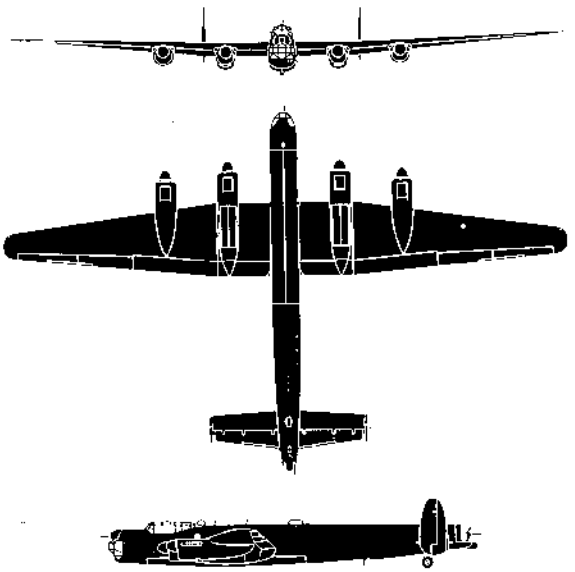
A. V. Roe Canada	Avro C.
Northwest Industries	Bellanca
Canadian Car & Foundry	C.C.F.
Canadair	Canadair
Cancargo Aircraft Manufacturing	Cancargo
Club Aircraft, Transvision-Television	Club
de Havilland Aircraft Canada	D.H.C.
Found Bros. Aviation	Found

AUSTRALIA

Australia uses manufacturers' designations; an example would be the de Havilland DHA–3 Drover. The two primary aircraft manufacturers in Australia are:

de Havilland Aircraft	D.H.A.
Commonwealth Aircraft	C.A.





The Lincoln II is the same in appearance as the Lincoln I, a development from the Lancaster. It is a four-engine mid-wing bomber. In-line engines are fitted. The wing tapers from inboard nacelle out on both leading and trailing edges to well rounded tips. A center section has straight leading and trailing edges. The fuselage is long and rectangular with nose, dorsal and rear turrets. Twin-tails and retractable conventional landing gear are fitted. A maximum bomb load of 22,000 pounds may be carried. The Lincoln was intended for use in the Pacific Theater, but appeared just too late to be flown operationally.

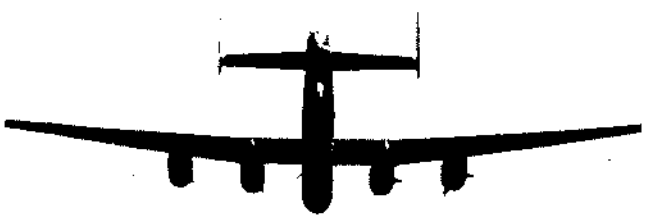
SPAN: 120′0″. **LENGTH:** 78′4″.

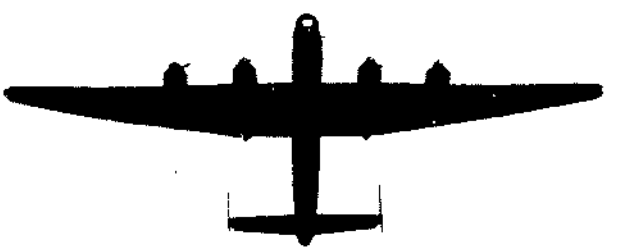
ENGINE: Merlin 68; Vee in-line/1,635 h. p.

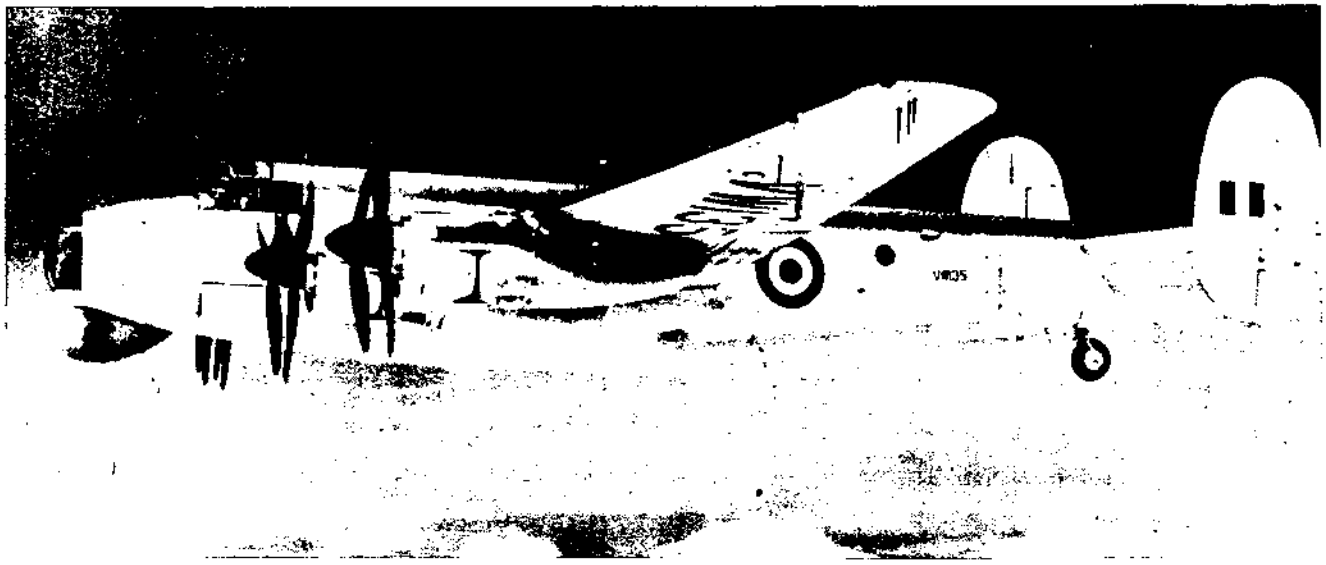
SPEED: 260 knots/20,000 ft.

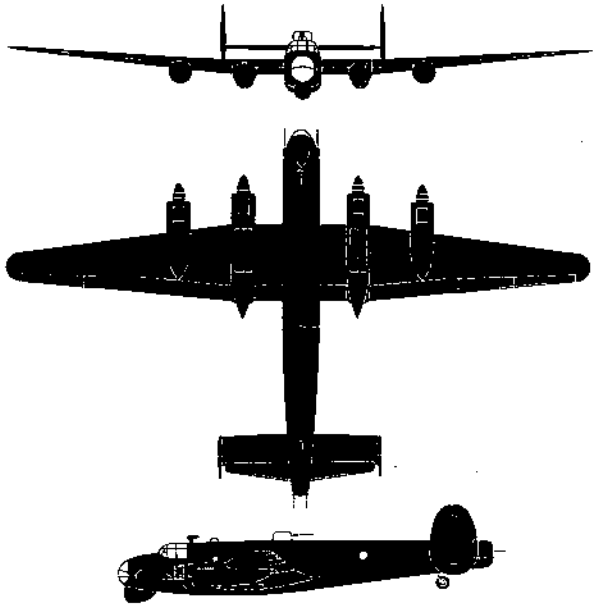
RANGE: 2,540 nautical miles/175 knots.

ARMAMENT: 4 x .50 cal; 2 x 20 mm.



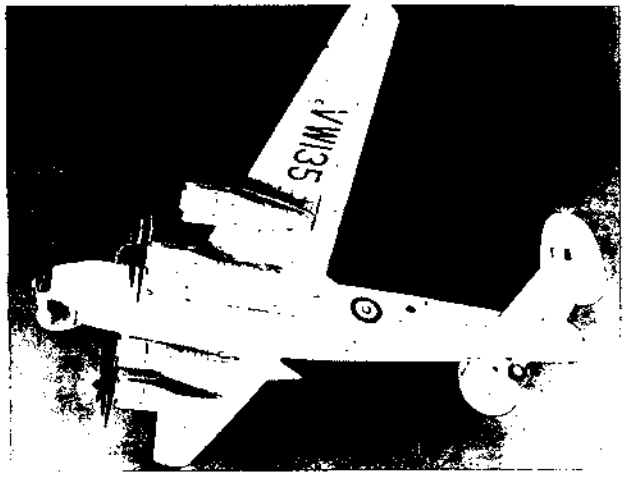






The Shackleton, a medium bomber developed from the Lancaster and Lincoln bombers, is to be used by the RAF Coastal Command on reconnaissance duties and for shadowing and striking at surface and underwater vessels. It will be one of the most powerful reciprocating engined aircraft in the RAF. The four engines coupled to four six-bladed contra-rotating propellers, provide 10,000 h. p. for take-off. A tail wheel landing gear is used to facilitate easier stowage of bombs. Equipped for all weather operation, the chin type radome forms a good recognition detail. The Shackleton has a bulkier fuselage than the Lincoln and a wider stabilizer. Fins and rudders are also larger and rounder.

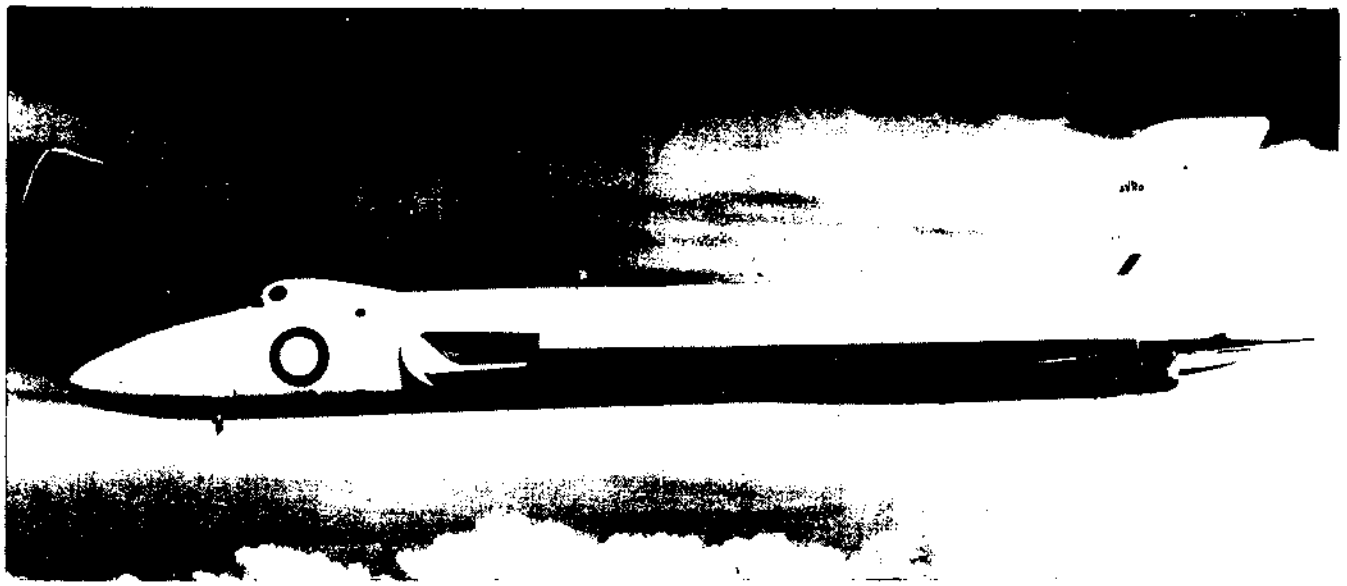
SPAN: 120′0″. **LENGTH: 77′6″.**
ENGINE: 4/Griffon 57 in-line/2,500 h. p. each.
SPEED: 260 knots/10,000 ft.
RANGE: 3,700 nautical miles/170 knots.
ARMAMENT: 4 x 20 mm; 2 x .50 cal.

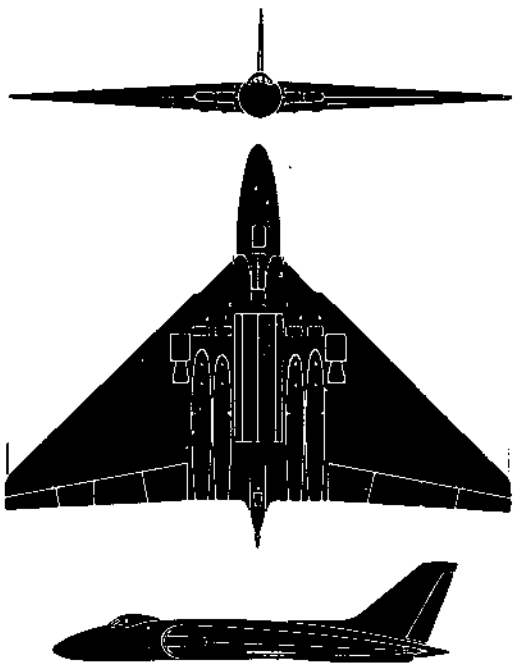


A. V. ROE [redacted] SHACKLETON

G.B.
JUNE 1950

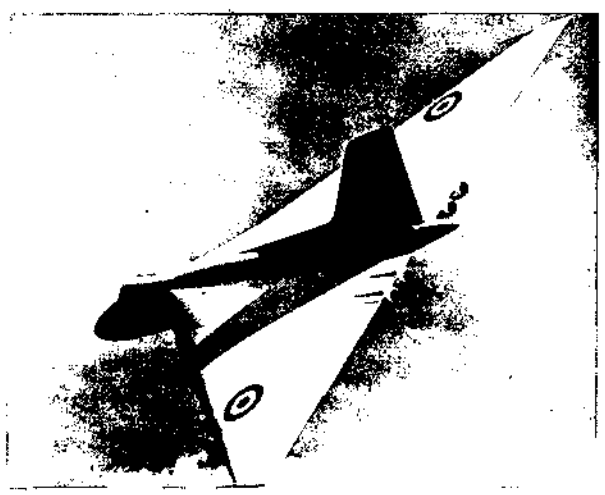
FM 30-30
OPNAV 32P-1200
AFM 50-40A





The Vulcan is the first jet bomber to use delta-wing configuration. It is powered by four jet engines buried near the wing roots. Aerodynamic qualities of the delta-wing bomber were determined by smaller delta-wing Avro 707's. A two-seat 707 trainer version will be used to train pilots to fly the large delta-wing bomber. Recognition-wise, the large Vulcan appears to be an almost-perfect scaled-up version of the 707's. The bomber features a twin-nose wheel landing gear retracting backward, with the main gear located in the delta-wing. Entry by the crew is made in front of the nose wheel. Bomb bay doors are located between the vertical fairways of the engine tail pipes. A noticable feature of this aircraft is its retractable dive brakes. The development of a passenger version is under consideration by Avro.

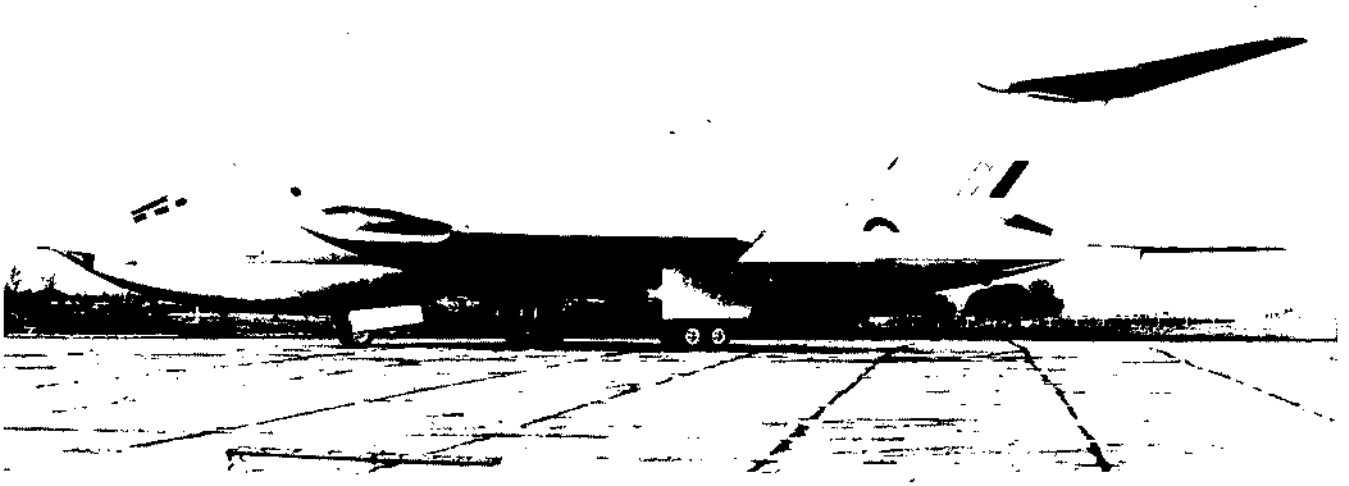
SPAN: 99′0″ **LENGTH: 95′6″**
ENGINE: 4/R. R. Olympus/10,000-lb. thrust each.
MAX. SPEED: 520 knots plus.
RANGE: More than 3,500 nautical miles.
ARMAMENT: Bombs.

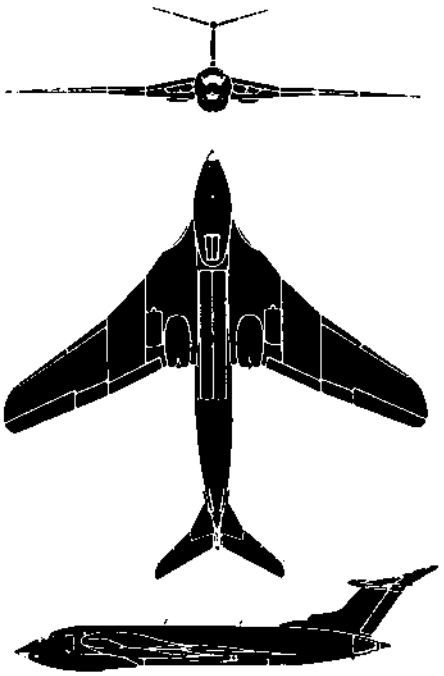


305709 O—54——5

G. B.
SUPPLEMENT NO. 5
JUNE 1954

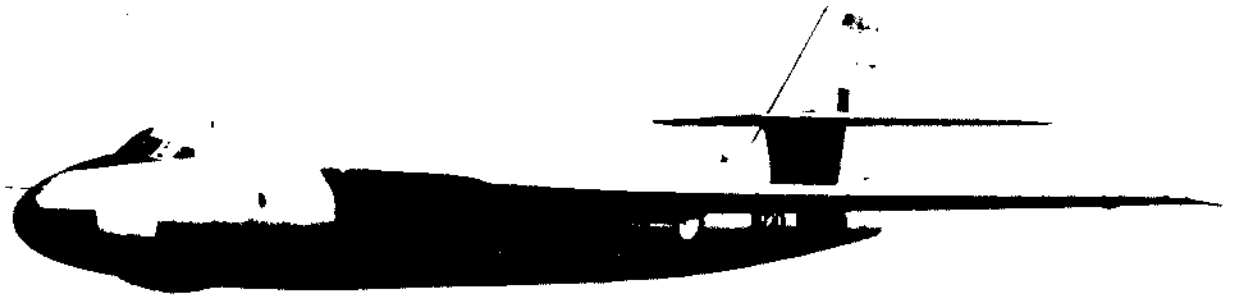
FM 30-30
OPNAV 32P-1200/5
AFM 50-40E

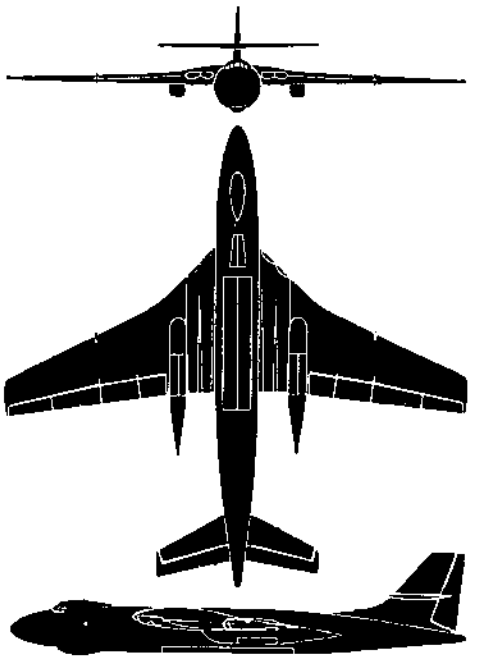




The Victor is a four-jet bomber with a swept-back T-tail and a so-called "crescent wing" in which the angle of sweepback is greater at the root and progressively less towards the tip. Advantages claimed for this type of wing include the retention of the necessary wing thickness for the required structural strength, and adequate internal stowage space. It also provides for the delay in the compressibility drag rise obtained with a highly swept-back wing for a high Mach number. In addition, the Victor has high lift devices incorporated in both the leading edges and trailing edges of the wings. A bulbous chin encloses long-range bombing aids and the nose wheel. The small aperture in the leading edge of the swept-back fin could be for admitting air for a control balancing system. A transport version, the H. P. 97 Atlantic is planned.

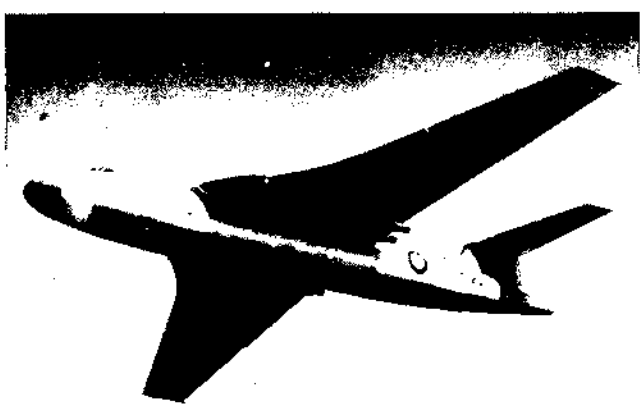
SPAN 110′0″ **LENGTH: 116′11″**
ENGINE: 4/A. S. Sapphire/10,000-lb thrust each.
MAX. SPEED: 520 knots plus.
RANGE: More than 3,500 nautical miles.
ARMAMENT: Bombs.

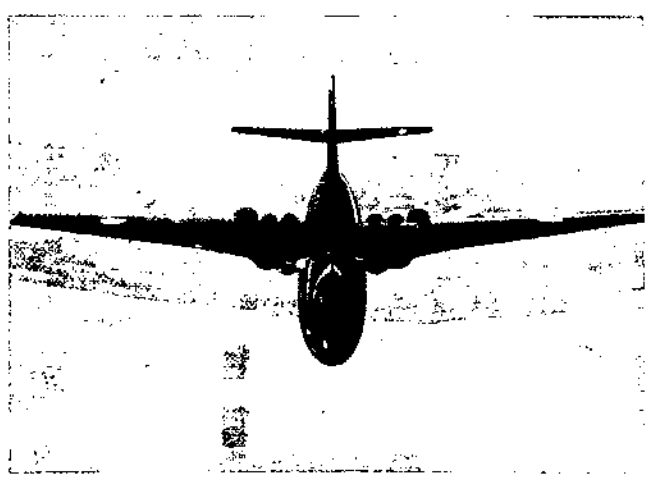


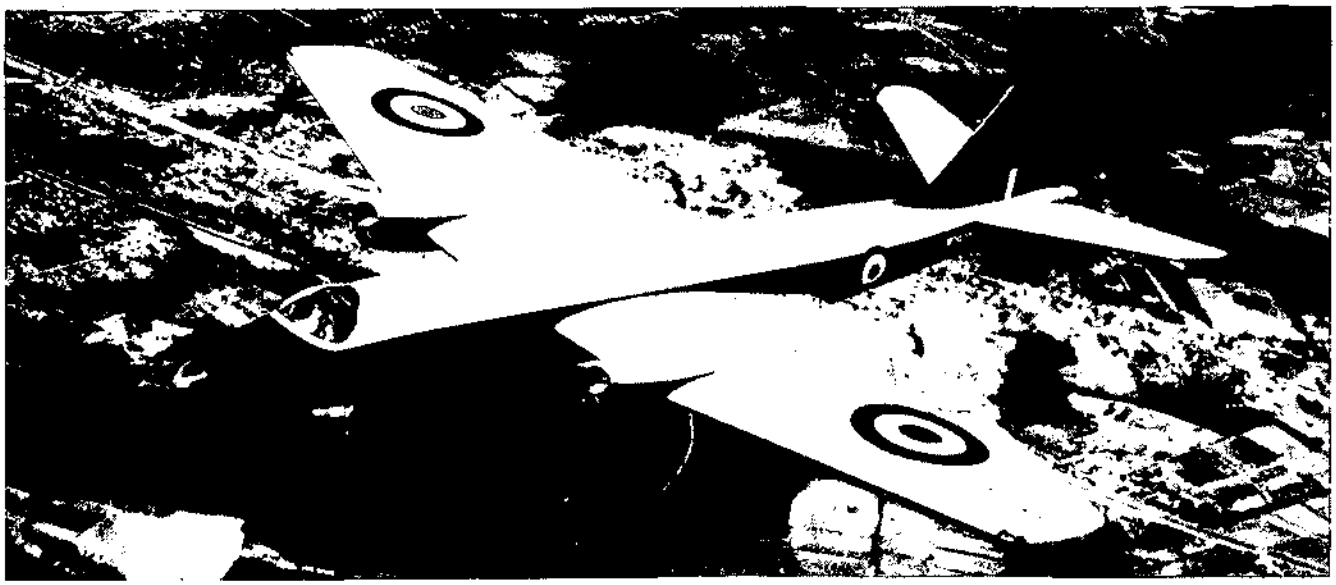


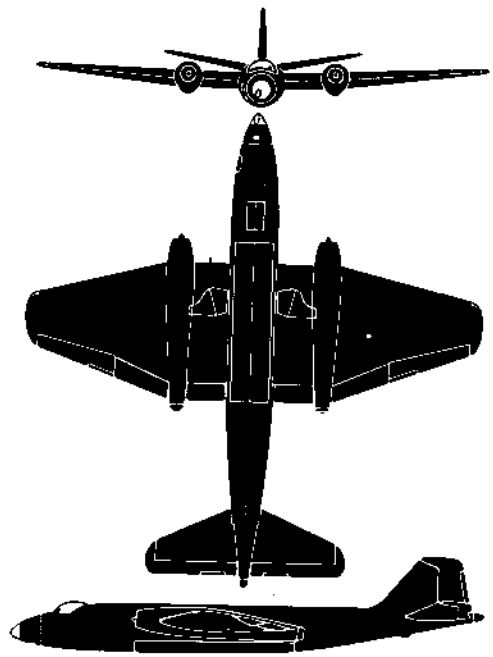
The Valiant is a four-jet swept-wing medium-bomber designed for the RAF bomber command. A prototype flew for the first time in May 1951. The jet engines are buried neatly in the wings near the fuselage. As a result of air intake trouble with a prototype Valiant, the production B.1 version features larger air intake jet openings. A long nose protrudes forward with a cockpit rising over the nose section. The fin and rudder are angular with a high-set horizontal stabilizer. Nacelles housing rearward-retracting bogie main landing gear units are noticeable on the trailing edge of the wings of the B.2. A small boundary-layer fence is located outboard on each wing. In some respects the Soviets new swept-wing medium jet bomber (Badger) is similar to the Valiant B.2. Both aircraft have buried jet engines, rearward protruding nacelles, and a long nose section.

SPAN: 114′4″ **LENGTH: 108′3″**
ENGINE: 4/R. R. Avons RA 14/9,500-lb. thrust each.
MAX. SPEED: 460 knots plus.
RANGE: More than 3,000 nautical miles.
ARMAMENT: 10,000-lb. bomb load.









The Canberra is a twin-jet mid-wing light bomber. It was first flown on 13 May 1949. This first British jet bomber was developed to meet the requirements for a high altitude light bomber, which would rely entirely on speed and high performance at its operating altitude for defense. The fuselage is cigar-shaped with a jettisonable teardrop canopy situated in the nose section. Both pilot and navigator have ejector seats for an emergency escape. Most unconventional feature of the Canberra is the variable incidence stabilizer, for positive control at high speeds. In some versions a dorsal fin fairing is fitted and in the B. Mk. 2 there is a transparent nose. A tricycle landing gear is fitted. The Canberra is being produced by Glenn L. Martin for the U. S. A. F. with the designation B–57A. It can be fitted with wing tip tanks.

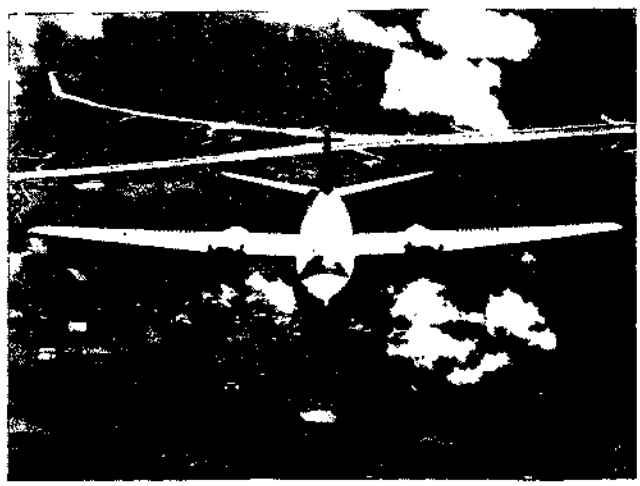
SPAN: 63'11". LENGTH: 65'6".

ENGINE: 2/R.R. Avons/6,000-lb. thrust each.

MAX. SPEED: 490 knots plus.

RANGE: Approx. 2,600 nautical miles/425 knots.

ARMAMENT: None.

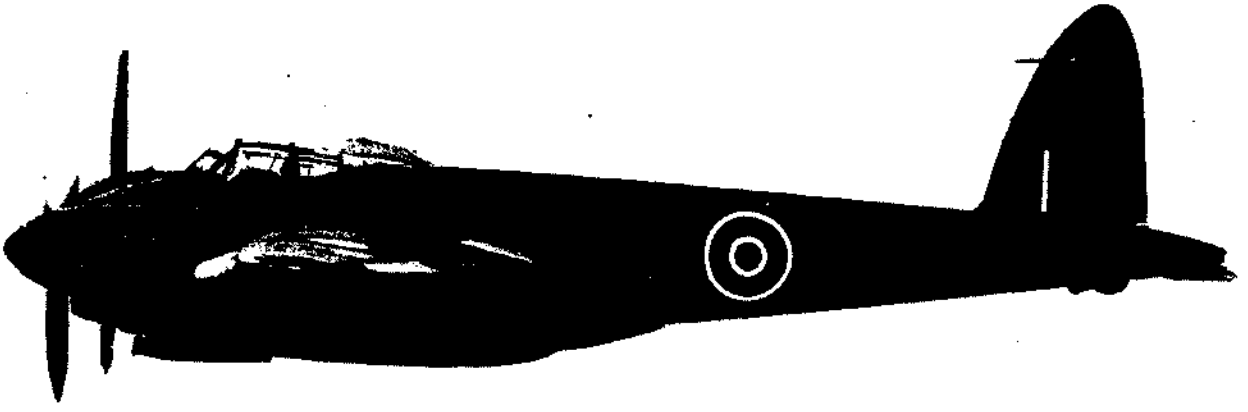


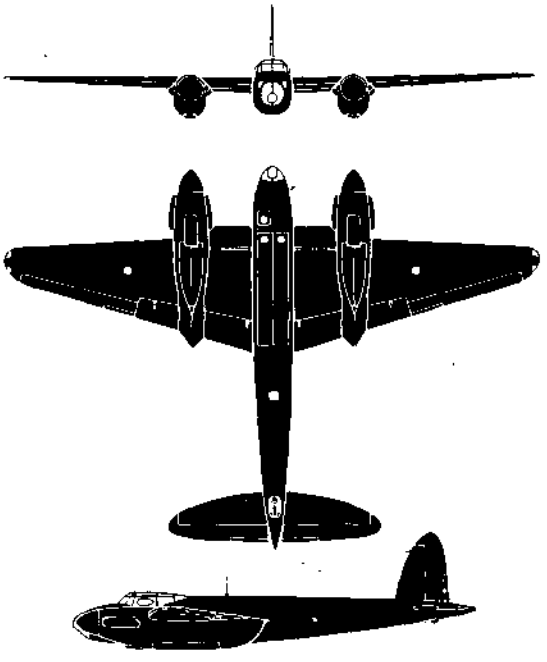
ENGLISH ELECTRIC

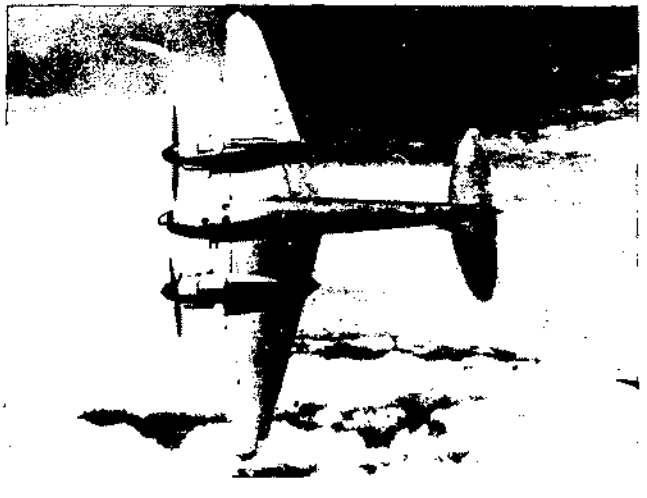
CANBERRA

G.B.
SUPPLEMENT NO. 2
JUNE 1951

FM 30–30
OPNAV 32P–1200/2
AFM 50–40B







The Mosquito B.35 is a two-engine, mid-wing monoplane bomber. It has a sharp pointed nose, and the engines extend forward of the fuselage. The wings are sharply tapered on the trailing edge to rounded tips. There is a raised cockpit on the streamlined tapered fuselage. A single tail and retractable conventional landing gear are fitted. The main landing gear retracts into nacelles. A maximum bomb load of 4,000 pounds may be carried. There are many versions of the Mosquito, including the night fighter N.F.38, which has an enlarged nose and lengthened cockpit canopy and carries 4 x 20 mm. cannon fixed in the lower nose.

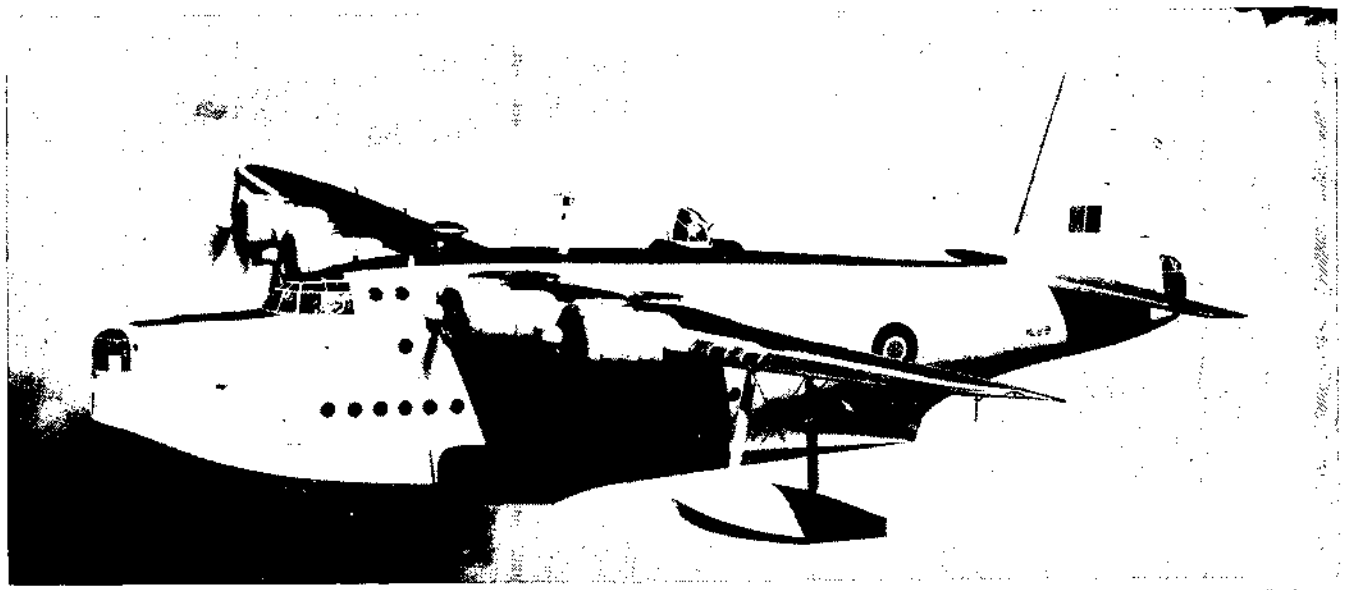
SPAN: 54'2". **LENGTH:** 44'6".

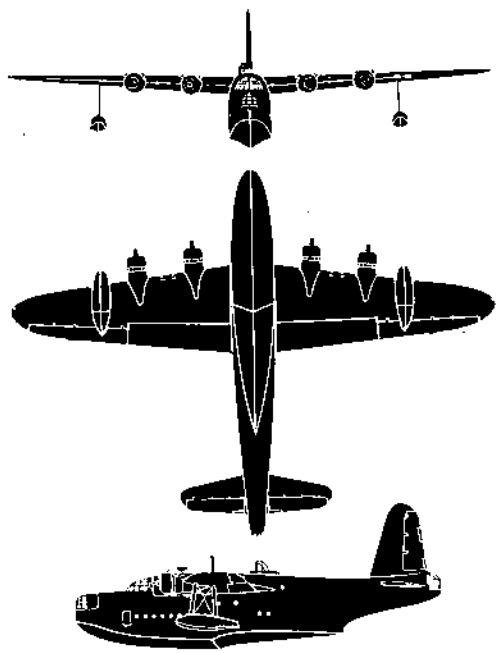
ENGINE: Merlin 113, 114; Vee in-line/1,535 h. p.

SPEED: 365 knots/30,000 ft.

RANGE: 1,780 nautical miles/270 knots.

ARMAMENT: Maximum bomb load 4,000 lbs.





The Sunderland is a four-engine high-wing flying-boat. Both inboard engine nacelles are aligned slightly forward of the outboard engine nacelles. The wings taper on both leading and trailing edges to well rounded tips. A two-step hull is utilized; and nose, tail, and dorsal turrets are fitted. There is a tail fin and rudder. The stabilizer and elevator are similar to the wing in shape. The Sunderland is virtually a military version of the "Empire Boat." A prototype first flew in 1937 and by the outbreak of the war there were several squadrons in service.

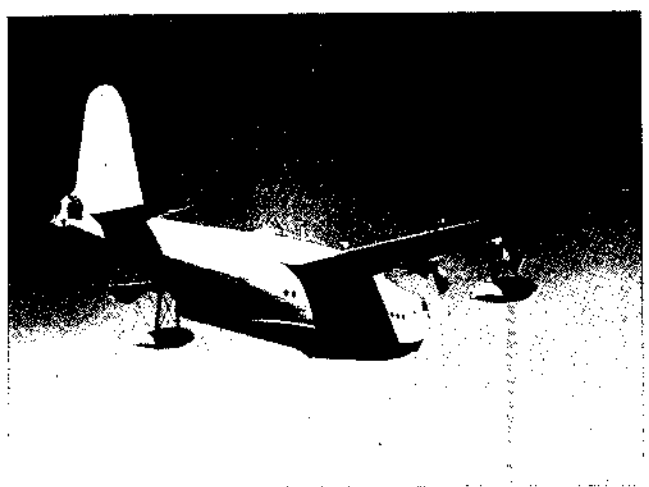
SPAN: 112'9". **LENGTH:** 85'4".

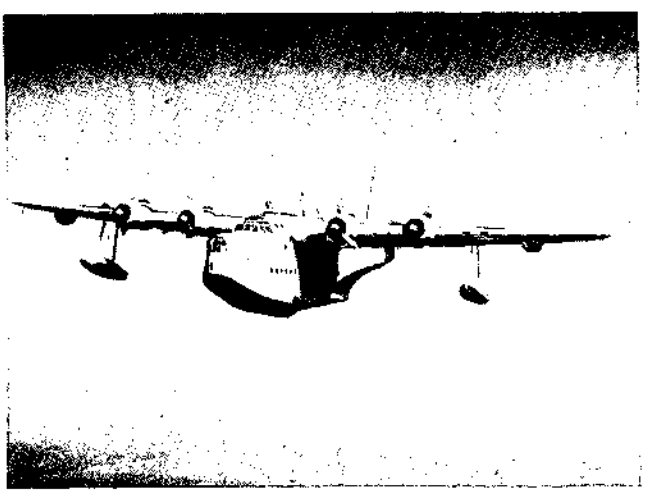
ENGINE: Pegasus 18; radial/1,050 h. p.

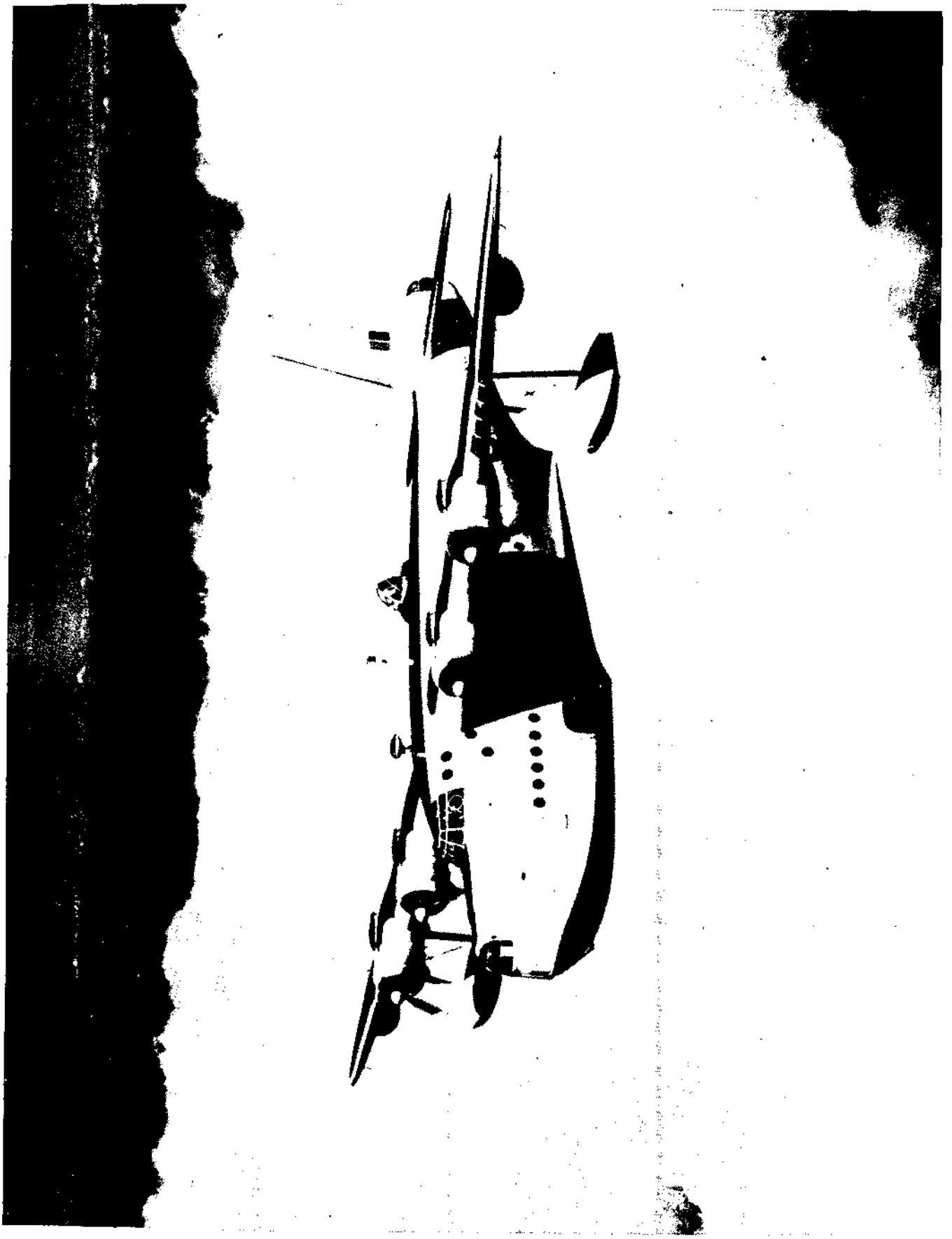
SPEED: 182 knots/6,500 ft.

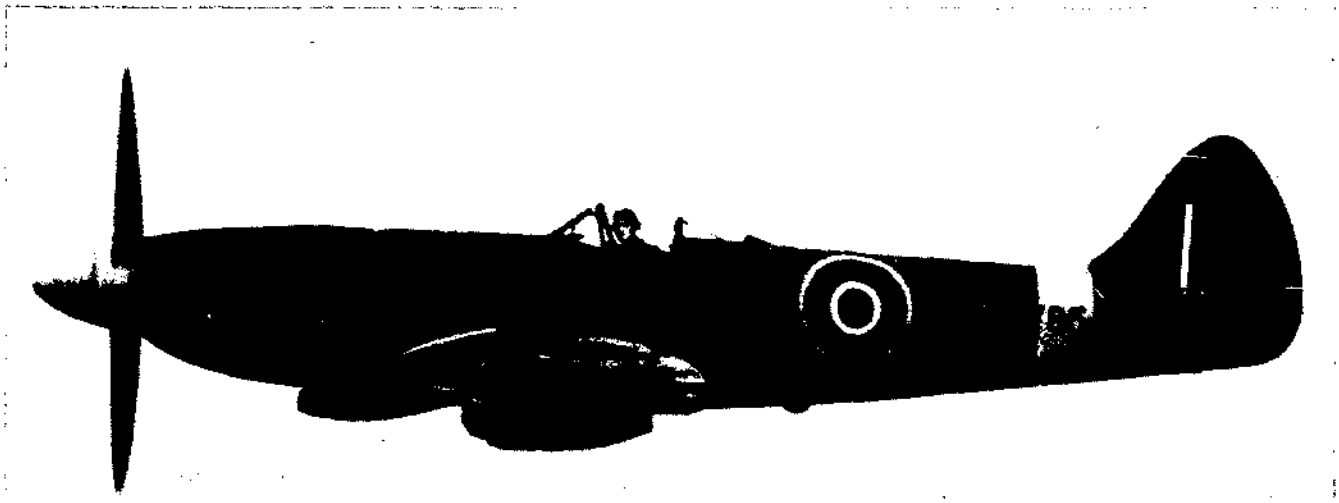
RANGE: 1,550 nautical miles/120 knots.

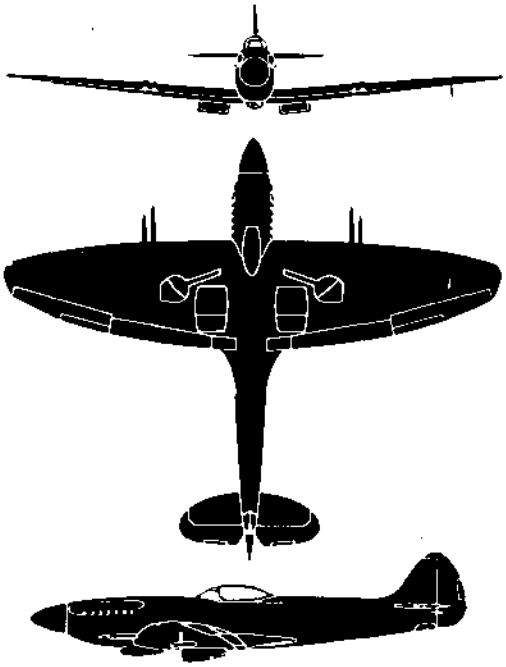
ARMAMENT: 7 x .303 cal.











The Spitfire 24 is a single-engine low-wing fighter. The wing is elliptical in plan form on both leading and trailing edges. A five-bladed propeller is fitted on a liquid-cooled in-line engine. Prominent features are two large airscoops fitted under the wings near the fuselage. A bubble canopy is fitted. There is a single tail. A retractable landing gear and tail wheel are utilized. The prototype of the Spitfire first flew in March 1936 and since that time it has undergone continuous development to maintain its place in the front rank of the world's fighter aircraft.

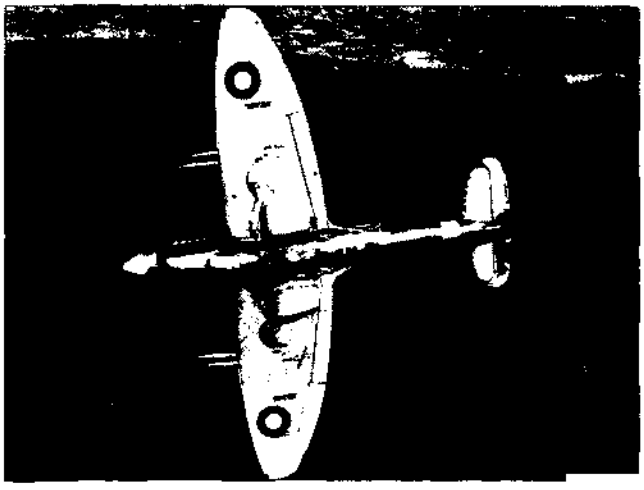
SPAN: 36'11". **LENGTH:** 32'11".

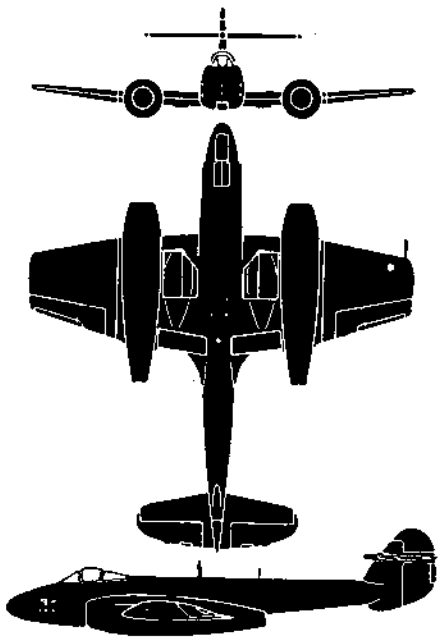
ENGINE: Griffon 61; Vee in-line/1,540 h. p.

SPEED: 391 knots/18,600 ft.

RANGE: 840 nautical miles/213 knots.

ARMAMENT: 4 x 20 mm.





The Meteor 4 is a twin-engine, low-wing, jet-propelled fighter. The wings taper on leading and trailing edge to rounded tips. Some models have square tips. Both engines are fitted on the wings with the air inlet extending forward of the leading edge and the exhaust outlet extending well beyond the trailing edge. The fuselage is rather slender with a prominent canopy near the nose and a tricycle retractable landing gear. A single tail is fitted, with the horizontal stabilizer high on the vertical fin. The Halford-engined Meteor was the first version of the Meteor to fly (3-5-43), and the only Allied jet-propelled airplane to see service in World War II.

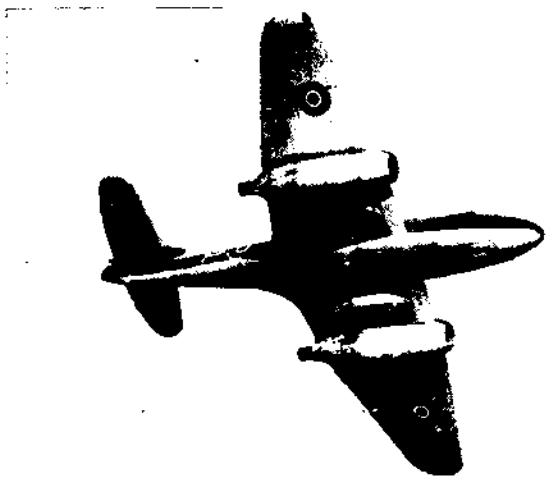
SPAN: 43'0". **LENGTH:** 41'0".

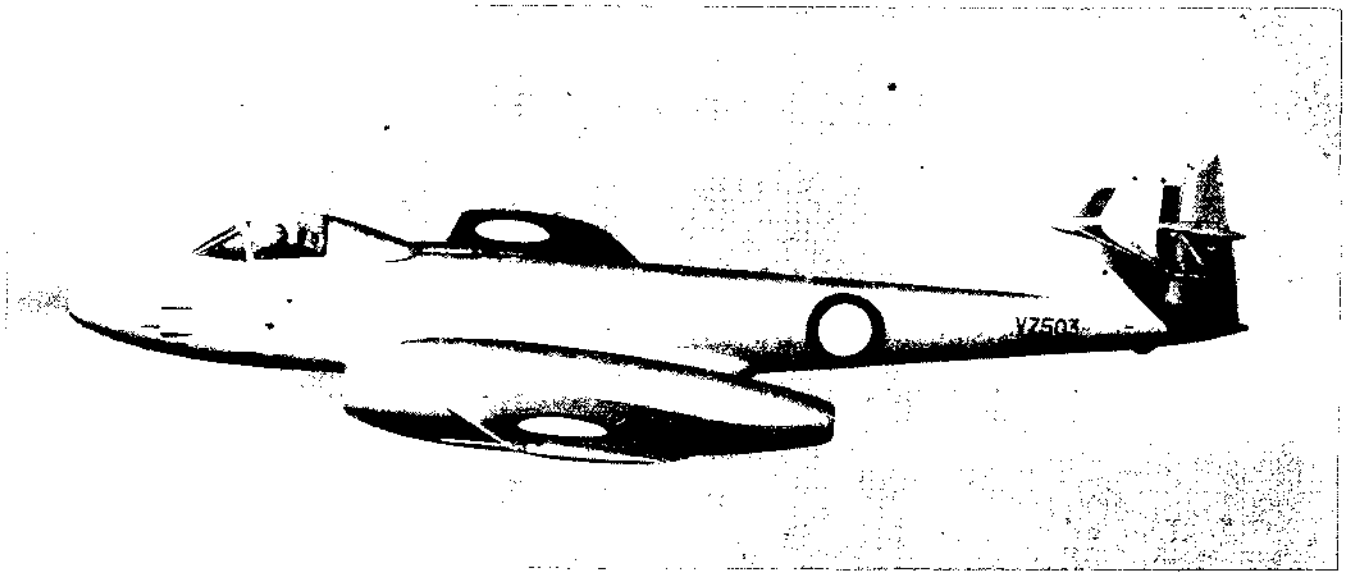
ENGINE: 2 Derwent 5 turbo-jets/3,600-lb. thrust.

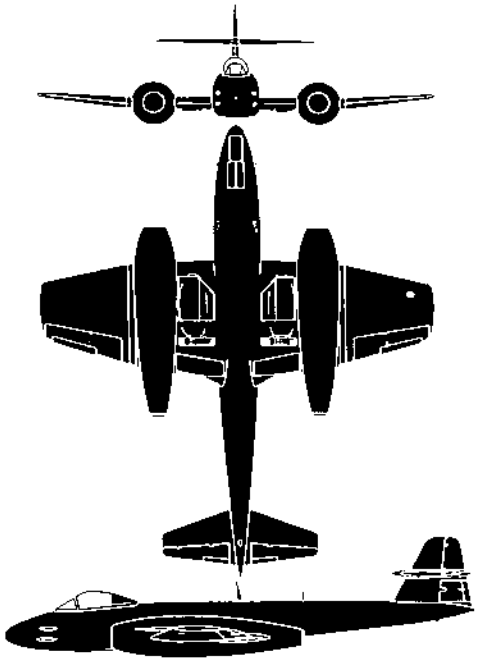
SPEED: 506 knots/sea level.

RANGE: 510 nautical miles/330 knots.

ARMAMENT: 4 x 20 mm.







The Meteor F. Mk. 8, a twin-turbojet single-seat fighter, is a progressive development of the Mk. 4. Outwardly the most striking difference lies in the redesigned fin, rudder (now squared) and stabilizer, but a further departure in outline may arise from the fitting of wing drop-tanks. The Mk. 8 incorporates a longer nose than the two previous versions to accommodate an extra fuel tank. It has a pressurized cockpit covered by a single piece jettisonable hood of improved aerodynamic form. A Martin-Baker ejector seat is fitted. Meteors are to be seen in many models and roles. There are the recent photographic and fighter-reconnaissance types, the Marks 9 and 10 and the N. F. Mk. 11 described elsewhere. This aircraft is operational with the British, Belgian, Dutch, and Danish Air Forces. It is also in service with the Royal Australian Air Force in Korea.

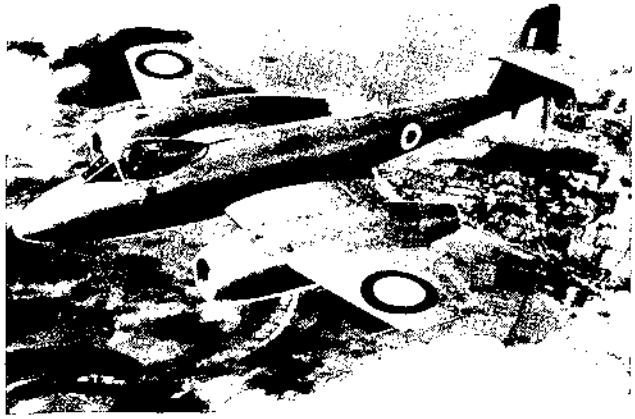
SPAN: 37'2". **Length:** 44'7".

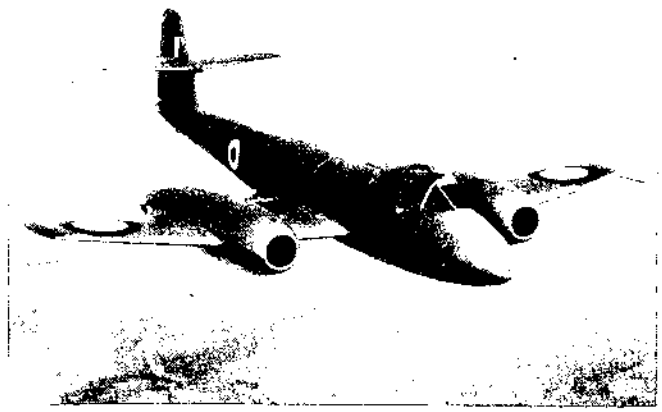
ENGINE: 2/R.R. Derwents/3,600-lb. thrust each.

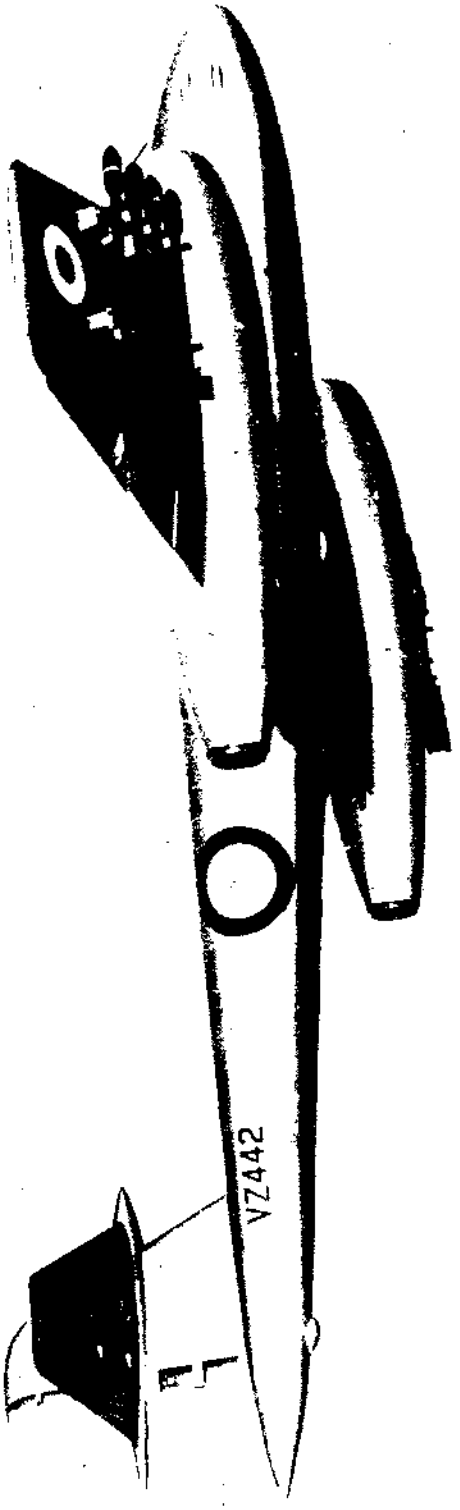
MAX. SPEED: 520 knots or Mach. 0.82.

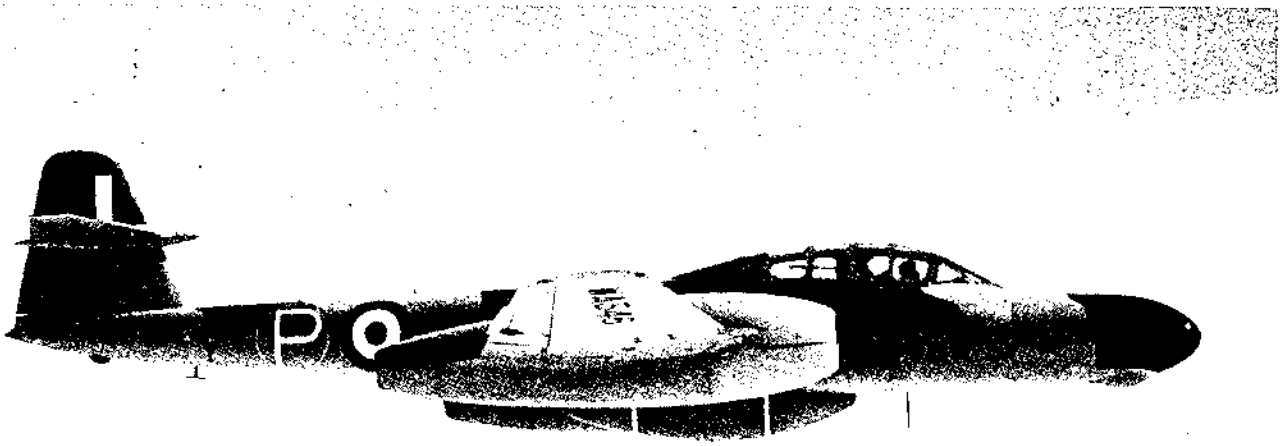
RANGE: 510 nautical miles/330 knots.

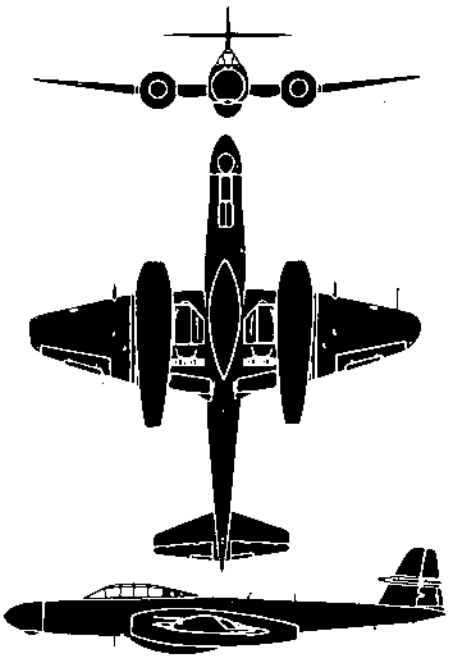
ARMAMENT: 4 x 20 mm. plus 16 rockets.






VZ442





The Meteor N. F. Mk. 11 is a twin-turbojet low-wing night fighter. This version employs a Mk. 7 type two-seat cockpit and canopy, seating a pilot and radar operator, a modified Mk. 3 type long-span outer wing and a Mk. 8 type tail-unit. Extensive modifications have been made to include the radar equipment in the extended nose (105″), resulting in the four-cannon armament being displaced to the outer wings. Three droppable fuel tanks, one under the fuselage and two under the wings, may be carried. Maximum take-off weight with external tanks for the various Meteors runs around 18,000 pounds. The Meteor N. F. Mk. 11 is one of the fastest British night fighters in operation. A highly pressurized cockpit with heating, anti-icing and de-misting systems is provided.

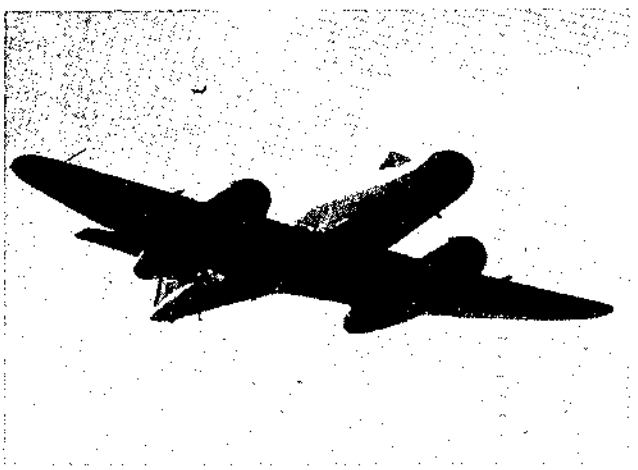
SPAN: 43′0″. **LENGTH: 48′6″.**

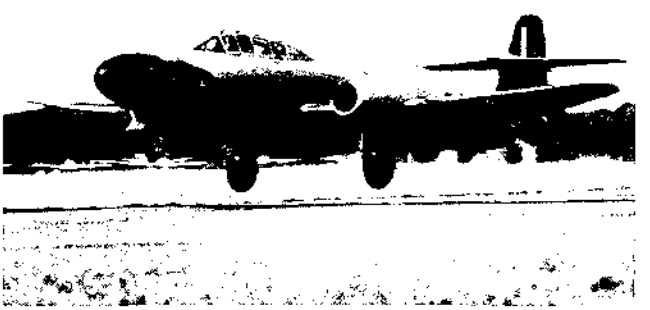
ENGINE: 2/R.R. Derwents/3,600-lb. thrust each.

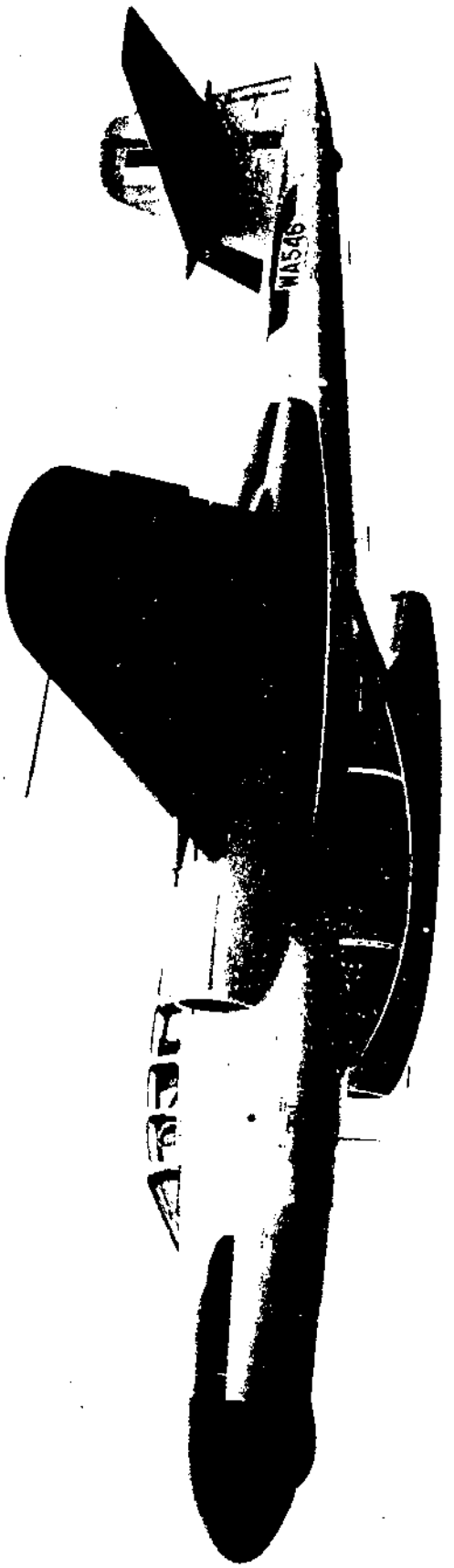
MAX. SPEED: 520 knots.

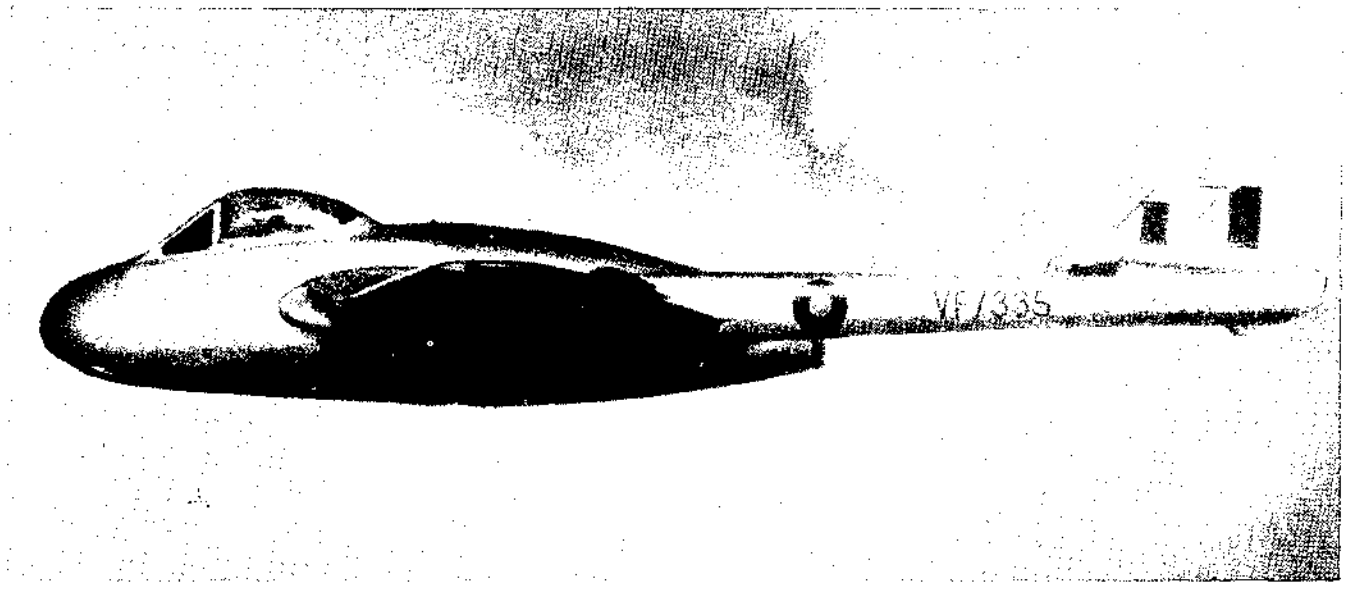
RANGE: Approx. 1,000 nautical miles/330 knots.

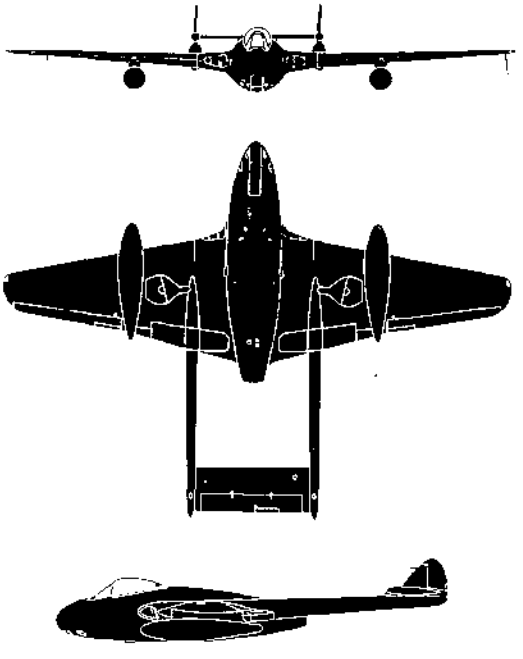
ARMAMENT: 4 x 20 mm.






WA546





The Vampire 3 is a mid-wing, single-engine, jet-propelled, twin-boom fighter. The wings are evenly tapered from the roots where the air intakes are accommodated, to the rounded tips. A pilot's pressurized cockpit is ahead of the wings leading edge affording excellent visibility. Twin fins and rudders are mounted above the tail booms with a single elevator between. In March 1948, a Ghost-engined Vampire flew to 59,492 feet for an International Altitude Record. In addition to being in RAF service, the Vampire has been adopted as a standard fighter type by many of the European and Scandinavian countries.

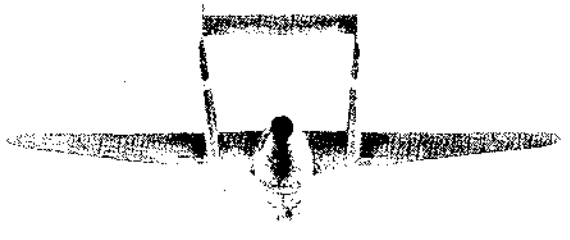
SPAN: 40'0". **LENGTH:** 30'9".

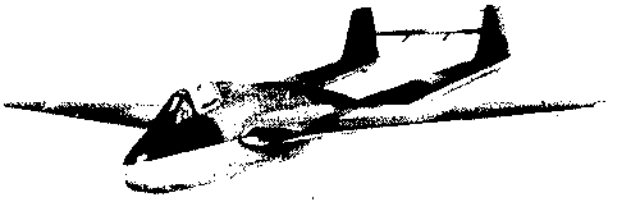
ENGINE: Goblin 2 turbo-jet/3,100-lb. thrust.

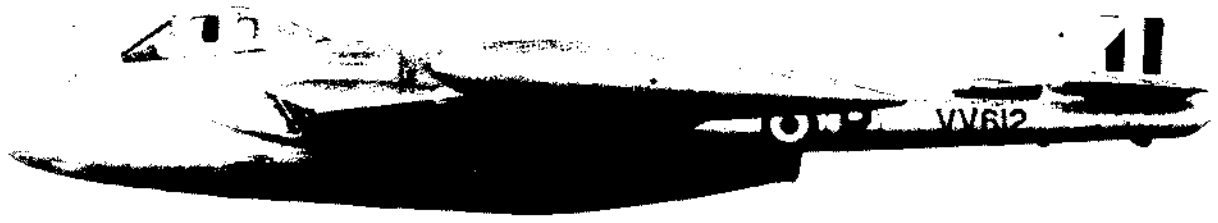
SPEED: 470 knots/20,000 ft.

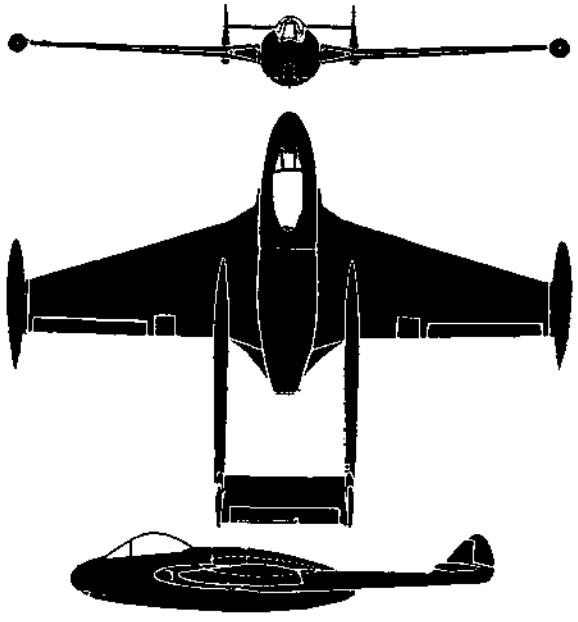
RANGE: 807 nautical miles/391 knots.

ARMAMENT: 4 x 20 mm.



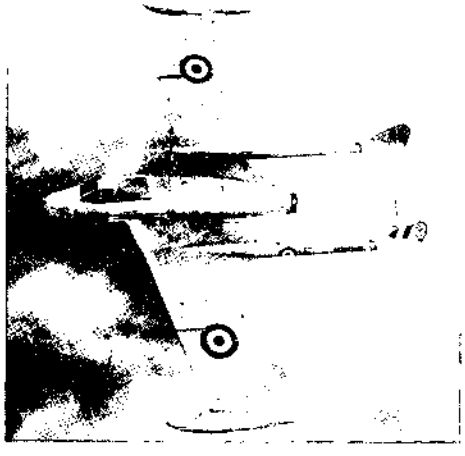


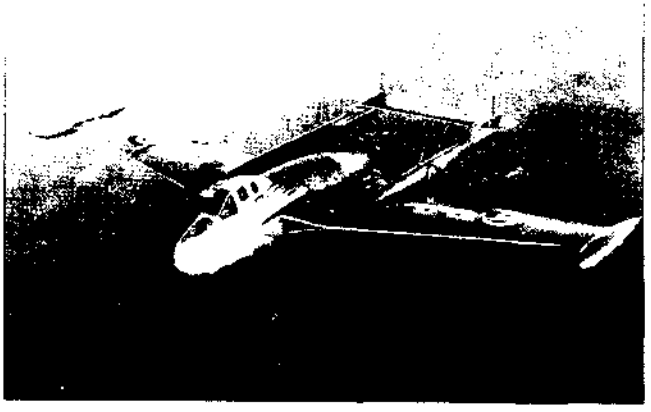


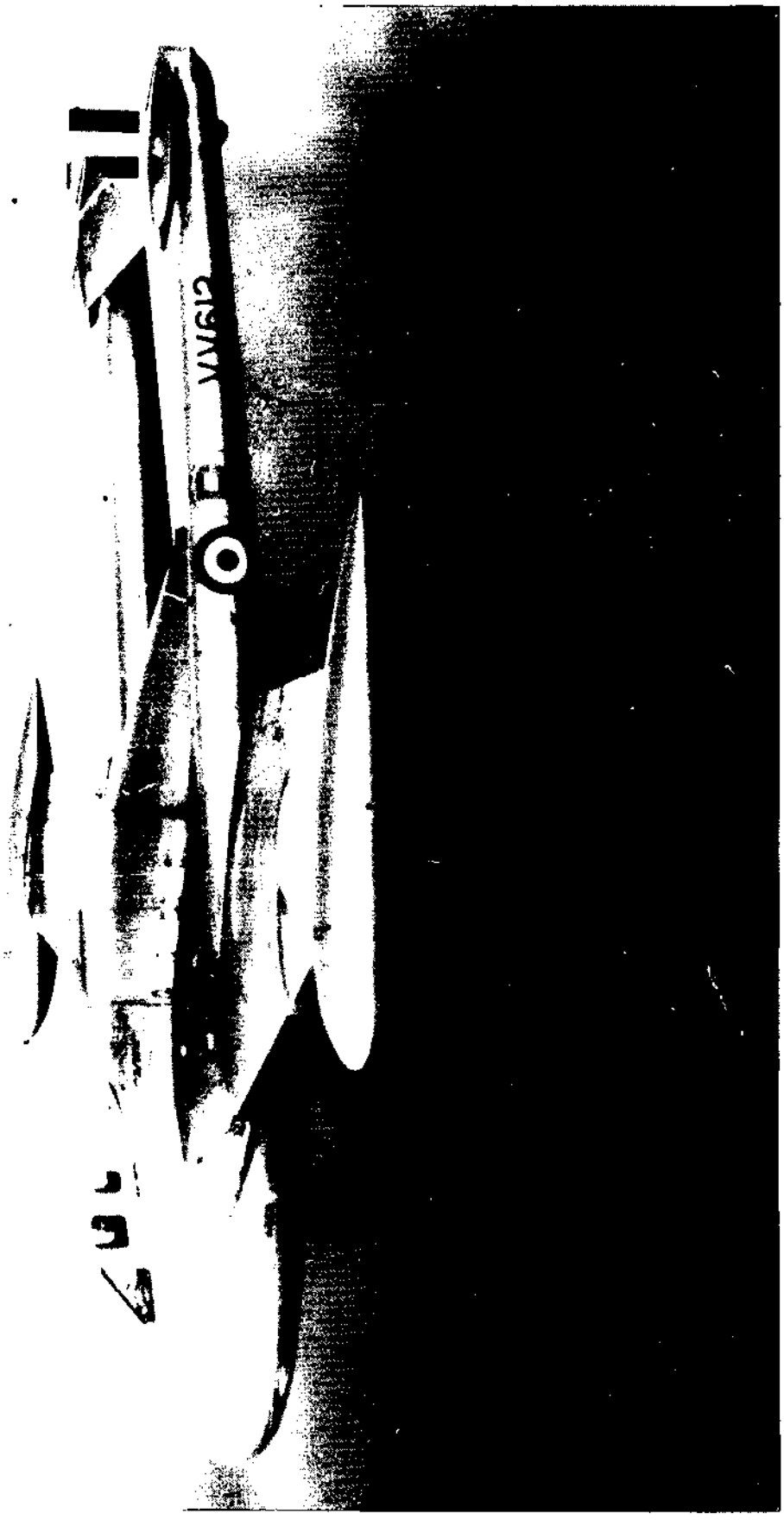


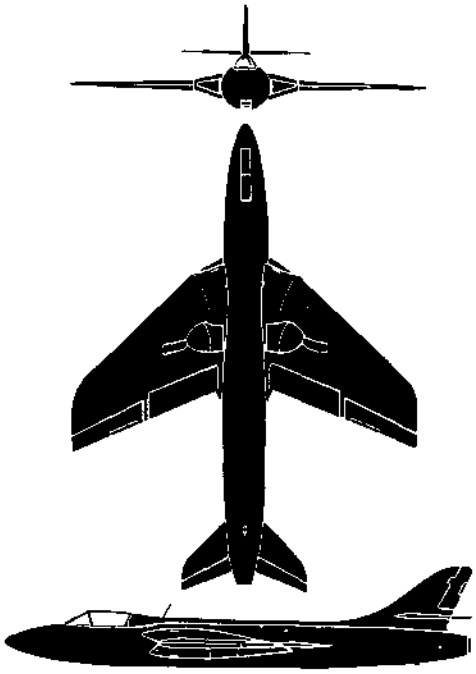
The Venom, a higher powered development of the Vampire, incorporates a new thin-section wing with moderate leading edge sweepback. A first flight was made on 2 September 1949. It is classed as a mid-wing single seat fighter and although designed, for high-performance work, the Venom under service conditions may be called upon to fill many roles. Provision has been made, in the original design, for the mounting of bombs and rocket projectiles so that the Venom is instantly convertible into a ground-attack aircraft. The mounting of the drop tanks on the wing tips means that the bombs can be accommodated without a reduction in the tank capacity available, thus ensuring the maximum radius of action for low altitude and ground-support duties.

SPAN: 41'11". **LENGTH: 31'6".**
ENGINE: Ghost/5,000-lb. thrust.
SPEED: More than 500 knots.
RANGE:
ARMAMENT: 4 x 20 mm.



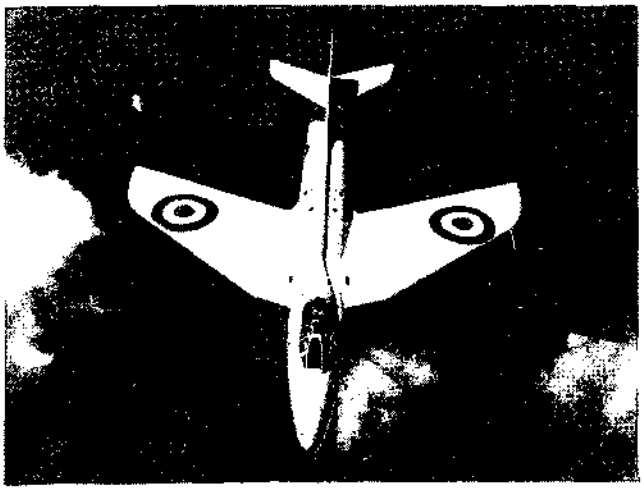


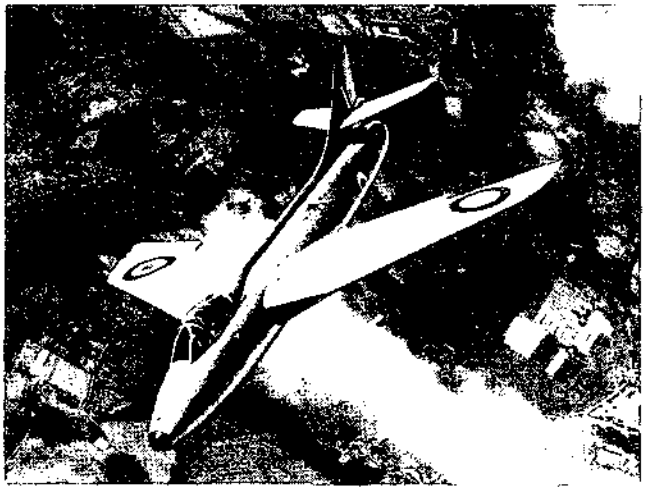


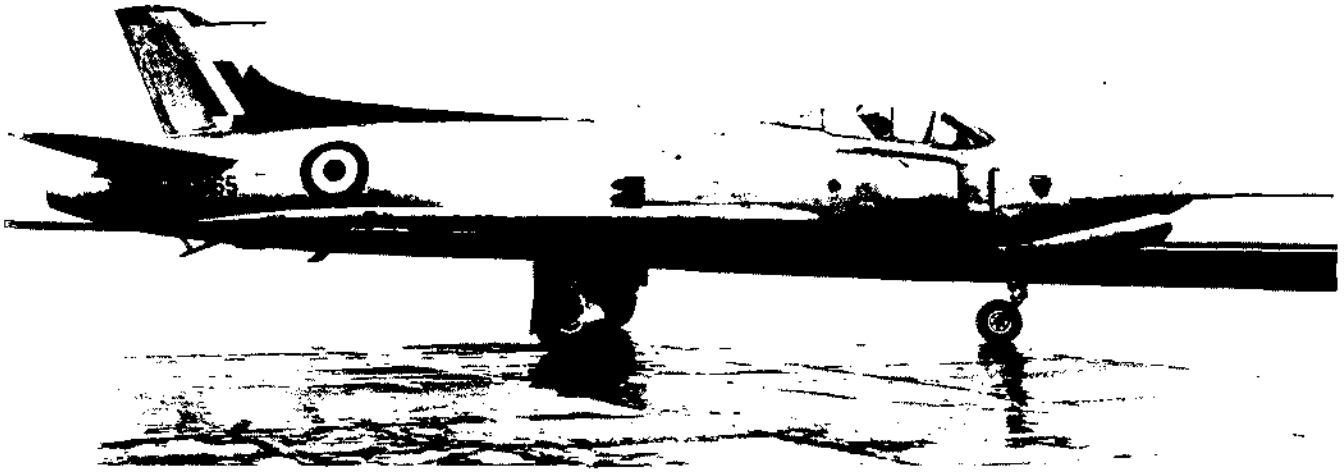


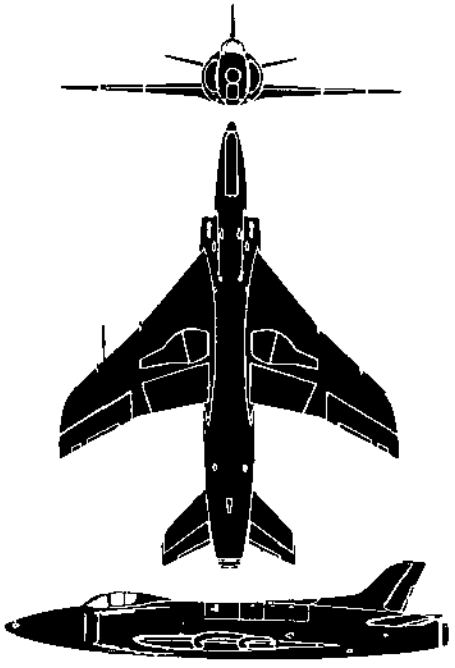
The Hunter is a single-seat swept-wing single-jet fighter with air intakes in the wing roots. This aircraft is a progressive development of a series of jet fighters. A feature of this single-seat fighter is the extension of the cockpit fairing into an extended dorsal strake leading into the raked fin. The horizontal tail surface is attached to the fin just above the fuselage. A tricycle landing gear is fitted with the main gear attached to the outer wing panels and folding inward. The nose wheel is directly below the cockpit and retracts backward. This aircraft formerly designated P. 1067 is in production for the R. A. F. and the Dutch A. F. A stablemate with similar performance is the Swift. On 7 September 1953 a speed record of 727.6 m. p. h. was set by a Hunter. Eighteen days later it was broken by a Swift with a speed of 737.3 m. p. h. The U. S. Navy Skyray later broke the record at 752.9 m. p. h.

SPAN: 33'6" **LENGTH: 42'0"**
ENGINE: R. R. Avon/6,500-lb. thrust.
MAX. SPEED: 640 knots plus.
RANGE:
ARMAMENT: 4 x 30 mm.



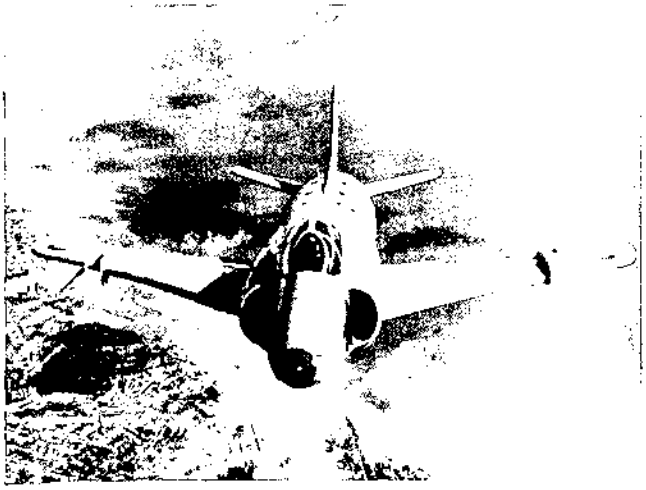


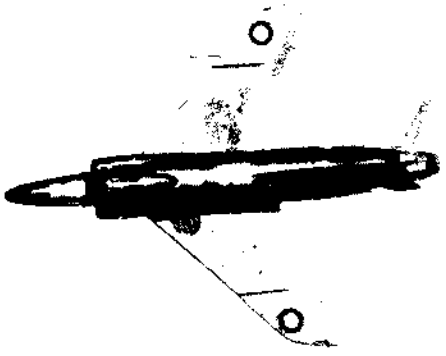


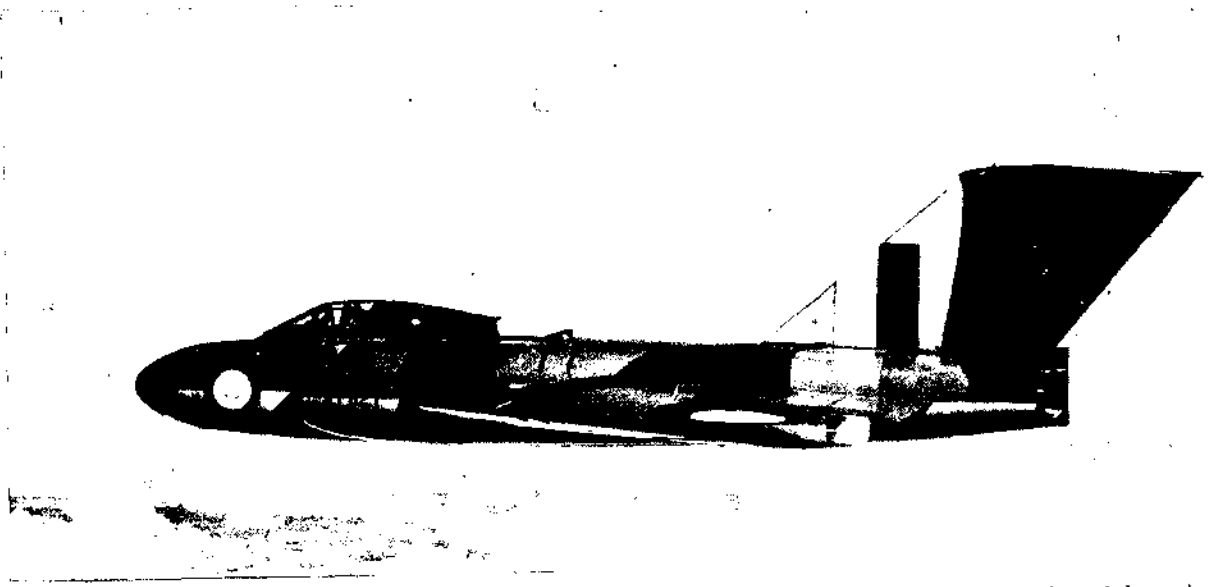


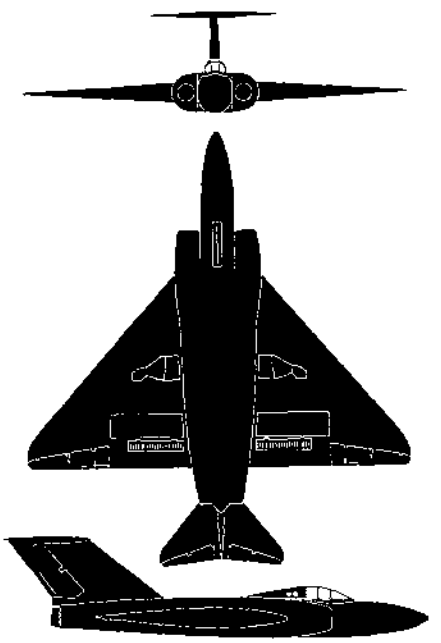
The Swift is a single-seat jet fighter which was developed from a series of Supermarine prototypes. This swept-wing jet (37° sweep) and its stablemate, the Hawker Hunter, were both designed to the same Ministry of Supply specification. These two similar types perpetuate the standard set prior to World War II when their ancestors, the Spitfire and Hurricane appeared. The Swift differs from the mid-wing Hunter in that it has a low-mounted swept-wing. In the Swift the earlier Navy Attacker's fuselage has been retained almost unchanged. The principal difference is the Swift's cheek scoops and bifurcated air duct for its single jet engine, while the Hunter features wing root intakes. The Swift broke the Hunter's speed record by averaging a speed of 737.3 m. p. h. This record was broken by the U. S. Navy's Skyray record run of 752.9 m. p. h. A 15-kilometer course record 754.98 m. p. h. is held by the F–100.

SPAN: 33'1" **LENGTH: 41'6"**
ENGINE: R. R. Avon/6,500-lb. thrust.
MAX. SPEED: 640 knots plus.
RANGE:
ARMAMENT: 4 x 30 mm.









The Javelin is the world's first delta-winged twin-jet fighter. It was designed as a heavy interceptor and patrol fighter with all-weather capabilities for use against high altitude enemy bombers. A pilot and radar operator are necessary to man the fighter. They sit in tandem in a fully pressurized and heated cockpit necessary for flights at altitudes in excess of 50,000 feet. The Javelin's tricycle landing gear has a wide track and retracts inward. In plain view the aircraft resembles an arrow-head and when viewed in flight from the rear, its flat appearance gives the impression of a striking cobra. The production Javelin has a clear-view canopy. It also has the standard "cranked" wing and four 30 mm Aden cannons in the leading edge. All controls of the Javelin are power-operated or boosted. It has exceeded the speed of sound in a shallow dive.

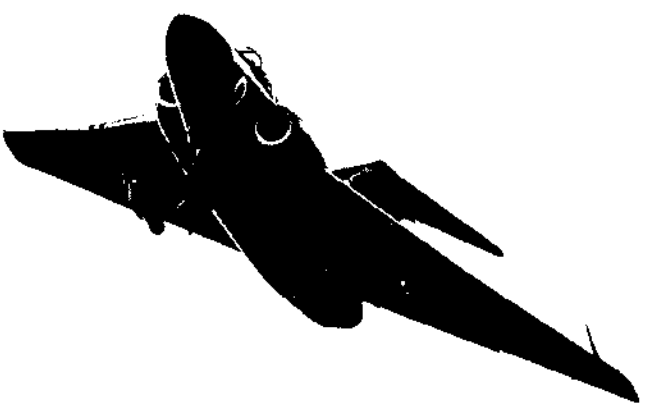
SPAN: 52′6″ **LENGTH: 57′0″**

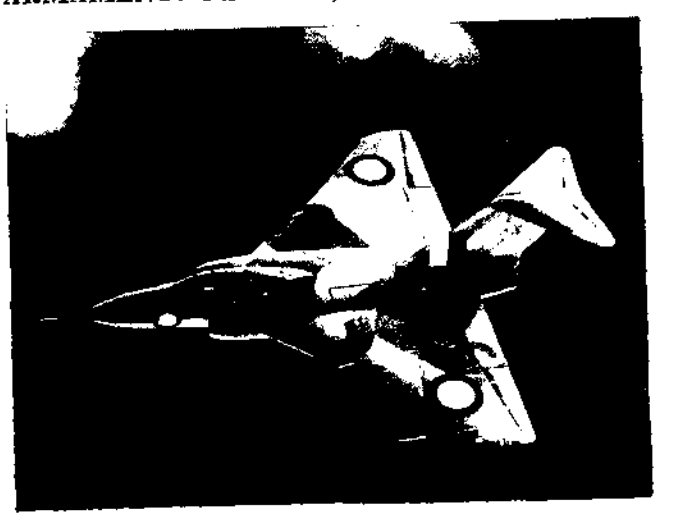
ENGINE: 2/A.S. Sapphire 18,300 lbs. thrust each.

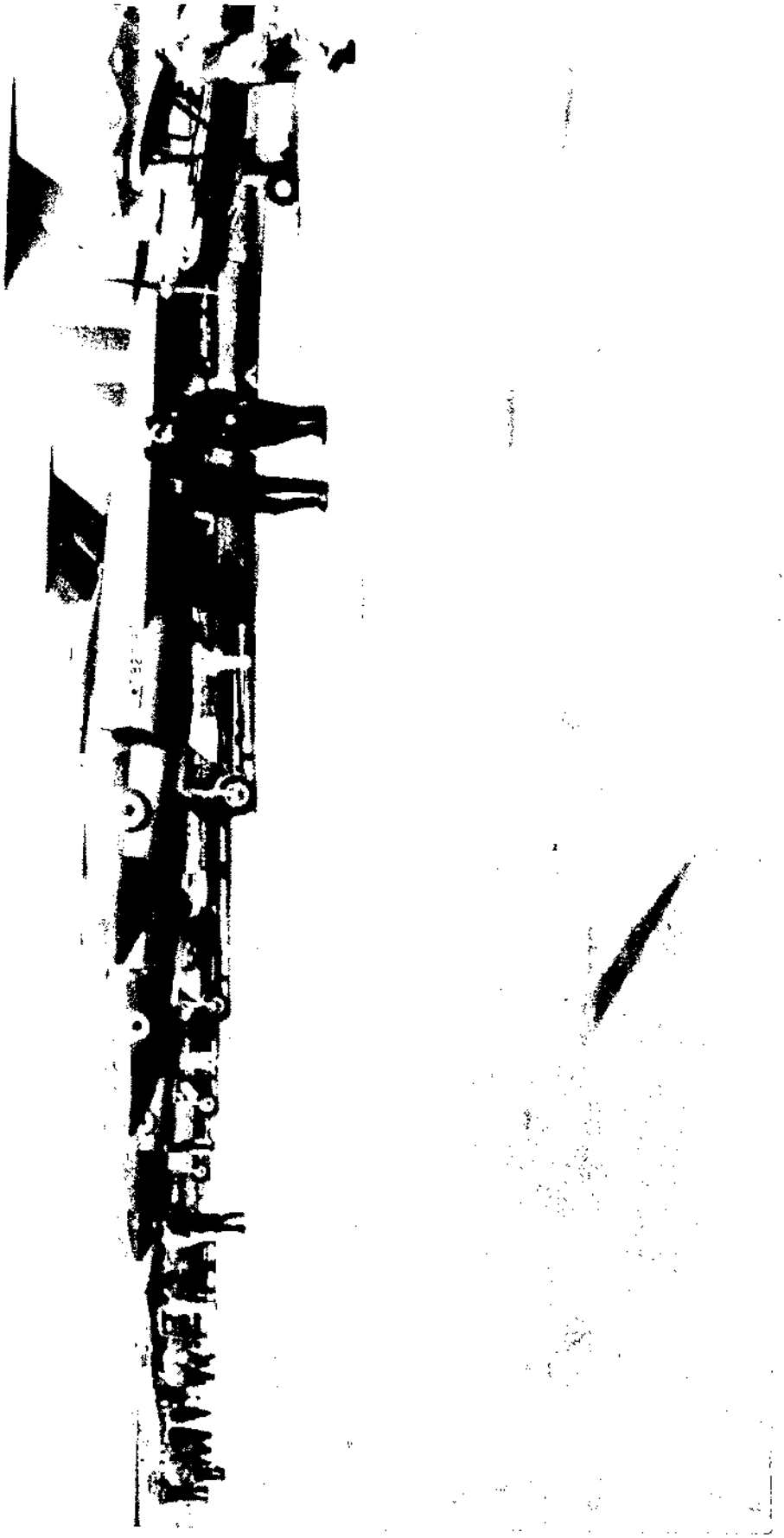
MAX. SPEED: More than 600 knots.

RANGE:

ARMAMENT: 4 x 30 mm; missiles.







GREAT BRITAIN

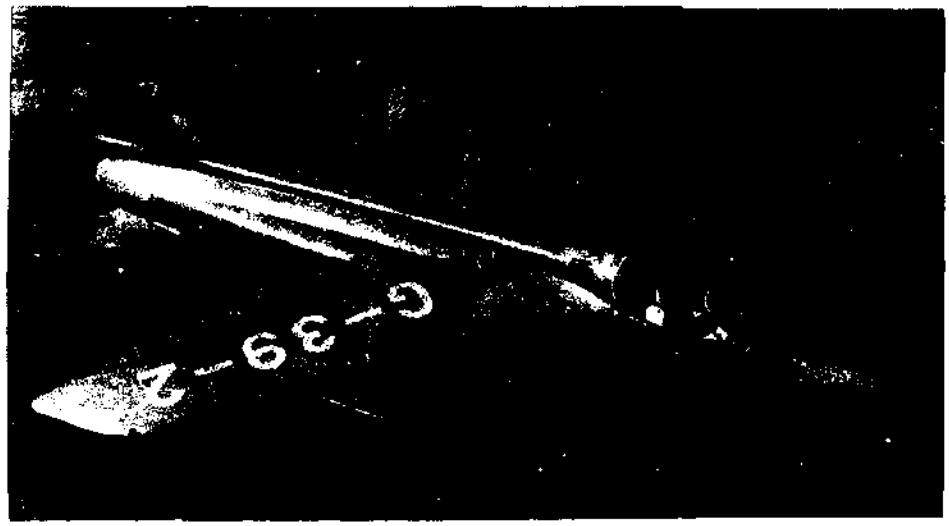
DH-110
VIXEN

The D.H. 110 is a two-seat all-weather fighter designed for use by the Royal Navy. It is equipped with the latest electronic combat and navigational aids. A "flying tail" has recently been fitted to increase maneuverability through supersonic speeds.
SPAN: 51′ LENGTH: 52′1½″
ENGINE: 2/Avon Rolls-Royce

GREAT BRITAIN

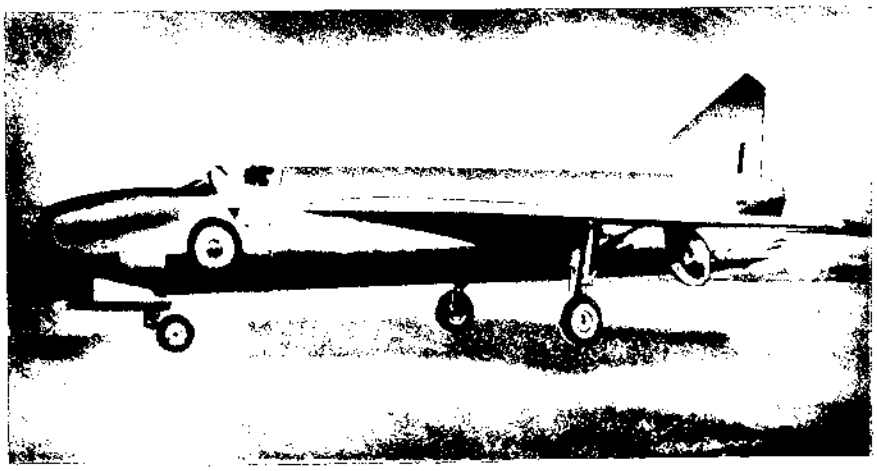
GNAT
MIDGE

The Gnat is a single-seat aircraft designed for either interceptor or ground-attack duties. Recognition features of the Gnat include sweptback wings mounted "shoulder high" on the fuselage; pipe-like fairing on the top fuselage from the cockpit to the vertical tail surfaces; air inlet ducts on each side of the fuselage; and horizontal tail surfaces located on the lower third of the aft fuselage.
SPAN: 20′8″ LENGTH: 29′4″
ENGINE: 1/Bristol Orpheus



P-1

GREAT BRITAIN



The English Electric P–1 is a single-seat, twin jet designed as a supersonic interceptor-fighter.

Close study features are sweptback wings mounted aft of the cockpit slightly above the fuselage mid-point; a triangular shaped vertical fin; sweptback horizontal tail surfaces mounted a fractional distance above the bottom rear fuselage; a pear-shaped nose air inlet; and engine tail pipes set one over the other and extending well aft of the tail surfaces (like the "over and under" shot gun barrel).

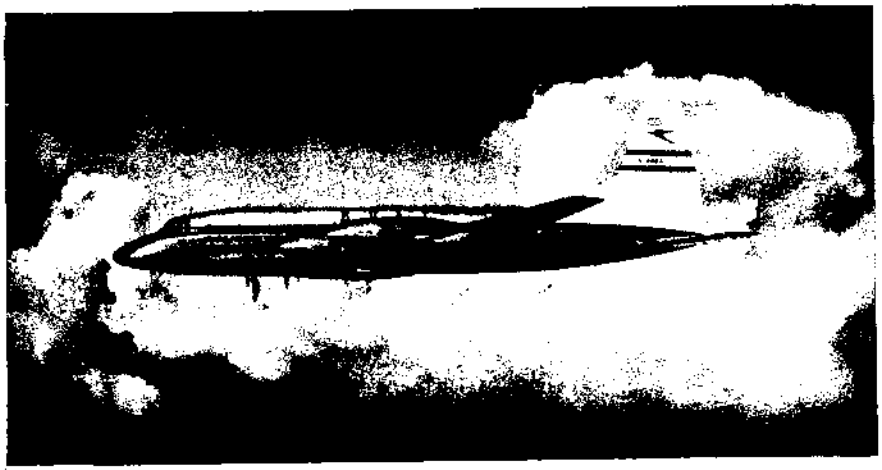
BRITANNIA

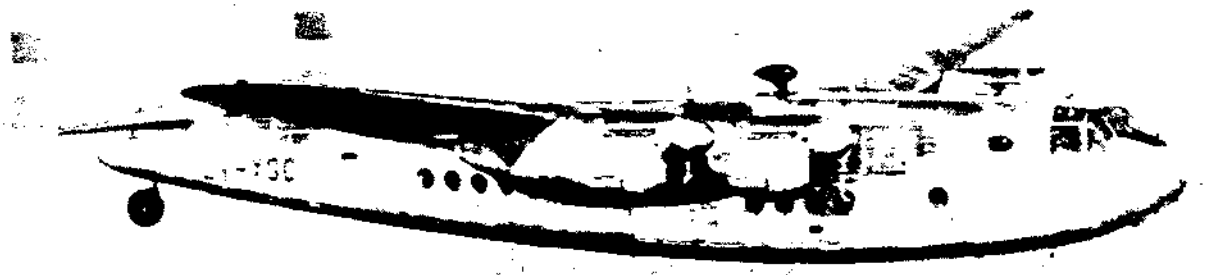
GREAT BRITAIN

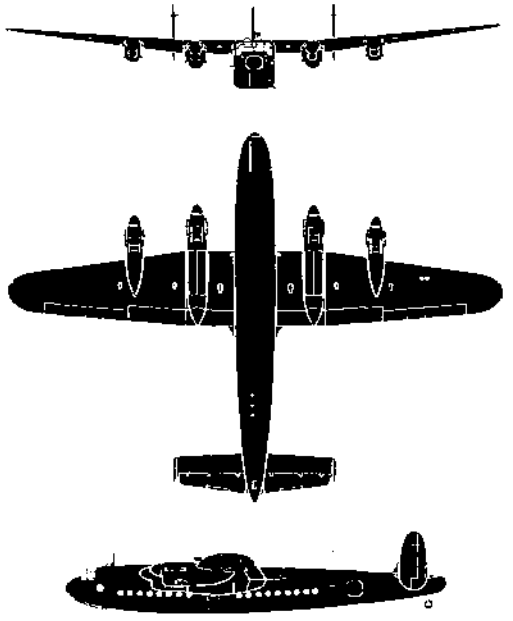
The Bristol Type 175 Britannia is a turboprop cargo or passenger type transport aircraft designed primarily for use by British airlines.

Recognition features of the Britannia include the "longer-than-usual" extensions of the engine nacelles ahead of the wings; the large vertical tail surfaces; and the engine exhausts that extend over the wing trailing edge.

SPAN: 140′ LENGTH: 124′3″
ENGINE: 4/Bristol Proteus 755/4150 ehp
MAXIMUM SPEED: 350 knots
RANGE: 3,150 nautical miles/still air/30,000 ft.







The York is a high-wing, four-engined transport monoplane. The wings taper slightly, more on the leading edge than the trailing edge, to rounded tips. The inboard engines are slightly forward of the outboard engines. The fuselage is of rectangular cross section. There are three fins and two rudders with the fin over the fuselage center line being fixed. The landing gear is of conventional construction. The York was developed from the Lancaster bomber and includes a larger fuselage. This aircraft is widely used by the RAF and by numerous airlines. As a passenger version it will accommodate 21 passengers.

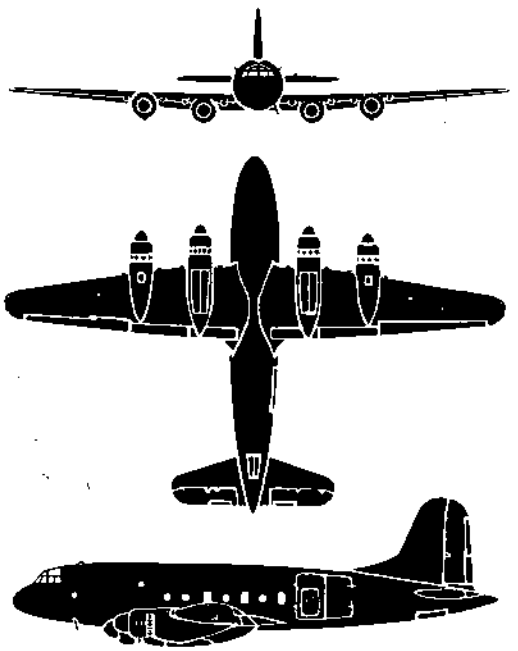
SPAN: 102'0". **LENGTH:** 78'6".

ENGINE: Merlin 24; Vee in-line/1,620 h. p.

SPEED: 250 knots/15,000 ft.

RANGE: 2,260 nautical miles.

ARMAMENT: None.



The Hastings is a low-wing, four-engine, long range military transport. The wings taper sharply on the leading edge to rounded tips. All engines are underslung on the wings with the inboard nacelles slightly forward of the outboard nacelles. The fuselage is circular in cross section. There is a single fin and rudder with a horizontal stabilizer tapering on the leading edge to rounded tips. A conventional landing gear is utilized. The Handley Page Hastings is employed as a freighter, paratroop transport, ambulance, troop carrier, supply dropper and glider tug.

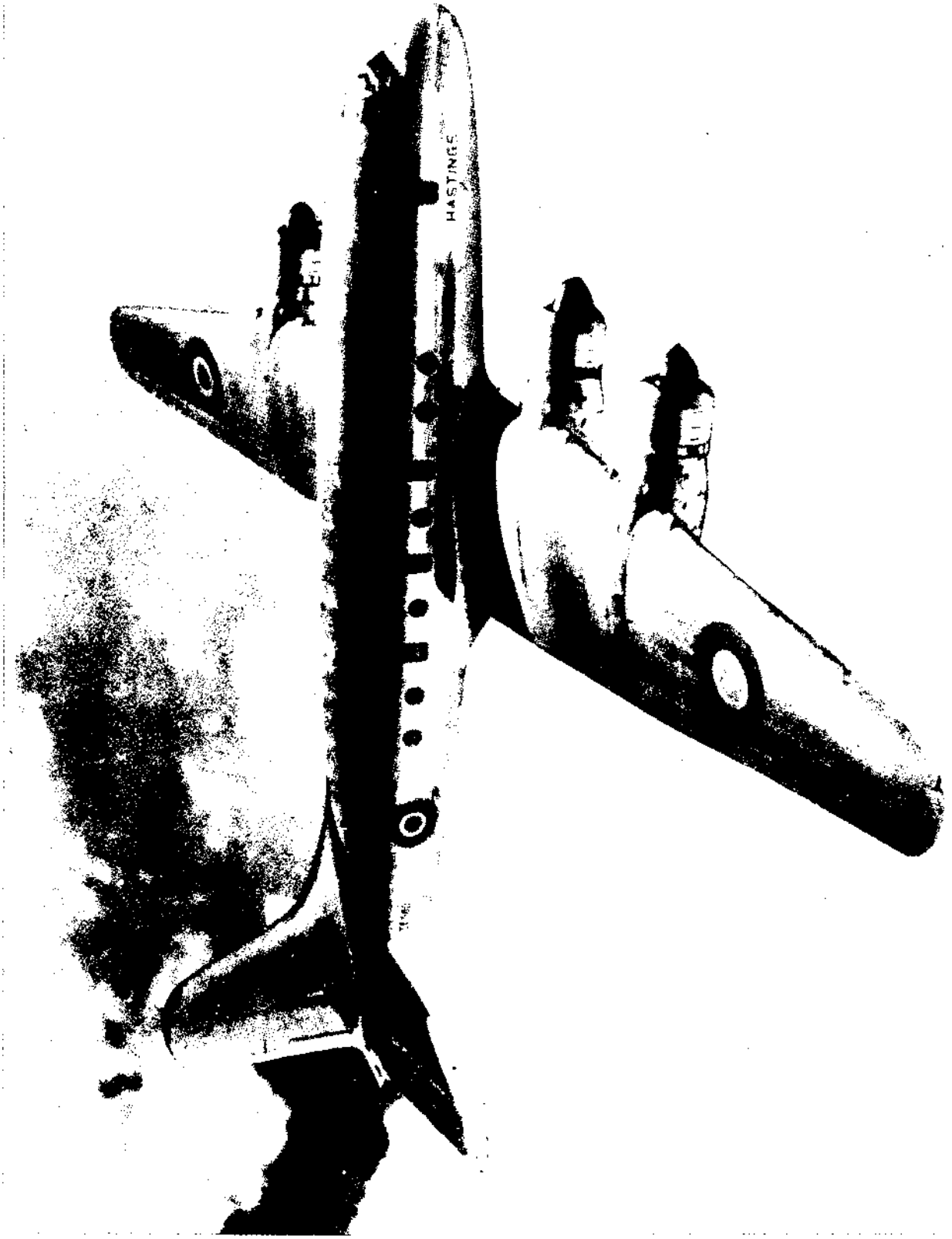
SPAN: 113'0". **LENGTH:** 82'2".

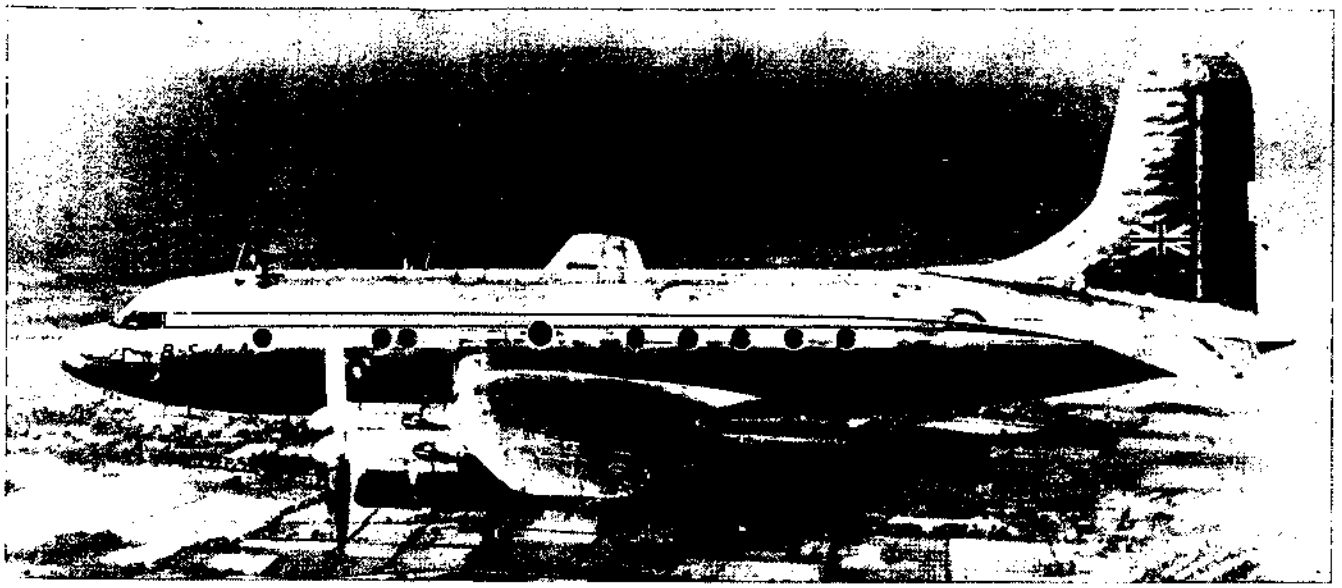
ENGINE: Hercules 100; radial/1,675 h. p.

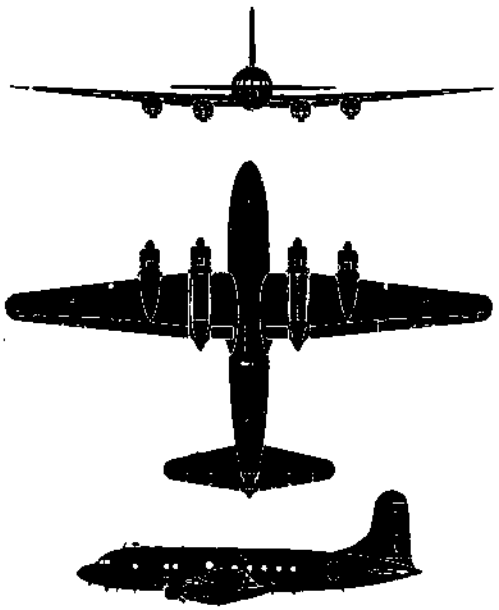
SPEED: 304 knots/20,000 ft.

RANGE: 2,500 nautical miles/205 knots.

ARMAMENT: None.

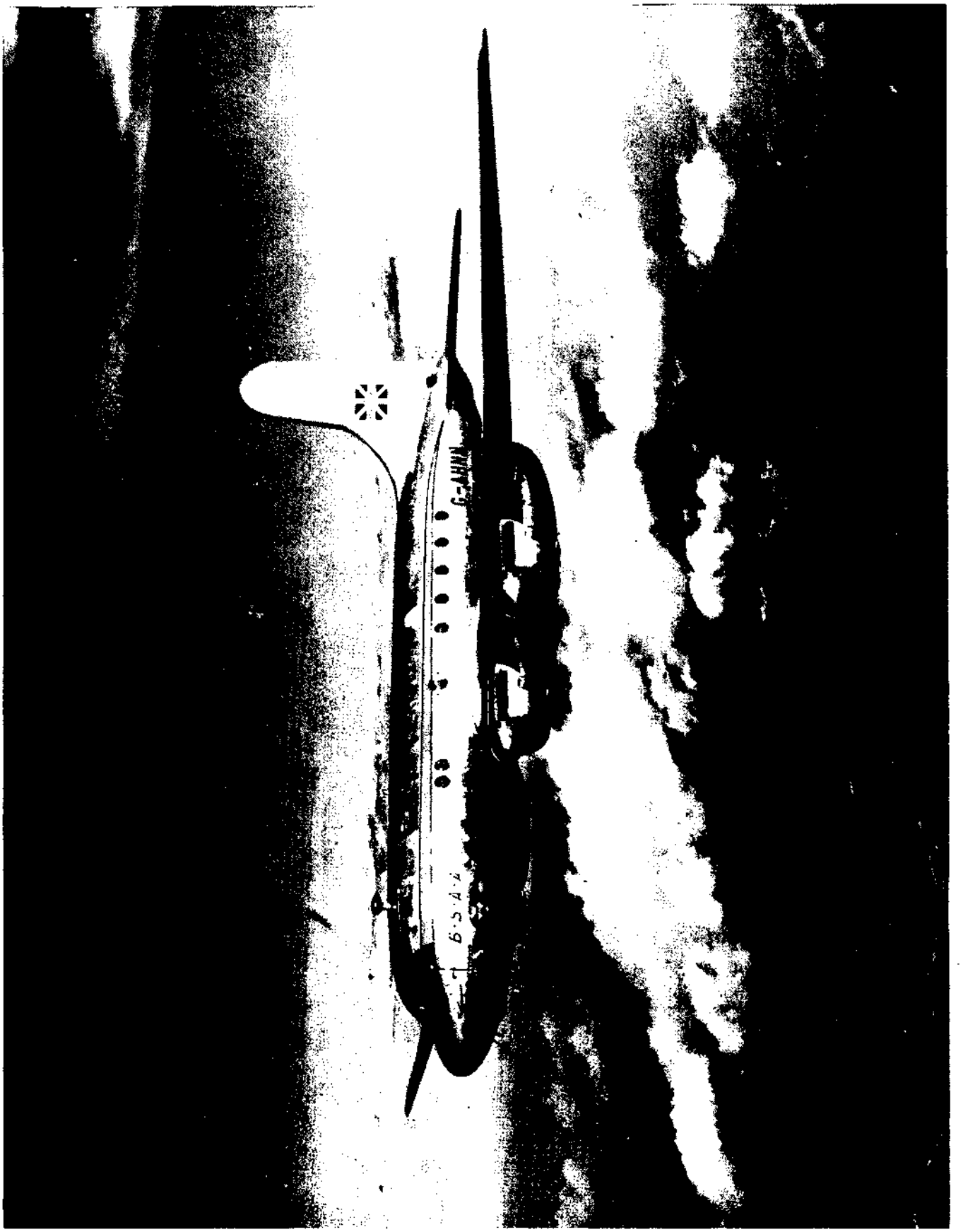

HASTINGS

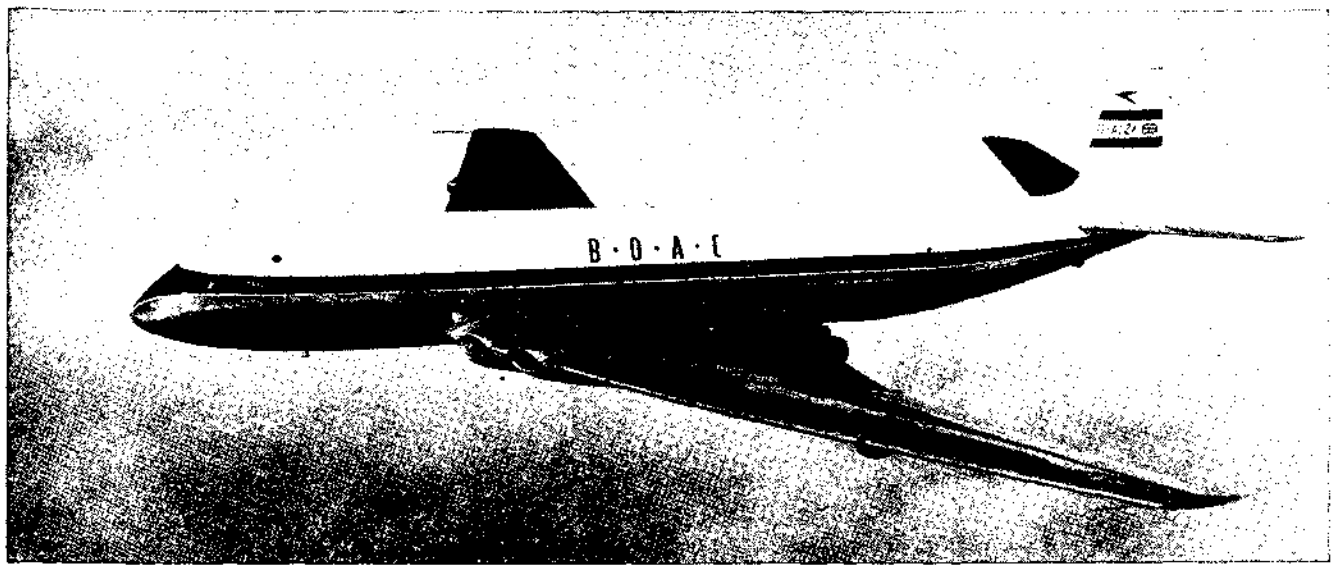


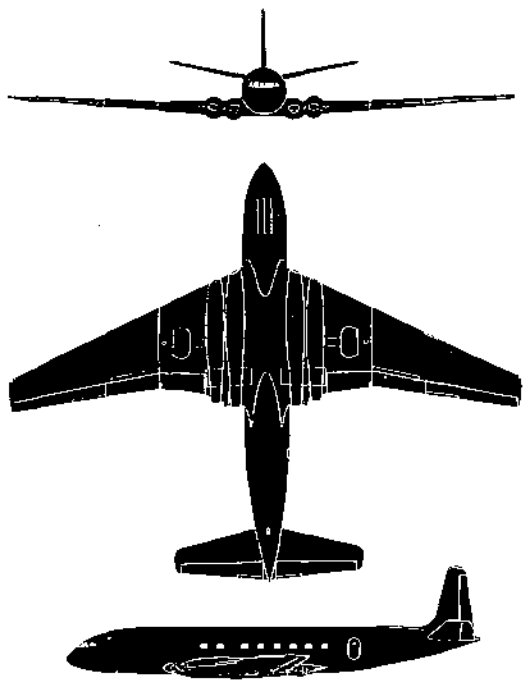


The Avro Tudor 4 is a low-wing, four-engined transport monoplane. The wing consists of three sections, a rectangular center section and outer sections tapering sharply on the leading edges with trailing edges straight. Both wing tips are rounded. The inboard engine nacelles are slightly forward of the outboard nacelles. The fuselage is all metal and circular in the cross section. A single high fin and rudder and an evenly tapered horizontal stabilizer are fitted. There are many models of the Tudor and the first type 688 Tudor I was conceived in 1943 as a commercial conversion of the Lancaster for use over the North Atlantic.

SPAN: 120'0". **LENGTH:** 79'6".
ENGINE: Merlin 621; Vee in-line/1,740 h. p.
SPEED: 240 knots/20,000 ft.
RANGE: 2,910 nautical miles/180 knots.
ARMAMENT: None.

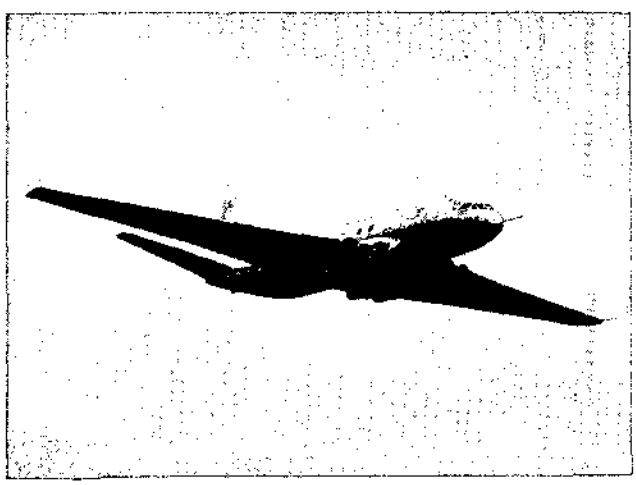

G-AWIN

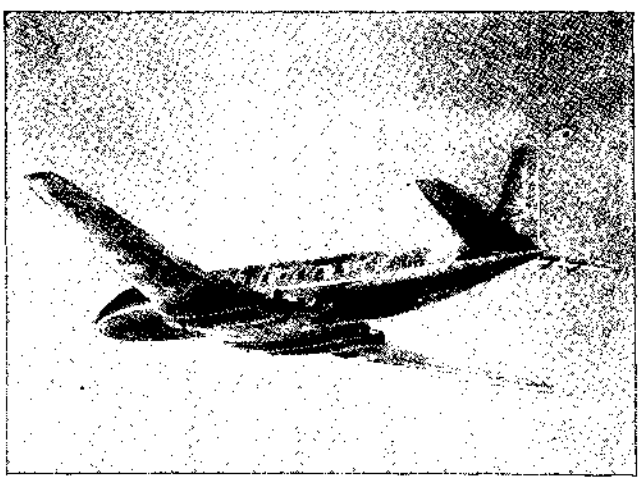


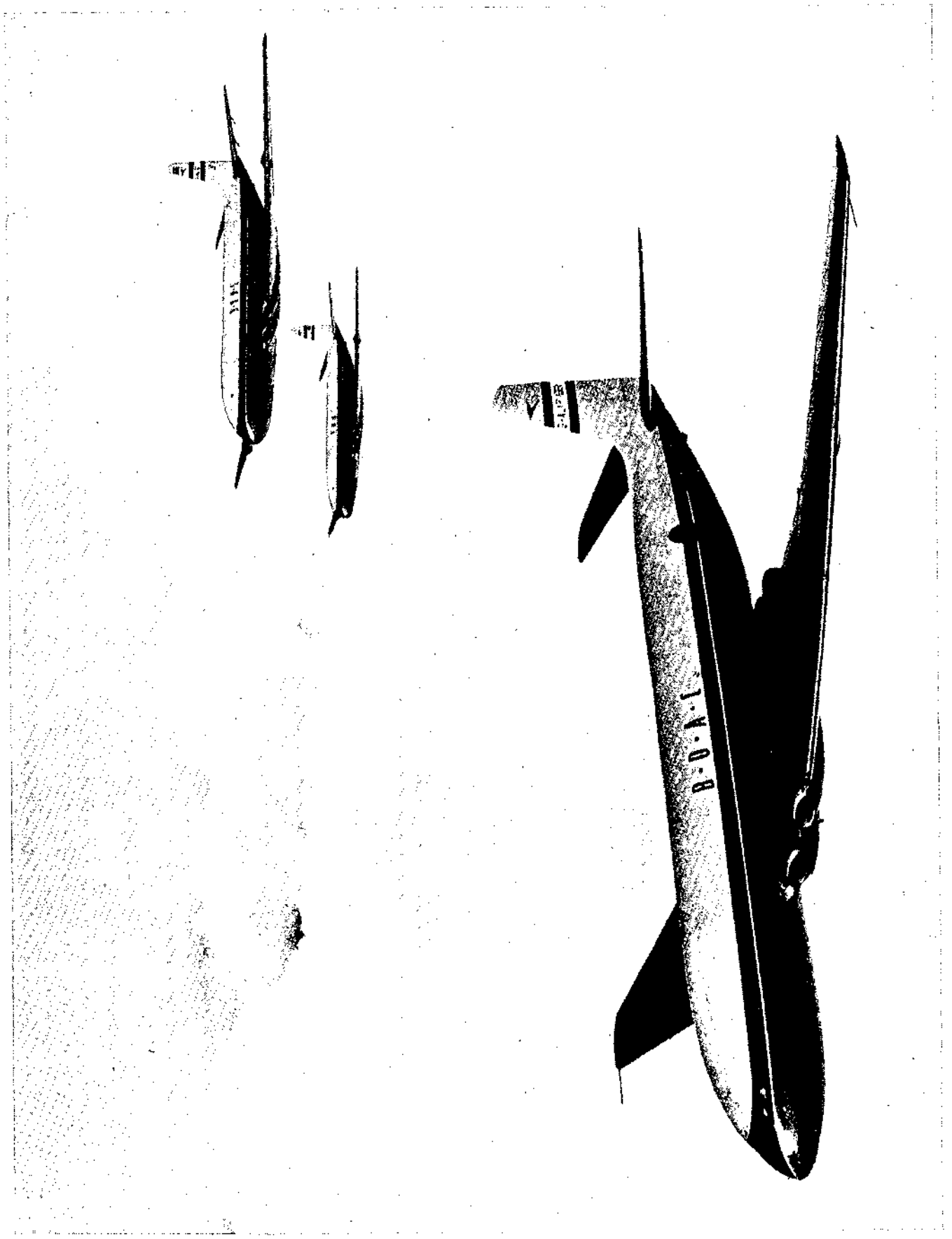


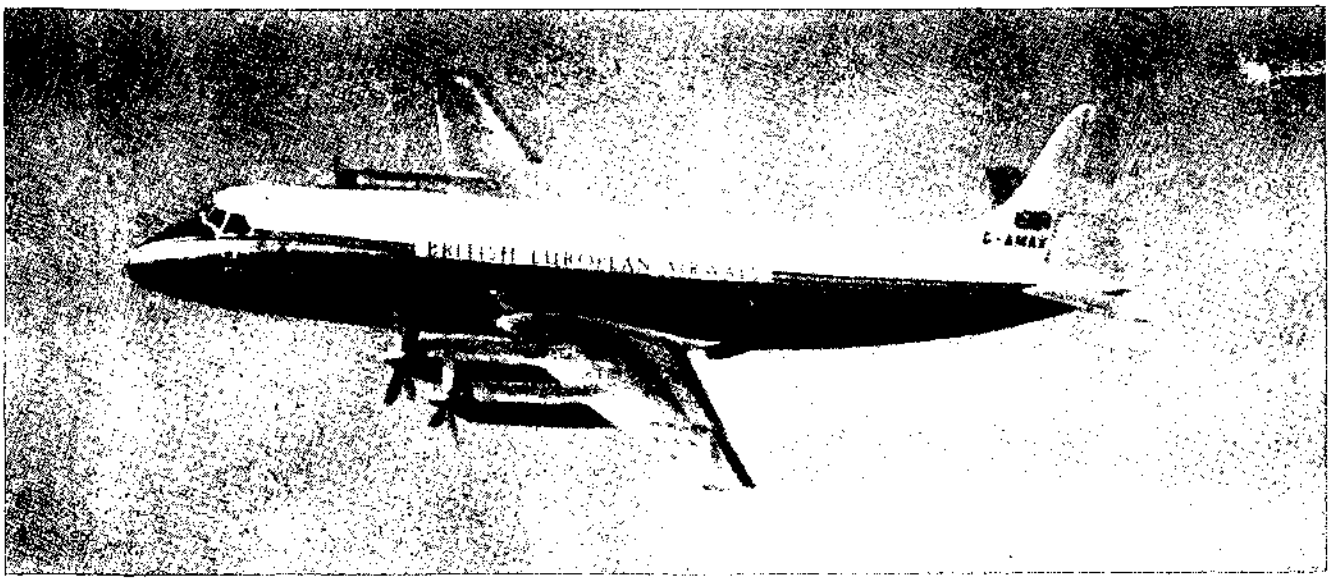
The Comet is the world's first jet transport to be placed in scheduled service. This service was inaugurated by B. O. A. C. in May 1952 on the London-Johannesburg route. The Comet, slightly smaller than the Constellation, has very thin wings and the engines are placed close to the fuselage in semi-buried installations. While its wings have moderate sweep-back, the tail surfaces are straight. Controls are power-operated and the cabin is pressurized. Some Comets have rocket installations between the engines. A long-range series 2 has been developed. Both series are available in 36 and 48 seat versions at a take-off weight of approximately 110,000 pounds. Britain, France, Canada, and Japan have ordered Comets. P. A. A. has ordered a long-range version, series 3.

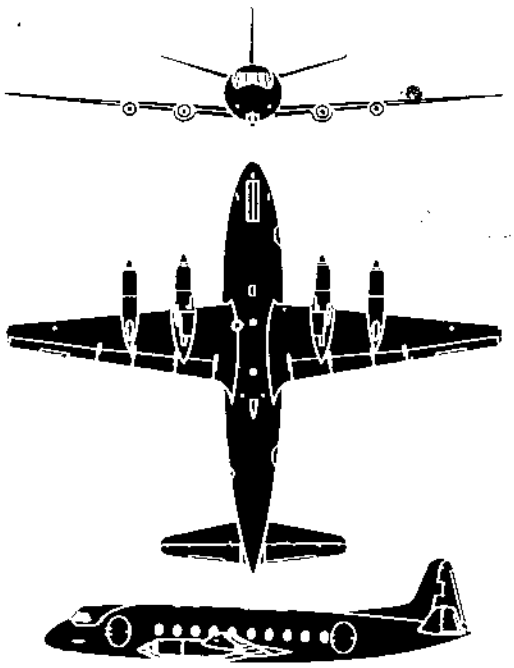
SPAN: 115′0″ **LENGTH: 93′0″**
ENGINE: (1) 4/D. H. Ghost/5,000-lb. thrust each; (2) 4/R. R. Avon/6,500-lb. thrust each.
MAX. SPEED: 450 knots.
RANGE: 2,400 nautical miles/425 knots.
ARMAMENT: None.





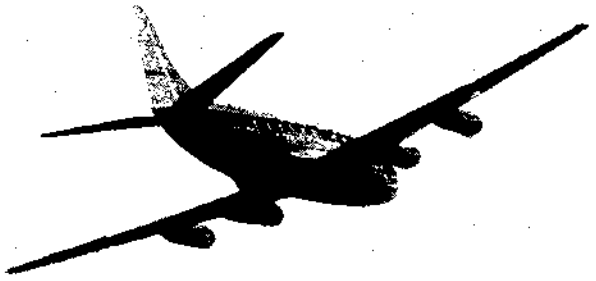


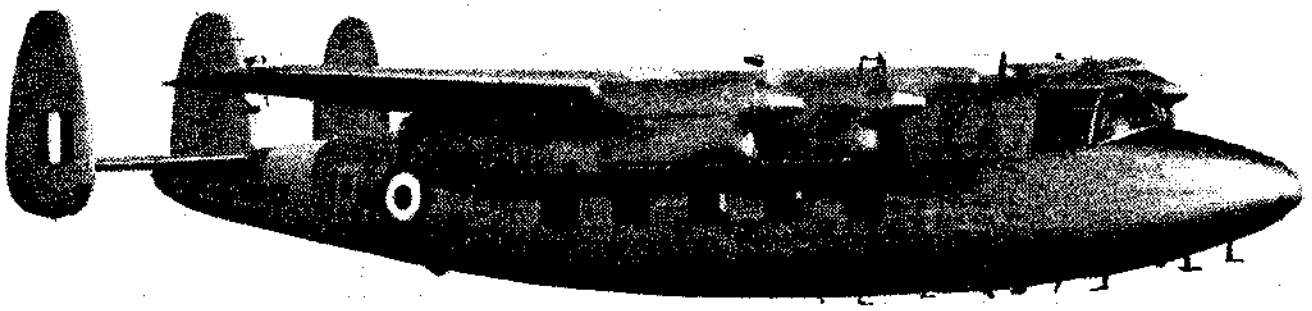


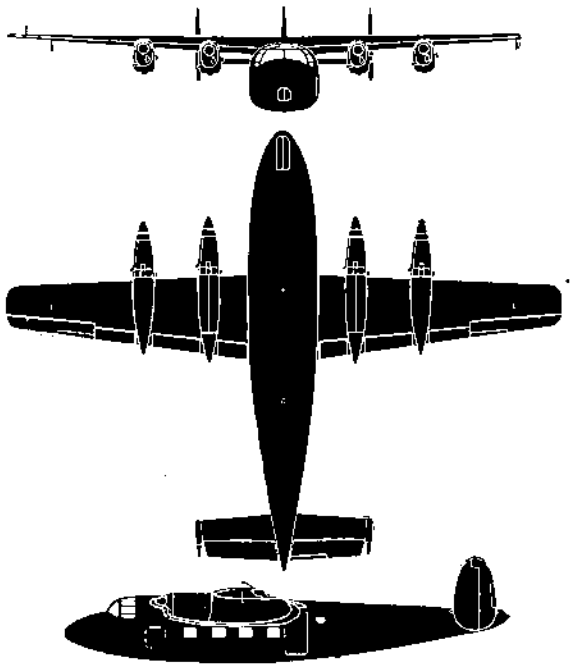


The Viscount is the first turboprop transport to be flown by a scheduled airline. This four-engined transport is a development of the Viking with similar wing and fuselage construction. A number of versions have been built and others are planned. The type 700, illustrated on these pages, is a development of the type 630 with a lengthened fuselage and increased wing span. It will accommodate 40 to 48 passengers. A slightly modified version, the 701, is in production for the British European Airways. The following, differing in cabin layout, are being produced; Britain 702, Ireland 707, France 708, Australia 720, Canada 724. An elongated version, the type 800, is scheduled for B. E. A. in the future. In the B. E. A. the Viscount is called the Discovery class. Its weight is 52,500 pounds.

SPAN: 94′0″ **LENGTH: 81′2″**
ENGINE: 4/R. R. Dart 504, turboprop/1,400 s. h. p. plus 365-lb. thrust each.
MAX. SPEED: 290 knots/25,000 ft.
RANGE: 1,300 nautical miles/260 knots.
ARMAMENT: None.

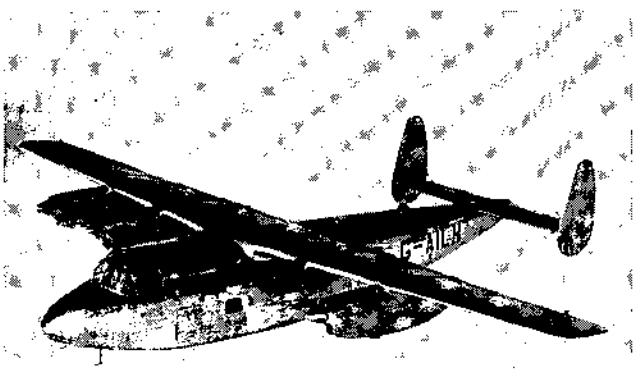


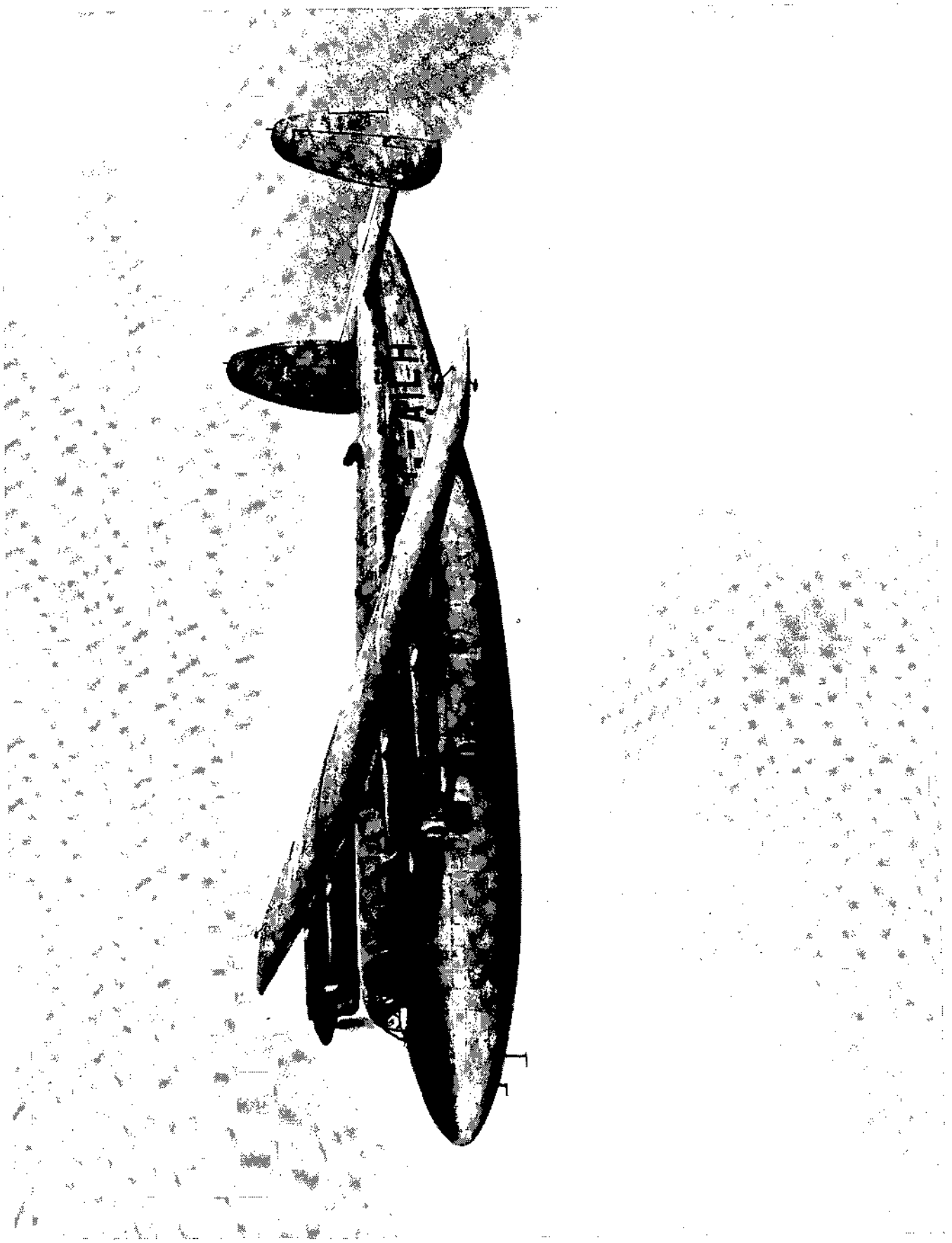


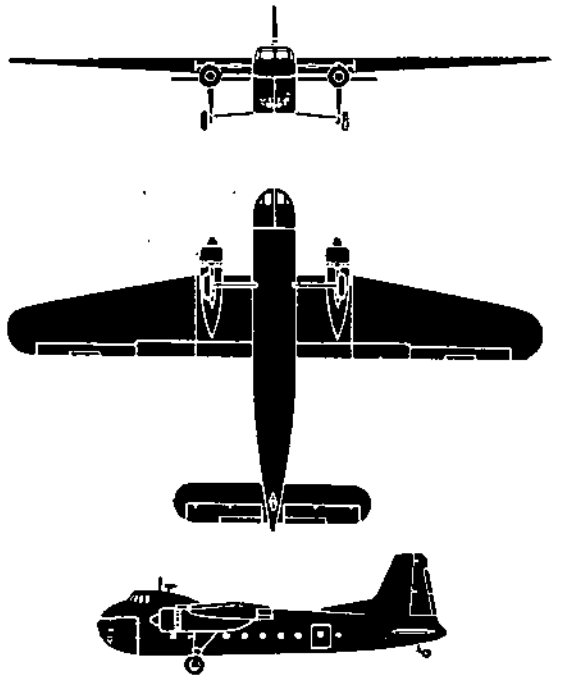


The Marathon is a four-engined high-wing monoplane intended for use as an advanced navigation trainer with the R. A. F. or feeder line transport with airlines. This all-metal aircraft features triple fins with the outside fins and rudders serving as end plates to the horizontal stabilizer. Earlier models had twin-fins. The fuselage is wide and spacious and presents a squarish appearance in cross-section. A retractable tricycle landing gear is employed consisting of dual main wheels. It has a crew of two and can carry 22 passengers as a transport at a take-off weight of 18,000 pounds. A Marathon Mk. 1 made an extensive tour in 1950 flying 40,000 miles between the U. K. and Australia. A prototype Marathon fitted with two turboprop engines has been developed.

SPAN: 65′0″ **LENGTH: 52′1″**
ENGINE: 4/D. H. Gipsy Queen 70, in-line/345 h. p. each.
MAX. SPEED: 200 knots/6,700 ft.
RANGE: 1,200 nautical miles/140 knots.
ARMAMENT: None.

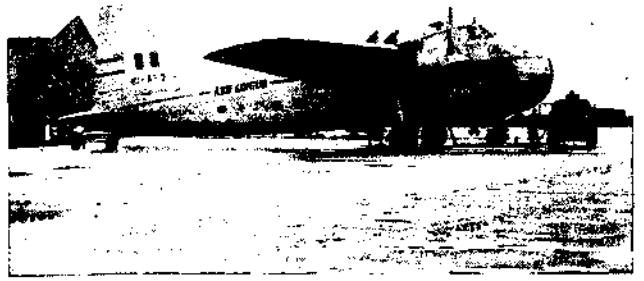


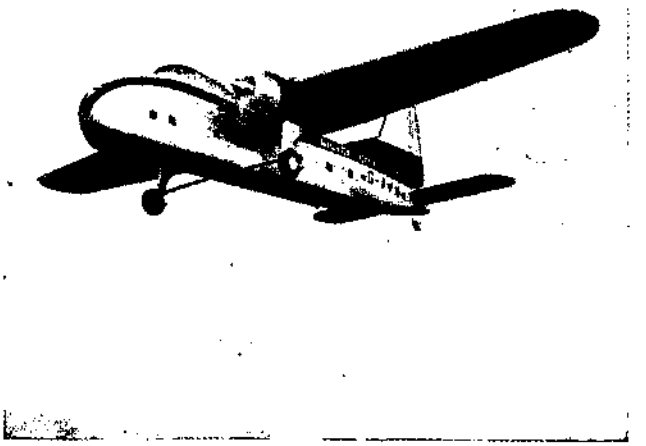


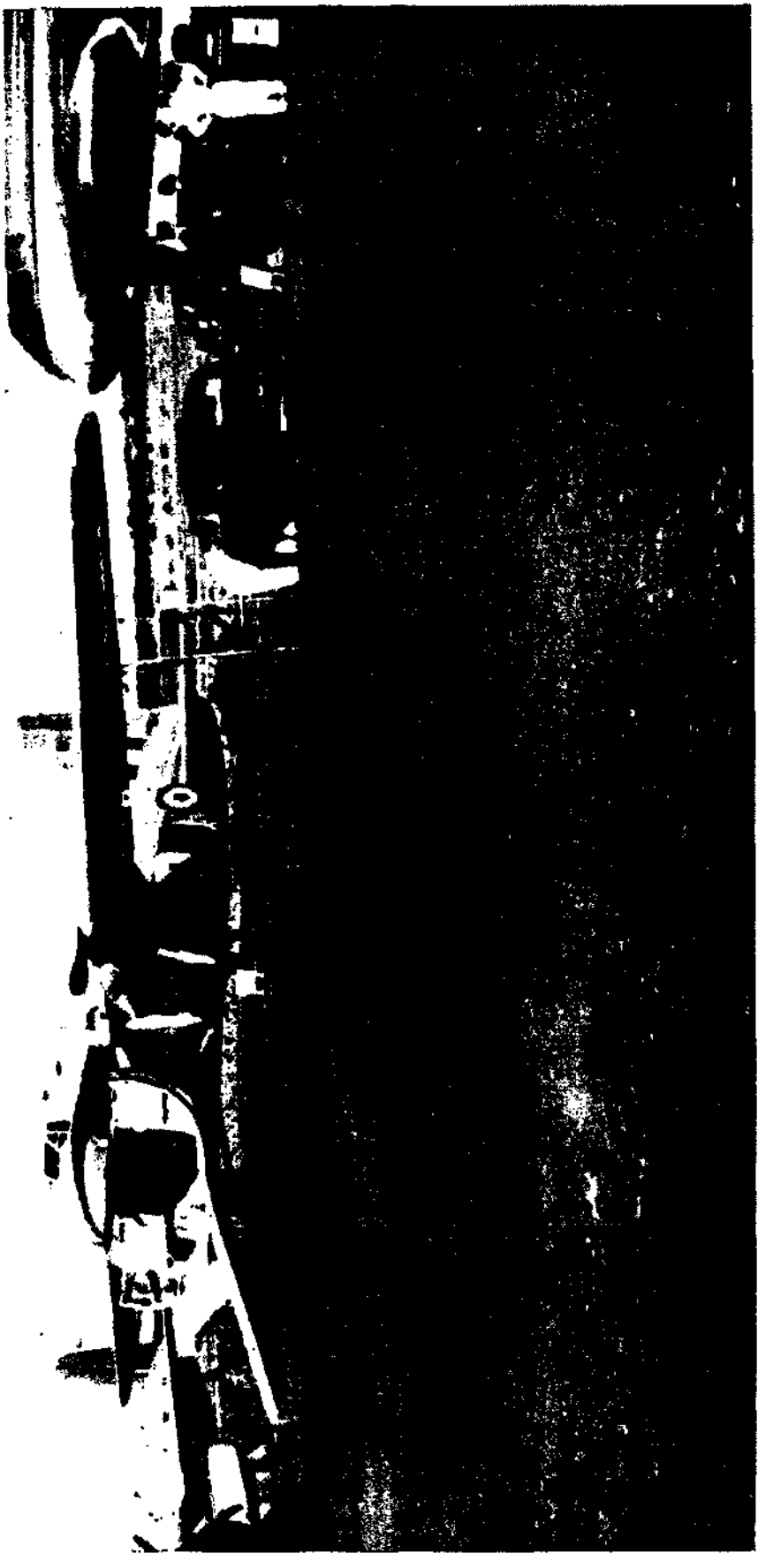


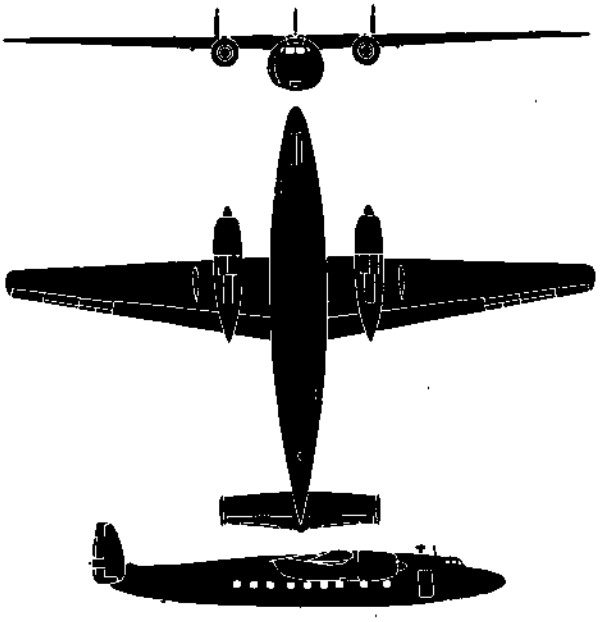
The Bristol Freighter is a high-wing twin-engined cargo passenger aircraft. It is available in many variants ranging between a cargo version with a capacity of 12,000 pounds and a passenger version with accommodations for 36 passengers. The military version can be used as a navigational trainer with equipment for fourteen students and their instructors. This version is in service with British cargo lines, the R. A. F., R. A. A. F., R. C. A. F., R. N. Z. A. F., and the Pakistan Air Force. The Freighter has a bulldog aspect which gives it a distinctive appearance. Differences in versions are apparent; most noticeable are the addition of a dorsal fin to the military version and the squared-off wing tips of earlier version. The aircraft weighs 42,000 pounds fully loaded.

SPAN: 108'0" **LENGTH: 68'4"**
ENGINE: 2/Bristol Hercules 672/1,700 h. p. each.
MAX. SPEED: 200 knots/3,000 ft.
RANGE: 1,235 nautical miles/140 knots.
ARMAMENT: None.



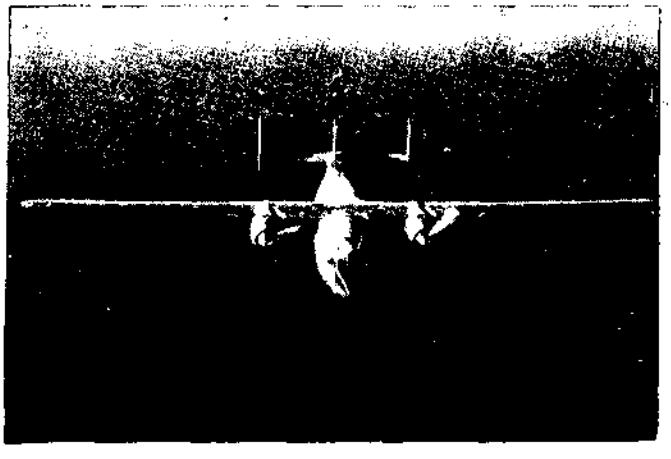


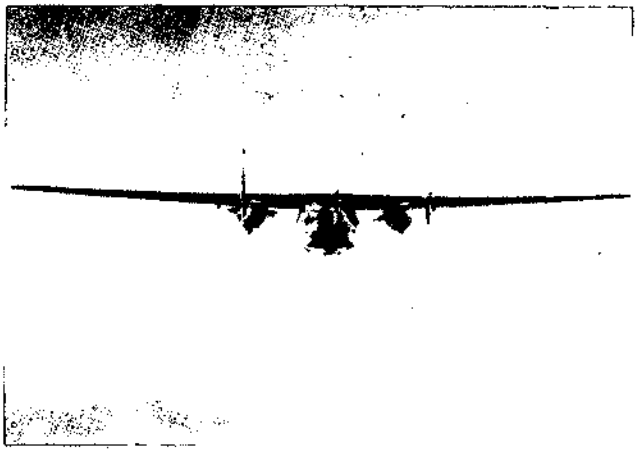




The Ambassador is a twin-engined high-wing monoplane designed as a replacement for the C–47/R4D type transport. A military transport version, the Ayreshire, is designed with a special loading ramp in the rear fuselage. The aircraft is extremely pleasing to the eye with an empennage which is reminiscent of the Constellation's triple fins and rudders. Prototypes of the Ambassador have been flying since 1947. The first pre-production aircraft to B. E. A. flew in 1950. This aircraft has been used for service trials on European routes. Its pressurized all-metal fuselage will accommodate as many as 49 passengers. The landing gear is a retractable tricycle type with each main unit consisting of twin wheels. Weight loaded is 52,000 pounds.

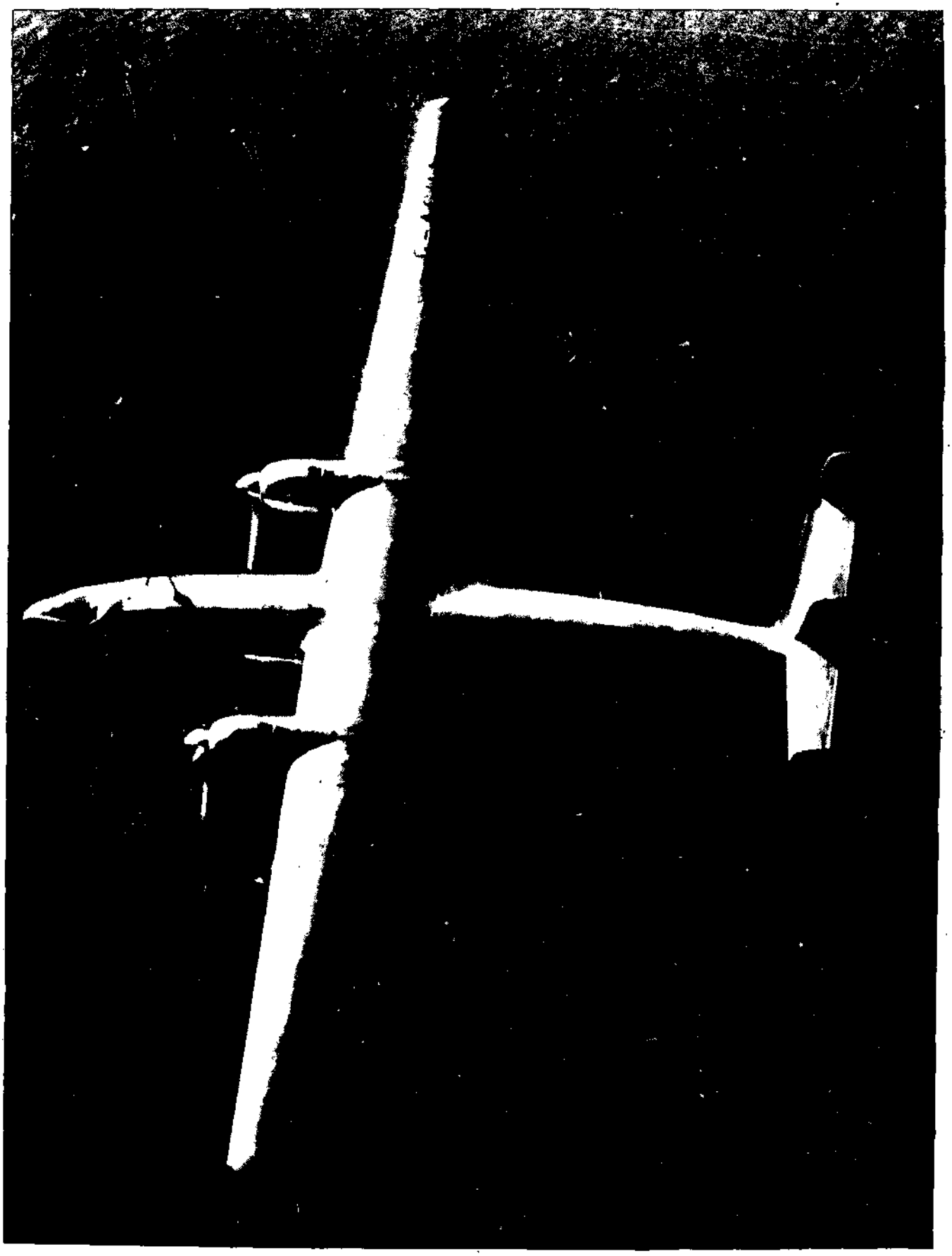
SPAN: 115'0". LENGTH: 81'4".
ENGINE: 2/Bristol Centaurus 661/2,700 h. p.
MAX. SPEED: 300 knots/20,000 ft.
RANGE: 1,700 nautical miles/190 knots.
ARMAMENT: None.





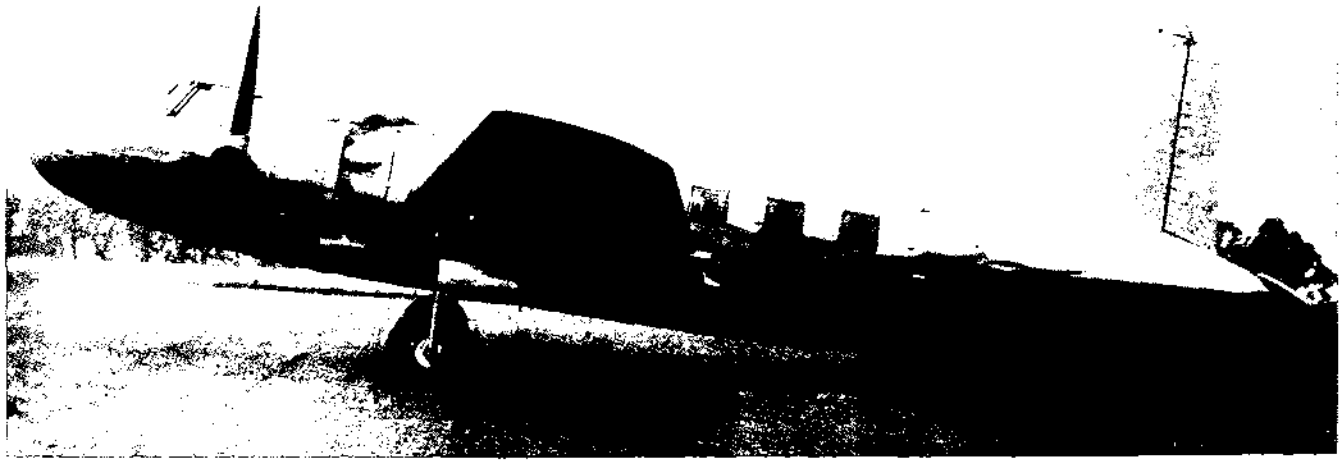
955047 O—51——7

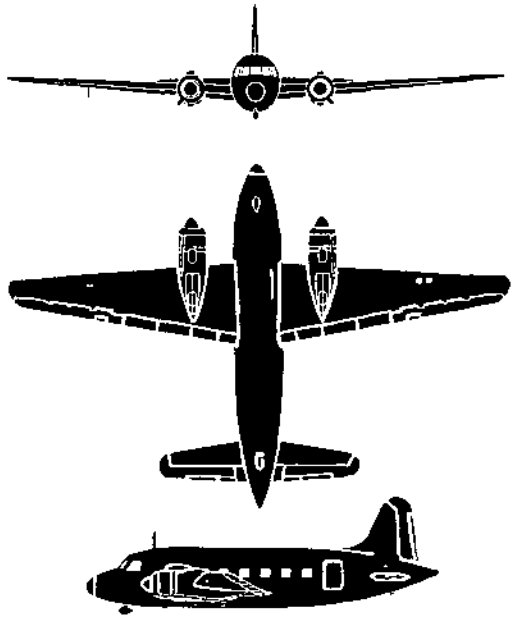
AIRSPEED AMBASSADOR



G.B.
SUPPLEMENT NO. 2
JUNE 1951

FM 30–30
OPNAV 32P–1200/2
AFM 50–408





The Valetta is to be the RAF's standard medium range transport. It is a twin-engine, low-mid-wing monoplane fitted with a single fin and rudder and retractable coventional landing gear. The wings taper on leading and trailing edges to rounded tips. It has a rather thick cigar-shaped fuselage and differs from the Viking in minor respects only. The main differences are an enlarged main door, reinforced floor, and increased size of the crew compartment to accommodate a navigator as the fourth crew member. It may carry a freight load of 8,000 pounds or 36 troops.

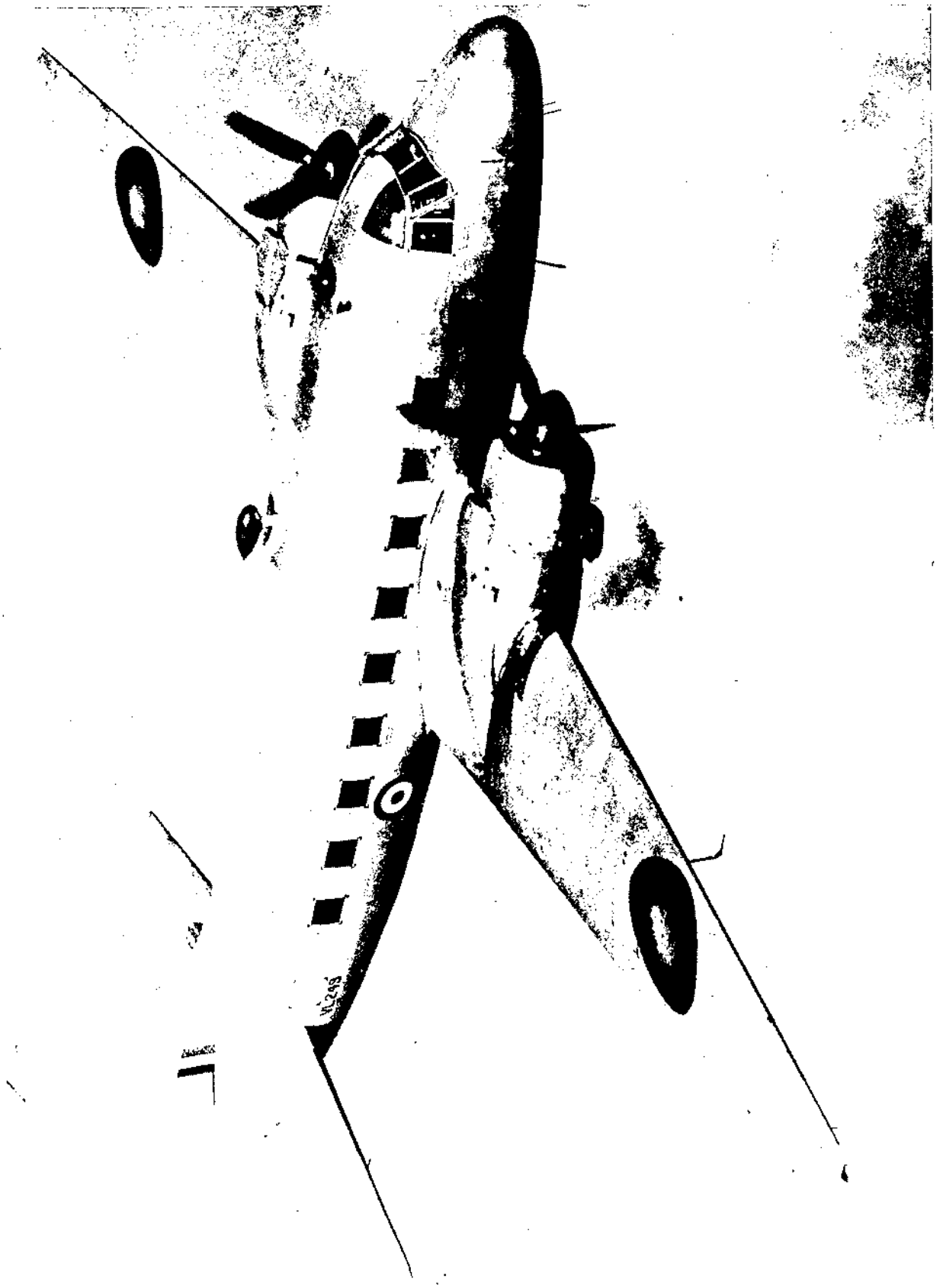
SPAN: 89'3". **LENGTH:** 62'10".

ENGINE: Hercules 230; radial/2,000 h. p.

SPEED: 280 knots/8,000 ft.

RANGE: 1,380 nautical miles/150 knots.

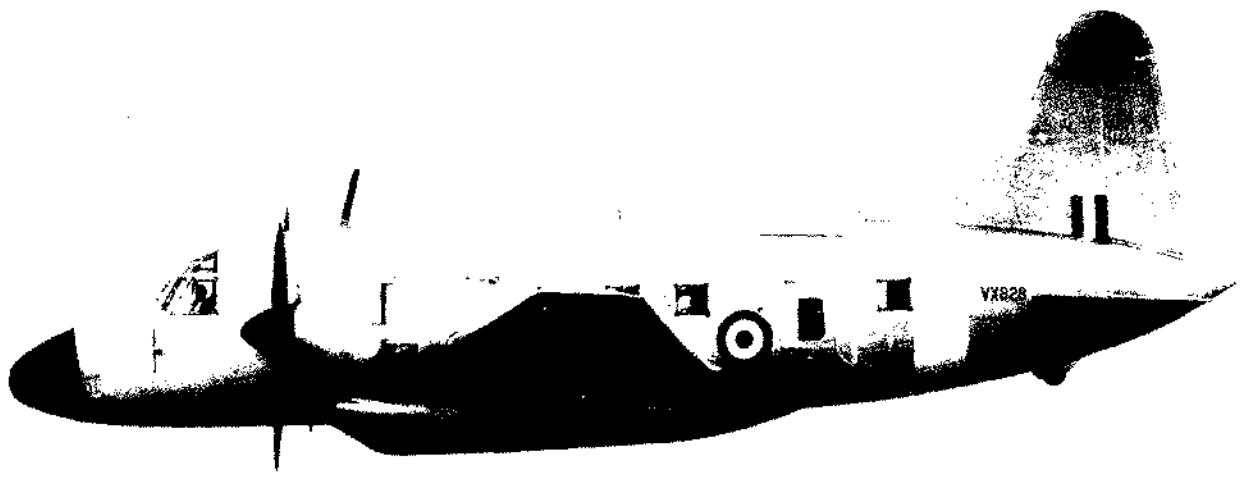
ARMAMENT: None.

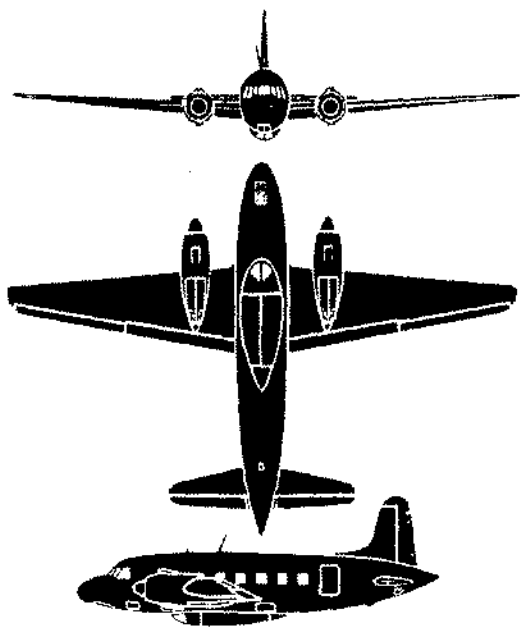


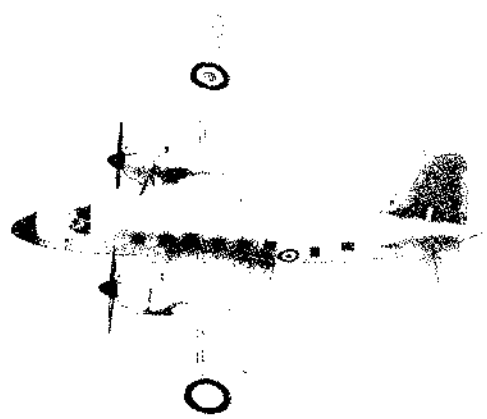
VICKERS-ARMSTRONGS

RESTRICTED

VARSITY AIRCREW TRAINER

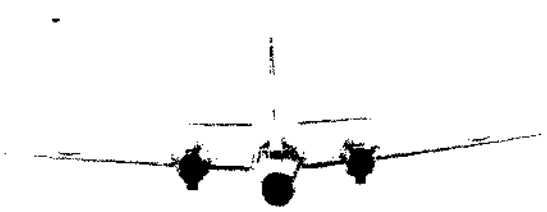






The Varsity T. Mk. 1, a development of the Viking Valetta, is a general purpose aircrew trainer. Although retaining the same general characteristic as the Valetta, the Varsity has a tricycle steerable nose-wheel landing gear, necessitating a slightly longer forward fuselage section. All three units of the landing gear have twin wheels. The wing of the Varsity is slightly larger than the Valetta's. An unusual feature of the Varsity is an underslung bomb bay, in the form of a pannier fitting against the underside of the fuselage. A bomb-aimer's window is situated in the forward end. This pannier appears to be detachable suggesting that it could be removed when the aircraft is not being used as a bomb-aimer trainer.

SPAN: 94′11″. **LENGTH: 67′6″.**
ENGINE: 2 Bristol Hercules Radial/2,000 h. p. each.
SPEED: 280 knots/8,000 ft.
RANGE: 1,380 nautical miles/150 knots.
ARMAMENT: Bomb bay.

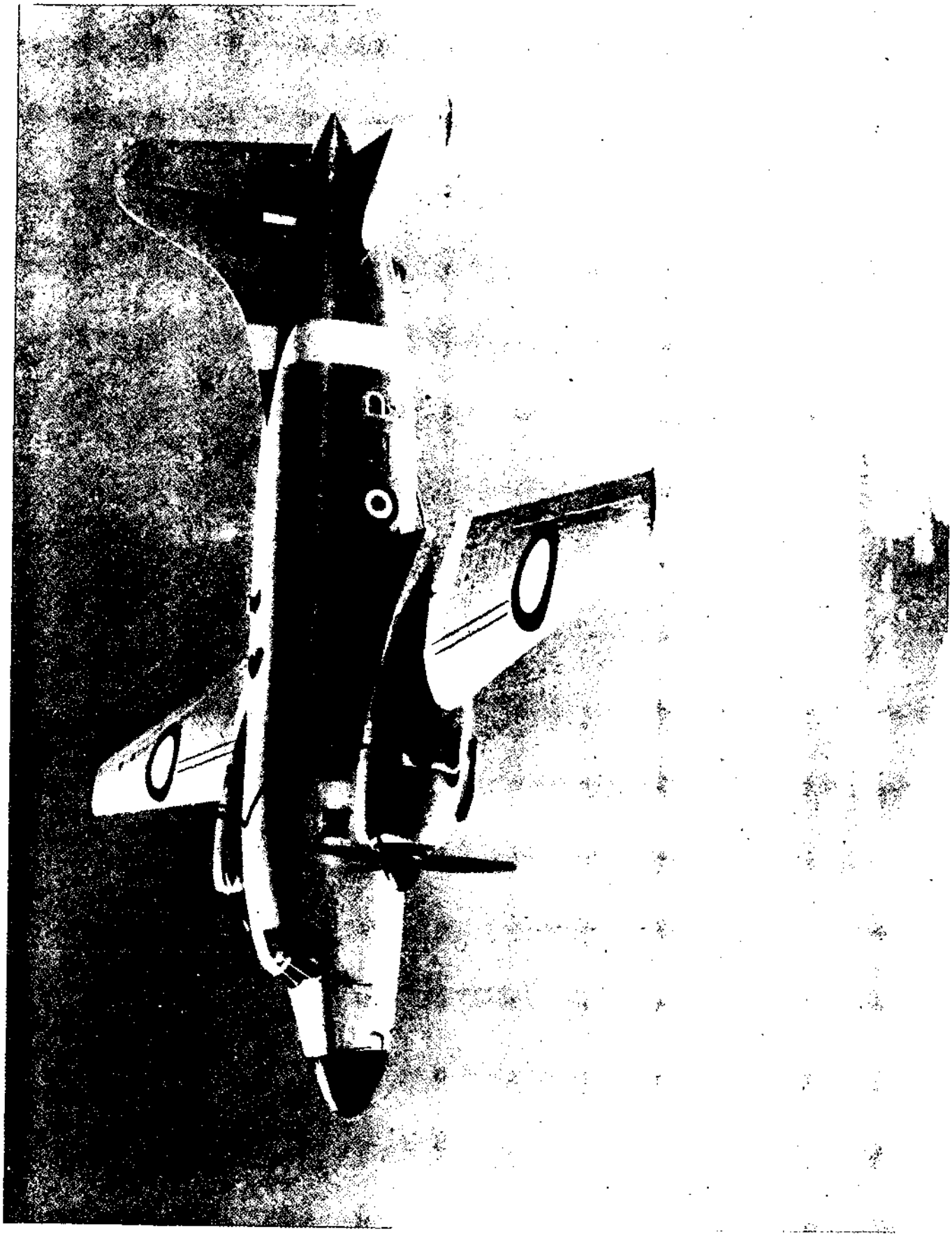


G.B.
JUNE 1950

FM 30-30
OPNAV 32P-1200
AFM 50-40A

VICKERS-ARMSTRONGS

VARSITY AIRCREW TRAINER

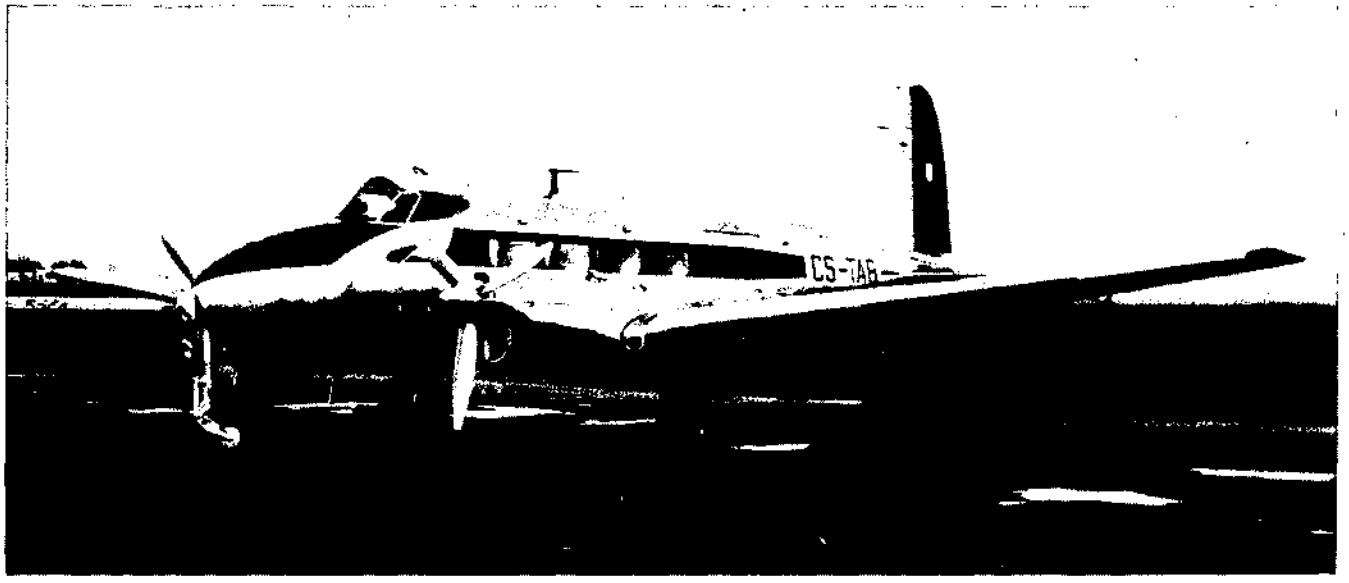


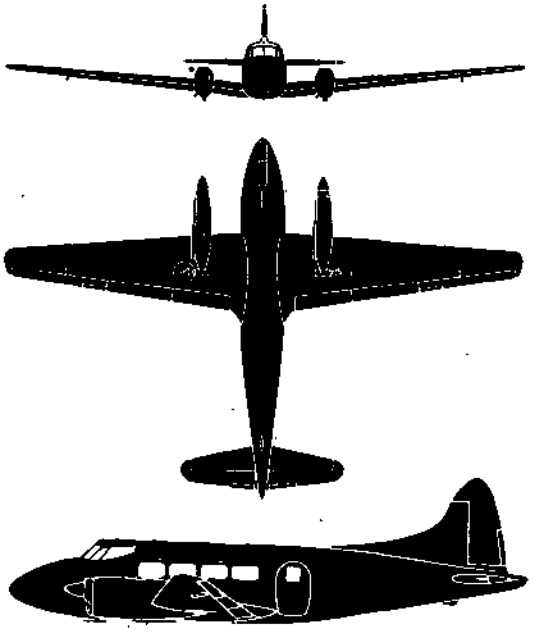
G.B.
JUNE 1950

FM 30-30
OPNAV 32P-1200
AFM 50-40A

DE HAVILLAND

D. H. 104 DOVE





The Dove, D.H. 104, is a twin-engine, low-wing transport. In-line engines are fitted with the nacelles extending well beyond the leading edge of the wing. The wings taper on leading and trailing edge to very short chord well rounded tips. A single tail is fitted with a large dorsal fin. It has a retractable tricycle landing gear. A cargo of 1,975 pounds or 11 passengers can be carried. A military version of the Dove is the Devon which is used for communications duties within the RAF and for the use of British Air Attache's abroad.

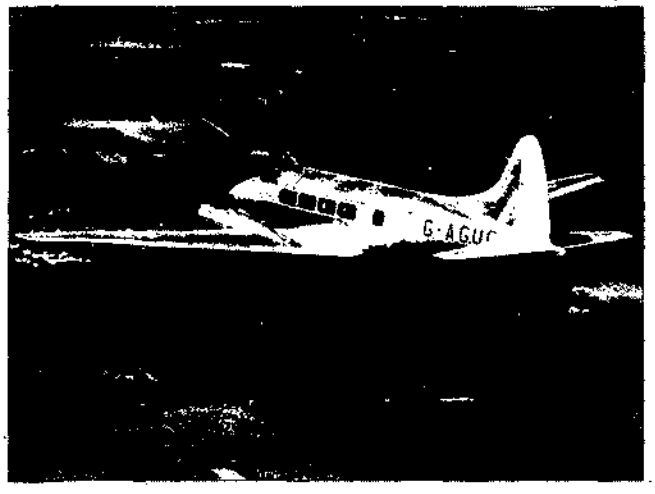
SPAN: 57'0". **LENGTH:** 39'4".

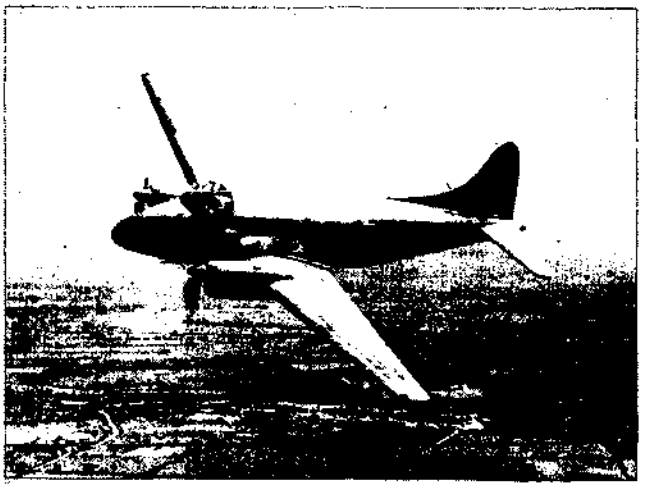
ENGINE: Gipsy Queen 71; in-line/330 h. p.

SPEED: 193 knots/5,800 ft.

RANGE: 1,300 nautical miles/139 knots.

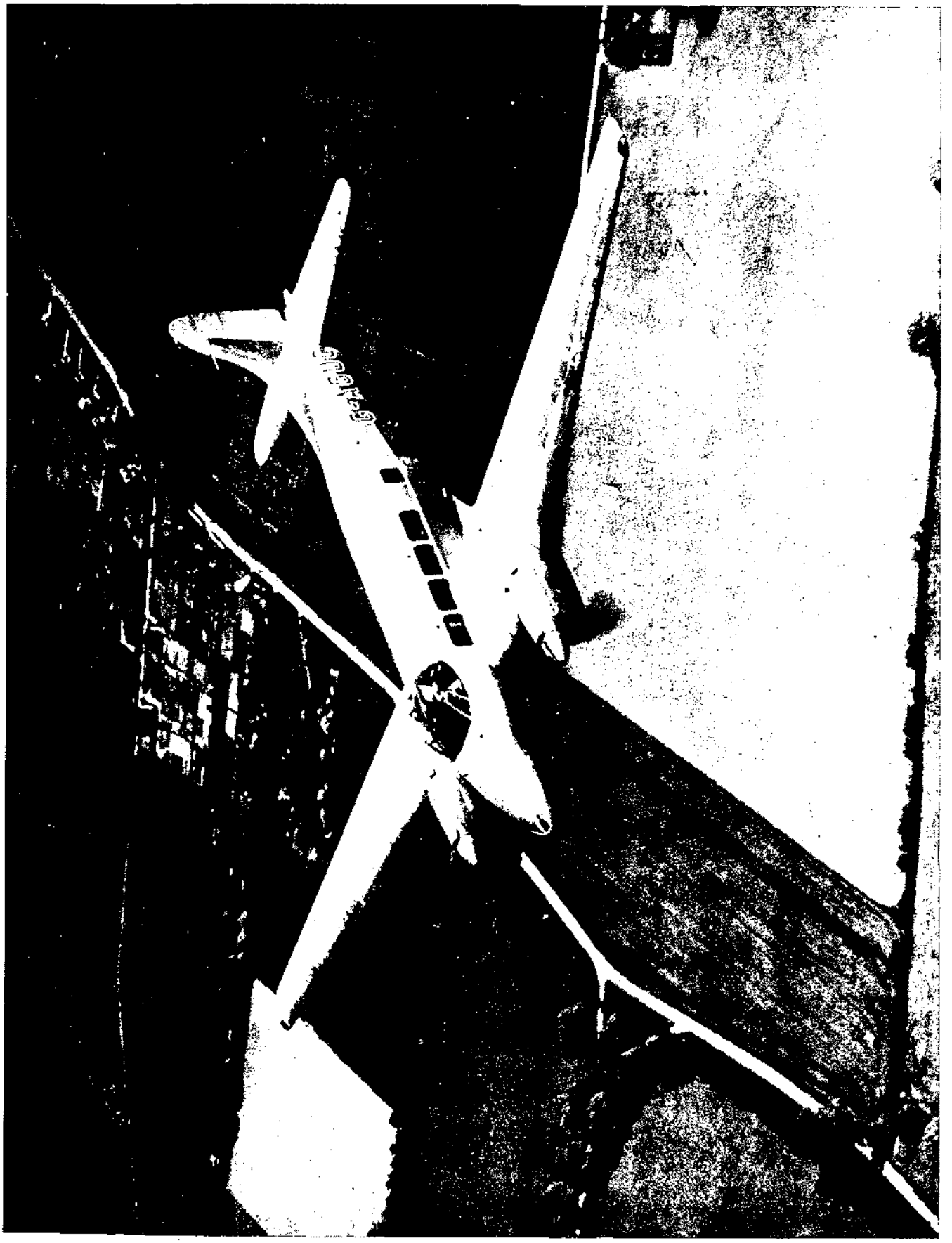
ARMAMENT: None.



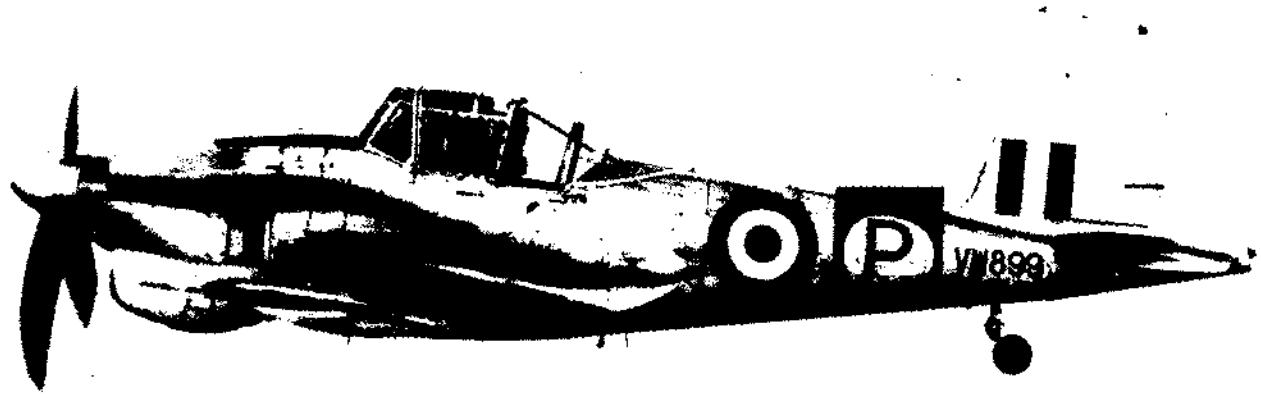


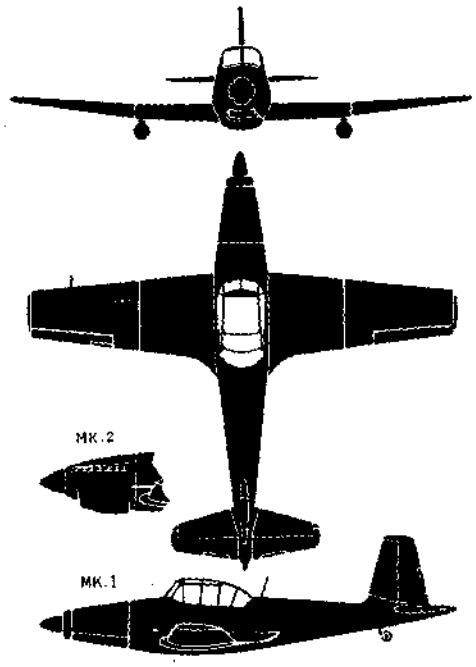
G.B.
MAY 1949

AFM 50-40
OPNAV 32P-1200



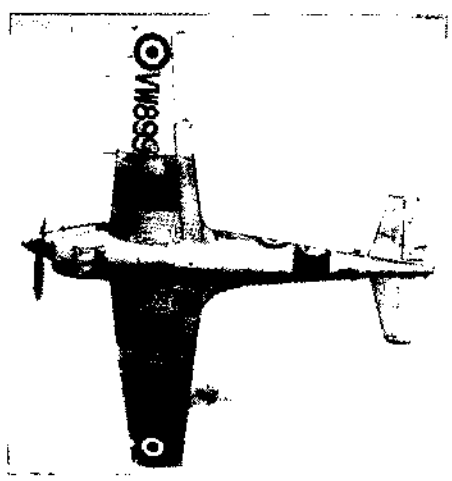
BOULTON PAUL **RESTRICTED** **BALLIOL T. MK. 2**

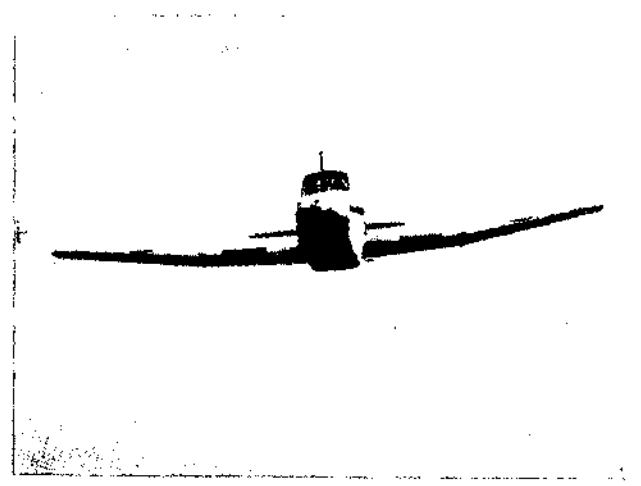




The Balliol is a low-wing all-purpose two/three seat advanced trainer. The first flight was made by the Mk. 1 turboprop powered version on 24 March 1948. Another version the Mk. 2 is powered by a reciprocating engine. Except for the differences in the engine installations, the two marks are the same in all essentials. The seating arrangement is side-by-side for instructor and pupil with full dual control. A third seat is in the rear of the cockpit for observer or navigator. The wings have dihedral in the outer panels and are tapered on the leading edge and trailing edge to blunt tips. A tall fin and rudder with a dorsal fairing is located half on and forward of the stabilizer. The after end of the fuselage tapers to a sharp point.

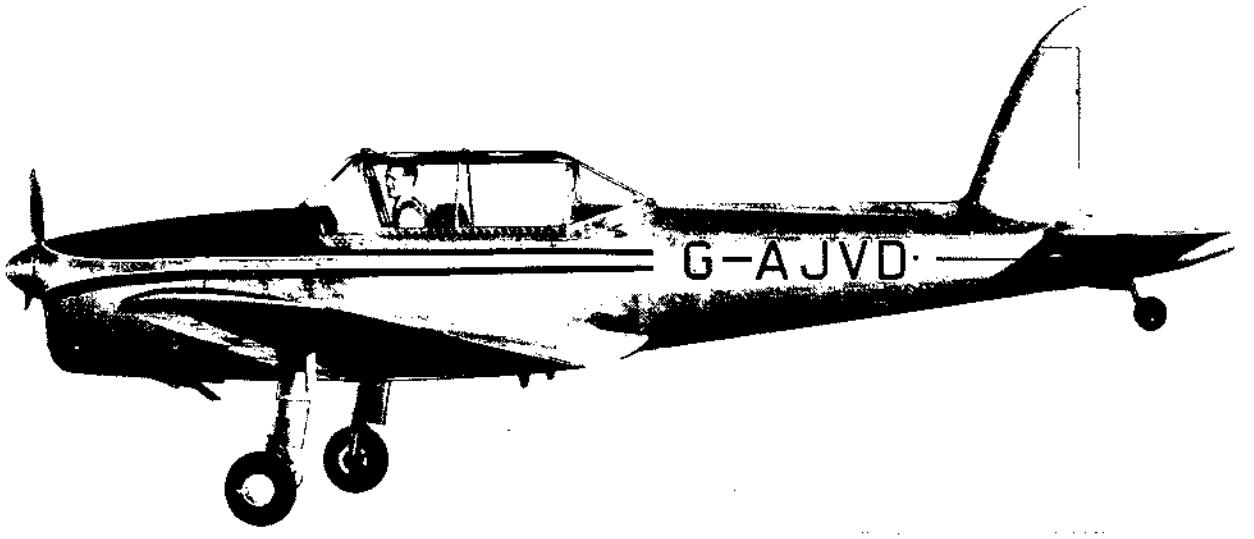
SPAN: 39'4''. **LENGTH: 35'2''.**
ENGINE: Merlin 35; Vee in-line/1,245 h. p.
SPEED: 265 knots/11,500 ft.
RANGE: 460 nautical miles/215 knots.
ARMAMENT: None.

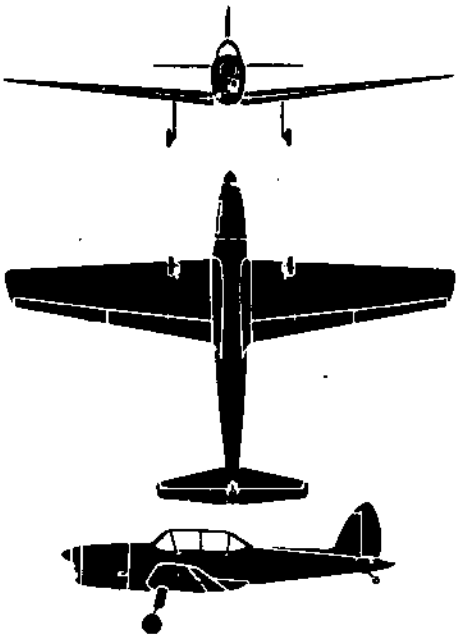




G.B.
JUNE 1950

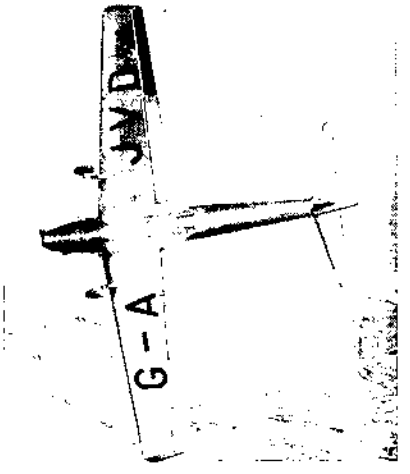
FM 30-30
OPNAV 32P-1200
AFM 50-40A

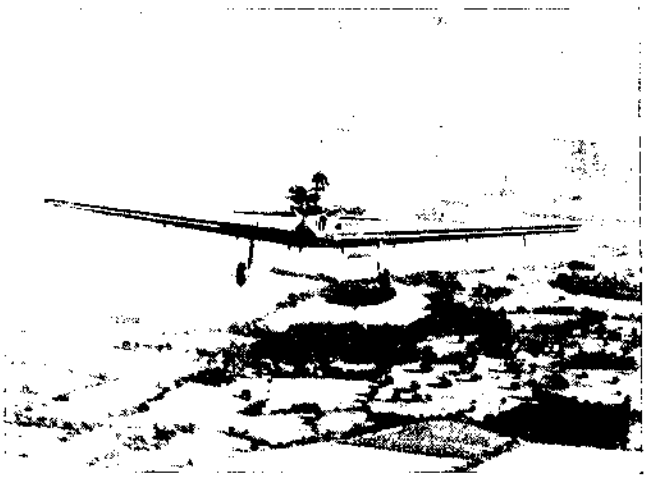




The Chipmunk DHC–1 is a low-wing, two-seat trainer. Designed and built by the Canadian subsidiary branch of de Havilland, the Chipmunk is also in production in England where it has been adopted as the standard trainer for the RAF Volunteer Reserve. This all-metal light trainer has a large tapering wing with raked wing tips. The graceful fin and rudder are typical de Havilland with the fin set just forward of the tapered stabilizer. Cockpit arrangement is in tandem with a removable canopy, portions of which slide for access; dual controls are provided. A fixed two-wheel type landing gear is fitted. The Chipmunk at this writing was in use by six air forces of the world.

SPAN: 34′4″. **LENGTH: 25′5″.**
ENGINE: D. H. Gipsy Major; in-line/145 h. p.
SPEED: 122 knots/sea level.
RANGE: 400 nautical miles/110 knots.
ARMAMENT: None.



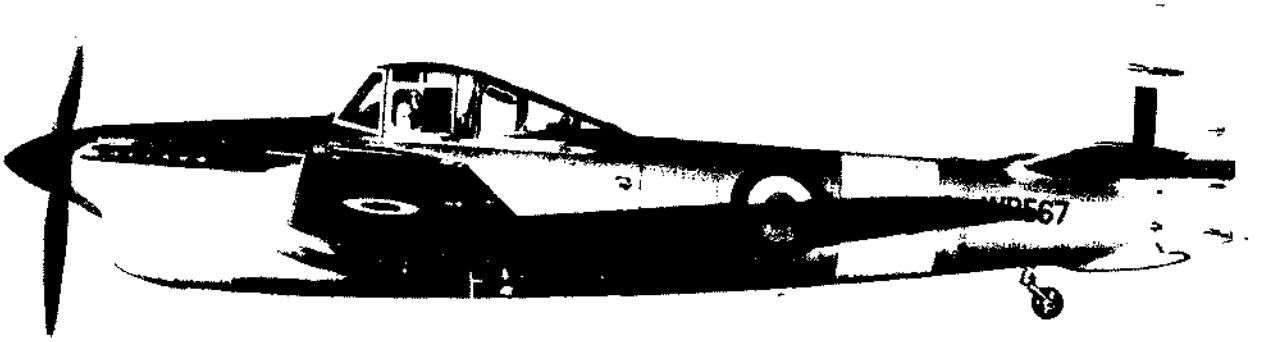


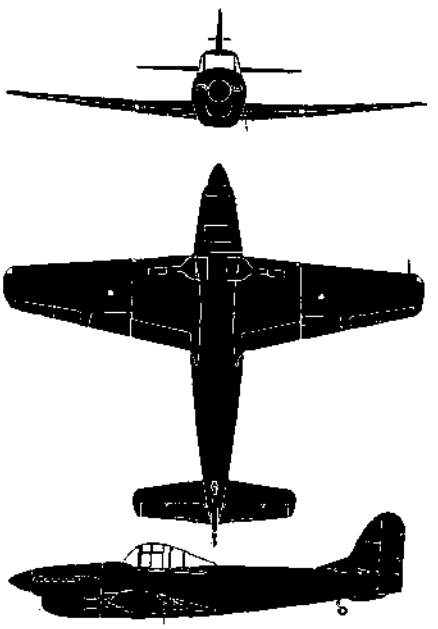
DE HAVILLAND

DHC-1 CHIPMUNK

G.B.
JUNE 1950

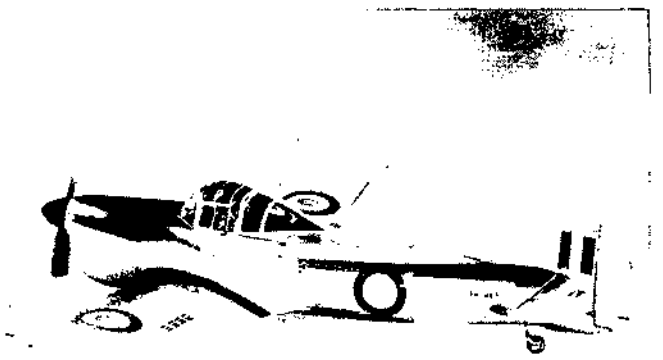
FM 30-30
OPNAV 32P-1200
AFM 50-40A

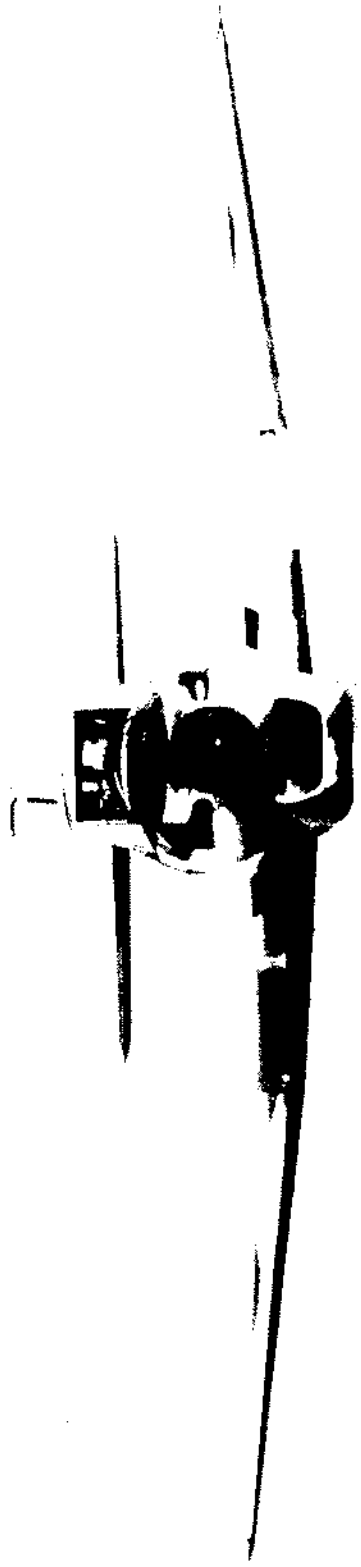




The Athena is a low-wing trainer for advanced flying training, day and night navigation, gunnery, bombing and photography. It is also equipped to serve as a glider-tug. The student pilot and the instructor are seated side by side beneath a sliding canopy. To meet modern requirements, the original specification T. Mk. 1 called for the installation of a turboprop engine, but owing to the lack of a quantity of these engines, modifications were made and reciprocating engines were installed. This version was designated Athena T. Mk. 2. The wing of the Mk. 2 is set forward to maintain balance. In the Mk. 1, the jet exhaust pipe passes through the fuselage and terminates on the starboard side of the fuselage midway between the wing and tail unit.

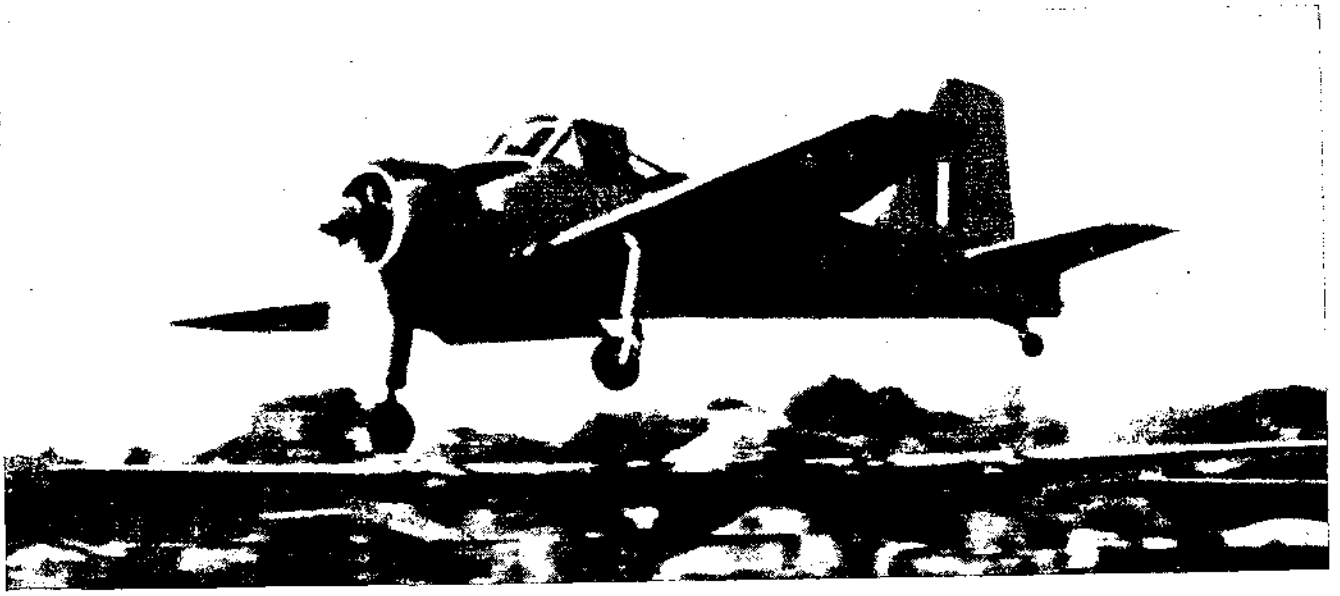
SPAN: 40′0″. LENGTH: 36′6″.
ENGINE: Merlin 35; Vee in line/1,245 h. p.
SPEED: 265 knots/11,500 ft.
RANGE: 460 nautical miles/183 knots.
ARMAMENT: None.

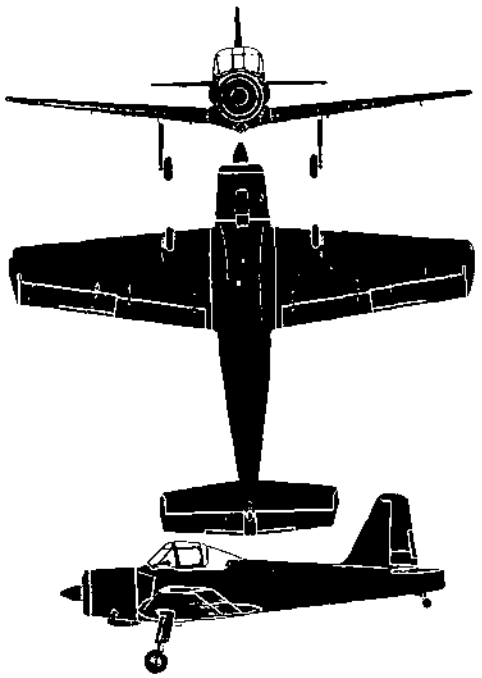




G.B.
JUNE 1950

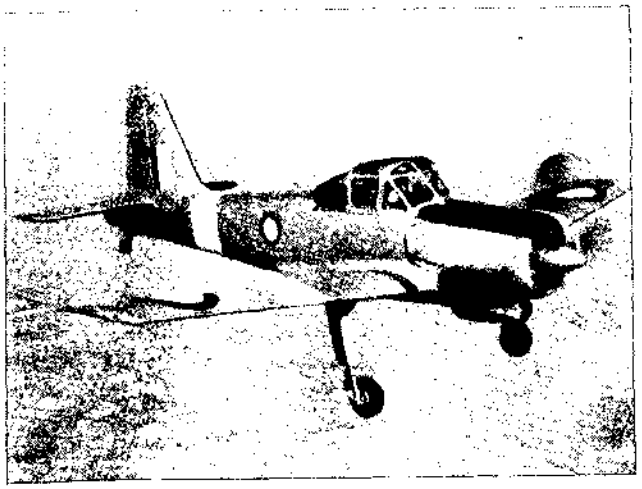
FM 30-30
OPNAV 32P-1200
AFM 50-40A

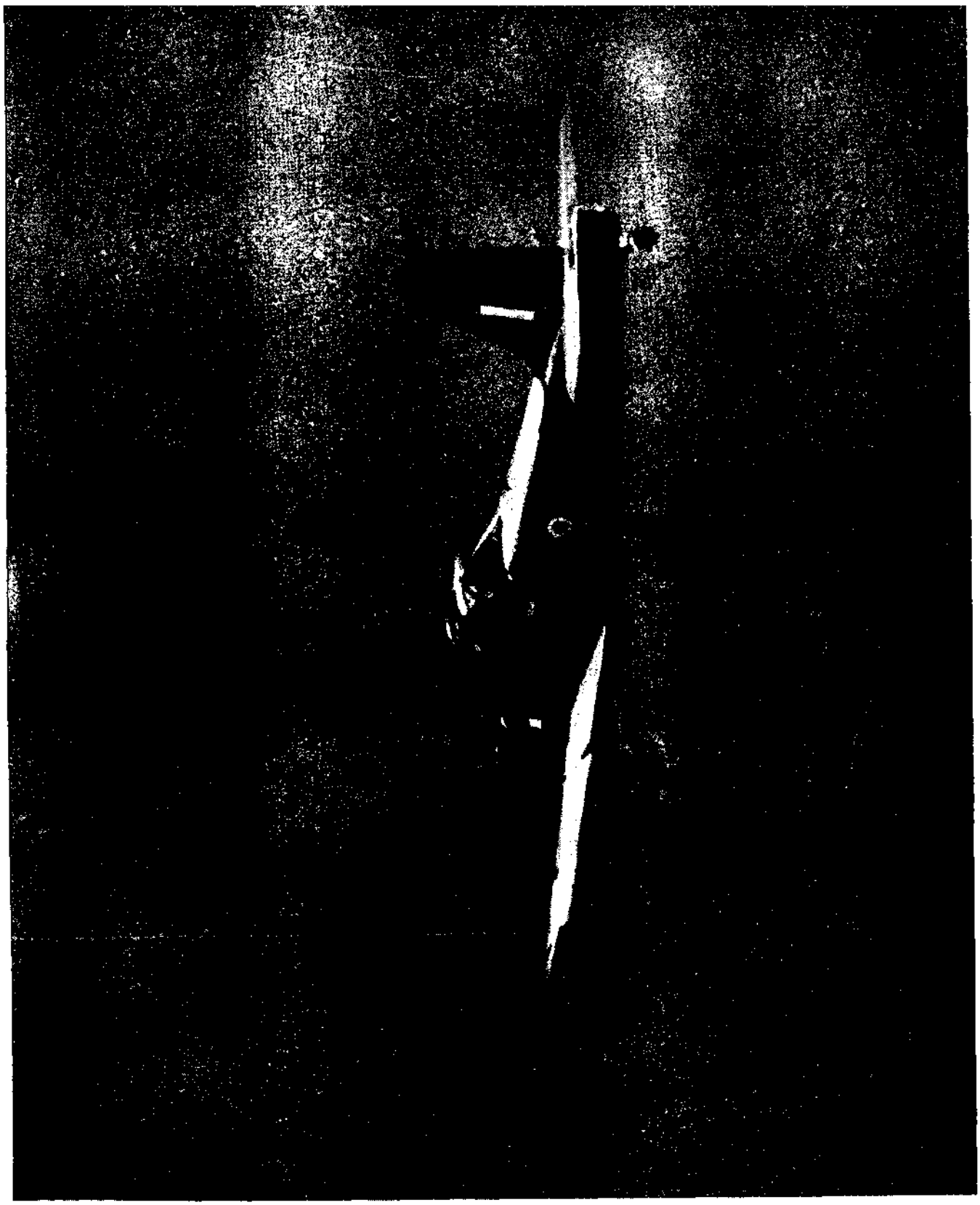


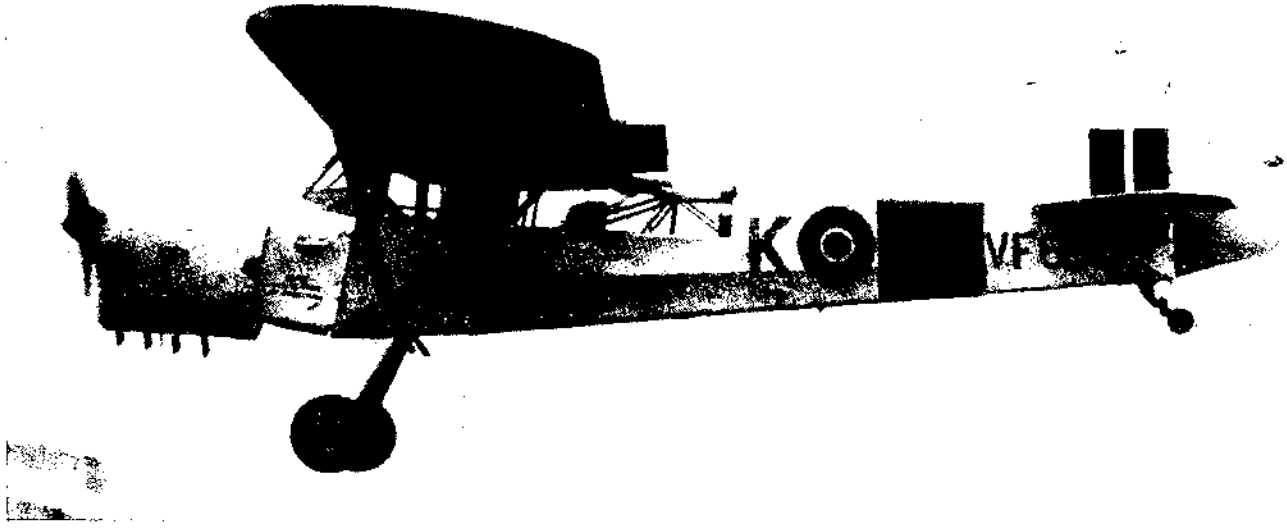


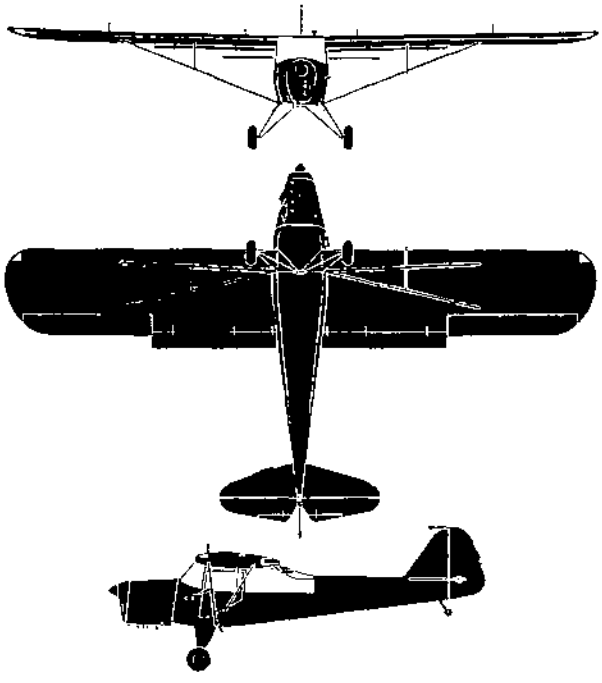
The Provost, first known as the P.56, is a side-by-side trainer designed for the RAF. It is fully aerobotic, has a maximum endurance of almost five hours and has been designed with special regard to easy maintenance and servicing. The Provost has a fixed landing gear and pneumatically operated flaps are fitted. It has amber screens for blind flying, full blind flying panel and 12 channel V. H. F. Handling reports describe the aircraft as pleasant and easy to fly. A feature of the Provost is its control response. Its rate of roll and handling qualities are reminiscent of a fighter. At 220 knots, it completed a full roll to the left in 3.4 seconds. The Provost's take-off weight is 4,250 pounds. This aircraft is in full production.

SPAN: 35′2″ **LENGTH: 29′0″**
ENGINE: Alvis Leonides Mk. 25, radial/500 h. p.
MAX. SPEED: 174 knots-2,500 ft.
RANGE: 550 nautical miles/162 knots.
ARMAMENT: None.



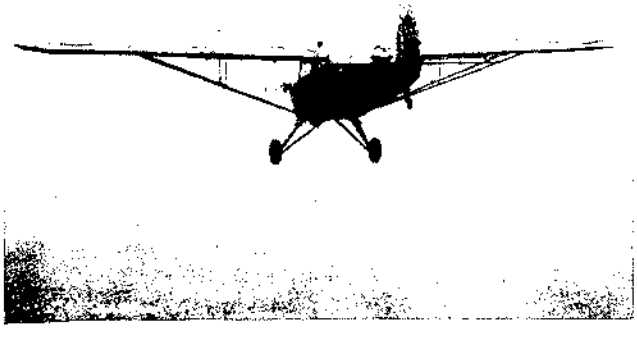


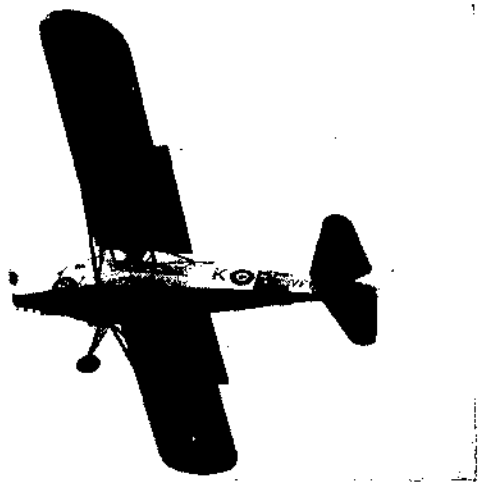


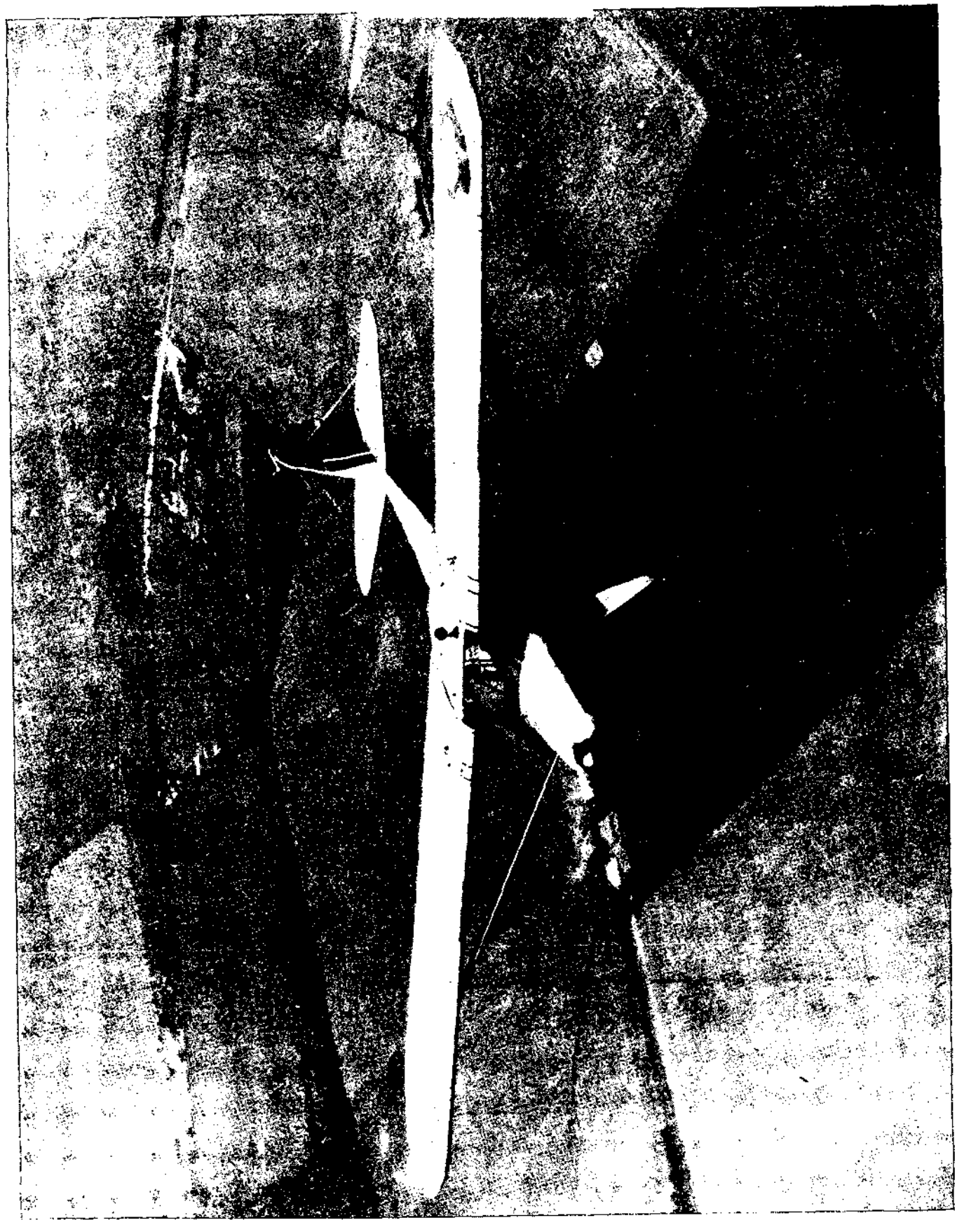


The Auster is a light air observation high-wing monoplane used by the R. A. F. and the British Army. It has appeared in a number of modified versions, and was originally developed from the American Taylorcraft. The Auster firm is a successor to Taylorcraft Aeroplanes, Ltd., which was formed to manufacture the Taylorcraft under license. Welded steel-tube construction with wooden stringers and fabric covering is employed. The strut-braced wing is rectangular in shape with rounded tips and trailing-edge flaps. Rounded tail surfaces are strut-braced. Auster A. O. P. (air observation post) Mk. 6's have been fitted with skis and floats for use in the Antarctic. The take-off weight of the Auster is 1,850 pounds.

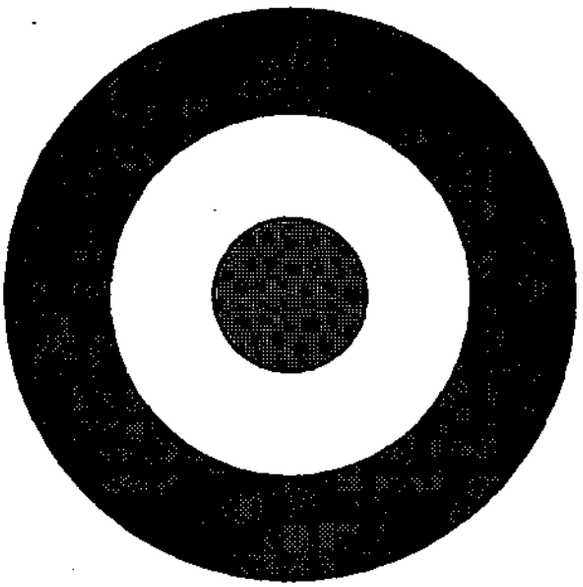
SPAN: 36′ 0″ **LENGTH: 23′ 9″**
ENGINE: (Mk. 6) D. H. Gipsy Major 7/145 h.p.
MAX. SPEED: 110 knots/1,000 ft.
RANGE: 280 nautical miles/85 knots.
ARMAMENT: None.



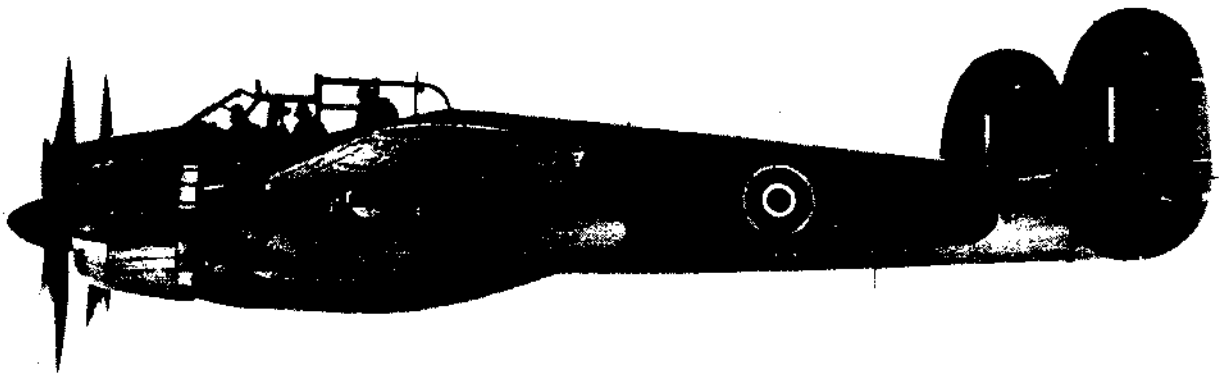


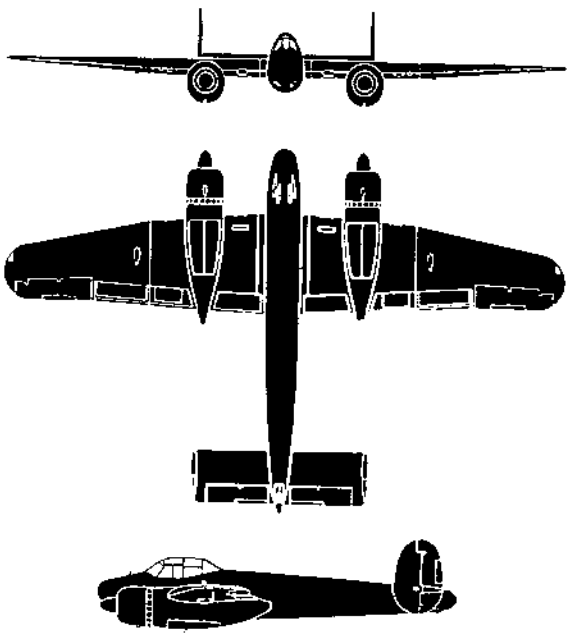


ROYAL NAVY AIRCRAFT



ROYAL NAVY





The Brigand 1 is a three-place, twin-engine, mid-wing monoplane. Radial engines are fitted, with the nacelles underslung. The wing tapers on both leading and trailing edges to well rounded tips. The nose extends just beyond the engine nacelles. Twin elliptical vertical tails are fitted. A conventional retractable landing gear is employed. A maximum bomb load of 2,450 pounds may be carried. The Brigand was designed as a long range attack aircraft capable of fulfilling the duties of a dive bomber, torpedo fighter, mine carrier or day or night fighter.

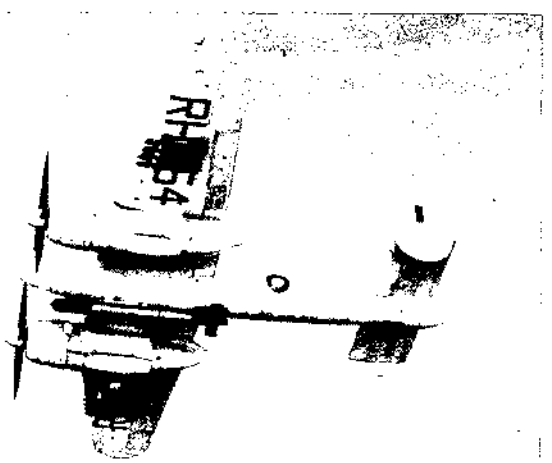
SPAN: 72'4". **LENGTH:** 46'5".

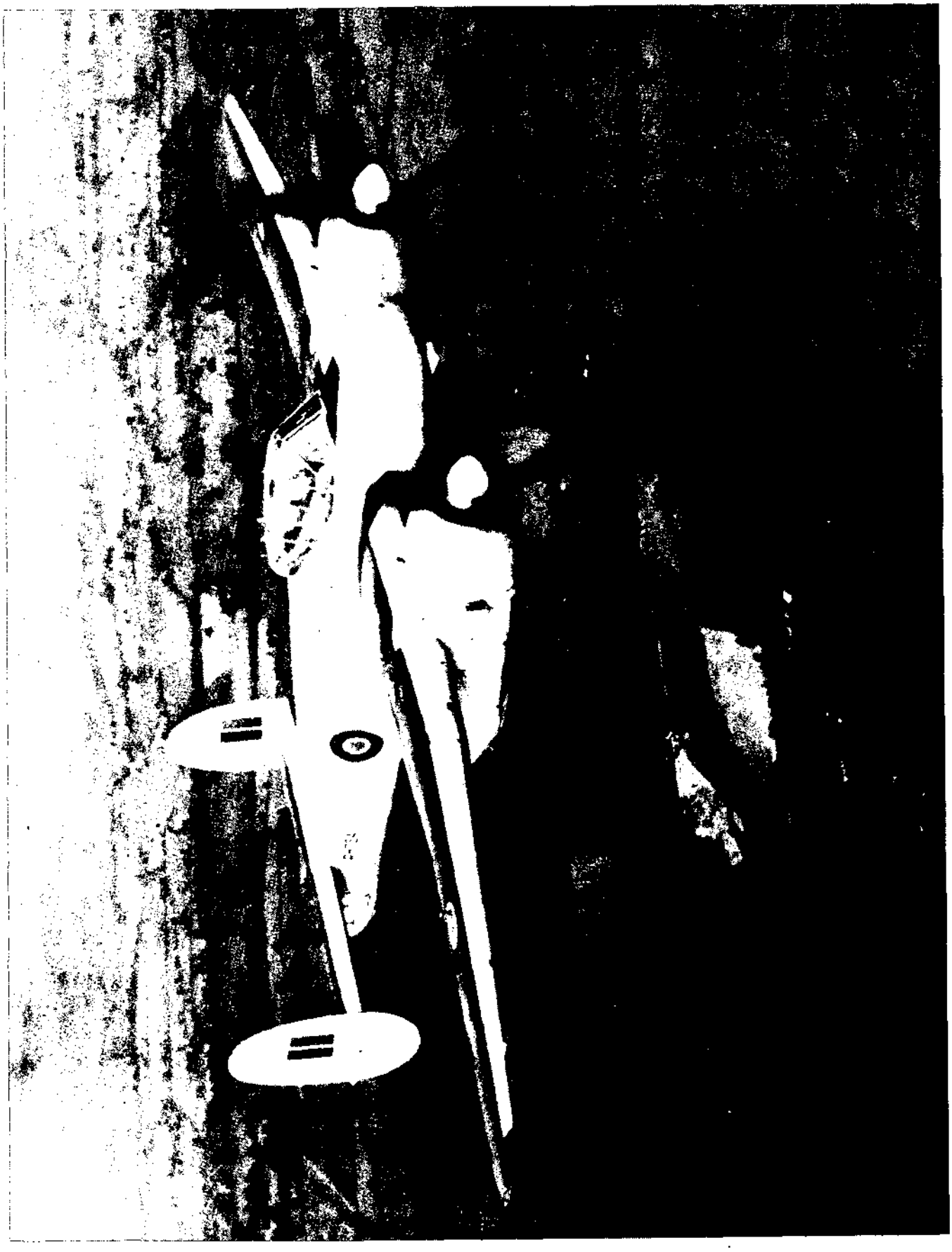
ENGINE: Centaurus 57; radial/2,400 h. p.

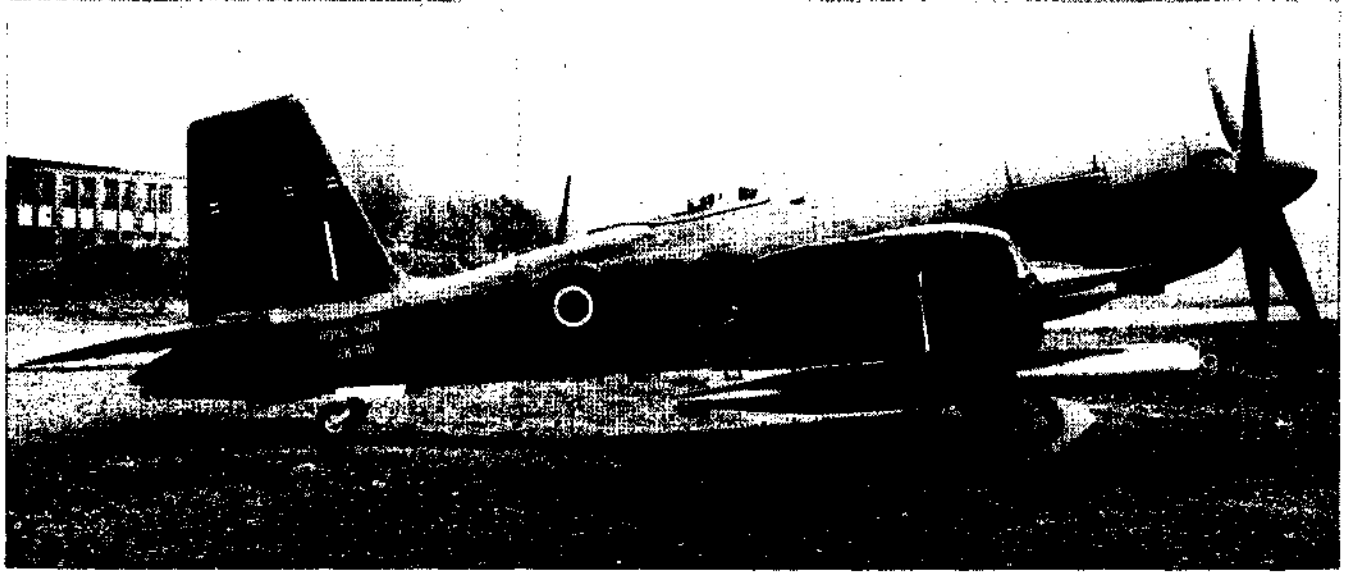
SPEED: 318 knots/12,500 ft.

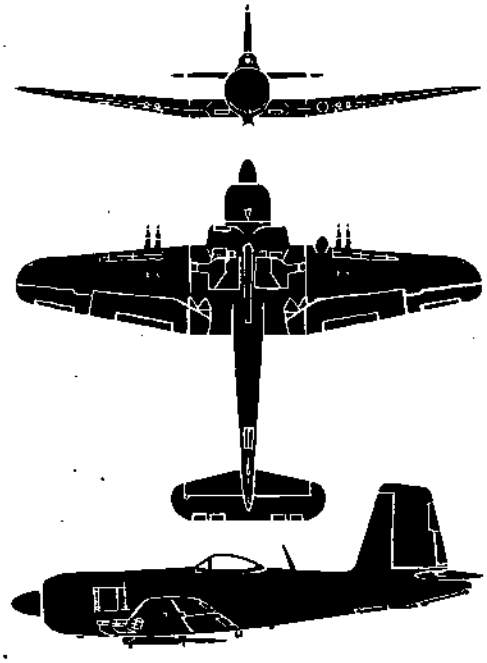
RANGE: 1,910 nautical miles/169 knots.

ARMAMENT: 4 x 20 mm.; 1 x .50 cal.



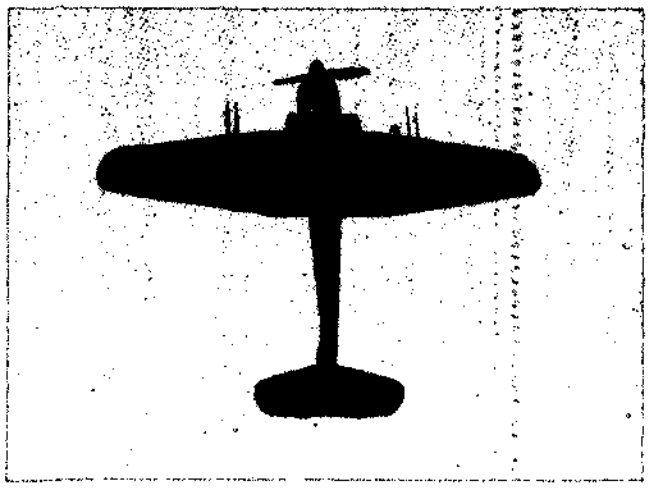


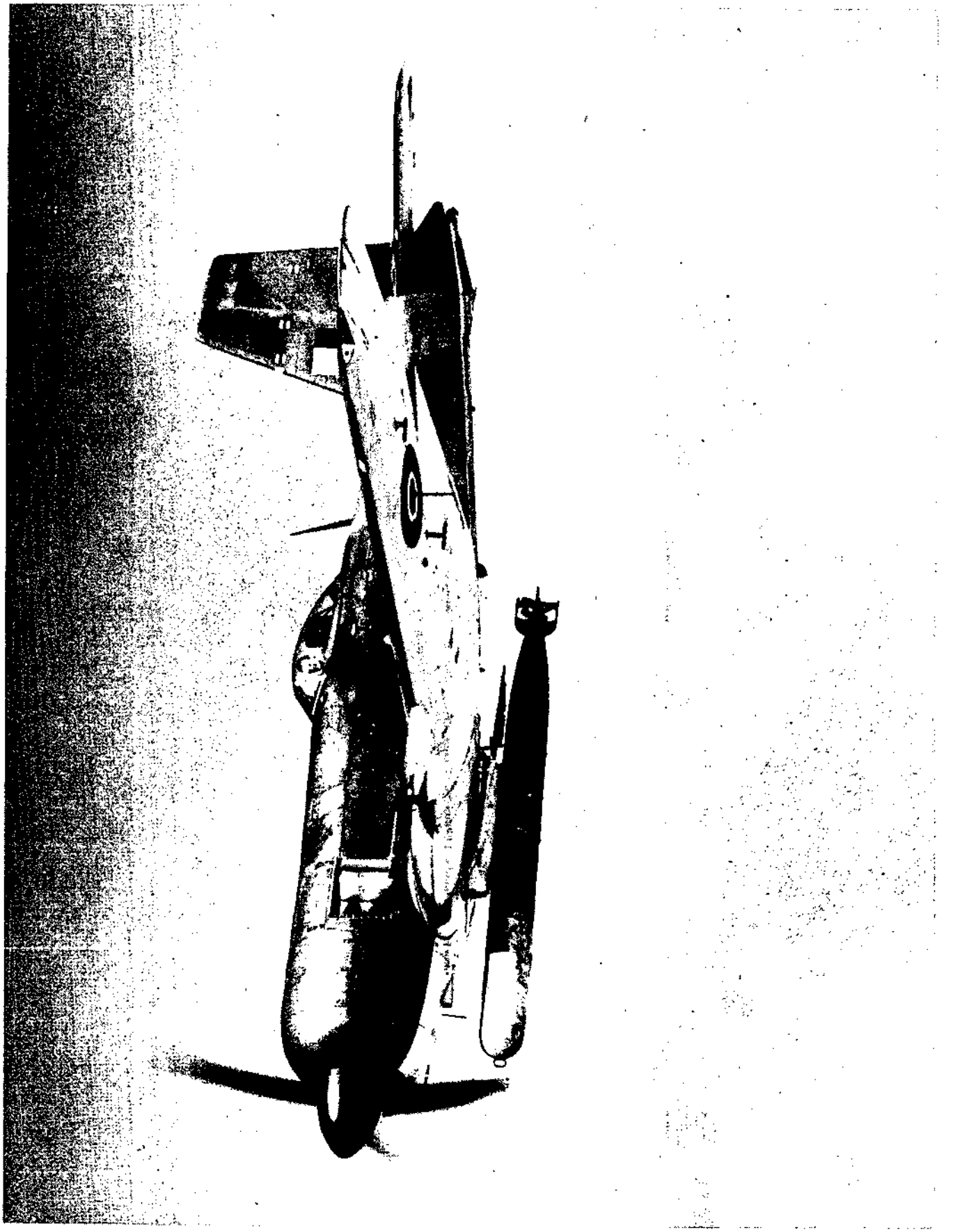


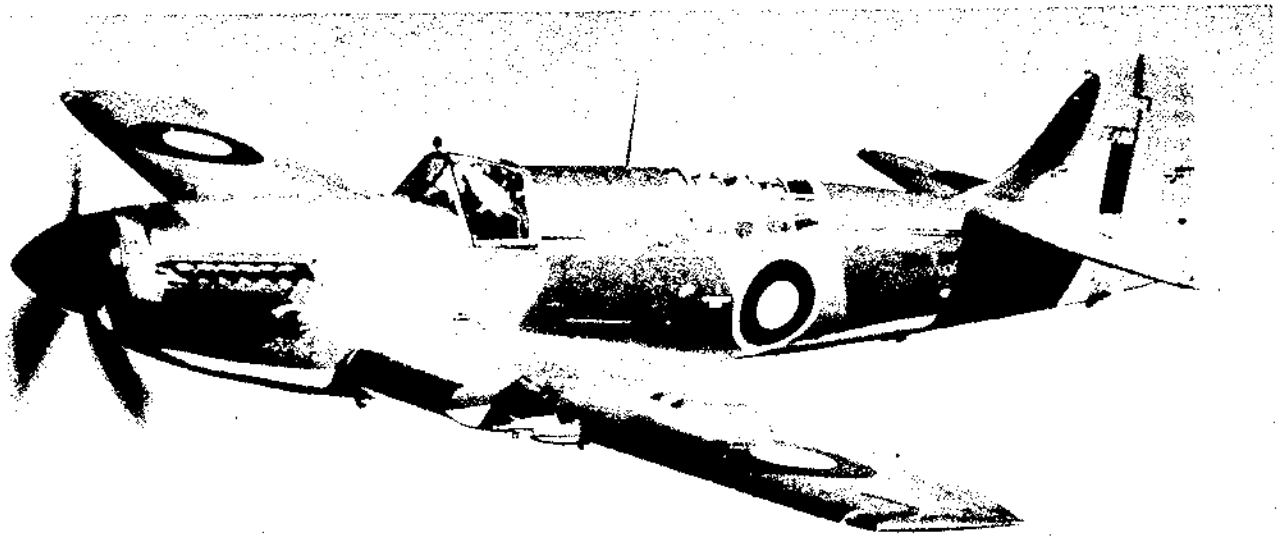


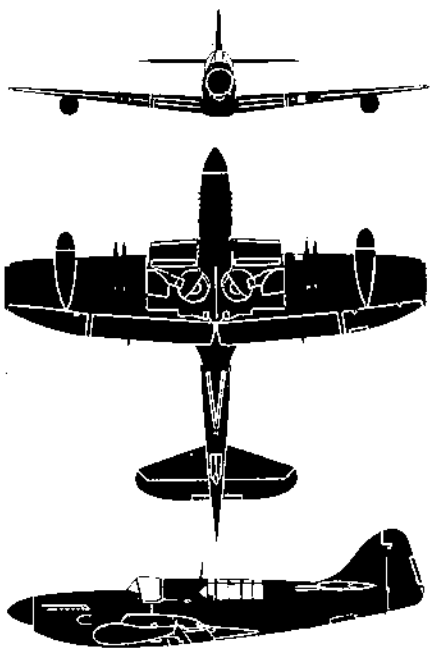
The Firebrand 5 is a single-engine, single-place, low-wing fighter, torpedo carrier. A radial engine is fitted. The wing has dihedral in the outer panels, and tapers on leading and trailing edges to well rounded tips. A single tail is fitted, with the tip of the vertical fin square. The landing gear is of the conventional retractable type. The wings fold for carrier operation. A 2,000 pound torpedo or bomb may be carried externally beneath the fuselage. It may also carry two 45 imperial (206 litre) wing drop tanks or one larger tank on the torpedo gear. The prototype of the Firebrand 1 first flew on 27 February 1942.

SPAN: 51'3½". **LENGTH:** 39'1".
ENGINE: Centaurus 9; radial/2,590 h. p.
SPEED: 296 knots/13,000 ft.
RANGE: 380 nautical miles/250 knots.
ARMAMENT: 4 x 20 mm. fixed in wings.



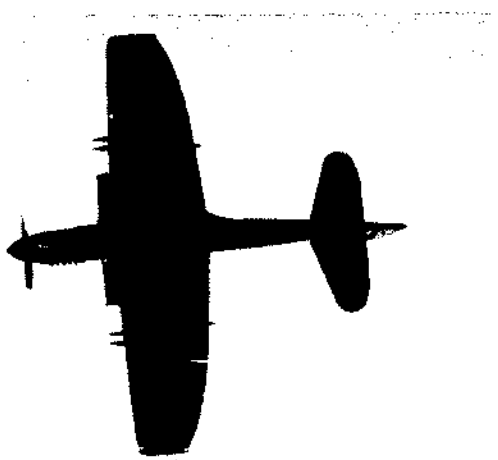


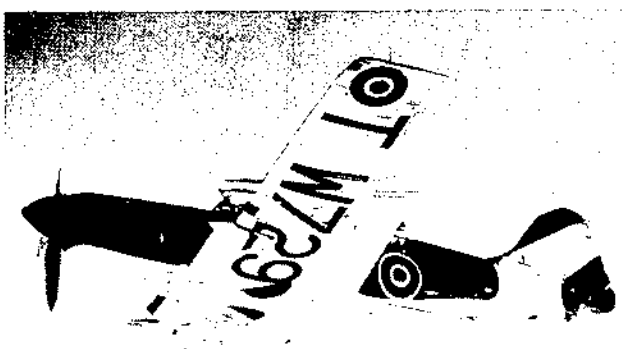


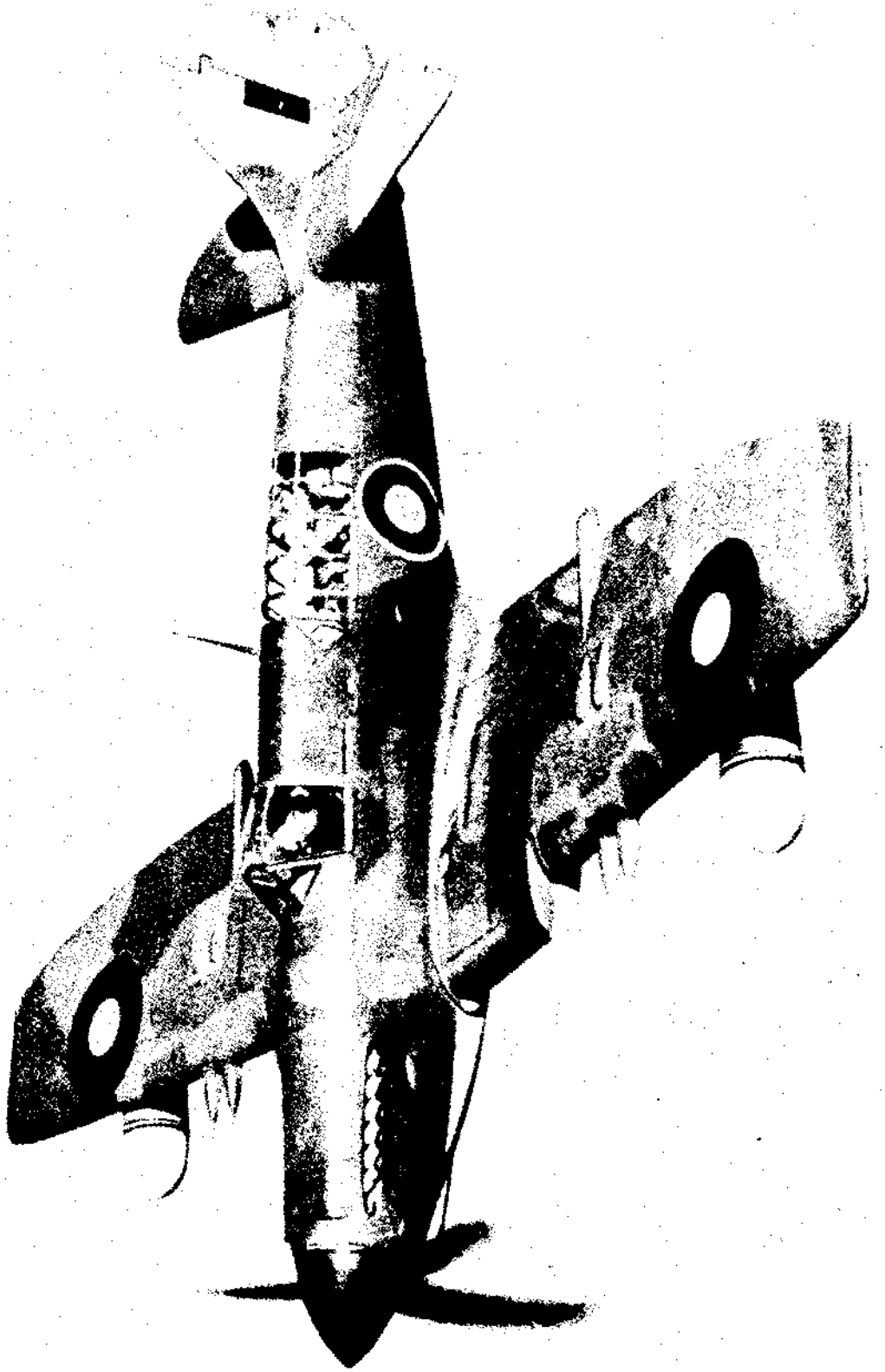


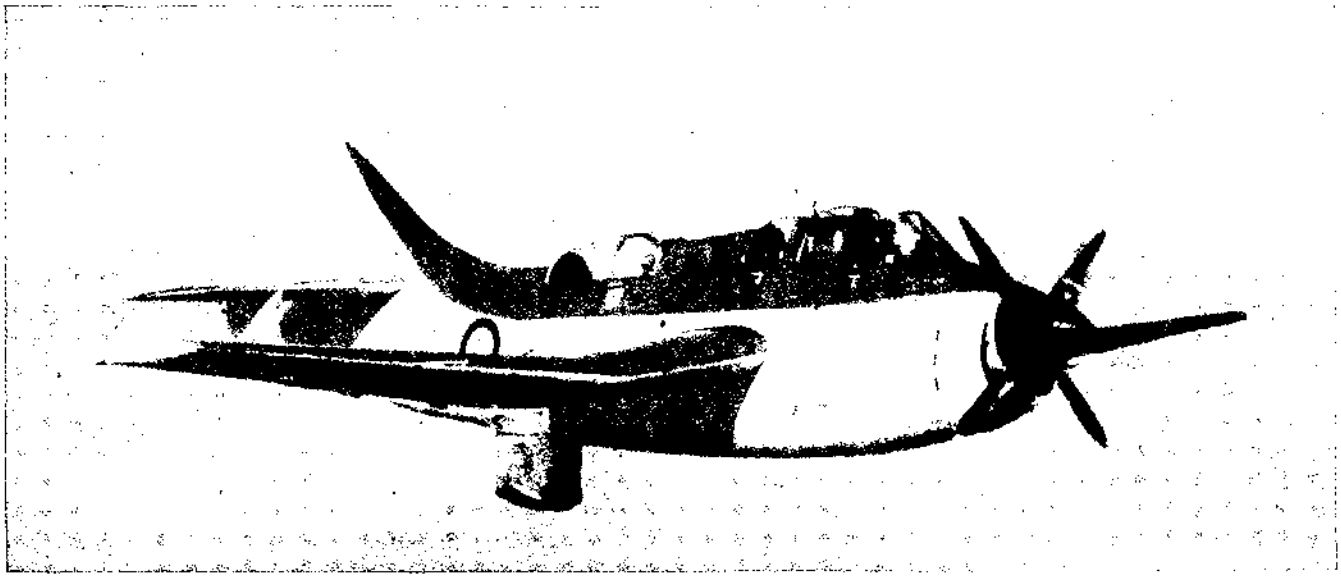
The Firefly 4 is a single-engine, two-place, low-wing monoplane with an in-line engine. The wings taper slightly on leading and trailing edge to square tips. A single tail and retractable conventional landing gear are fitted. The Firefly 4 is similar to the Firefly 1 except that the wings are clipped, the center section of the wing's leading edge is revised to take cooling radiators, and the leading edge of the fin is extended. A maximum bomb load of 2,000 pounds may be carried. The Firefly 4 was designed to fulfill day and night fighter duties. The night fighter version has radar gear set in each wing.

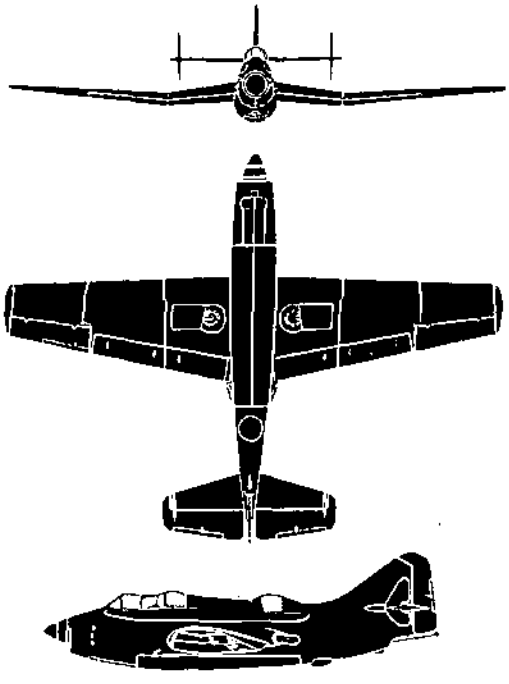
SPAN: 41'2". **LENGTH:** 37'11".
ENGINE: Griffon 74; Vee in-line/2,020 h. p.
SPEED: 335 knots/14,000 ft.
RANGE: 642 nautical miles/220 knots.
ARMAMENT: 4 x 20 mm.; 8 x 3" rkts. or bomb load.





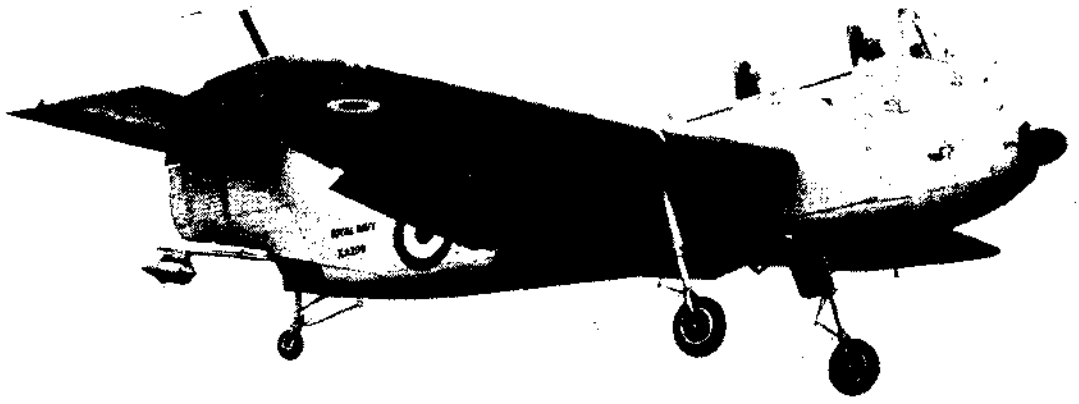


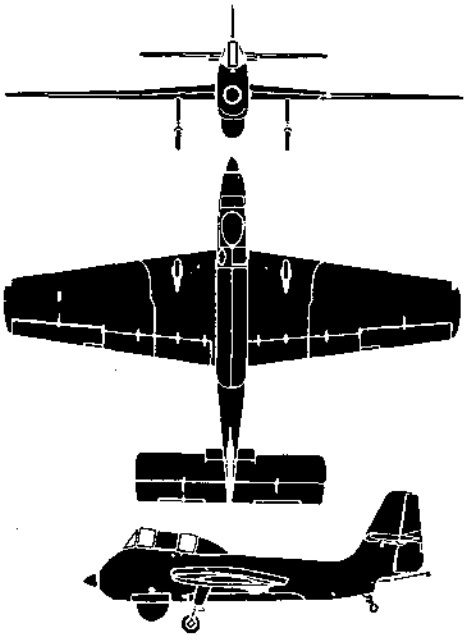




The Gannet is a three-seat mid-wing antisubmarine aircraft with an inverted gull-wing. It has catapulting attachments, an arrester hook, and powered folding wings. Each wing is doubly hinged to permit more efficient storage in the low overhead British hangar deck. The Gannet is the first R. N. plane to be fitted with tricycle gear. It features twin-turboprop engines coupled to co-axial four-bladed propellers. For long-range cruising one of the two units can be shut down. Other features include a short sloping nose for search visibility, a retractable ventral radome, and a long bomb-bay for carrying buoys, depth charges or torpedo. The Gannet was the first turboprop airplane to make a carrier landing.

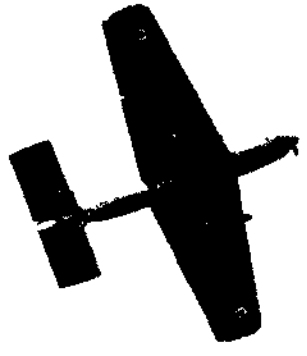
SPAN: 54′ 4″ **LENGTH: 43′ 0″**
ENGINE: 2/Armstrong-Siddeley Double Mamba turboprop/2,540 s.h.p. plus 770 lb. thrust.
MAX. SPEED: 400 knots plus.
RANGE:
ARMAMENT:

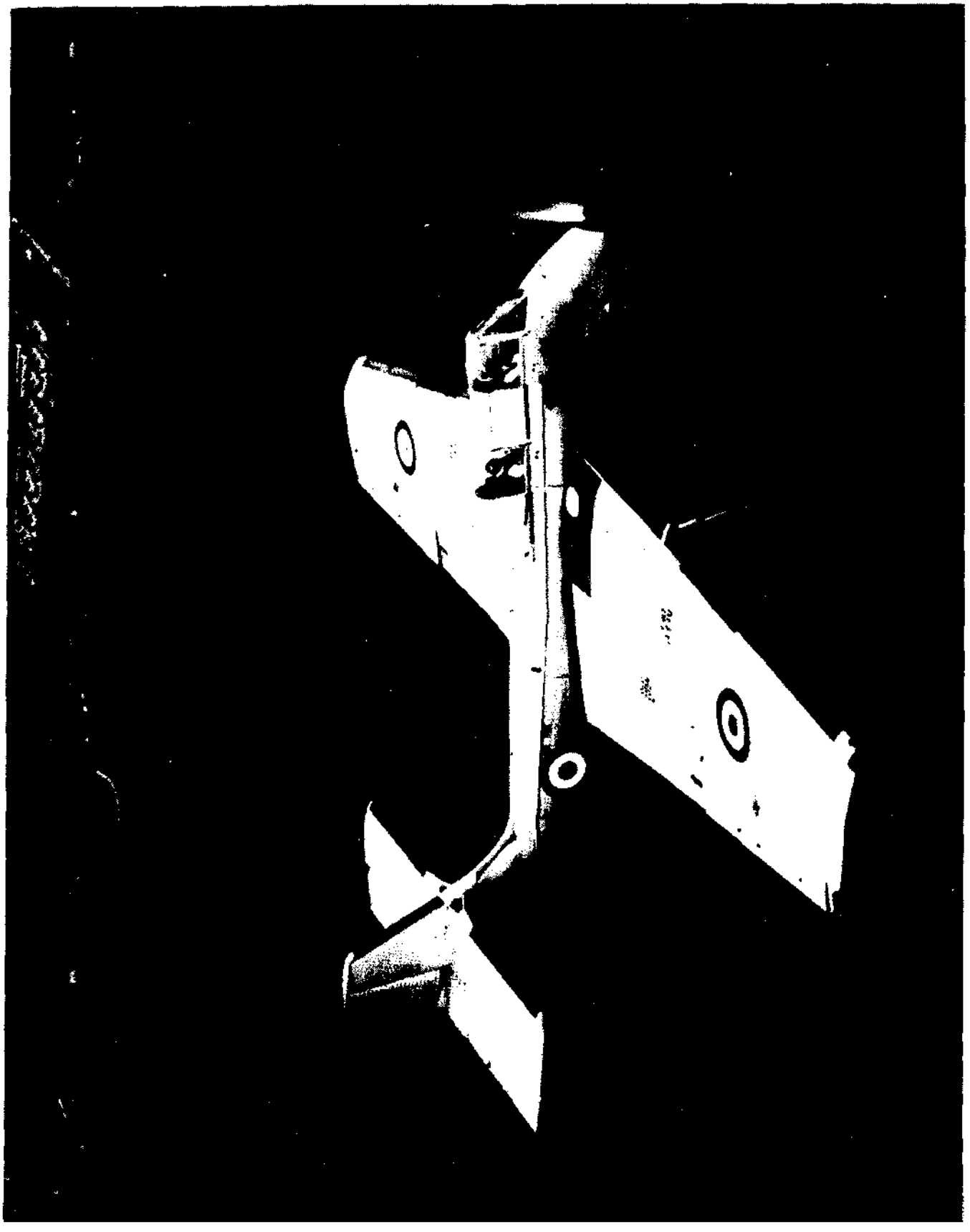


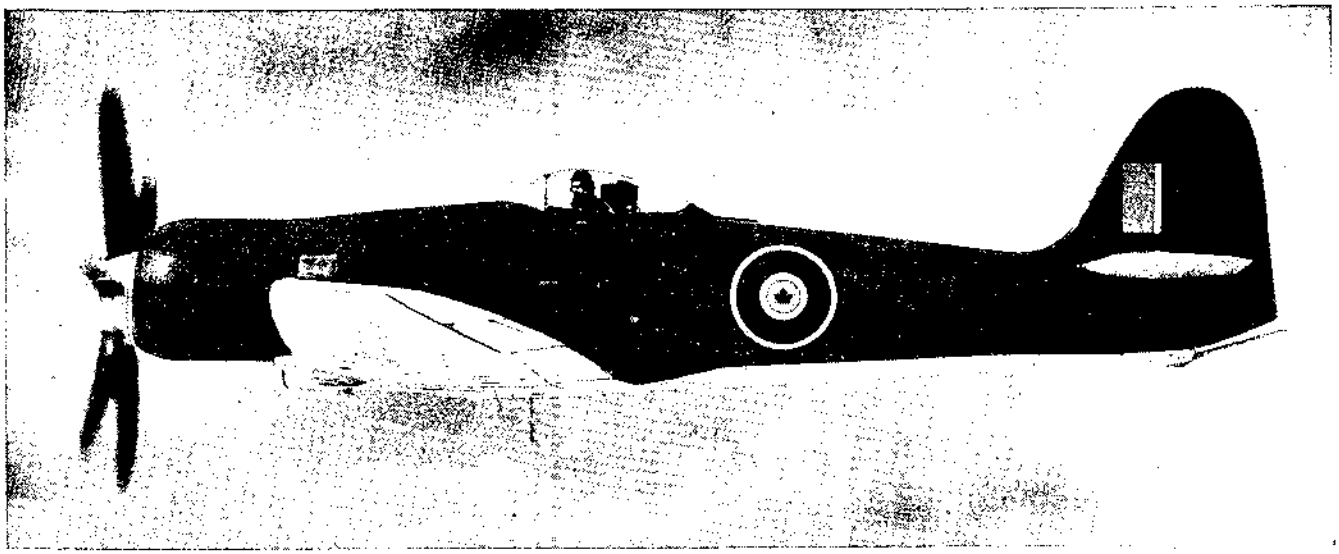


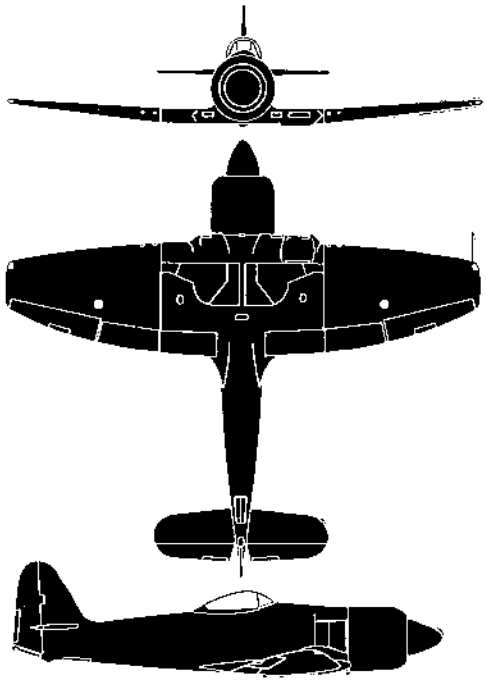
The Seamew is a two-place turboprop anti-submarine mid-wing monoplane designed for use aboard British escort aircraft carriers. This aircraft was specifically developed for easy and cheap production and is intended primarily for convoy protection. The Seamew is very light and has a low landing speed. Factors contributing to its fine field of view are the small dimensions of the engine, the high positioning above the engine of the pilot's cockpit, and the shape of the windshield. A simple fixed tail wheel type landing gear is fitted. The long narrow fuselage has a bomb bay door for the release of a torpedo or other armament. A tail hook is fitted. The object appearing on the tail hook of the prototype Seamew shown in the top photograph is an anti-spin parachute for testing purposes. A detachable radome bolts onto the underside of the nose.

SPAN: 55'0" **LENGTH: 41'0"**
ENGINE: Armstrong Siddeley Mamba turboprop/1,640 s. h. p.
MAX. SPEED:
RANGE: 500 nautical miles/120 knots.
ARMAMENT: Rockets, torpedos and sonobuoys.



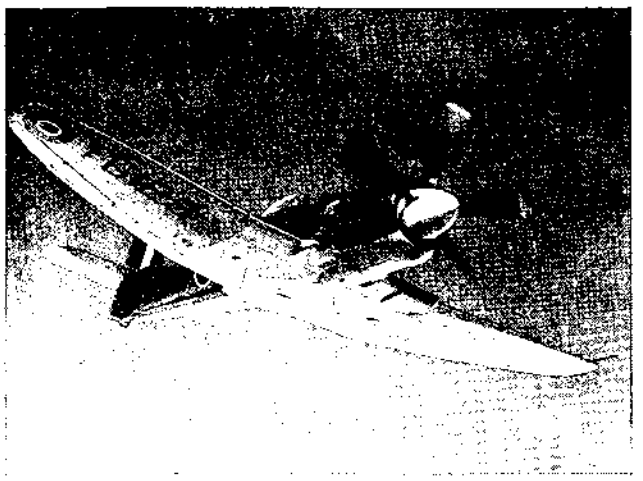


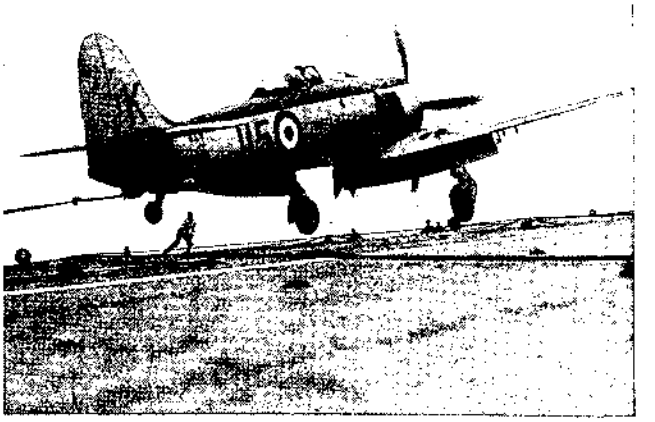


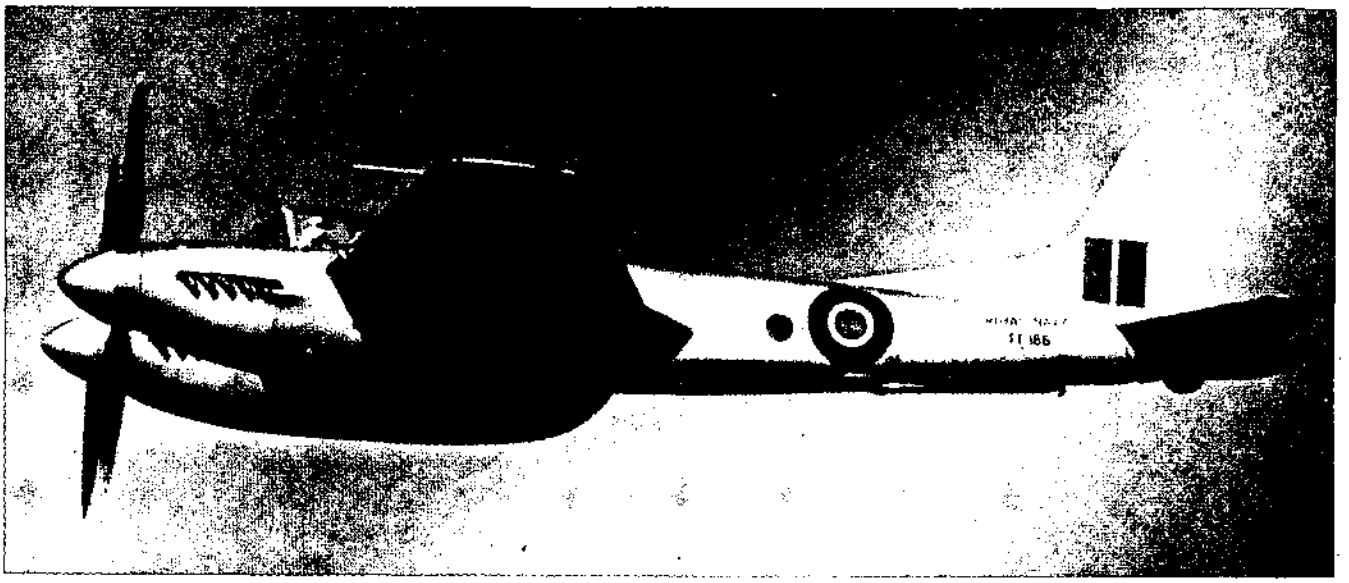


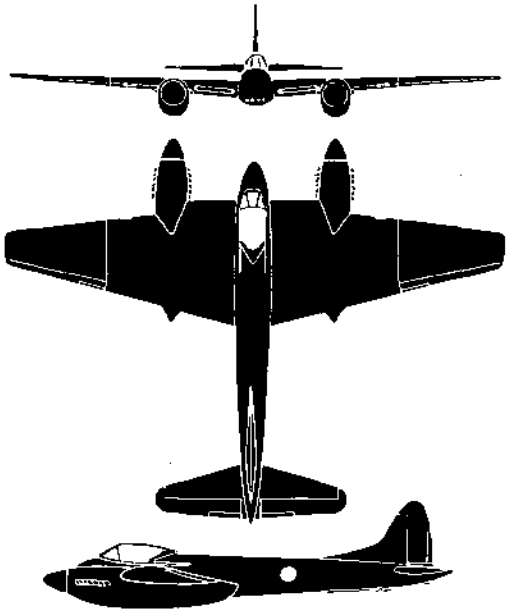
The Sea Fury single seat naval fighter is in operational service in the Royal Navy, the Royal Canadian Navy, the Royal Australian Navy and the Royal Netherlands Navy. It is the last piston-engined fighter to be built in quantity in Great Britain. The Sea Fury has also been built by Fokker of Holland. Designated Sea Fury F. B. Mk. 51, it is similar to the F. B. Mk. 11 but has Dutch language instruments. The Sea Fury F. Mk. 10 was the first British production version which was followed by a slightly modified F. B. Mk. 11. This newer version has seen service in Korea where it shot down a MIG–15. A trainer version, the T. Mk. 20 is a two-seater with an elongated bubble canopy. The wings of the Sea Fury fold up similar to the Corsair's. Its weight is approximately 12,500 pounds.

SPAN: 38′5″ **LENGTH: 34′8″**
ENGINE: Bristol Centaurus, radial/2,470 h. p.
MAX. SPEED: 390 knots/20,000 ft.
RANGE: 915 nautical miles/245 knots.
ARMAMENT: 4 x 20 mm; 12 x 3″ rockets; 2 x 500-lb. bombs.



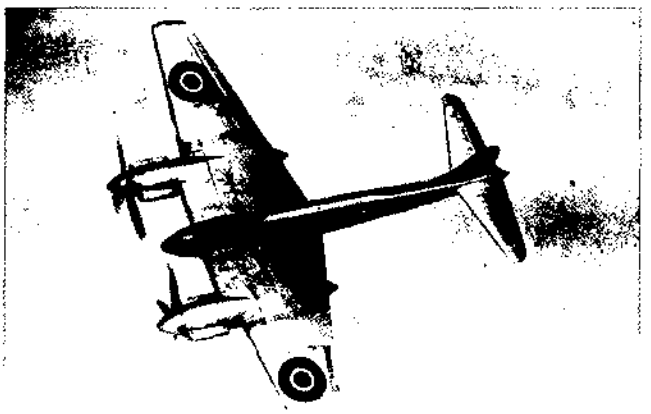






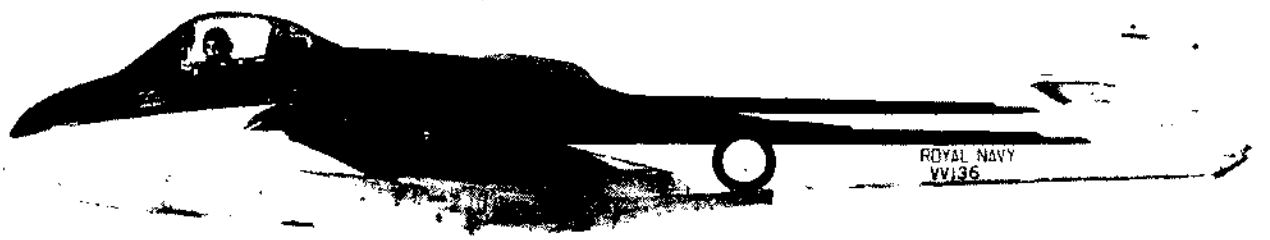
The Sea Hornet 20 is a single-seat, twin-engine, carrier based monoplane fighter. The wing is fitted to the fuselage well forward, and the engine nacelles extend forward of the fuselage. A retractable conventional type landing gear is fitted. There is a single tail. This aircraft is similar in appearance to the Hornet 3. A maximum bomb load of 2,000 pounds may be carried. There is also a night fighter version, N.F.21, with a prominent radar dome in the nose. The prototype Hornet fitted with arrester hook and nonfolding wings, made its first deck landing trials on the H.M.S. Ocean during August 1945.

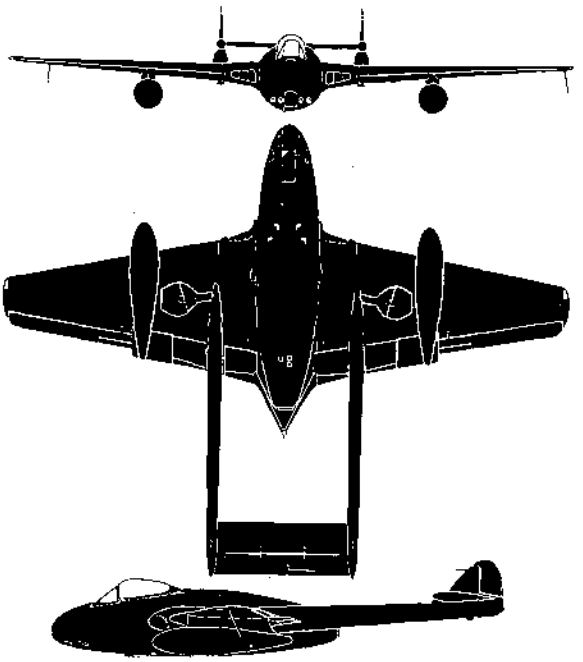
SPAN: 45'0". **LENGTH:** 36'9".
ENGINE: Merlin 130, 131; Vee in-line/1,670 h. p.
SPEED: 400 knots/17,000 ft.
RANGE: 700 nautical miles/231 knots.
ARMAMENT: 4 x 20 mm.; 8 x 3" rkts. or bomb load.



DE HAVILLAND

SEA VAMPIRE





The Sea Vampire is a naval version of the standard R. A. F. Vampire. De Havilland's family of Vampire variants is steadily growing, but at present only the Mks. 1, 3, and 5 are in squadron service with the R. A. F. and the Mk. 20 with the Navy. Recognition differences are the shape of the fins and rudders, and the shape of the wing tips. The former are squarish on the Mk. 1 and curved on the Mks. 3 and 5, while the latter are rounded on the Mks. 1 and 3, and clipped square on the Mk. 5. The Sea Vampire Mk. 20 is similar in appearance to the Mk. 5, but carries a pointed fairing above the jet-pipe, housing a V-type deck hook. Drop tanks may be carried under the wings as shown in the silhouette. Its fully loaded weight is more than 12,000 pounds.

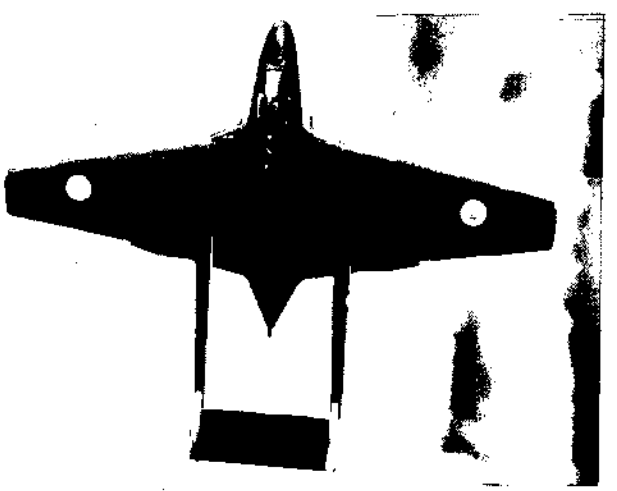
SPAN: 38'04". **LENGTH:** 30'09".

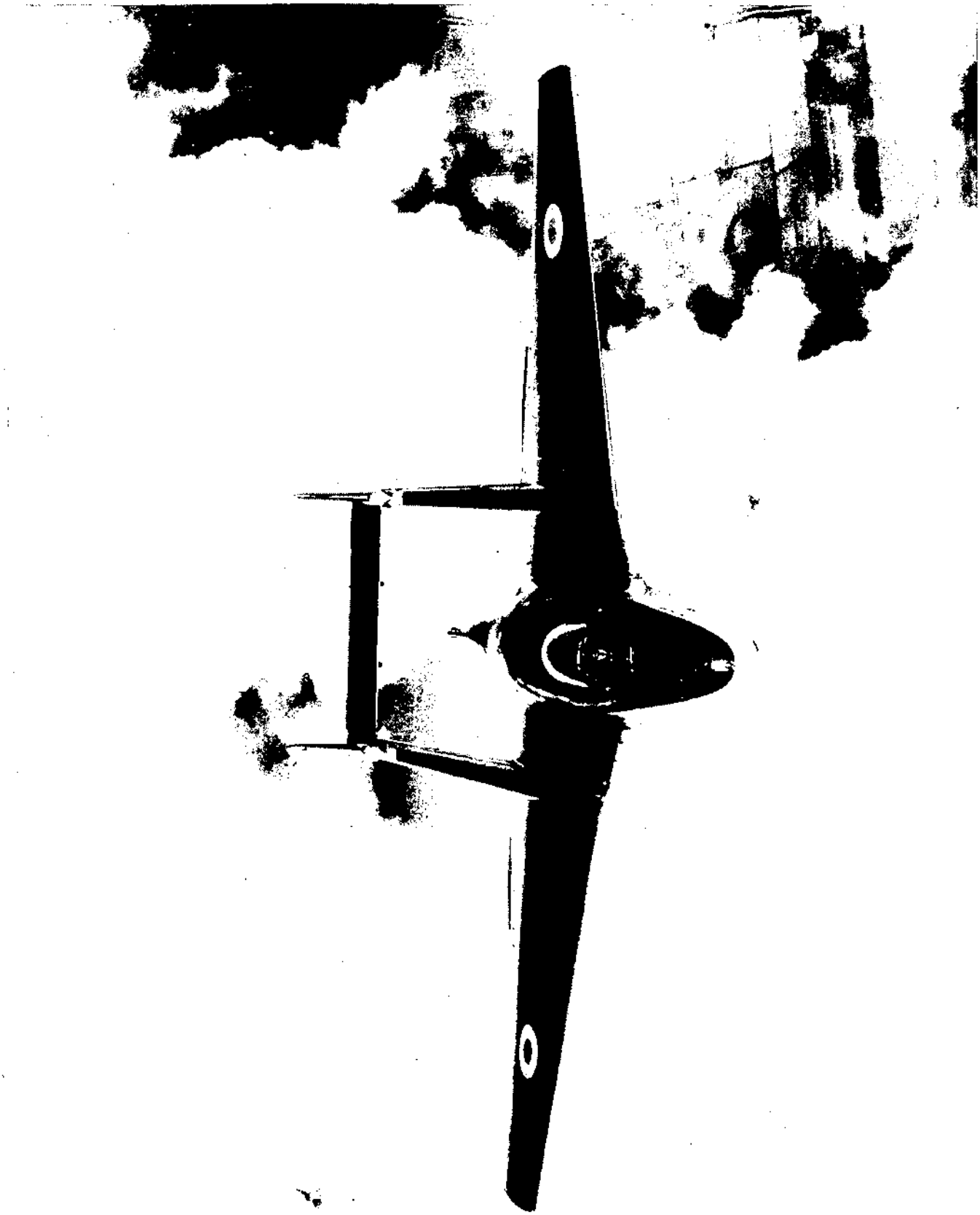
ENGINE: D. H. Goblin 2/3,100-lb. thrust.

MAX. SPEED: 470 knots/20,000 ft.

RANGE: 540 nautical miles/305 knots.

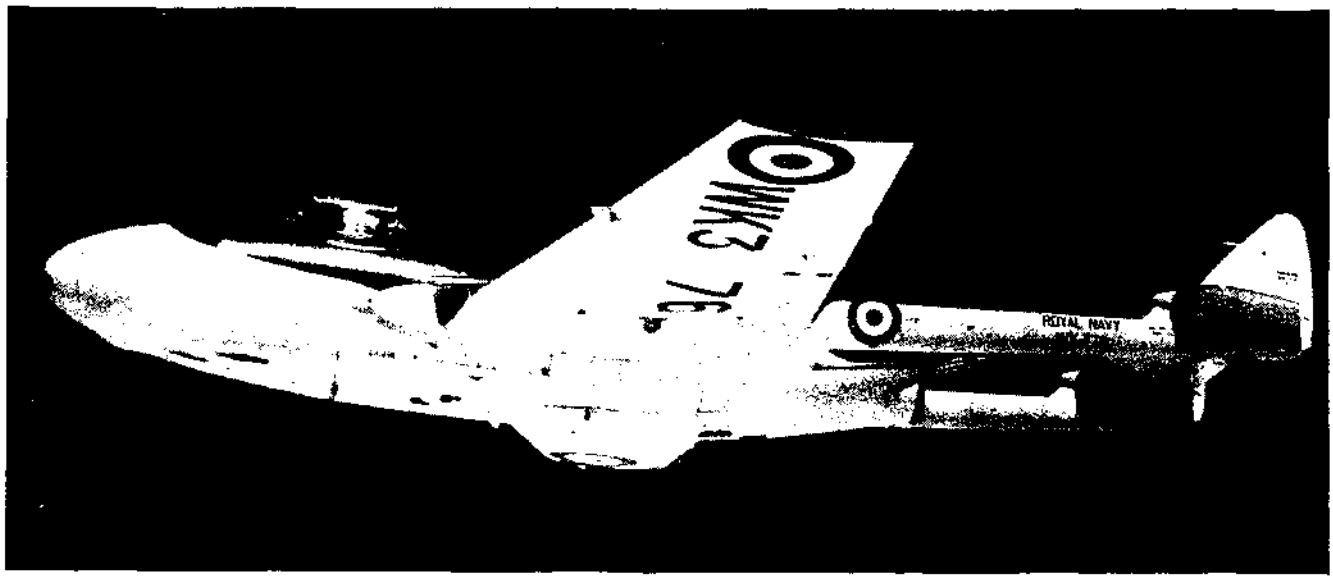
ARMAMENT: 4 x 20 mm.

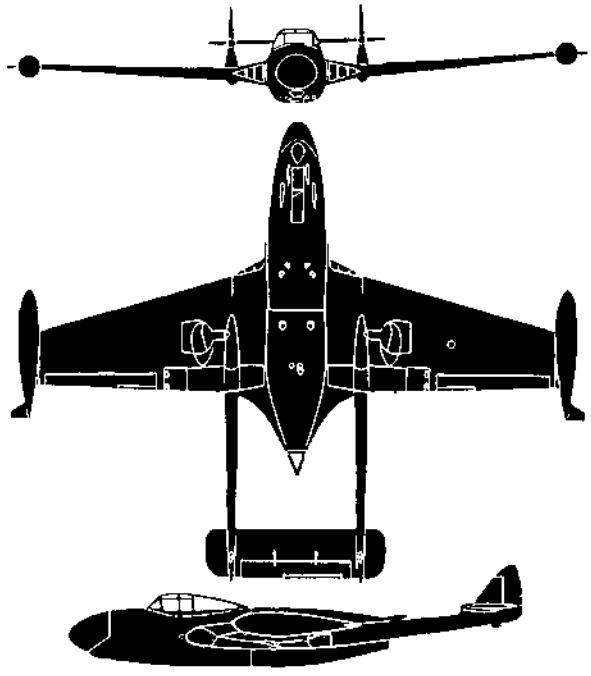




G.B.
SUPPLEMENT NO. 2
JUNE 1951

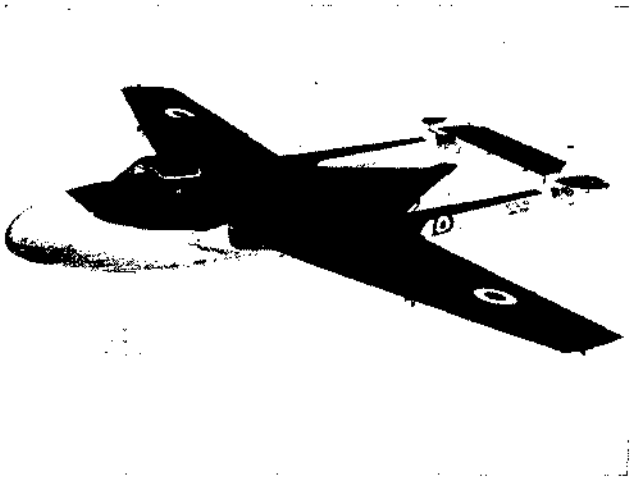
FM 30-30
OPNAV 32P-1200/2
AFM 50-40B

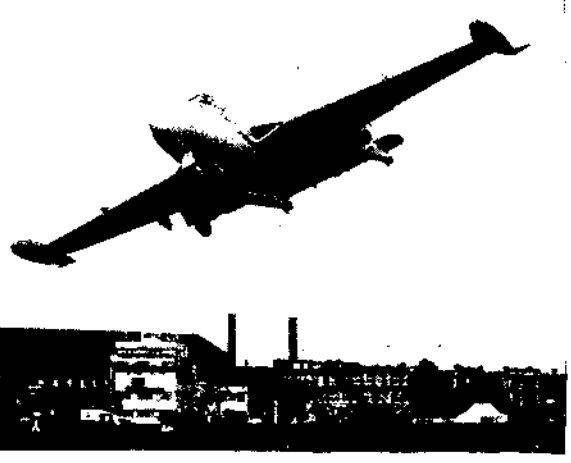


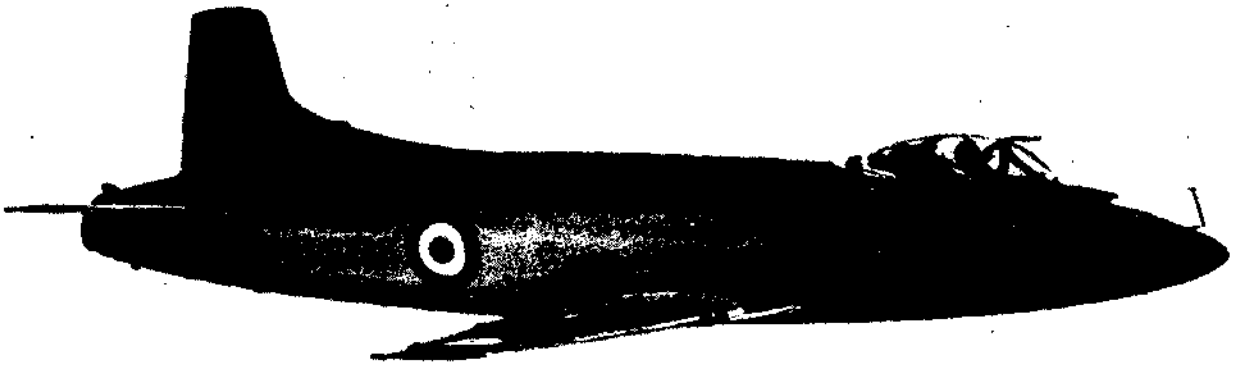


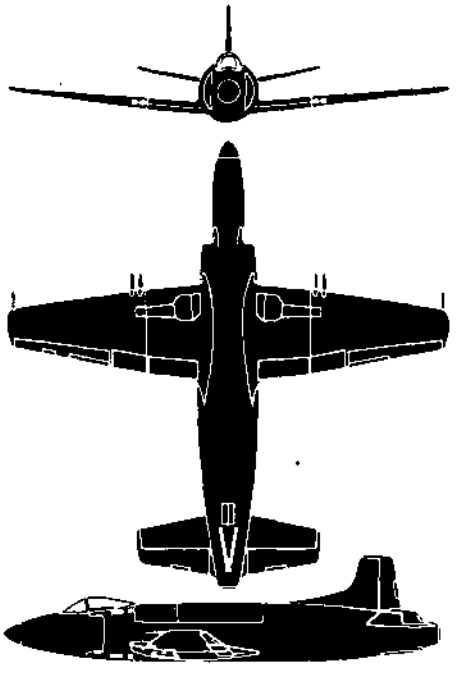
The Sea Venom N. F. Mk. 20 is an all-weather jet fighter fully equipped for operation from carriers. It is a naval version of the R. A. F. Venom N. F. Mk. 2. The Sea Venom is to go into operation with Royal Australian Navy and the French Navy. The Sea Venom embodies deck arrester gear and hydraulically folding wings and differs in these respects from the Venom N. F. Mk. 2. A crew of two, pilot and radar-operator, are seated side-by-side. The tail assembly of the Venom is similar to Vampire components. The wing, however, is new, and is a square-tipped unit of very thin section. Jettisonable tanks can be attached to the wing tips. When loaded it weighs around 12,000 pounds.

SPAN: 41′ 9″ **LENGTH: 34′ 7″**
ENGINE: D. H. Ghost/5,000-lb. thrust.
MAX. SPEED: 550 knots/30,000 ft.
RANGE:
ARMAMENT: 4 x 20 mm.



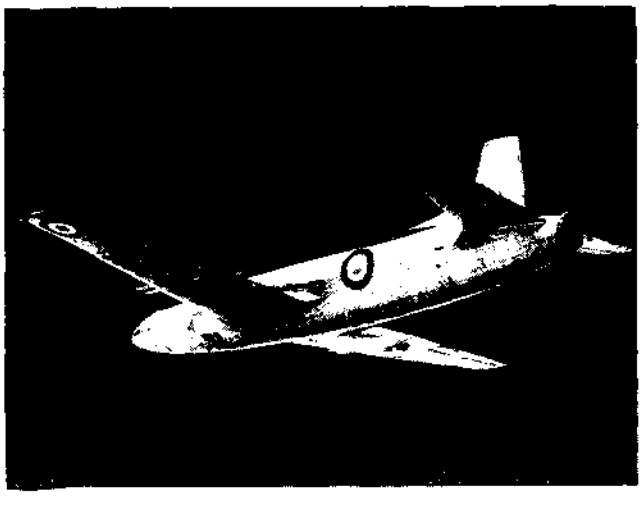


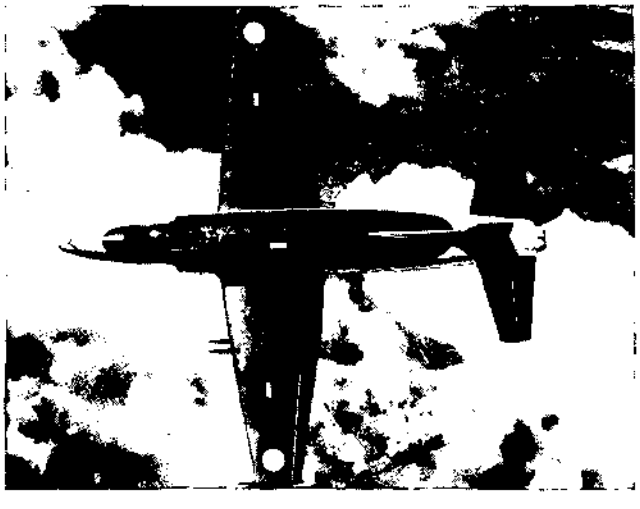


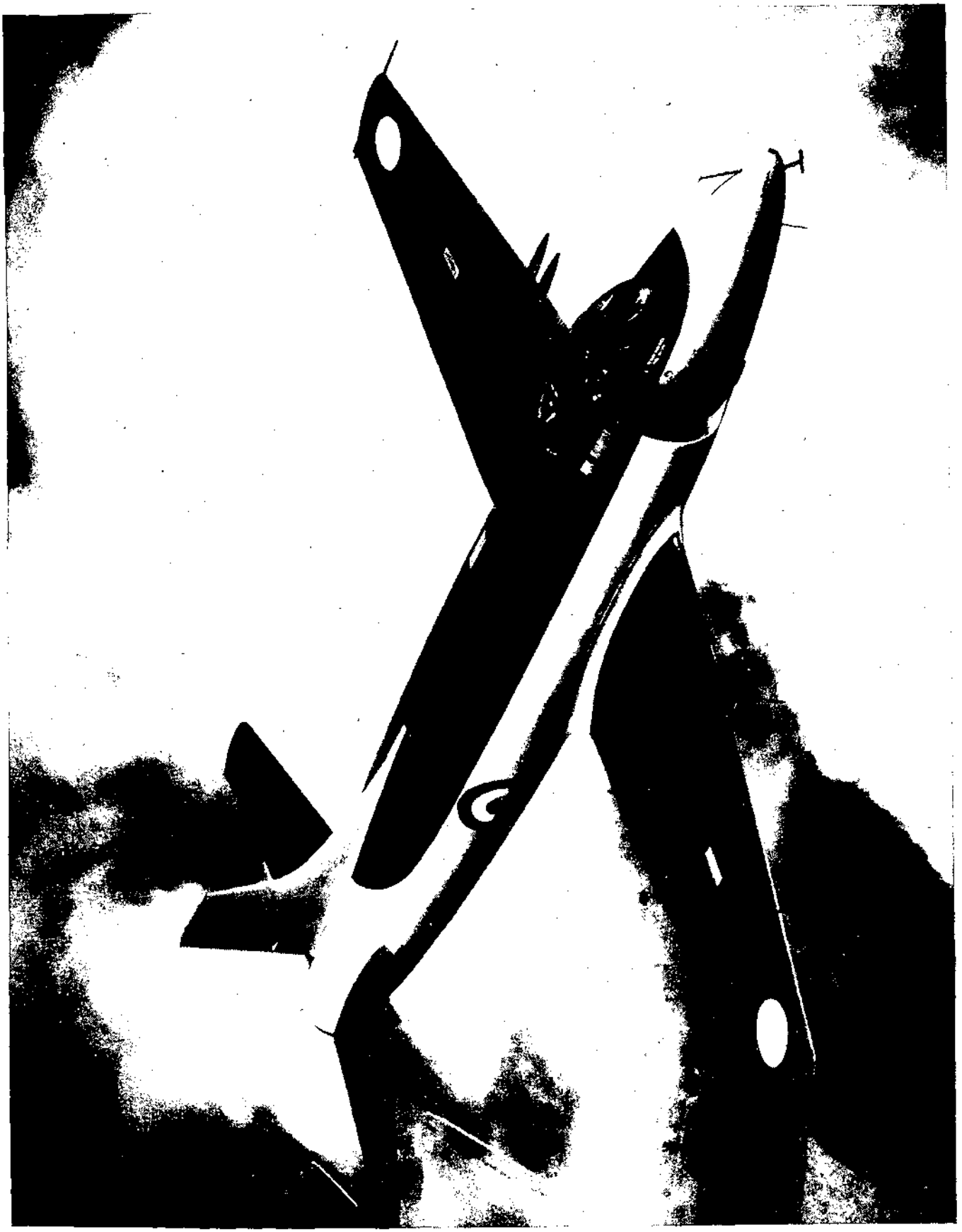


The Attacker is a straight-wing jet carrier fighter fitted with folding wings and arrester gear. It is the predecessor of the swept-wing Swift. The Attacker was originally designed to an R. A. F. specification but never produced. However, it was later produced in its original form for the Royal Pakistan Air Force and in a navalized form for the Royal Navy. The Attacker seats its pilot well forward in a cigar-shaped fuselage, and is provided with an ejector seat. It has a tail-wheel landing gear while the Swift has a tricycle gear. Side air intakes are a distinctive feature of the Attacker and later Supermarine jets. Take-off weight of the attacker is around 12,000 pounds.

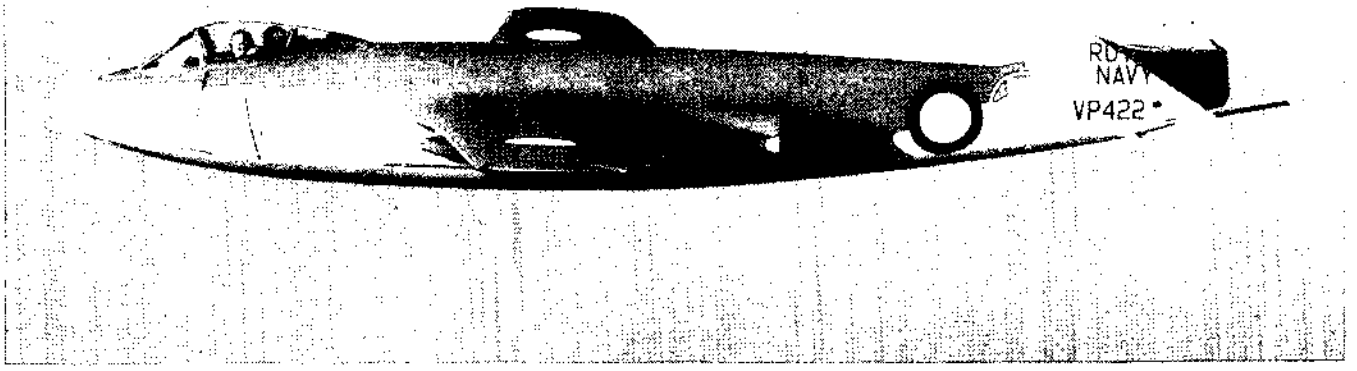
SPAN: 36′ 11″ **LENGTH: 37′ 6″**
ENGINE: R. R. Nene turbojet/5,000-lb. thrust.
MAX. SPEED: 515 knots/sea level.
RANGE: 590 nautical miles/380 knots.
ARMAMENT: 4 x 20 mm; 4 x 300-lb. rockets.

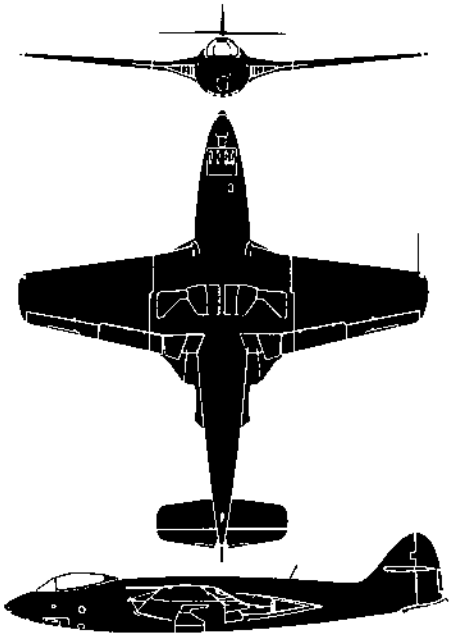






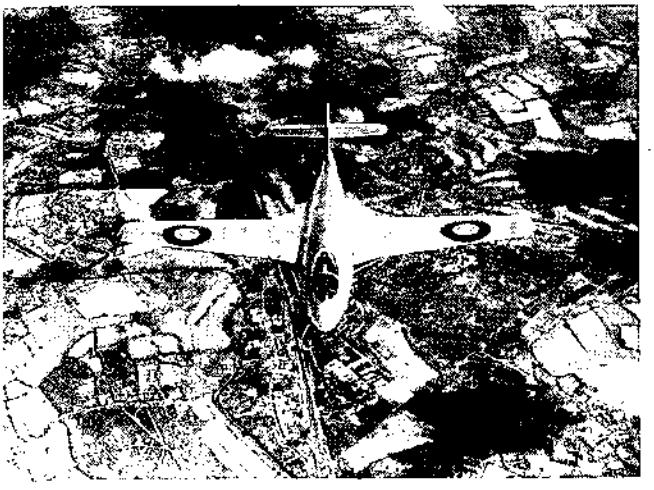
HAWKER SEA HAWK

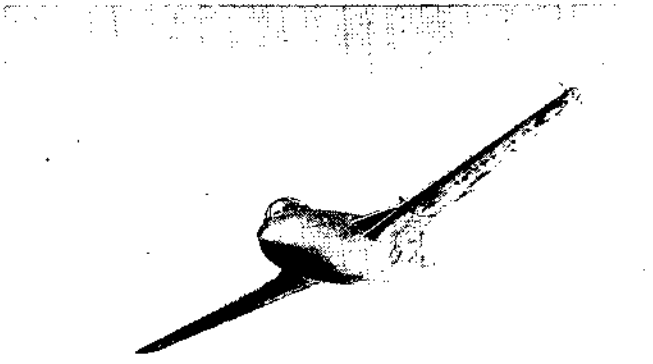




The Sea Hawk is a jet-propelled, single-seat fighter developed primarily for carrier-borne operations. A first flight was made by the second prototype, which was a navalized version with folding wings, in the fall of 1948. The Sea Hawk is an exceptionally clean mid-wing monoplane with a tricycle landing gear, a single fin and rudder and a high mounted stabilizer. Air intakes for the single jet engine, installed amidships, are in the wing's leading edge roots, and the jet exhaust exits on the wing's trailing edge on each side of the fuselage. The Sea Hawk is the first design to use such a twin jet exhaust system with a single engine. This method provides more room for fuel tanks, thus increasing range. The P.1052 is a sweptwing version.

SPAN: 36′6″. **LENGTH: 38′4″.**
ENGINE: Nene/5,000-lb. thrust.
SPEED: More than 540 knots.
RANGE:
ARMAMENT: 4 x 20 mm. mounted in nose.





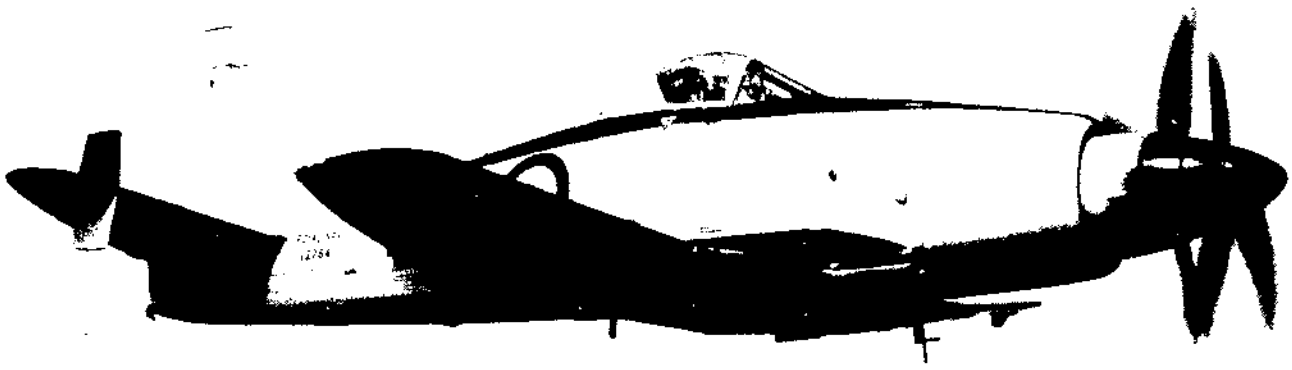
G.B.
JUNE 1950

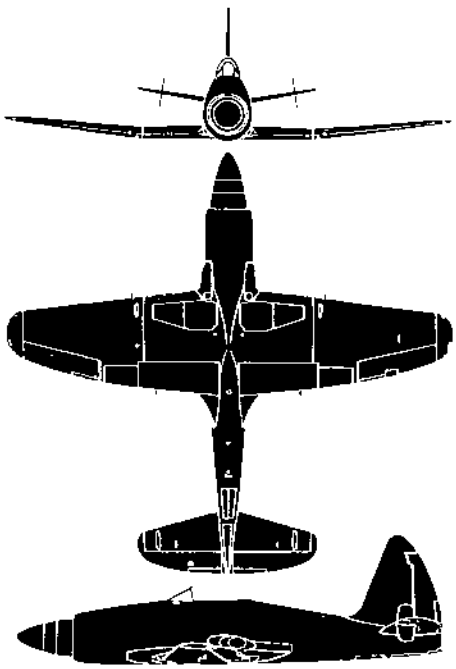
FM 30-30
OPNAV 32P-1200
AFM 50-40A

HAWKER **SEA HAWK**

G.B.
JUNE 1950

FM 30-30
OPNAV 32P-1200
AFM 50-40A





The Wyvern was designed as a carrier-borne single-seat strike fighter for the Royal Navy. There are currently four versions: The reciprocating engine Mk. 1, the turboprop powered T. F. Mk. 2, the turboprop trainer T. Mk. 3, and the production torpedo fighter T. F. Mk. 4. The Mk. 4 differs from the prototype Mk. 2 in having a dorsal fin, small fins outboard on the stabilizer, dihedral stabilizer and a shorter front fuselage outer cowling. Other differences are the higher fin and the turbo exhaust ports of the Mk. 2 and 4. The Mk. 3 differs from the other three in that it has a longer cockpit canopy to house the second pilot. All major units of Mk. 2, 3, and 4 are interchangeable, and flying characteristics of the three versions are identical.

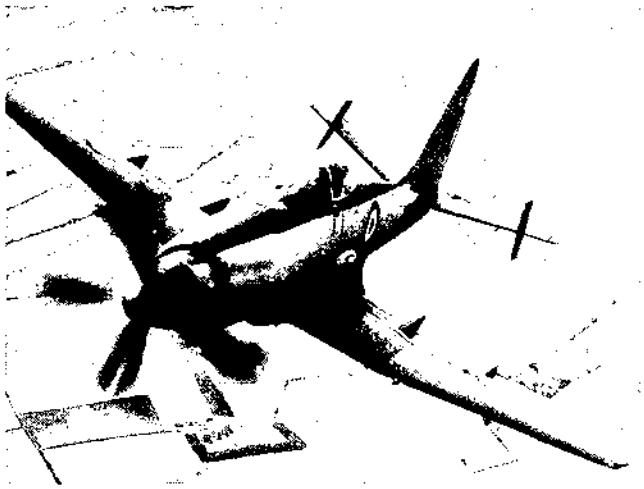
SPAN: 44′0″ **LENGTH: 42′3″**

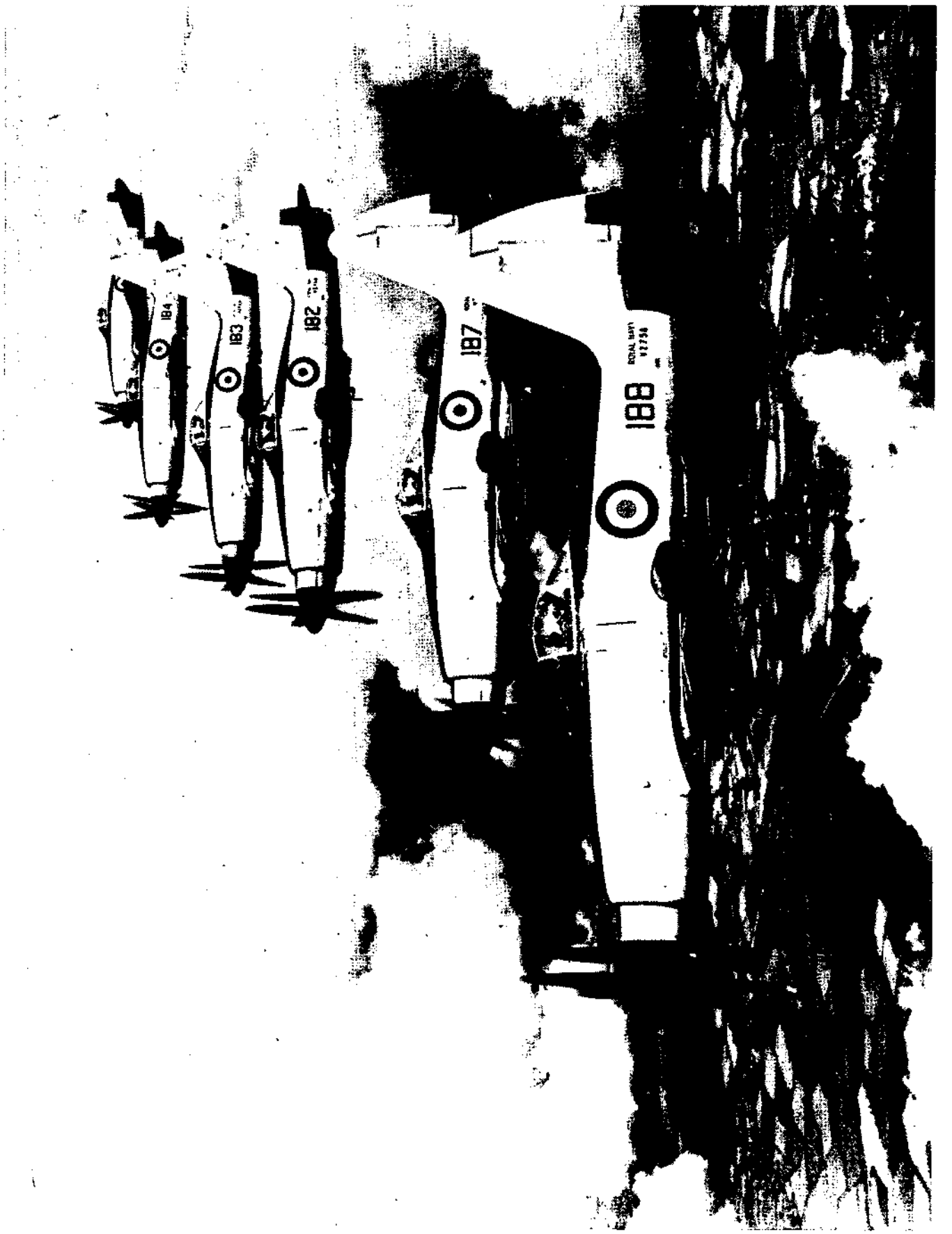
ENGINE: Python turboprop/3,670 s. h. p. plus 1,150-lb. jet thrust.

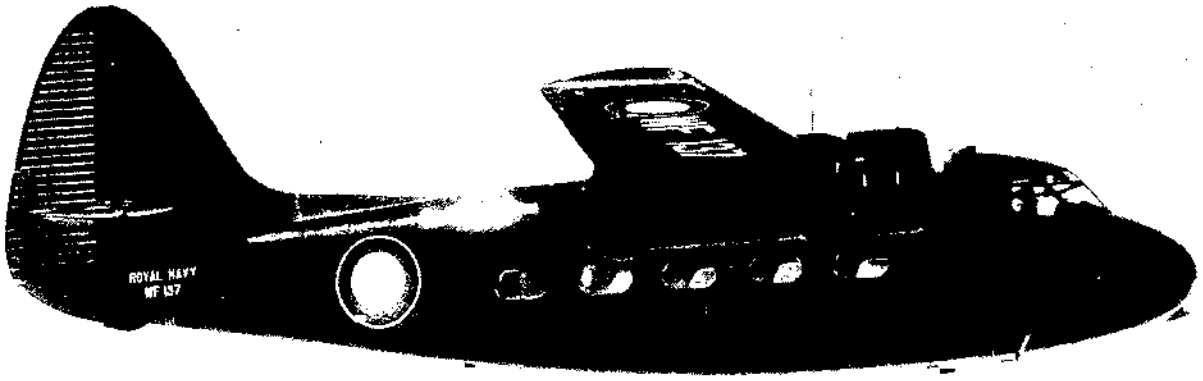
MAX. SPEED: 400 knots plus.

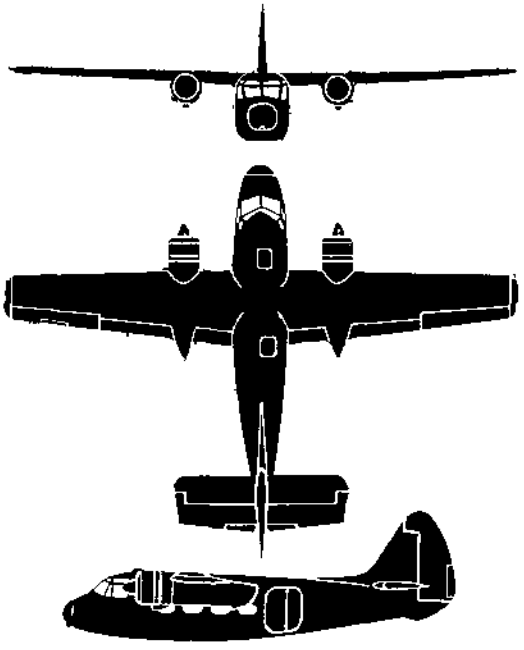
RANGE:

ARMAMENT: 4 x 20 mm; 1 x 20″ torpedo; 16 x 90-lb. rockets.









The Sea Prince is a light twin-engined high-wing transport. This aircraft is being used by the Royal Navy for crew training and communications. A version of the Sea Prince is flying for Shell Oil Co. doing aerial survey duties. It is equipped with an extended nose for a navigator/observer station. A quantity of these are being produced for wide commercial use throughout the world. The standard cabin arrangement provides for the seating of eight passengers plus a crew of two. Nacelles are underslung on a flat narrow wing. The taper of the trailing edge of the wing is more pronounced than the leading edge. A large rounded fin and rudder is fitted with a dorsal fairing extended forward. The tricycle landing gear is a retractable type. Weight loaded is around 11,000 pounds.

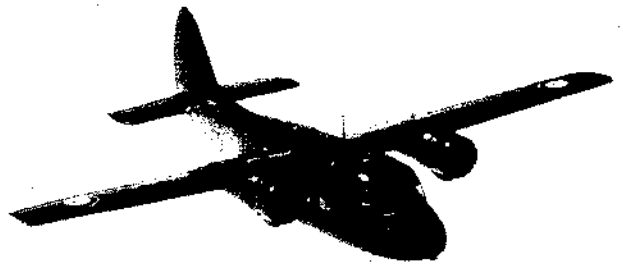
SPAN: 56'0". LENGTH: 42'10".

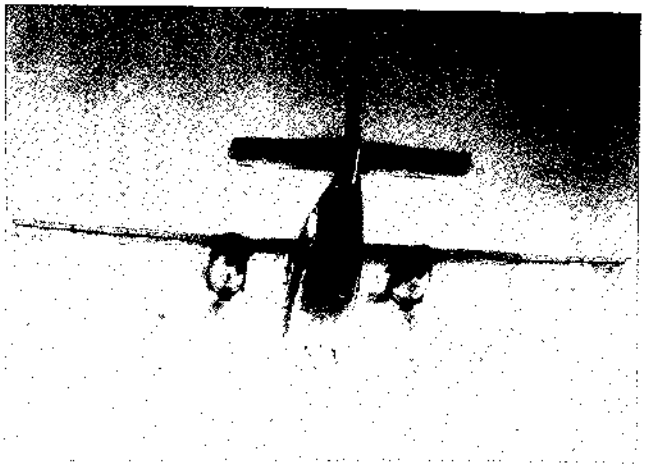
ENGINE: 2/Alvis Leonides 501/4, radial/520 h. p.

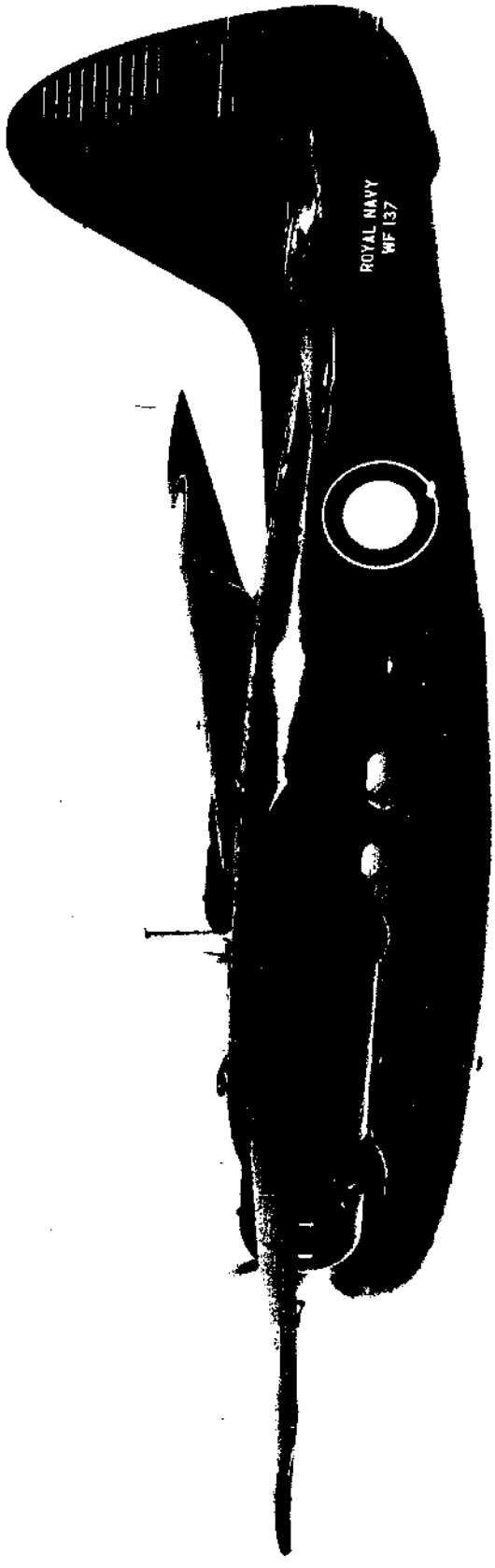
MAX. SPEED: 195 knots/5,000 ft.

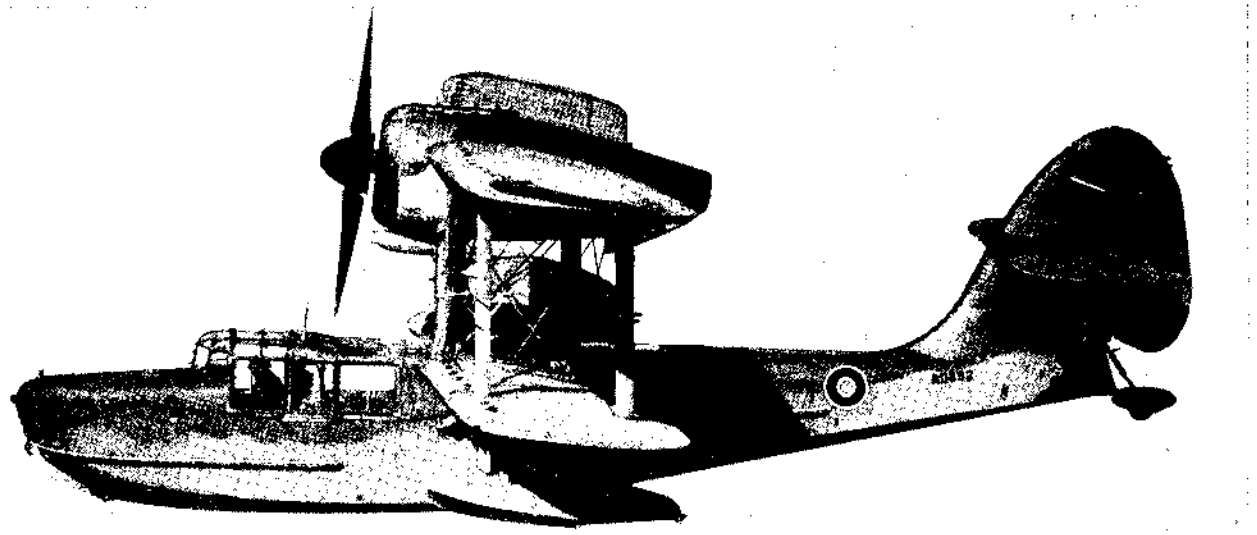
RANGE: 570 nautical miles/156 knots.

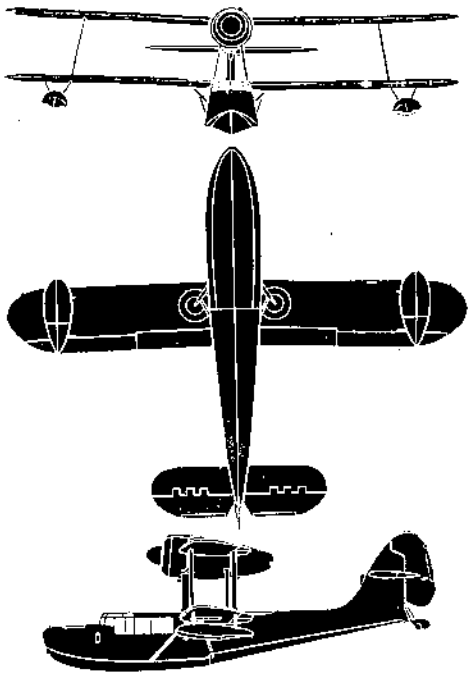
ARMAMENT: None.





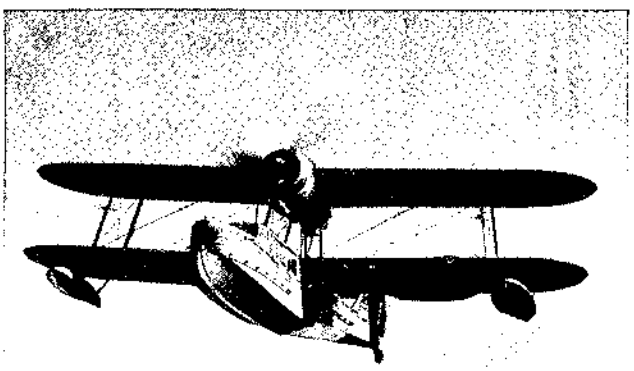

ROYAL NAVY
WF 137

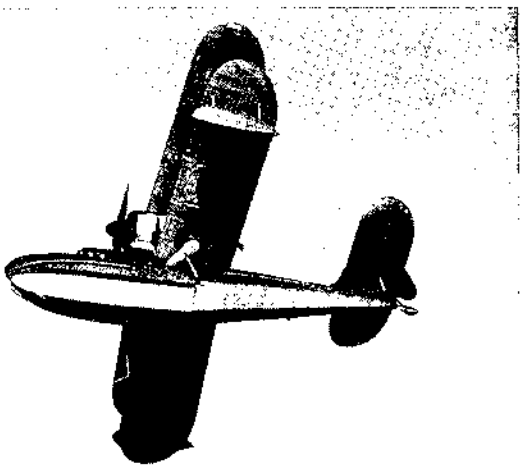


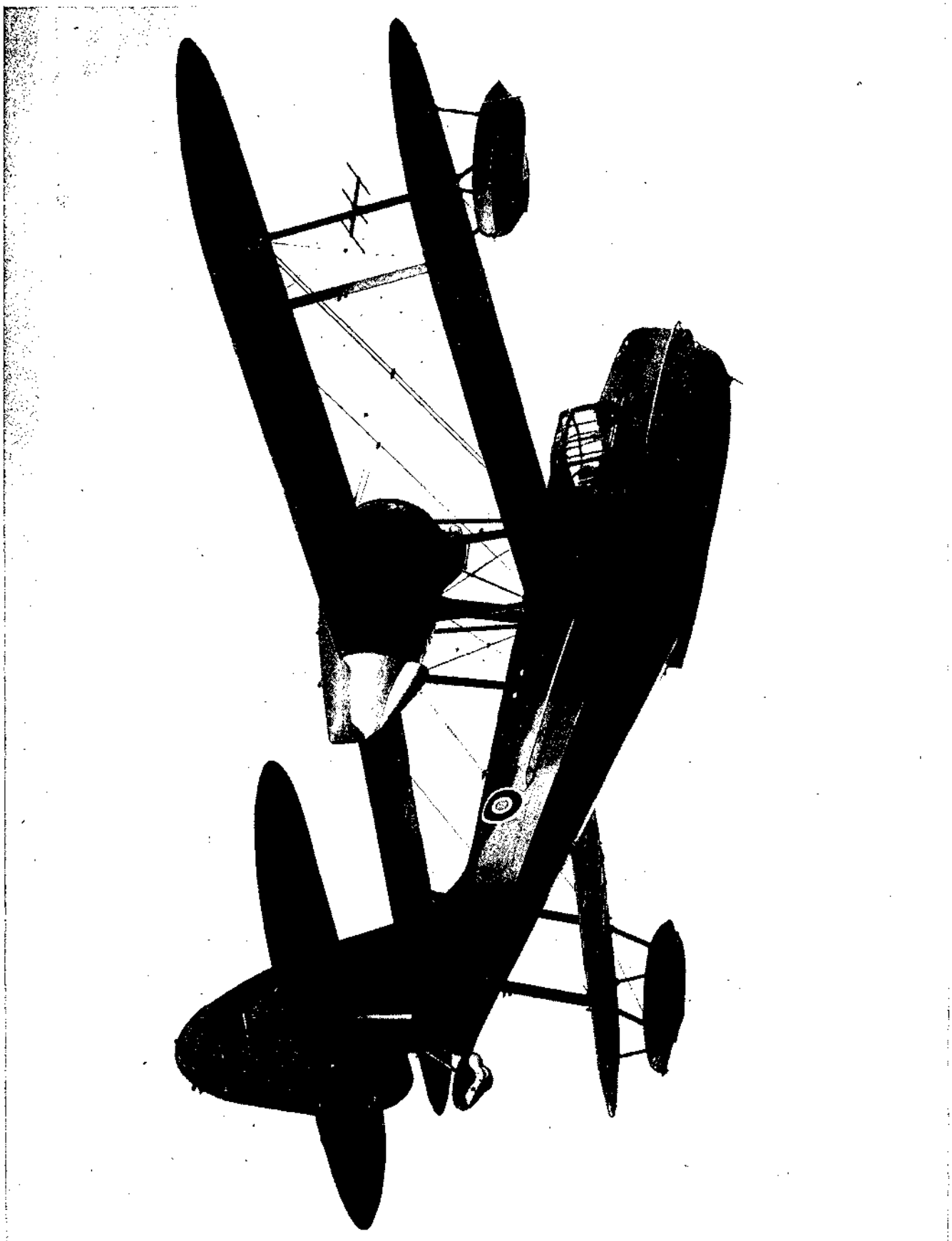


The Sea Otter, which was produced before the war, was designed to replace the Walrus on reconnaissance and general naval duties, including Air/Sea Rescue. It is an amphibian with a retractable landing-gear and folding wings. Catapulting gear is included. The stabilizer is mounted halfway up the fin and the tail surfaces are plywood and fabric covered. Its hull is all-metal. A crew of three or four may be carried with the pilot's enclosed cockpit forward of the wings and an open cockpit amidship. The radio and navigation compartment is aft of the pilot's cockpit. Still operational with the Royal Navy and the French, the Sea Otter has seen considerable service in Korea and Indo-China. There is a civilian counterpart which accommodates four passengers.

SPAN: 46′0″ **LENGTH: 39′9″**
ENGINE: Bristol Mercury 30, radial/855 h. p.
MAX. SPEED: 130 knots/5,000 ft.
RANGE: 630 nautical miles/85 knots.
ARMAMENT: 2 x 7.9 mm; bombs or depth charges.







U. S. S. R.

(The Union of Soviet Socialist Republics)

The Soviet Air Forces

Clouded by censorship, propaganda, and frequent reorganizations, the Soviet concept of air power has seemed contradictory. The fact remains, however, that the U. S. S. R. is a land power, and it is likely that the primary purpose of their air power will be to back up the Army in a tactical capacity.

While it is but a relatively modern air force, it is one which the Soviet leaders constantly are trying to improve. Their air force includes a number of men who have distinguished themselves for daring and imagination in the operation and design of aircraft, whom, it is safe to assume are no less talented than the pilots and engineers of Russian birth who distinguished themselves in this country.

Under the reorganization of the Soviet armed forces, announced in February 1950, the air force after 4 years of relative autonomy, apparently has reverted to the position it occupied under the Soviet Army during World War II. This change places the Army and Navy on the same plane, somewhat similar to our defense set-up prior to unification. Within their Ministry of War, Soviet military aviation includes the Army Air Force (for cooperation with ground troops), Fighter Aviation of the air defense system, and the Long Range Aviation, and Aviation of Airborne Troops.

There is also a civil air fleet which provides the air transport requirements of the U. S. S. R. These military components are organized into air armies, each composed usually of three corps, further subdivided into three divisions per corps.

Each air division is composed of three air regiments. The air regiment is the basic tactical unit of all Soviet Air Forces. Within this unit there are three squadrons with approximately 30 to 50 aircraft depending upon the regiment's role.

The Soviet Union today is said to have an air force of upwards of 20,000 operational aircraft including jet fighters, light, and medium jet bombers, and Bull (TU–4) medium bombers. Modernization was evident at the 1954 May day show when a number of new swept-wing bombers were flown over Moscow.

Soviet Naval Aviation

Naval aviation in the Soviet Union has not developed along the same lines as in the United States, nor has it received equivalent attention. Emphasis during the "Great Patriotic War" was placed on land power backed up by a strong tactical air force. As a result, naval air units during World War II were frequently drawn away from their maritime duties and assigned to the Air Force in operations supporting the Army ground forces.

Although its role in World War II was relatively minor, naval aviation has been modernized in conjunction with the over-all expansion of Soviet military aviation. In the future, naval aviation may be expected to play an increasingly important role consistent with the continued development of the Soviet Navy.

Naval aviation is an integral element of the Soviet Navy and is therefore administered independently from the other components of military aviation. While the significance of the separation of the Soviet Navy from the Ministry of Armed Forces remains obscure, it is considered that this development will result in increased emphasis toward the strengthening of Soviet naval aviation as well as other elements of the Soviet Navy.

Overall technical policy, and administrative control of naval aviation is vested in the Commander in Chief of Naval Aviation with headquarters in Moscow. He is subordinate to the Commander in Chief of the Navy, who, in turn, is responsible to the Ministry of the Navy. Operational or combat control over the various fleet air forces is vested in their respective fleet commanders.

Principal subdivisions in the organization of naval aviation are: (*a*) fleet air forces, (*b*) air divisions, and (*c*) air regiments. The Soviet Navy is organized into fleets on a geographical basis such as the Pacific, Baltic, Northern, and Black Sea fleets. Fleet air forces are assigned to these areas as a part of these fleets. Naval Aviation maintains its own supply service and ground organization. All personnel, however, have Army rank and grade designations.

The organization, composition, and numerical strength of a fleet air force vary in accordance with its assigned task, the scope of its operations, and the forces available. Soviet naval aviation is said to be composed of more than 3,500 aircraft. Since th 1950 reorganization, however, the fact that increase emphasis has been placed on the modernization of naval aviation was borne out at the July 1951 Air Day Show when the Soviets displayed some of the Navy's new jet equipment. It is landbased, having no aircraft carriers from which to operate. The Soviets, however, received some ex-German seaplane tenders under treaty agreements.

U.S.S.R.

805709 O—54——6

Soviet Aircraft Designations

Aircraft factories in the Soviet Union and its satellite countries are state controlled and all aircraft production is undertaken in state factories. The design of aircraft is carried out in these state factories by a small group of experts who have their own design staffs. It is not unusual for successful designers to be awarded high rank in the Engineering Service of the Soviet Air Forces which accounts for the military rank sometimes added to a designer's name.

On the other hand unsuccessful designs have led to prison terms. This is by no means the end, for the Soviets have a practical outlook and have been known to allow the convicted designer to continue his work in prison. Under these conditions some prize-winning designs have been created, thus providing liberation for the convicted one.

Between the years 1925 and 1940, Soviet aircraft were designated according to the duties for which designed. An example is the UT–2, Uchebny Trenirovochny, instructional and training designed in 1939 by Yakovlev, series number 2. Although this method was superseded before the German invasion of the U. S. S. R. it has not entirely gone out of use, notable exceptions being the Soviet Navy's seaplanes and flying boats.

The following list shows the old designations by functional letters:

Type Symbol	*Purpose*
I	Fighter
DI	Two-seat Fighter
BSH	Armored Dive Bomber
BB	Short-range Bomber
SB	Medium Bomber
DB	Long-range Bomber
TB	Heavy Bomber
MI	Navy Fighter
MT	Mining and Torpedo
PB	Dive Bomber
R	Reconnaissance
PS	Transport
MR	Reconnaissance Seaplane
MBR	Short-range Reconnaissance Seaplane
MDR	Long-range Reconnaissance Seaplane
KOR	Shipborne
U	Elementary Training
UT	Advanced Trainer
A	Autogiro

Examples of the change in designation:

BB–22	Became Yak–4
PB–100	Became Pe–2
TB–7	Became Pe–8
DB–3f	Became Il–4
U–2	Became Po–2
BSH	Became Il–2
PS–80	Became Li–2

The present system of aircraft designation is apparently directly copied from that which the Germans employed, whereby aircraft were associated with their designers (e. g., "He" for Heinkel), and not directly with their role. Thus, aircraft and engines are designated by the initials or an abbreviation of the designer or the design team names, followed by a hyphen and a number. The numbers are not always in the correct order of sequence. Furthermore, the Soviets apparently have no positive system of differentiating between sub-types and modified types, such as the Yak–15 and the modified version with an added nose wheel.

The fact that an aircraft is the most recent design of a Soviet designer does not signify that the next highest number will be assigned; certain earlier numbers of experimental or preliminary designs have been adopted for a later design.

An obvious example is the Yak–3, which was developed from the Yak–9, both designed by Alexander S. Yakovlev. A more recent example is the Tu–4 (USSR B–29; a Tu–4 design, not similar to the present aircraft of that designation, was under way during World War II but was never placed in production. Nevertheless, it has been observed that the Soviets are adhering to a general application of odd and even numbers to specific categories. Odd numbers are generally fighters or fighter trainers (La–7; MIG–9; Yak–15, etc.) while even numbers apply to all other types (Pe–8, bomber; Il–12, transport; etc.).

A few Soviet aircraft have, from time to time, been given names, the widely publicized "Stormovik" and "Maxim Gorki" are instances. Others are the helicopter "Omega," and the tail first "Utka" or "Duck."

The following list shows the more important designers, abbreviated by name in alphabetical order.

B	Beriev
ANT	Andreas Nickolaievitch Tupolev
BI	Berendjak and Issariev
Er	Ermolaev
Il	Ilyushin
Kli	Klimov
La	Lavochkin
LAGG	Lavochkin, Gorjunov and Gudkov
Li	Lisitsin

Mi	Miassishchev
MIG	Mikoyan and Gurevich
Mik	Mikoyan
Mil	Mil
Pe	Petlyakov
Po	Polikarpov
SHCHE	Shchervbakov
Shv	Shvetsov
Su	Sukhoi
Tu	Tupolev
Yak	Yakovlev

During World War II a large number (said to be more than 13,000) of American-type aircraft were transferred to the U. S. S. R. under Lend Lease. Their designations, it appears, have been retained—i. e., the P–63 "King Cobra." Foreign aircraft made in Russia under license were, however, given a straight Soviet designation. An example is the "Skytrain" (DC–3/C–47/R4D) which was renamed the Li–2. Training versions of a few of the operational fighters carry the prefix "U"—thus the ULa–7, UYak–3, UMIG–15, UIl–28, etc. Specially designed operational trainers are being turned out, such as the Yak–11 fighter/trainer.

Soviet Aircraft Designation System

There has been a long standing requirement for a simple system for designating Soviet aircraft. Such a system has been developed and introduced for use by the military services.

This new designation system consists of five major categories of Soviet Aircraft with names assigned to each aircraft bearing an initial letter descriptive of its operational role, as follows:

"F" for fighters.

"B" for bombers.

"C" for cargo-transports.

"H" for helicopters.

"M" for miscellaneous aircraft which will include all types of aircraft other than the first four named.

Names of one syllable, bearing the appropriate initial letter as indicated in the preceeding paragraph, will be used to designate propeller driven aircraft including those driven by turboprop engines. Names of two syllables, bearing the proper initial letter will be assigned to jet-propelled aircraft.

The U. S. S. R. recognition sheets have been brought up to date with this supplement to include the new names assigned in accordance with the foregoing designation system.

The new designations will not be adopted for Soviet aircraft that are obsolescent or unlikely to appear in front line service. A name assigned to an aircraft in conformance with the system will not be altered in the event additional characteristics or change in operational role of this aircraft later become known, unless such changes involve distinguishable recognition differences.

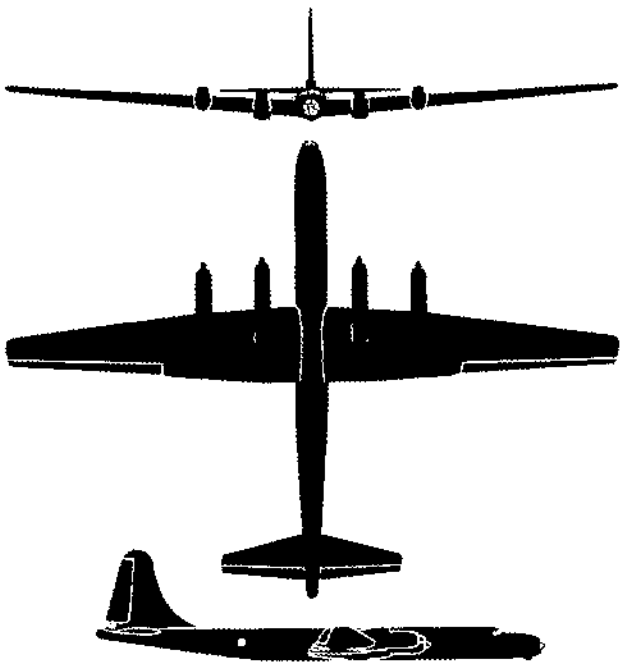
This system of naming Soviet aircraft will be an improvement from many points of view. One in particular will tend to obviate the variety of Soviet spelling, designations, numbers and designers allotted Soviet aircraft by all and sundry. This condition, of course, tends to bewilder and confuse the issue.

A parallel system of Japanese code names existed during World War II. The use of easily remembered names such as those of boys and girls was officially introduced to meet an emergency and it proved the only way in the Pacific to save life and reduce casualties suffered through faulty identification. This code name system proved to be the way to teach the bulk of personnel Jap aircraft, which had highly complicated designations. A "Val" was a name easy to remember, but to try and remember it as the Aichi 99 was a different matter altogether.

In introducing names for Soviet aircraft, it is not intended that all the designations and background knowledge on Soviet aircraft should be forgotten. It should act as a spur to find out what is behind the name.

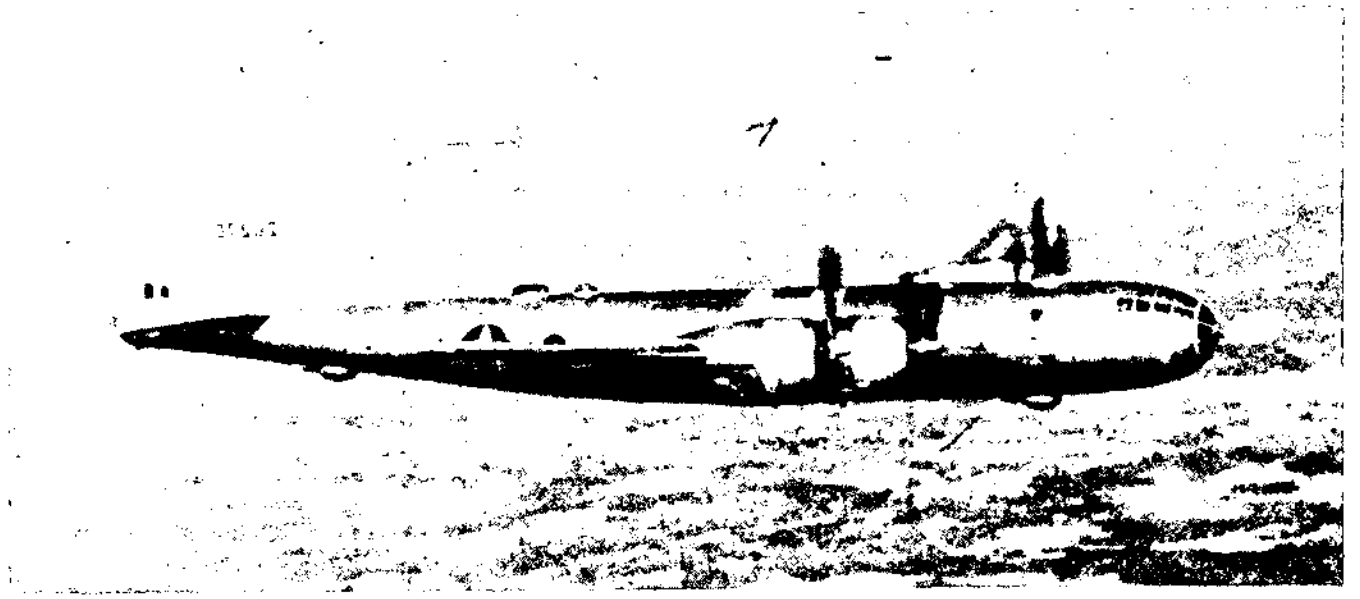
SOVIET EQUIPMENT

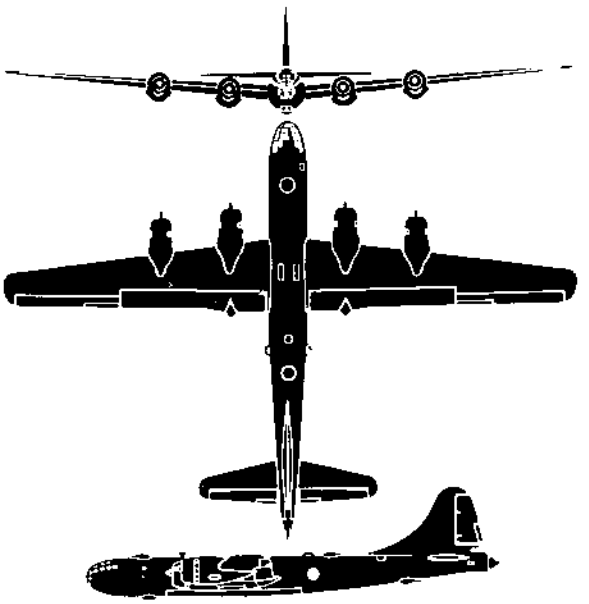
Type	*Designation*	*Manufacturer*	*Country*
Heavy Bomber	Bison		U. S. S. R.
Medium Bomber	Barge	Tupolev	U. S. S. R.
	Bull (Tu–4)	Tupolev	U. S. S. R.
	Pe–8	Petlyakov	U. S. S. R.
	Badger (jet)		U. S. S. R.
Light Bomber	Buck (Pe–3)	Petlyakov	U. S. S. R.
	Buck (Pe–2)	Petlyakov	U. S. S. R.
	Bat (Tu–2)	Tupolev	U. S. S. R.
	Bob (Il–4)	Ilyushin	U. S. S. R.
	DB–3	Ilyushin	U. S. S. R.
	SU–2	Sukhoi	U. S. S. R.
	Butcher (Il–28)	Ilyushin	U. S. S. R.
	Bosun (jet)	Tupolev	U. S. S. R.
Attack	Bark (Il–2)	Ilyushin	U. S. S. R.
	Beast (Il–10)	Ilyushin	U. S. S. R.
	Box (A–20A)	Douglas	U. S. A.
	Bank (B–25D)	North American.	U. S. A.
Fighter	Yak–3, –5	Yakovlev	U. S. S. R.
	Frank (Yak–9)	Yakovlev	U. S. S. R.
	Yak–15	Yakovlev	U. S. S. R.
	Feather (Yak–17).	Yakovlev	U. S. S. R.
	Flora (Yak–23)	Yakovlev	U. S. S. R.
	La–5	Lavochkin	U. S. S. R.
	Fin (La–7)	Lavochkin	U. S. S. R.
	Fritz (La–9)	Lavochkin	U. S. S. R.
	Fang (La–11)	Lavochkin	U. S. S. R.
	Fargo (MIG–9)	Mikoyan & Gurevich	U. S. S. R.
	Falcon (MIG–15).	Mikoyan & Gurevich.	U. S. S. R.
	Fantail (jet)	Lavochkin	U. S. S. R.
Fighter—Cont.	Fresco (jet)	Mikoyan & Gurevich.	U. S. S. R.
	Fred (P–63)	Bell	U. S. A.
Reconnaissance.	Mop (GST) (PBY)	State Factory	U. S. S. R.
	Mug (MDR–6)	Blochavindin	U. S. S. R.
	Mote (MBR–2)	Blochavindin	U. S. S. R.
	Mole	Berieve	U. S. S. R.
	Madge	Berieve	U. S. S. R.
Transport	Colt (An–2)	Antonov	U. S. S. R.
	Coach (Il–12)	Ilyushin	U. S. S. R.
	Crate	Ilyushin	U. S. S. R.
	Clam (Il–18)	Ilyushin	U. S. S. R.
	Cab (Li–2)	Lisitsin	U. S. S. R.
	Cart (Tu–70)	Tupolev	U. S. S. R.
	Crib (Yak–6)	Yakovlev	U. S. S. R.
	Creek (Yak–12).	Yakovlev	U. S. S. R.
	Crow (Yak–14)	Yakovlev	U. S. S. R.
	Cork (Yak–16)	Yakovlev	U. S. S. R.
	SHCHE–2	Shecherbakov	U. S. S. R.
Trainer	Mule (Po–2)	Polikarpov	U. S. S. R.
	Mink (UT–2)	Yakovlev	U. S. S. R.
	Mark (Yak–7)	Yakovlev	U. S. S. R.
	Moose (Yak–11).	Yakovlev	U. S. S. R.
	Max (Yak–18)	Yakovlev	U. S. S. R.
	Magnet (UYak–17).	Yakovlev	U. S. S. R.
	Midget (UMIG–15).	Mikoyan & Gurevich	U. S. S. R.
	Mascot (UIl–28).	Ilyushin	U. S. S. R.
Helicopter	Hare	Mil	U. S. S. R.
	Hound	Mil	U. S. S. R.



The "Barge" is a straight-wing four-engined large bomber. This aircraft was observed in flight at a Soviet air show. In appearance, the Barge's large round fuselage with its up-swept after section resembles that of the U. S. Constellation. A stubby fin fairing atop the fuselage introduces a prominent rudder and fin. The stabilizer is conventional and is attached to the fuselage. A tail gun turret is located at the base of the fin. The wing is mid-mounted with four engine nacelles extending well forward from the leading edge of the wing. Superficially, the Barge might be said to resemble the "Bull" (TU-4), thus linking it to the designer Tupolev. The Barge is not as large as the U. S. B-36, but it is larger than the Bull.

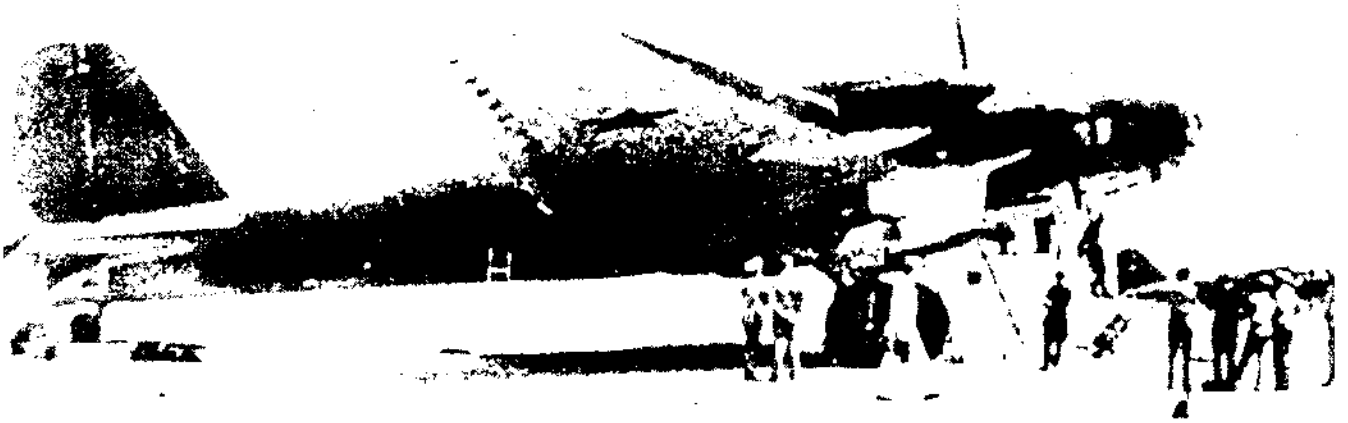
SPAN: 180′ **LENGTH: 130′**
ENGINE: 4/turboprop or reciprocating.
MAX. SPEED:
RANGE:
ARMAMENT:

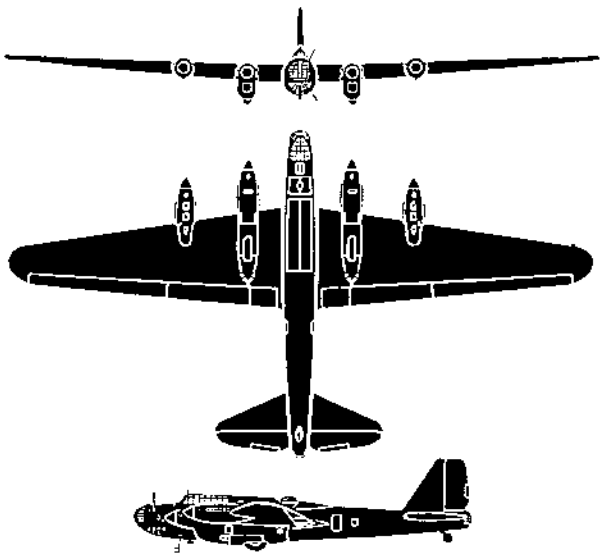




The Soviet "Bull" (TU–4) is a four-engine low-wing bomber. A great number of these aircraft have been seen at air shows held around Moscow. The Bull is a copy of the U. S. B–29 Superfortress, several examples of which were confiscated by the Soviets after being forced to land in Soviet occupied territory before the end of the war. From the captured B–29's the Soviets have also produced a 72-seat pressurized passenger transport designated the "Cart" (TU–70). The redesign of the B–29 was produced by the versatile Andrei Tupolev, the co-founder of the U. S. S. R. aviation industry. This aircraft will gradually be replaced by more modern long-range turbojet swept-wing bombers.

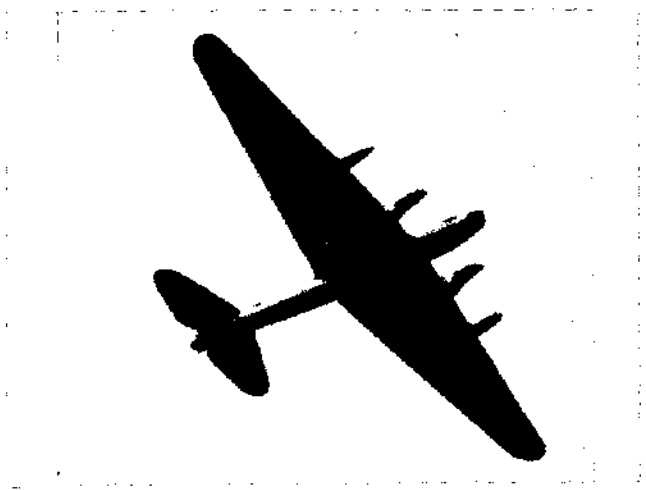
SPAN: 141'3" **LENGTH: 99'0"**
ENGINE: 4/Ash–90, radial/2,320 h. p. each.
MAX. SPEED: 320 knots/30,000 ft.
RANGE: 3,925 nautical miles/195 knots.
ARMAMENT: 11 x 12.7 mm.

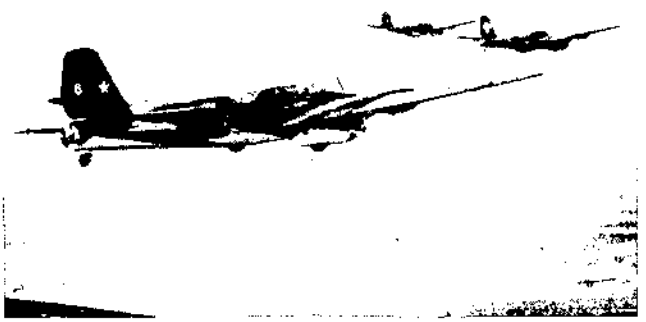


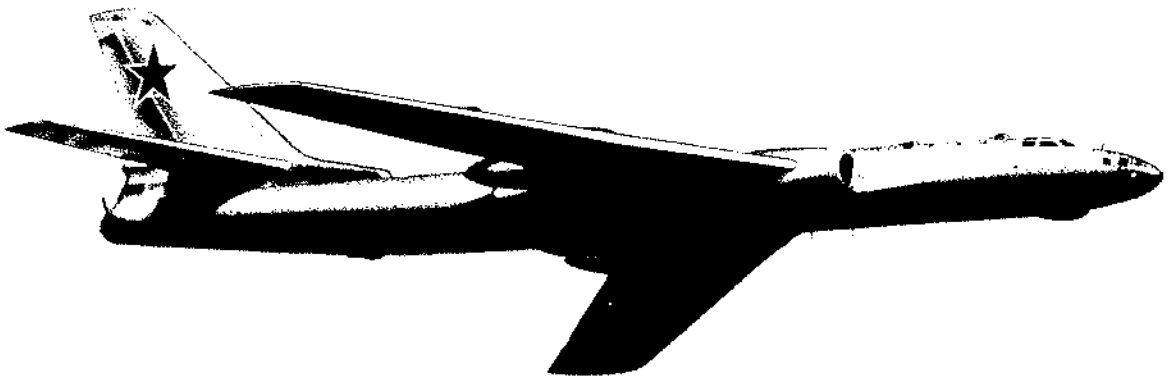


The PE–8, a redesign of the TB–7 by V. Petlyakov is a four-engine long range heavy bomber. The engines are in-line and project well forward of even tapering wings. The inboard engines have very deep nacelles differing from the small round outboard nacelles, and house a conventional retracting landing gear. A dorsal gun turret is just aft of a raised greenhouse. The stabilizer is tapered with round tips, while the single fin and rudder is tall and angular. The PE–8 was Soviet's best known long range bomber in World War II and was used in raids over Berlin. The TB–6B, an earlier version, was used in prewar Polar expeditions. Later models are fitted with radial engines.

SPAN: 129'10". **LENGTH:** 76'5".
ENGINE: Ash–82; radial/1,600 h. p.
SPEED: 260 knots/20,000 ft.
RANGE: 2,710 nautical miles/180 knots.
ARMAMENT: 4 x 12.7 mm.; 2 x 20 mm.; 2 x 7.62 mm.

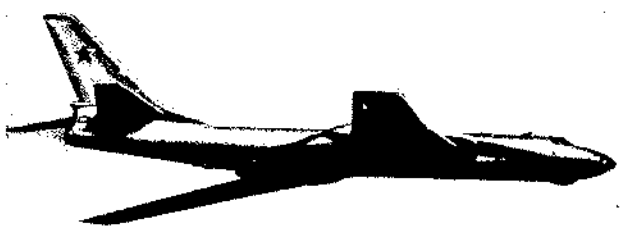




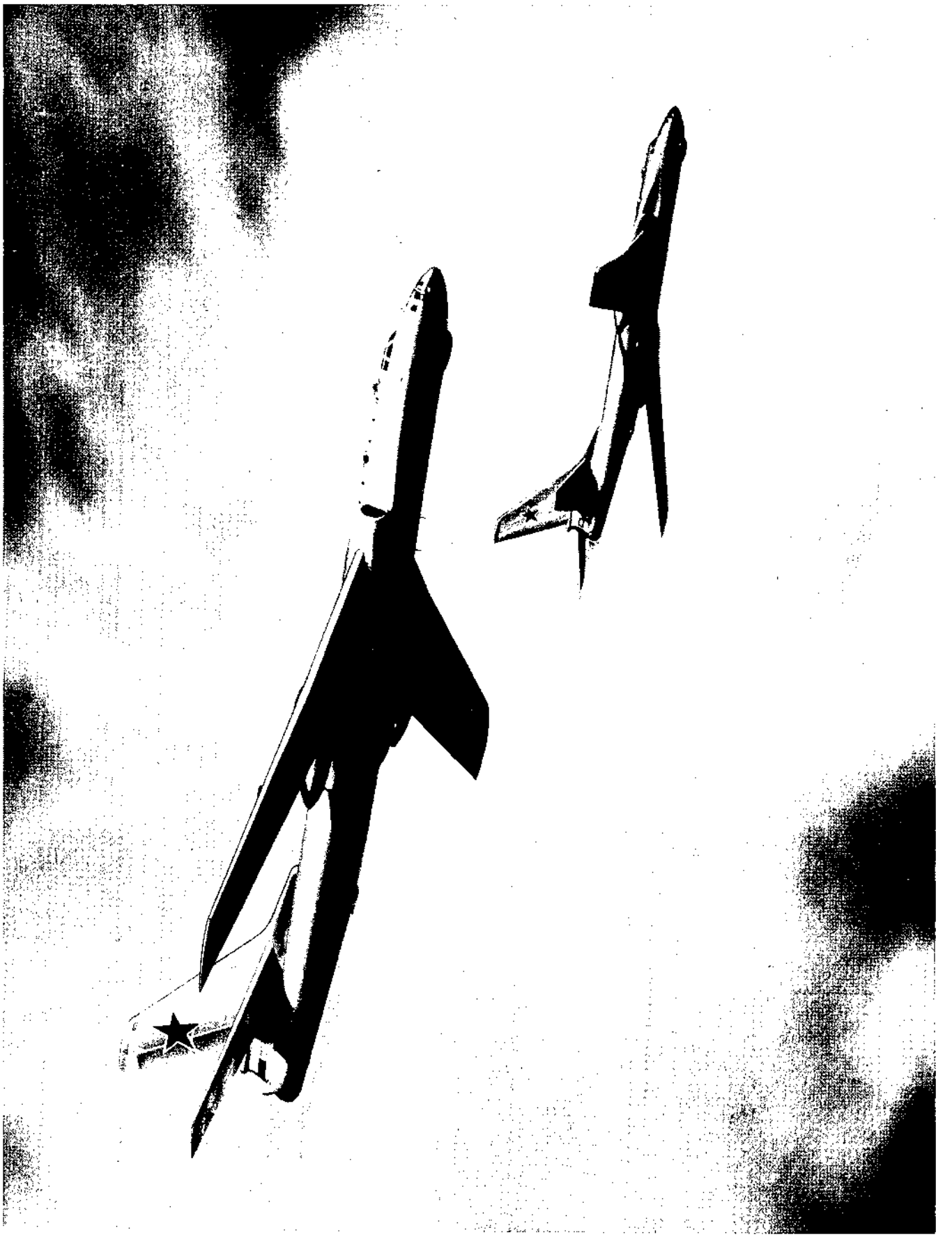


The Badger swept-wing twin-jet bomber was observed at the Soviet 1954 May Day Show. Nine of these new bombers were seen flying in a formation led by a single large four-jet swept-wing bomber (Bison). Following closely behind the Badgers were formations of Fresco swept-wing jet fighters. The twin-jet bombers appeared very graceful in flight. Two large flush air intakes are on the sides of the Badger's fuselage while the exhaust is out the trailing edge of the wing near the wing roots. The swept-wing is mid-mounted. In some views the Badger's tail resembles the "Butcher's" (IL-28); however, it is larger since the Badger is a bigger aircraft. The Badger has been described as being similar to the U. S. B-47. There are differences, though, in that the B-47 has four jets in pods and a thin shoulder-mounted swept-wing.

SPAN: **LENGTH:**
ENGINE: 2/turbojets
MAX. SPEED:
RANGE:
ARMAMENT:

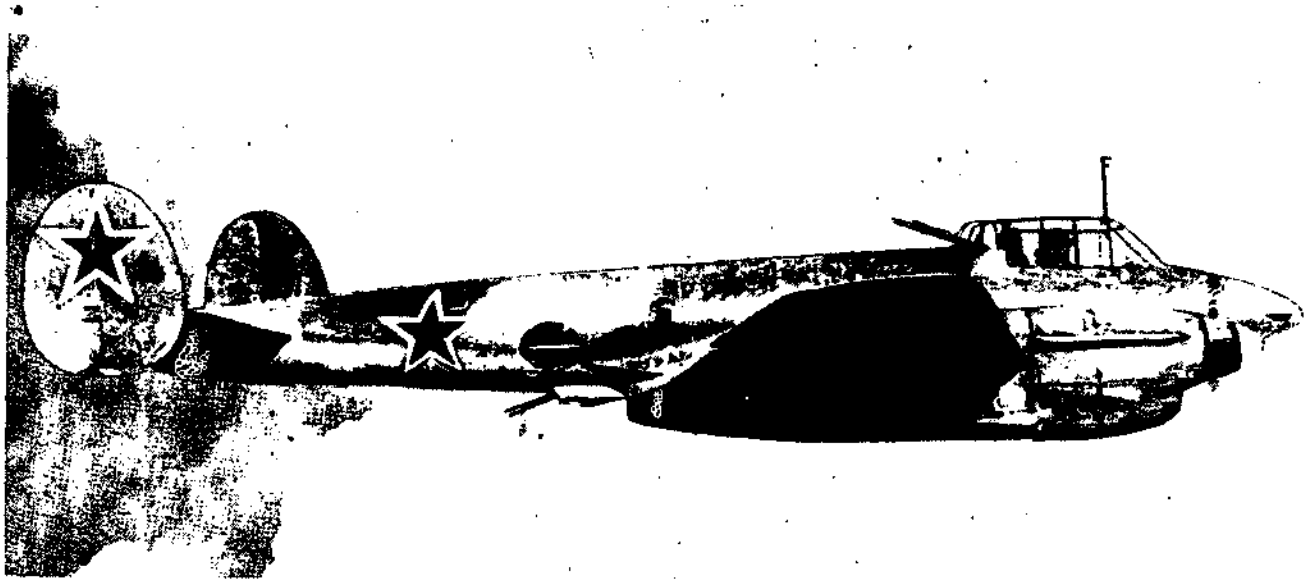


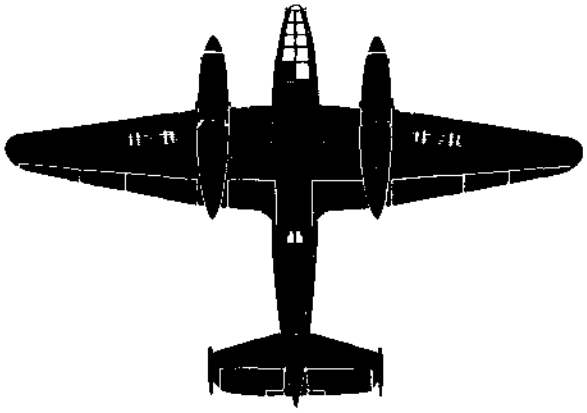
BADGER



U. S. S. R.
SUPPLEMENT NO. 5
JUNE 1954

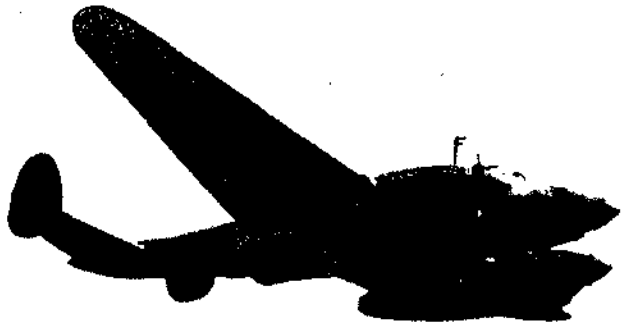
FM 30-30
OPNAV 32P-1200/5
AFM 50-40E

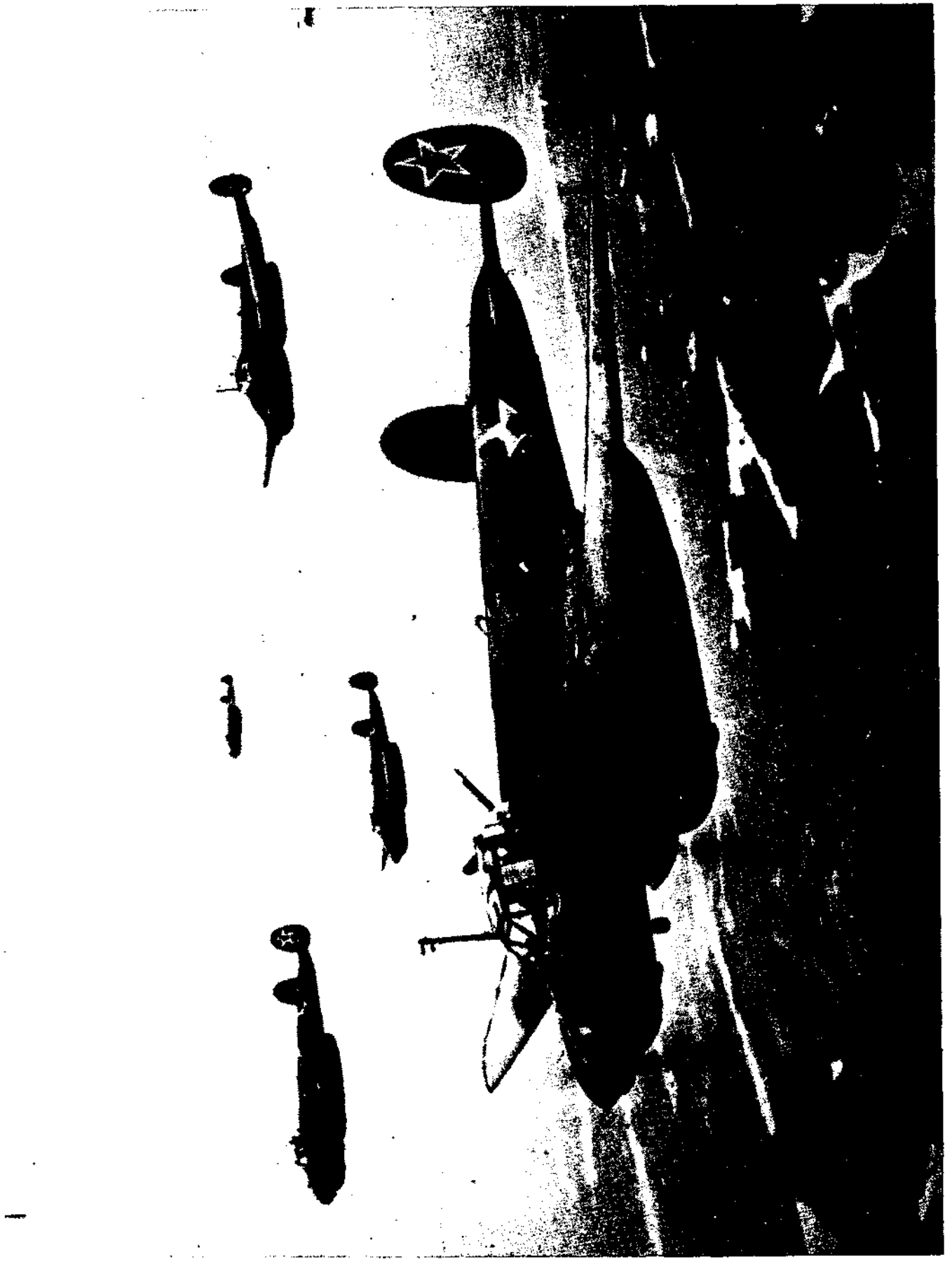


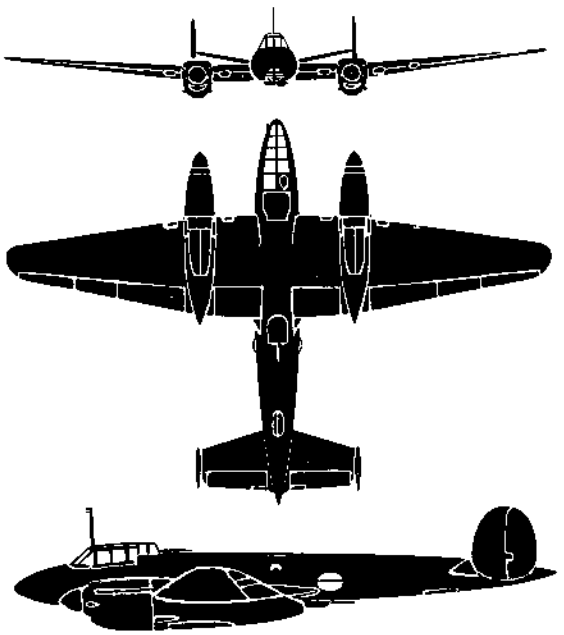


The "Buck" (Pe–2) is a twin-engine low-wing bomber and attack monoplane. The wing center section is almost rectangular and the outer sections taper to rounded tips. The fuselage is slim and the lower section of the nose has transparent panelling. A transparent cockpit inclosure is placed forward of the wing's leading edge. The stabilizer has pronounced dihedral and there are twin oval fins. The engine nacelles extend aft of the wing's trailing edge. The landing gear retracts into nacelles, and a tailwheel also retracts. Maximum bomb load is 2,200 pounds. There is a long-range reconnaissance-fighter version, the "Buck" (Pe–3) with a solid nose and a crew reduced from three to two.

SPAN: 56′1″ **LENGTH: 41′5″**
ENGINE: 2/M–105R, in-line/1,085 h. p. each.
MAX. SPEED: 290 knots/16,400 ft.
RANGE: 540 nautical miles/185 knots.
ARMAMENT: 2 x 7.6 mm; 3 x 12.7 mm.

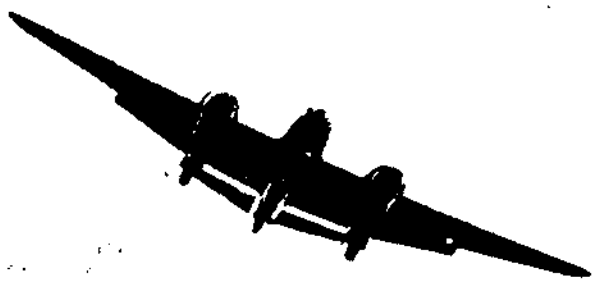


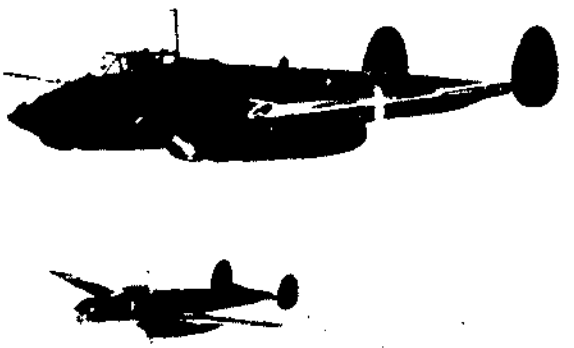


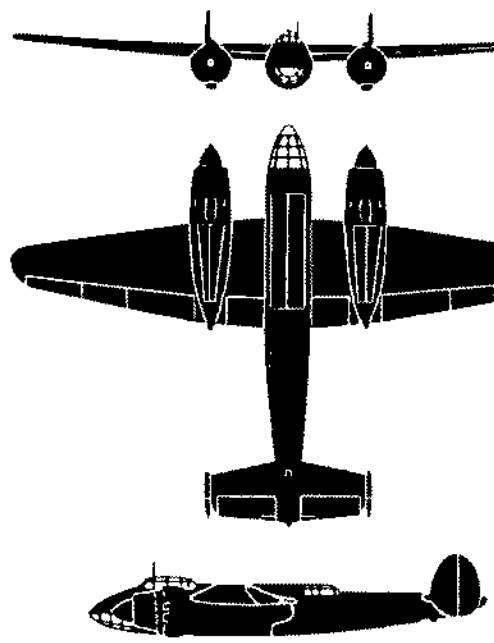


The "Buck" (Pe–3) is a long-range reconnaissance, fighter version of the "Buck" (Pe–2), with the crew reduced from three to two. It is a twin-engine, low-wing monoplane. The wing has a parallel center section and sharply tapered outer section, with elliptical tips. The fuselage is slim, and a prominent cockpit is placed forward of the wing's leading edge. The stabilizer has pronounced dihedral and there are twin oval fins and rudders. The landing gear retracts into the nacelles; the tailwheel also retracts. A bomb load up to 2,200 pounds may be carried and in each nacelle there is an incendiary bomb carrier.

SPAN: 56′1″ **LENGTH: 41′5″**
ENGINE: 2/M–105R, in-line/1,085 h. p. each.
MAX. SPEED: 290 knots/16,400 ft.
RANGE: 750 nautical miles/175 knots.
ARMAMENT: 3 x 12.7 mm; 1 x 7.6 mm.

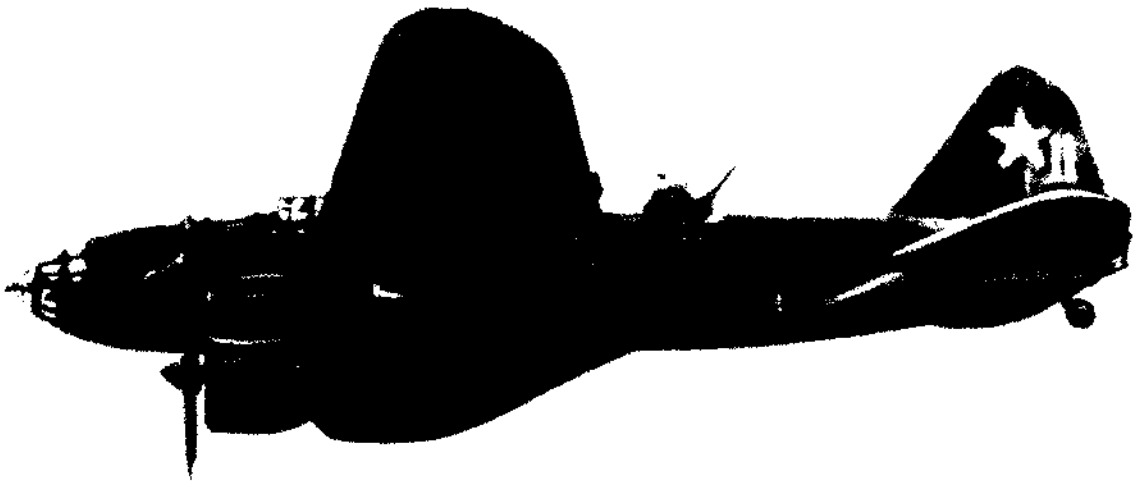


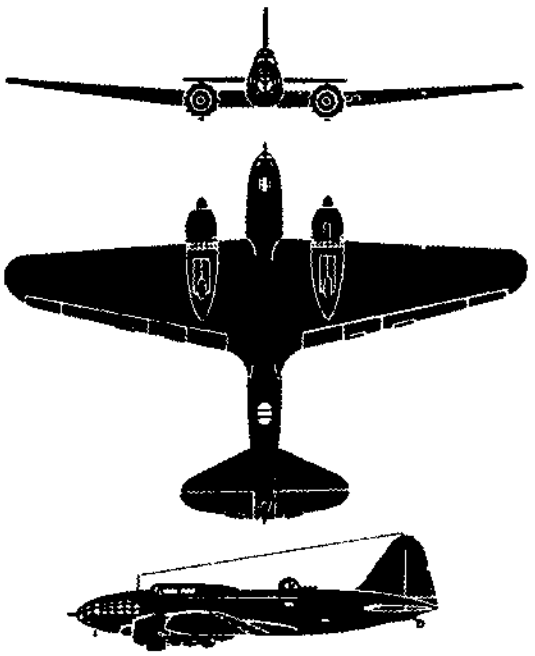




The "Bat" (Tu–2) is a twin-engine high shoulder-wing bomber and attack monoplane. The engines are hung low in the wings in long slender nacelles. The air scoop is prominent on top of the engines. A large propeller spinner is fitted. The fuselage has a deep oval-shape and appears very slender with a sharply pointed nose. There is pronounced dihedral in the stabilizer and the twin fins and rudders are egg-shaped. A gunner's position is located on the dorsal side of the fuselage behind the wing and on the ventral side forward of the stabilizer. Normal bomb load is approximately 3,080 pounds.

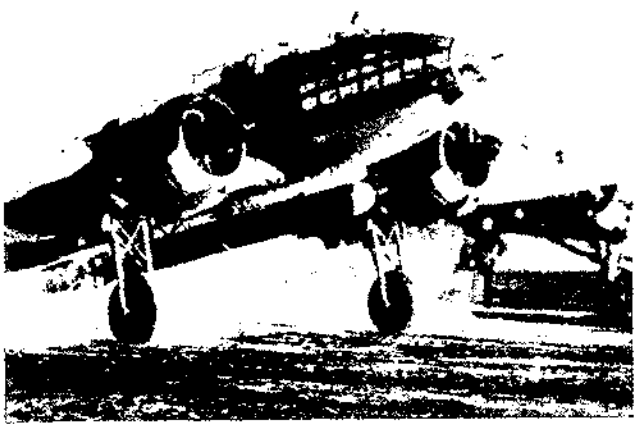
SPAN: 61′10″ **LENGTH: 45′3″**
ENGINE: 2/M–82 FNW, radial/1,825 h. p. each.
MAX. SPEED: 314 knots/19,000 ft.
RANGE: 1,250 nautical miles/200 knots.
ARMAMENT: 2 x 20 mm; 3 x 12.7 mm.

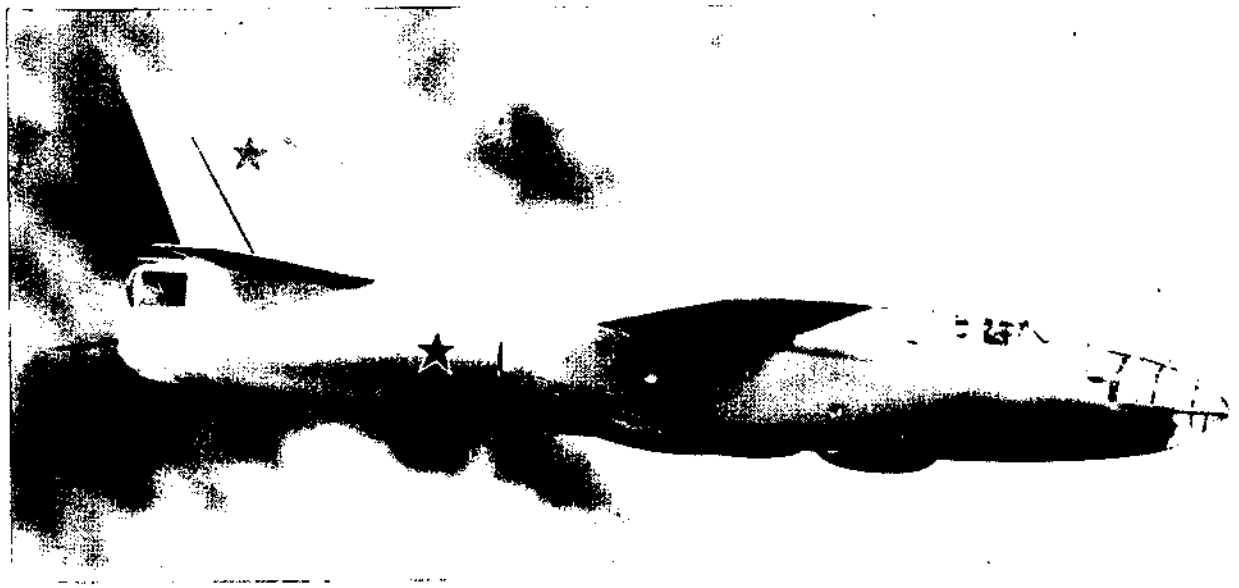


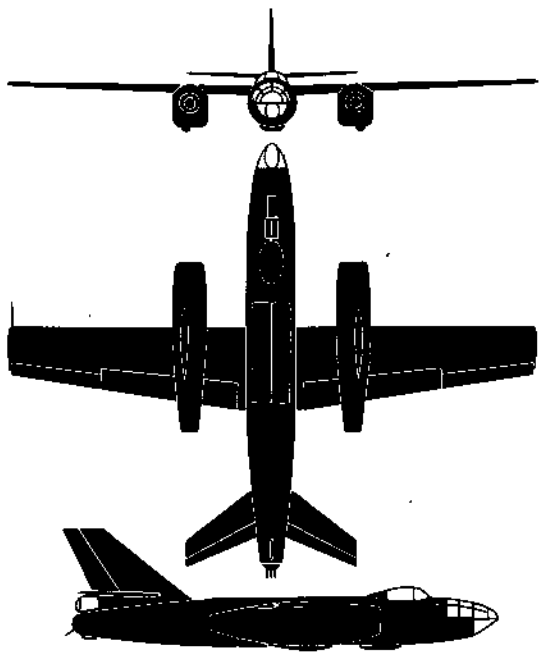


The "Bob" (Il–4), an improved version of the DB–3F, is a twin-engine low-wing long-range bomber and torpedo-carrier. The engines are radial, fairing into a tapering wing with rounded tips. The large wing root fillets are characteristic of many Russian types. There is a transparent nose forward of the raised cockpit canopy. A round turret is centered between the cockpit and a forward tapering fin. The tailplane is tapered with rounded tips. Of interest is Ilyushin's TSKB–26, a twin-engined low-wing transport modeled after the DC–2, which flew from Moscow to Miscow Island, New Brunswick, in April 1939. This aircraft eventually evolved into the IL–4.

SPAN: 70′2″ **LENGTH: 47′7″**
ENGINE: 2/M–82, radial/1,600 h. p. each.
MAX. SPEED: 200 knots/22,960 ft.
RANGE: 600 nautical miles.
ARMAMENT: 2 x 7.6 mm.

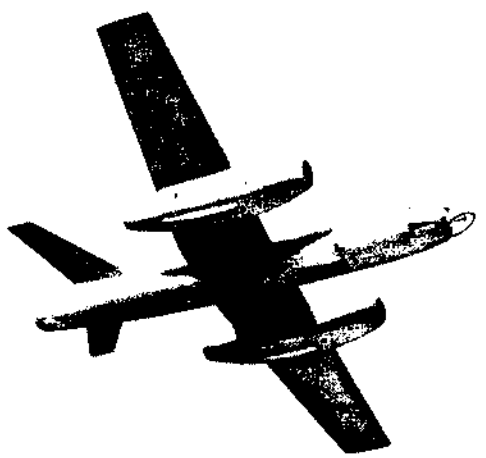


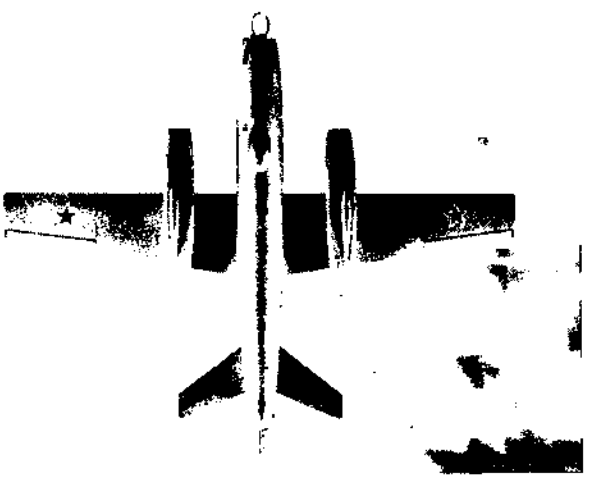


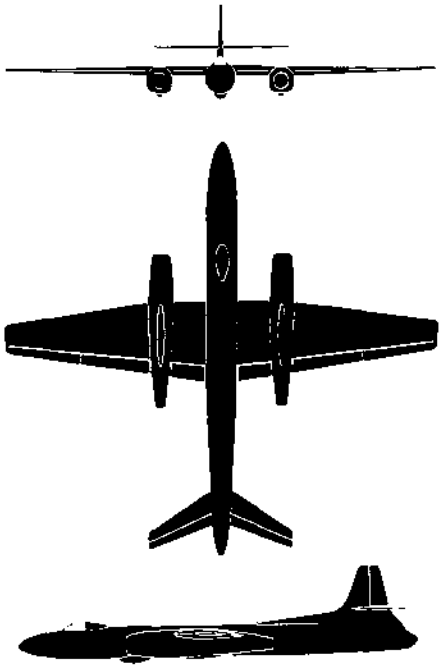


The "Butcher" (Il–28) light jet bomber has been seen in Soviet Air shows and in Korea. Designed by Ilyushin, this twin-jet aircraft appears to have been developed for light bombing. Its fuselage is rounded and it has an overall appearance of angularity. The wings have square tips and join the fuselage sharply without fairing. Straight lines are noticeable throughout the bomber; even the long tapered engine nacelles have flat sides and a square look. Pronounced sweepback is a feature of the empennage. The high mid-wing, like the stabilizer, appears to have moderate dihedral. This all-metal jet bomber is the Soviet's counterpart of the English Canberra (U. S. B–57). The "Mascot" (UIl–28) is a training version with a solid nose and an extra cockpit.

SPAN: 70′6″ **LENGTH: 59′0″**
ENGINE: 2/VK–1, turbojet/6,000-lb. thrust each.
MAX. SPEED: 450 knots plus.
RANGE: More than 1,200 nautical miles.
ARMAMENT: 2 x 23 mm, nose; 2 x 23 mm, tail.

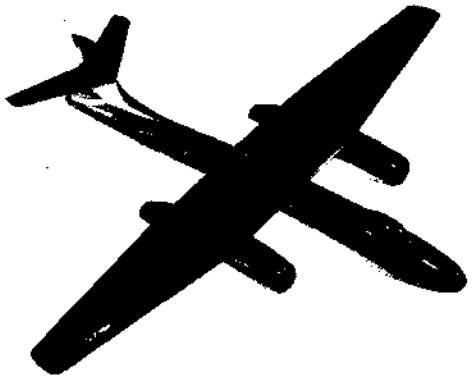






The Tupolev "Bosun" is a twin-jet light bomber somewhat larger than the "Butcher" (Il–28). Tupolev's new jet was first observed in quantity during the 1951 Moscow Air Show. At that time the aircraft were painted grey, denoting Navy affiliation. The long slender lines of the Bosun give this aircraft a more sleek appearance than the now familiar twin-jet Butcher. In common with the latter, however, the Bosun combines a straight-wing with a sweptback horizontal stabilizer. The shoulder-mounted wing is tapered along both edges outboard of the engines. Finally the tail section particularly appears to be greater in depth than width but still holding to the general "slenderized" impression. Apparently the Bosun's only armament is a tail turret.

SPAN: 83′0″ **LENGTH: 80′0″**
ENGINE: 2/VK–1/6,000-lb. thrust each.
MAX. SPEED: 460 knots plus.
RANGE: More than 1,400 nautical miles.
ARMAMENT: 2 x 23 mm in tail.



USSR

BISON

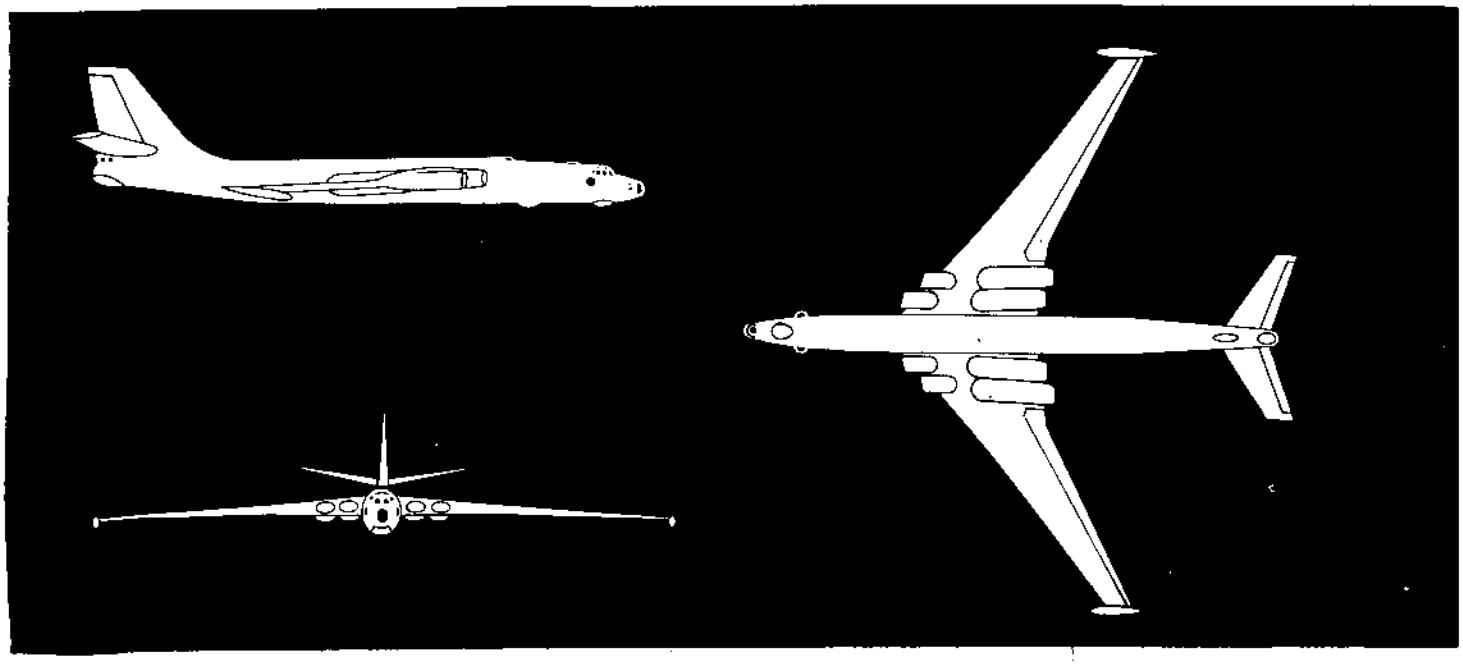
The Bison is a four-jet, swept mid-wing, Soviet heavy bomber. The slim, pencil-shaped fuselage with its forward underslung radome, side-sighting blisters, forward turrets, and tail turret is a recognition feature. The cockpit is topped by a transport type canopy. The severely-swept slender wings contain four buried engines in long, flattened cylinders located within the inboard wing sections. Small wing-tip pods cap the ends of the wing.

SPAN: 170′ LENGTH: 140′
MAXIMUM SPEED: Over 500 knots
ENGINES: 4/Turbojets/15,000 lb. Thrust each
RANGE: More than 4350 nautical miles
SERVICE CEILING: Above 40,000 ft.

FOUR-JET

HEAVY

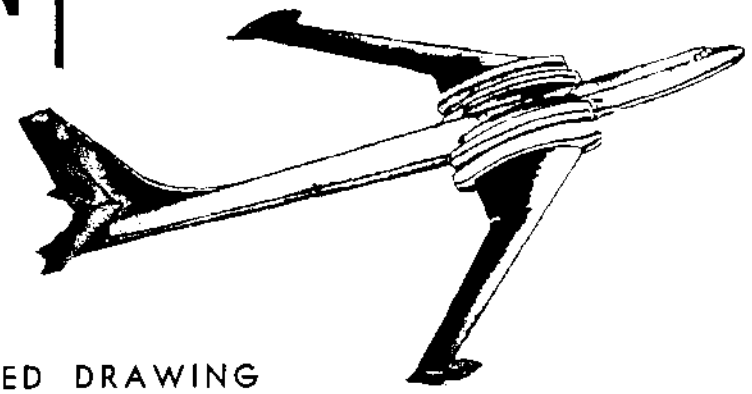
BOMBER



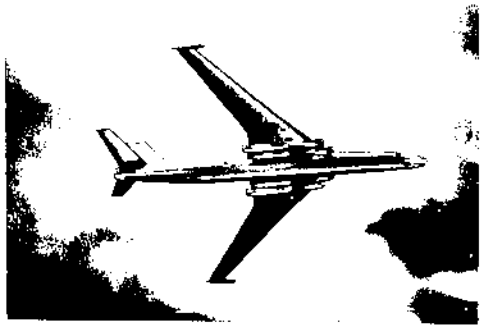
U. S. S. R.
SUPPLEMENT NO. 6
DECEMBER 1956

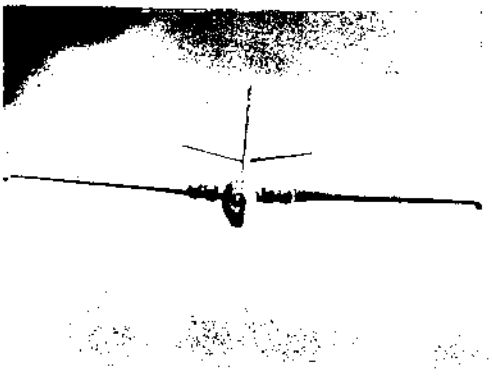
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

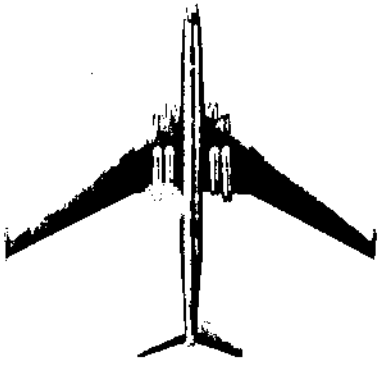
BISON | USSR



ACCENTED DRAWING







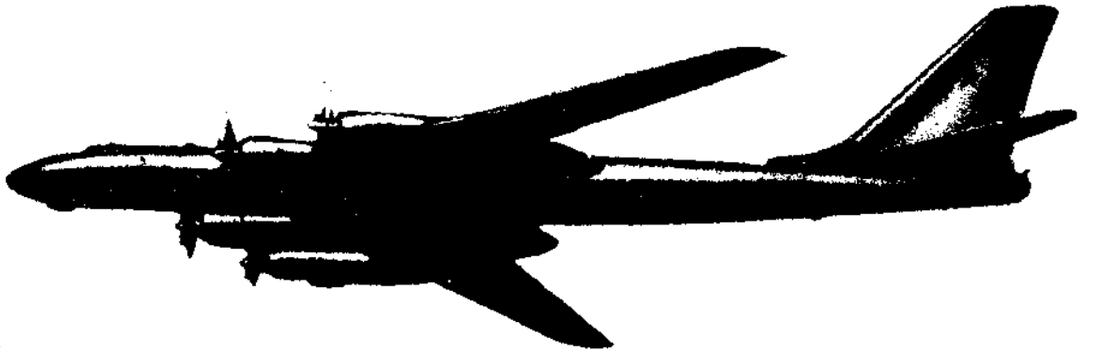
Miscellaneous views of the BISON

Identify the aircraft shown above; correct answers are below

1. BISON
2. B–47
3. COMET 3
4. VICTOR
5. B–52
6. COMET
7. BISON
8. BISON

USSR

BEAR



The Bear is a moderately swept, shoulder-wing, Soviet heavy bomber powered with four turboprop engines. Its recognition features include conventional shaped tail surfaces and swept wings. The long bullet-shaped engines extend far ahead of the wing leading edge and are mounted on the underside of the wing. The engines appear to turn contra-rotating propellers. Sticking out aft of the wings, behind the inboard engines, are two faired structures that resemble squared pods. These trailing pods serve as housing for the main landing gear. The fuselage is long and slim with a transport type cockpit. External fuselage protrusions include a forward underslung radome, one lower aft turret, sighting blisters below the horizontal tail, and a tail turret with associated greenhouse.

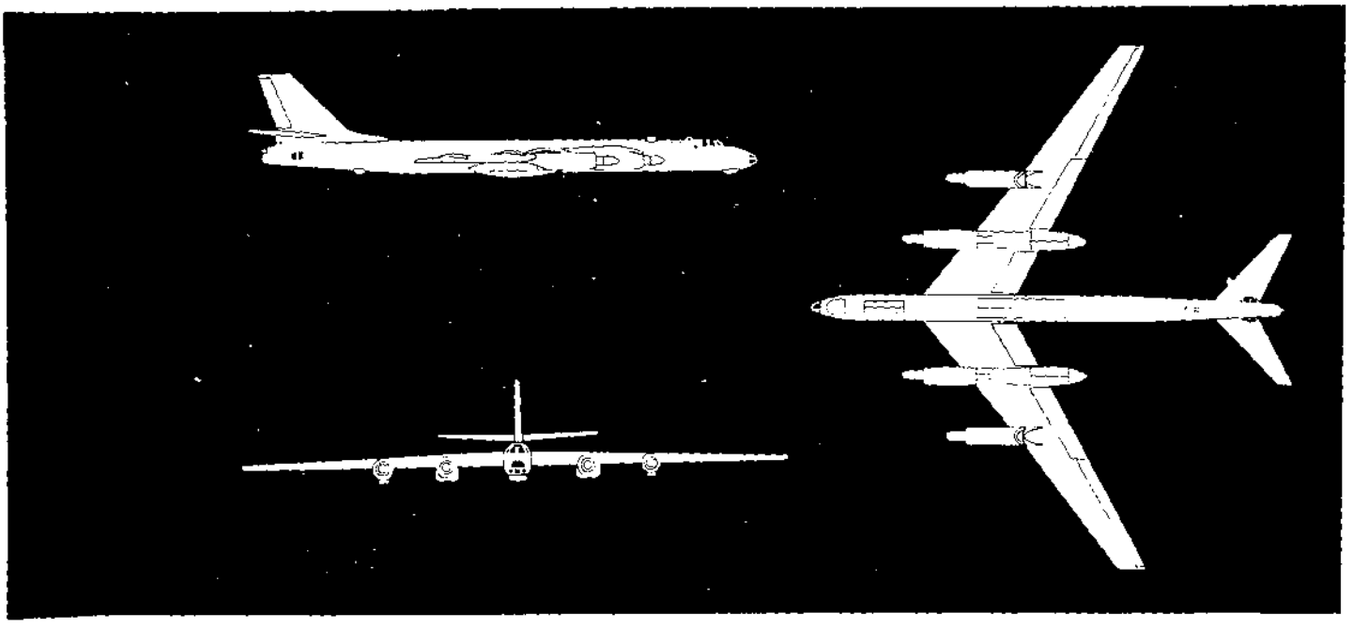
SOVIET

TURBOPROP

HEAVY

BOMBER

SPAN: 146′ LENGTH: 135′
MAXIMUM SPEED: Over 400 knots
ENGINES: 4/Turboprop
RANGE: Over 5000 nautical miles
SERVICE CEILING: Above 35,000 ft.

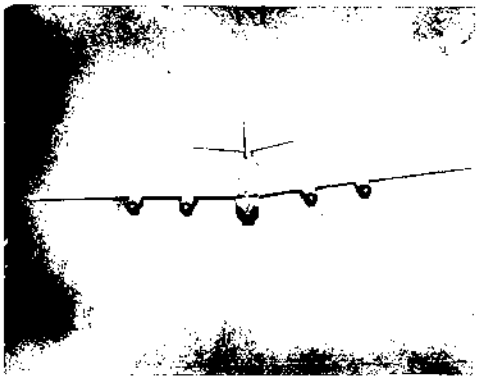


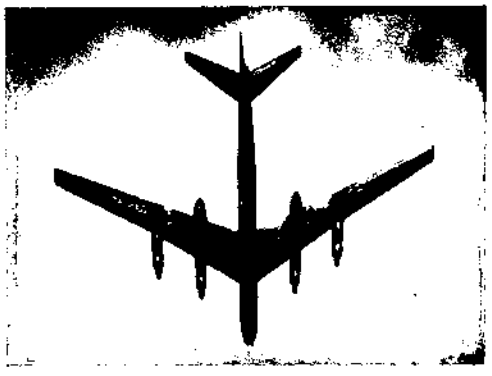
U. S. S. R.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

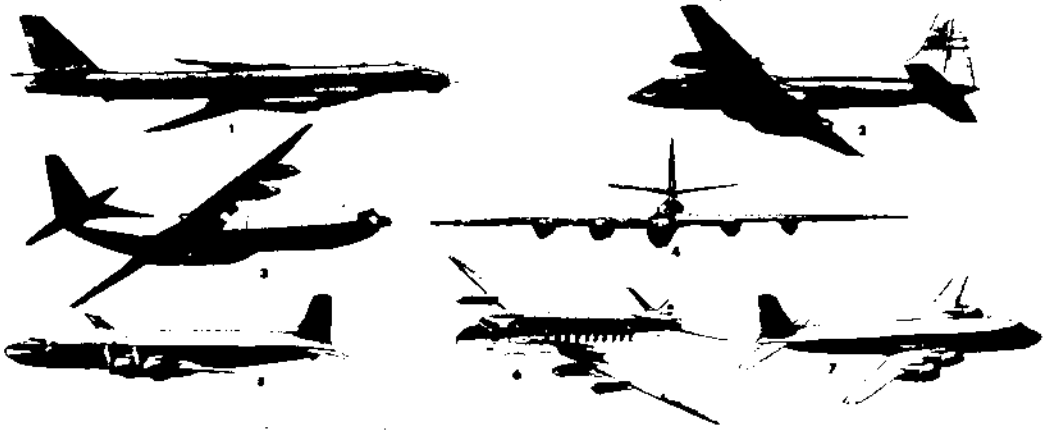
BEAR | USSR

ACCENTED DRAWING





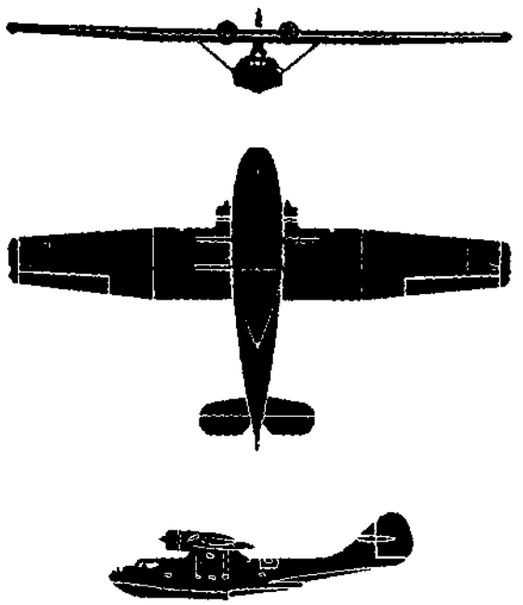
Miscellaneous views of the BEAR



Identify the aircraft shown above; correct answers are below

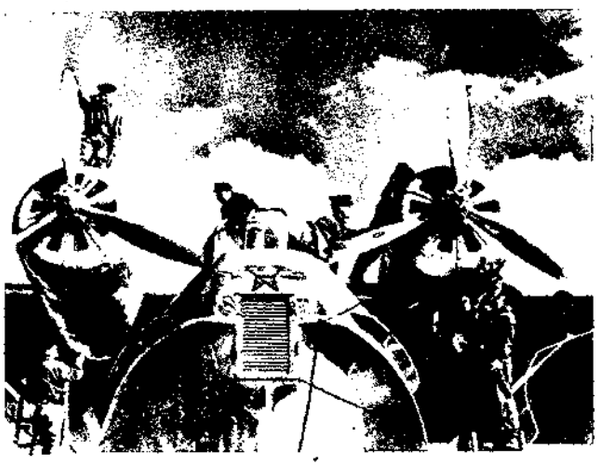
1. BEAR
2. BRITANNIA
3. C-133
4. BEAR
5. DC-7
6. VISCOUNT
7. DC-7

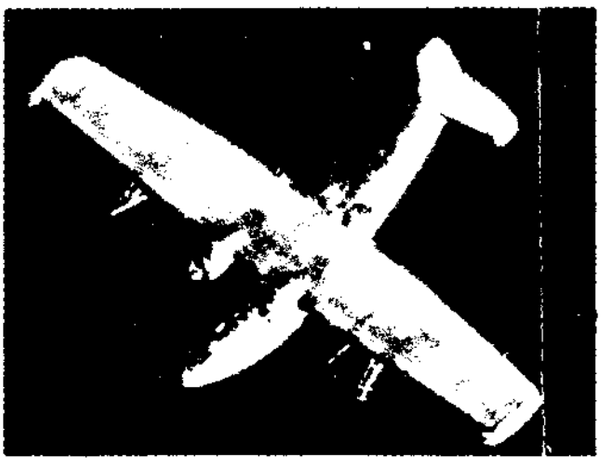
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

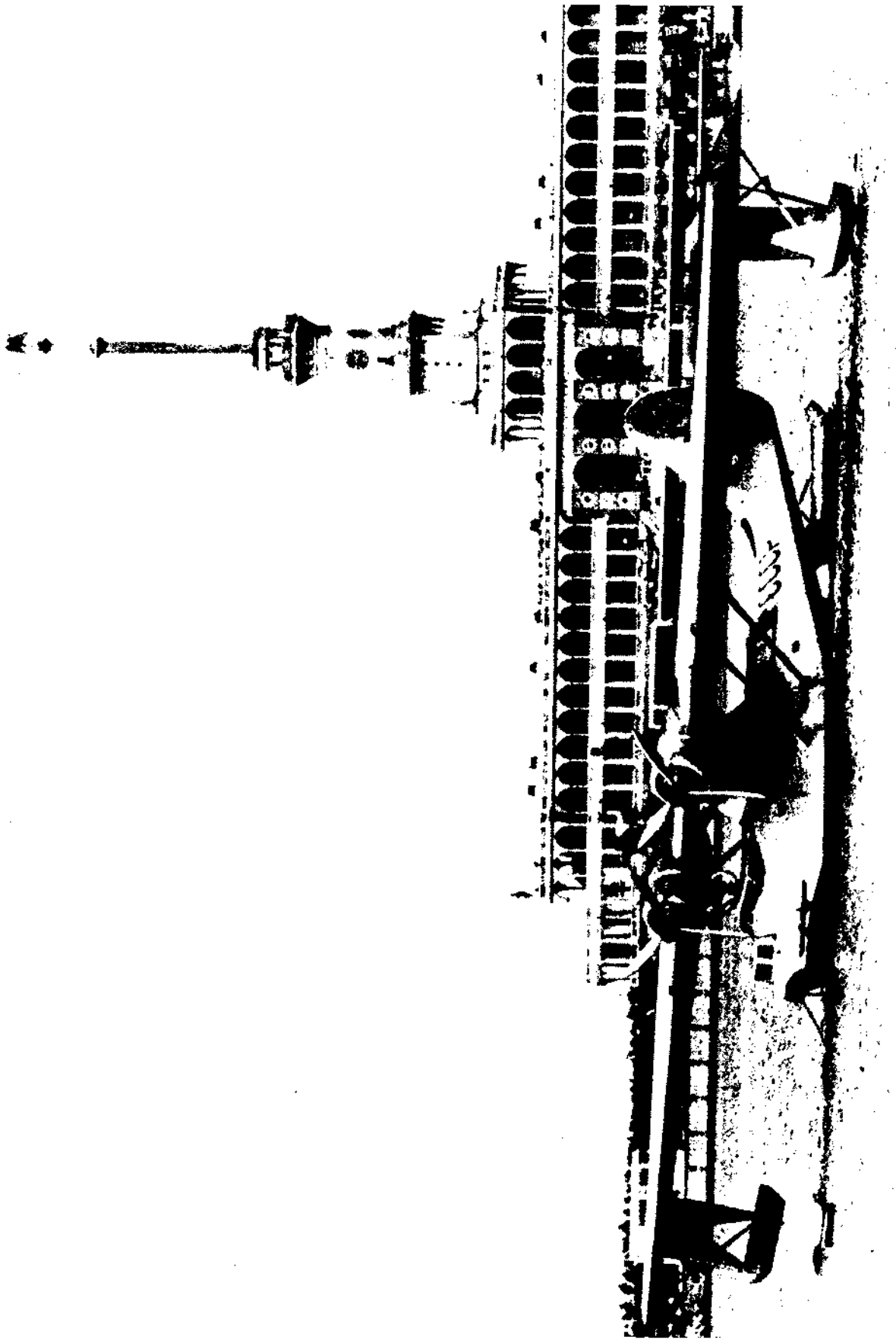


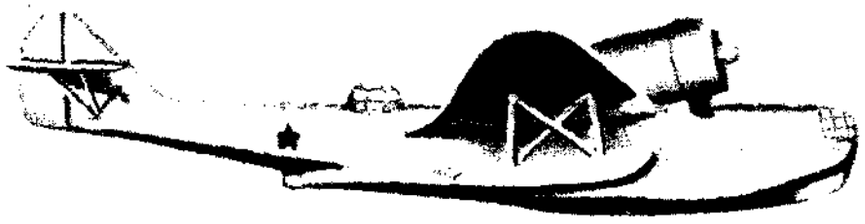
The "Mop" (GST) is the U. S. PBY "Catalina" built under license in the U. S. S. R. The meaning of the designation GST is unknown. It is a twin-engine, parasol-wing, flying boat. The wing center section is parallel in chord, supported above the hull on a streamlined superstructure and is braced to the hull by parallel struts. The outer panels have slight taper to square tips. Lateral stabilizing floats retract outward to form end caps at the wing tips. The hull is a two-step type with semicircular top. A stabilizer is carried high on the single fin. The PBY was also built in Canada by a subsidiary of Boeing and named the Canso.

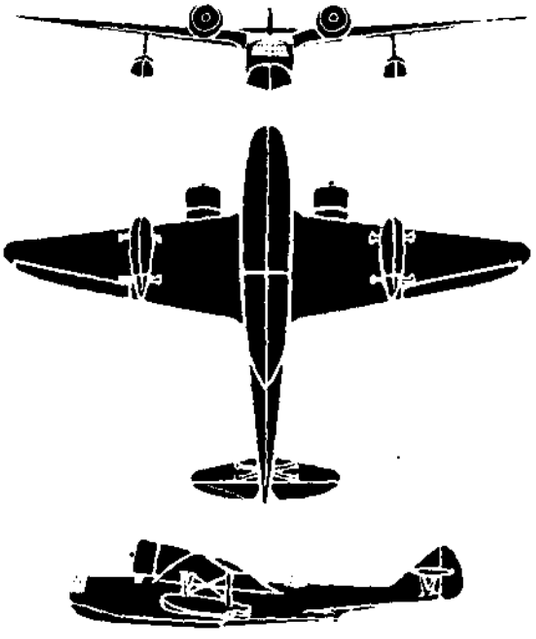
SPAN: 104'0" **LENGTH: 63'10"**
ENGINE: 2/M–62, radial/985 h. p. each.
MAX. SPEED: 160 knots/10,000 ft.
RANGE: 2,300 nautical miles/100 knots.
ARMAMENT: 5 x 7.6 mm; flexible.





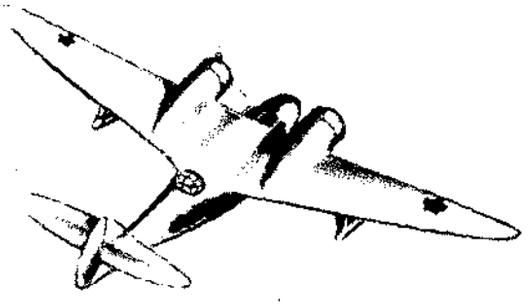


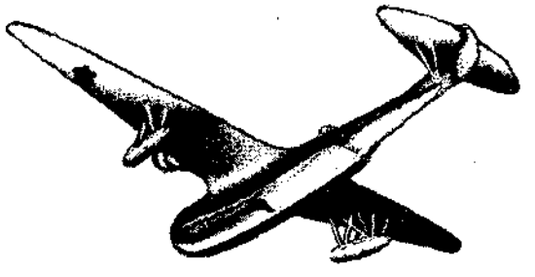


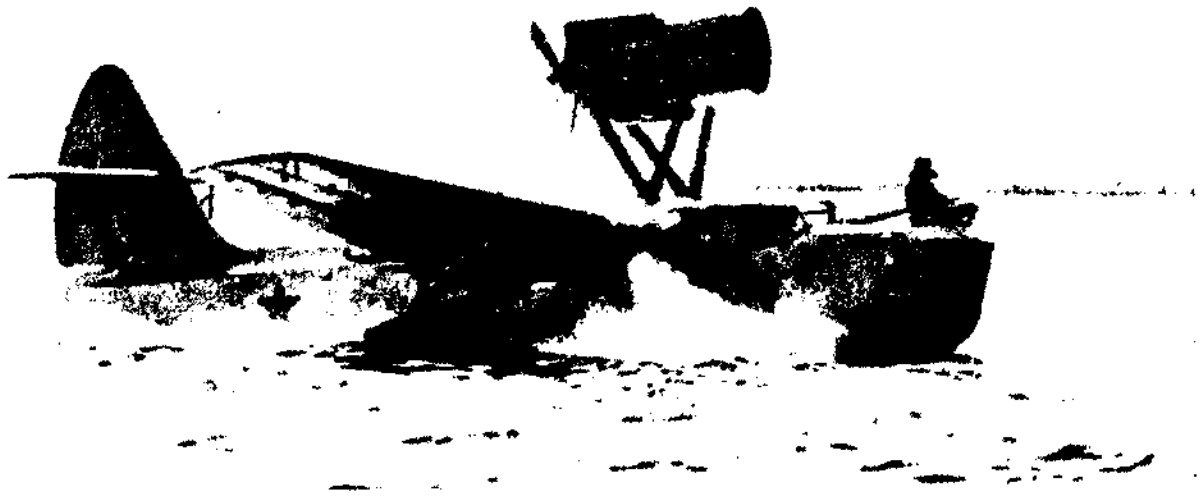


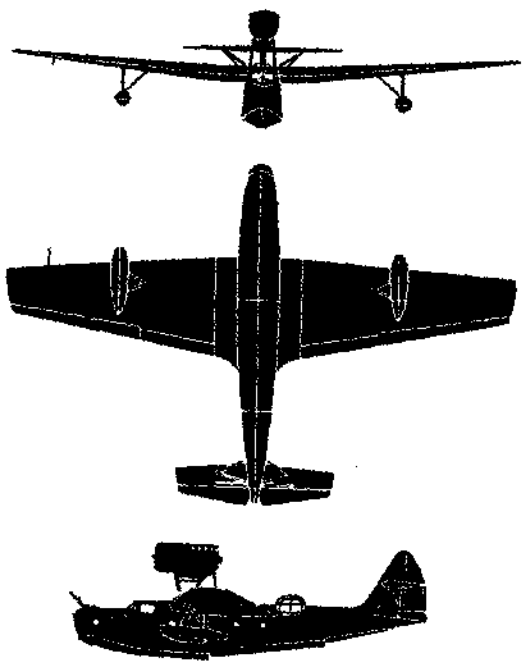
The "Mug" (MDR–6) is a twin-engine, long-range, reconnaissance flying boat. The high cantilever wing tapers on the leading and trailing edges with sharp dihedral on the center-section and less dihedral on the outer sections. The hull is a two-step type with braced single-step stabilizing floats attached about halfway between the hull and the wing tips. The two radial engines are mounted on the leading-edge of the wing. An enclosed cockpit is located forward of the leading-edge with a bow-gun turret and a dorsal gun-turret aft of the wing's trailing edge.

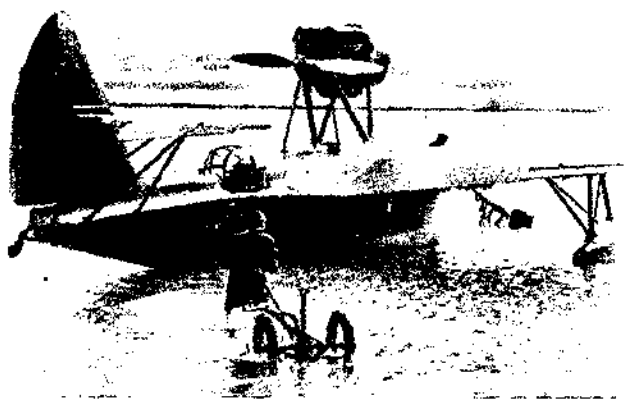
SPAN: 64′0″ **LENGTH: 50′9″**
ENGINE: 2/M–62, radial/985 h. p. each.
MAX. SPEED: 190 knots/14,000 ft.
RANGE: 820 nautical miles.
ARMAMENT: 4 x 7.62 mm.





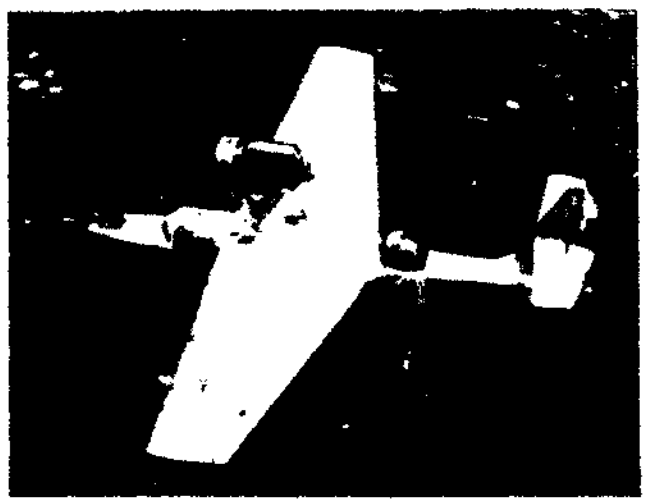


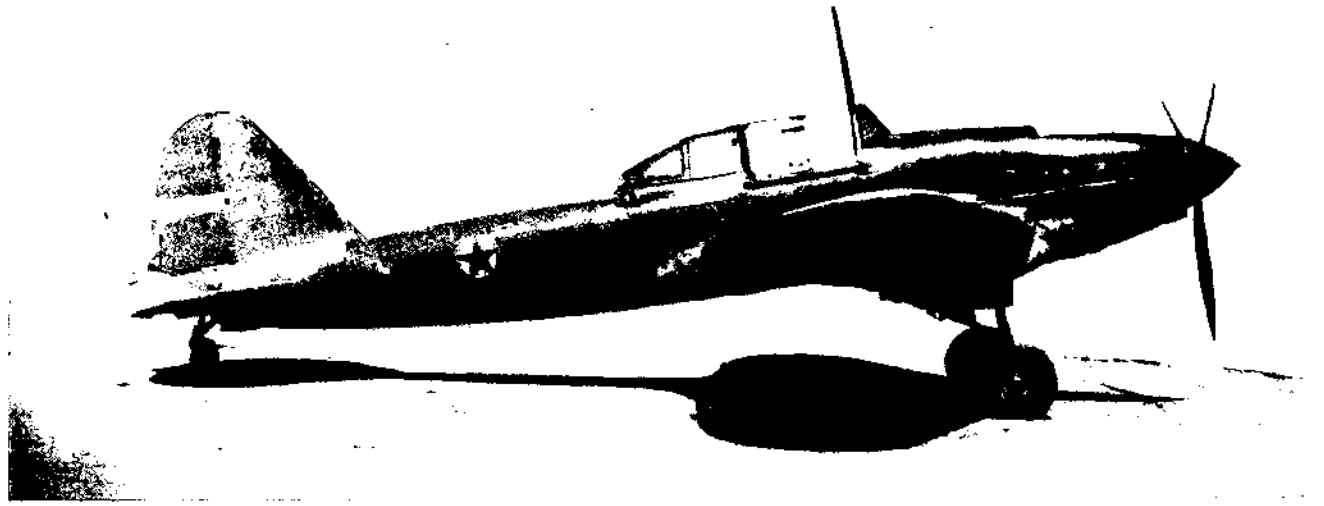


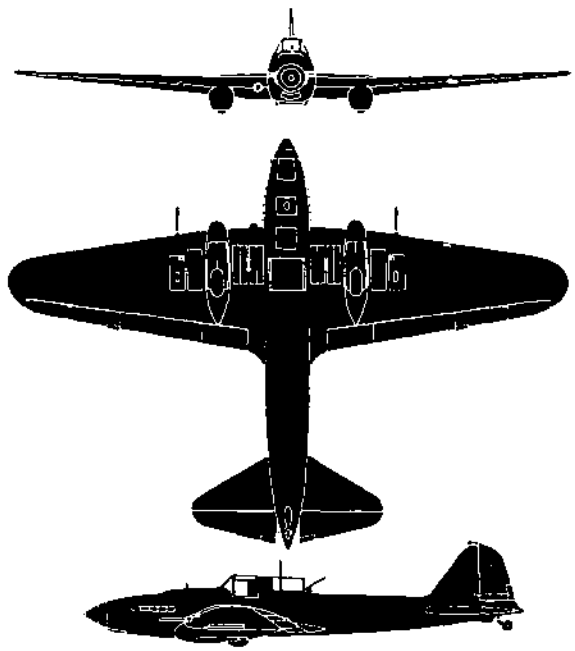


The "Mote" (MBR–2) is a single-engine, flying boat monoplane. The wing is tapered moderately to square tips. The hull is of the two-step type. The strut-braced stabilizer is mounted on a single fin. The cockpit is placed forward of the wing and the engine nacelle is carried above the wing on "N" struts. One engine drives a pusher propeller. Lateral stabilizing floats are fitted on struts under the wing. There is a bow gun ring turret and a dorsal turret which are probably manually operated. The Mote is employed as a reconnaissance bomber.

SPAN: 64'0" **LENGTH: 50'9"**
ENGINE: AM–34RNA, in-line, 810 h. p.
MAX. SPEED: 135 knots/6,550 ft.
RANGE: 570 nautical miles/70 knots.
ARMAMENT: 2 x 7.6 mm; flexible.

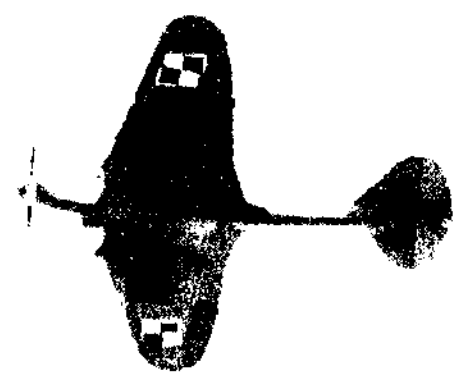


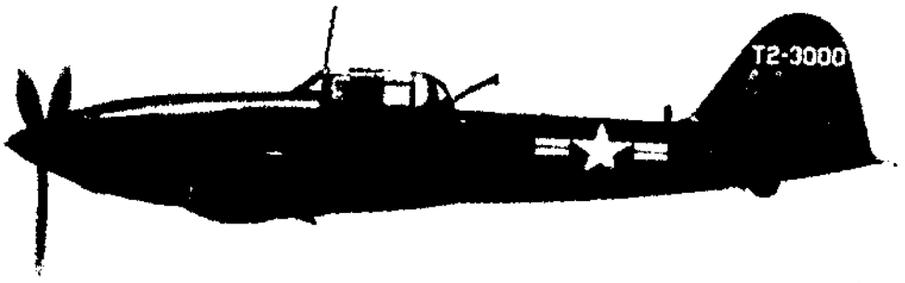


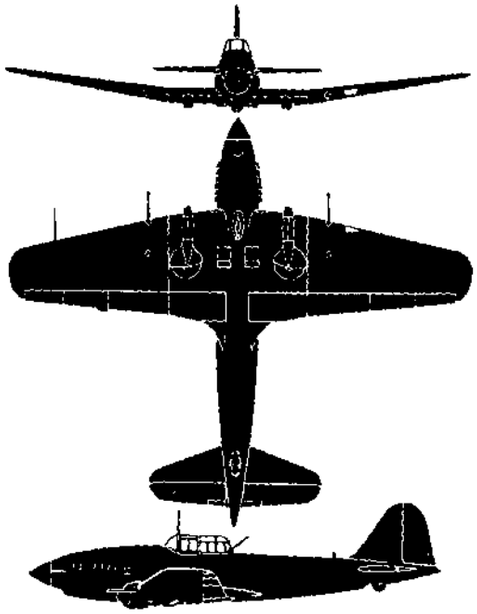


The "Bark" (Il–2 Stormovik) is a single-engine, low-wing monoplane. The wings taper to rounded tips. The fuselage is of small cross-section with a pointed nose. The cockpit is very prominent and there is a single fin and rudder. The landing gear retracts rearward into large fairings beneath the wing; tail wheel is fixed. Later versions of this aircraft have a rear gun position in the cockpit and carry a crew of two. The Bark is an assault bomber and is said to be so heavily armored for strafing work that light cannon fire has small effect on its sides. It was in its element when flying low, attacking German tank and mechanized columns. Satellite air forces still use some of these obsolete aircraft.

SPAN: 47′10″ **LENGTH: 38′2″**
ENGINE: AM–38F, in-line/1,675 h. p.
MAX. SPEED: 240 knots/7,900 ft.
RANGE: 392 nautical miles/151 knots.
ARMAMENT: 2 x 7.6 mm; 2 x 23 mm; 1 x 12.7 mm.

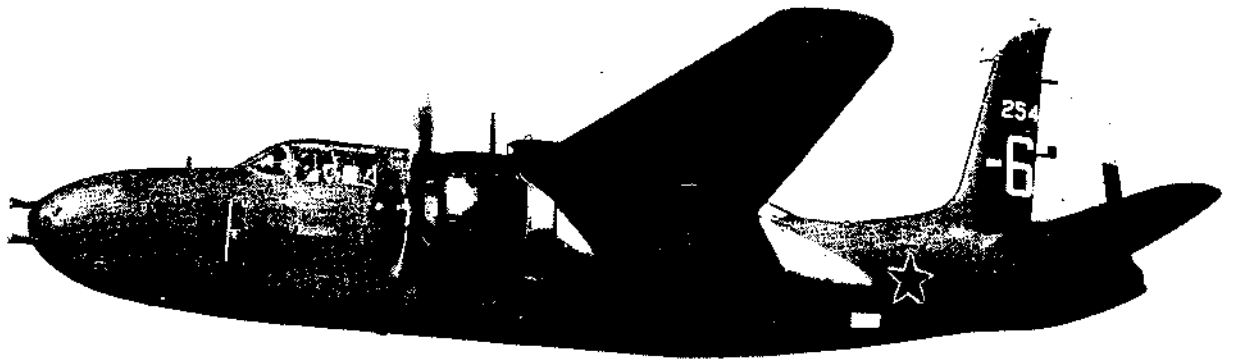


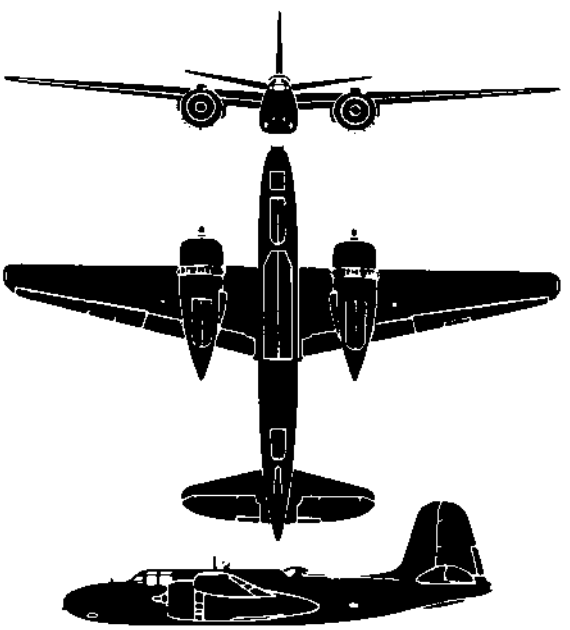




The "Beast" (Il-10) is a two-place close support and reconnaissance monoplane. Soviet designers have been very conscious of the requirements of their ground support units and early in World War II brought into being the famous "Bark" (Il-2 Stormovik) "tank buster." In 1944 a heavier, 14,000 pounds, and more powerful development, the Beast appeared as a replacement for the Bark. The engine cowlings on both these aircraft are composed of steel plates 6 to 8 mm in thickness. While both aircraft are similar in appearance, the Beast has a redesigned wing with a slightly sweptback leading edge. Both aircraft are equipped with tail-wheel type retractable landing gear. The Beast forms the backbone of air ground support in the Soviet and Satellite air forces. In Korea it was encountered occasionally and a number were destroyed.

SPAN: 44'0" **LENGTH: 36'0"**
ENGINE: AM-42F, V in-line/1,957 h. p.
MAX. SPEED: 290 knots/5,500 ft.
RANGE: 360 nautical miles/170 knots.
ARMAMENT: 2 x 23 mm; 2 x 7.62 mm; 1 x12.7 mm; 2 x 132 mm rockets.

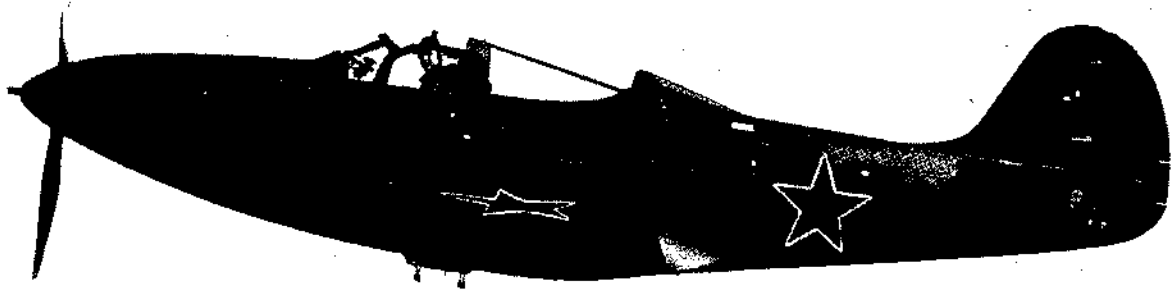


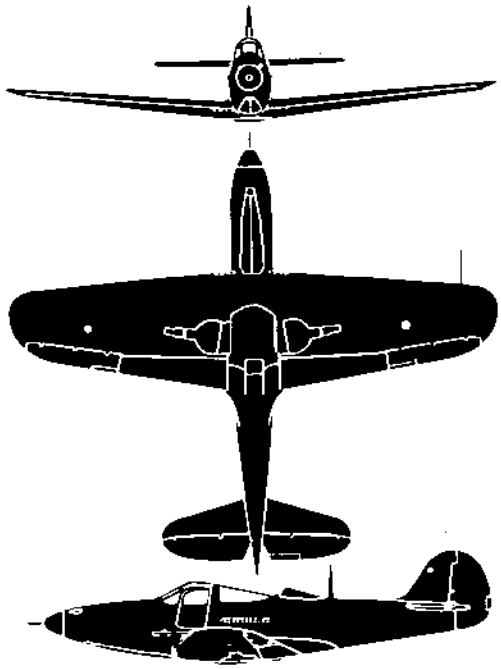


During World War II approximately 2,500 twin-engined "Box" (A–20 Havocs) were supplied to the Soviets under Lend-Lease. At that time the Box was rated as one of the best aircraft in the light bomber class. It was originally designed as a fast ground attack day bomber, but its versatility made it available for numerous missions. The night fighter version with a solid nose carried the designation P–70, while with the British it was called the Boston. The aircraft was much used in large-scale daylight fighter and bomber sweeps over France and in North Africa. Because of the Box's high performance, striking power, and maneuverability, losses were relatively small. The U. S. Navy designation was BD. It is no longer operational in the U. S. The Soviet designation B–3 for this aircraft has been observed from time to time.

SPAN: 61′4″ **LENGTH: 48′0″**
ENGINE: 2/R–2600, radial/1,600 h. p. each.
MAX. SPEED: 270 knots/10,000 ft.
RANGE: 700 nautical miles/216 knots.
ARMAMENT: 4 x 20 mm; 3 x .50 cal.; 1 x 30 cal.

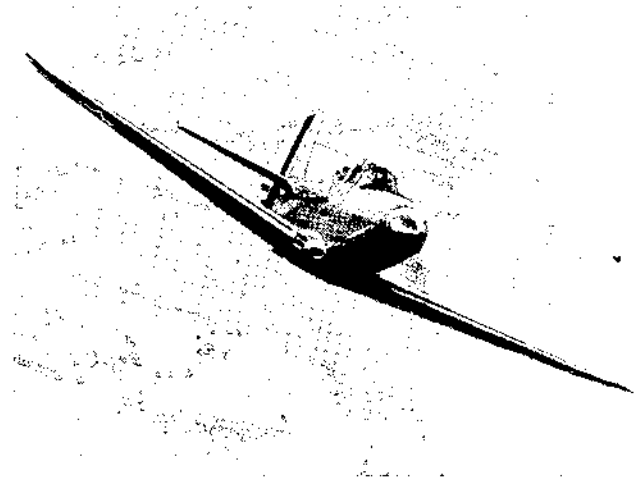
305799 O—54——8

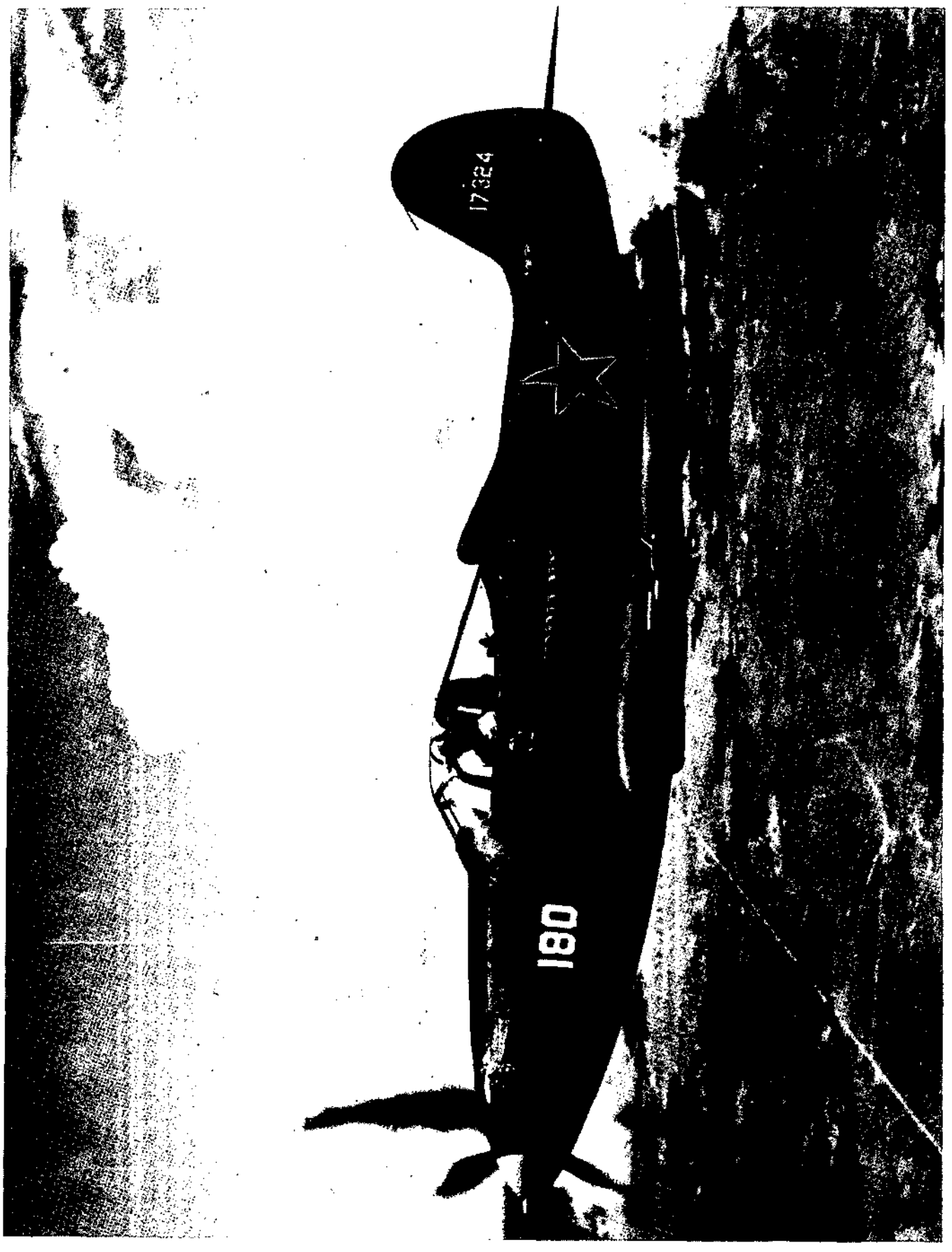


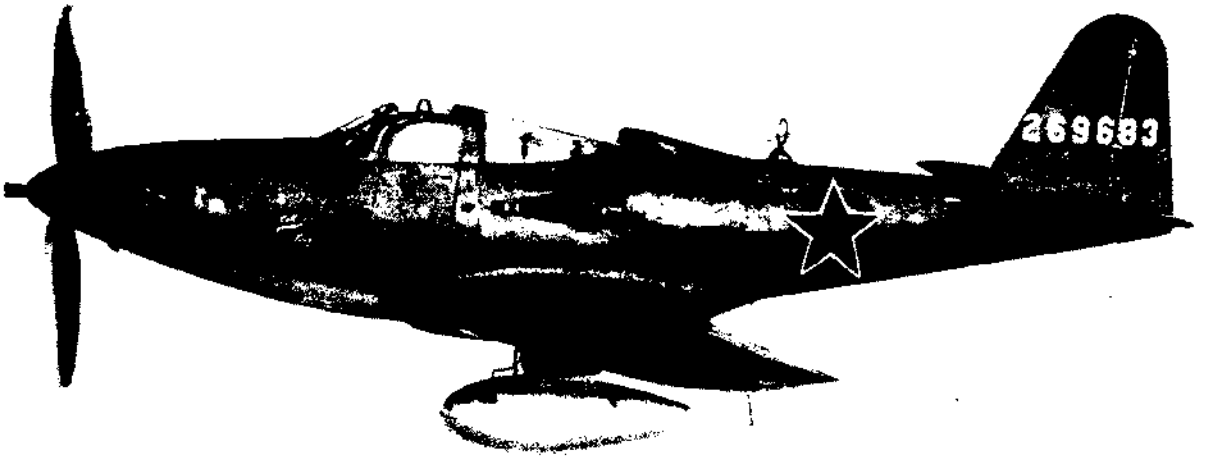


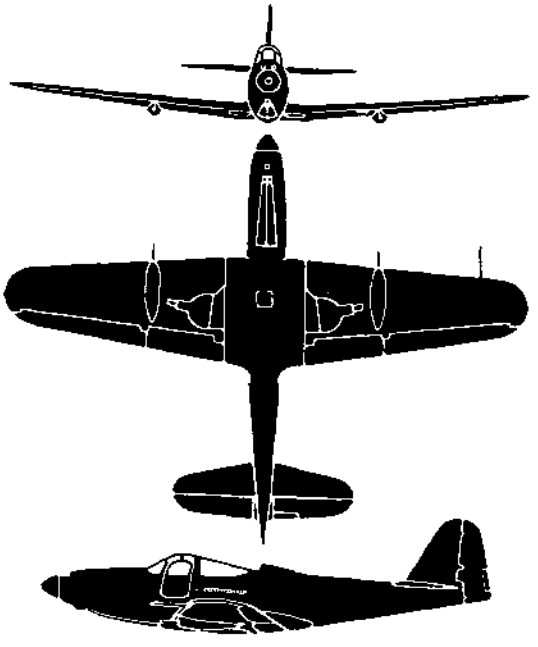
American P–39 Airacobras were supplied to the U. S. S. R. during World War II for use in ground strafing and as a low-altitude fighter. This aircraft along with the P–63 proved to be very popular with the Soviet airmen. In all, more than 9,500 Airacobras were made before production stopped in July 1944. Of this number aproximately 5,000 were delivered to the Soviets under Lend-Lease. Of interest is the engine of the aircraft which is placed amidship in the fuselage behind the pilot's cockpit, the propeller being driven by a ten-foot shaft. Heavy defensive armor protects the pilot against ground fire when operating at low altitudes. The cannon fires through the spinner. A tricycle landing gear is fitted. Take off weight is 8,000 pounds. A 500-pound bomb may be carried.

SPAN: 34'0". **LENGTH:** 30'2".
ENGINE: Allison V–1710–85, in-line/1,200 h. p.
MAX. SPEED: 350 knots/10,000 ft.
RANGE: 350 nautical miles/210 knots.
ARMAMENT: 1 x 37 mm.; 4 x .50 cal.



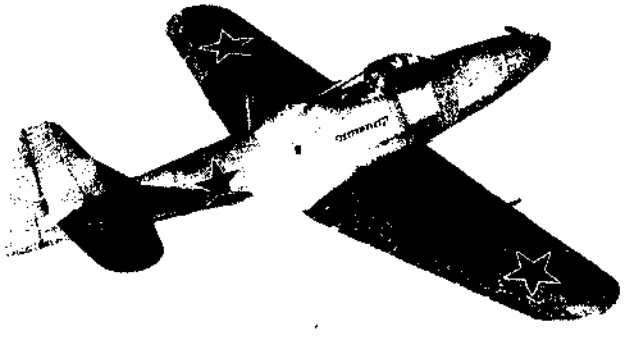

17324
180

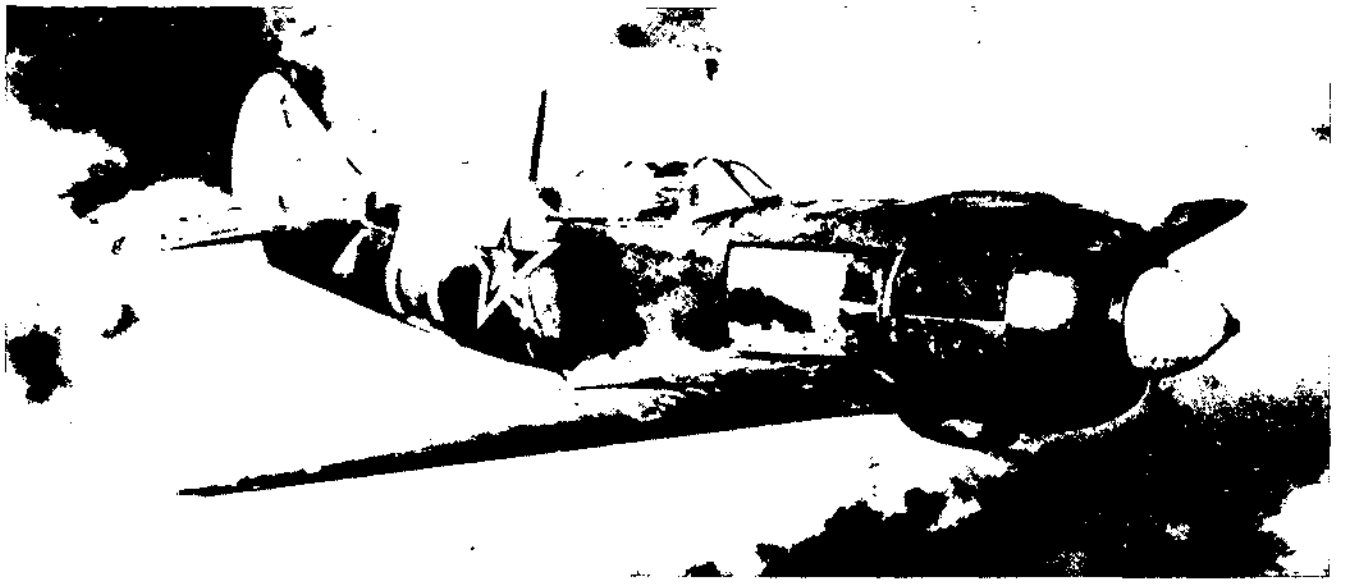


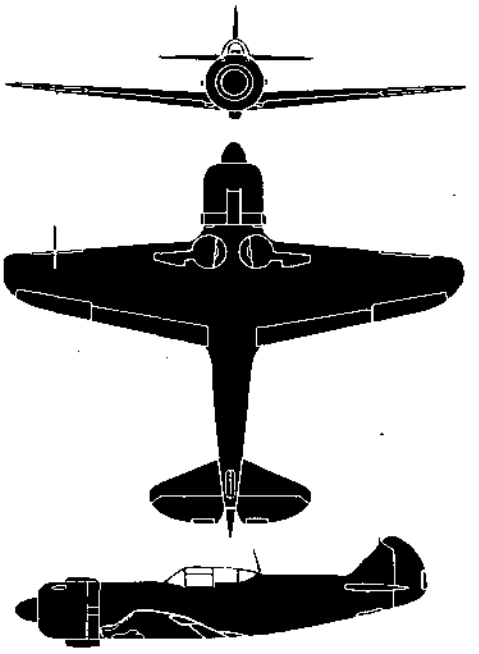


The "Fred" (P–63 Kingcobra) is a later and larger version of the P–39. This World War II fighter was never used operationally by the U. S. A. F. The total number of these aircraft delivered to the Soviets amounted to more than 2,300. In addition, Kingcobras were supplied to the French who used them in their war against the Communists in Indochina. Although the Fred differs little in appearance from the P–39, it is an entirely new aircraft. Slightly larger and heavier than the P–39, it incorporated ideas learned through combat experience. Like the P–39, it carries a 37-mm. cannon in its nose. A special modification of the Fred was evolved to serve as a target in the U. S. Army's ammunition training program. Maximum gross weight of the Fred is 9,000 pounds.

SPAN: 38′4″ **LENGTH: 32′8″**
ENGINE: Allison V–1710–93, in-line/1,325 h. p.
MAX. SPEED: 370 knots/15,000 ft.
RANGE: 300 nautical miles/220 knots.
ARMAMENT: 1 x 37 mm; 4 x .50 cal.







The LA–5 is a single-seat, low-wing, fighter plane with a single radial engine. The wing is in three sections comprising a normal center section with two outer sections having a pronounced taper on the leading and trailing edges. Both wing tips are round. The fuselage is of triangular section with wooden longerons and birch frames and a skin of diagonal plywood strips. There is an enclosed cockpit above the trailing edge of the wing. A single fin and rounded, full length rudder is integral with the fuselage. The landing gear is retractable conventional type. The LA–5 is in service with the Soviet and the Czechoslovak Air Forces.

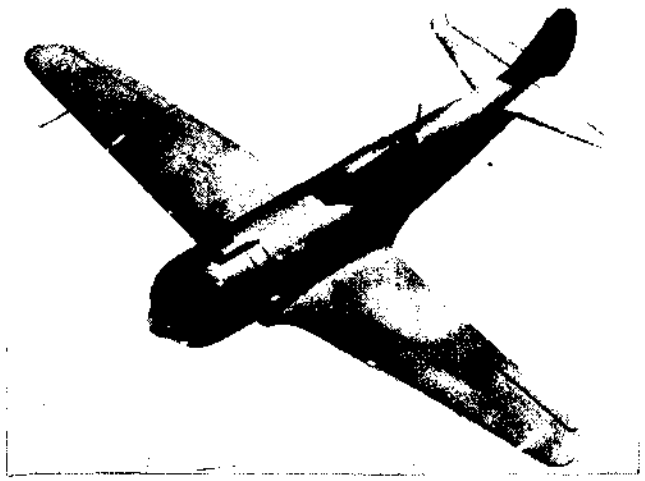
SPAN: 32'2". **LENGTH:** 27'10".

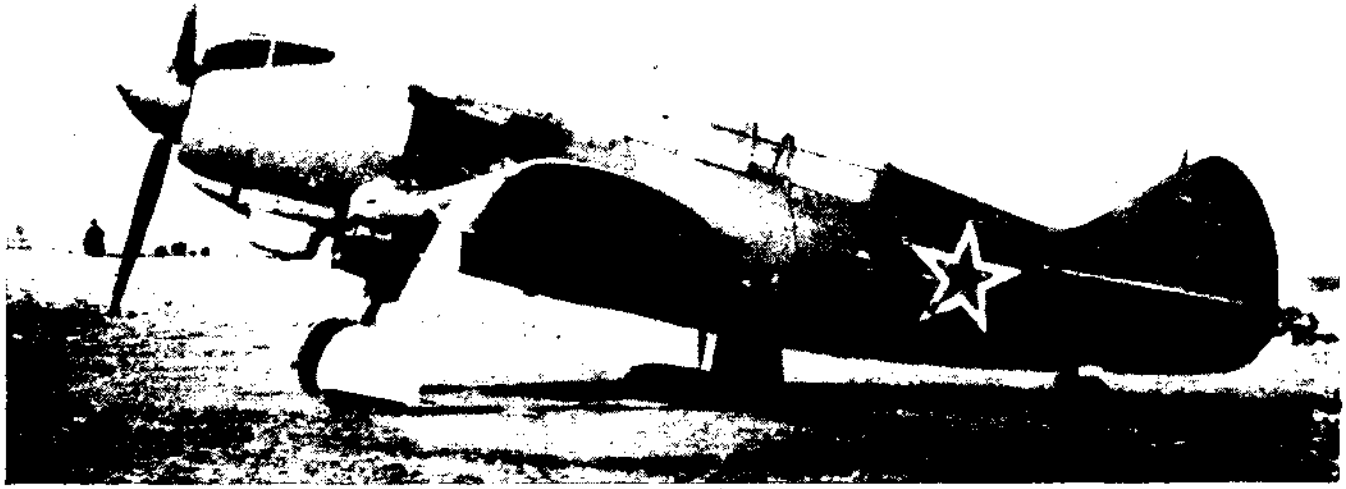
ENGINE: Ash–82; radial/1,680 h. p.

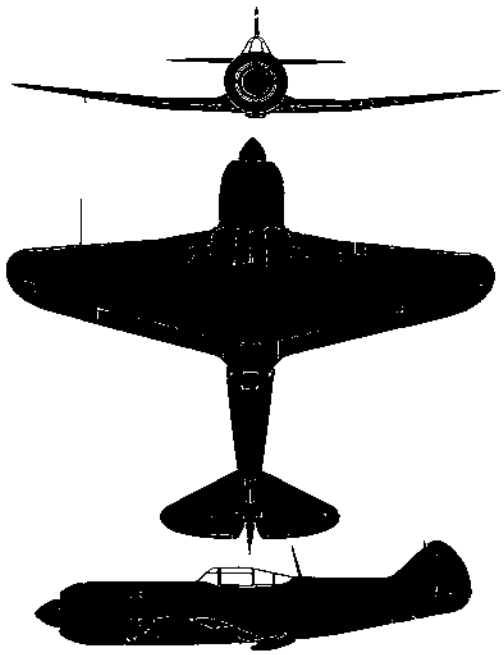
SPEED: 320 knots/16,400 ft.

RANGE: 390 nautical miles/210 knots.

ARMAMENT: 2 x 20 mm/6 x 132 mm. rkts.

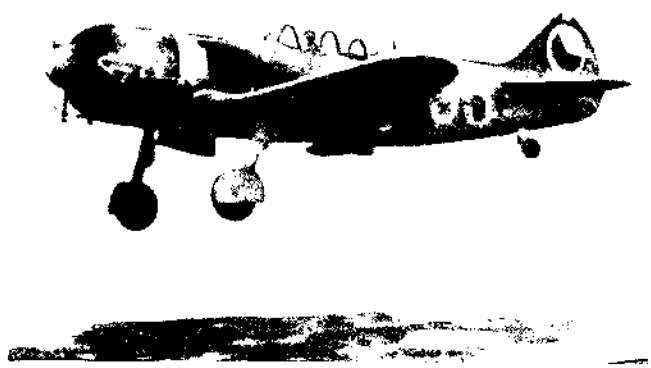


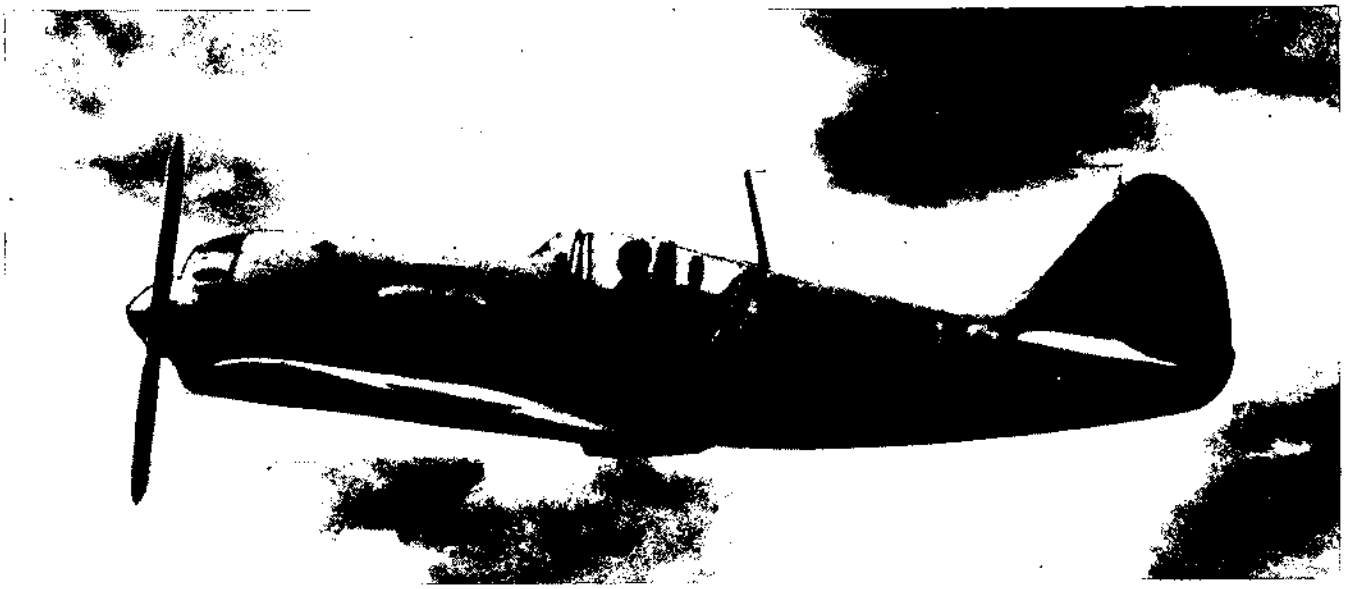


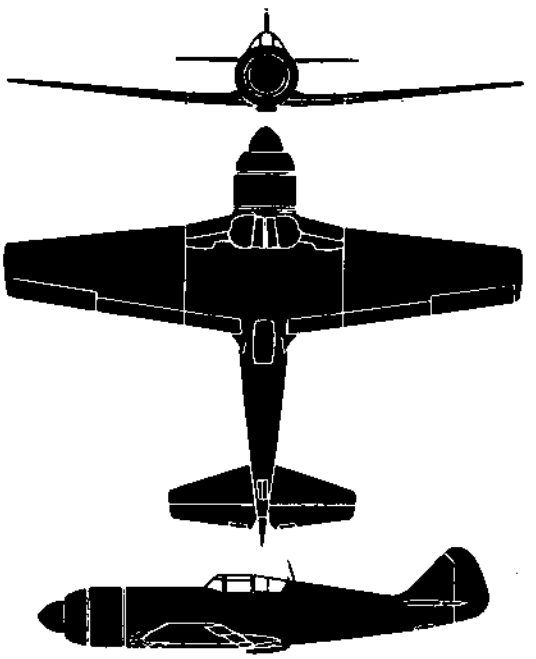


The "Fin" (La–7) is a low-wing fighter developed from the earlier La–5. This fighter has been replaced in the Soviet Air Force by the "Fritz" (La–9) and "Fang" (La–11). It is still in service, however, in Satellite air forces. Lavochkin designed the Fin as a single-seater, but later production included a number of two-seat trainer aircraft. The trainer has a longer cockpit than the fighter to cover the extra pilot. Its fuselage is constructed of wood while the wings and tail unit are metal. The wing is in three sections, comprising a center section with two outer sections having dihedral and taper on the leading and tailing edges to well rounded tips. A convention retractable landing gear is fitted. The Fin's maneuverability is probably attributed to its light weight which is approximately 7,400 pounds.

SPAN: 32′2″ **LENGTH: 26′6″**
ENGINE: Ash–82 FNV, radial/1,825 h. p.
MAX. SPEED: 340 knots/15,500 ft.
RANGE: 610 nautical miles/205 knots.
ARMAMENT: 2 x 20 mm; 6 x 132 mm rockets; 2 x 220-lb. bombs.

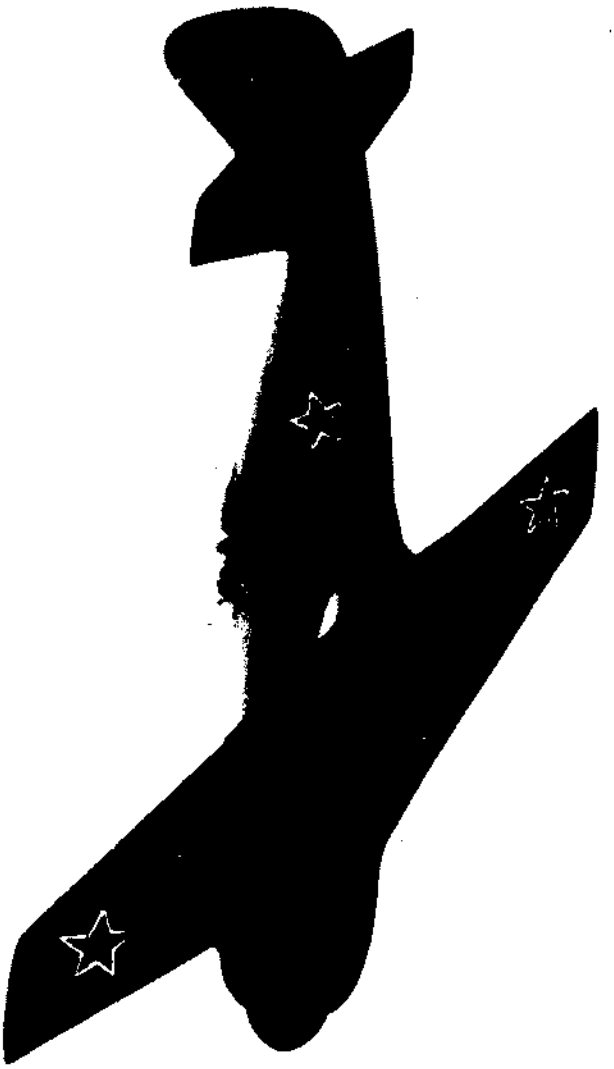


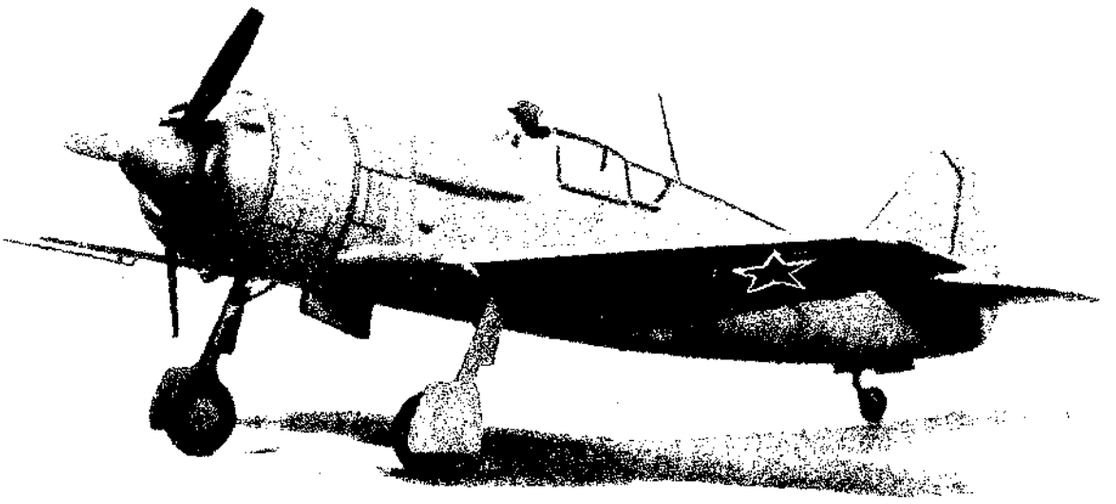


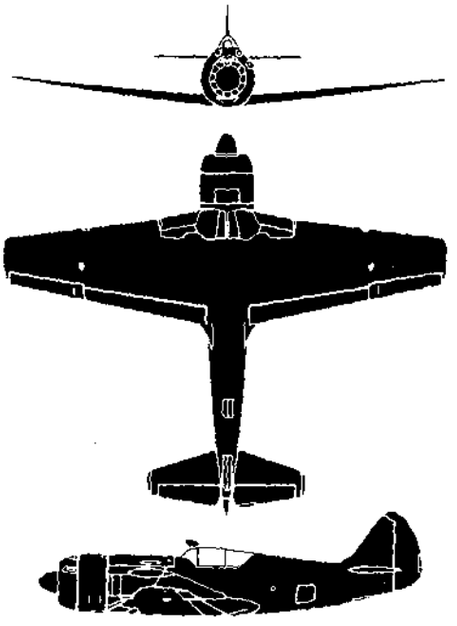


The "Fritz" (La–9) is a low-wing single-seat fighter of all-metal construction. This aircraft is a further improvement of the Lavochkin fighter series and differs in appearance from the "Fin" (La–7) mainly in that the wings and horizontal stabilizer incorporate straight taper and square tips. In addition, it has greater range and greater fire power. The Fritz first became operational in 1946. Although obsolescent by today's jet standards, the Fritz is still in Soviet and Satellite air forces. It features a bulletproof windshield and a bulletproof glass behind the pilot's head. Normal gross weight of the fighter is more than 8,000 pounds which is supported by a two-wheel retractable landing gear. An air scoop is visible on the fuselage aft of the wing's trailing edge. It resembles the Fw–190.

SPAN: 31′9″ **LENGTH: 27′10″**
ENGINE: Ash–82 FNV, radial/1,825 h. p.
MAX. SPEED: 355 knots/15,000 ft.
RANGE: 1,000 nautical miles/210 knots.
ARMAMENT: 4 x 23 mm, plus rockets.

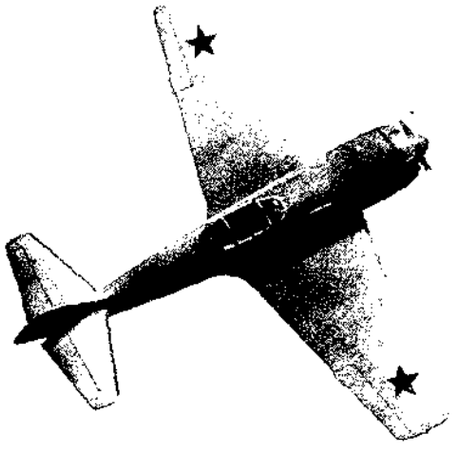


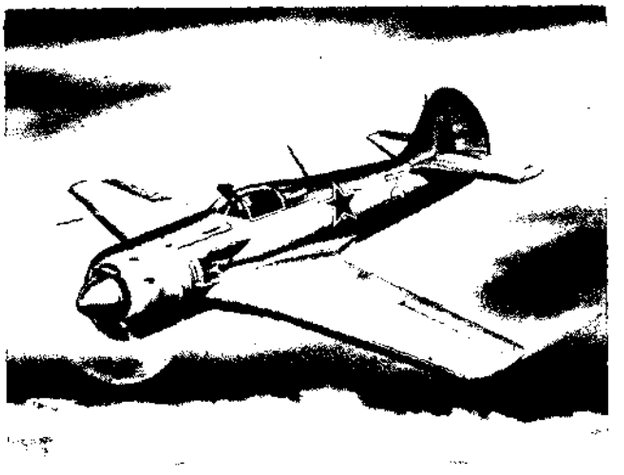


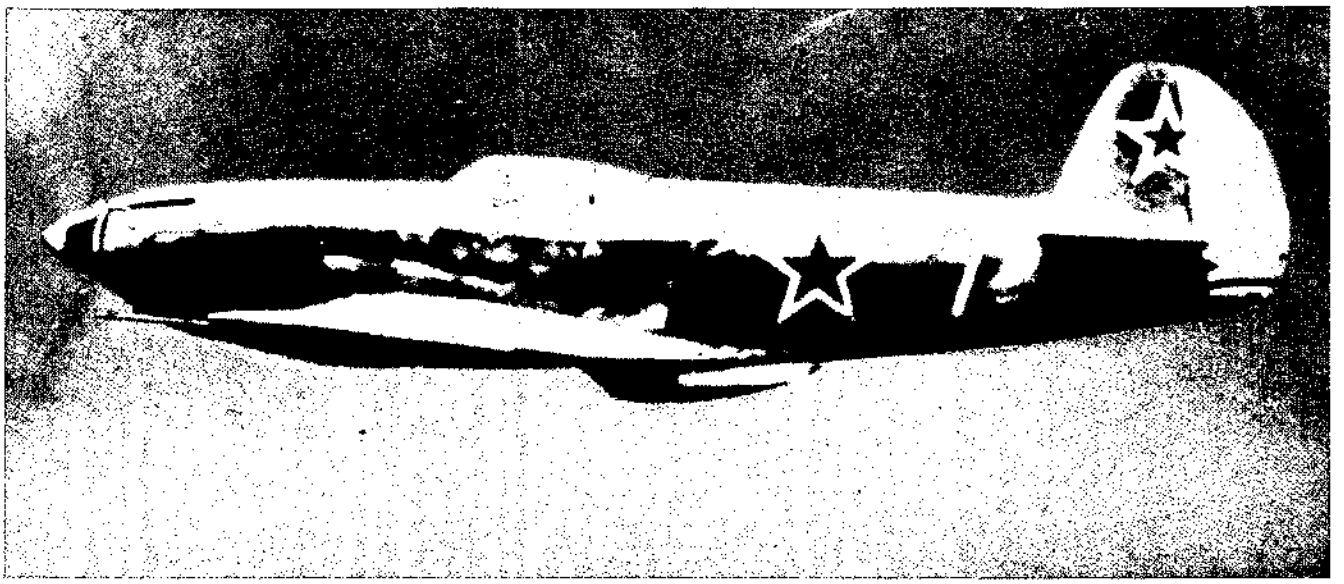


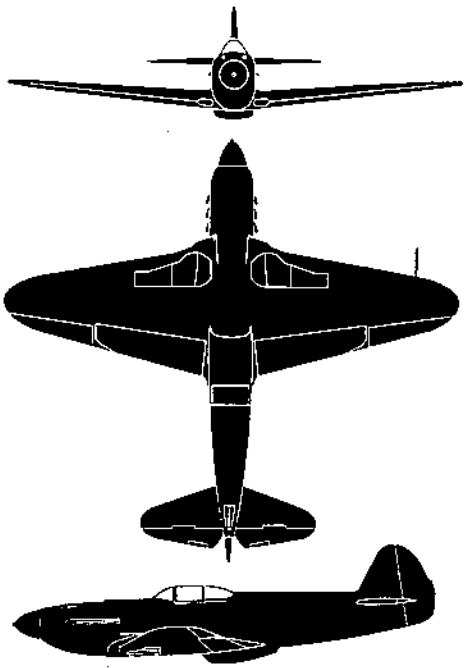
The "Fang" (La–11) is a low-wing single-seat fighter. This all-metal aircraft is very similar in appearance to the earlier "Fritz" (La–9). Both aircraft are postwar variants of the La–5, "Fin" (La–7) series. The wings of the Fang are tapered on the leading and trailing edges with squared-off wing tips and slight dihedral. Horizontal tail surfaces are mounted below the fuselage top line and have the same outline as the wings. Unlike the Fritz, the Fang does not have a ventral air scoop, instead the carburetor and oil cooler air intakes are inside the engine cowling. A battered sample of the Fang was on view when a defecting Soviet pilot crash-landed in Sweden in 1949. Performance of these aircraft are believed to be slightly inferior to the F–51 Mustang.

SPAN: 31'9" **LENGTH: 27'10"**
ENGINE: Ash–82 FNV, radial/1,825 h. p.
MAX. SPEED: 355 knots/15,000 ft.
RANGE: 1,000 nautical miles/210 knots.
ARMAMENT: 3 x 23 mm.



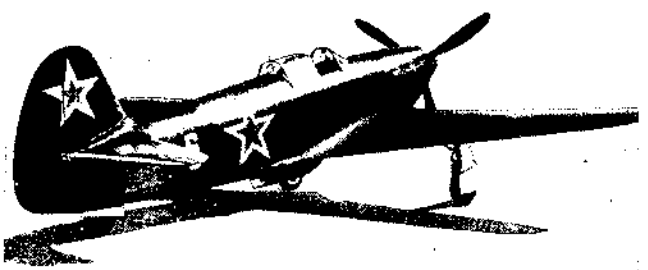


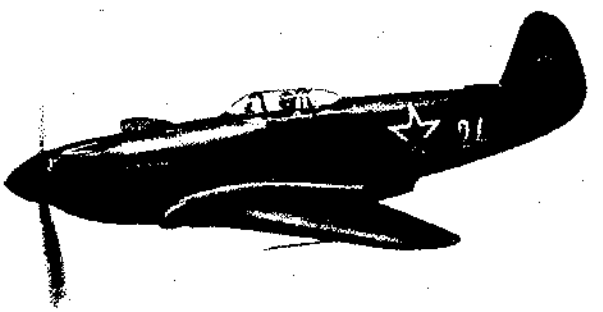


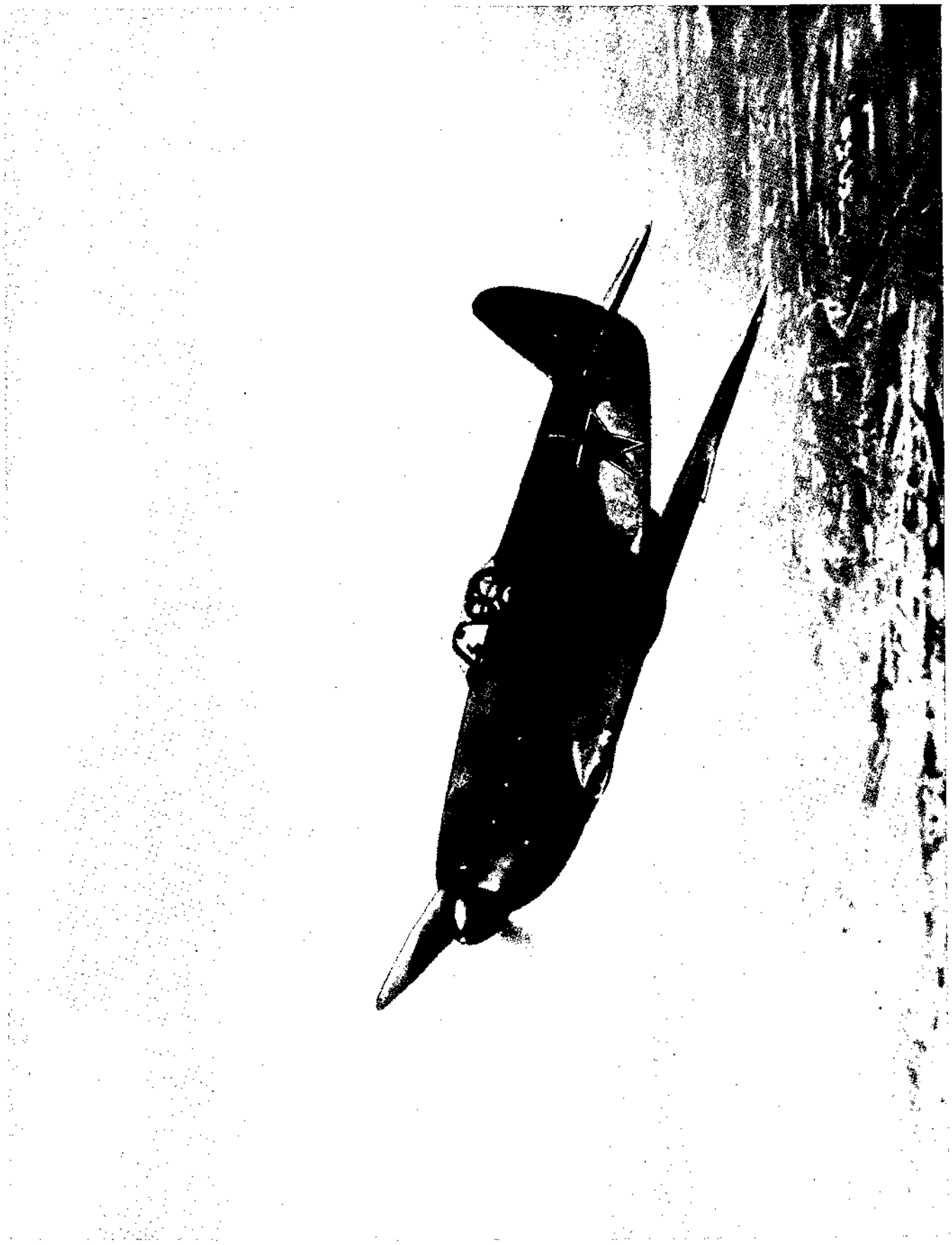


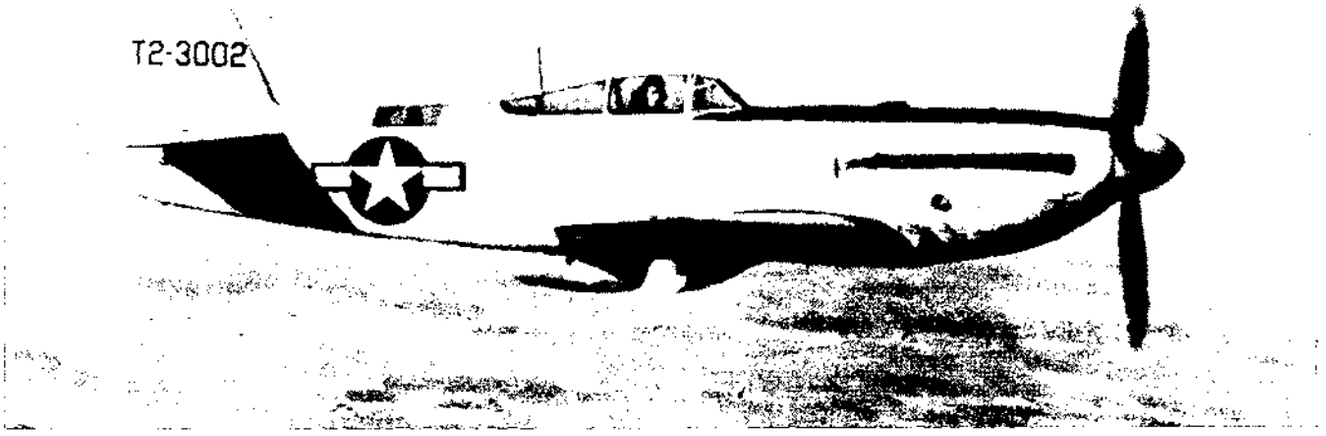
The YAK–3 is a single-engine, low-wing fighter. The wing is thin and in halves attached to a center section which forms part of the fuselage. There is taper on the leading and trailing edges with dihedral from the wing roots. The wing has a covering of plywood as does the fuselage and tail unit. The landing gear is conventional and retracts inward. Yakovlev designed the I–26 (YAK–1) which served as the basis of all later designs, the YAK–3, 7 and 9. Over 10,000 of this series were produced during World War II. From this series of fighter design was evolved the YAK–15, one of the smallest jet fighters in the world.

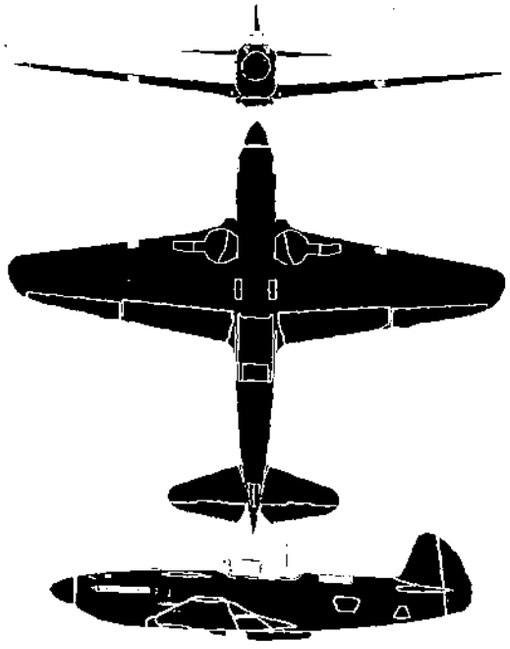
SPAN: 30'2". **LENGTH:** 27'9".
ENGINE: VK–105PF2; Vee in-line/1,200 h. p.
SPEED: 325 knots/16,000 ft.
RANGE: 420 nautical miles/220 knots.
ARMAMENT: 1 x 20 mm.; 2 x 12.7 mm.





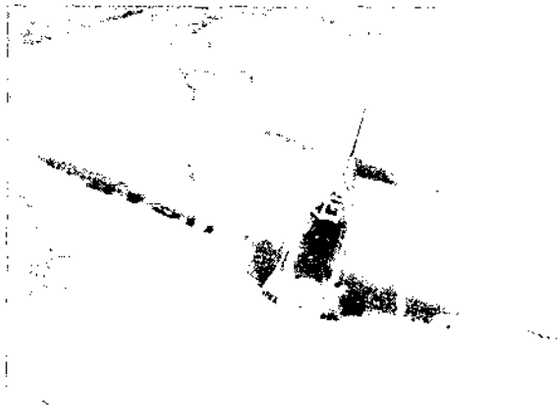


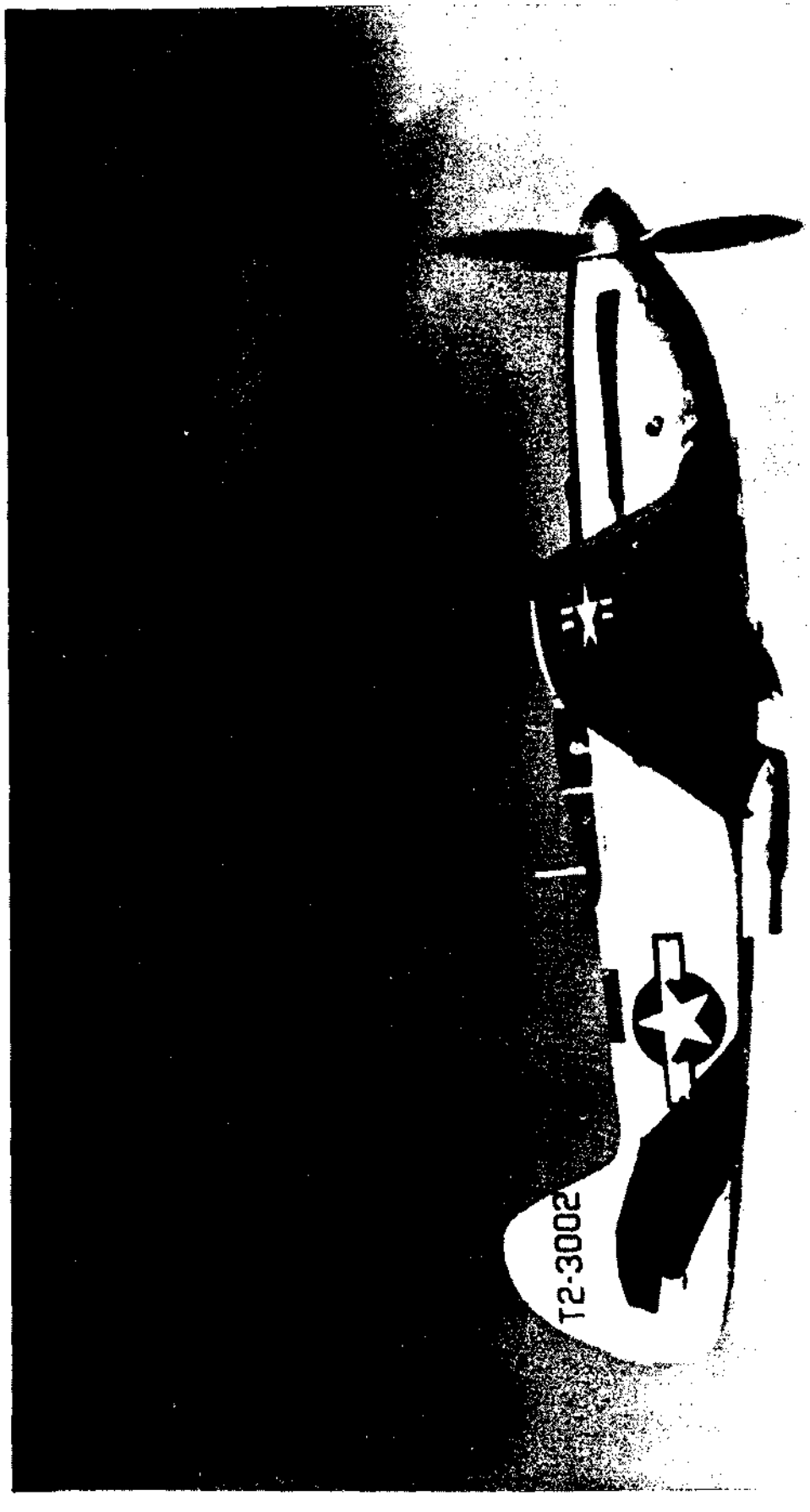


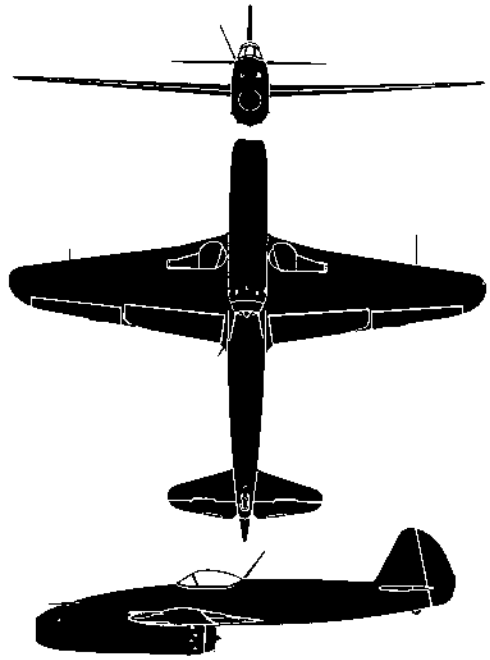


The "Frank" (Yak–9) is a low-wing single-seat prop fighter which is still operational in the Soviet and Satellite air forces. This includes Korea where UN pilots have destroyed a number of them in combat and on the ground. The Frank's wings are sharply tapered on the leading and trailing edges to rounded tips. A single fin and rudder is fitted which in side view gives the Frank a P–40 appearance. There are several versions of the Frank in service, some are used as fighters and others as reconnaissance or ground attack planes. The major differences are armament changes, fuel capacity, and engines. The illustrations show the Yak–9P which was captured in Korea. This aircraft, an improved version of the Yak–3, has a 9,000 pound take-off weight.

SPAN: 32′1″ **LENGTH: 26′3″**
ENGINE: VK–107A, V in-line/1,650 h. p.
MAX. SPEED: 360 knots/15,000 ft.
RANGE: 500 nautical miles/210 knots.
ARMAMENT: 2 x 12.7 mm; 1 x 20 mm, in nose.

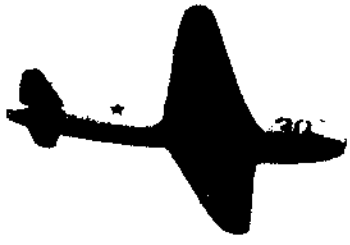


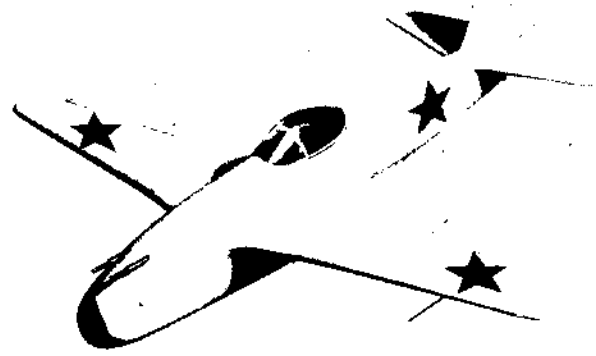

T2-3002

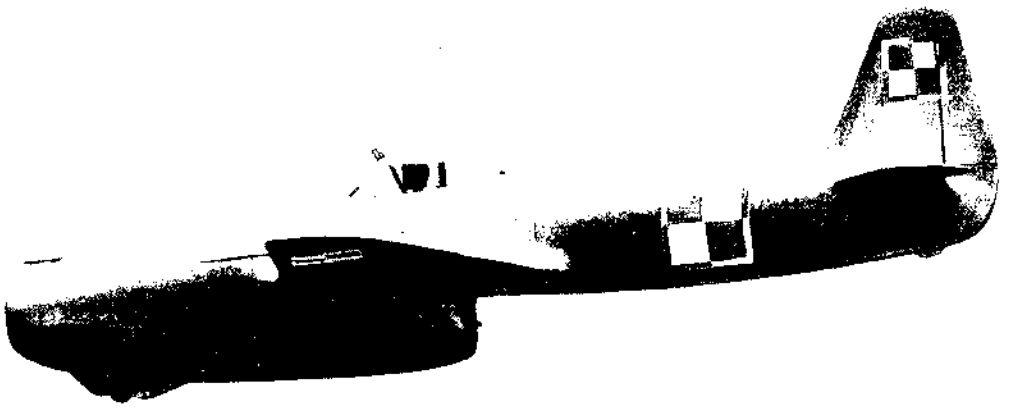


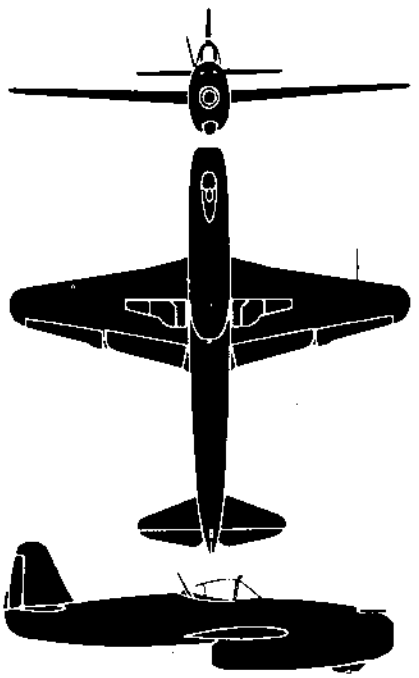
The Yak–15 is a mid-wing single-seat fighter powered by a single jet installed in the lower forward half of the fuselage. Air intake for the axial-flow jet is in the oval nose and the exhaust is beneath the fuselage just forward of the trailing edge of the wing. The wing tapers on the leading and trailing edges to relatively pointed tips. A bubble canopy is mounted just forward of the trailing edge of the wing which suggests poor pilot visibility. The conventional single tail closely resembles previous Yakovlev designs. A point of interest is the use of a tail-wheel (partially retractable) type landing gear. In later models, the Type 16, 26, and 28, a tricycle type landing gear was fitted. The all-metal Yak–15 is thought to be inferior to the MIG–9 but it is very light and maneuverable. Yak–15s are operational in satellite air forces.

SPAN: 30′0″. LENGTH: 29′0″.
ENGINE: Jumo 004B4/1,980-lb. thrust.
MAX. SPEED: 425 knots/13,000 ft.
RANGE: 400 nautical miles/350 knots.
ARMAMENT: 2 x 20 mm. in nose.



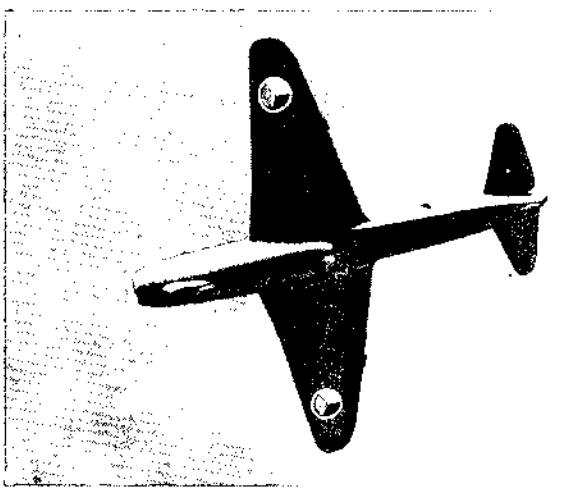


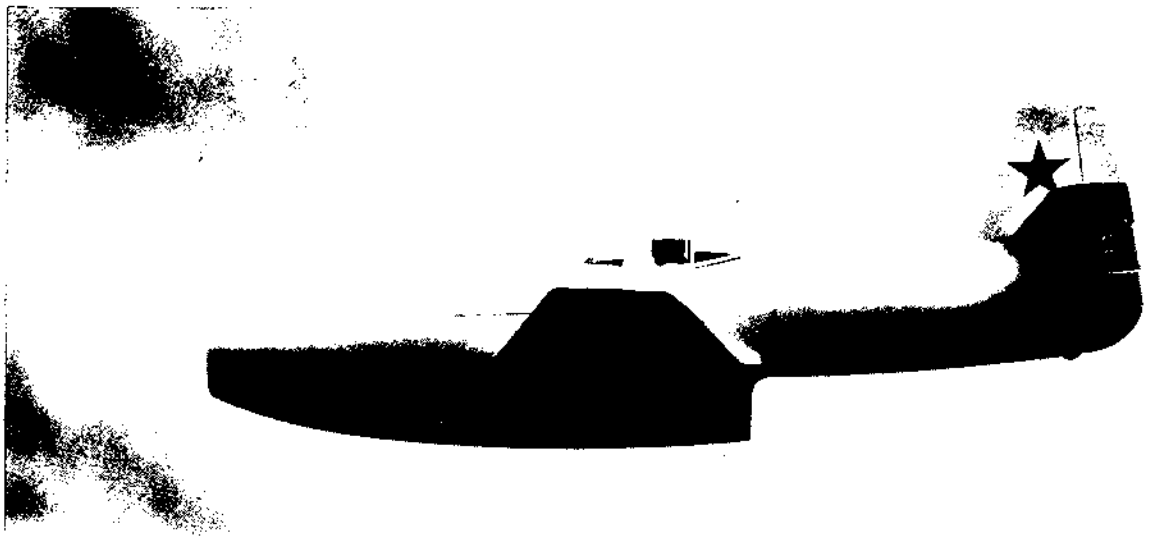


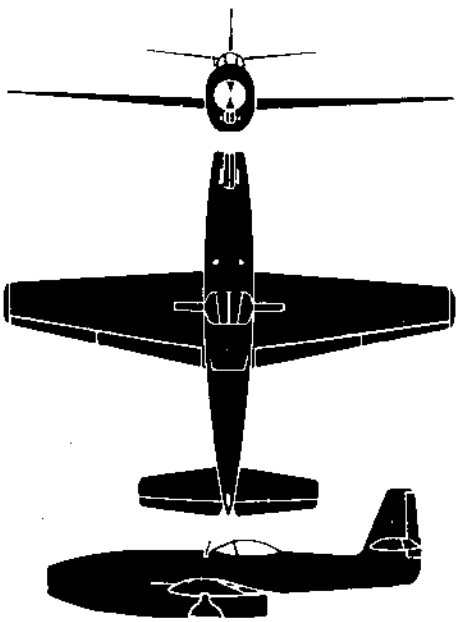


The "Feather" (Yak–17) is a single-seat jet fighter which differs foremost from the Yak–15 by the addition of a nose wheel. In the tricycle version, the retractable nose wheel is enclosed by an external fairing. The fin and rudder have been slightly modified, appearing larger and more upright than in the Yak–15 and also less pointed at the tip. This model has the same poorly situated bubble canopy as its predecessor. The Feather's tapering wings appear identical to the wings of the Yak–15. A two-place trainer version is in existence and has been designated "Magnet" (UYak–17). Both Yak jet fighters were produced in quantity as interim jet fighters. These jets are used in the fighter squadrons of the satellite countries. The "Flora" (Yak–23) is a later variant of the Feather.

SPAN: 31′5″ **LENGTH: 28′2″**
ENGINE: Jumo–004D, turbojet/2,200-lb. thrust.
MAX. SPEED: 445 knots/10,000 ft.
RANGE: Approx. 400 nautical miles/350 knots.
ARMAMENT: 2 x 20 or 23 mm in upper nose.

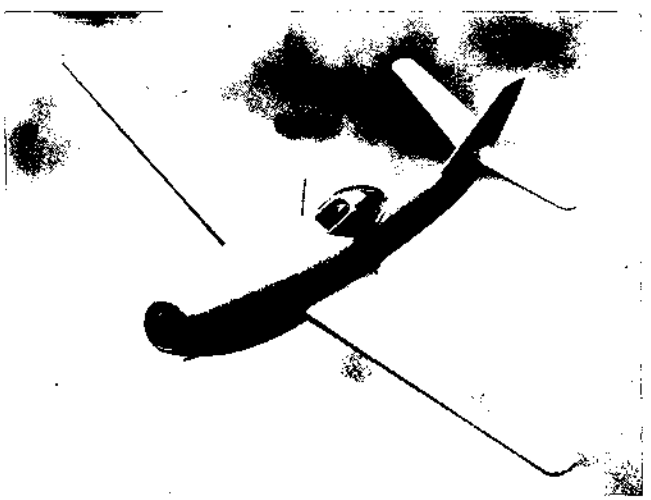






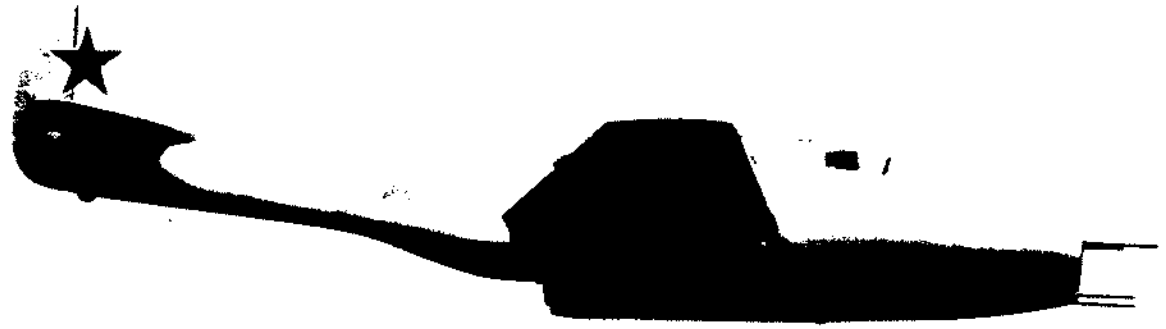
The "Flora" (Yak–23) is the latest jet fighter addition in the Yak family. Although the jet bears a superficial resemblance to the earlier Yak jets, the aircraft is almost entirely different. Changes incorporated in the Flora go far beyond the slight innovations marking the emergence of the "Feather" (Yak–17). The fuselage presents a chunkier appearance with the forward portion noticeably deeper. Among other things, this provides for full retraction of the tricycle landing gear, eliminating the nose wheel fairing which distinguished the Feather. Its wing taper is less pronounced, span is reduced and tips blunted. A slight change of height in the fin is noticeable, while the horizontal surfaces have been altered radically. The Flora's take-off weight is approximately 9,000 pounds.

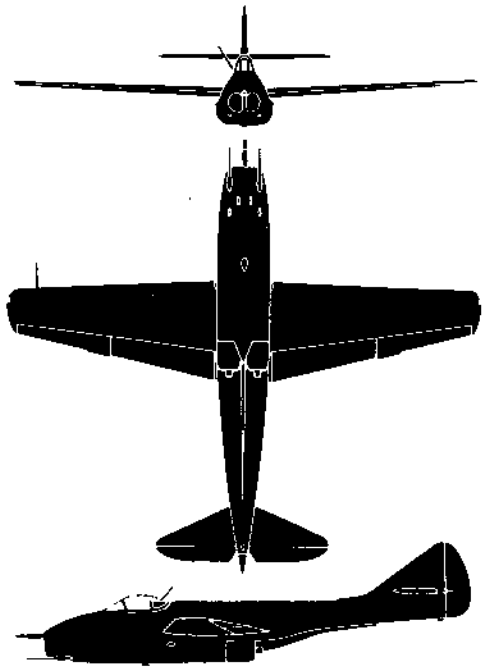
SPAN: 28′6″ **LENGTH: 27′2″**
ENGINE: Derwent-type turbojet/3,500-lb. thrust.
MAX. SPEED: 500 knots/10,000 ft.
RANGE: 960 nautical miles/405 knots (tip tanks).
ARMAMENT: 2 x 33 mm lower nose.



U. S. S. R.
SUPPLEMENT NO. 5
JUNE 1954

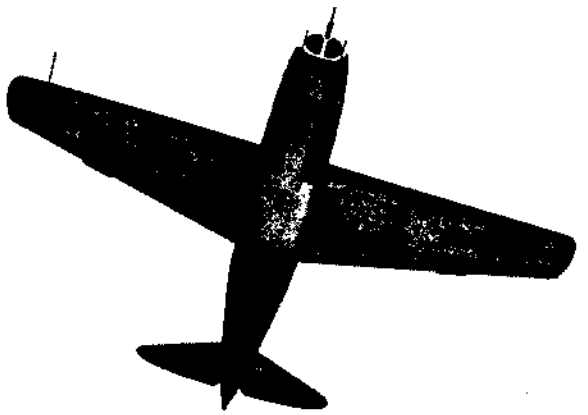
FM 30–30
OPNAV 32P–1200/5
AFM 50–40E

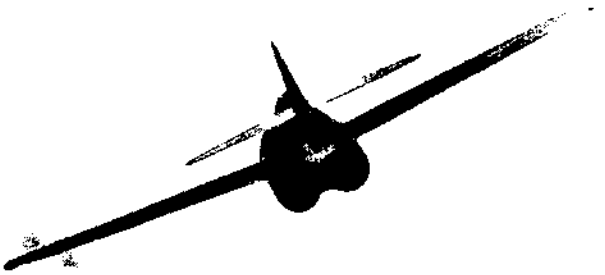


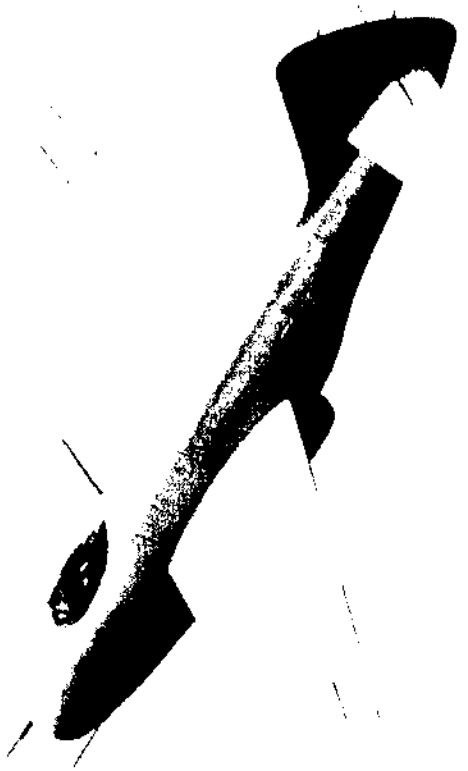


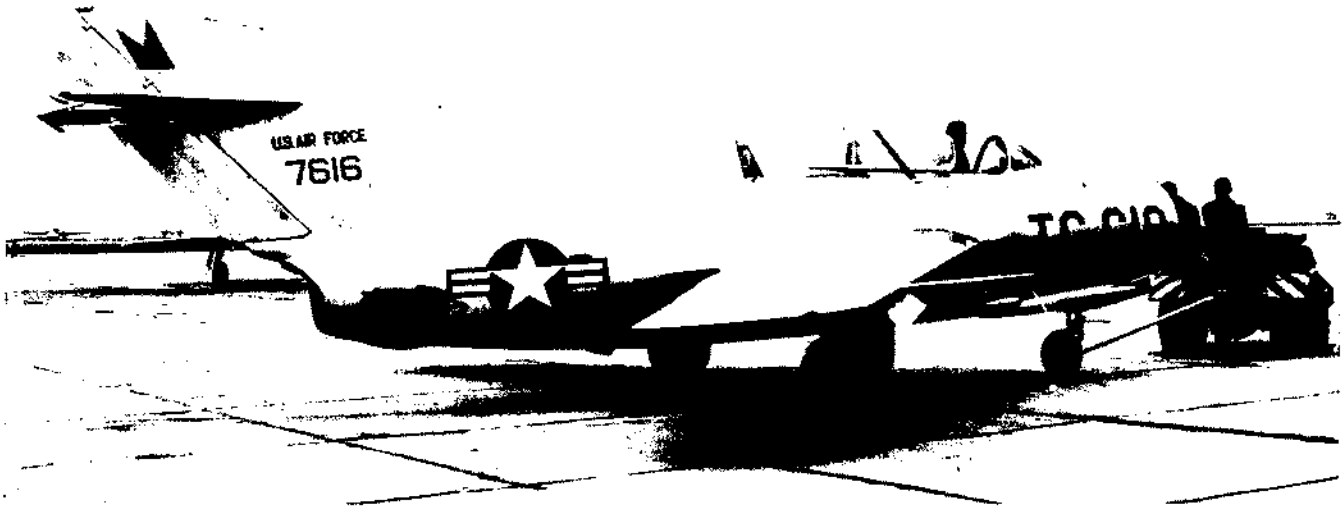
The "Fargo" (MIG–9) is a mid-wing single-seat twin-jet fighter. Dual air intakes for the axial-flow jets are located in the nose and twin exhausts are under the fuselage at the trailing edge of the wing. On the ventral side of the fuselage behind the exhausts a cut-away for the jet stream creates the appearance of a keel. The wing is straight on the leading edge and tapered on the trailing edge to blunt tips. A single tail and tricycle retractable landing gear are fitted. The cockpit is forward of the wing which gives a good field of vision. Armament extends unusually far forward of the nose. It was the first operational jet fighter to appear in the U. S. S. R. Performance of the Fargo is comparable to the F–80 Shooting Star and the British Vampire. The Fargo was replaced by the sweptback wing and tail "Falcon" (MIG–15) jet fighter.

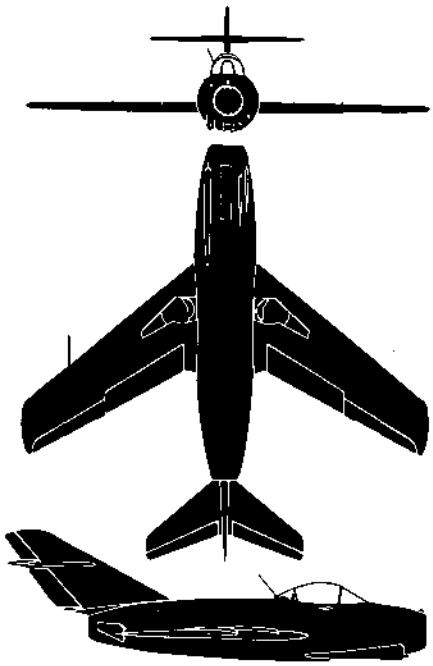
SPAN: 34′0″ **LENGTH: 32′9″**
ENGINE: 2/BMW 003A/1,760-lb. thrust each.
MAX. SPEED: 510 knots/6,000 ft.
RANGE: 425 nautical miles/405 knots.
ARMAMENT: 1 x 37 mm; 2 x 23 mm.





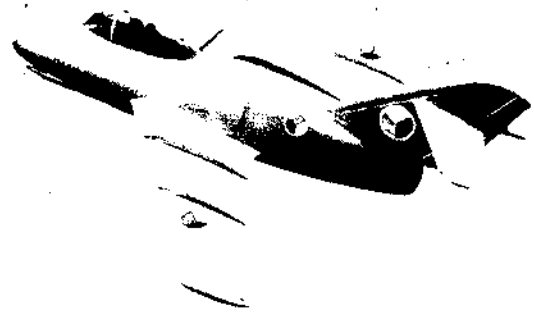


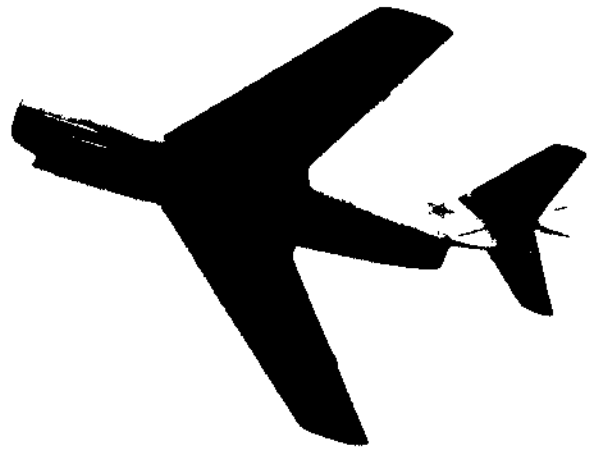


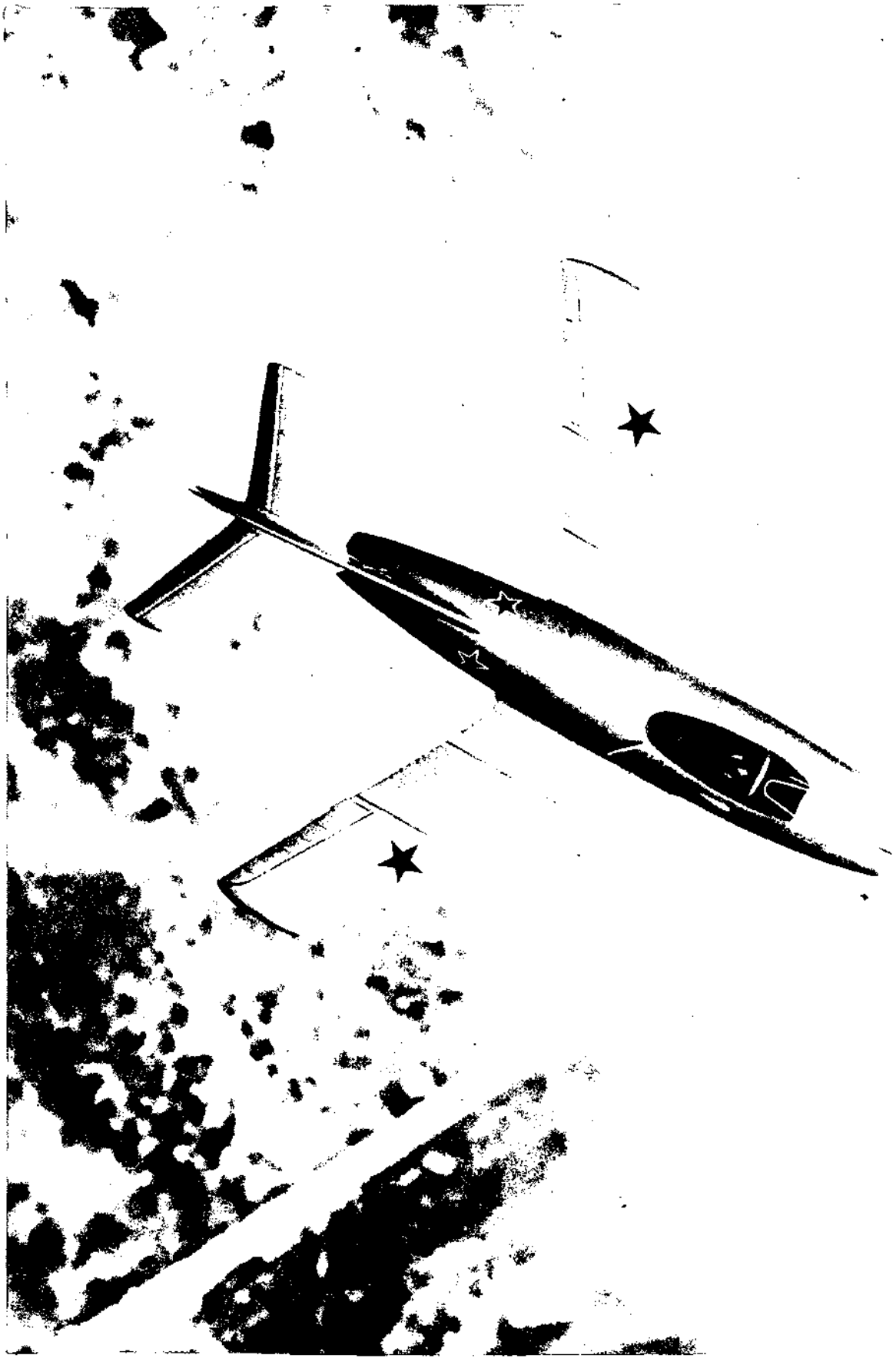


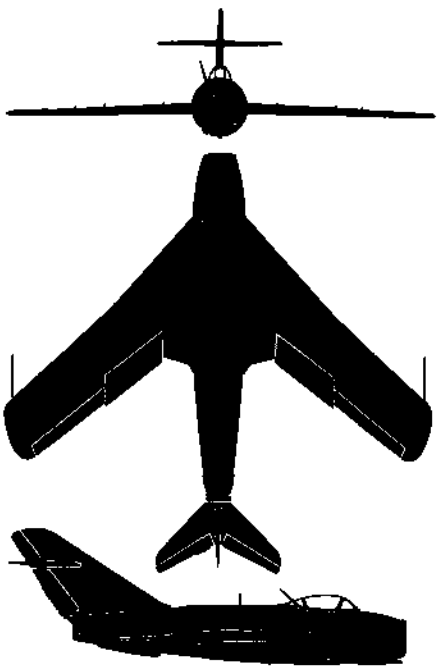
The Soviet's "Falcon" (MIG–15) jet fighter was encountered in Korea by U. N. jet pilots. Ensuing engagements constituted history's first record of jet against jet aerial warfare. Design of this first-line single-seat fighter is attributed to the Mikoyan-Gurevich team. The Falcon has a single centrifugal-flow turbojet engine installed in the after half of its fuselage. Narrow wings, horizontal and vertical tail surfaces—all have pronounced sweepback and squared tips. The angle of the wings' sweepback is around 35°, approximately the same as that of the F–86. Resembling the F–86 in layout, the Falcon's wings, however, are midmounted while the F–86 has low mounted wings. Another difference is the Falcon's high mounted horizontal stabilizer on its broad fin and rudder. The "Midget" (UMIG–15) is a two-seat trainer version of the Falcon with a longer cockpit canopy.

SPAN: 33′0″ **LENGTH: 33′7″**
ENGINE: VK–1, Nene-type/6,000-lb. thrust.
MAX. SPEED: 575 knots plus/sea level.
RANGE: 650 nautical miles/470 knots.
ARMAMENT: 1 x 37 mm; 2 x 23 mm.



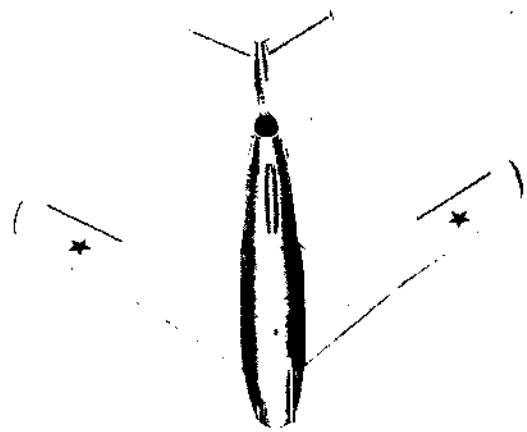






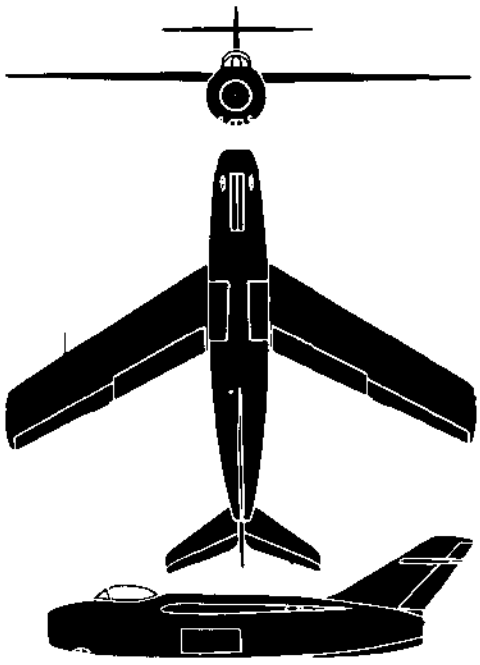
The "Fresco" is an improved successor to the "Falcon" (MIG–15) and has been seen in fly-bys over Moscow during recent Soviet air shows. This new single-jet fighter marks another advance in Soviet jet fighter design. Patterned after the Falcon, this new aircraft appears to have greater sweepback to its wings and to be more slender and tapered than its predecessor. The cockpit is mounted well forward and square-tipped swept-back wings are midmounted. The prominent fin and rudder appear more slender and slightly less swept-back than the tail of the Falcon. The smooth line from Fresco's rudder's trailing edge to the jet exhaust is noticeably different than the Falcon's prominent stepback rudder. A keel-like bulge is evident on the underside of the after-end of the fuselage.

SPAN: 34′0″ **LENGTH: 36′0″**
ENGINE: Turbojet/more than 6,000 lbs. thrust.
MAX. SPEED: More than 600 knots.
RANGE: More than 600 nautical miles.
ARMAMENT: 1 x 37 mm; 2 x 33 mm.



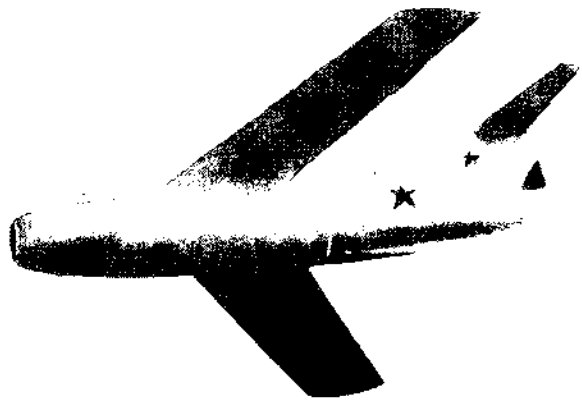
U. S. S. R.
SUPPLEMENT NO. 5
JUNE 1954

FM 30–30
OPNAV 32P–1200/5
AFM 50–40E



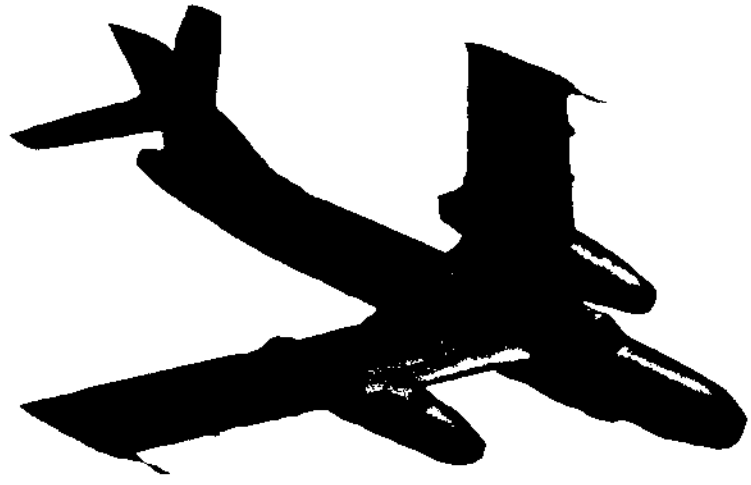
The "Fantail" is a sweptback wing and tail fighter. This single jet fighter was probably developed simultaneously with its counterpart the Falcon (MIG–15), but the Lavochkin designed Fantail has not been seen anywhere near as often as the Falcon. The Fantail is slightly larger than the Falcon and differs noticeably in that it is a shoulder-wing fighter. Other differences are the slimness of the Fantail's fuselage, the keel type fairing on the after bottom of the fuselage, and the main gear of the tricycle landing gear which retracts into the fuselage. Its wings are rather narrow and appear to have some negative dihedral. Boundary layer air-flow control strips are fitted on each wing.

SPAN: 34′2″ **LENGTH: 33′6″**
ENGINE: Nene-type turbojet/5,000-lb. thrust.
MAX. SPEED: 570 knots plus/sea level.
RANGE: 600 nautical miles/560 knots.
ARMAMENT: 2 x 22 mm in nose.



USSR

FLASHLIGHT



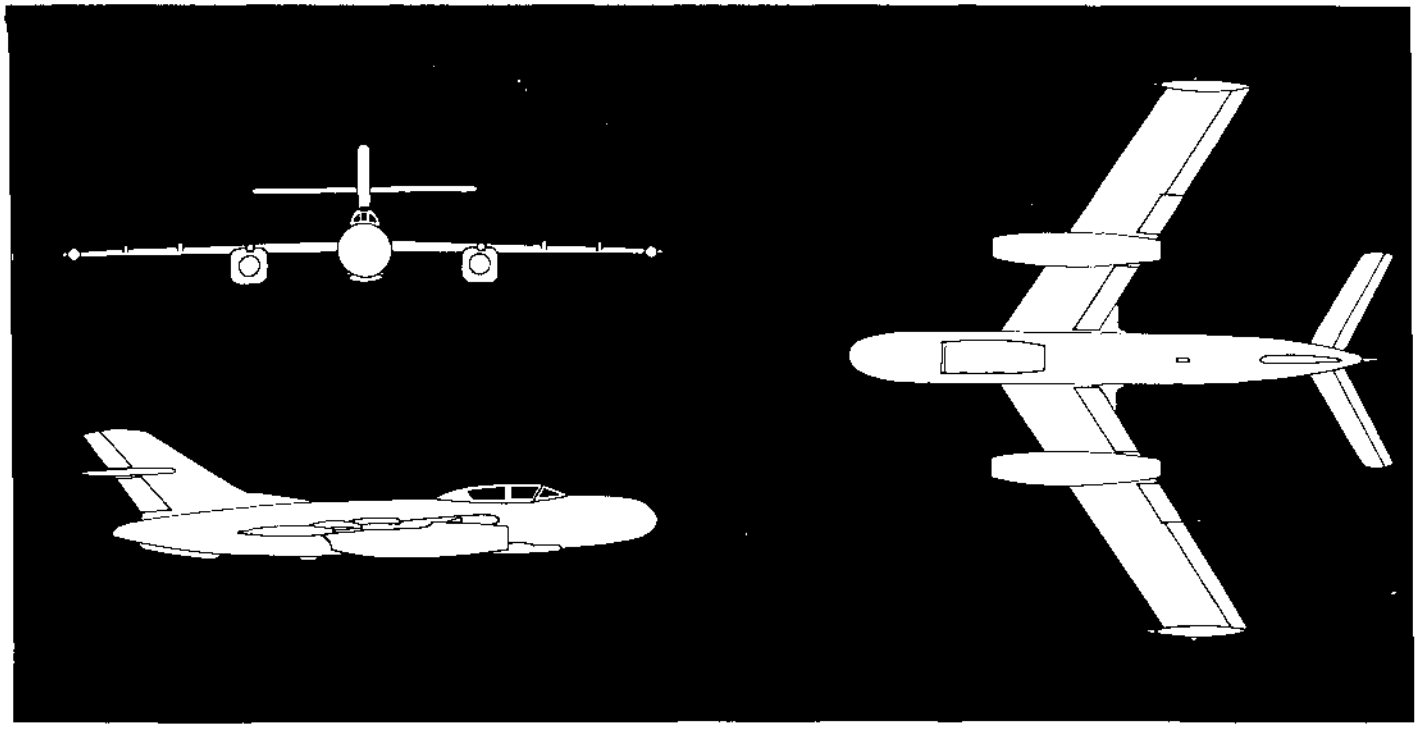
The Flashlight is a two-place, mid-wing, twin-engine, all-weather Soviet fighter. Recognition features include a horizontal stabilizer located high on the vertical fin; a large, blunt-rounded nose extending well forward of the wing root; a fin-like protrusion on the underside of the aft fuselage; two underslung turbojets; two wing-tip pods with booms extending forward on each; and wing fences on each wing. The Flashlight is similar to the French Vautour in appearance.

SPAN: 46′ LENGTH: 39′
MAXIMUM SPEED: Over 600 knots
ENGINES: 2/Turbojet/10,000 lbs. thrust each
SERVICE CEILING: Over 40,000 ft.

SOVIET

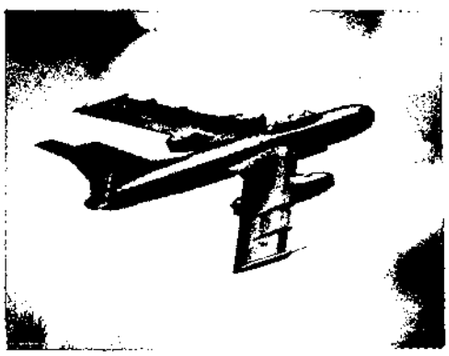
TWIN-JET

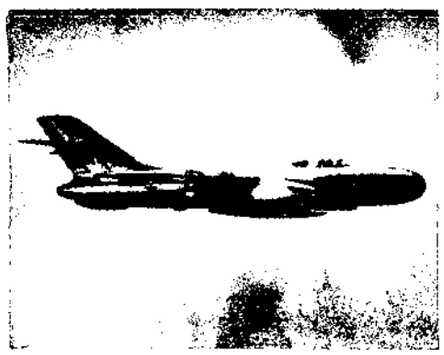
FIGHTER

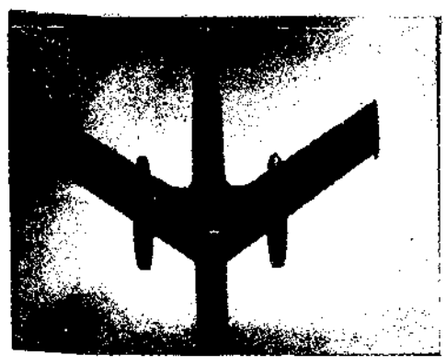


FLASHLIGHT | USSR

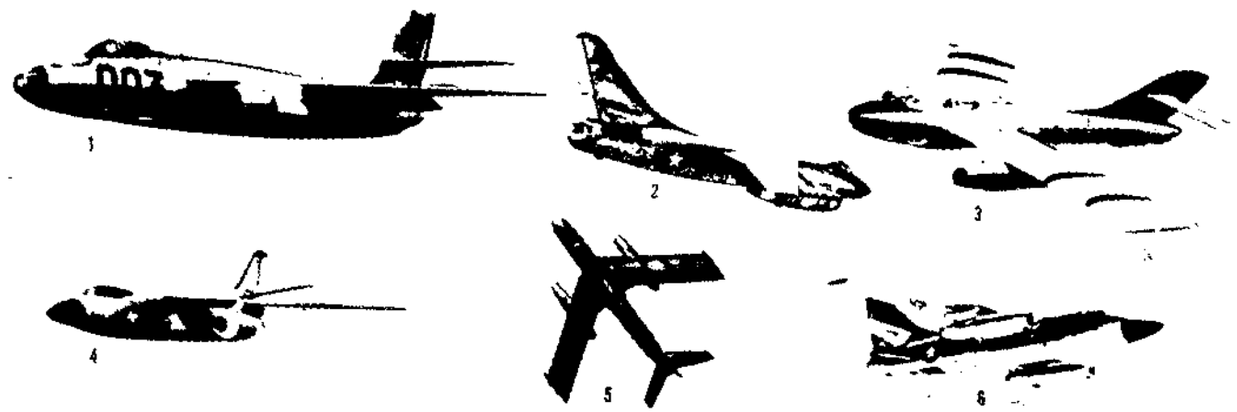
ACCENTED DRAWING







Miscellaneous views of the FLASHLIGHT

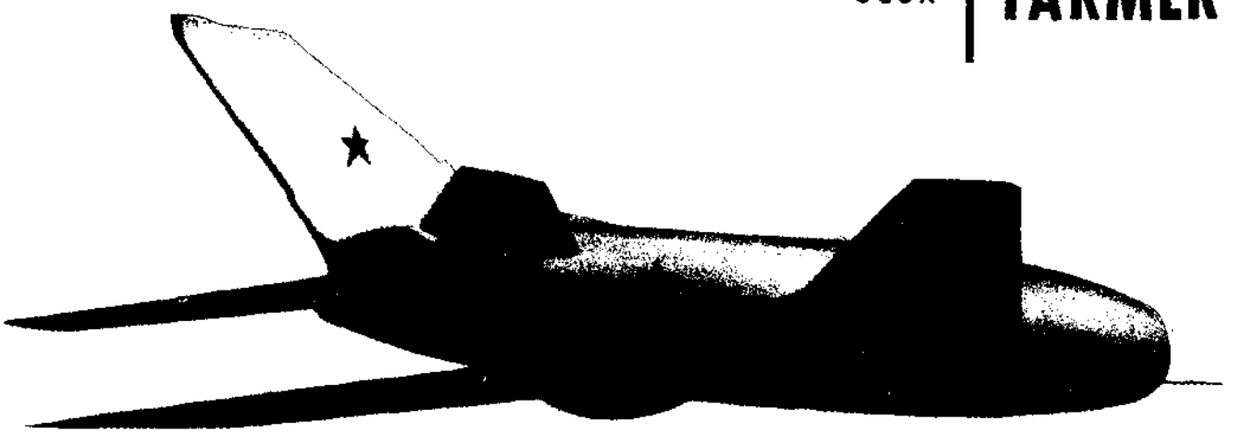


Identify the aircraft shown above; correct answers are below

1. VAUTOUR
2. B-66 SKYWARRIOR
3. FLASHLIGHT
4. B-66 SKYWARRIOR
5. FLASHLIGHT
6. B-66 SKYWARRIOR

USSR

FARMER

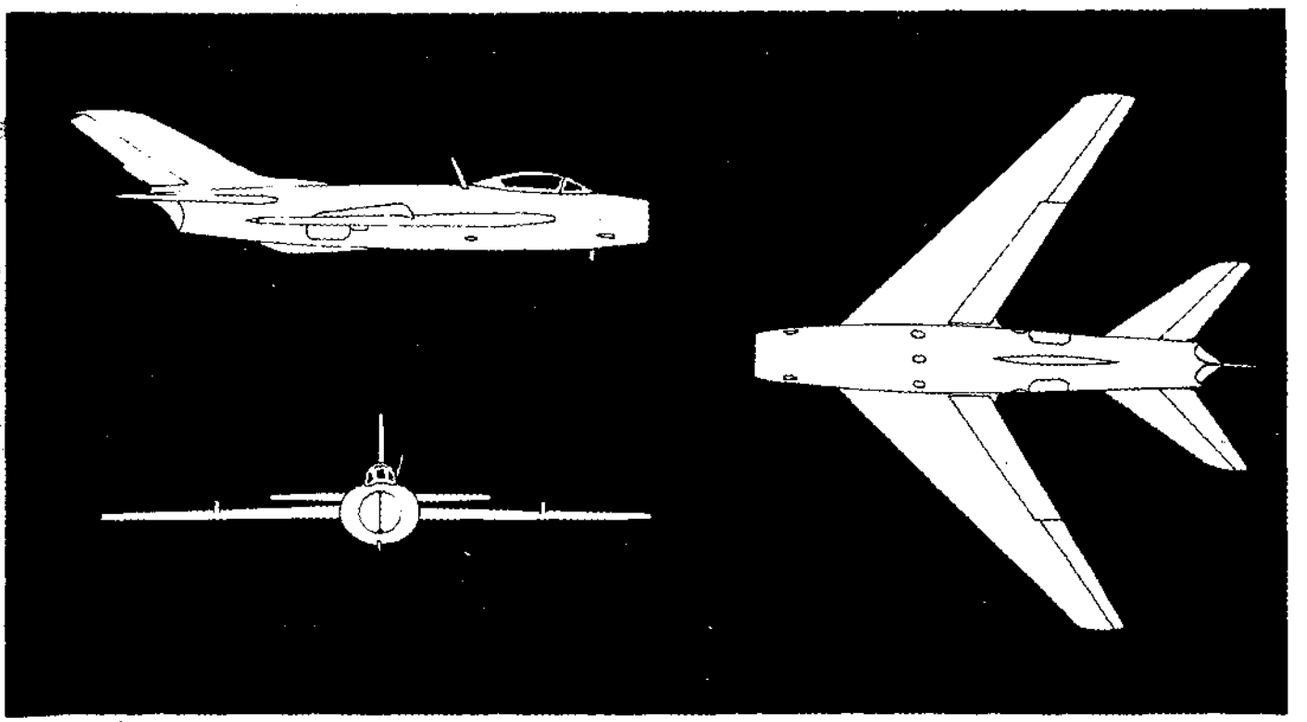


The Farmer is a single-seat, mid-wing Soviet fighter. The wings and slab-shaped tail surfaces are sweptback more than 40 degrees. The fuselage is short and flat on both top and bottom. Close-up recognition features include the oblate nose air inlet, wing fences, empennage overhanging the tailpipe exhaust, and the low-set horizontal stabilizer. Overall appearances of the Farmer is that of a "swept" airplane whose fuselage has been run between rollers for flattening.
SPAN: 33'8" LENGTH: 34'11"
MAXIMUM SPEED: Over Mach 1
ENGINE: 1/10,000 lbs. thrust

SOVIET

SINGLE-JET

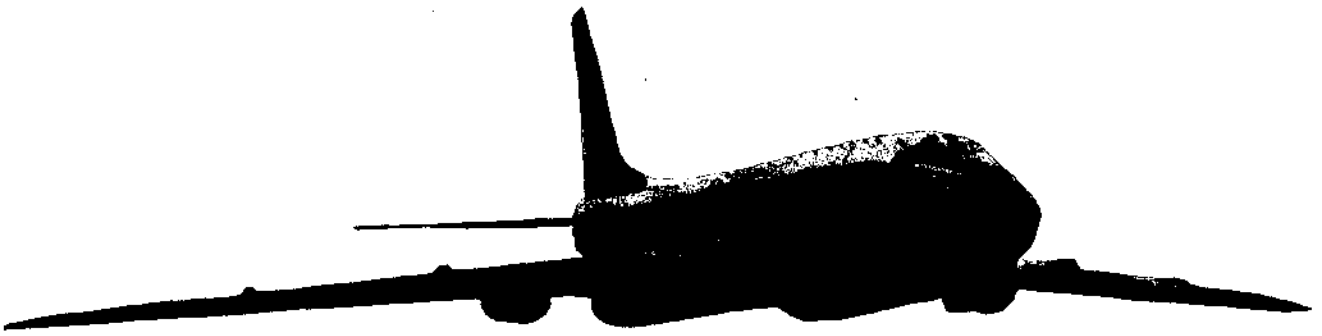
FIGHTER



U. S. S. R.
SUPPLEMENT NO. 6
DECEMBER 1956

FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

CAMEL | USSR



The *Camel* is a relatively new Soviet transport. Its design features include a long, circular cross sectioned fuselage; sharply sweptback wings that show distinct anhedral or droop; a sweptback empennage with a low-set horizontal stabilizer; two engine nacelles located at the wing roots and extending ahead of and aft of the wing; and a landing gear housing trailing aft of each wing. The *Camel* carries the markings of Aeroflot, the Russian civil airline. A blue strip extends the length of the silver fuselage. A red flag is painted on the fin. Hammer-and-sickle insignia appears near mid-fuselage.

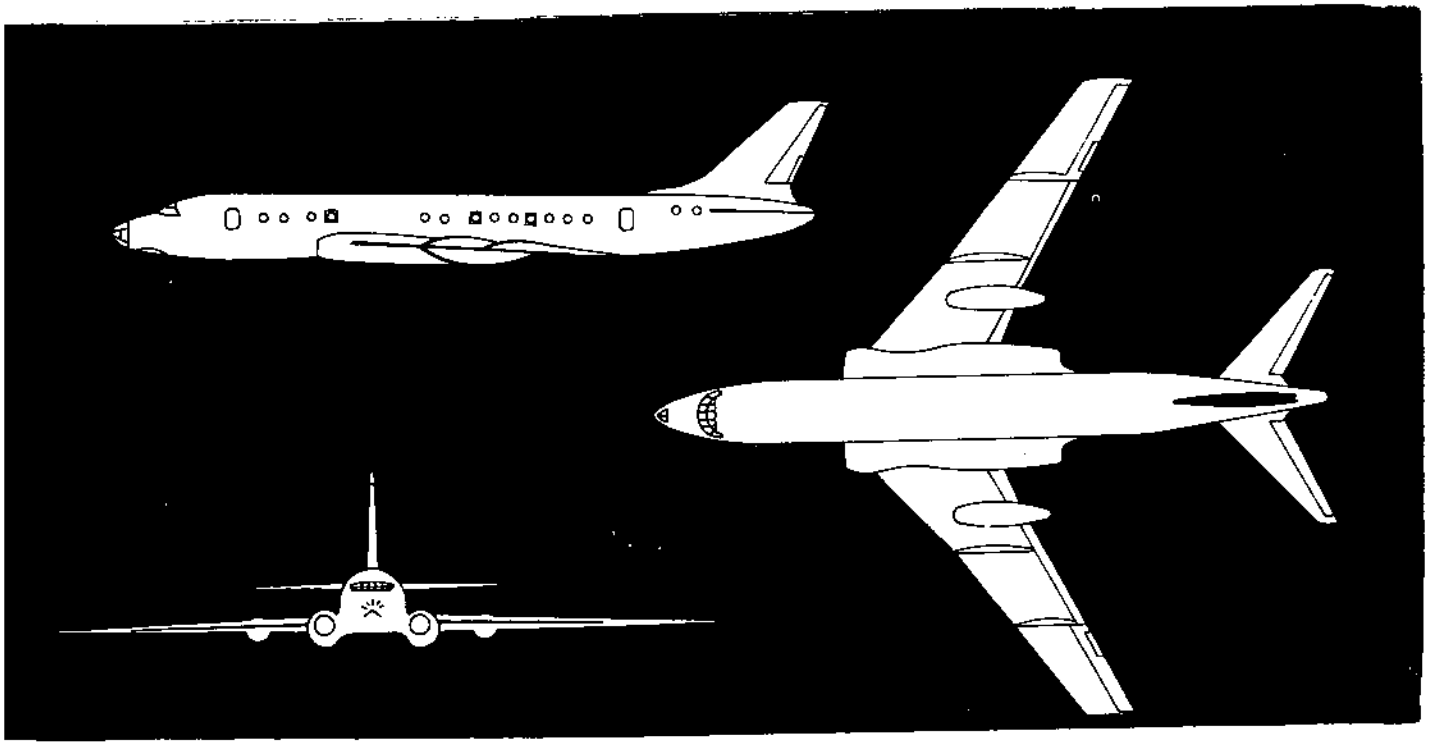
SPAN: 118′ LENGTH: 120′
MAXIMUM SPEED: 540 knots
ENGINES: 2/M209/over 15,000 lbs. thrust each

SOVIET

TWIN-JET

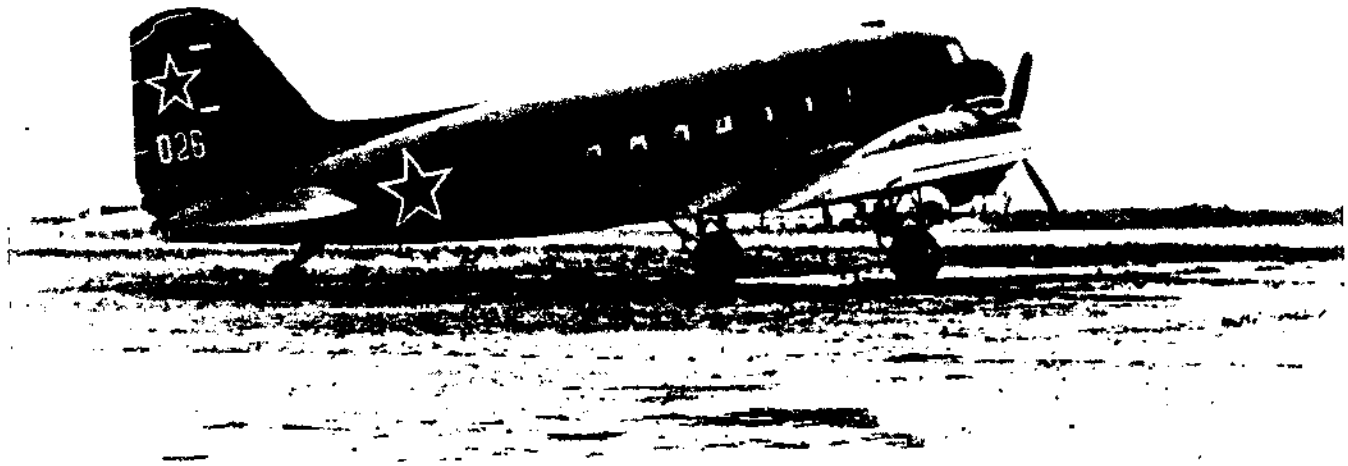
TRANSPORT

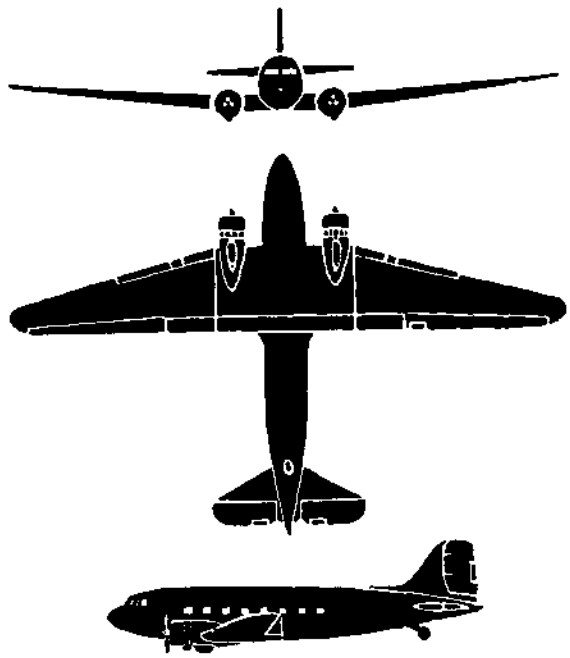
RANGE: Over 2500 nautical miles
CRUISING ALTITUDE: 32,500 to 39,000 ft.
CRUISING SPEED: 435 to 475 knots
PASSENGER CAPACITY: 70 to 80



U. S. S. R.
SUPPLEMENT NO. 6
DECEMBER 1956

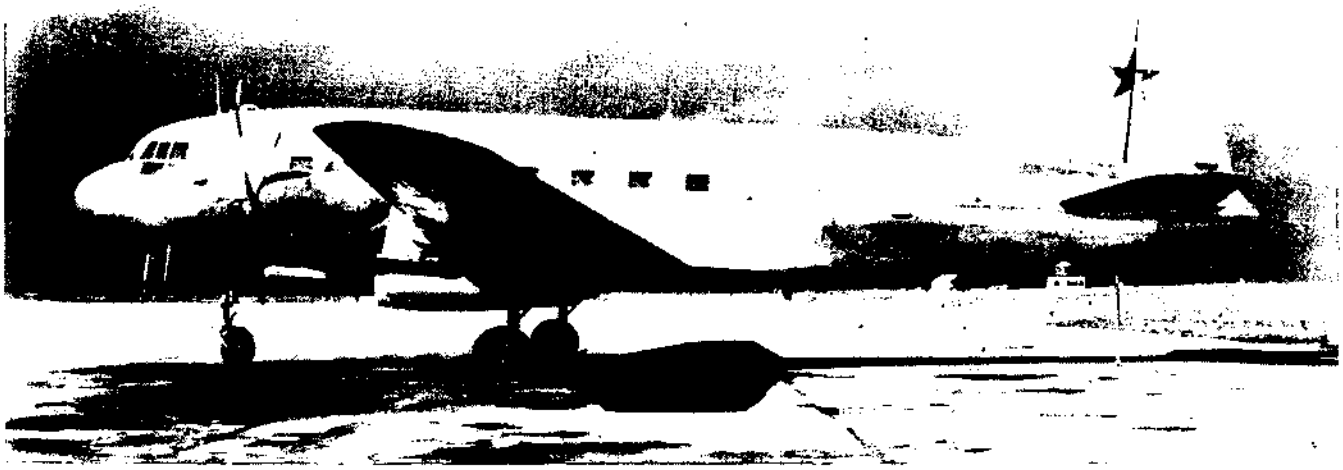
FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

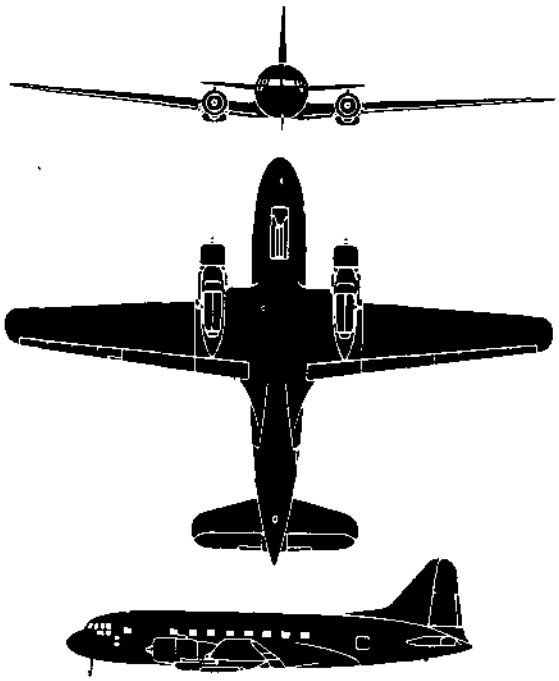




The Cab (LI–2) is a twin-engined low-wing transport monoplane. Its wing tapers to rounded tips. There is a single fin and rudder. Landing gear is retractable. It has a capacity of 5,000 pounds of freight or 21 passengers and a crew of 3. The Cab is the U. S. S. R. version of the U. S. DC–3 (C–47/R4D) transport. This aircraft was originally designated PS–84. During World War II, a large number of C–47 Skytrains were supplied to Russia under Lend-Lease. In addition to being the standard Russian troop and paratroop transport, Cab is also widely used as a passenger airliner by Aeroflot.

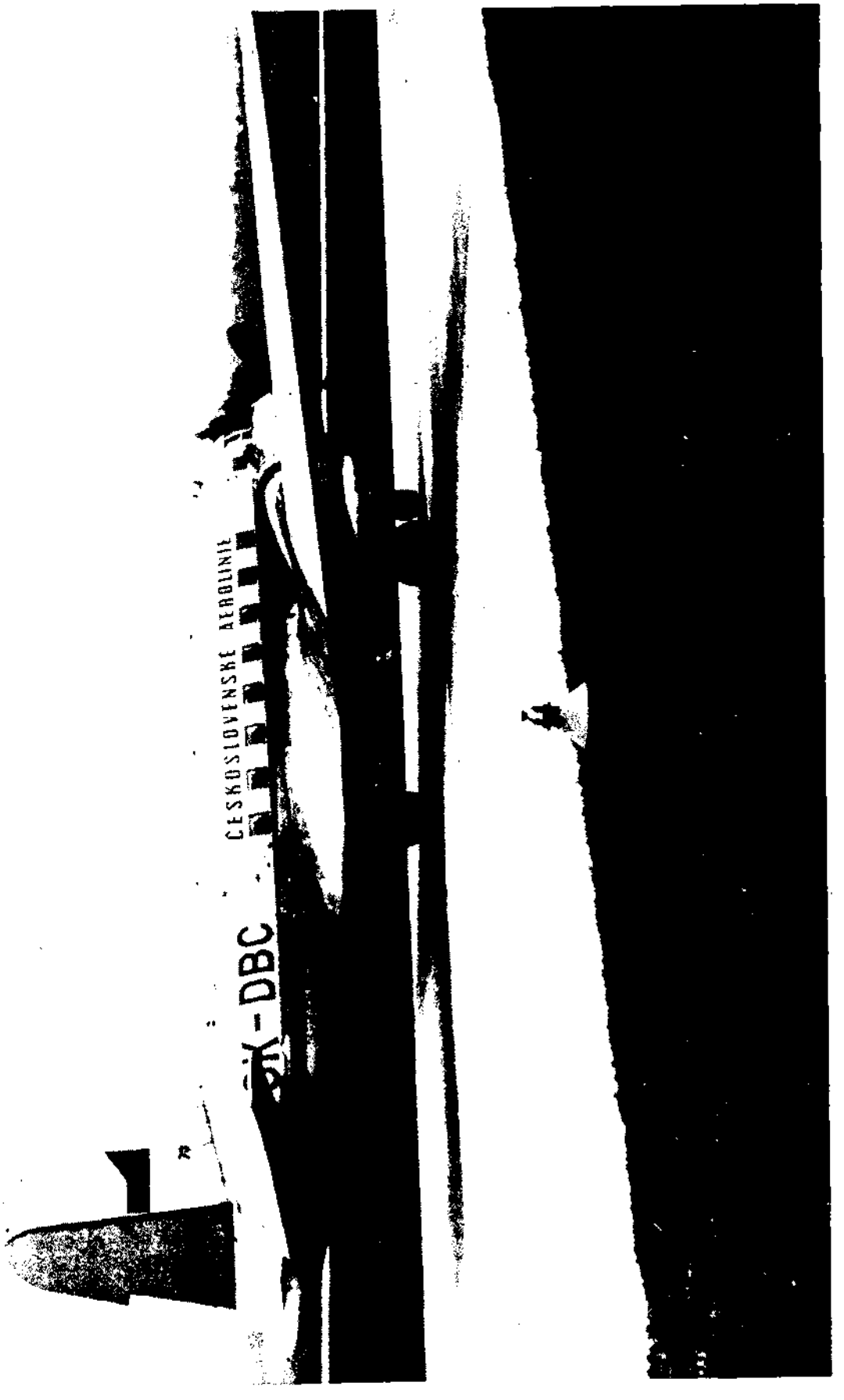
SPAN: 95′0″ **LENGTH: 64′6″**
ENGINE: 2/Ash–62, radial/985 h. p. each.
MAX. SPEED: 170 knots/5,000 ft.
RANGE: 1,460 nautical miles/120 knots.
ARMAMENT: Normally none.

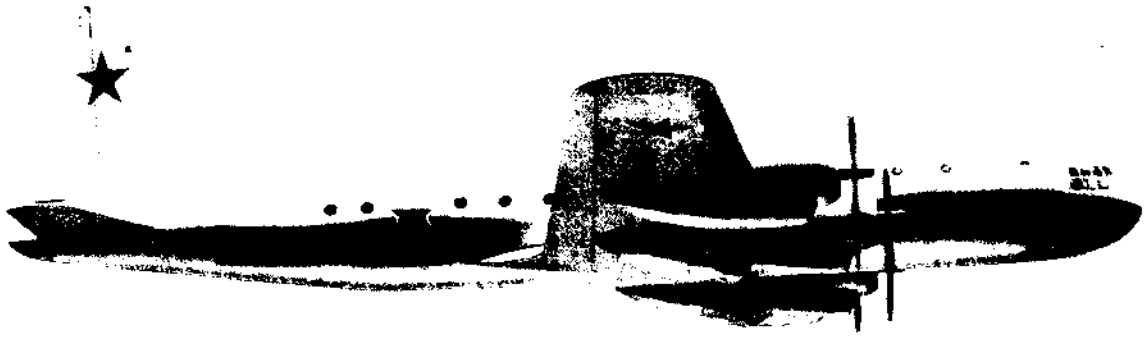


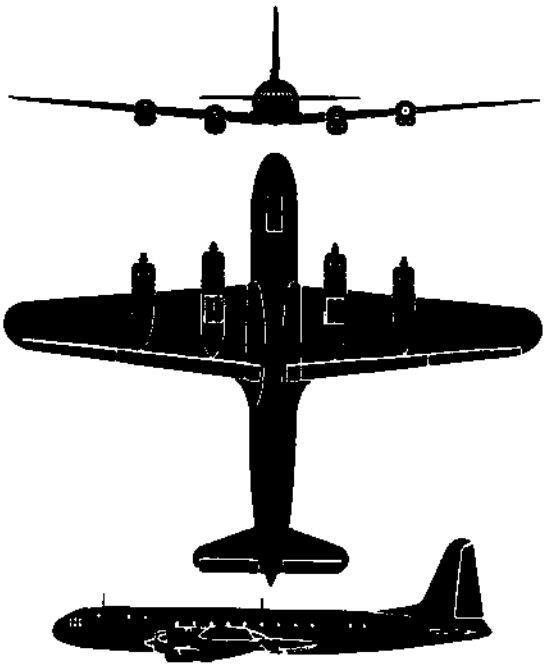


The modified "Coach" (IL–12) differs from the IL–12 twin-engine transport in that it has added a fin fairing extending along the after part of the fuselage. Its low wing has positive dihedral; the center section is of rectangular shape while the outer sections are trapezoidal with rounded tips. Split landing flaps extend the entire span of the center section. It has a single tail and retractable tricycle landing gear. The main wheels are dual, retracting into the engine nacelles and the nose wheel is single. Versions exist with passenger capacities from 18 to 32. The transport is similar to the C–47/R4D, but the Coach's wing is placed farther aft than C–47's. Flying European air routes for the U. S. S. R. and Satellites, it has been seen on numerous occasions this side of the iron curtain. A newer version with a square rudder is called the Crate.

SPAN: 104'0" **LENGTH: 69'10"**
ENGINE: 2/Ash–82, radial/1,825 h. p. each.
MAX. SPEED: 212 knots/17,000 ft.
RANGE: 1,300 nautical miles/165 knots.
ARMAMENT: None.

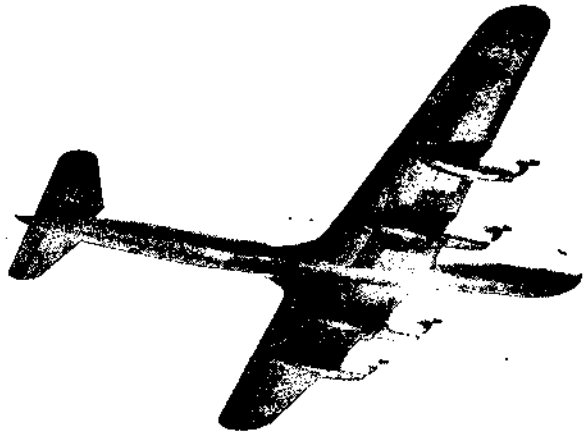

OK-DBC
CESKOSLOVENSKE AEROLINIE

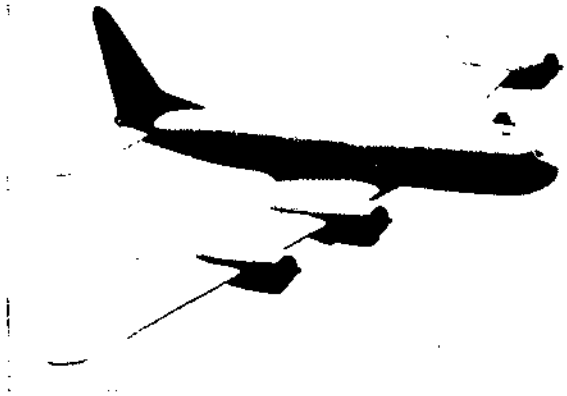


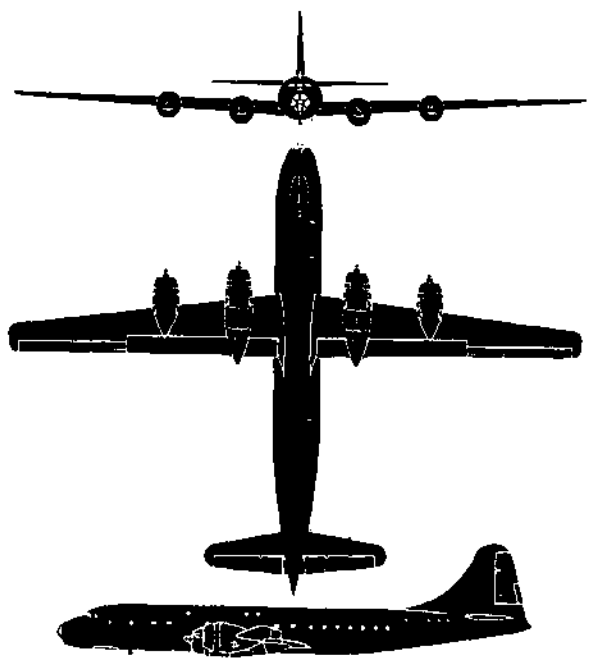


The "Clam" (IL–18) is a four-engined low-wing transport with a capacity of 66 passengers. From a recognition view, its fuselage appears to be cigar shaped with no prominent windshield. The Clam wing roots are faired into the fuselage with the fairing extending aft of the trailing edge of the wing. Its wings taper on both leading and trailing edges to relatively narrow chord rounded wing tips. The prominent triangular fin has a slight forward fairing along the top of the fuselage. A tricycle landing gear with dual wheels is fitted. Superficially the Clam resembles the British Tudor 7 and is evidently a scaled-up "Coach" (IL–12) also designed by Ilyushin. The Clam is slightly larger than the DC–4. Its take-off weight is around 90,000 pounds. The Clam has not been sighted often.

SPAN: 131'0" **LENGTH: 100'0"**
ENGINE: 4/Ash–82 FN radial/1,825 h. p. each.
MAX. SPEED: 240 knots/15,000 ft.
RANGE: 1,700 nautical miles/175 knots.
ARMAMENT: None.

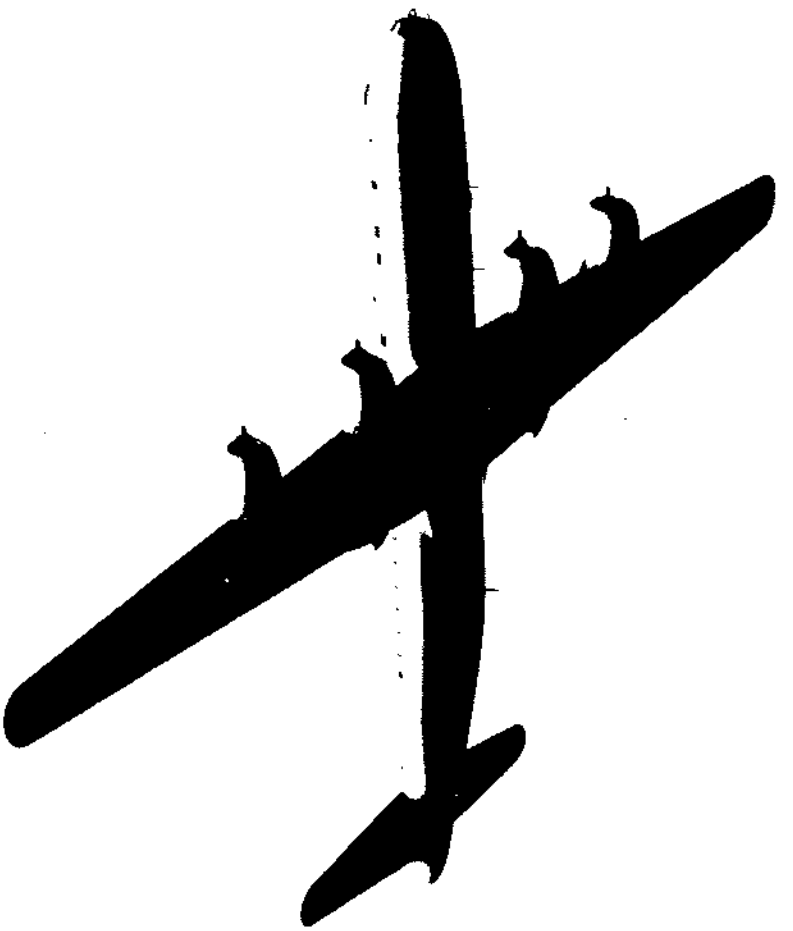






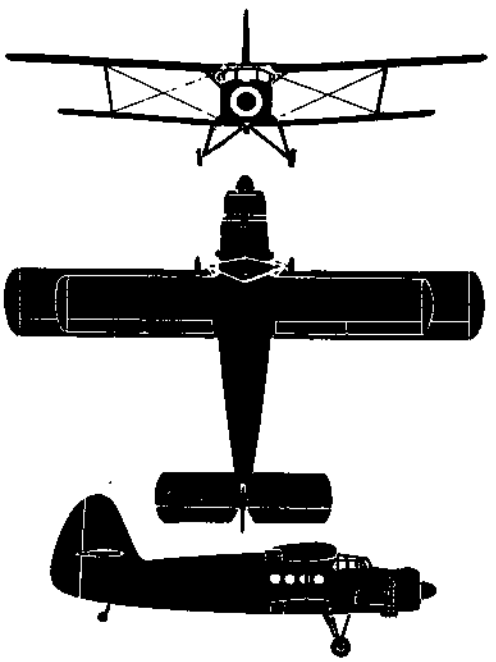
The "Cart" (TU–70) is a four-engined low mid-wing transport which resembles the B–29 in configuration. Design of the Cart is based on the B–29. Several of these bombers were confiscated during the war when forced to land in Soviet occupied territory. A major difference is that the Cart has a longer fuselage which is mounted higher on the wing. In spite of its similarity to the B–29, the side windows and the form of the cockpit indicate that the Cart is not equipped with a pressurized cabin. Soviet copies of the Wright Cyclone provide the necessary power. The redesign of the B–29 was produced by the versatile Andrei Tupolev, co-founder of the Soviet aviation industry. It has a seating capacity of 72 passengers or 54 paratroops. The take-off weight of the Cart is around 140,000 pounds.

SPAN: 141′3″ **LENGTH: 119′0″**
ENGINE: 4/Ash–90 radial/2,200 h p. each.
MAX. SPEED: 280 knots/17,000 ft.
RANGE: 2,300 nautical miles/175 knots.
ARMAMENT: None.



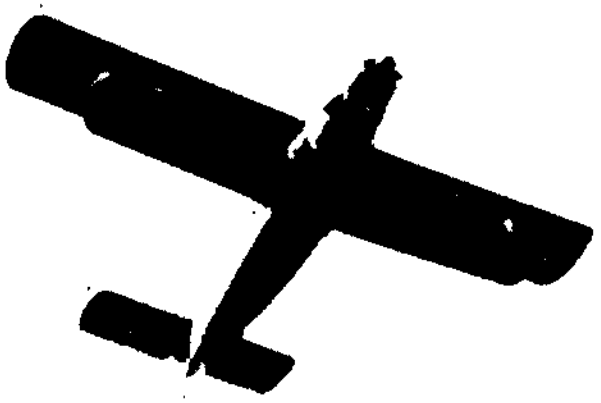
U. S. S. R.
SUPPLEMENT NO. 5
JUNE 1954

FM 30–30
OPNAV 32P–1200/5
AFM 50–40E

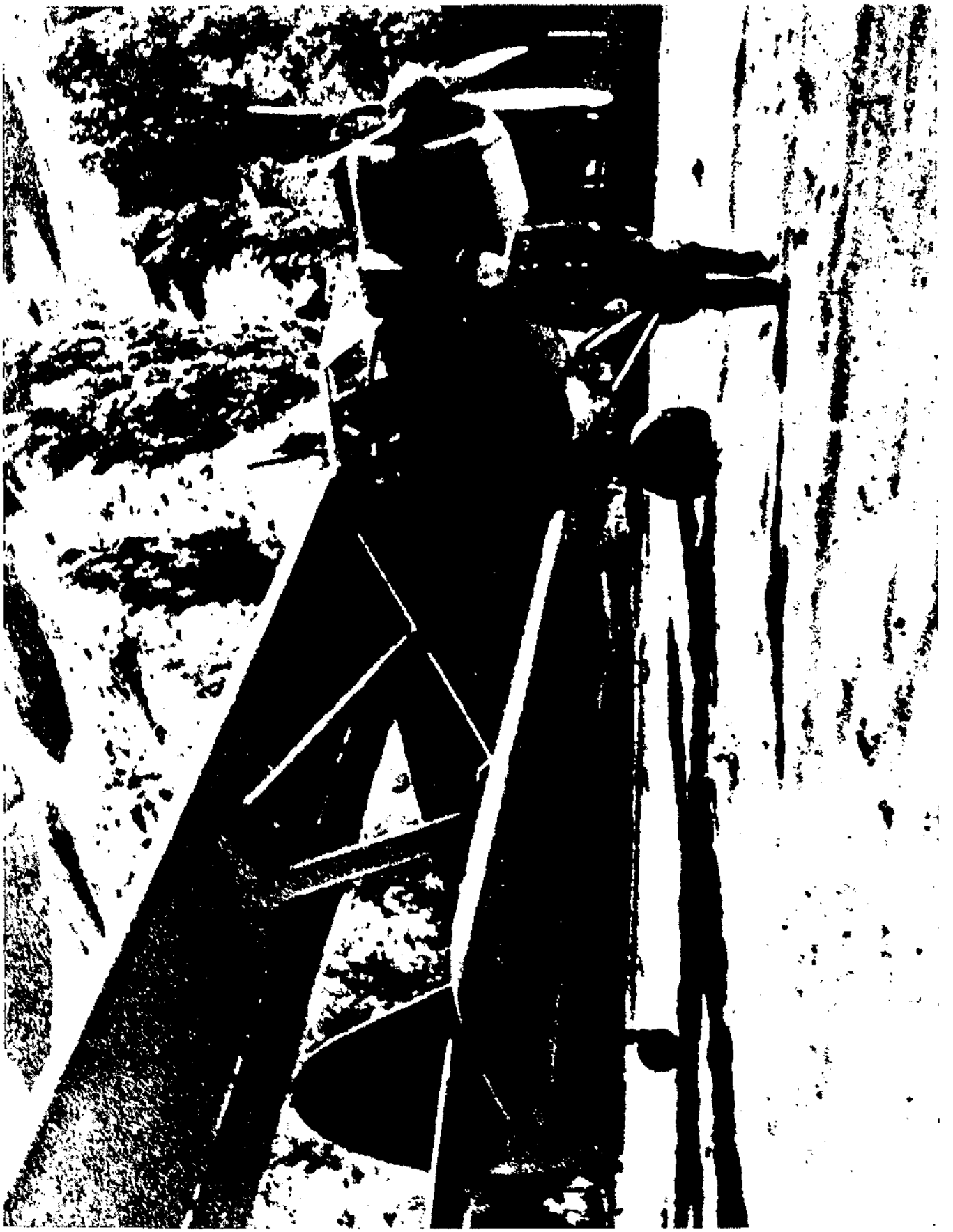


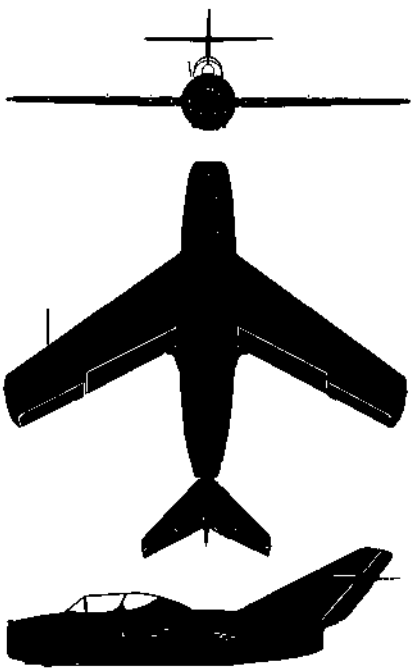
The "Colt" (AN–2) is a single engine light transport with biplane wings. It is of recent vintage having just appeared in Satellite air forces. The biplane has a utilitarian appearance borne out by its large box-like fuselage. Circular windows are spaced along the side. A radial engine with a large propeller spinner provides the Colt with power. The biplane's wings are braced together by two single struts placed about two-thirds outboard of either side of the fuselage. Between the struts and fuselage are crossing guy-wires. The rectangular horizontal stabilizer attached midway on the rudder has brace supports attached to the fuselage. A large curved fin and rudder provide a good recognition feature. The landing gear is a fixed tail-wheel type.

SPAN: 48′8″ **LENGTH: 37′2″**
ENGINE: Ash 62 radial/980 h. p.
MAX: SPEED: 135 knots/7,000 ft.
RANGE: 850 nautical miles/95 knots.
ARMAMENT: None.



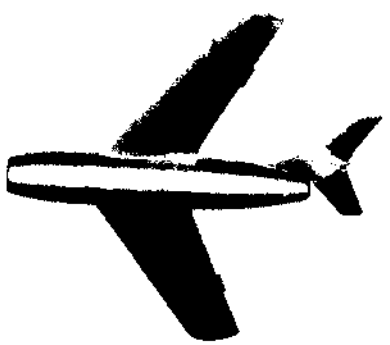
305799 O - 54 - 10

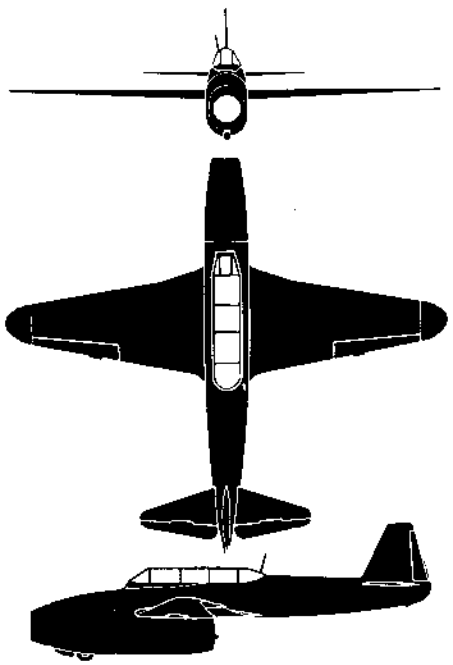




The "Midget" (UMIG–15) is a tandem two-place trainer version of the "Falcon" (MIG–15) jet fighter. From a recognition standpoint, the two aircraft are identical with the exception of the Midget's elongated cockpit canopy. Design of both the Midget and Falcon is attributed to the Mikoyan-Gurevich team. Both aircraft have a single centrifugal-flow turbojet engine installed in the after half of their fuselages. Narrow wings, horizontal and vertical tail surfaces all have pronounced sweepback and squared tips. The angle of the wings sweepback is around 35°, approximately the same as that of the F–86. A feature of the Midget is its high-mounted horizontal stabilizer on its broad fin and rudder. The Midget is a standard jet trainer in the Soviet and Satellite air forces. Its takeoff weight is around 11,000 pounds.

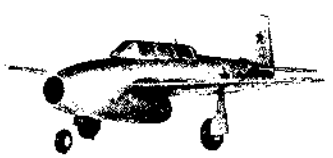
SPAN: 33′0″ **LENGTH: 33′7″**
ENGINE: Nene-type turbojet/5,000-lb. thrust.
MAX. SPEED: 570 knots.
RANGE: APPROX. 650 nautical miles/440 knots.
ARMAMENT: 1 x 37 mm; 2 x 23 mm.

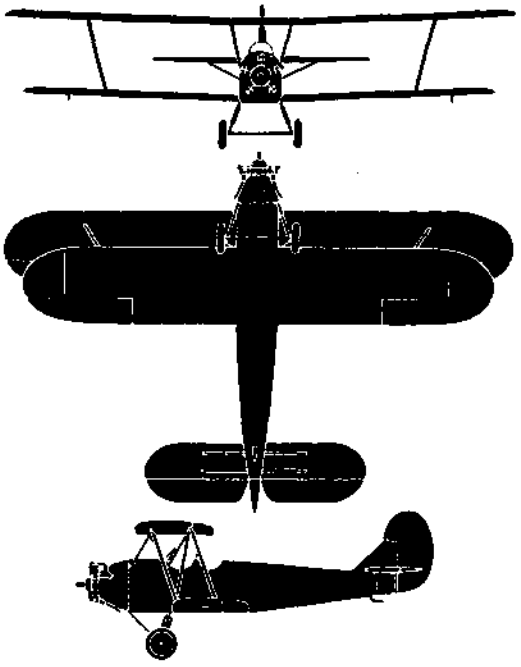




The "Magnet" (UYak–17) is a tandem two-place trainer version of the "Feather" (Yak–17) jet fighter. From a recognition standpoint the two aircraft are identical with the exception of the Magnet's elongated cockpit canopy. Design of both the Magnet and Feather is attributed to Yakovlev. Both aircraft are developments of the Yak–15. The Magnet and Feather differ from the Yak–15 by the addition of a nose wheel which is enclosed by an external fairing. The fin and rudder have been slightly modified, appearing larger and more upright than in the Yak–15. Like the Feather, the Magnet's wings are straight wih equi-taper. The Magnet is inferior in performance to the Midget, the only other comparable jet fighter trainer. Performance of the Magnet is similar to the Feather's.

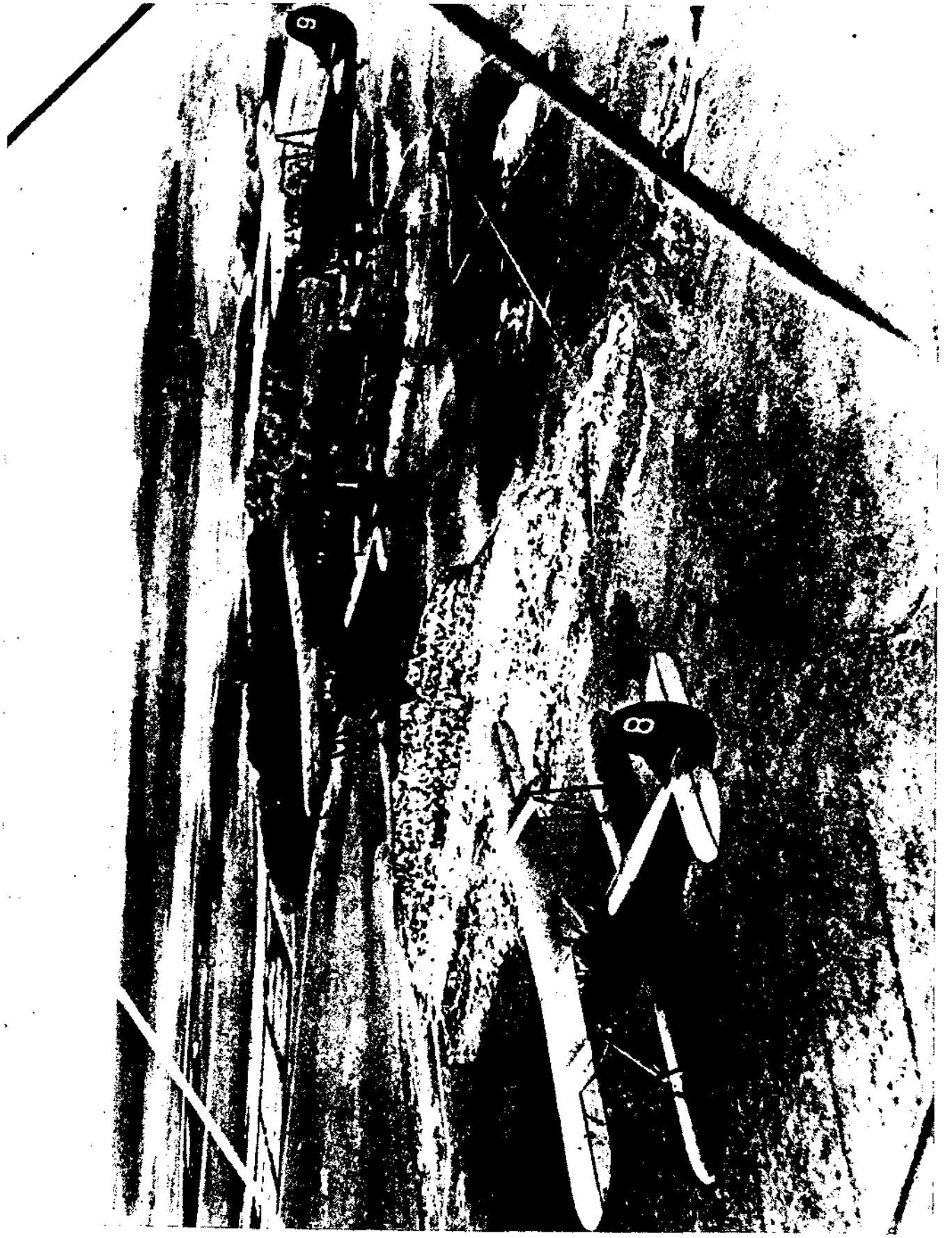
SPAN: 30′0″ **LENGTH: 29′0″**
ENGINE: Jumo–004D, turbojet/2,200-lb. thrust.
MAX. SPEED: 430 knots plus.
RANGE: Approx. 400 nautical miles/350 knots.
ARMAMENT: 2 x 20 or 23 mm in upper nose.



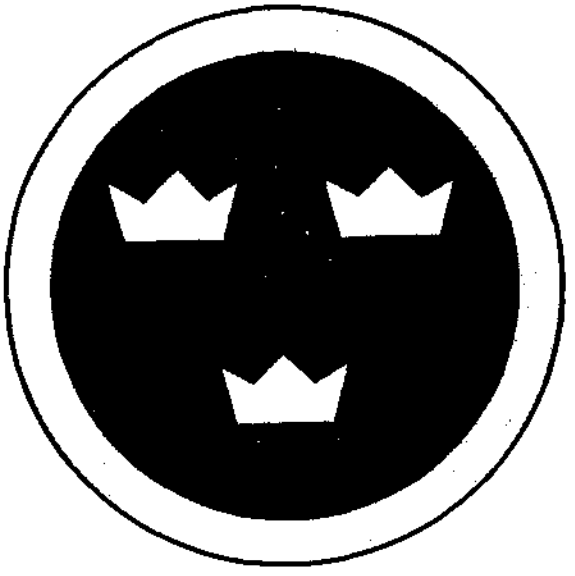


The "Mule" (PO–2) is one of the oldest Soviet aircraft still in use. This small biplane is of wood and fabric construction and is used as a trainer, ambulance, bomber, reconnaissance and liaison, etc. A fixed landing gear, a single fin and rudder, and a braced stabilizer are fitted. The biplane's wings are held together by N-type struts. Normally the Mule is a two-seater but three-seat versions appeared in 1930 while the ambulance variants carry four. An unusual version carried a "panier-nacelle" on each lower wing and was able to carry two stretcher cases. The Mule has been used for spraying while other versions have been equipped with skis and floats. During World War II, it annoyed the Germans as a night nuisance bomber, sometimes dropping as much as 220 pounds of bombs. Rockets were attached to the wings of some of these small biplanes and these assault versions were used in the final battle for Berlin. In Korea, the Mule was active in this role and was referred to as "Bed Check Charley."

SPAN: 37′5″ **LENGTH: 26′8″**
ENGINE: Radial, 5 cylinder/125 h. p.
MAX. SPEED: 90 knots.
RANGE: 360 nautical miles.
ARMAMENT: 4 x 7.62 mm; 6 x 55–lb. bombs.



SWEDEN
AIRFORCE AND AIRCRAFT



SWEDEN

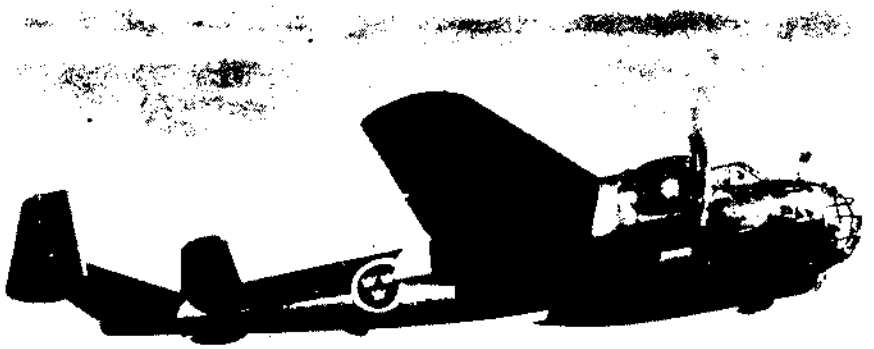
(The Kingdom of Sweden)

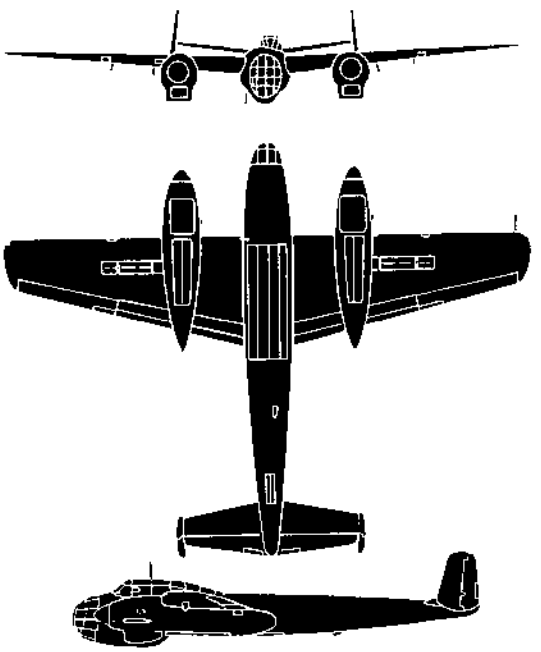
The Swedish Royal Air Force

The Swedish Royal Air Force, Flygvapnet, is an independent force responsible to the Commander-in-Chief of the Armed Forces, Overbetalhavaren. The Chief of the Air Force is a Lieutenant-General who is responsible to the Overbetalhavaren, with headquarters at Stockholm. The central administration of the Air Force includes the Air Staff, Flygstaben, the Royal Air Board, Kungl Flygtorvaltningen, and the Chief Medical Officer. The Chief of the Air Staff is a Major-General.

Equipment

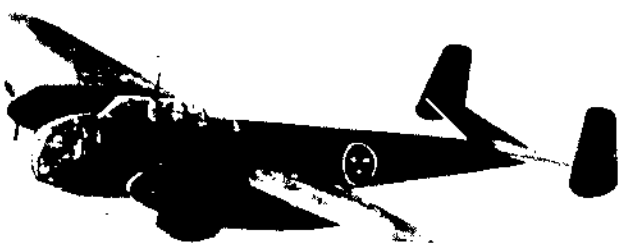
Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	A–18B	Saab	Sweden
Attack	B–17	Saab	Sweden
	A–21	Saab	Sweden
	T–18B	Saab	Sweden
	B–5 (Target Tow Plane)	Saab	Sweden
Fighter	J–28 Vampire	de Havilland	G.B.
	J–21	Saab	Sweden
	J–22	Army Factory	Sweden
	J–26 Mustang F–51	North American	U.S.A.
	Spitfire 19	Vickers-Armstrongs	G.B.
	Mosquito	de Havilland	G.B.
	J–21R (Jet)	Saab	Sweden
	J–29 (Jet)	Saab	Sweden
Reconnaissance	S–18A	Saab	Sweden
	S–14 Storch Fi 156	Fieseler	Germany
	S–17	Saab	Sweden
	Do 24	Dornier	Germany
	TP–47 Catalina PBY (A–10)	Convair	U.S.A.
	J–9 (F–35)	Seversky	U.S.A.
Transport	B–3 (Ju 86K)	Junkers	Germany
	TP–45 Voyager C45 (JRB)	Beechcraft	U.S.A.
	TP–46 Dove	de Havilland	G.B.
Trainer	SK–14 Texan T6 (SNJ)	North American	U.S.A.
	SK–25 (Bu 131)	Bücher	Germany
	SK–16 Texan T–6 (SNJ)	North American	U.S.A.

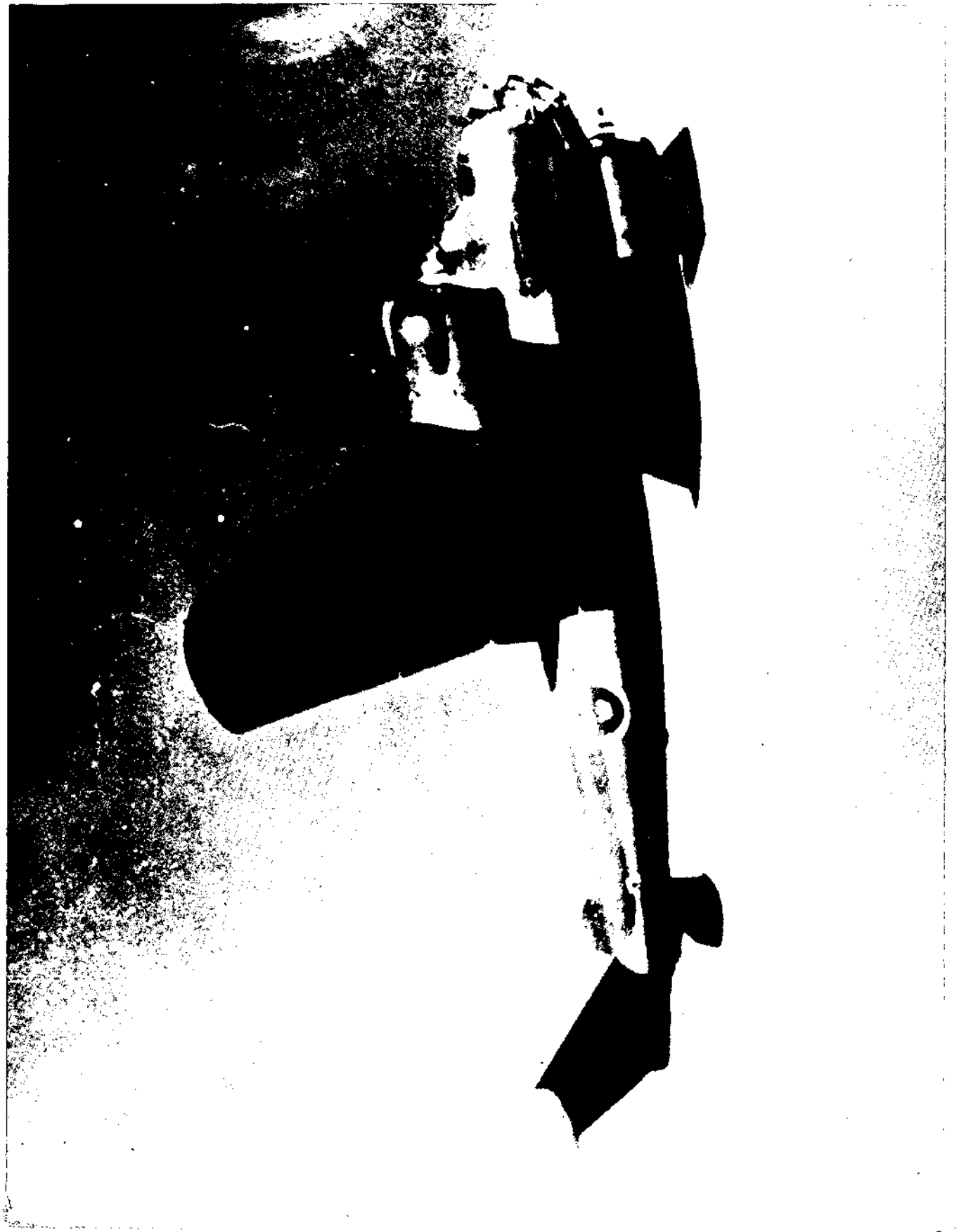


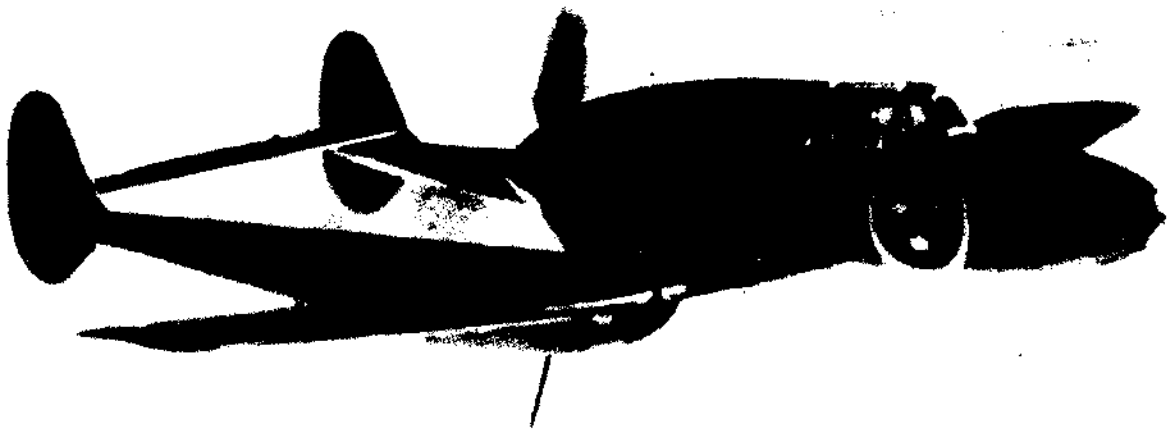


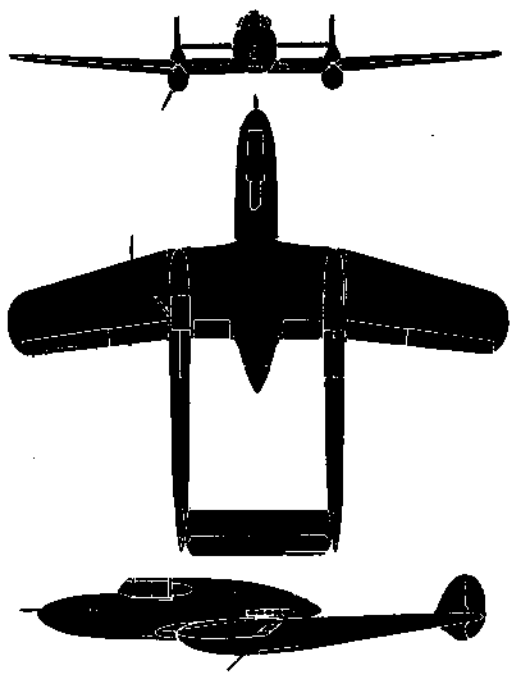
The B–18 is a three-place high-wing bomber equipped with twin-engines of either in-line or radial type. It has a slim fuselage with a bulbous nose. The wings have constant taper from fuselage to tips with all of the taper on the trailing edge tips. The fuselage is oval and stepped up beneath the leading edge of the wings to provide a ventral rear firing gun position. Twin fins and rudders are fitted. The pilot's cockpit is placed to the left of the fuselage center line. Retractable conventional type landing gear is utilized. Bombs are carried both internally and externally. In 1947, 16 Saab B–18's were supplied to the Ethiopian Air Force. (B–18A, P&W radial; B–18B, DB 605B in-line.)

SPAN: 55′10″. **LENGTH:** 43′10″.
ENGINE: R–1830; radial/1,050 h. p. or DB 605B; in-line/1,475 h. p.
SPEED: 247 knots/15,000 ft.
RANGE: 765 nautical miles/178 knots.
ARMAMENT: 3 x 13.2 mm.; 2 x 8 mm.



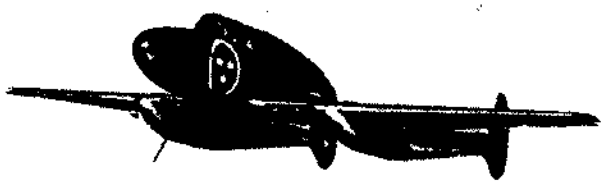


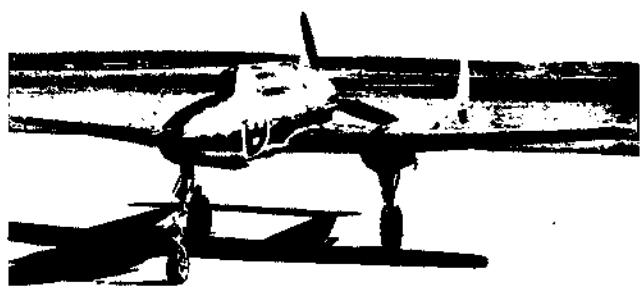


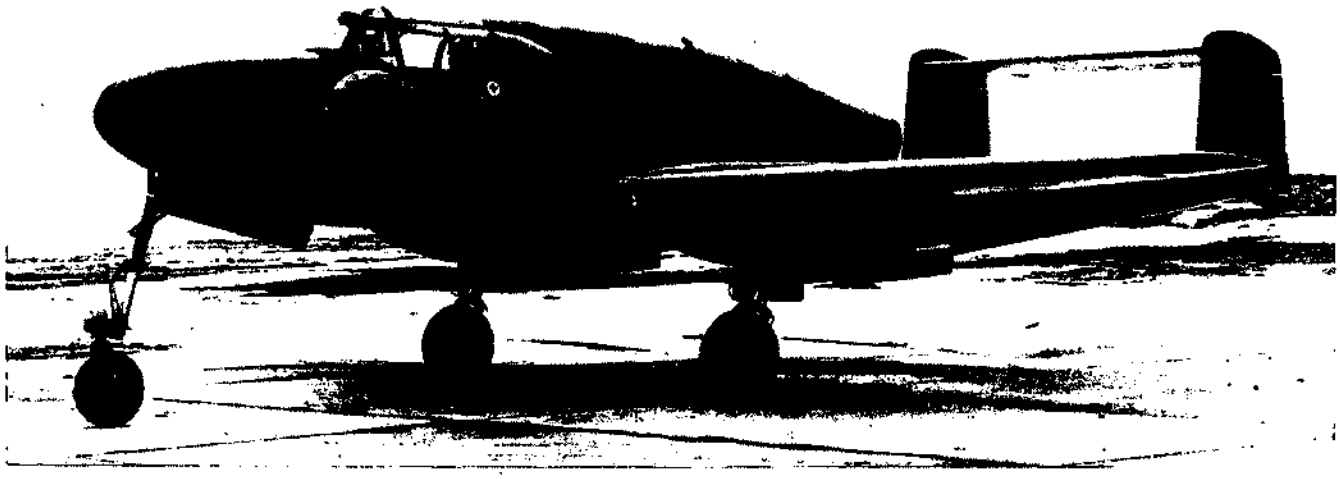


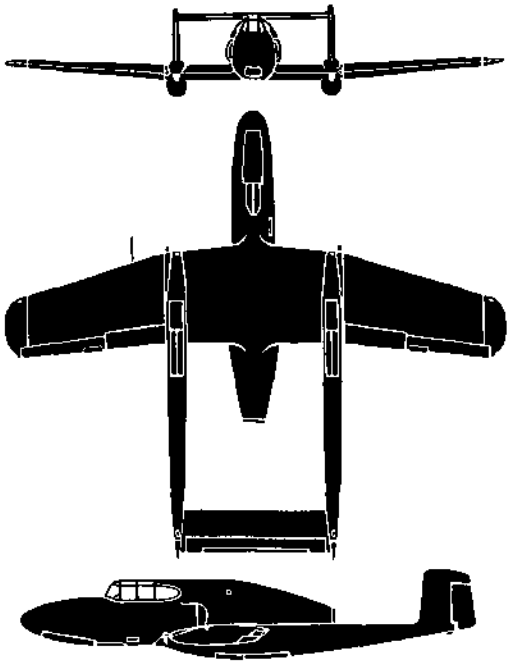
The J–21 is a single-seat, single-engine, twin-boom, pusher type, low-wing fighter. The pilot's visibility is excellent as the cockpit is situated forward of the leading edge of the wing, and is unobscured by engine and propeller. Twin fins and rudders extend below as well as above the booms with a stabilizer set midway between. The wing has a straight centerboard section and sweptback outer panels. Retractable tricycle landing gear is utilized. A bomb load of 1,200 pounds may be carried. For quick escape the pilot's seat is fitted with catapault gear. There are provisions for the carrying of rockets under the wings.

SPAN: 38′0″. **LENGTH:** 34′3″.
ENGINE: DB 605B; Vee in-line/1,450 h. p.
SPEED: 350 knots/16,000 ft.
RANGE: 565 nautical miles/227 knots.
ARMAMENT: 1 x 20 mm.; 4 x 13.2 mm.









The J–21R closely resembles the J–21, sometimes called the "Beetle", except that a turbo-jet engine is fitted instead of a pusher type reciprocating engine. It is a single-seat, single-engine, twin-boom fighter of all metal construction. A stabilizer is set high between the twin rudders. The wing has a straight centerboard section and sweptback outer panels. The pilot's cockpit is located in an oval fuselage above and forward of the leading edge of the wing. Retractable tricycle landing gear is fitted. For quick escape the pilot's seat is fitted with catapault gear. There are provisions for the carrying of ten 10 cm. rockets.

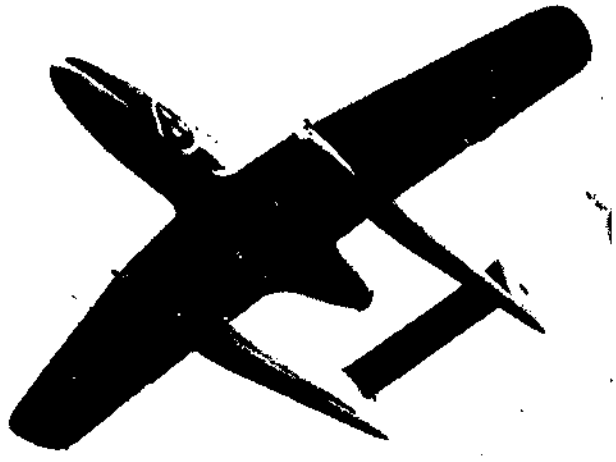
SPAN: 38'7". **LENGTH:** 34'9".

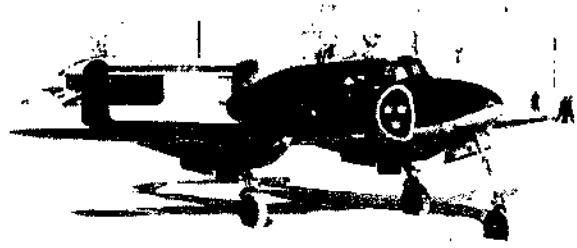
ENGINE: Goblin 2; turbo-jet/3,000-lb. thrust.

SPEED: 431 knots/15,000 ft.

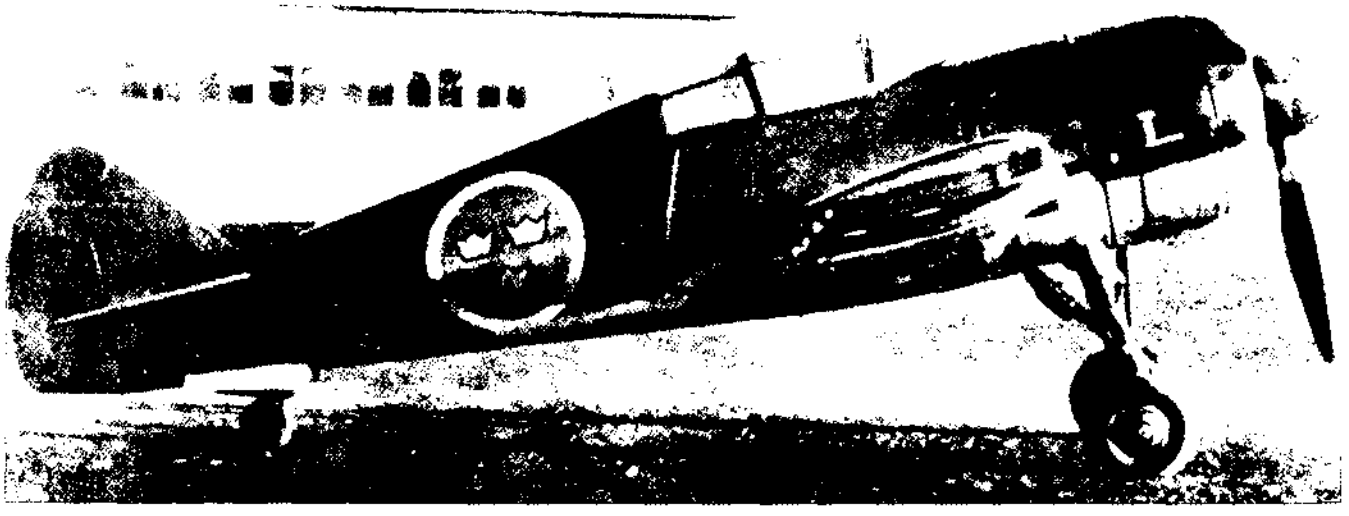
RANGE: 440 nautical miles/350 knots.

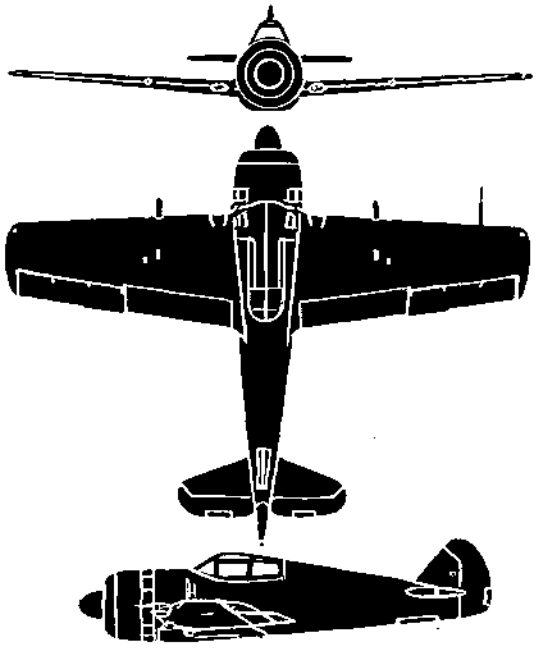
ARMAMENT: 1 x 20 mm.; 4 x 13.2 mm.





SWEDEN
MAY 1949





The J–22 is a single-seat, single-engine, low-mid-wing fighter. The wings taper slightly to square tips and have a plywood skin. The fuselage is oval-shaped with birch plywood covering. A single tail and retractable conventional landing gear are fitted. Because of its clean design and light weight, the J–22 obtains a comparatively high speed for its low power. Owing to the difficulty, at that time, of purchasing aircraft abroad, the Swedish Air Board undertook the design and construction of the J–22.

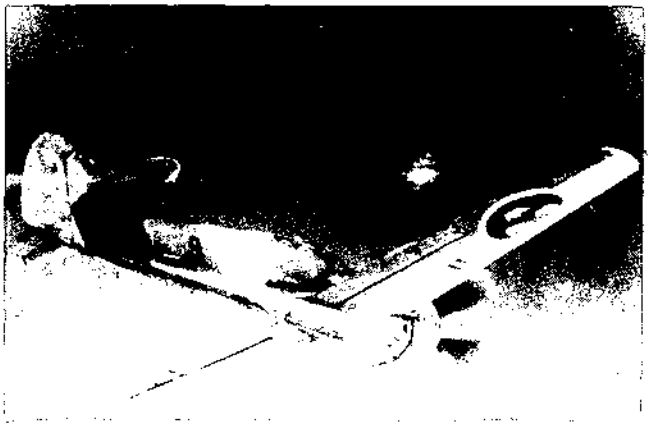
SPAN: 32′10″. **LENGTH:** 25′7″.

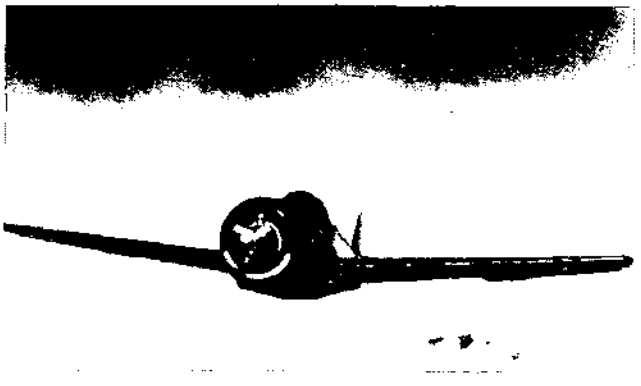
ENGINE: R–1830–17; radial/1,200 h. p.

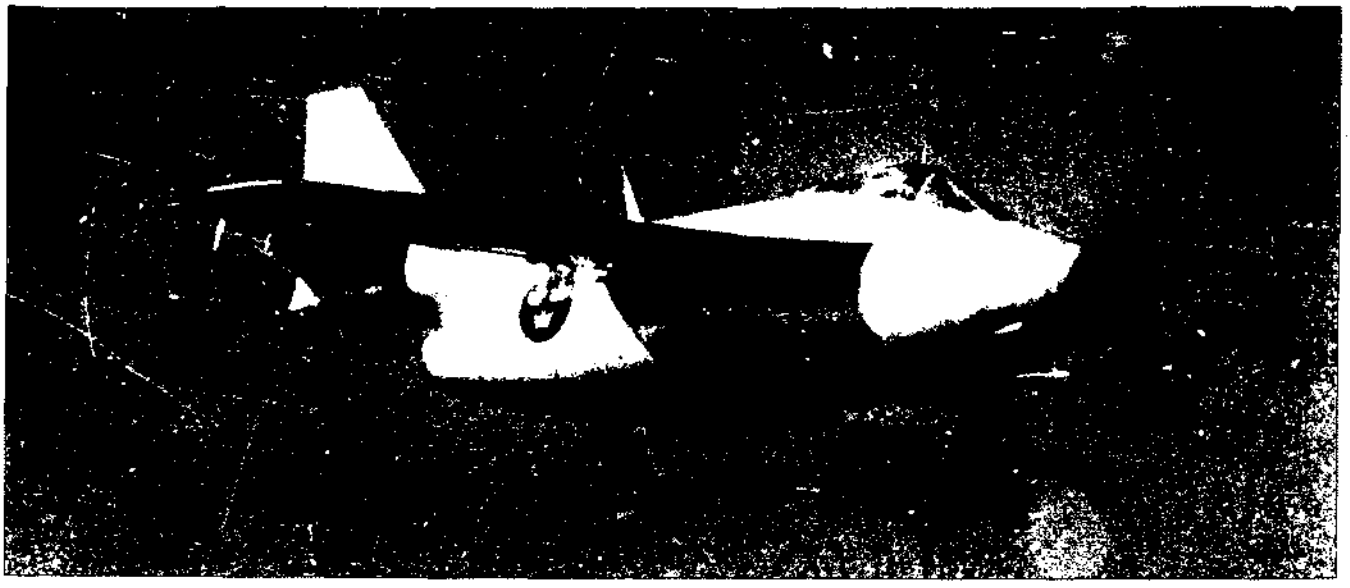
SPEED: 300 knots/15,000 ft.

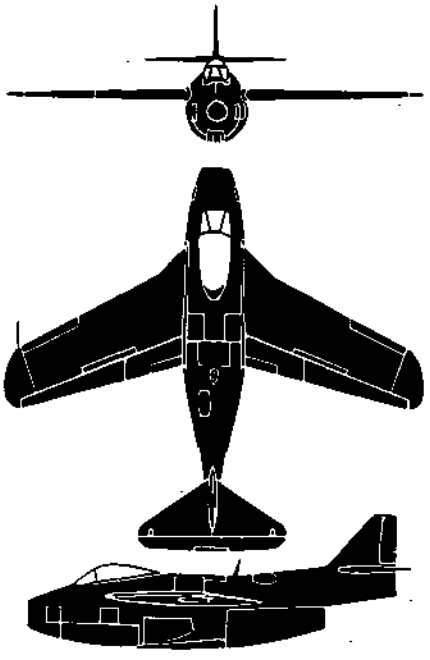
RANGE: 486 nautical miles/160 knots.

ARMAMENT: 4 x 13.2 mm. fixed in wing.









The J–29 "Barrel" is a mid-wing single-seat jet fighter. A-Thousand-and-One-Nights was the name given by the factory workers to the SAAB–1001 jet fighter; later it was designated the J–29 by the R.S.A.F. and nicknamed the "Barrel." It is considered the first expressly designed Swedish jet fighter. A squat barrel-like fuselage houses a British Ghost centrifugal-flow jet engine with a nose air intake. As in the F9F Panther, Yak–15, and MIG–9 the exhaust is out the ventral side of the fuselage forward of the rudder extremity. The thin wings have 45° sweepback at root and 28° near the wing tips. It is equipped with a pressurized cockpit with a jettisonable canopy, a gunpowder-driven ejector seat and a tricycle landing gear. The J–29's configuration places it in a class with our F–86 and the Soviet's MIG–15.

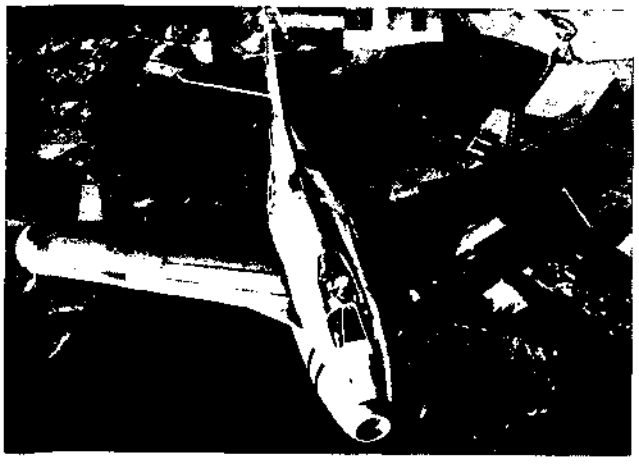
SPAN: 36′0″. **LENGTH: 33′5″.**

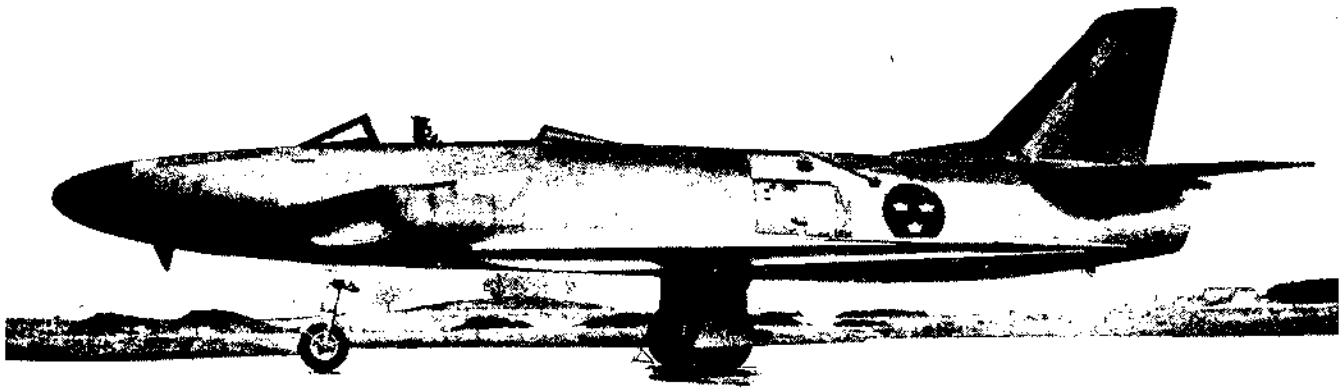
ENGINE: D. H. Ghost/5,000-lb. thrust.

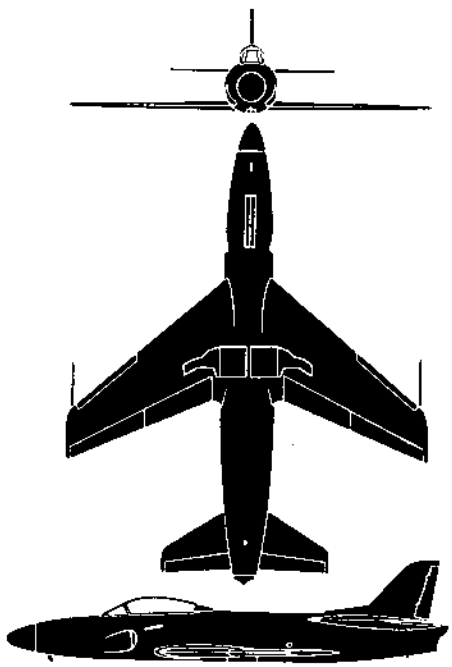
MAX. SPEED: 570 knots plus.

RANGE: 1,000 nautical miles (approx.).

ARMAMENT: 4 x 20 mm. plus rockets.

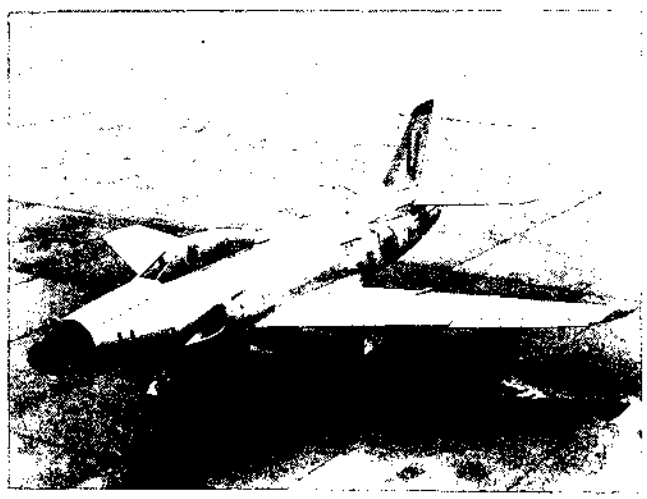


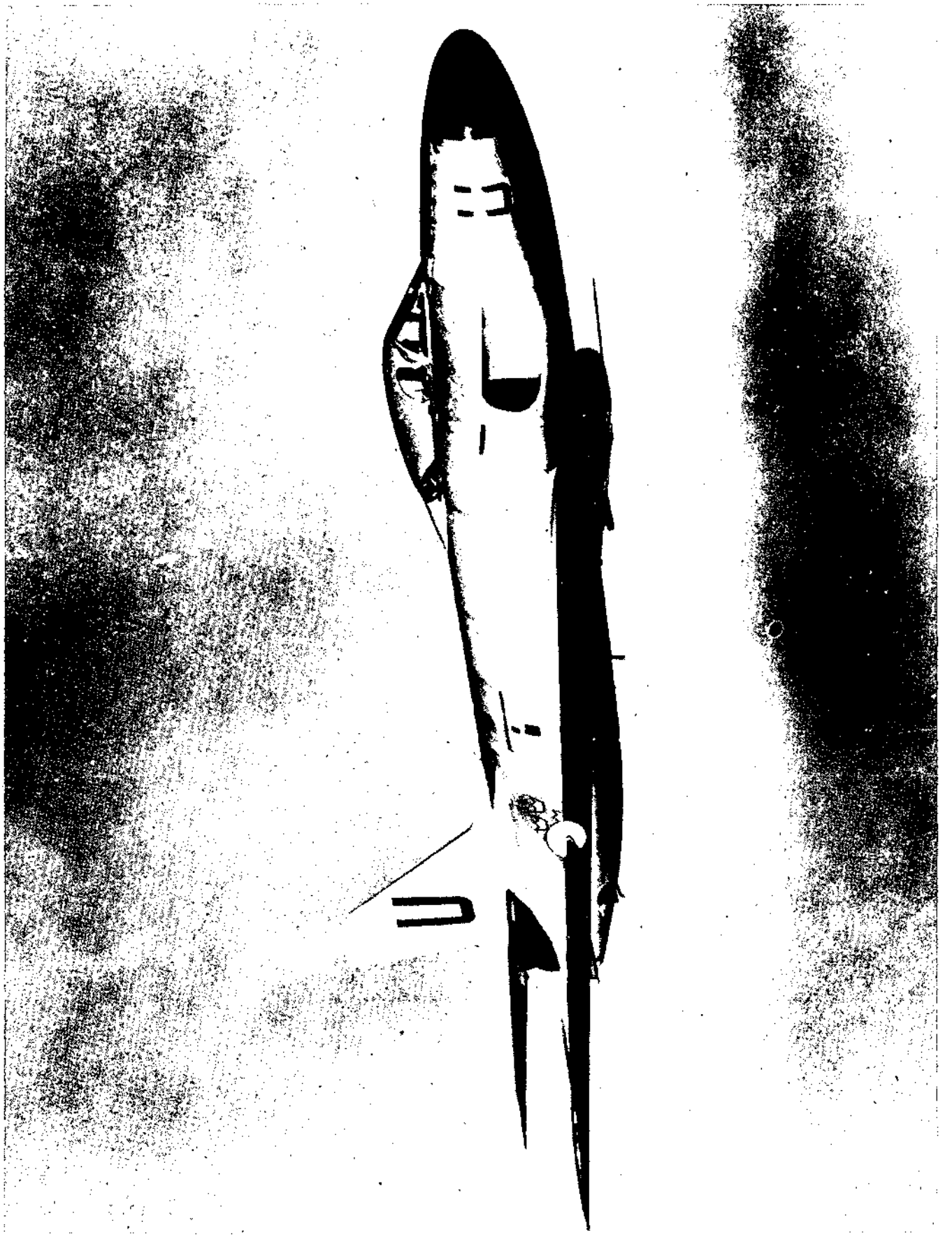


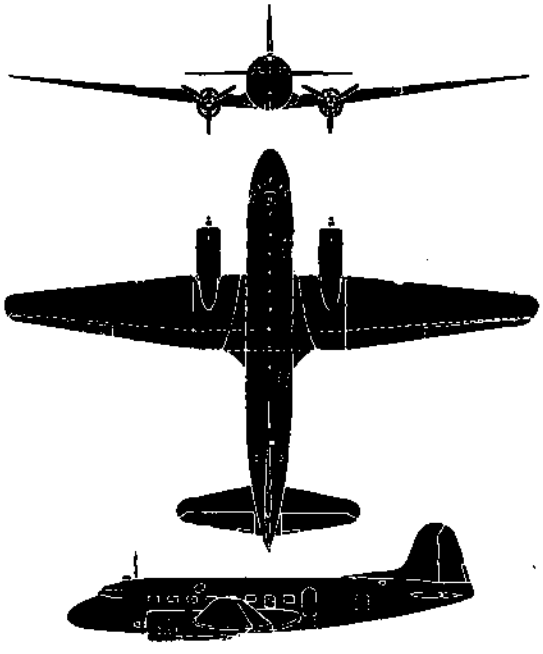


The A–32 is a single jet low swept-wing two-seat all-weather attack fighter, designed primarily for attack operations against ground and sea targets. Its first flight was made in November 1952. The wings, movable stabilizer, and fin are swept-back at an angle (35°) greater than that used on the J–29 jet fighter. Both ailerons and elevators have hydraulic boost controls. Cheek air scopes are featured on either side of the slender fuselage and big fairings are used to smooth the airflow at the root of the movable tail surface. The pilot and radar operator sit in tandem in a pressurized cockpit equipped with ejector seats. A tricycle landing gear is used with the main gear retracting inward. The triangular fin under the fuselage nose is one of the aircraft's many aerials. Electronic equipment is fitted for navigation and combat. Its take-off weight is over 20,000 pounds.

SPAN: 42′8″ **LENGTH: 49′2″**
ENGINE: R. R. Avon turbojet/6,500-lb. thrust.
MAX. SPEED: 590 knots.
RANGE: 1,000 nautical miles.
ARMAMENT: Cannons and rockets.







The Saab–90 is a twin-engine, low-wing monoplane transport. The engines are situated on the wing center section rather close to the fuselage. The pilot's cabin is just forward of the engine nacelles overlooking a rounded nose. The wings have dihedral from the roots with evenly tapered leading and trailing edges. The fin and rudder is rather tall with a long fairing projected forward into the fuselage. It is fitted with a retractable tricycle landing gear. The general appearance is similar to that of the U.S. C–47. It has a capacity of 24 to 32 passengers.

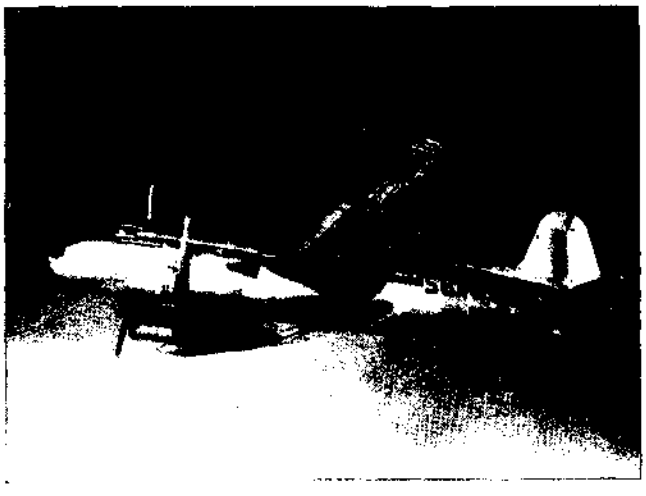
SPAN: 91′10″. **LENGTH:** 69′11″.

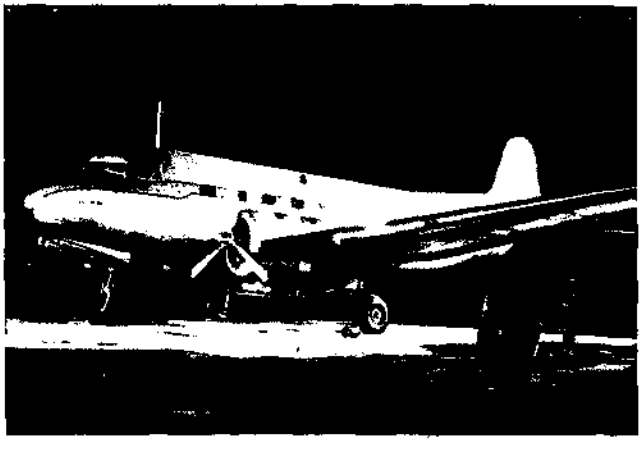
ENGINE: 2/R–2000; radial/1,450 h. p.

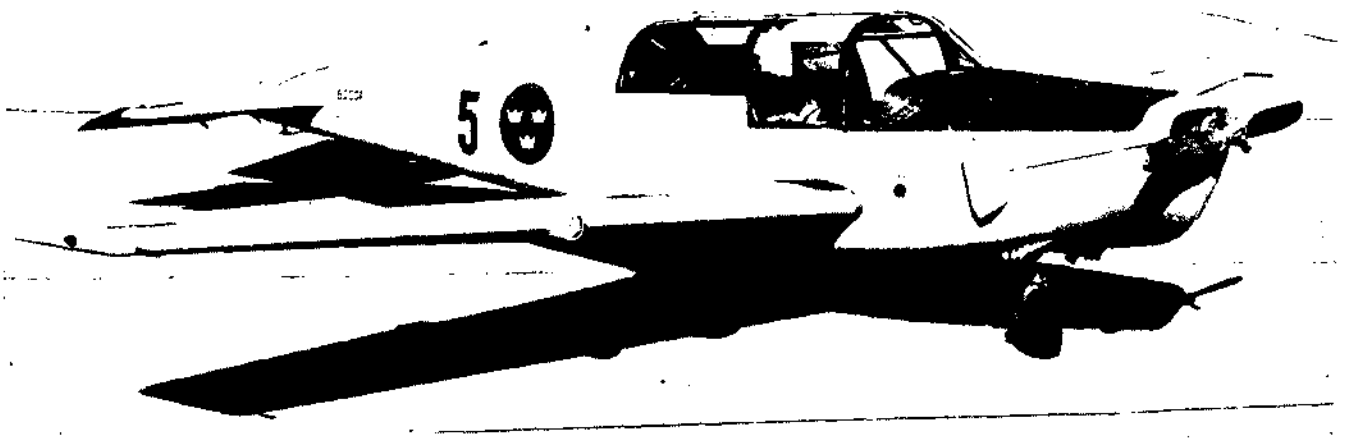
SPEED: 231 knots/6,800 ft.

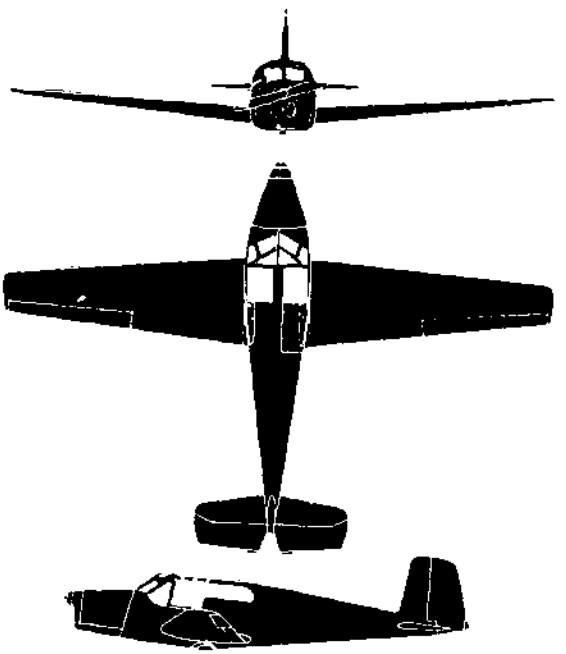
RANGE: 890 nautical miles/210 knots.

ARMAMENT: None.



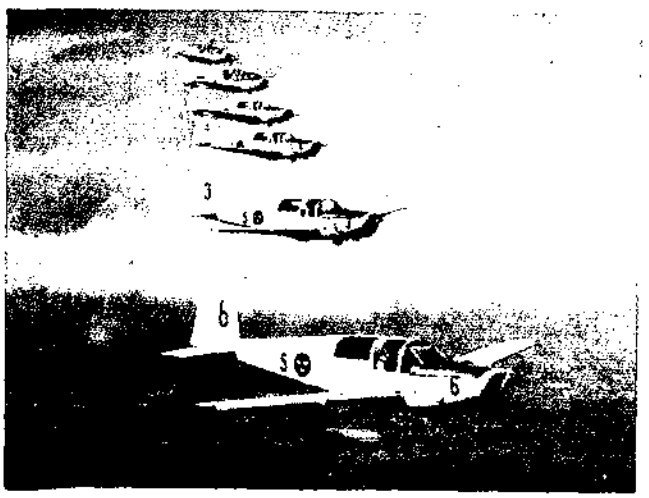


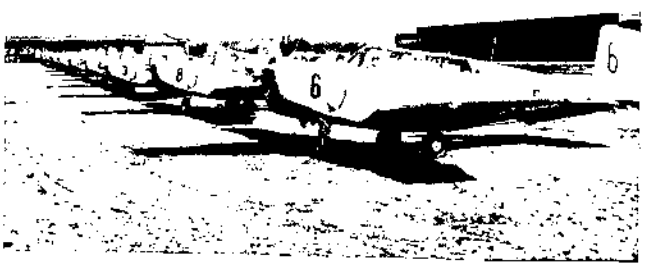




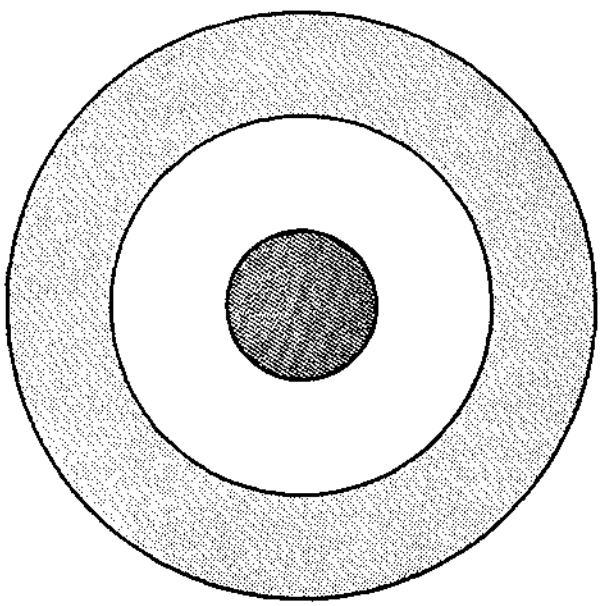
The Saab-91 Safir is a Swedish designed single-engine low-wing primary trainer built by Saab as well as Dutch De Schelde. It is designated SK 50 in the RSAF. The Safir first flew in 1945 powered by a 130 h. p. and later 145 h. p. British Gypsy Major. A later version, the Saab-91B, has three seats and is fitted with a Lycoming engine. This version flew in 1949 and is now being built by the Dutch under license. A four-seater, the 91C with a Lycoming engine, is also being produced. The Safir has been exported to Argentina, Brazil, Ethiopia, Holland, India, and is used by the pilot training school of the SABENA, Belgian Airline. Experimental variants of the Safir have been fitted with swept-back wings to determine flight test information on the J-29 jet fighter's wings. The aircraft features a retractable tricycle landing gear.

SPAN: 34'9" **LENGTH: 26'0"**
ENGINE: Lycoming 0-435A, in-line/190 h. p.
MAX. SPEED: 150 knots.
RANGE: 590 nautical miles/115 knots.
ARMAMENT: None.





FRANCE
AIR FORCE AND AIRCRAFT



FRANCE
AIR FORCE AND AIRCRAFT

FRANCE

(The French Republic)

The French Air Force

Service aviation in France, is divided between the Air Force, Armée de l'Air, and the Naval Air Arm, Aeronavale.

The nominal Commander in Chief of the Armed Forces is the President of the Republic. He presides over two advisory bodies, the Supreme National Defense Council and the National Defense Committee.

Under the Ministry of the Armed Forces are three Under-Secretaries of State, Army, Air, Navy. Also reporting to the Minister are the Chiefs of Staff Committee and the Inspector-General of the Armed Forces.

The Air Force

The Chief of the Air Staff and Commander in Chief of the Air Force is a General, who is also Chairman of the Chief of Staff Committee.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Halifax Mk. 6	Handley Page	G. B.
	Invader B–26/JD	Douglas	U. S. A.
Fighter	Thunderbolt F–47N	Republic	U. S. A.
	Spitfire Mk. 9	Vickers	G. B.
	Hellcat F6F	Grumann	U. S. A.
	Bearcat F8F	Grumann	U. S. A.
	Mosquito Mk. 30	de Havilland	G. B.
	Ouragon M. D. 450	Dassault	France
	Mystère M. D. 452	Dassault	France
	Venom	S. N. C. A.	France
	Vampire Mk. 53	S. N. C. A. S. E.	France
	Vampire Mk. 5	de Havilland	G. B.
	Thunderjet F–84	Republic	U. S. A.
Reconnaissance	Mustang F–51	North American	U. S. A.
	Lightning F–38	Lockheed	U. S. A.
Transport	Skytrain C–47/R4D	Douglas	U. S. A.
	Skymaster C–54/R5D	Douglas	U. S. A.
	Ju. 52	Junkers	Germany
	Bretagne S. O. 30P	Sud-Ouest	France
	Marauder ZB–26B/JM	Martin	U. S. A.
	Flamant M. D. 315	Dassault	France

Type	*Designation*	*Manufacturer*	*Country*
Liaison	Martinet	Miles	G. B.
	Voyager C–45/JRB	Beechcraft	U. S. A.
	Goeland	S. N. C. A. N.	France
	LeO 45	S. N. C. A. S. E.	France
	Maryland M–167	Martin	U. S. A.
	Pingouin Nord 1002	S. N. C. A. N.	France
	Ramier Nord 1100	S. N. C. A. N.	France
	Grasshopper L–4/NE	Piper	U. S. A.
Trainer	M. S. 472	Dassault	France
	M. D. 230	Dassault	France
	Tiger Moth	de Havilland	G. B.
	Stampe SV–4	S. N. C. A. N.	France
	Dauntless SBD/A–24	Douglas	U. S. A.
	S. I. P. A. S. 10, 11	S. I. P. A.	France
	Bobcat C–78/JRC	Cessna	U. S. A.
	Wellington Mk. 10	Vickers	G. B.
	Anson	A. V. Roe	G. B.
	Shooting Star T–33/TV–2	Lockheed	U. S. A.
	Vampire Mk. 1	de Havilland	G. B.
	Airacobra F–39	Bell	U. S. A.
	Texan T–6/SNJ	North American	U. S. A.
Helicopter	HTL/H–23	Hiller	U. S. A.
	HO4S/H–19	Sikorsky	U. S. A.
	HUP	Piasecki	U. S. A.

Naval Aviation

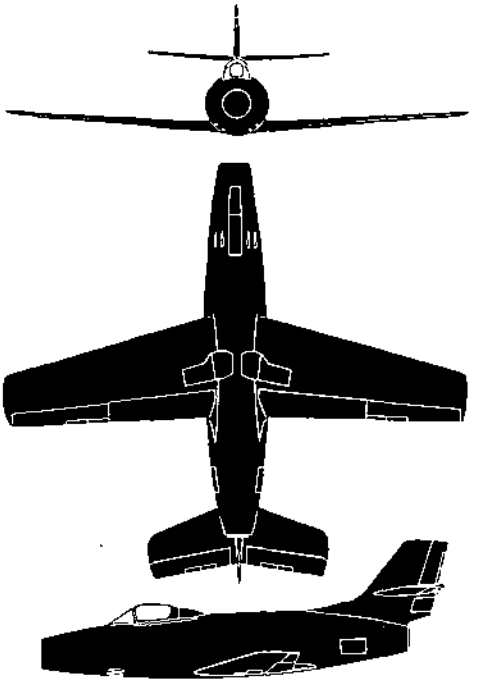
The French Naval Air Arm is administered by the Ministry of Marine, but certain units for operational purposes come under the control of the Air Force. The officer commanding the Naval Air Arm is a Rear Admiral.

The Naval Air Arm operates four aircraft carriers: Arromanches (H. M. S. *Colossus*), which is on loan from the Royal Navy; two light fleet carriers, Lafayette (formerly Langley CVL–27) and Clemenceau (formerly Belleau Wood CVL–24); and a light escort-carrier *Dixmude* (formerly H. M. S. *Biter*). The old French aircraft-carrier *Bearn* is now classified as an aircraft transport.

Equipment

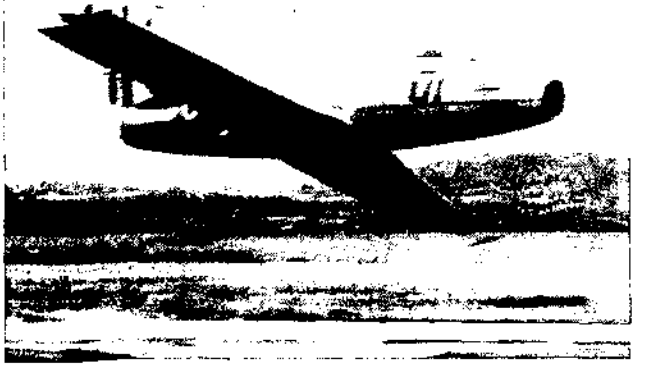
Type	*Designation*	*Manufacturer*	*Country*
Patrol Bomber	Lancaster	A. V. Roe	G. B.
	Wellington	Vickers	G. B.
	Sunderland	Short	G. B.
	Privateer P4Y–2	Convair	U. S. A.
	Harpoon PV–2	Lockheed	U. S. A.
	Neptune P2V	Lockheed	U. S. A.
Attack Bomber	Helldiver SB2C/A–25	Curtiss	U. S. A.
	Avenger TBM–3E	Martin	U. S. A.
Fighter	Hellcat F6F–5, 5N	Grumman	U. S. A.
	Corsair F4U–7	Chance Vought	U. S. A.
Reconnaissance	Catalina PBY–5A/0A–10	Convair	U. S. A.
	Noroit 1400	Nord	France
	Sea Otter	Vickers	G. B.

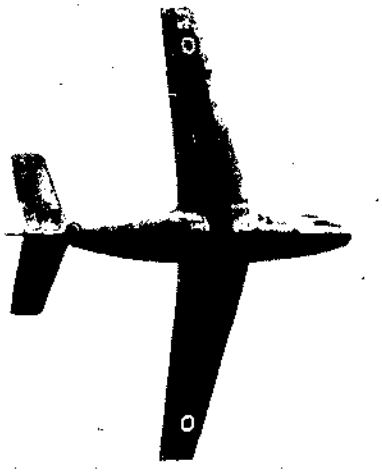
Type	*Designation*	*Manufacturer*	*Country*
Transport	Skytrain C–47/R4D	Douglas	U. S. A.
	Ju. 52	Junkers	Germany
	Languedoc S. E. 161	Sud-Est	France
	Breguet 731	Breguet	France
Trainer	Stampe S. V. 4	S. N. C. A. N.	France
	Corse II S. O. 95	Sud-Ouest	France
	S. C. A. N. 20	S. C. A. N.	France
	Voyager C–45/JRB	Beecheraft	U. S. A.
	Anson	A. V. Roe	G. B.
	M. S. 474	Morane-Saulnier	France
	Seafire Mk. 3, 15	Vickers	G. B.

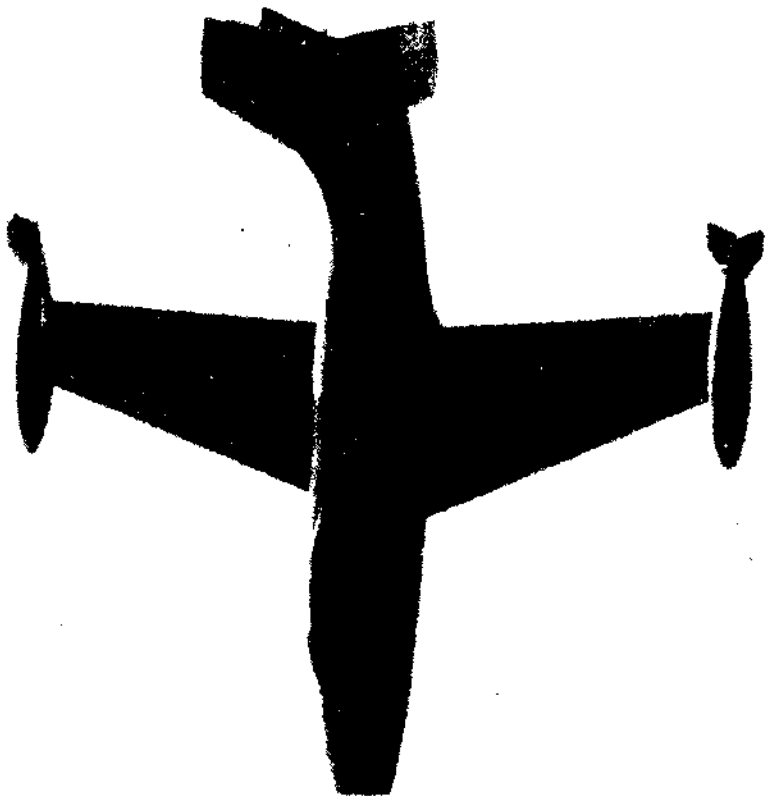


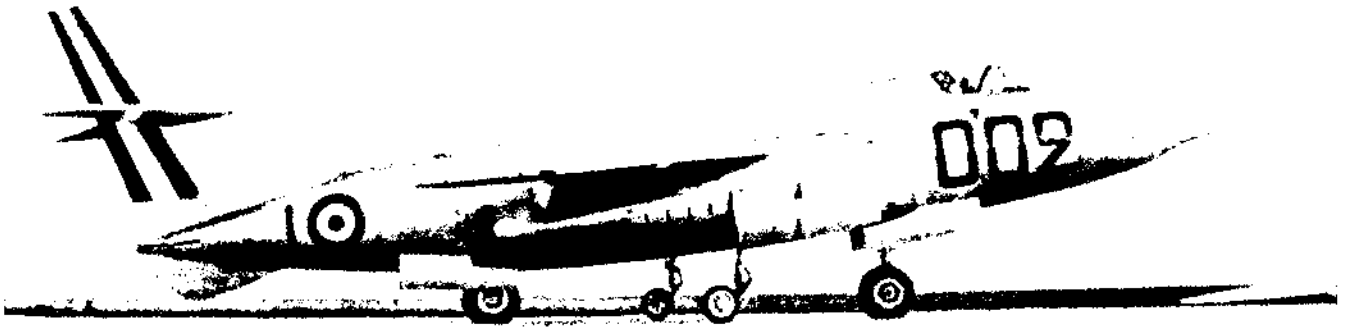
The M. D. 450 Ouragan (Hurricane) is a low straight wing jet fighter with a high set fin and stabilizer. The Ouragan was first flown in February 1949 and has since been ordered into production for the French Air Force and Indian Air Force. During Operation "Swing" in March 1952, four of these aircraft, the first to become operational, participated in the maneuvers. A modified version has electronics in the nose section and cheek air scoops. This is a test model for the M. D. 453 Mystère de Nuit two-seat all-weather fighter. Another version with swept-wings is designated M. D. 452 Mystère. The M. D. 451 Aladdin is a photographic version. A French-built Nene powers the Ouragan. The combat weight of the M. D. 450 is approximately 13,000 lbs.

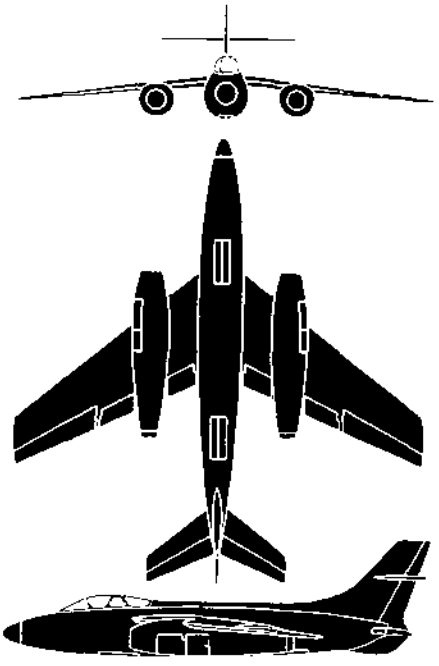
SPAN: 39′11″ **LENGTH: 35′0″**
ENGINE: Hispano-Suiza Nene/5,000-lb. thrust.
MAX. SPEED: 510 knots/sea level.
RANGE: 675 nautical miles/400 knots.
ARMAMENT: 4 x 20 or 30 mm in nose; 16 rockets.





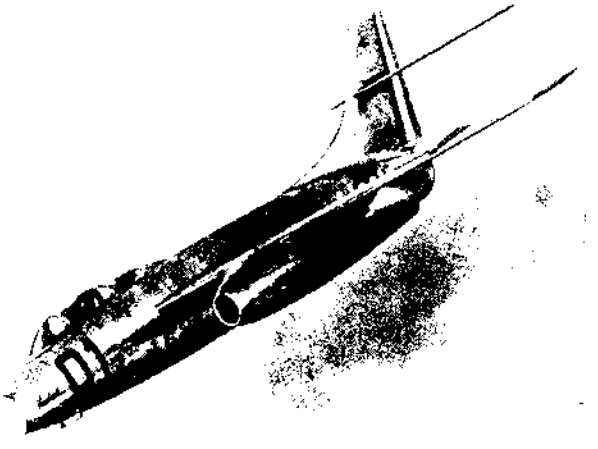


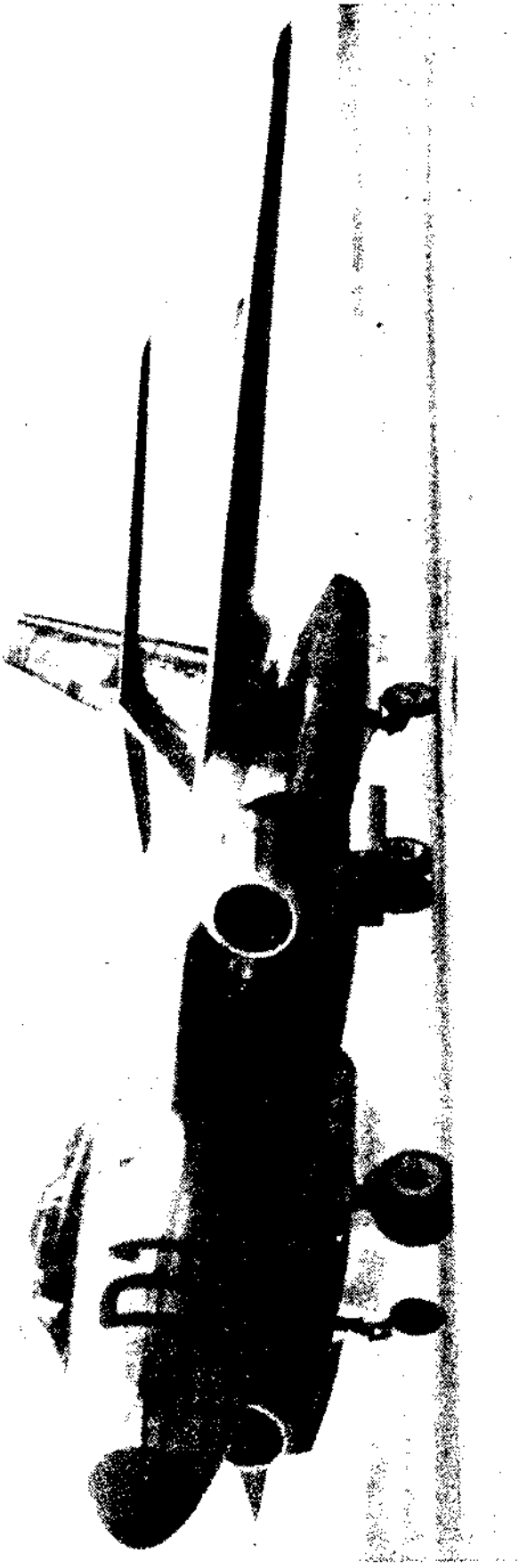




The S. O. 4050 Vautour is a swept-wing (35°) twin-jet aircraft designed to fulfill a variety of roles. There are three versions of the Vautour; a single seater fighter-bomber, two-seater light bomber, and a two-seater all-weather fighter. The first prototype, fitted with two Atar jet engines, made its maiden flight in October 1952. Its fuselage has fairly clean lines. External engine nacelles, with direct high-efficiency air intakes, are smoothly attached to the wing, which permit the fitting of various types of engines with ratings up to 10,000-pounds thrust. The wing has no breaks in its structure and runs right through the fuselage. A bicycle type landing gear is fitted. The nose section can house radar gear and armament, while the center of the fuselage can carry bombs, missiles or tanks. Its take-off weight varies between 31,000 and 40,000 pounds.

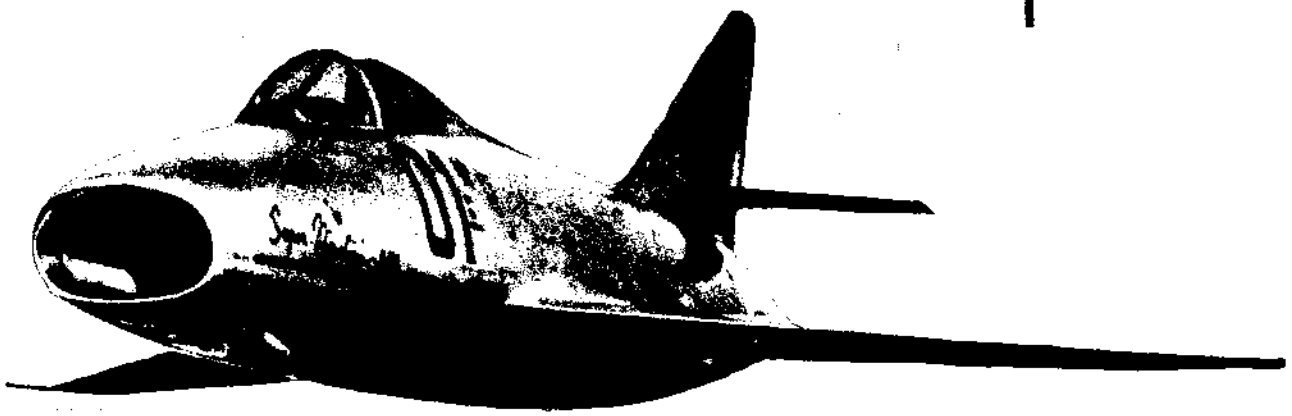
SPAN: 51′0″ **LENGTH: 49′6″**
ENGINE: 2/Atar 101–D turbojet/6,600-lb. each.
MAX. SPEED: 580 knots.
RANGE: More than 1,000 nautical miles.
ARMAMENT: Cannon, rockets, and missiles.





FRANCE

MD 452
MYSTERE IV



The Dassault Mystere IV is the latest production version of this French designed, single-seat, low-wing interceptor or ground attack fighter aircraft. Except for the tail configuration, the overall shape of the Mystere resembles the F-100. Recognition features include 40 degree thin swept wings, sweptback tail surfaces with the horizontal stabilizer located low on the vertical fin, and a fuselage nose section with a squashed shape somewhat like a whistle mouthpiece.

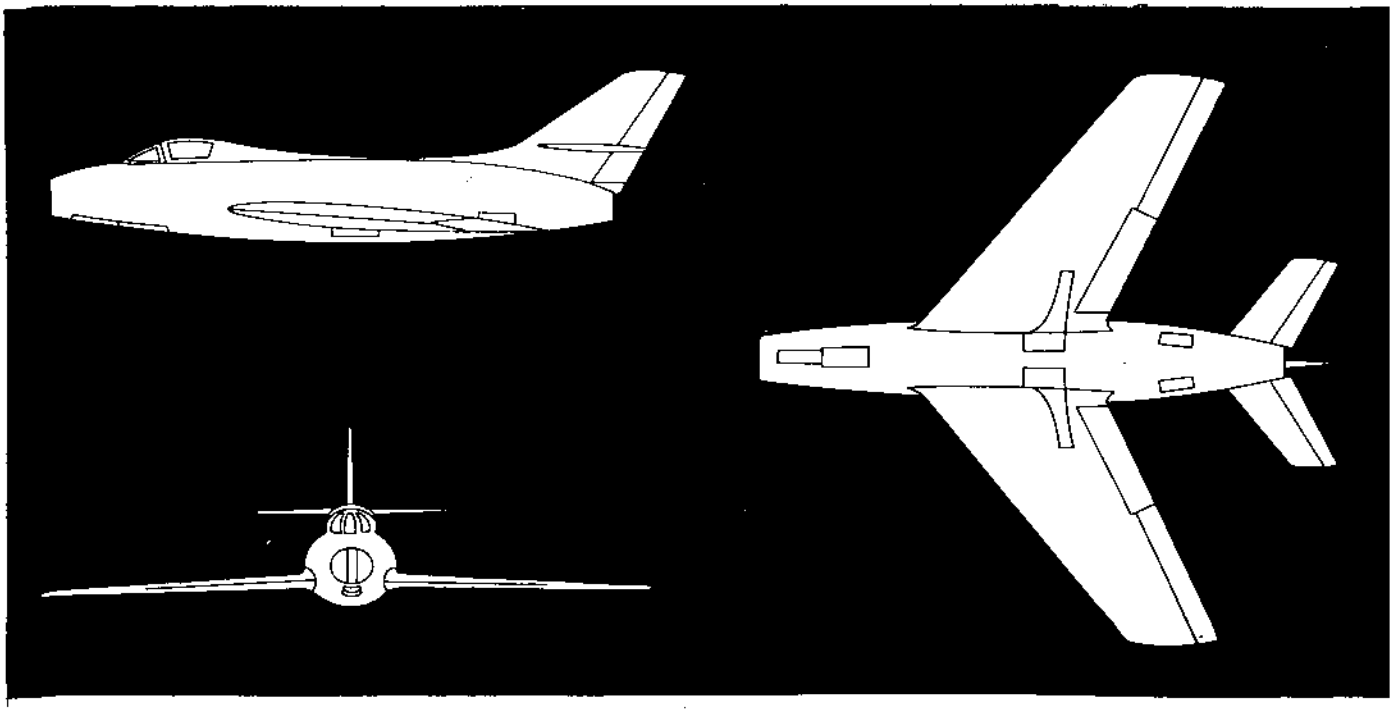
SPAN: 36'6" LENGTH: 43'11½"
MAXIMUM SPEED: Over 650 knots
ENGINE: 1/Snecma-Atar 101-G/10,000 lbs. thrust/Afterburner
SERVICE CEILING: Approximately 56,000 ft.
ARMAMENT: 2x30mm. cannon; rockets

DASSAULT

SINGLE-JET

FIGHTER-

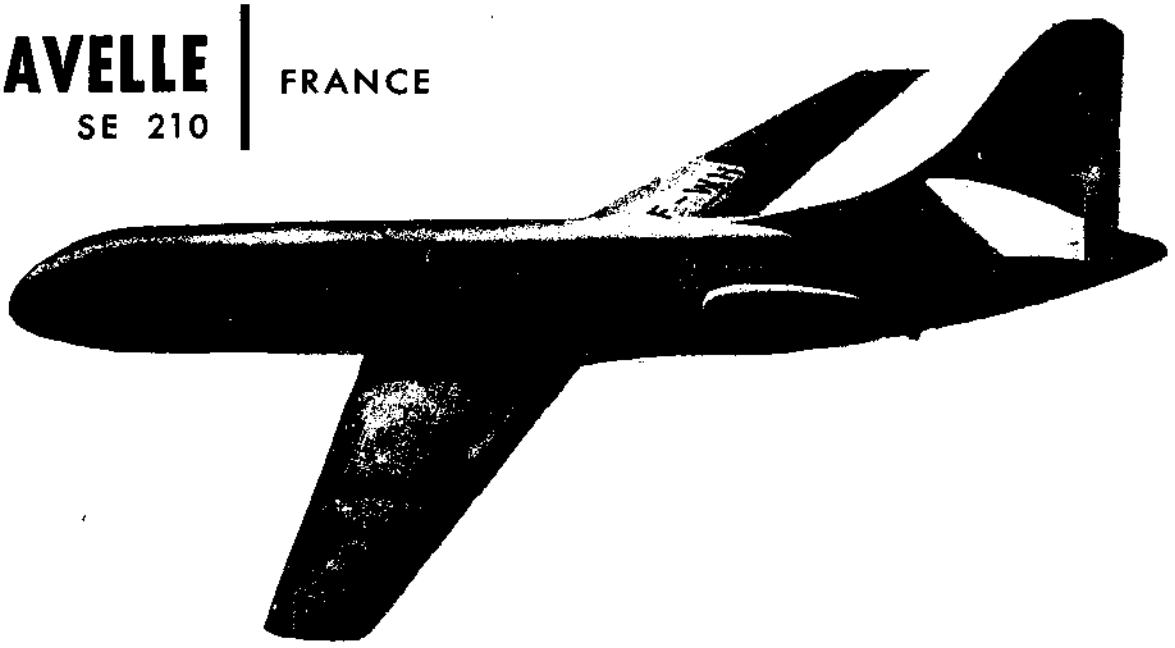
INTERCEPTOR



CARAVELLE

SE 210

FRANCE



The Caravelle is a low-wing monoplane designed as a medium-range airliner. Its fuselage is circular and tapers gradually and smoothly to the tail cone, which extends beyond the rudder. Wings are mounted slightly ahead of the fuselage mid-point and have considerable sweep back. The tail unit is of the cantilever type, more sharply swept back than the wings. Power is furnished by two turbojets mounted on the rear fuselage.

SPAN: 112'6" LENGTH: 103'4"

ENGINE: 2/Rolls-Royce Avon R.A. 16

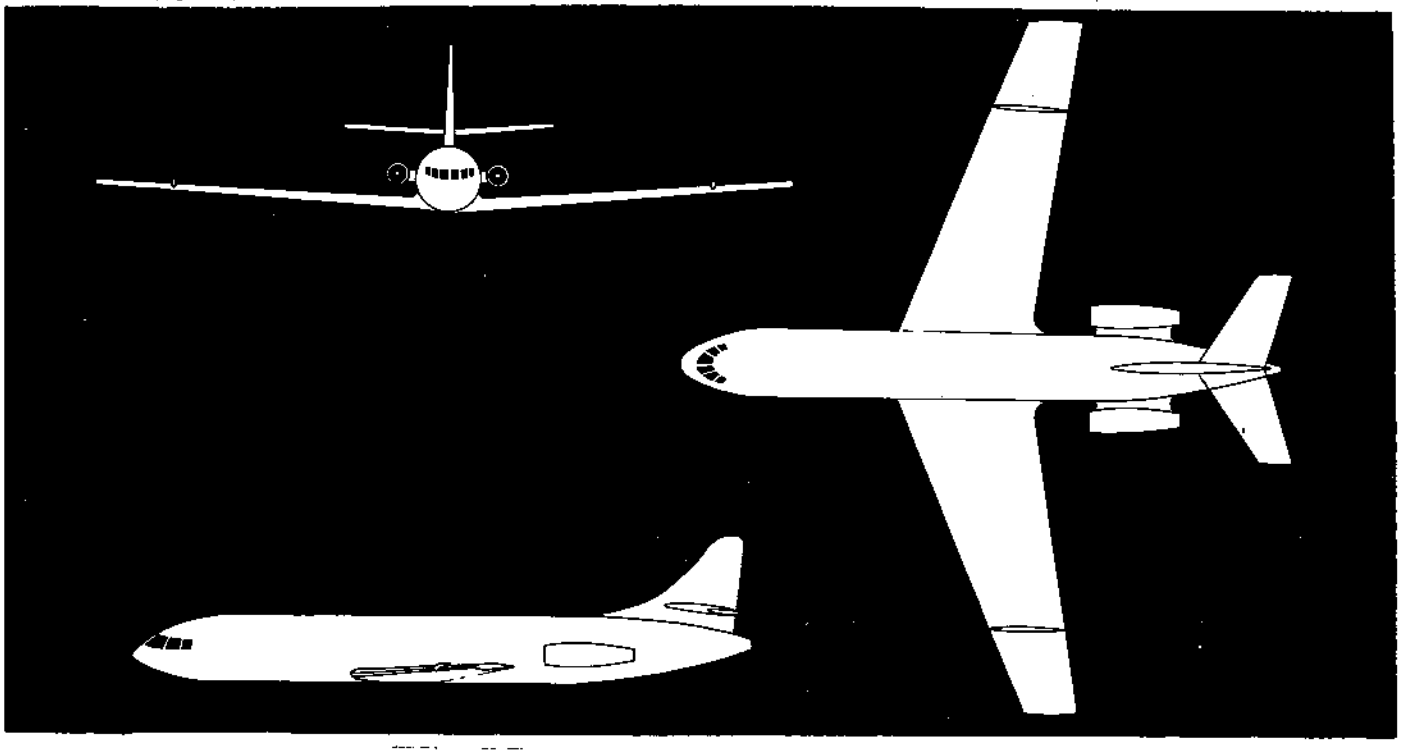
MAXIMUM SPEED: 478MPH/38,700 ft. with 66,000 lb payload

RANGE: 2,670 miles with 20,900 lb. payload

SUD-EST

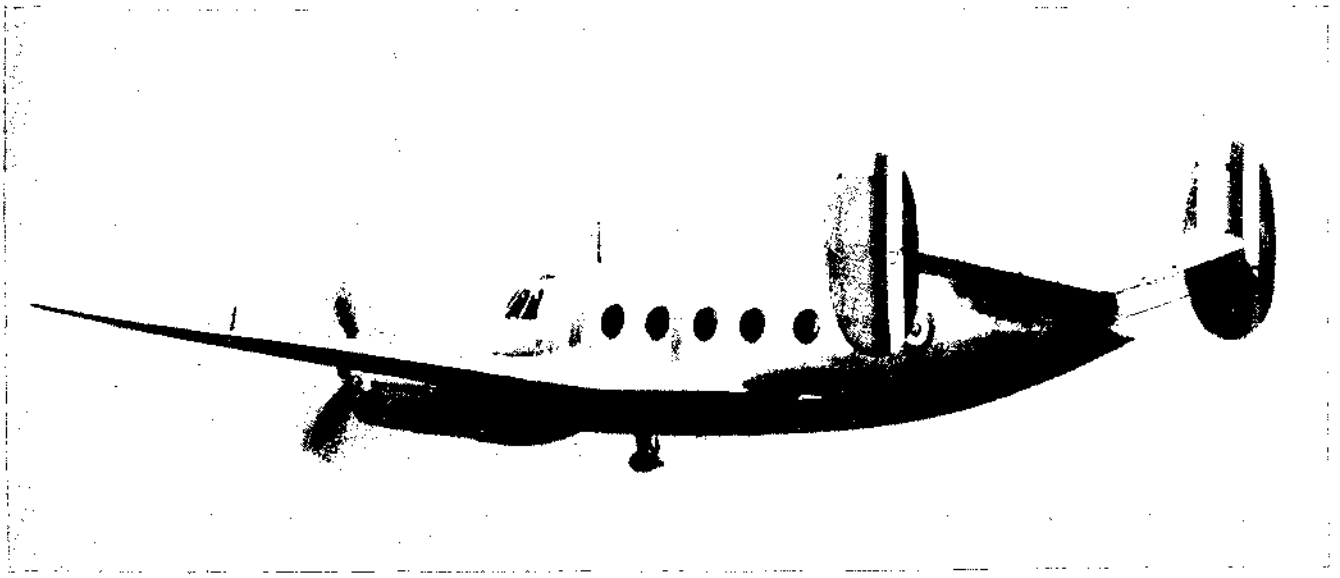
TWIN-JET

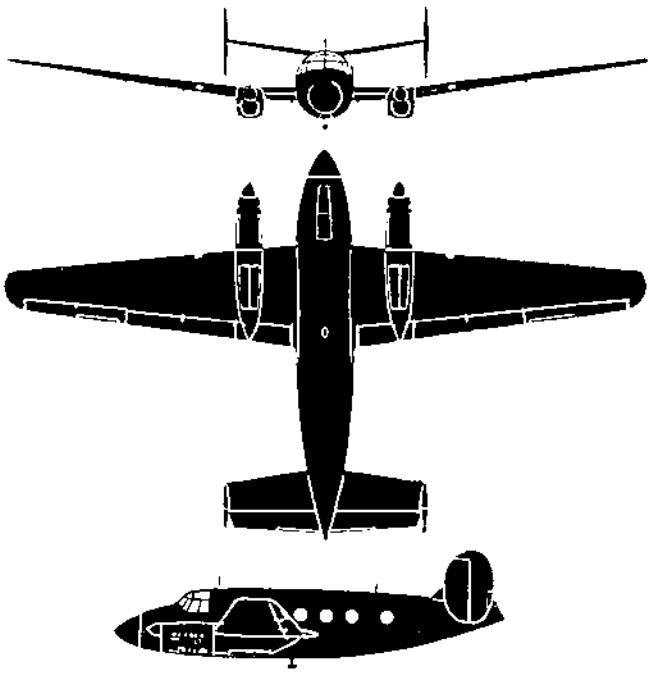
TRANSPORT



FM 30-30
OPNAV 32P-1200/6
AFM 50-40G

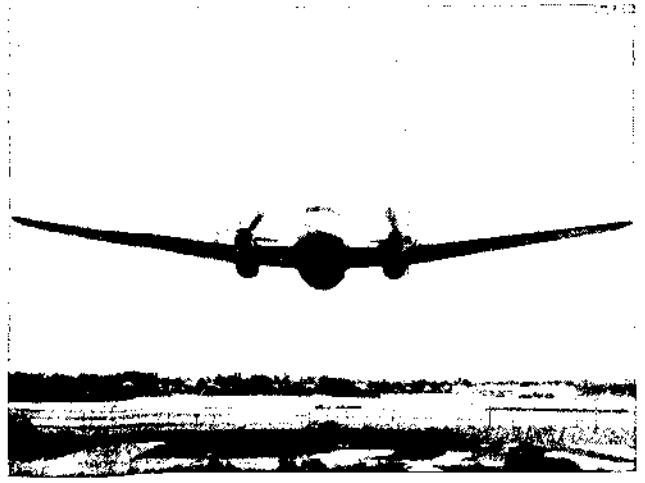
☆ U. S. GOVERNMENT PRINTING OFFICE: 1957 O—429999

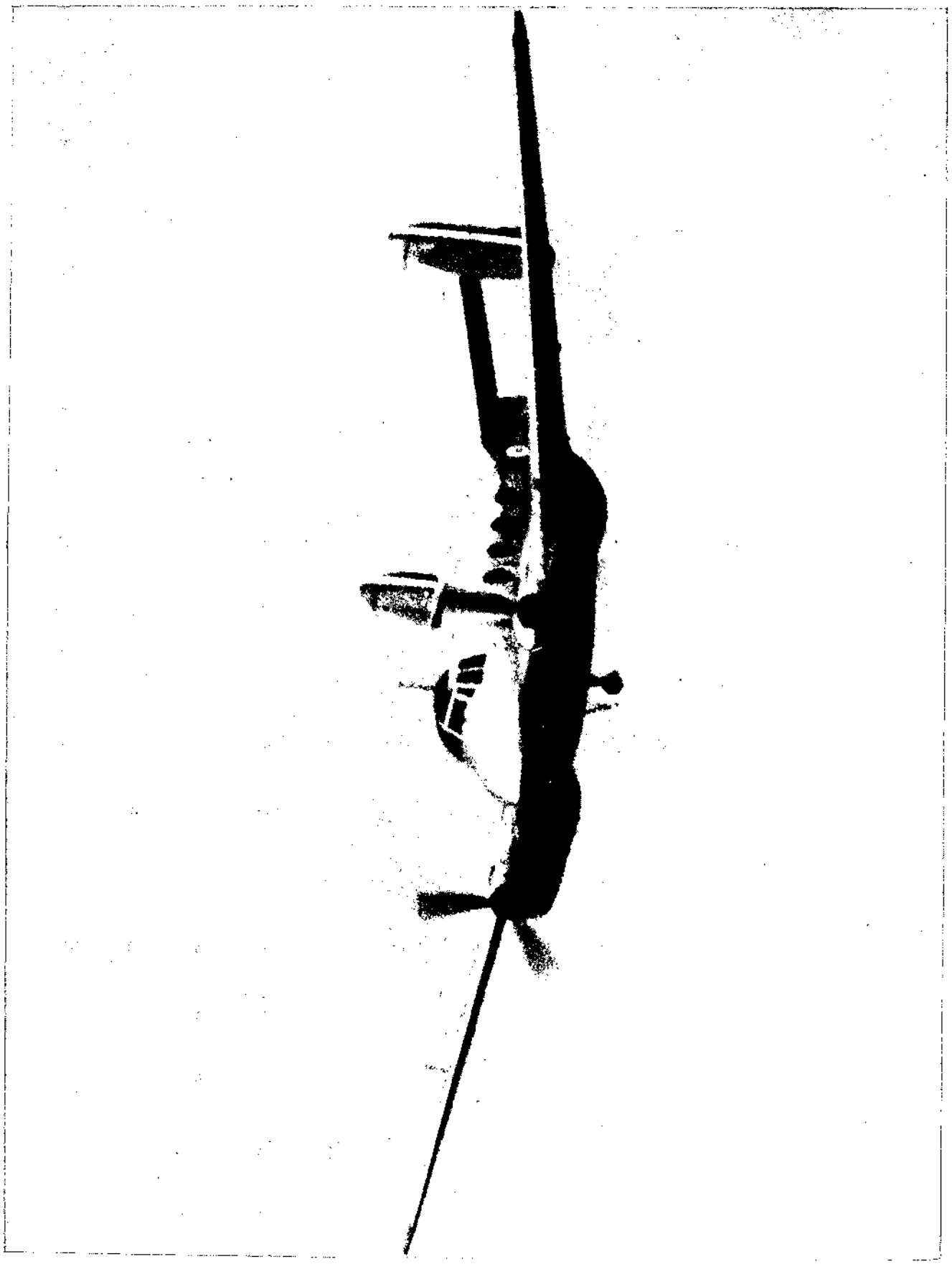


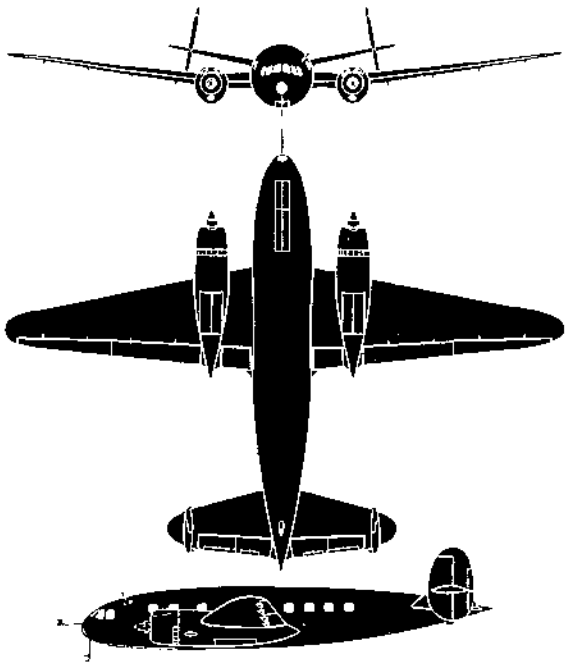


The M. D. 315 Flamant is a light twin-engined general purpose transport designed for service mainly in territories of the French Union. Two variants of the M. D. 315 have been ordered by the French Air Force. The M. D. 311 is equipped as a trainer for bombing, navigation and photography, while the M. D. 312 is furnished as a six passenger military liaison transport. Except for minor changes necessary for their military role, these two aircraft have identical recognition features as the M. D. 315. The Flamant is suitable for various uses including ambulance aircraft with four stretchers, doctor and assistant; military communications aircraft, 8 passengers; bomber and navigational trainer; civil feeder transport, 10 passengers. Its weight loaded is 12,700 pounds.

SPAN: 67′10″ **LENGTH: 41′0″**
ENGINE: 2/Renault 12S, inverted V/580 h. p. each.
MAX SPEED: 200 knots.
RANGE: 650 nautical miles/150 knots.
ARMAMENT: 2 x 12.7 mm in nose; wing bomb racks.

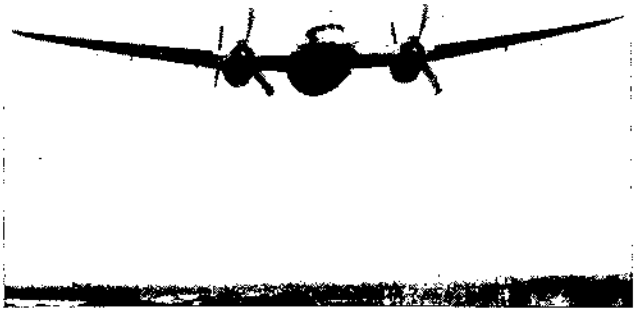


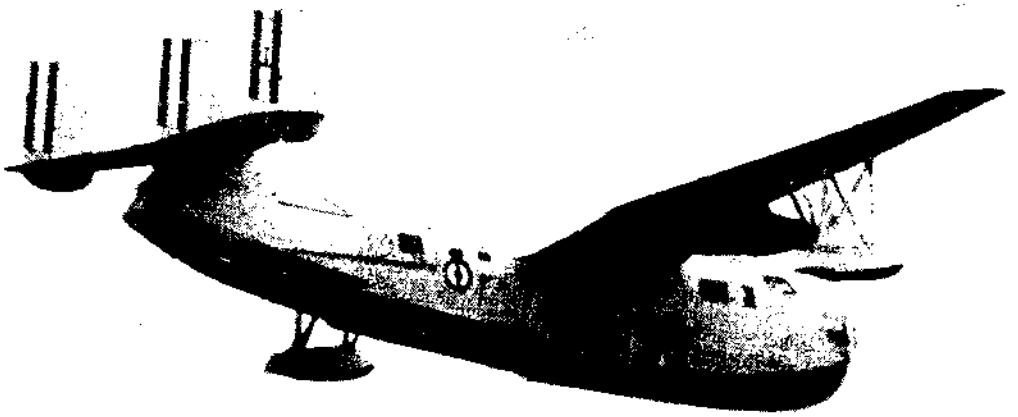


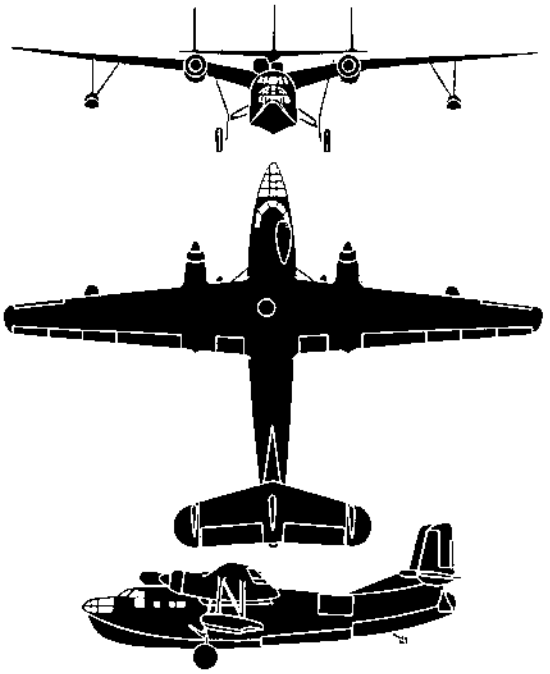


The S. O. 30 Bretagne is a twin-engined transport designed during the war in unoccupied France. While being test flown, the first prototype was defected to North Africa. Twin fins and rudders are featured; however, earlier prototypes were fitted with single fins and rudders. The S. O. 30C used by the French Air Force is a cargo version of the S. O. 30P slightly modified with large doors under the rear fuselage. More than 40 passengers can be carried in either version. The S. O. 30P is in service with French airlines. A number of different engines have been tried in the Bretagne, including the French SNECMA 14R206 and the Nene jet engine. The fuselage of the 30P is pressurized. A tricycle landgear is fitted. When loaded, the Bretagne weighs 43,000 pounds.

SPAN: 88′2″ **LENGTH: 62′2″**
ENGINE: 2/P&W R–2800/2,400 h. p. each.
MAX. SPEED: 250 knots/1,000 ft.
RANGE: 1,375 nautical miles/225 knots.
ARMAMENT: None.

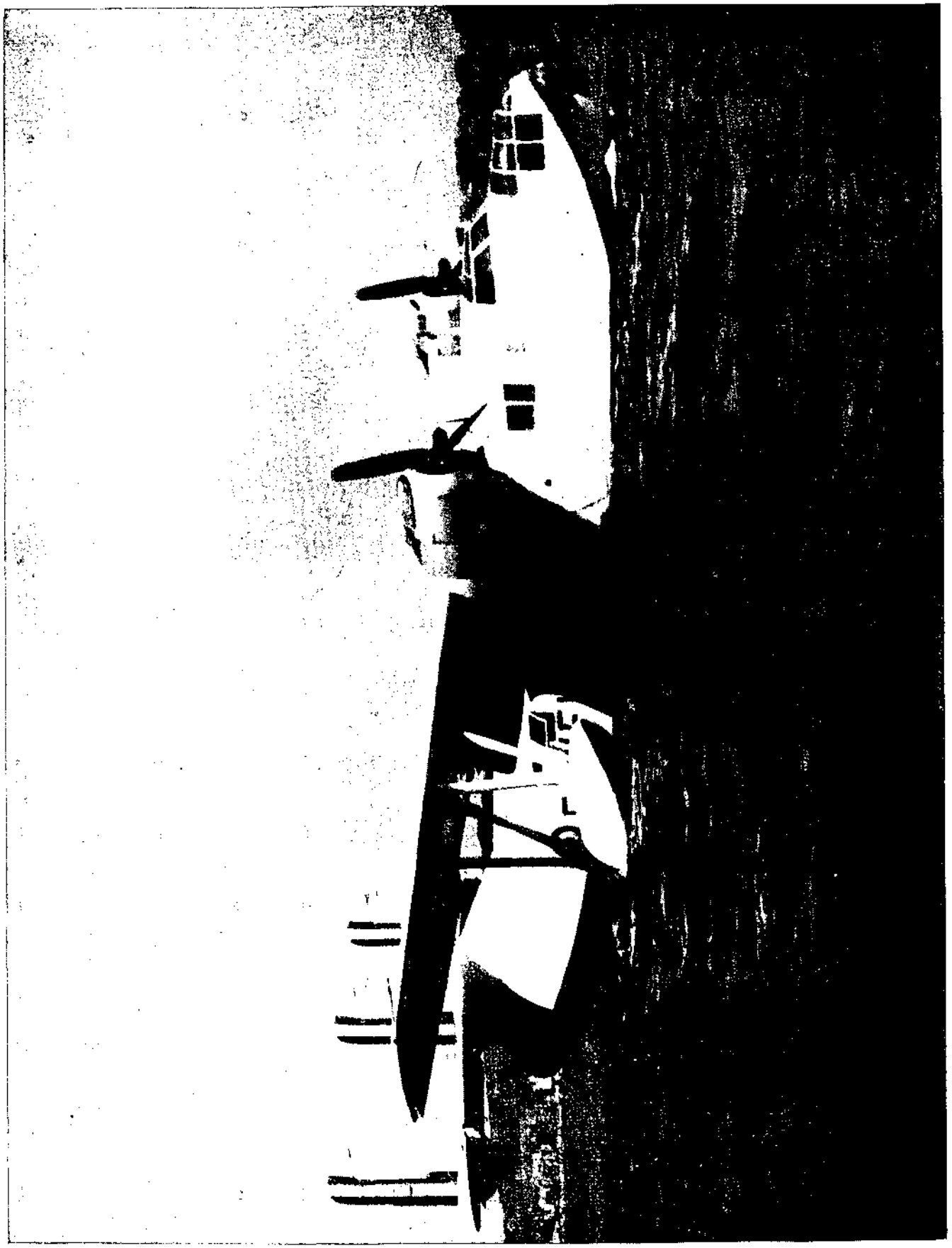


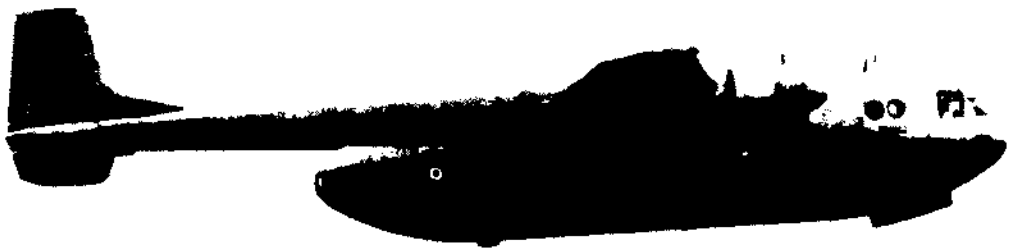


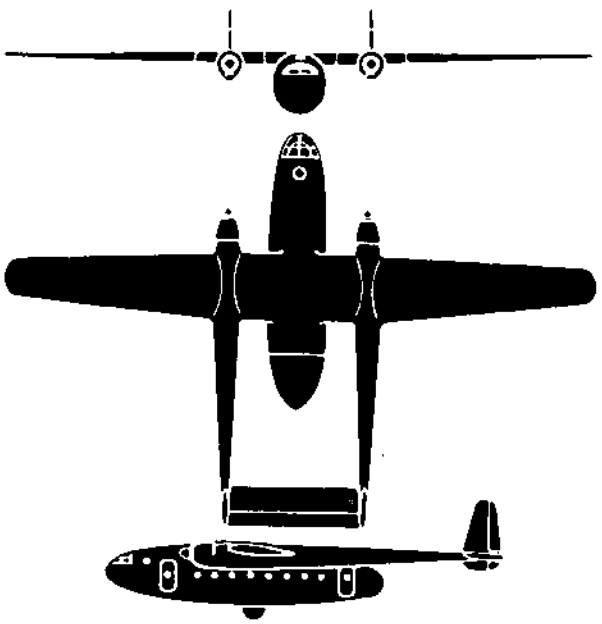


The Nord 1400 Noroit is a Navy twin-engined search and rescue patrol amphibian. Its two-step hull has accommodations for a crew of seven and is of all-metal construction. Mounted high on the hull is a trapezoidal gull wing with fixed strut floats. From a head on view, the Noroit resembles the PBM Mariner. A noticeable difference, however, is the Noroit's triple fins and rudders and its shallow hull. The Noroit was designed to replace the German Dornier Do. 24 seaplane. Five prototypes were produced and they are outwardly identical and differ only in the type of equipment tested for the final aircraft. After extensive testing with various type engines, it was decided to equip all Nord 1400 aircraft with French engines. The various Noroits are designated 1401, 1402, etc.

SPAN: 103′8″ **LENGTH: 72′3″**
ENGINE: 2/Arsenal 12H, radial/2,070 h. p. each.
MAX SPEED: 208 knots/8,700 ft.
RANGE: 1,620 nautical miles/110 knots.
ARMAMENT: 4 x 20 mm, nose and tail; 6 bombs or depth charges.

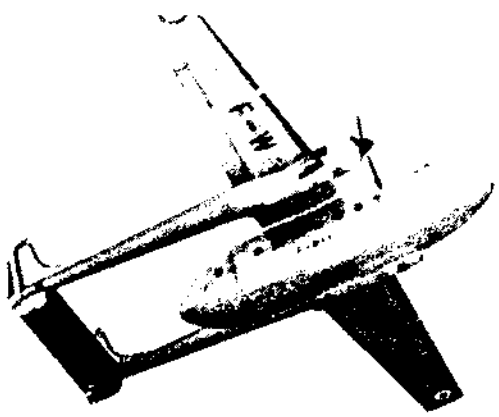






The Nord 2501 Noratlas is a high-wing twin-boom twin-engined transport which resembles the U. S. Packet. Both military and civil versions of the Noratlas are being produced. As a civil aircraft it can carry 40 passengers or it can be used as a mixed transport to carry passengers and freight. The rear end of the fuselage is split vertically and hinged to open to full cross-section of the hold for direct loading. For loading heavy cargo, a two-ton winch can be attached. Its fuselage and wings are of all metal construction as are the two interchangeable tail booms. In some of the later models thermal anti-icing combustion heaters are located on the wing-tips and the center-line of the leading edge of the stabilizer. A retractable landing gear is fitted with the main gear attached to the engine nacelles. Fully loaded the Noratlas weighs 43,000 pounds.

SPAN: 106′6″ **LENGTH: 72′0″**
ENGINE: 2/Bristol Hercules, radial/2,000 h. p. each.
MAX. SPEED: 215 knots.
RANGE: 1,200 nautical miles.
ARMAMENT: None.



FM 30-30
OPNAV 38P-1200/5
AFM 50-40E

U. S. GOVERNMENT PRINTING OFFICE : 1954 O - 305795

MISCELLANEOUS AIRFORCES

MISCELLANEOUS

AIR FORCES

AFGHANISTAN

(The Kingdom of Afghanistan)

The Royal Afghan Air Force

The R. A. A. F. is an integral part of the Army under the administration of the Ministry of War. The Commandant of the Air Force is responsible to the Ministry of War.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Avro Anson	A. V. Roe	G.B.
Attack	Hawker Hind	Hawker	G.B.
Trainer	Tiger Moth	de Havilland	G.B.
	PT–17	Stearman	U.S.A.

ARGENTINA

(The Argentine Republic)

The Argentine Air Force

A Ministerio of Aeronautics was formed in January 1945, to coordinate and administer all matters concerning Military and Civil Aviation with the exception of Naval Aviation, which continues under the control of the Ministry of Marine.

The Command of the Argentine Air Force (Fureza Aerea Argentina) is subordinate to the Secretariat of Aeronautics.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Medium Bomber	Lincoln	A. V. Roe	G.B.
Light Bomber	Calquin I. Ae. 24	I. Ae.	Argentina
	Lancaster	A. V. Roe	G.B.
	Martin 139 (B–10)	Martin	U.S.A.
Attack	A–17	Northrop	U.S.A.
Fighter	G. 46	Fiat	Italy
	Curtiss 75	Curtiss	U.S.A.
	G. 55	Fiat	Italy
	Meteor	Gloster	G.B.
Reconnaissance	D. L. 22	I. Ae.	Argentina
Transport	Consul	Airspeed	G.B.
	Ju. 52	Junkers	Germany
	Ju. 43	Junkers	Germany
	Viking	Vickers	G.B.
	Lancastrian	A. V. Roe	G.B.
Transport—Continued	Lockheed 10	Lockheed	U.S.A.
	Lockheed 12	Lockheed	U.S.A.
	Wayfarer	Bristol	G.B.
	Skytrain C–47 /R4D	Douglas	U.S.A.
	Skymaster C–54 /R5D	Douglas	U.S.A.
	Dove	de Havilland	G.B.
	I. Ae 24	I. Ae	Argentina
Trainer	Fw. 44	Focke-Wulf	Germany
	G. 46	Fiat	Italy
	Kansas T–11/ SNB–1	Beechcraft	U.S.A.
	BT–9	North American	U.S.A.
	D. L. 22 (T–6 copy)	I. Ae.	Argentina
	Prentice	Percival	G.B.
Miscellaneous	*I. Ae. 27 Pulque I.	I. Ae.	Argentina
	I. Ae. 33 Pulque II	I. Ae.	Argentina
	I. Ae. 30 Nancú	I. Ae.	Argentina

*The Pulque (Arrow) is the first jet-propelled airplane to be designed, built, and flown in Latin America. The Pulque II is a swept-wing jet. Both jets are test aircraft.

The Naval Air Force

Argentine Naval Aviation is an integral part of the Navy. It is administered by the Director-General of Naval Aviation, at the Ministry of Marine, Buenos Aires.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	SBU–1	Chance Vought	U.S.A.
	Martin 139 (B–10)	Martin	U.S.A.
Reconnaissance	Duck J2F–5	Grumman	U.S.A.
	Widgeon J4F/ OA–12	Grumman	U.S.A.
	Goose JRF/ OA–13	Grumman	U.S.A.
	Walrus	Vickers	G.B.
	Catalina PBY–5,5A/OA–10	Convair	U.S.A.
Transport	DC–2	Douglas	U.S.A.
	Skytrain C–47/R4D	Douglas	U.S.A.
	Skymaster C–54/R5D	Douglas	U.S.A.

The Argentine Naval Air Force—Continued

Type	*Designation*	*Manufacturer*	*Country*
Transport—Continued	Condor	Curtiss	U.S.A.
	Electra	Lockheed	U.S.A.
Trainer	Kaydet T–13/N2S	Stearman	U.S.A.
	Fw. 44	Focke-Wulf	Germany
	Valiant BT—13/SNV	Convair	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Kansas T–11/SNB–1	Beechcraft	U.S.A.
Helicopter	S–51 (HO3S/H–5)	Sikorsky	U.S.A.

BELGIUM

(The Kingdom of Belgium)

The Belgian Air Force

The Belgian Air Force functions as an independent service and is administered by the Ministry of Defense with headquarters in Brussels.

The Chief of Staff of the Belgian Air Force is responsible to the Minister of Defense.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Attack	Mosquito Mk. 30	de Havilland	G.B.
Fighter	Spitfire Mk. 14	Vickers	G.B.
	Thunderjet F–84E	Republic	U.S.A.
	Meteor Mks. 4, 8	Gloster	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Skymaster C–54/R5D	Douglas	U.S.A.
	Packet C–119	Fairchild	U.S.A.
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Tiger Moth	de Havilland	G.B.
	Mosquito Mk. 3	de Havilland	G.B.
	Spitfire Mk. 9	Vickers	G.B.
	Meteor Mk. 7	Gloster	G.B.
	Shooting Star T–33/TV–2	Lockheed	U.S.A.
	Stampe	Stampe	France
	Chipmunk	de Havilland	Canada
Liaison	Anson	A. V. Roe	G.B.
	Auster	Auster	G.B.
	Dominie	de Havilland	G.B.
	Oxford	Airspeed	G.B.
	Proctor	Percival	G.B.
	Magister	Miles	G.B.
	Martinet	Miles	G.B.

BOLIVIA

(The Bolivian Republic)

The Bolivian Air Force

The Bolivian Air Force is an integral part of the Army.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Reconnaissance	Goose JRF/OA–9	Grumman	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Voyager C–45/JRB	Beechcraft	U.S.A.
Trainer	Kaydet T–17/N2S	Boeing	U.S.A.
	Valiant BT–13/SNV	Convair	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Navigator T–7/ SNB–2	Beechcraft	U.S.A.
	Kansas T–11/SNB–1	Beechcraft	U.S.A.

BRAZIL

(The United States of Brazil)

The Brazilian Air Force

The Brazilian Air Force is known as the Forceas Aereas Brasileiras (F. A. B.) and is independent of both Army and Navy. It is controlled by the Air Ministry and was created by a Presidential Decree dated January 20, 1941. The Air Minister has headquarters at Rio de Janeiro. The Brazilian Air Force is the largest in South America. It is considered superior to all other Latin American air forces, with the possible exception of that of Argentina.

After Brazil declared war on Germany in January 1944, a group of fighter pilots and ground personnel underwent advanced operational training in the U. S. prior to proceeding overseas as the First Brazilian Fighter Squadron to serve with the U. S. Air Forces.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Ventura B–34/PV–1	Lockheed	U.S.A.
	Mitchell B–25J/PBJ	North American	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
Attack	Havoc A–20K/BD	Douglas	U.S.A.
	Hudson A–28/PBO–1	Lockheed	U.S.A.
Fighter	Thunderbolt F–47	Republic	U.S.A.

The Brazilian Air Force—Continued

Type	Designation	Manufacturer	Country
Fighter—Continued	Warhawk F–40E	Curtiss	U.S.A.
Reconnaissance	Catalina PBY–5, 5A/OA–10	Consolidated	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Voyager C–45/JRB	Beechcraft	U.S.A.
	Lodestar C–60/R5O	Lockheed	U.S.A.
	C–40	Lockheed	U.S.A.
	Commando C–46/R5C	Curtiss	U.S.A.
	Traveler C- 43/GB	Beechcraft	U.S.A.
	UC–61A	Fairchild	U.S.A.
	Norseman C–64/JA	Noorduyn	Canada
	U–24	Fairchild	U.S.A.
	Widgeon J–4F/OA–14	Grumman	U.S.A.
	Lockheed 12A	Lockheed	U.S.A.
	Bobcat UC–78/JRC–1	Cessna	U.S.A.
	UC–80	Harlow	U.S.A.
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Navigator T–7/SNB–2	Beechcraft	U.S.A.
	Cornell T–19	Fairchild	U.S.A.
	Valiant T–15/SNV	Vultee	U.S.A.
	Kansas T–11/SNB–1	Beechcraft	U.S.A.

BULGARIA

(Peoples Republic of Bulgaria)

The Bulgarian Air Force

Under the Peace Treaty of 1947 Bulgaria was permitted to maintain an Air Force comprising 90 aircraft, of which not more than 70 were to be combat types, and a personnel strength of 5,200 officers and other ranks. The peace terms further specify that Bulgaria would not maintain any bombing aircraft or make experiments with or construct remote-control piloted or pilotless aerial weapons.

Bulgaria is, however, a satellite of the Soviet Union and its air force is patterned after the S. A. F. The B. A. F. is a component of the Bulgarian Army and is being equipped to suit the Soviets. The above information, therefore, is academic.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Pe–2	Petlyakov	U.S.S.R.
	Tu 2	Tupolev	U.S.S.R.
Attack	Stormovik Il–2, –10	Ilyushin	U.S.S.R.
Fighter	Yak–9	Yakovlev	U.S.S.R.
	Type 28 (jet)	Yakovlev	U.S.S.R.
	MIG–15	Mikoyan & Gurevich	U.S.S.R.
Transport	Ju. 52	Junkers	Germany
	Li–2	Lisitsin	U.S.S.R.
	Fw. 5(	Focke-Wulf	Germany
Trainer	Po–2	Polikarpov	U.S.S.R.
Liaison	Storch Fi. 156	Fieseler	Germany

BURMA

(The Republic of the Union of Burma)

The Burmese Air Force

The Burmese Air Force is being trained by an R. A. F. mission. While in theory the B. A. F. is on the same level with the Army and Navy it is actually subordinate to the Army, because the Supreme Commander of the armed forces is also the commanding general of the Army.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Oxford	Airspeed	G.B.
Fighter	Spitfire Mk. 18	Vickers	G.B.
Reconnaissance	Auster	Auster	G.B.
Transport	Dakota C–47/R4D	Douglas	U.S.A.
	Consul	Airspeed	G.B.
Training	Tiger Moth	deHavilland	G.B.

CHILE

(The Chilean Republic)

The Chilean Air Force

The Chilean Air Force is called the Fuerza Aerea de Chile and is administered by the Ministry of Defense. The Commander in Chief of the Air Force is directly responsible to the Ministry.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Mitchell B–25/PBJ	North American	U.S.A.
Attack	Dauntless SBD/A–24	Douglas	U.S.A.
Fighter	Thunderbolt F–47	Republic	U.S.A.
Reconnaissance	Kingfisher OS2U	Convair	U.S.A.
	Catalina PBY–5, –5A/OA–10	Convair	U.S.A.

The Chilean Air Force—Continued

Type	Designation	Manufacturer	Country
Transport	Kansas T–11/ SNB–1	Beechcraft	U.S.A.
	Skytrain C–47/ R4D	Douglas	U.S.A.
	Voyager C–45/ JRB	Beechcraft	U.S.A.
Trainer	Valiant BT–13/SNV	Convair	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Yellow Peril N3N	U. S. N. A/C Factory	U.S.A.
	Cornell T–19	Fairchild	U.S.A.

CHINA—COMMUNIST AND NORTH KOREA

(The Chinese Communist and North Korea)

The Chinese Communist and North Korean Air Forces

The air forces of Communist China and North Korea are grouped together as a single Air Force, because of the unified control believed to be exercised over these air forces by the Soviet Air Force. In keeping with the Soviet trend the organization of the air forces is similar to the S. A. F. The C. C. A. F. is on the same plane with the Army and the Navy. These forces are responsible to the supreme military command of the People's Liberation Army Headquarters.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Tu–2	Tupolev	U.S.S.R.
Attack	Il–2, –10	Ilyushin	U.S.S.R.
	Po–2	Polikarpov	U.S.S.R.
Fighter	MIG–9, –15	Mikoyan & Gurevich	U.S.S.R.
	Yak–15	Yakovlev	U.S.S.R.
	Type 16 (jet)	Yakovlev	U.S.S.R.
	Yak–7B,–9	Yakovlev	U.S.S.R.
	La–9, –11	Lavochkin	U.S.S.R.
Transport	Li–2	Lisitsin	U.S.S.R.
	Il–12	Ilyushin	U.S.S.R.
	Commando C–46/R5C	Curtiss	U.S.A.
	Skytrain C–47/R4D	Douglas	U.S.A.
Training	Type 26 (jet)	Yakovlev	U.S.S.R.
	Yak-11, –12, –18	Yakovlev	U.S.S.R.

CHINA—NATIONALIST

(The Chinese Nationalist)

The Chinese Air Force

The Chinese Nationalist Air Force is an independent force and is not an integral part of the Chinese Nationalist Army. Control of the Nationalist Armed Forces in Taiwan is vested in the Ministry of National Defense which was established in place of the former National Military Council on 1 June 1946. In organization the Chinese Air Force is similar to the U. S. A. F.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Liberator B–24/ PB4Y–1	North American	U.S.A.
	Mitchell B–25/PBJ	North American	U.S.A.
	Mosquito	de Havilland	G.B.
Fighter	Mustang F–51	North American	U.S.A.
	Thunderbolt F–47	Republic	U.S.A.
	Warhawk F–40	Curtiss	U.S.A.
Reconnaissance	Mitchell B–25/PBJ	North American	U.S.A.
	Lightning R–5/F–38	Lockheed	U.S.A.
Transport	Skytrain C–47/ R4D	Douglas	U.S.A.
	Commando C–46/R5C	Curtiss	U.S.A.
	Skymaster C–54/R5D	Douglas	U.S.A.
Trainer	Kaydet T–13, –17/N2S	Boeing	U.S.A.
	Cornell T–19	Fairchild	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
Miscellaneous	Liberator Express C–87	Convair	U.S.A.
	Sentinel L–5/OY	Convair	U.S.A.
	Skymaster C–54/ R5D	Douglas	U.S.A.

COLOMBIA

(The Republic of Colombia)

The Colombian Air Force

The Colombian Air Force, known as the Fuerza Aerea Colombiana, is an integral part of the Army, administered by the Ministry of War. It operates under the command of the Colombian General Staff which is controlled by Army officers. Headquarters are at Bogota.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Mitchell B–25D/PBJ	North American	U.S.A.
Fighter	Thunderbolt F–47D	Republic	U.S.A.
Reconnaissance	Catalina PBY–5A/OA–10	Convair	U.S.A.
	Grasshopper L–4	Piper	U.S.A.

The Colombian Air Force—Continued

Type	Designation	Manufacturer	Country
Transport	Skytrain C–47A/R4D	Douglas	U.S.A.
	Lodestar C–60A/R5O	Lockheed	U.S.A.
	Ju. 52	Junkers	Germany
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Vultee (P)T–11	Convair	U.S.A.
	Cornell T–19	Fairchild	U.S.A.
	Kaydet T–17/N2S	Stearman	U.S.A.
	Valiant (B)T–15/SNV	Convair	U.S.A.
	Navigator T–7/SNB–2	Beechcraft	U.S.A.
	Kansas T–11/SNB–1	Beechcraft	U.S.A.

CUBA

(The Republic of Cuba)

The Cuban Army Air Corps

The Cuban Army Air Corps, known as the Cuerpo de Aviacion, is a small corps operating directly under the Army Chief of Staff as an integral part of the Army. Headquarters are at Havana.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Mitchell B–25/PBJ	North American	U.S.A.
Fighter	Lightning F–38	Lockheed	U.S.A.
	Thunderbolt F–47	Republic	U.S.A.
Reconnaissance	Catalina PBY–5A/OA–10	Convair	U.S.A.
	L–3B	Aeronca	U.S.A.
	Cessna	Cessna	U.S.A.
Transport	Voyager C–45/JRB	Beechcraft	U.S.A.
	Skytrain C–47/R4D	Douglas	U.S.A.
	Bonanza	Beechcraft	U.S.A.
	Lodestar	Lockheed	U.S.A.
Trainer	Kansas T–11/SNB–1	Beechcraft	U.S.A.
	Kaydet T–13, –17/N2S	Stearman	U.S.A.
	Valiant (B)T–13/SNV	Convair	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Navigator T–7/SNB–2	Beechcraft	U.S.A.

The Cuban Naval Air Arm

The Cuban Naval Air Arm is quite small, and practically inactive.

Equipment

Type	Designation	Manufacturer	Country
Reconnaissance	Kingfisher OS2U–3	Chance Vought	U.S.A.
	Seagull SO3C	Curtiss	U.S.A.
Transport	Goose JRF/OA–9,–13	Grumman	U.S.A.
Trainer	Yellow Peril N3N–1	U.S.N.A/C Factory	U.S.A.
	Valiant (B)T–13/SNV	Convair	U.S.A.

CZECHOSLOVAKIA

(The Czechoslovak Republic)

The Czechoslovak Air Force

The Czech Air Force is subordinate to the Army. It is administered by the Ministry of National Defense through the Army. Since 1948 the country has been under the Soviet sphere of influence and the C. A. F. has gradually become a small model of the S. A. F.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Mosquito	de Havilland	G.B.
	Pe–2	Petlyakov	U.S.S.R.
Attack	Il–2, –10	Ilyushin	U.S.S.R.
Fighter	C.10, C.210 (Me. 109)	Messerschmitt	Czech.
	La–5, –7	Lavochkin	U.S.S.R.
	MIG–15	Mikoyan & Gurevich	U.S.S.R.
	Type 16 (jet)	Yakovlev	U.S.S.R.
	Me. 262 (jet)	Messerschmitt	Germany
Reconnaissance	Si. 204	Siebel	Germany
	Storch Fi. 156	Fieseler	Germany
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Ju. 52	Junkers	Germany
	Il–12	Ilyushin	U.S.S.R.
	Aero 45	Aero	Czech.
Trainer	Arado 96	Arado	Germany
	Storch Fi. 156	Fieseler	Germany
	Bücker Bü. 131	Bestman	Germany
	Me. 109G	Messerschmitt	Germany
	Type 26 (jet)	Yakovlev	U.S.S.R.
	Type 29 (jet)	Mikoyan & Gurevich	U.S.S.R.

DENMARK

(The Kingdom of Denmark)

The Royal Danish Air Force

The Danish Defense Law of 27 May 1950 established a separate and independent Air Force. On 1

The Royal Danish Air Force—Continued

October 1950 former Army and Navy Air Forces were consolidated and the Royal Danish Air Force (Flyvevabnet) came into being.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Meteor Mks. 4, 8	Gloster	G.B.
	Thunderjet F–84	Republic	U.S.A.
	Spitfire Mk. 9	Vickers	U.S.A.
Reconnaissance	Catalina PBY–5A/OA–10	Convair	U.S.A.
	Fortress B–17G/PB–1	Boeing	U.S.A.
	Spitfire Mk. 11	Vickers	G.B.
	Sea Otter	Vickers	G.B.
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Oxford	Airspeed	G.B.
	KZ–1, –2, –3, –7, –10	Skandinovisk Aero Ind.	Denmark
	Procter	Percival	G.B.
	Meteor Mk. 7	Gloster	G.B.

DOMINICAN REPUBLIC

(Ciudad Trujillo—Dominican Republic)

The Dominican Air Force

The Dominican Air Force, known as El Cuerpo de Aviacion Militar, is an autonomous force. It is administered by the Secretary for War, Marine and Aviation and is of great personal interest to the President.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Fortress B–17/PB	Boeing	U.S.A.
	Mitchell B–25	North American	U.S.A.
	Mosquito	de Havilland	G.B.
Fighter	Lightning F–38	Lockheed	U.S.A.
	Mustang F–51	North American	U.S.A.
	Beaufighter	Bristol	G.B.
Reconnaissance	Catalina PBY–5A/OA–10	Convair	U.S.A.
	Seabee	Republic	U.S.A.
Transport	Commando C–46/R5C	Curtiss	U.S.A.
	Voyager C–45/JRB	Beechcraft	U.S.A.
	Bobcat C–78/JRC	Cessna	U.S.A.
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Valiant (B)T–13/SNV	Convair	U.S.A.
	Kaydet T–17/N2S	Stearman	U.S.A.
	Kansas T–11/SNB–1	Beechcraft	U.S.A.
	Station Wagon	Stinson	U.S.A.
Trainer—Continued	Cub	Piper	U.S.A.
	Beaver	de Havilland	G.B.
	L–17 Navion	Ryan	U.S.A.
	Cessna 190	Cessna	U.S.A.
Helicopter	Hiller 360	Hiller	U.S.A.

ECUADOR

(The Republic of El Ecuador)

The Ecuadoran Air Force

The Ecuadoran Air Force is autonomous under the Minister of Defense. It has equal status with the Army and Navy and is administered by a Commandant of the Military Aviation. The Commandant of the Air Force has headquarters at Quito.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Thunderbolt F–47	Republic	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
Trainer	Cornell T–19	Fairchild	U.S.A.
	Valiant (B)T–13/SNV	Convair	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Navigator T–7/SNB–2	Beechcraft	U.S.A.

EGYPT

(The Kingdom of Egypt)

The Royal Egyptian Air Force

The R. E. A. F., under the Ministry of War and Marine is an independent arm of the Armed Forces with headquarters in Cairo.

The Director of the Air Force is directly responsible to the Minister of War and Marine.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Halifax	Handley Paige	G.B.
	Lancaster	A. V. Roe	G.B.
Fighter	Spitfire Mks. 9, 22	Vickers	G.B.
	Vampire Mks. 5, 6	de Havilland	G.B.
	Meteor Mk. 4	Gloster	G.B.
	Fury	Hawker	G.B.
	Macchi 202/205	Macchi	Italy
	Fiat G. 55	Fiat	Italy
Transport	*Anson	A. V. Roe	G.B.
	Voyager C–45/JRB	Beechcraft	U.S.A.
	*Commando C–46/R4C	Curtiss	U.S.A.
	*Skytrain C–47/R4D	Douglas	U.S.A.
	Mallard	Grumman	U.S.A.
	*Oxford	Air Speed	G.B.

*Many of these aircraft have been converted for use as light bombers.

The Royal Egyptian Air Force—Continued

Type	*Designation*	*Manufacturer*	*Country*
Transport—Continued	Bonanza	Beechcraft	U.S.A.
	Magister	Miles	G.B.
	Dove	de Havilland	G.B.
Trainer	Valiant (B)T–13/SNV	Convair	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Sokol	Sokol	Czech.
	Chipmunk	de Havilland	G.B.
Helicopter	S–51 (Sikorsky)	Westland	G.B.

EL SALVADOR

(The Republic of El Salvador)

The El Salvadoran Air Force

The El Salvadoran Air Force is a part of the Army, operating under the Chief of the Armed Forces (the President) through the Minister of Defense. Headquarters are located at Ilopango Airport.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
Trainer	Kansas T–11/SNB–2	Beechcraft	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Valiant (B)T–13/SNV	Convair	U.S.A.

ETHIOPIA

(The Kingdom of Abyssinia)

The Imperial Ethiopian Air Force

The Imperial Ethiopian Air Force is being organized from a small nucleus consisting mainly of communications and transport aircraft and a number of aircraft supplied by Sweden. The instructors and technicians are Swedish. They are commanded by a Swedish Air Force Officer.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Bomber	Firefly	Fairey	G.B.
	Saab–17	Svenska Aeroplan A. B.	Sweden
Transport	Avro–19	A. V. Roe	G.B.
Trainer	Safirs Saab–91	Svenska Aeroplan A. B.	Sweden
	Bobcat UC–78/JRC	Cessna	U.S.A.
	Sentinel L–4/OY	Convair	U.S.A.
	Bonanza	Beechcraft	U.S.A.

FINLAND

(The Finnish Republic)

The Finnish Air Force

The Finnish Air Force under the Peace Treaty is limited to 60 aircraft and a personnel strength of 3,000 officers and men. The Treaty, further forbids Finland from maintaining a bombing force and the engagement in experiments with or construction of remote control piloted or pilotless aerial weapons.

The F. A. F., a component of the Finnish Defense Forces, is on the same level as the artillery, infantry, quartermaster and naval forces.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Me. 109G–6	Messerschmitt	Germany
Transport	DC–2	Douglas	U.S.A.
Reconnaissance	Fokker CXBK	Fokker	Germany
Training	Storch Fi. 156	Fieseler	Germany
	Pyry	Valmet	Finland
	Tuisku	Valmet	Finland
	Viima	Valmet	Finland
	Stieglitz Fw. 44	Focke-Wulf	Germany
	Anson	A. V. Roe	G.B.
	Blenheim	Bristol	G.B.

FRANCE

(The French Republic)

The French Air Force

Service aviation in France, is divided between the Air Force, Armée de l'Air, and the Naval Air Arm, Aeronavale.

The nominal Commander in Chief of the Armed Forces is the President of the Republic. He presides over two advisory bodies, the Supreme National Defense Council and the National Defense Committee.

Under the Ministry of the Armed Forces are three Under-Secretaries of State, Army, Air, and Navy. Also reporting to the Minister are the Chiefs of Staff Committee and the Inspector-General of the Armed Forces.

The Air Force

The Chief of the Air Staff and Commander in Chief of the Air Force is a General, who is also Chairman of the Chief of Staff Committee.

The French Air Force—Continued

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Halifax Mk. 6	Handley Page	G.B.
	Invader B-26/JD	Douglas	U.S.A.
Fighter	Thunderbolt F-47N	Republic	U.S.A.
	Spitfire Mk. 9	Vickers	G.B.
	Hellcat F6F	Grumman	U.S.A.
	Bearcat F8F	Grumman	U.S.A.
	Mosquito Mk. 30	de Havilland	G.B.
	Ouragon M.D. 450	Dassault	France
	Mystère M.D. 452	Dassault	France
	Vampire Mk. 53	S.N.C.A.S.E.	France
	Vampire Mk. 5	de Havilland	G.B.
	Thunderjet F-84	Republic	U.S.A.
Reconnaissance	Mustang F-51	North American	U.S.A.
	Lightning F-38	Lockheed	U.S.A.
Transport	Skytrain C-47/R4D	Douglas	U.S.A.
	Skymaster C-54/R5D	Douglas	U.S.A.
	Ju. 52	Junkers	Germany
	Bretagne S.O. 30P	Sud-Ouest	France
	Marauder ZB-26B/JM	Martin	U.S.A.
Liaison	Martinet	Miles	G.B.
	Voyager C-45/JRB	Beechcraft	U.S.A.
	Goeland	S.N.C.A.N.	France
	LeO 45	S.N.C.A.S.E.	France
	Maryland M-167	Martin	U.S.A.
	Pingouin Nord 1002	S.N.C.A.N.	France
	Ramier Nord 1100	S.N.C.A.N.	France
	Grasshopper L-4/NE	Piper	U.S.A.
Trainer	Flamant M. D. 315	Dassault	France
	M.D. 472	Dassault	France
	M.D. 230	Dassault	France
	Tiger Moth	de Havilland	G.B.
	Stampe SV-4	S.N.C.A.N.	France
	Dauntless SBD/A-24	Douglas	U.S.A.
	S.I.P.A. S-10, -11		
	Bobcat C-78/JRC	S.I.P.A. Cessna	France U.S.A.
	Wellington Mk. 10	Vickers	G.B.
	Anson	A. V. Roe	G.B.
	Shooting Star T-33/TV-2	Lockheed	U.S.A.
	Vampire Mk. 1	de Havilland	G. B.
	Airacobra P-39	Bell	U. S. A.
	Texan T-6/SNJ	North American	U. S. A.

Naval Aviation

The French Naval Air Arm is administered by the Ministry of Marine, but certain units for operational purposes come under the control of the Air Force. The officer commanding the Naval Air Arm is a Rear Admiral.

The Naval Air Arm operates three aircraft-carriers: Arromanches (H. M. S. *Colossus*), which is on loan from the Royal Navy; a light fleet carrier Lafayette (formerly Langley CVL-27); and a light escort-carrier *Dixmude* (formerly H. M. S. *Biter*). The old French aircraft-carrier *Bearn* is now classified as an aircraft transport.

Equipment

Type	Designation	Manufacturer	Country
Patrol Bomber	Lancaster	A. V. Roe	G.B.
	Wellington	Vickers	G.B.
	Sunderland	Short	G.B.
	Privateer PB4Y-2	Convair	U.S.A.
Attack Bomber	Helldiver SB2C/A-25	Curtiss	U.S.A.
	Avenger TBM-3E	Martin	U.S.A.
Fighter	Hellcat F6F-5, 5N	Grumman	U.S.A.
	Corsair F4U-7	Chance Vought	U.S.A.
Reconnaissance	Catalina PBY-5A/OA-10	Convair	U.S.A.
	Noroit 1400	Nord	France
	Sea Otter	Vickers	G.B.
Transport	Skytrain C-47/R4D	Douglas	U.S.A.
	Ju. 52	Junkers	Germany
	Languedoc S.E. 161	Sud-Est	France
	Breguet 731	Breguet	France
Trainer	Stampe S. V. 4	S.N.C.A.N.	France
	Corse II S.O. 95	Sud-Ouest	France
	S. C. A. N. 20	S. C. A. N.	France
	Voyager C-45/JRB	Beechcraft	U.S.A.
	Anson	A. V. Roe	G.B.
	M. S. 474	Morane-Saulnier	France
	Seafire Mk. 3,15	Vickers	G.B.

GREECE

(The Kingdom of Greece—Hellas)

The Royal Hellenic Air Force

The R. H. A. F. functions as an independent service, and it is administered by the General Air Staff under the Minister of National Defense at Athens.

The Royal Hellenic Air Force—Continued

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Attack	Helldiver SB2C/ A-25	Curtiss	U.S.A.
Fighter	Thunderjet F-84G	Republic	U.S.A.
	Spitfire Mks. 4, 16	Vickers	G.B.
Transport	Skytrain C-47/ R4D	Douglas	U.S.A.
Liaison	Navion L-17B	Ryan	U.S.A.
	Auster Mk. 3	Auster	G.B.
Trainer	Texan T-6/SNJ	North American	U.S.A.
	Tiger Moth	de Havilland	G.B.
	Shooting Star T-33/TV-2	Lockheed	U.S.A.

GUATEMALA

(The Republic of Guatemala)

The Guatemalan Army Air Force

The Air Force of Guatemala, the Fuerza Aérea de Guatemala, is administered by the Army Command. The Chief of Military Aviation has his headquarters at Guatemala City. Since World War II the Air Force has undergone modernization.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Boeing F-26/F4B4	Boeing	U.S.A.
Transport	Skytrain C-47/ R4D	Douglas	U.S.A.
	Voyager C-45/JRB	Beechcraft	U.S.A.
	Bobcat C-78/JRC	Cessna	U.S.A.
Trainer	Valiant (B)T-15/ SNV	Convair	U.S.A.
	Texan T-6/SNJ	North American	U.S.A.
	Kansas T-11/JRB	Beechcraft	U.S.A.
	Cornell T-19	Fairchild	U.S.A.
	Waco T-14	Waco	U.S.A.
	Kaydet T-17/N2S	Boeing	U.S.A.
	Ryan T-23	Ryan	U.S.A.

HAITI

(The Republic of Haiti)

The Haitian Air Force

The Haitian Air Force is an integral part of the Army. It is organized, more or less, as a Government Air Line and is quite small.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Mustang F-51	North American	U.S.A.
Transport	Bobcat C-78/JRC	Cessna	U.S.A.
	Skytrain C-47/ R4D	Douglas	U.S.A.
	Voyager C-45/JRB	Beechcraft	U.S.A.
Trainer	Cornell T-19A	Fairchild	U.S.A.
	Valiant (B)T-13A/ SNV	Convair	U.S.A.
	Texan T 6/SNJ	North American	U.S.A.
	Kansas T-11/ SNB-1	Beechcraft	U.S.A.
Liaison	Taylorcraft L 28	Taylorcraft	U.S.A.

HONDURAS

(The Republic of Honduras)

The Honduran Air Force

The Honduran Air Arm is administered by the Department of War, Marine and Aviation. The Minister of War, Marine and Aviation has his headquarters at Tegucigalpa.

The Chief of the Air Force enjoys a considerable measure of autonomy and though theoretically responsible to the Minister of War, reports directly to the President with headquarters at Tegucigalpa.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Lightning F-38	Lockheed	U.S.A.
	Kingcobra F-63	Bell	U.S.A.
Transport	Skytrain C-47/R4D	Douglas	U.S.A.
Trainer	Kaydet T13, 17/N2S	Boeing	U.S.A.
	Valiant (B) T-13/SNV	Convair	U.S.A.
	Texan T-6/SNJ	North American	U.S.A.
	Kansas T-11/SNB-1	Beechcraft	U.S.A.

HUNGARY

(The Hungarian Republic)

The Hungarian Air Force

Under the terms of the Hungarian Peace Treaty the size of the Hungarian Air Force is limited to 90 aircraft, no more than 70 of which may be combat types; and a personnel strength of 5,000 officers and other ranks. The Treaty further forbids the maintenance of bombing aircraft and the engagement in experiments with or the construction of remote controlled piloted or pilotless aerial weapons.

The Hungarian Air Force, with the assistance of the U. S. S. R., is being reorganized and will probably develop along patterns similar to other satellite nations.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Training	UT-2	Yakovlev	U.S.S.R.
	Arado 96B	Arado	Germany
	Zlin 381	Zlin	Czech.

IRELAND

(Republic of Ireland)

The Irish Air Force

The Irish Air Corps is a component of the Defense Forces and is administered by the Department of Defense, Parkgate, Dublin.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Seafire Mk. 3	Vickers	G.B.
Trainer	Anson	A. V. Roe	G.B.
	Magister	Miles	G.B.
	Martinet	Miles	G.B.
	Master	Miles	G.B.

INDONESIA

(The Republic of Indonesia)

The Indonesian Air Force

The Air Force of Indonesia is known as the Udara Republik Indonesia. It was organized in December 1949 as an independent force reporting directly to the Ministry of Defense. The A. U. R. I., in addition to being trained by the Dutch, has student pilots in American and British aviation schools.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Mitchell B-25/PBJ	North American	U.S.A.
Fighter	Mustang F-51	North American	U.S.A.
	Warhawk P-40	Curtiss	U.S.A.
Reconnaissance	Catalina PBY-5A/OA-10	Convair	U.S.A.
Transport	Skytrain C-47/R4D	Douglas	U.S.A.
Trainer	Grasshopper L-4/NE	Piper	U.S.A.
	Texan T-6/SNJ	North American	U.S.A.
	Valiant (B) T-13/SNV	Convair	U.S.A.
	Auster	Auster	G.B.
	Wackett	Wackett	Australia
Hellicopter	Hiller 360	Hiller	U.S.A

IRAN

(The Kingdom of Iran)

The Imperial Iranian Air Force

The Imperial Iranian Air Force is an integral part of the Army. It is administered by the Aviation Department of the Ministry of War through the General Staff. The I. I. A. F. is commanded by The Shah.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Thunderbolt F-47	Republic	U.S.A.
	Hurricane Mk. 2	Hawker	G.B.
Transport	Skytrain C-47/R4D	Douglas	U.S.A.
Liaison	Texas T-6/SNJ	North American	U.S.A.
	Valiant (B)T-13/SNV	Convair	U.S.A.
	Grasshopper L-4/NE	Piper	U.S.A.
	Tiger Moth	de Havilland	G.B.
	Audax	Hawker	G.B.
	Anson	A. V. Roe	G.B.
	Hind	Hawker	G.B.

IRAQ

(The Kingdom of Iraq)

The Royal Iraqi Air Force

The Royal Iraqi Air Force is administered by the Minister of Defense through the Army Chief of Staff. The R. I. A. F. was patterned after the R. A. F. as a result of a postwar reorganization. Headquarters are in Baghdad.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Anson Mks. I, 12	A. V. Roe	G.B.
Fighter	Sea Fury	Vickers	G.B.
	Gladiator	Gloster	G.B.
Trainer	Tiger Moth	de Havilland	G.B.
	Audax	Hawker	G.B.
Miscellaneous	Dove	de Havilland	G.B.
	Magister	Miles	G.B.

ISRAEL

(The State of Israel)

The Israeli Air Force

The Israeli Air Force (Hel Avir L'Israel) is coequal with the Army and Navy, all three comprising the Israeli Defense Forces, under the Ministry of Defense.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Fortress B-17/PB	Boeing	U.S.A.
	Hudson	Lockheed	U.S.A.
	Mosquito	de Havilland	U.S.A.
Fighter	Mustang F-51D, N	North American	U.S.A.
	Me. 109	Messerschmitt	Germany
	Spitfire	Vickers	G.B.
Transport	Skytrain C-47/R4D	Douglas	U.S.A.
	Commando C-46/R4C	Curtiss	U.S.A.

The Israeli Air Force—Continued

Type	*Designation*	*Manufacturer*	*Country*
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Kaydet T–13/N2S	Stearman	U.S.A.
	Buckaroo T–35	Tempco	U.S.A.
	Instructor S. 11	Fokker	Holland
	Consul	Airspeed	G.B.
	Anson	A. V. Roe	G.B.
	Chipmunk	de Havilland	G.B.
Miscellaneous	Catalina PBY	Convair	U.S.A.
	Widgeon J4F/OA–14	Grumman	U.S.A.
	Bonanza	Beechcraft	U.S.A.
	Rapide	de Havilland	G.B.
	Grasshopper L–4/NE	Piper	U.S.A.

ITALY

(The Republic of Italy)

The Italian Air Force

The Italian Air Force is an autonomous organization on the same plane as the Army and Navy. All three services report to the Chief of Staff of Defense and the Minister of Defense. An embryonic Naval Air Arm called "Marinavia" exists but it has no aircraft of its own.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighters	Vampire Mk. 5	de Havilland	G.B.
	Thunderjet F–84	Republic	U.S.A.
	Thunderbolt F–47	Republic	U.S.A.
	Lightning F–38	Lockheed	U.S.A.
	M.B. 205	Macchi	Italy
Reconnaissance	Helldiver S2C	Curtiss	U.S.A.
	Harpoon PV–2	Lockheed	U.S.A.
	Airone C. Z. 506B	Cantieri	Italy
	Lightning F–4G, F–38	Lockheed	U.S.A.
Transport	Voyager C–45/JRB	Beechcraft	U.S.A.
	Skytrain C–47/R4D	Douglas	U.S.A.
	Monterosa G. 212	Fiat	Italy
	G. 12	Fiat	Italy
	SM. 75, 79, & 82	Siai-Marchetti	Italy
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Sentinel L–5/OY	Convair	U.S.A.
	G. 46, & 59	Fiat	Italy
	S. A. I. 7	S. A. I.	Italy
	F. L. 3	A. V. I. A.	Italy
	Ca. 164	Caproni	Italy

KOREA (SOUTH)

(Republic of South Korea)

The South Korean Air Force

The South Korean Air Force is an autonomous service under its own Chief of Staff for Air, who is responsible to the Minister of Defense.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Mustang F–51	North American	U.S.A.
Reconnaissance	Grasshopper L–4/NE	Piper	U.S.A.
	Sentinel L–5/OY	Convair	U.S.A.
	Navion L–17	Ryan	U.S.A.
	L–19	Cessna	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
Trainer	Texan T–6/SNJ	North American	U.S.A.

MEXICO

(The United States of Mexico)

The Mexican Air Force

The Mexican Air Force is an integral part of the Army and is under the Secretary of National Defense with headquarters at Mexico City.

The Mexican Air Force (Fuerza Aerea Mexicana) is commanded by the Director of Military Aviation. There is a small Naval Air Arm functioning as an integral part of the Navy.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Attacker	Dauntless SBD/A–24	Douglas	U.S.A.
Fighter	Thunderbolt F–47N	Republic	U.S.A.
Reconnaissance	Catalina PBY–5A/OA–10	Convair	U.S.A.
	Duck J2F/NA–12	Grumman	U.S.A.
	Kansas T–11/SNB–1	Beechcraft	U.S.A.
	Kingfisher OS2U	Chance Vought	U.S.A.
	Sentinel L–5/OY	Convair	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Commando C–46/R5C	Curtiss	U.S.A.
	Voyager C–45/JRB	Beechcraft	U.S.A.
	Forwarder C–61/GK	Fairchild	U.S.A.
Trainer	Cornell T–19	Fairchild	U.S.A.
	Valiant (B) T–15/SNV	Convair	U.S.A.
	Kaydet T–13/N2B	Boeing	U.S.A.
	Kansas T–11/SNB–1	Beechcraft	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.

NETHERLANDS

(The Kingdom of the Netherlands)

The Royal Netherlands Air Force

Service Aviation in the Netherlands is organized in two separate arms, the Naval Air Service and the Army Air Force.

The R. N. A. F. as part of the Army has a large amount of autonomy. There is a movement within the Ministry of War to create an autonomous Air Force.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Thunderjet F–84E	Republic	U.S.A.
	Meteor Mks. 4, 8	Gloster	G.B.
	Spitfire Mk. 9	Vickers	G.B.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Lockheed 12A	Lockheed	U.S.A.
	Dominie	de Havilland	U.S.A.
Liaison	Auster	Auster	G.B.
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Tiger Moth	de Havilland	G.B.
	Oxford	Airspeed	G.B.
	Anson	A. V. Roe	G.B.
	Navigator T–7/SNB–2	Beechcraft	U.S.A.
	Proctor	Percival	G.B.
	Instructor S. 11	Fokker	Dutch
	Meteor Mk. 7	Gloster	G.B.
	Spitfire	Vickers	G.B.

Netherlands Naval Air Force

The Flag Officer in charge of the Naval Air Services is an Admiral.

The 14,000 ton British Escort Carrier *Nairana*, which was loaned to the Netherlands Navy in 1946 and operated under the Dutch name of *Karel Doorman*, returned to the U. K. in March, 1948, and in May was replaced by the Light Fleet Carrier *Venerable* of 14,500 tons. The name of *Karel Doorman* was once again used in renaming the *Venerable*.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Mitchell B–25/PBJ	North American	U.S.A.
Fighter	Firefly	Fairey	G.B.
	Sea Fury	Hawker	G.B.
Reconnaissance	Catalina PBY–5,–5A/OA–10	Convair	U.S.A.
	Ventura PV–1/B–34	Lockheed	U.S.A.
	Neptune P2V	Lockheed	U.S.A.
Trainer	Oxford	Airspeed	G.B.
	Auster	Auster	G.B.
	Sea Otter	Vickers	G.B.
	Texan T–6/SNJ	North American	U.S.A.

NICARAGUA

(The Republic of Nicaragua)

The Nicaraguan Army Air Force

The Nicaraguan Army Air Force (Fuerza Aerea de la Guardia Nacional) is administered by the Ministry of War, Marine and Aviation which is responsible to the President of the Republic.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Havoc A–20/BD	Douglas	U.S.A.
	Liberator B–24/PB4Y–1	Consolidated	U.S.A.
Fighter	Lightning F–38	Lockheed	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Bobcat C–78/JRC	Cessna	U.S.A.
	Waco EGC–8	Waco	U.S.A.
Trainer	Cornell T–19	Fairchild	U.S.A.
	Valiant (B)T–13/SNV	Convair	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Fleet 10	Fleet	Canada
	Waco T–14	Waco	U.S.A.

NORWAY

(The Kingdom of Norway)

The Royal Norwegian Air Force

The Army and Navy Air Services were unified in 1944 and the Royal Norwegian Air Force now functions as an independent service.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Spitfire Mk. 9	Vickers	G.B.
	Vampire	de Havilland	G.B.
	Mosquito	de Havilland	G.B.
	Vampire Mk. 3	de Havilland	G.B.
Reconnaissance	Catalina PBY	Convair	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
Trainer	Fairchild (P)T–26	Fairchild	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Anson	A. V. Roe	G.B.
	Oxford	Air Speed	G.B.
Liaison	Storch Fi. 156	Fiesler	Germany
	Norseman C–64/JA	C.C.F.	Canada

PARAGUAY

(The Republic of Paraguay)

The Paraguayan Air Force

The Paraguayan Air Force and the Naval Air Arm were recently combined to form the Fuerzas Aéreas Nacionales. It is administered as a section of the Army by the Ministry of War and Marine. The Commanding officer has headquarters at Campo Grande Airport, near Asuncion.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Transport	Voyager C–45/JRB	Beechcraft	U.S.A.
	Bonanza	Beechcraft	U.S.A.
Trainer	Cornell T–19	Fairchild	U.S.A.
	Valiant(B)T–13/ SNV	Convair	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Kansas T–11/ SNB–1	Beechcraft	U.S.A.

PERU

(The Republic of Peru)

The Peruvian Air Force

The Peruvian Air Force (Fuerza Aérea del Peru) is an independent service administered by the Ministry of Aeronautics. The Chief of Air Staff and the Officer Commanding the Air Arm has headquarters at Lima.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Mitchell B–25J/ PBJ	North American	U.S.A.
	Harpoon PV–2/ B–34	Lockheed	U.S.A.
Attack	A–33	Douglas	U.S.A.
	A–17	Northrop	U.S.A.
Fighter	Hawk F–36	Curtiss	U.S.A.
	Thunderbolt F–47	Republic	U.S.A.
Reconnaissance	Goose JRF/OA–9	Grumman	U.S.A.
	Curtiss Condor C–30	Curtiss	U.S.A.
	Harpoon PV–2	Lockheed	U.S.A.
	Stinson L–5	Stinson	U.S.A.
	Taylorcraft	Taylorcraft	U.S.A.
Transport	Rapide	de Havilland	U.S.A.
	Faucett F–19	Faucett	Peru
	Skytrain C–47/ R4D	Douglas	U.S.A.
	Catalina PBY/ OA–10	Convair	U.S.A.
	Traveler GB/C–43	Beechcraft	U.S.A.
	Bobcat C–78/JRC	Cessna	U.S.A.
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Valiant(B)T–13/ SNV	Convair	U.S.A.
	D. L. 22	Instituto Aero.	Argentina
	Navigator T–7/ SNB–2	Beechcraft	U.S.A.
	Kansas T–11/ SNB–1	Beechcraft	U.S.A.
	Kaydet T–17/N2S	Boeing	U.S.A.
	Travelair	Stinson	U.S.A.
	Falcon SNC	Curtiss	U.S.A.
	Fairchild(P)T–26	Fairchild	U.S.A.
	F–64 (NA–50A)	North American	U.S.A.

PHILIPPINES

(Philippine Republic)

The Philippine Air Force

The Philippine Air Force is one of the world's more recent air forces. Its organization is similar to that of the U. S. A. F., but on a reduced scale.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Fighter	Mustang F–51D	North American	U.S.A.
Transport	Skytrain C–47/ R4D	Douglas	U.S.A.
	Norseman C–64/ JA	Noorduyn	Canada
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Fairchild(P)T–26	Fairchild	U.S.A.
Utility	Sentinel L–5/OY	Convair	U.S.A.
	Grasshopper L–4/ NE	Piper	U.S.A.

POLAND

(The Republic of Poland)

The Polish Air Force

The Polish Air Force (Lotnictwo Polskie) is organized as an independent service on the same plane as the Army and Navy. These services operate under the Commander in Chief of all the armed forces in Poland.

This new P. A. F. conforming to Soviet standards was organized in 1945 as a pattern of the S. A. F. In addition to the air force there is a small Naval Air Arm. This component is an integral element of the Polish Navy and is administered separately from the P. A. F.

The Polish Air Force—Continued

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Pe–2	Petlyakov	U.S.S.R.
	Tu–2	Topolev	U.S.S.R.
Attack	Stormovik Il–2,–10	Ilyushin	U.S.S.R.
Fighter	MIG–15	Mikoyan & Gurevich	U.S.S.R.
	Type 28 (jet)	Yakovlev	U.S.S.R.
	Type 16 (jet)	Yakovlev	U.S.S.R.
	Yak–9P	Yakovlev	U.S.S.R.
Reconnaissance	Seibel	Seibel	Germany
	An–2	Antonov	U.S.S.R.
	Po–2	Polikarpov	U.S.S.R.
	Storch Fi. 156	Fiesler	Germany
Transport	Skytrain C–47/ R4D	Douglas	U.S.A.
	Li–2 (C–47 type)	Lisitsin	U.S.S.R.
	Il–12	Ilyushin	U.S.S.R.
Trainer	Type 26 (jet)	Yakovlev	U.S.S.R.
	Type 29 UMIG–15 (jet)	Mikoyan & Gurevich	U.S.S.R.
	UT–2	Yakovlev	U.S.S.R.

PORTUGAL

(The Republic of Portugal)

The Portuguese Air Forces

The Portuguese Air Force is an autonomous service on the same level with the Army and Navy. Under a reorganization in 1952 the Air Force was separated from the Army and Navy.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Fortress B–17C/PB–1	Boeing	U.S.A.
Fighter	Thunderjet F–84	Republic	U.S.A.
	Spitfire Mk. 5	Vickers	G.B.
	Hurricane Mk. 2B	Hawker	G.B.
Transport	Skymaster C–54/R5D	Douglas	U.S.A.
	Skytrain C–47/R4D	Douglas	U.S.A.
	Ju. 52	Junkers	G.B.
	Anson	A. V. Roe	G.B.
Training	Moth	de Havilland	G.B.
	Gladiator	Gloster	G.B.
	Oxford	Airspeed	G.B.
	Master Mk. 3	Miles	G.B.
	Texan T–6/SNJ	North American	U.S.A.
	Tutor	Miles	G.B.
	Magister	Miles	G.B.
	Shooting Star T–33/TV	Lockheed	U.S.A.

RUMANIA

(The Rumanian Popular Republic)

The Rumanian Air Force

The Peace Treaty limits the size of the Rumanian Air Force to 150 aircraft, of which not more than 100 are to be combat types and a personnel strength of 8,000 officers and men. Under these terms Rumania is forbidden to maintain any bombing aircraft or make experiments with or construct remote-control piloted or pilotless aerial weapons. Since the advent of Soviet influence the above information can be considered academic.

The Rumanian Air Force is administered by the Ministry of National Defense with headquarters in Bucharest. The high command of the Air Force is on a level with the various Army Commands and the Navy Command. Like other satellite air forces the Rumanian Air Force is being equipped and trained by the Soviets.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Pe–2	Petlyakov	U.S.S.R.
Attack	Stormovik Il–2	Ilyushin	U.S.S.R.
	IAR–80, –81	Ind. Aero. Rumania	Rumania
Fighter	MIG–15	Mikoyan & Gurevich	U.S.S.R.
	Yak–15	Yakovlev	U.S.S.R.
	Yak–9	Yakovlev	U.S.S.R.
	Me. 109G	Messerschmitt	Germany
Reconnaissance	Po–2	Polikarpov	U.S.S.R.
	Storch Fi. 156	Fiesler	Germany
	IAR–39	Ind. Aero. Rumania	Rumania
Transport	Ju. 52	Junkers	Germany
	Sparviero SM.79	Siai-Marchetti	Italy
	Lodestar C–60/R5O	Lockheed	U.S.A.
Trainer	Type 26 (jet)	Yakovlev	U.S.S.R.
	Type 29 UMIG–15 (jet)	Mikoyan & Gurevich	U.S.S.R.
	Yak–11	Yakovlev	U.S.S.R.
	Po–2	Polikarpov	U.S.S.R.

SPAIN

(The Spanish State)

The Spanish Air Force

Military Aviation in Spain was organized in October, 1939, as an independent Army of the Air on terms of equality with the Army and the Navy. It is administered by the Air Ministry.

The Spanish Air Force—Continued

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	SM–79	Siai-Marchetti	Italy
	He. 111	Heinkel	Germany
	Cicogna BR. 20	Fiat	Italy
	Pelican SB. 2	Pilatus	Switzerland
	Ju. 88	Junkers	Germany
	Mitchell B–25/PBJ	North American	U.S.A.
Attack	He. 45, 51	Heinkel	Germany
	Libeccio Ca. 310	Caproni	Italy
	I–15	Polikarpov	U.S.S.R.
Fighter	Fury	Hawker	G.B.
	CR. 32	Fiat	Italy
	Falcho G. 50	Fiat	Italy
	He. 112	Heinkel	Germany
	Me. 109B, F, J	Messerschmitt	Germany
	Rata I–16/M–25	Polikarpov	U.S.S.R.
Reconnaissance	He. 46, 70, 114A	Heinkel	Germany
	Do. 17, 24	Dornier	Germany
	HS–126	Hispano	Germany
	G–23	Grumman	U.S.A.
	Catalina PBY–5A/OA–10	Convair	U.S.A.
	Dowal		Germany
	RO 43		Italy
Liaison	Falcon	Miles	G.B.
	L–6 (Spartan Exec.)	Spartan	U.S.A.
	L–12	Stinson	U.S.A.
	Vultee L–13	Convair	U.S.A.
	Storch Fi. 156	Fieseler	U.S.A.
	Navion L–17	Ryan	U.S.A.
Training	Moth	de Havilland	G.B.
	E–30		Spain
	Jungmeister Bü. 133	Bücker	Germany
	HM–1,–2,–5,–9		Spain
	GO. 145	Gotha	Germany
	CR. 32	Fiat	Italy
	HS–42	Hispano	Spain
	Lodestar C–60/R5O	Lockheed	U.S.A.

SWITZERLAND

(The Swiss Federation)

The Swiss Air Force

The Swiss Air Force is an integral branch of the Army and is administered by a Branch of the Federal Military Department with headquarters at Bern.

Equipment

Type	Designation	Manufacturer	Country
Fighter	Morane D–3801, 3802	Morane-Saulnier	France
Fighter—Continued	Mustang F–51	North American	U.S.A.
	Vampire	de Havilland	G.B.
Reconnaissance	C–3603, 3604	Fed. Air. Fact.	Switzerland
Transport	Voyager C–45/JRB	Beechcraft	U.S.A.
	Ju. 52	Junkers	Germany
Training	Jungman Bü. 131	Bücker	Germany
	Jungmeister Bü. 133	Bücker	Germany
	Me. 108	Messerchmitt	Germany
	C–35	Fed. Air. Fact.	Switzerland
	P–2; P–2–06	Pilatus	Switzerland
	Texan T–6/SNJ	North American	U.S.A.
	D–3800	Morane-Saulnier	France
	AT–16	Noorduyne	U.S.A.

SYRIA

(The Syrian Republic)

The Syrian Air Force

The Syrian Air Force is little more than an unimportant adjunct to the Army and is virtually inactive.

Equipment

Type	Designation	Manufacturer	Country
Fighter	G. 55	Fiat	Italy
	Macchi 205	Macchi	Italy
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Ju. 52	Junkers	Germany
	Dove	de Havilland	G.B.
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Tiger Moth	de Havilland	G.B.
	Oxford	Airspeed	G.B.
	G. 55	Fiat	Italy
	G. 46	Fiat	Italy
Utility	Proctor	Percival	G.B.
	Forwarder (U)C–61/GK	Fairchild	U.S.A.
	Grasshopper L–4/NE	Piper	U.S.A.

THAILAND

(The Kingdom of Thailand)

The Royal Thai Air Force

The Royal Thai Air Force is a small autonomous force on an equal level with the Army and the Navy. The R. T. A. F. is responsible to the Minister of Defense with headquarters in Don Muang.

Equipment

Type	Designation	Manufacturer	Country
Attack	Helldiver SB2C/A–25	Curtiss	U.S.A.
Fighter	Spitfire Mk. 14	Vickers	G.B.
	Bearcat F8F	Grumman	U.S.A.

The Royal Thai Air Force—Continued

Type	Designation	Manufacturer	Country
Reconnaissance	Grasshopper L–4/NE	Piper	U.S.A.
	Widgeon J4F/OA–14	Grumman	U.S.A.
	Sentinel L–5/OY	Convair	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Voyager C–45/JRB	Beechcraft	U.S.A.
	Bonanza	Beechcraft	U.S.A.
Training	Texan T–6/SNJ	North American	U.S.A.
	Chipmunk	de Havilland	G.B.
	Magister	Miles	G.B.
	Tiger Moth	de Havilland	B.G.
Helicopter	S–51(HO3S/H–5)	Sikorsky	U.S.A.

TURKEY

(The Turkish Republic)

The Turkish Air Force

The Turkish Air Force, though nominally co-equal with the Army and Navy, actually is under Army control and the Ministry of National Defense has headquarters at Ankara.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Invader B–26/JD	Douglas	U.S.A.
	Mosquito Mk. 6	de Havilland	G.B.
Attack	Beaufighter Mk. 10	Bristol	G.B.
Fighter	Spitfire Mk. 9	Vickers	G.B.
	Thunderbolt F–47	Republic	U.S.A.
	Thunderjet F–84	Republic	U.S.A.
Reconnaissance	Spitfire Mks. 9, 19	Vickers	G.B.
	Mosquito Mks. 3, 6	Beechcraft	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
Trainer	Magister	Miles	G.B.
	Consul	Airspeed	G.B.
	Texan T–6/SNJ	North American	U.S.A.
	Kansas T–11/SNB	Beechcraft	U.S.A.
	Oxford	Airspeed	G.B.
	Shooting Star T–33/TV	Lockheed	U.S.A.

URUGUAY

(The Republic of Uruguay)

The Uruguayan Air Force is an integral part of the Army. The Air Force is administered by the Directorate of Aeronautics under the general supervision of the Ministry of National Defense.

The Director-General of Military Aeronautics is responsible to the Minister of Defense through the Inspector-General of the Army.

Equipment

Air Force

Type	Designation	Manufacturer	Country
Light Bomber	Mitchell B–25/PBJ	North American	U.S.A.
Fighter	Mustang F–51	North American	U.S.A.
Transport	Skytrain C–47/R4D	Douglas	U.S.A.
	Voyager C–45/JRB	Beechcraft	U.S.A.
	C–43	Brechcraft	U.S.A.
Liaison	Grasshopper L–4/NE	Piper	U.S.A.
	Navion L–17B	Ryan	U.S.A.
Training	Texan T–6/SNJ	North American	U.S.A.
	Kansas T–11/SNB–1	Beechcraft	U.S.A.
	Cornell (P) T–19	Fairchild	U.S.A.
	(P) T–26	Fairchild	U.S.A.

Naval Air Arm

The Naval Air Service (Servicio Aeronautica de la Marina) is under the control of the Inspector-General of the Navy and under the General supervision of the Ministry of National Defense.

The Inspector-General of the Navy is a Captain with headquarters at Isla Libertad.

The Ministry of National Defense has its headquarters at Montevideo.

Equipment

Type	Designation	Manufacturer	Country
Light Bomber	Avenger TBM	Martin	U.S.A.
Fighter	Hellcat F6F	Grumman	U.S.A.
Reconnaissance	Goose JR4–2/OA–19	Grumman	U.S.A.
	Kingfisher OS2U	Curtiss	U.S.A.
Trainer	Texan T–6/SNJ	North American	U.S.A.
	Cornell (P) T–23	Fairchild	U.S.A.

VENEZUELA

(The Republic of Venezuela)

The Venezuelan Air Force

The Venezuelan Air Force is an independent service under the control of the Minister of National Defense.

The Ministry of National Defense is established at Caracas.

The Venezuelan Air Force—Continued

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber	Mitchell B–25/ PBJ	North American	U.S.A.
Fighter	Thunderbolt F–47	Republic	U.S.A.
	Vampire Mk. 5	de Havilland	G.B.
Reconnaissance	Texan T–6/SNJ	North American	U.S.A.
Transport	Skytrain C–47/ R4D	Douglas	U.S.A.
Transport	Skymaster C–54/R5D	Douglas	U.S.A.
	Electra C–36	Lockheed	U.S.A.
Trainer	Kansas T–11/ SNB–1	Beechcraft	U.S.A.
	Texan T–6/SNJ	North American	U.S.A.
	Valiant (B) T–13/ SNV	Convair	U.S.A.
	Cornell (P) T–19	Fairchild	U.S.A.
	Kaydet T–17/ N2S	Boeing	U.S.A.
	Navion L–17	Ryan	U.S.A.

YUGOSLAVIA

(The Federative People's Republic of Yugoslavia)

The Yugoslav Air Force

The Yugoslav Air Force is administered by the Ministry of National Defense through the Army General Staff. Marshal Josip Broz, popularly known as Marshal Tito is the Minister of National Defense.

A Lieutenant-General is the Commander in Chief of the Air Force and the Chief of the Air Force Staff. His headquarters are in Belgrade, and he is reponsible to the Chief of the General Staff, a Colonel-General.

The Yugoslavian Air Force is similar in organization to the Soviet Air Force. This pattern was set before Tito broke with the Soviets in 1948.

Equipment

Type	*Designation*	*Manufacturer*	*Country*
Light Bomber Attack	Pe–2	Petlyakov	U.S.S.R.
	Mosquito	de Havilland	G.B.
	Stormovik Il–2	Ilyushin	U.S.S.R.
Fighter	Thunderbolt F–47	Republic	U.S.A.
	Yak–3, –9	Yakovlev	U.S.S.R.
	S–49 (Yak type)	Ikarus	Yugoslavia
	Me. 109	Messerschmitt	Germany
	Spitfire	Vickers	G.B.
	Hurricane	Hawker	G.B.
Transport	Li–2 (C–47 type)	Lisitsin	U.S.S.R.
	Ju. 52	Junkers	Germany
	Shche–2	Shcherbakov	U.S.S.R.
Training	UT–2	Yakovlev	U.S.S.R.
	Po–2	Polikarpov	U.S.S.R.
	Aero–2	Aero	Yugoslavia
	Yak–7	Yakovlev	U.S.S.R.
	UIl–2	Ilyushin	U.S.S.R.
	Texan T–6/SNJ	North American	U.S.A.
	Storch Fi. 156c	Fiesler	Germany

U. S. GOVERNMENT PRINTING OFFICE: 1952