



Saab 17 MANUAL



Preface

FOR SIMULATION USE ONLY - DESIGNED FOR SINGLE-PILOT OPERATIONS

This guide is designed to help provide a straightforward set of instructions to aid in operating the Saab B17A aircraft. It has been produced using multiple real-world Saab B17A operator manuals from various dates and sources with modifications to various procedures to make them more manageable under single-pilot operations.

PHOTOSENSITIVE SEIZURE WARNING

A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns that may appear in video games. Even people who have no history of seizures or epilepsy may have an undiagnosed condition that can cause these “photosensitive epileptic seizures” while playing video games.

Immediately stop playing and consult a doctor if you experience any symptoms.

These seizures may have a variety of symptoms, including light-headedness, altered vision, eye or face twitching, jerking, or shaking of arms or legs, disorientation, confusion, or momentary loss of awareness. Seizures may also cause loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects.

Parents should watch for or ask their children about the above symptoms. Children and teenagers are more likely than adults to experience these seizures.

You may reduce risk of photosensitive epileptic seizures by taking the following precautions:

- Play in a well-lit room.
- Do not play if you are drowsy or fatigued.

If you or any of your relatives have a history of seizures or epilepsy, consult a doctor before playing video games.

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About the Saab B17A

The B 17A is a single-engine, two-seat dive bomber developed and produced by Swedish aviation manufacturer Saab. The aircraft is a purpose-built derivation of the Saab 17, a multi-role military airframe designed to fulfill the roles of ISR (intelligence, surveillance, and reconnaissance) data collections, forward observation, surface attack (including maritime torpedo missions), and bomber. The SAAB 17 took its maiden flight on May 18, 1940 and it was introduced in March of 1942. SAAB manufactured 326 17s, 264 of which were dive bomber variants; 132 of these were B 17A versions.

The B 17A traces its lineage to the birth of Saab (Svenska Aeroplan AktieBolag), today one of the world's leading aerospace and defense firms. The 17 was the first aircraft produced by SAAB, and as such, it was integral to the early evolution of the company.

With World War I still fresh in the minds of military decision makers, the Swedish government outlined a defense plan in the mid-1930s that included four dive bomber units. The country's nascent aerospace industry had experience with dive bombers; the Swedish subsidiary of the German firm Junkers had developed the K 47 attack aircraft in the 1920s, although Sweden did not use them. The K 47 had proven successful in early tests of dive bombing and would form the basis of the Junkers Ju 87 Stuka dive bomber used by the Germans in World War II.

In the mid-1930s, Sweden's military used the Northrop 8A-1, the export version of Northrop's A-17 light attack and dive bombing aircraft that the Swedes designated the B 5. They also used Fokker C.V biplanes for light bombing and reconnaissance. In 1936, they sought a more operationally robust aircraft, one that could perform not only dive bombing, but ISR data collections, forward observation, and surface attack. Furthermore, they wanted this aircraft to be developed and produced in Sweden, by a Swedish company. The military outlined a specific plan to supply their Air Force with 257 warplanes by 1943.

The initial design work for the prospective aircraft, called the L-10, began as a top secret project conducted jointly by the Swedish company ASJA and the Douglas Aircraft Company of the United States. Saab, which formed on April 2, 1937, took over the L-10 project when it purchased ASJA in March of 1939. Saab continued exclusive development of the aircraft and successfully test flew it on May 18, 1940. Impressed by the airplane's performance, the Air Force ordered two variants, a reconnaissance version that they designated the S 17, and a diver bomber, the B 17. Three iterations of the B 17 were created, the B 17A, the B 17B, and the B 17C. Each was based on engine type, with the B 17A fitted with the most powerful motor.

The Saab 17 is one of the most distinctive aircraft of the World War II era. It features a long "greenhouse" canopy over the airplane's tandem two-seat cockpit, a mid-wing design, a traditional empennage, and conspicuously large main landing gear doors. During bombing runs, pilots would deploy the landing gear and the gear doors would act as airbrakes, maintaining a measured dive speed and stabilizing the aircraft for bomb release. The Saab 17 was notable for a number of engineering feats, including being the first Swedish all-metal, stressed-skin aircraft, and using recessed rivets to optimize airflow at the boundary layer of the airplane's surfaces. The B 17 could also accommodate skis or floats in place of wheels for landing gear.



The B 17A saw service as a test vehicle for early ejection seats and use by the Danish Brigade in Sweden who were organized to fight German forces in World War II. The Ethiopian Air Force operated a fleet of the airframe from 1947 to 1968.

The B 17A measures 32 feet, 10 inches in length, stands 14 feet, 9 inches tall, and has a wingspan of 44 feet, 11 inches. It is powered by a 1,065-horsepower STWC-3 engine, which is an unlicensed copy of the Pratt & Whitney R-1830 S1C3G 14-cylinder, dual-row, radial piston engine. The B 17A has a range of 606 miles and a top speed of 270 miles per hour.

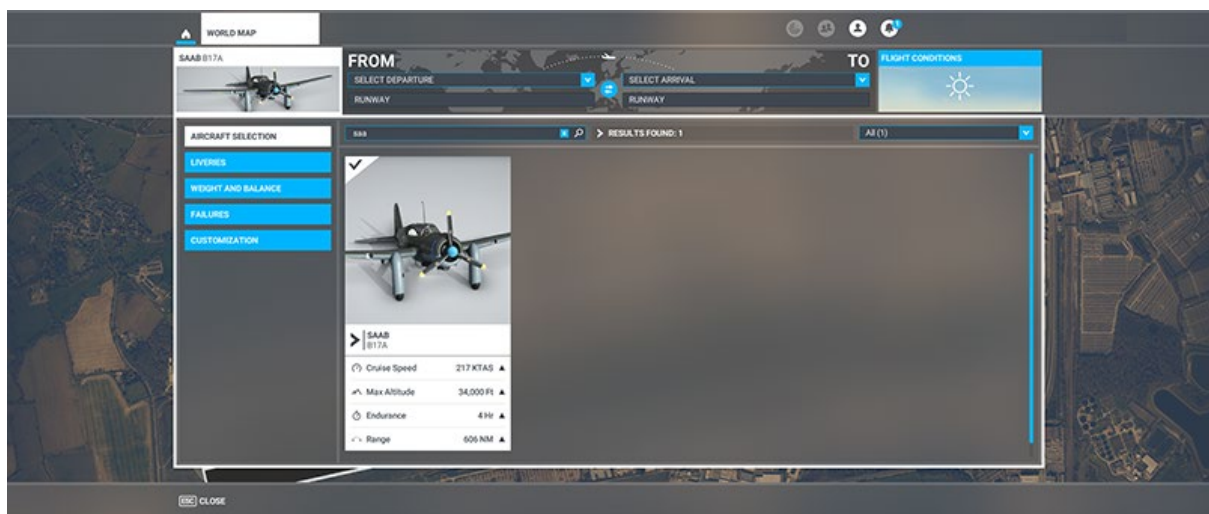
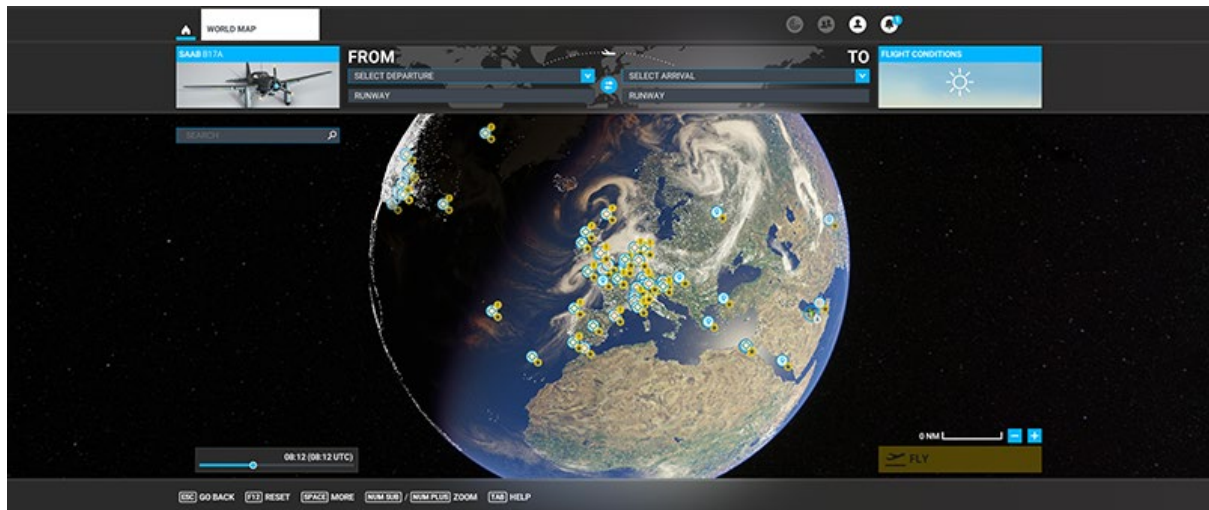


Aircraft Selection and Liveries

To fly the Saab B17A, you will need to select it from the Aircraft Selection menu.

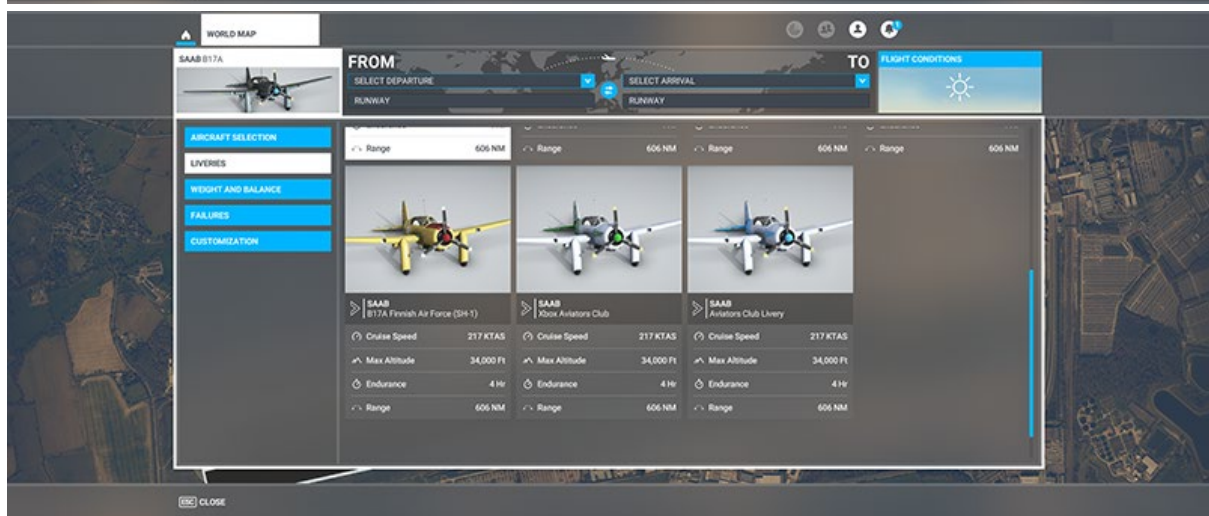
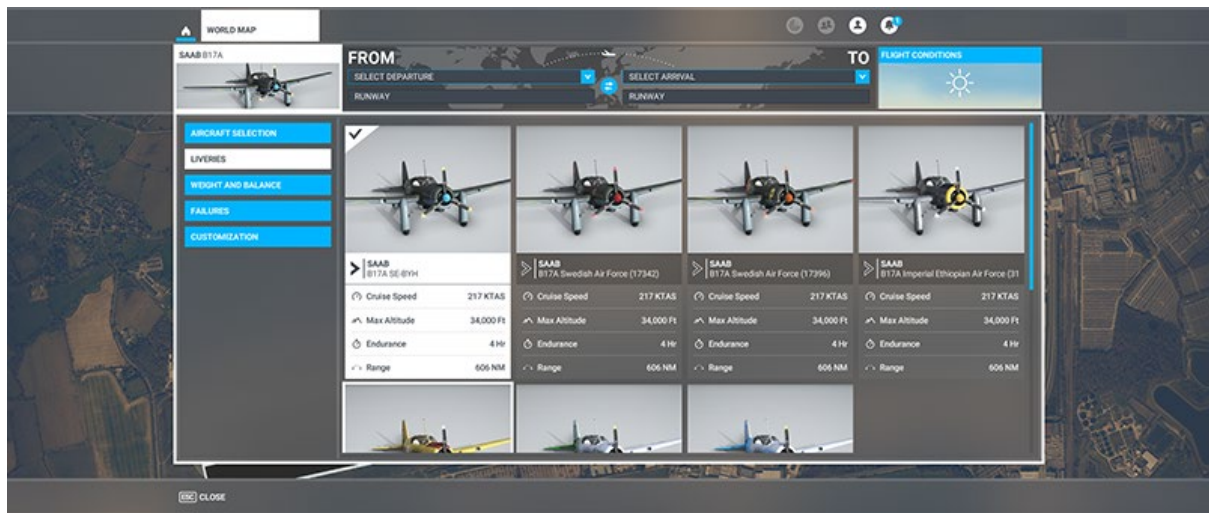
Click on WORLD MAP in the Main Menu and click the AIRCRAFT SELECTION icon on the top left.

Scroll until you see the Saab B17A or type "Saab B17A" in the search bar, and it will appear.



Click on Liveries to select any of the various designs available for the Saab B17A.





Cockpit Interaction

Some knobs within the cockpit have interaction where you can push, pull, or scroll them for their functionality.

This functionality will vary depending on your simulator's specific settings under GENERAL OPTIONS > ACCESSIBILITY.

If a control is set to "Lock," left click (and hold the left mouse button) the knob and push the mouse for "push" interaction and pull the mouse for "pull" interaction. Some functions also may have middle-mouse button "scroll" or "push" and right-mouse click "set" functions.

If it is set to "Legacy," you will see an icon appear to the left, right, above, or below, which you use the middle-mouse wheel to scroll as if a circular arrow, and left click to "set" as if an up or down arrow icon.

On the Xbox, press **A** to interact with the knob and use **A** to "push," **X** to "pull," Right Stick to "scroll," and **B** to finish the control input.



Checklists

While this guide offers comprehensive operational instructions that are functionally complemented by the Quick Reference Card (QRC), iniBuilds has incorporated expedient procedural checklists within the simulator. These can be accessed via the top-of-screen drop-down menu by selecting the Checklist option.



Clicking the blue eye icon to the right of the checklist item will switch your view to the requisite panel where the button/switch/dial/gauge is located. You can use the AUTO COMPLETE option to expediently tick off the item from the checklist.



Important Notes and Substitutions

The aircraft uses the new Computational Fluid Dynamics (CFD) flight model along with new fuel system and propeller physics. Care should be taken while flying the aircraft not to stress the airframe beyond its intended limitations as the aircraft, including all of its internal structural elements, reacts realistically in the system under these new simulation mechanisms.

By design, this aircraft could be susceptible to crosswind components and care should be taken when flying beyond typical and / or suggested operational limits. The recommended crosswind limit for this aircraft is 10 knots, although higher speeds can be achieved using a 'wing down' technique.

You can enable two options within OPTIONS > ASSISTANCE OPTIONS: "Auto-Rudder" and "Assisted Takeoff" which are designed to help fly in these conditions.



"Adjust whether you want rudder controls to be assisted during Free Flight and supported activities. When enabled, this option will help maintain level flight when in the air, and help steer the aircraft when on the ground.

It will also cancel out effects of any crosswind during takeoff or landing to make it easier to stay aligned with the runway."



Saab B17A Specifications

Cruise Speed: 217 KTAS

Max Altitude: 18,000 FT

Max Weight: 8,532 Lbs

Range: 606 Miles

Fuel Capacity: 177 Gal

Length: 32.10 Ft

Wingspan: 44.11 Ft



Electronic Flight Bag (EFB)

Within the cockpit is an EFB which allows for some key functions of the aircraft to be accessed.

There is a moving VFR Map, which will show your route if set within the World Map.

The Home Page allows you to view the METAR of your departure and arrival airfield.

The Settings Page allows you to switch the gauges between Swedish and English gauges and decals.

You can show and hide the EFB as required, details are below on how to do this.



Home Page



Map Page





Settings Page



Swedish and English Cockpit

The cockpit gauges and cockpit text labels can be changed between Metric and Imperial measurements and Swedish or English language using the EFB Settings page.



Swedish



English



Showing / Hiding the EFB

The EFB can be shown or hidden depending on your preference.

On the right-hand side of the front the panel, click the button to show or hide the EFB.



Radio and Transponder Functions

There are modern radio and transponder units installed in the aircraft on the right-hand side instrument panel. These have been adapted for use in Microsoft Flight Simulator using the default ATC system.

You can either use the in-sim ATC window to change radio frequencies and SQUAWK code for the transponder automatically, or manually tune them based on instructions given by in-sim ATC or an external provider such as VATSIM or IVAO.



Please see below on how each individual unit works in-sim.



Radio

If using the in-sim ATC menu functions to change frequency, the radio will automatically change to the selected frequency, there is no need for interaction with the unit.



The main display shows the communications channel selected, the main frequency and the standby frequency.

Either COM1 or COM2 will be shown depending on the Mode selected.

Push Buttons

1. MDE - Press the Mode button to switch between COM1 and COM2.
2. Squelch (inoperable in the simulator).
3. On/Volume/Off - Turn the knob clockwise to switch on the unit and increase the volume. Turn counterclockwise to switch off the unit. A message will appear for a short time saying Radio Off.
4. STO - Pressing this will change the frequency select between Kilohertz and Megahertz.
5. SCN - Pressing this will switch between primary and standby selected frequencies.
6. Frequency Selector – rotating this clockwise will increase the frequency and rotating counterclockwise will decrease the frequency.



Transponder

The aircraft has a functional Transponder unit that is linked into the in-sim Air Traffic Control (ATC) that can be operated in two modes.

Automatically using the in-sim ATC window whereby the transponder will auto-tune to the frequency set by ATC, or manually tuned by the pilot which is still functional with ATC.



Transponder Button Functions:

IDENT: Activates IDENT for 18 seconds then shuts off

VFR : Swap between VFR code and current code

ON : Set XPDR to On Mode

STBY : Set XPDR to Standby Mode

ALT : Set XPDR to ALT Mode

OFF : Set XPDR to Off

FUNC : Changes the function section page on the right of the code characters with the following available pages:

- Current Flight Time
- Altitude Monitor
- Outside Air Temperature (OAT) reading and DALT level
- Flight ID
- Count up timer (start/stop/clear)
- 3-minute count down timer (start/stop/clear)

START/STOP: Starts/Stops Altitude Monitor, Count Up, Count Down and Flight Timers

CRSR: Initiates starting time entry for Count Down timer and cancels code entry

CLR: Resets/Cancels data entry

0-9 buttons: Starts XPDR code entry

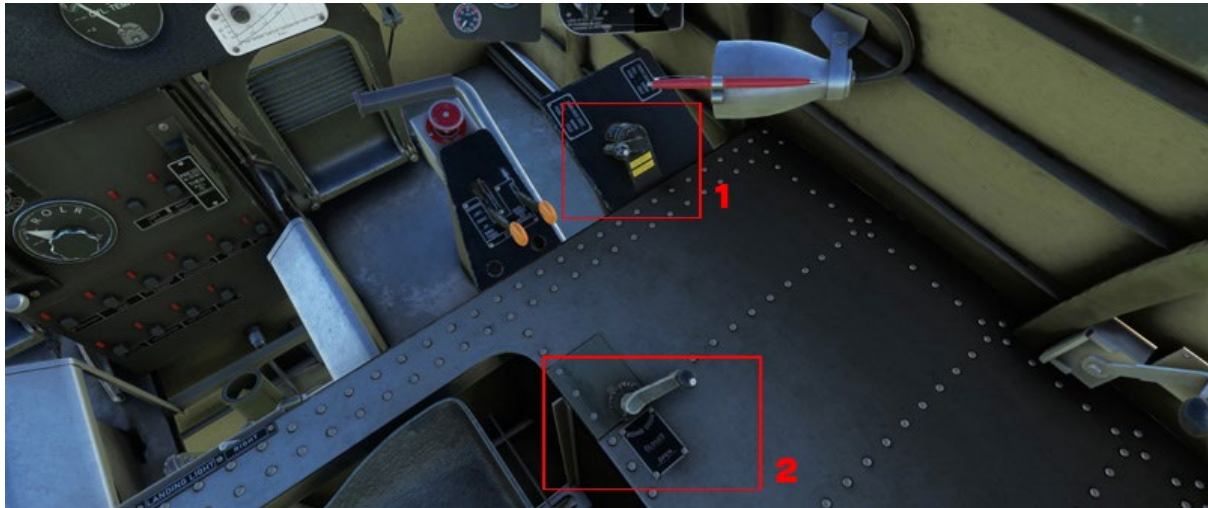
Both the radio and transponder are fully tied into the in-sim ATC functionality.

Either manual tuning on the units themselves or auto-tuning from the ATC panel or in-sim AI Radio Communications (ATC) works.



Additional Features

The aircraft includes some additional features: cowl flaps that can be opened based on the outside and engine temperatures, bomb bay doors that open and close, a clock stopwatch and flight timer, the ability to open canopies and windows, and the ability to show and hide the control stick.



Both handles are located on the right-hand side of the cockpit with the Cowl Flap (1) under the lamp and the Bomb Bay Doors Handle (2) next to the pilot seat.

Rotate these levers to open the respective cowl flaps and bomb bay doors.



Clock Stopwatch and Flight Time Functionality

The clock is located on the front panel, left-hand side which has a stopwatch and flight timer functionality.

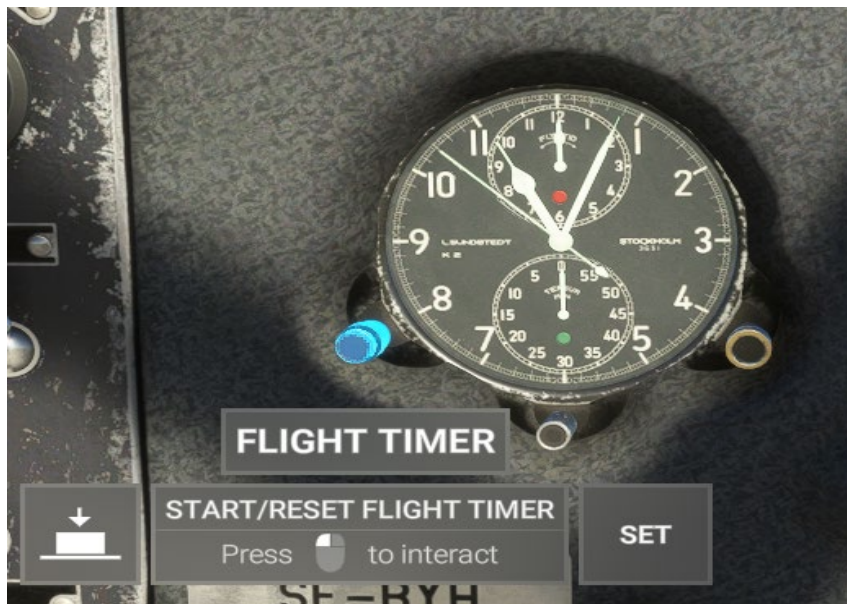


To start, stop and reset the stopwatch, click the right-hand button.

The first push is to start, second push to stop and third push to reset.

The needle in the bottom round gauge will move counterclockwise and shown in minutes from 0 to 60.





To start, stop and reset the flight timer, click the left-hand button.
 The first push is to start, second push to stop and third push to reset.
 The needle in the top round gauge will move clockwise and shown in hours from 0 to 12.

Pilot and Co-Pilot Canopy and Window

The pilot canopy, co-pilot canopy and pilot left-hand window can be opened by clicking the respective levers in the cockpit.





Show / Hide the Control Stick

Click the bracket below the stick to hide and show the stick.



Cockpit Layout



Main Instrument Panel



- | | |
|-----------------------------------|---|
| 1. Vacuum Pressure | 11. Gears and Flaps Indicator |
| 2. Compass | 12. Accelerometer |
| 3. Vacuum Source Selector | 13. Gyro Compass / Turn Slip Ball |
| 4. Outside Air Temperature (OAT) | 14. RPM Percent ENG1&2 |
| 5. Altimeter | 15. Manifold Pressure |
| 6. Air Speed Indicator (ASI) | 16. Clock/Stopwatch/Flight Timer |
| 7. Turn and Slip | 17. Fuel Quantity Indicator |
| 8. Vertical Speed Indicator (VSI) | 18. Oil Temp / Oil Pressure / Fuel Pressure |
| 9. Tachometer (RPM) | 19. Cylinder Head Temperature (CHT) |
| 10. Carb Heat Temperature | |



Lower Front Panel



1. Magneto Switch
2. Fuel Gauge Indicator Selector
3. Engine Starter Lever
4. Parking Brake



Lighting Panel



1. Volt/Amp Meter
2. Reserve Fuel Pump
3. Lighting Rheostats
4. Lighting Switches
5. Nav Light Brightness Full / Off / Half Switch



Throttle / Gear / Flaps / Trim



- 1. Throttle Lever
- 2. Mixture Lever
- 3. Flaps Lever
- 4. Landing Gear Lever

- 5. Oil Cooler Lever
- 6. Propeller Pitch Lever
- 7. Emergency Gear Knob
- 8. Emergency Gear Pressure



- 1. Rudder Trim
- 2. Elevator Trim
- 3. Trim Indicators



Oxygen Controls



1. (A) Extra Oxygen Air Vent Knob
2. (B) Direct Flow Oxygen Knob
3. Pressure Indicators
3. Front Canopy Lever



Right-Hand Panels



1. Landing Lights
2. Fuel Levers
3. Fuel Pressure / Oil Pressure

4. Engine Primer Knob
5. Cowl Flaps Lever
6. Bomb Doors Lever



1. Battery High Temp Indicator and Switch
2. Bomb Doors Indicators
3. Radio

4. Transponder
5. Carb Heat Lever



Rear Cabin Interaction



1. Rear Canopy Lever



Operations and Techniques

This Section outlines the procedures and techniques required to operate the Saab B17A safely and efficiently through all phases of flight.

Some procedures have been simplified and streamlined for single-pilot operation in a typical multi-crew aircraft.



Simplified Procedures

Preliminary Cockpit Preparation	
PARKING BRAKE	ON
LANDING GEAR LEVER	OFF
EMERGENCY GEAR	AIR GREEN
TRIM	NEUTRAL
RESERVE FUEL PUMP	OFF
FLAPS	UP
MIXTURE LEVER	CUT OFF
PROPELLER LEVER	FULL FORWARD
OIL RADIATOR FLAP	CLOSED
WING TANK FAUCET / FUEL VALVE	RIGHT
COWL FLAP LEVER	OPEN
CARB HEAT LEVER	COLD
AVIONICS	OFF



ENG Start Procedure

PARKING BRAKE	ON
MIXTURE LEVER	RICH
THROTTLE LEVER	FULL FORWARD
MIXTURE LEVER	OFF
THROTTLE LEVER	HALF INCH FORWARD
RESERVE FUEL PUMP	ON
MAGNETO SELECTOR SWITCH	M1+M2
MIXTURE LEVER	NORM
ENGINE STARTER COVER	OPEN
ENGINE STARTER KNOB	ROTATE
RESERVE FUEL PUMP	OFF

After ENG Start Procedure

ENGINE RPM	ABOVE 700 RPM
OIL TEMPERATURE	60 TO 90 DEGREES C
AVIONICS	AS REQUIRED
FRONT/REAR CANOPY	BOTH CLOSED
INTERIOR LIGHTS	AS REQUIRED



Taxi Out Procedure	
TOE BRAKES	PRESS ON
PARKING BRAKE	OFF
TOE BRAKES	RELEASE
TAXI OUT	SLOWL
STEERING	WITH RUDDER PEDALS
COMPASS	CHECK HEADING
FLAPS	AS REQUIRED

Take Off Procedure	
LANDING LIGHTS	ON
TAKE OFF CLEARANCE	CONFIRM
RESERVE FUEL PUMP	ON
TOE BRAKES	RELEASE
THROTTLE LEVER	FULL
ENGINE RPM	CHECK 2500 RPM

Climb Procedure	
GEAR LEVER	UP
FLAPS	UP
RESERVE FUEL PUMP	OFF
FUEL TANK GAUGE SWITCH	AS REQUIRED
AIRSPEED	CHECK 210 KM/H / 113 KNOTS
LANDING LIGHTS	OFF
MIXTURE LEVER	NORM



Cruise Procedure	
OIL RADIATOR FLAP	HALF POSITION
MIXTURE LEVER	NORM
ENGINE RPM	MINIMUM 2250 RPM

Landing Procedure	
WING TANK FAUCET / FUEL VALVE	RIGHT
COWL FLAPS SELECTOR	ON
CARB HEAT LEVER	COLD
LANDING GEAR	DOWN
MIXTURE LEVER	NORM
RESERVE FUEL PUMP	ON
FLAPS	DOWN
AIRSPEED	CHECK 150 KM/H / 80 KNOTS
LANDING LIGHTS	ON



After Landing & Taxi Back Procedure

FLAPS	UP
RESERVE FUEL PUMP	OFF
FLAPS LEVER	0 DEGREES
TAXI IN	SLOWLY
STEERING	WITH RUDDER PEDALS
EXTERNAL LIGHTS	AS REQUIRED

Parking Procedure

PARKING BRAKE	SET
MIXTURE LEVER	CUT OFF
MAGNETO SELECTOR SWITCH	OFF
RESERVE FUEL PUMP	OFF
AVIONICS	OFF



Preliminary Cockpit Preparation

Parking Brake ON
Landing Gear Lever DOWN
Emergency Gear AIR GREEN
Trim NEUTRAL
Reserve Fuel Pump OFF
Flaps UP
Mixture Lever CUT OFF
Propeller Lever FULL FORWARD
Oil Radiator Flap CLOSED
Wing Tank Faucet / Fuel Valve RIGHT
Fuel Tank Gauge Switch RIGHT TANK
Cowl Flap Lever OPEN
Carb Heat Lever COLD
Avionics OFF

Engine Start

Parking Brake ON
Mixture Lever RICH
Throttle Lever FULL FORWARD
Mixture Lever OFF
Throttle Lever HALF INCH FORWARD
Reserve Fuel Pump ON
Magnetos Selector Switch M1+M2
Mixture Lever NORM
Engine Starter Cover OPEN
Engine Starter Knob ROTATE
Reserve Fuel Pump OFF

After Engine Start

Engine RPM ABOVE 700 RPM
Oil Temperature 60 TO 90 DEGREES C
Avionics AS REQD

Front/Rear Canopy BOTH CLOSED

Interior Lights AS REQD

Taxi

Toe Brakes ON
Parking Brake OFF
Toe Brakes RELEASE
Taxi Out SLOWLY
Steering WITH RUDDER PEDALS
Compass CHECK HEADING
Flaps AS REQD

Take Off

Landing Lights ON
Take Off Clearance CONFIRM
Reserve Fuel Pump ON
Toe Brakes RELEASE
Throttle Lever FULL
Engine RPM CHECK 2500 RPM

Climb

Gear Lever UP
Flaps UP
Reserve Fuel Pump OFF
Fuel Tank Gauge Switch AS REQD
Airspeed Check 210 KM/H
Landing Lights OFF
Mixture Lever NORM

Cruise

Oil Radiator Flap..... HALF POSITION
Mixture Lever..... NORM
Engine RPM..... MINIMUM 2250 RPM

Landing

Wing Tank Faucet / Fuel Valve..... RIGHT
Cowl Flaps Selector ON
Carb Heat Lever COLD
Landing Gear DOWN
Mixture Lever..... NORM
Reserve Fuel Pump ON
Flaps..... DOWN
Airspeed CHECK 150 KM/H
Landing Lights ON

After Landing and Taxi In

Flaps..... UP
Reserve Fuel Pump OFF
Flaps Lever 0 Degrees
Taxi In..... SLOWLY
Steering..... WITH RUDDER PEDALS
External Lights..... AS REQD

Parking

Parking Brake SET
Mixture Lever..... CUT OFF
Magnetto Selector Switch OFF
Reserve Fuel Pump OFF
Avionics..... OFF