

Boeing B-47 Stratojet™

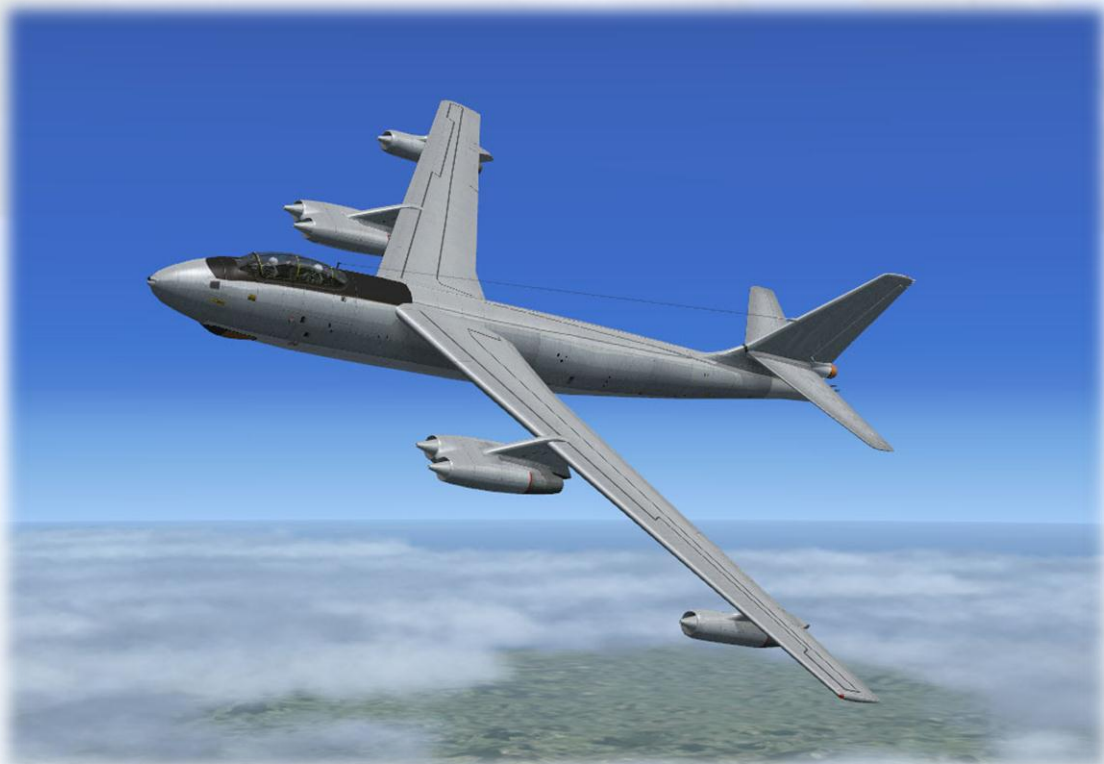
USER MANUAL



Virtavia B-47E Stratojet™ – DTG Steam Edition
Manual Version 2

Introduction

The Boeing B-47™ was the first swept-wing multi-engine bomber in service with the USAF. It was truly a quantum leap in aviation history, and is the forerunner of every jet aircraft in service today. As early as 1943, Boeing™ engineers had envisaged a jet bomber, but were unable to overcome issues with the straight wings of the day. However, Boeing aero-engineer George Schairer was in Germany and came across some secret wind-tunnel data on swept-wing jet airplanes. He sent the information back to the United States, where engineers then used the Boeing High-Speed Wind Tunnel to develop the XB-47™, which featured swept-back wings. The B-47™ broke a number of records and proved to be a great strategic deterrent during the Cold War era. The B-47E™ is an advanced version of the original XB-47, with much more powerful J-47 engines. A grand total of 2,032 of these aircraft were built, with the last one rolling out in 1956.



Support

Should you experience difficulties or require extra information about the Virtavia B-47E Stratojet™, please e-mail our technical support on tech.support@virtavia.com

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Package Contents

The Virtavia B-47E package contains the following three variants:

‘Clean’ version (no wing tanks)



Long range tanks version.



Rocket-Assisted Take-Off (RATO) version.



Exterior Model

The exterior model has all the usual animations such as ailerons, elevators and flaps. There are some additional animations on the model:

Crew Access

The crew hatch and ladder can be open or closed using shift-E. The canopy will also raise a small amount for ventilation, it does not open fully on the B-47.

Bomb Bay

The speedbrake function (/ key) is used to open the bomb bay doors and extend the ventral slipstream deflectors. Airspeed will be affected whilst the bay is open.

RATO collar

Not an animation as such, but the RATO assembly can be toggled off to simulate its jettison. There is a switch for this on the forward right console, near the battery switch, alternatively the 2nd exit keystroke can be used, shift-e+2.

Exterior Lighting

Pressing the L key will turn on all lights. You may however wish to turn them on using the appropriate switches in the cockpit, as the L key also turns the on navigation, landing lights and flood lighting in the cockpit, which should ideally be switched separately.

Shift-L will toggle the nav lights and the cockpit lights.

Crtl-L will toggle the landing lights.

Please refer to the cockpit section of this manual for information regarding light switch location.

Alternative Viewpoints in FSX

There are several different ways of looking at the aircraft and the cockpit, select these alternative views by right-clicking in an empty area and picking the 'Aircraft' menu for external views and the 'Cockpit' menu for views inside the cabin. It is possible to zoom and pan as normal in these alternative views. Cycle through the available ones by pressing the A key.

External View Options

It is possible to pan and zoom as normal in all external views.

Nose View



Right side view



Left side view



Landing gear view



Interior View Options

Virtual Cockpit View



Wide and High View – useful for a quick forward view



IFR view – close up to the important instruments



Rear seat view



Moving Around the Cockpit

Shift-Enter and Shift-Backspace : moves up and down

Ctrl-Shift-Enter and Ctrl-Shift-Backspace : moves side to side

Ctrl-Enter and Ctrl-Backspace : moves backwards and forwards

Quick Tips

Take-Off - the B-47 take-off run (without RATO) is very long, please allow for this by choosing long runway, min. 12,000ft. With full flaps and a little nose-up pitch, the B-47 will lift off automatically at 155 kts. Lift-off is with the fuselage level with the ground - DO NOT ROTATE, this may cause a stall.

Flaps - always use full flaps for take-off. Reduce flaps gradually, keeping an eye on climb rate as you do so. Raising flaps too soon (ie. under 200kts) will result in a stall.

V-C Switches - the switches for lights, pitot heat, NAV-GPS etc and engines shutdown are all on the front end of the throttles console.

Starting using V-C switches - If you have shut down the engines using the shutdown switches in the v-c, make sure these are all back in the down position (ie. fuel valves open) before attempting to use the starter switches. The starter switches are on the right side panel, by the throttle levers. There are only four starter and four shutdown switches, the two double engine pods are treated as a single engine due to FSX limitations.

Generator Switches - there are four generator switches on the right side panel at the front, one for each generator-equipped engine. At least one will need to be in the ON position with its corresponding engine running to provide electrical power beyond the limited battery power.

Stratojet™ Procedures

Specifications (nominal, clean configuration)

- Engines: Six General Electric J47-GE-25 turbojets
- Thrust: 5970 lb.s.t. dry, 7200 lb.s.t. with water injection.
- Maximum speed: 607 mph at 16,300 feet
- Service Ceiling: 33,100 feet
- Combat ceiling: 40,500 feet
- Combat climb rate: 4660 feet per minute
- Combat radius: 2013 miles
- Wingspan: 116 feet 0 inches
- Length: 107 feet 0 inches
- Height: 27 feet 11 inches
- Wing area: 1428 square feet.
- Empty Weight: 79,074 pounds
- Combat Weight: 133,030 pounds
- Maximum Weight: 230,000 pounds
- Armament: Two 20-mm M24A1 cannon in tail.
- Maximum bombload: 25,000 pounds.

Variations and Payloads

There are three distinct variants of the B-47 in this package. One is clean with no external fuel, the second is fitted with long-range external tanks, and the third is also fitted with external tanks as well as the RATO (rocket-assisted take-off) pack. The clean version has water injection enabled which kicks in automatically at 95 percent throttle. The long range version also has water injection controlled the same way, whilst the long range RATO version has the RATO pack which provides a great deal of additional thrust beyond what the normal, water-injected engines can provide. The RATO power will automatically shut off when the aircraft has climbed to sufficient altitude (2,000ft). If the smoke effect persists, just back the throttles off slightly from maximum, then return to maximum. This will toggle the smoke effect off. This also applies for the black smoke of the Water Injection System on the non-RATO variants.

Wing Flaps

The wing flaps have three positions: maneuvering, high-drag (approach), and high-lift (maximum). The outboard flaps assist in roll manouvers (flaperons).

Speed Limitations

- Full Flaps: 250 KIAS
- Landing Gear: 450 KIAS
- Maximum indicated speed: 456 KIAS
- Maximum indicated Mach: 0.875

Panel

The start, electrical, and engine control switches are located on the right side of the virtual cockpit as shown; the fuel pump switches are forward on the right side, the fuel cutoff switches are just ahead of the throttles and are covered by red safety covers, and the ignition switches are along the side of the cockpit above the throttles. The lights switches are in a row at the front end of the panel. Mouse over each switch to confirm its function.



Fuel Management

Advanced fuel management is possible with this aircraft. Any of the several tanks can be selected individually. By turning all tanks OFF, the fuel feed is in automatic, which switches tanks automatically. There is a CG location gage on the fuel panel. Optimal CG location is about 28 percent. Manage fuel to maintain the CG as required.



Bicycle Gear and Takeoff/Landing

This plane is equipped a bicycle-style landing gear. It does not rotate in the normal way. The wing is set to a high angle of attack and the landing gear allows the fuselage and wing to already be at the correct angle to lift the aircraft off the runway with little or no application of back force. On takeoffs, simply allow the plane to fly off the runway at the prescribed speed. Landings are going to be more difficult than with a tricycle gear aircraft because the goal is to land on the front and rear mains at the same time.

Engine Start

Use Ctrl-E (autostart) to start the aircraft, or:

1. Set parking brake.
2. Set throttles to IDLE.
3. Turn OFF Avionics and Deice switches.
4. Turn on Master Battery switch.
5. Ensure engine fuel cutoff switches are in the open position.
6. Start Engine 1 using the engine start switch.
7. Monitor oil pressure and temperature.
8. After the engine is completely started, set the ignition switch back to the "off" position.
9. Repeat for remaining engines.
10. Engines 2-3 and 4-5 are grouped together and will start and run as a single unit.

Takeoff (185,000 lbs.)

1. Make sure fuel is adequate and tanks are selected as desired (all switches off selects ALL).
2. Set elevator trim neutral.
3. Set flaps to full down (100%). (Flaps take 20 seconds to extend).
4. Set brakes.
5. Apply full power smoothly. Water injection will come on automatically at near full throttle.
6. At 100 percent RPM, release brakes.
7. Do not rotate. The plane will fly itself off the runway at about 155 KIAS.

Takeoff (205,000 lbs. with external wing tanks)

1. Make sure fuel is adequate and tanks are selected as desired.
2. Set elevator trim neutral.
3. Set flaps to full down (100%). (Flaps take 20 seconds to extend).
4. Set brakes.
5. Apply full power smoothly. RATO will come on automatically at near full throttle.
6. At 100 percent RPM, release brakes.
7. Do not rotate. The plane will fly itself off the runway at about 165 KIAS.

After Takeoff

1. Retract landing gear once a positive rate of climb is established.
2. Allow the aircraft to accelerate to 180 KIAS with a vertical speed of at least 1,000 feet/minute.
3. Once the aircraft is at least 1,000 feet above the terrain, retract the flaps.
4. Reduce throttle to 98% RPM.
5. Allow the aircraft to accelerate to the normal climb speed of 310 KIAS.
6. Above 15,000 feet allow the climb speed to fall until you are climbing at 220 KIAS at 40,000 feet.

Climb

The best way to climb is to set the aircraft's climb attitude using the "Attitude Hold" function, which can be assigned to a key or joystick button. Use the "increase/decrease pitch attitude reference" commands to raise or lower the nose as you climb to maintain the proper climbing speed. This is much more accurate than using the vertical speed control, but that can also be used if desired. Climb at 310 KIAS after completing the "After Takeoff" checklist. Above 15,000 feet, allow the aircraft to slowly decelerate until you are climbing at 220 KIAS at 40,000 feet. A climb to 30,000 feet will take about 13 minutes, use about 7,000 pounds of fuel, and cover about 100 nautical miles for a takeoff weight of 185,000 pounds.

Cruising

Use autopilot/autothrottle to set cruise parameters.

Weight	Altitude	Airspeed	Fuel Consumption	Naut. miles/1000 lbs
160,000 lbs.	30,000 feet	0.74 Mach	11,800 pounds/hour	37

Normal Descent

1. Begin descent 40 miles from the airfield.
2. Retard throttles to idle.
3. Lower landing gear observing speed restrictions.
4. Use landing gear to slow aircraft as required.
5. Set descent rate and speed as desired using the autopilot.
6. Limit descent rate to 6,000 fpm.
7. Limit speed to 240 KIAS.

Tactical Descent

1. Extend the landing gear for drag.
2. Monitor speed.
3. Rate of descent may exceed 10,000 feet per minute.
4. Level out 1,000 feet above target altitude and reestablish normal flight.

Landing (100,000 pounds)

1. Approach the field at about 200 KIAS with plenty of room to slow down using normal descent procedures.
2. On downwind check landing gear is down and locked.
3. Deploy flaps to first position on downwind and maintain 180 KIAS.
4. Deploy flaps to second position on base leg and slow to 165 KIAS.
5. Deploy full flaps to 100 percent on final when the runway is made.
6. Slow to approach speed of 145 KIAS during final.
7. Over airfield boundary speed should be 135 KIAS.
8. Touch down at a pitch of 2 degrees and speed of 120 KIAS.
9. The goal is to land on the front and rear mains together.
10. Brake as necessary.