North American F-86F Sabre™

USER MANUAL

Introduction

The F-86 Sabre™ was a natural replacement for the F-80 Shooting Star. First introduced in 1949 for the United States Air Force, the F-86™ featured excellent performance for its day, outstanding handling characteristics, and high adaptability. The Sabre™ served in a number of NATO-aligned countries and was even produced in Canada. A total of 9,860 Sabres™ of all variants were produced, some of which are still flying today with private collectors. The F-86F-1™ version featured an up-rated engine over its predecessors and a larger wing without leading-edge slats.

Support

Should you experience difficulties or require extra information about the Virtavia F-86F Sabre™, please e-mail our technical support on
tech.support@virtavia.com

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Exterior Model

Crew Access
The pilot's canopy can be opened with Shift + E

Steps
Press Shift - E then 2 to animate the cockpit steps.

Speedbrake
The speedbrake function (/ key) operates the speedbrake at the rear of the aircraft.

Pilot
The pilot figure can be toggled using Ctrl-W.

External 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.

Two-D Panel Pop-Ups in VC

The following keystrokes will toggle the 2D pop-up panels associated with the accompanying 2D panel suite:

Shift-1: 2D Cockpit/Main Panel

Shift-2: Autopilot controls only

Shift-3: Left side panel – Autopilot and Electrics

Shift-4: Right side panel – Radios, Anti-Ice, Lights

Shift-5: Standard FSX GPS unit

Specifications:

Single-seat, high altitude air superiority fighter	
Empty weight:	11,125 lbs
Typical TO weight:	15,300 lbs
Max TO weight:	18,152 lbs
Fuel capacity:	505 US Gal
Drop tanks:	200 US Gal. each
Initial climb rate:	8,600 ft/min
Service ceiling:	47,000 ft

Aircraft Limitations:

Stall speed, clean:	108 KIAS
Max gear extension:	250 KIAS
Max gear retraction:	280 KIAS
Max indicated airspeed:	670 KIAS
Maximum speed:	Mach 0.915 at sea level
Maximum speed:	Mach 0.850 at 35,000 feet
Maximum G:	+7/-3

Notes on configuration and load-out:

All applicable load stations are included in the configuration file. In the event the user wishes to use a model with particular weapon settings, they will need to add weight to the particular weapon station. The recommended weights for each load station are as follows:

Station_load.0	Pilot	205.00 lbs
Station_load.1	Survival Gear	100.00 lbs
Station_load.2	.50 cal Ammunition	350.00 lbs
Station_load.3	Left drop tank	150.00 lbs
Station_load.4	Right drop tank	150.00 lbs

In the fuel load-out editor the drop tanks are listed as following:

External 1:	Left drop tank
External 2:	Right drop tank

If you are using a model that does not have one of these fuel tanks, set the fuel level for the given tank to 0. You must do this as the fuel tank will always default to the maximum capacity of the tank.

Autopilot:

Though this aircraft is equipped with an auto flight system, it is designed to be flown by hand through the majority of the flight envelopment. The auto flight system however, is fully functional and more than capable of controlling the aircraft's axis of control. It is recommended that when attempting to use the auto flight to hold an altitude to level off as best as possible to avoid any pitch oscillations.

Trim Characteristics:

The aircraft will require only small trim adjustments throughout its flight envelope, with the exception of landing, where the gear and flaps cause a nose-down tendency. The aircraft is capable of trimming +/- 12° in either direction; though it is highly unlikely that this much trim would be required at any phase of flight.

General Notes on Handling:

The North American F-86F-1™ features outstanding handling characteristics in nearly all phases of flight. The aircraft is capable of performing the full range of aerobatic manoeuvres, though indicated airspeed should be the deciding factor when determining when to perform a certain manoeuvre. The aircraft has reasonably-mild stall characteristics, but intentionally stalling or spinning the aircraft is not encouraged under any circumstances.

Panel/Sub-Panel Instruction Diagrams

RADIO PANEL TOGGLE

Engine Start:

1. Ensure sufficient fuel for engine start.
2. Ensure battery and avionics switches are ON.
3. Press the engine starter.
4. At 15% RPM switch on fuel supply for the engine.
5. Observe engine auto-ignition at approximately 20% RPM, signified by spike in EGT.
6. Monitor engine parameters, allow 45-60 seconds for engine to stabilize at ground idle (approximately 59% RPM).
   NOTE: For simplified procedure, Ctrl+E for auto engine start.

Takeoff at normal loaded weight of 15,300lbs
(clean configuration):

1. Ensure sufficient fuel for the mission.
2. Set pitch trim to 2.0° aircraft nose-up.
3. Set flaps to TAKEOFF (Flaps position 1).
4. Slowly apply full power (press F4 to ensure throttle is fully-forward).
5. Begin to rotate the nose at 140 KIAS.
6. Un-stick will occur at approximately 145 KIAS.
7. Depress wheel brakes once airborne to stop wheels.
8. Retract landing gear.
9. Raise flaps at 175 KIAS, continue to climb.

Takeoff at high gross weight of 18,100lbs
(wing stores attached):

1. Ensure sufficient fuel for the mission.
2. Set pitch trim to 2.0° aircraft nose-up.
3. Set flaps to TAKEOFF (Flaps position 1).
4. Slowly apply full power (press F4 to ensure throttle is fully-forward).
5. Begin to rotate the nose at 145 KIAS.
6. Un-stick will occur at approximately 150 KIAS.
7. Depress wheel brakes once airborne to stop wheels.
8. Retract landing gear.
9. Raise flaps at 180 KIAS, continue to climb.

Climb (external stores on wing pylons/clean):

1. Climb at max power is authorized and recommended (Press F4 to ensure max thrust).
2. Maintain a moderate pitch angle until reaching 300 KIAS.
3. Maintain 300 KIAS using pitch until reaching desired altitude or cruise Mach number.

Cruise:

1. Once at desired altitude, slowly bring the aircraft level and trim as best as possible before enabling the autopilot.
   NOTE: If using autopilot vertical speed hold, manually reduce the vertical speed as you approach the desired altitude to assist the autopilot altitude capture mode.

Clean configuration estimates:

Altitude	Airspeed	Mach number	Fuel Burn
200ft	667 KIAS	.915	11.11 lbs/NM
30,000ft	340 KIAS	.860	3.50 lbs/NM
35,000ft	325 KIAS	.916	4.02 lbs/NM

☐ = Optimum Cruise

Wing stores attached estimates:

Altitude	Airspeed	Mach number	Fuel Burn
200ft	640 KIAS	.884	11.61 lbs/NM
30,000ft	282 KIAS	.811	3.36 lbs/NM
35,000ft	319 KIAS	.901	4.08 lbs/NM

☐ = Optimum Cruise

Descent:

1. The F-86F is capable of descent rates exceeding -25,000ft/min so long as the pilot adheres to the airframe speed restrictions.
2. For a fast descent, reduce thrust to idle and descend at a pitch of -45° whilst being mindful of the airspeed limitations.
3. Speed brakes can be applied to slow the descent. The speed brakes do not affect lift, only drag.

Approach and landing, 13,000lbs
(Clean configuration/stores on wings):

1. Slow the aircraft to 200 KIAS or the recommended pattern speed.
2. Lower the landing gear at or below 170 KIAS.
3. Set flaps to TAKEOFF (position 1) at 170 KIAS.
4. At landing weight of 13,000lbs approach speed should be approximately 135 KIAS.
5. At 10ft AGL, retard the throttles.
6. At landing weight of 13,000lbs touchdown speed should be approximately 130 KIAS.
7. The F-86F-1 does not exhibit a significant ground effect, so flair of several degrees is required.
   NOTE: If sufficient runway length exists, aerodynamic braking (IE holding the nose off the ground as long as possible and using the fuselage to create excess drag) is authorized.
   NOTE: If using aerodynamic braking, DO NOT apply the wheel brakes until the nose wheels are in firm contact with the runway surface.