

A detailed 3D rendering of an A-6E Intruder aircraft in flight, viewed from a low angle. The aircraft is white with yellow accents on the nose and wing pylons. It is carrying several missiles. The cockpit canopy is visible, and the aircraft is flying over a light blue sky with a faint horizon line.

**Virtavia**

# **A-6E INTRUDER**

## **USER MANUAL**

Virtavia A-6E Intruder – DTG Steam Edition  
Manual Version 2.0

# INTRODUCTION

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The Grumman A-6 was the US Navy's premier precision strike aircraft for over 30 years. First introduced in 1963, the A-6 saw extensive service in Vietnam and continued its life with various upgrades until being retired in 1997. The A-6E variant was the definitive attack version of the Intruder, capable of carrying a laundry list of NATO ordnance and featuring a wide array of electronics. In total, 693 A-6s were built and they served the Navy with distinction over an illustrious career.

The Virtavia A-6E Intruder is a fully 'native' FSX release, which includes visual effects such as self shadowing, bloom and bump mapping.



# SUPPORT

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Should you experience difficulties or require extra information about the Virtavia A-6E Intruder, please e-mail our technical support on [tech.support@virtavia.com](mailto:tech.support@virtavia.com)

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# PACKAGE CONTENTS

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The Virtavia A-6E Intruder package contains eleven model variants to represent the various weapons and stores loadouts typically carried by this aircraft :

'Clean' configuration (no stores or weapons)



2 AGM-65 Maverick missiles, 12 'Snakeye' bombs, 1 ventral tank



2 500lb GBU12D Paveway bombs, 6 'Snakeye' bombs, 2 fuel tanks



30 Mk 82 free-fall bombs



4 AGM-84A Harpoon anti-shiping missiles



2 AGM-88 HARM anti-radar missiles, 2 fuel tanks



Empty Triple Ejector Racks, ventral fuel tank



4 2000lb GBU10E 'Paveway' laser-guided bombs



2 AGM-62 Walleye missiles, 6 'Snakeye' bombs, 2 fuel tanks



2 AGM-84E SLAM missiles, 3 fuel tanks



Long Range version, 5 fuel tanks



# EXTERIOR MODEL

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

## Crew Access

*shift-e* : Sliding canopy

*2nd Exit (shift-e then 2)*: Cockpit access steps

## Crew figures

The crew figures can be toggled using Ctrl-W.

## Tail Hook

Normally defined as Shift-Q but can be reassigned to 'T' if desired'.

## Folding Wings

Normally defined as Ctrl-Shift+K but can be reassigned to 'F' if desired.  
Only works when on the ground.

# EXTERIOR LIGHTING

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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 light.

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



# ALTERNATIVE VIEWPOINTS IN FSX

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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.

'Dirty' view, rear - perfect for viewing the flaps & gear all-out



Tail View - up and behind the Intruder



Front, left side view – close-up of the crew



Nose View – head on



Front View - down low



Front View - up high



## Interior Views

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

Virtual Cockpit View



Copilot's Seat View



## Moving Around the Cabin

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

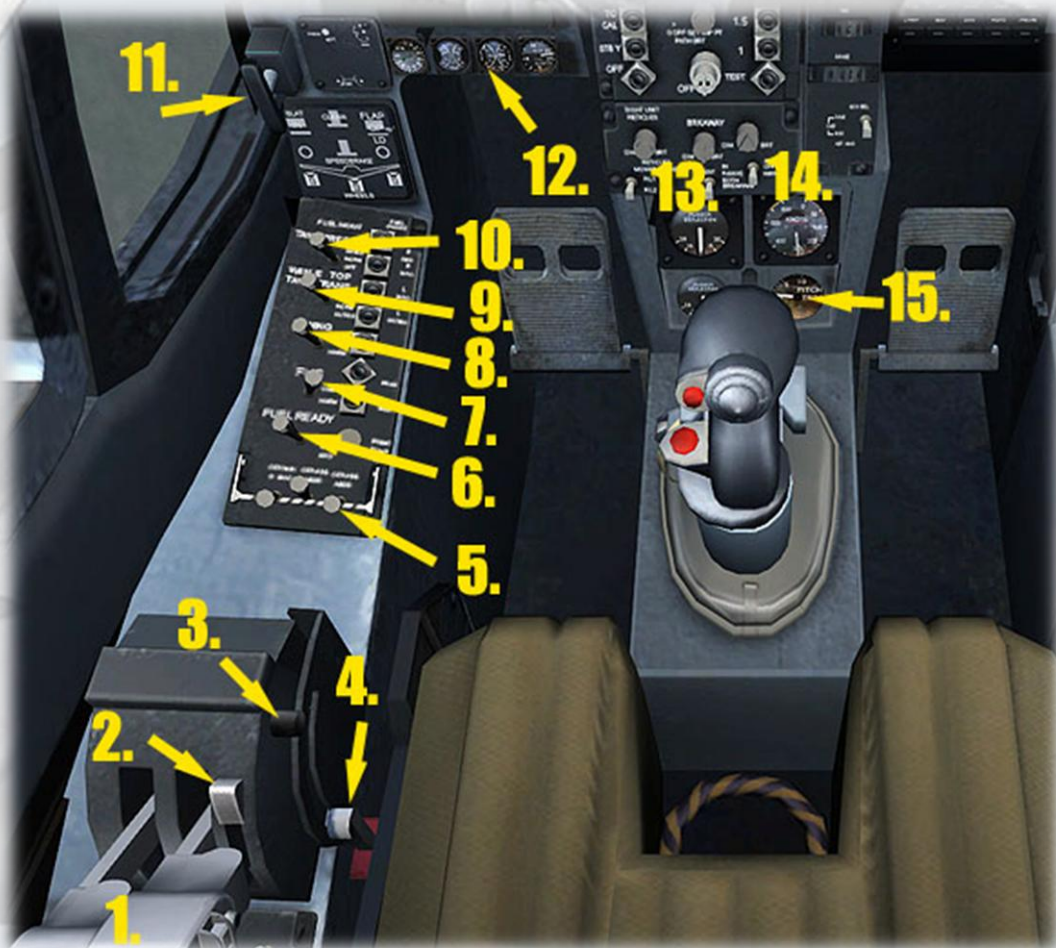
Ctrl-Shift-Enter and Ctrl-Shift-Backspace : moves side to side

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

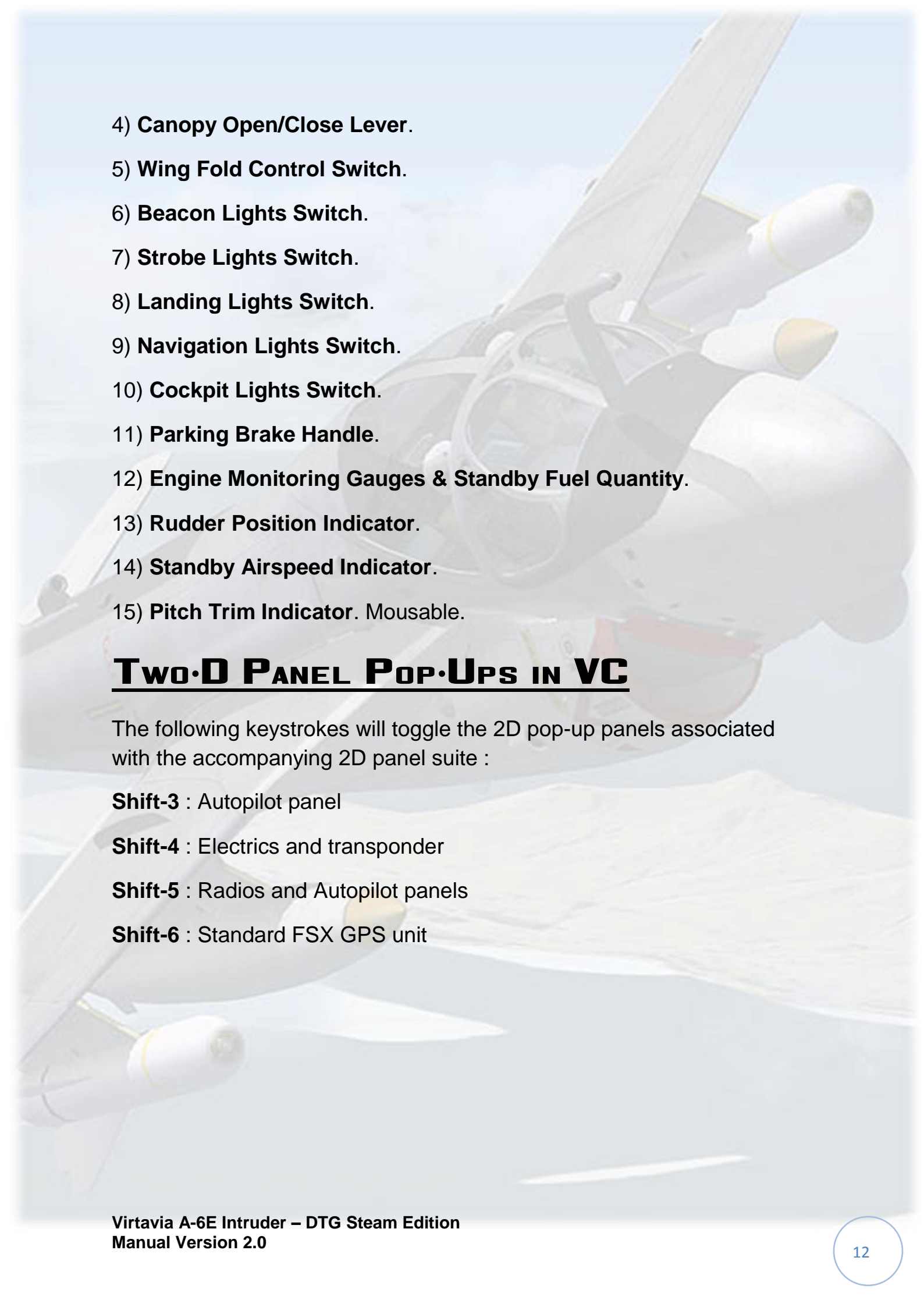
# **VIRTUAL COCKPIT FUNCTIONS**

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## MAIN PANEL • LEFT SIDE



- 1) Engine Throttle Control Levers.
- 2) Wing Flaps Control Lever.
- 3) Tail Hook Control Lever.

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- 4) **Canopy Open/Close Lever.**
  - 5) **Wing Fold Control Switch.**
  - 6) **Beacon Lights Switch.**
  - 7) **Strobe Lights Switch.**
  - 8) **Landing Lights Switch.**
  - 9) **Navigation Lights Switch.**
  - 10) **Cockpit Lights Switch.**
  - 11) **Parking Brake Handle.**
  - 12) **Engine Monitoring Gauges & Standby Fuel Quantity.**
  - 13) **Rudder Position Indicator.**
  - 14) **Standby Airspeed Indicator.**
  - 15) **Pitch Trim Indicator.** Mousable.

## **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-3** : Autopilot panel

**Shift-4** : Electrics and transponder

**Shift-5** : Radios and Autopilot panels

**Shift-6** : Standard FSX GPS unit

# MAIN PANEL



- 1) **Landing Gear Control Lever.**
- 2) **Main Engine Gauges.** RPM, EGT and Fuel Flow for both engines.
- 3) **Radar Altimeter.** Red lamp illuminates when dangerously low.
- 4) **Angle of Attack Gauge.** Red bug indicates near-stall angle.
- 5) **Pilot's VDU.** Click right side/left side to toggle through 3 modes.
- 6) **Airspeed Indicator.**
- 7) **Altimeter.**
- 8) **DME Indicator.** Indicates distance in nM to current tuned VOR.
- 9) **G-Meter.**
- 10) **Artificial Horizon.**
- 11) **Angle of Attack Indexer Gauge.**

12) **Horizontal Situation Indicator (HSI).** Knobs for HDG and CRS set.



13) **Fuel Quantity Gauge.**

14) **Autopilot Annunciator Panel.**

15) **Vertical Speed Indicator.**

16) **Clock.**

17) **ILS Indicator Indicator.** Switch on/off using 2D panel switch.

18) **Flaps Position Indicator.** Shows flaps position in degrees and is mouseable.

# WSO PANEL



1) **GPS Display.** Standard GPS display in lieu of the A-6E sophisticated weapons aiming system. Buttons along the top edge are mousable.



# Two-D Panel and Pop-Ups





Virtavia A-6E Intruder – DTG Steam Edition  
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## REFERENCE INFORMATION

### **Virtavia A-6E Intruder Procedures**

#### **Engine start:**

Use default control Ctrl-E to auto start the engine. Please note this engine has a realistic start up and spool time, and it will take approximately 45 seconds to spool up the engines to ground idle.

#### **Takeoff at normal loaded weight of 44,400lbs (clean configuration):**

1. Ensure sufficient fuel for the mission.
2. Set pitch trim to 2.5° 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 120kts.
6. Un-stick will occur at approximately 130kts.
7. Depress wheel brakes once airborne to stop wheels.
8. Retract landing gear.
9. Raise flaps at 170 KIAS, continue to climb.

#### **Takeoff at high gross weight of 56,660lbs (wing and fuselage stores attached):**

1. Ensure sufficient fuel for the mission.
2. Set pitch trim to 2.5° 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 150 KIAS
7. Depress wheel brakes once airborne to stop wheels.
8. Retract landing gear.
9. Raise flaps at 185 KIAS, continue to climb.

#### **Climb (clean):**

1. Climb at max power is authorized and recommended (Press F4 to ensure max thrust).
2. Maintain a moderate pitch angle until reaching 320 KIAS.
3. Maintain 320 KIAS using pitch until reaching desired altitude or cruise Mach number.

#### **Climb (external stores on wing pylons and fuselage):**

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.

- Maintain 300 KIAS using pitch until reaching desired altitude or cruise Mach number.

**Cruise:**

- 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 fuel burn estimates:

Altitude	Airspeed	Mach number	Fuel Burn lbs/NM
500ft	610 KIAS	.85	33.0 lbs/NM
35,000ft	255 KIAS	.75	9.6 lbs/NM
35,000ft	340 KIAS	.95	18.0 lbs/NM
	= Nominal		

External stores on wing fuel burn estimates

Altitude	Airspeed	Mach number	Fuel Burn lbs/NM
500ft	585 KIAS	.823	35.7 lbs/NM
35,000ft	255 KIAS	.75	13.6 lbs/NM
35,000ftt	317 KIAS <sub>t</sub>	.885 <sub>t</sub>	18.7 lbs/NM <sub>t</sub>
	= Nominal		

**Descent:**

- The A-6E is not capable of descent rates exceeding -25,000ft/min without exceeding structural limitations.
- For a fast descent, reduce thrust to idle and descend at a pitch of -25° whilst being mindful of the airspeed limitations.
- Speed brakes can be applied to slow the descent. The speed brakes do not affect lift, only drag.

**Approach and landing, 31,000lbs  
(clean configuration, land and carrier):**

- Slow the aircraft to 250kts IAS or the recommended pattern speed.
- Lower the landing gear (and tail hook if applicable) at or below 200 KIAS.
- Extend wingtip speed brakes.
- Set flaps to TAKEOFF (position 1) at 150 KIAS.
- At landing weight of 31,000lbs in clean configuration, approach speed should be approximately 115 KIAS.
- The optimum AoA (angle-of-attack) for approach in this configuration is between 18-24 units AoA.  
**NOTE:** AoA and pitch angle are different; your AoA can be significantly higher than your perceived pitch angle on approach.

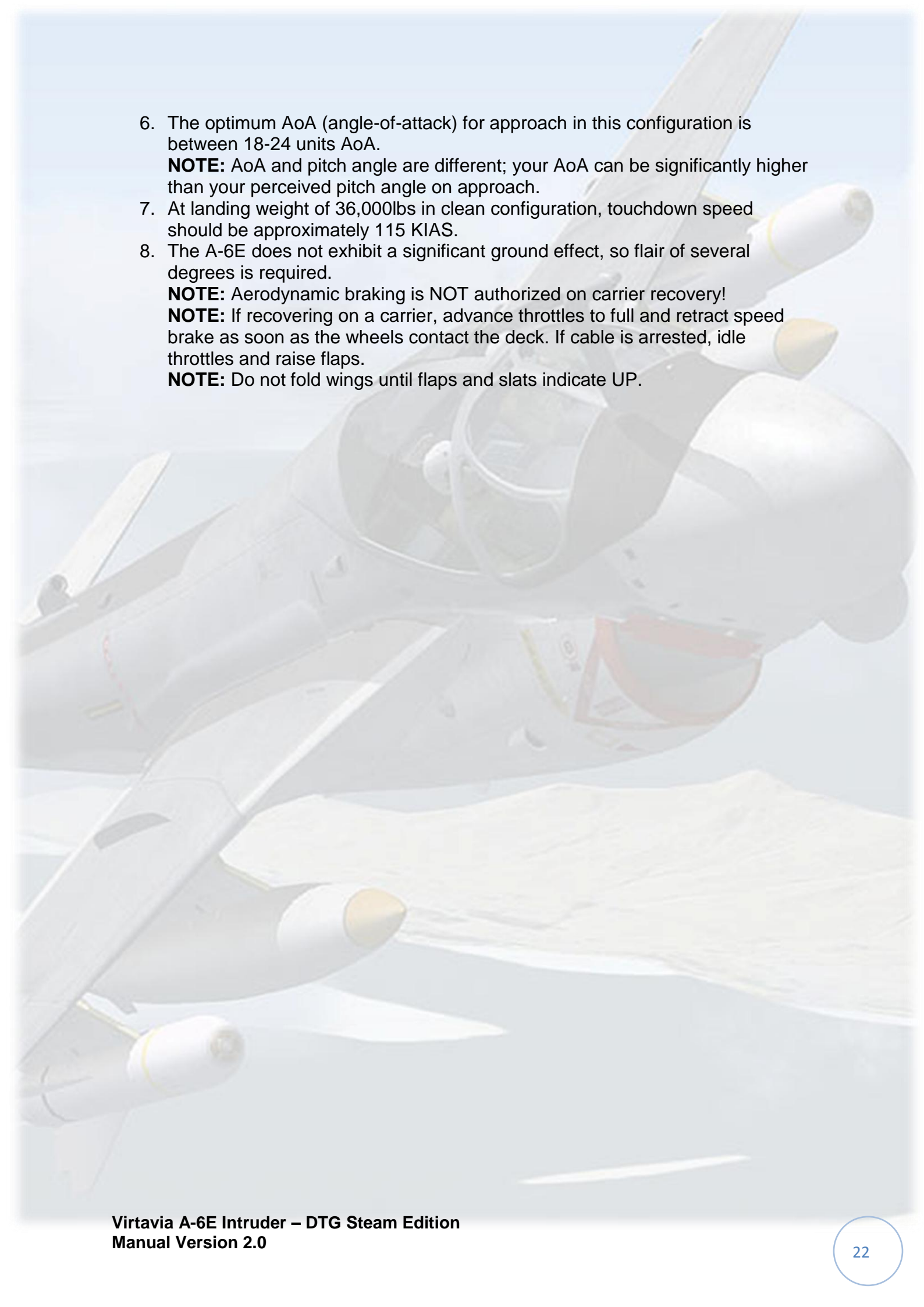
7. At 50ft AGL, retard the throttles.  
**NOTE:** If recovering on a carrier, advance throttles to full and retract speed brake as soon as the wheels contact the deck. If cable is arrested, idle throttles and raise flaps.  
**NOTE:** Do not fold wings until flaps and slats indicate UP.
8. At landing weight of 31,000lbs in clean configuration, touchdown speed should be approximately 106 KIAS.
9. The A-6E 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.  
**NOTE:** Aerodynamic braking is NOT authorized on carrier recovery!

**Approach and landing, 41,000lbs  
(stores on wing pylons and fuselage, land-based):**

1. Slow the aircraft to 250kts IAS or the recommended pattern speed.
2. Lower the landing gear at or below 200 KIAS.
3. Extend wingtip speed brakes.
4. Set flaps to TAKEOFF (position 1) at 175 KIAS.
5. At landing weight of 41,000lbs with external stores attached, approach speed should be approximately 130 KIAS.
6. The optimum AoA (angle-of-attack) for approach in this configuration is between 18-24 units AoA.  
**NOTE:** AoA and pitch angle are different; your AoA can be significantly higher than your perceived pitch angle on approach.
7. At 10ft AGL, retard the throttles.
8. At landing weight of 41,000lbs with external stores attached, touchdown speed should be approximately 120 KIAS.
9. The A-6E 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.

**Approach and landing, 36,000lbs  
(stores on wing pylons and fuselage, carrier recovery):**

1. Slow the aircraft to 250kts IAS or the recommended pattern speed.  
**NOTE:** The maximum aircraft gross weight for carrier recovery is 36,000lbs.
2. Lower the landing gear and tail hook at or below 200 KIAS.
3. Extend wingtip speed brakes.
4. Set flaps to TAKEOFF (position 1) at 175 KIAS.
5. At landing weight of 36,000lbs with remaining external stores attached, approach speed should be approximately 123 KIAS.

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- A detailed illustration of an A-6E Intruder aircraft in flight, viewed from a low angle. The aircraft is white with yellow and orange accents on the nose and engine nacelles. It is shown in a steep climb, with its wings and tail clearly visible against a light blue sky. The aircraft's landing gear is retracted, and its canards are in a high-angle position. The background shows a hazy horizon and a light blue sky.
6. The optimum AoA (angle-of-attack) for approach in this configuration is between 18-24 units AoA.

**NOTE:** AoA and pitch angle are different; your AoA can be significantly higher than your perceived pitch angle on approach.

7. At landing weight of 36,000lbs in clean configuration, touchdown speed should be approximately 115 KIAS.
8. The A-6E does not exhibit a significant ground effect, so flair of several degrees is required.

**NOTE:** Aerodynamic braking is NOT authorized on carrier recovery!

**NOTE:** If recovering on a carrier, advance throttles to full and retract speed brake as soon as the wheels contact the deck. If cable is arrested, idle throttles and raise flaps.

**NOTE:** Do not fold wings until flaps and slats indicate UP.

## Virtavia A-6E Intruder Reference

### Specifications:

- Two-seat, carrier-borne precision strike aircraft
- Empty weight: 28,300lbs.
- Typical TO weight: 44,400lbs.
- Max TO weight: 60,400lbs.
- Fuel capacity: 2390 US Gal.
- Drop tank: 300 US Gal each (max total of 5 drop tanks for 1500 US Gal max capacity external)
  
- Max speed SL: Mach .85 (clean)
- Max speed ALT: Mach .94 @ 40,000ft
- Max IAS: 650 KIAS (drag-limited)
- Initial climb rate: 9,000ft/min (clean)
- Service ceiling: 42,000ft.

### Aircraft Limitations

- Stall speed, clean: 100 KIAS
- Max gear extension: 250 KIAS
- Max gear retraction: 280KIAS
- Max indicated airspeed is 650 KIAS.
- Maximum speed: Mach 0.85 at sea level (clean)
- Maximum speed: Mach 0.95 at 35,000 feet (clean)
- Maximum G: +6/-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	178.00 lbs
Station_load.1	Navigator	182.00 lbs
Station_load.2	Survival Gear	200.00 lbs
Station_load.3	Left Inbd D.T.	250.00 lbs
Station_load.4	Left Outbd D.T.	250.00 lbs
Station_load.5	Right Inbd D.T.	250.00 lbs
Station_load.6	Right Outbd D.T.	250.00 lbs
Station_load.7	Center D.T.	250.00 lbs
Station_load.8	2x AGM-65 Maverick	1340.00 lbs
Station_load.9	6x Mk82 Snakeye	3000.00 lbs
Station_load.10	12x Mk82 Snakeye	6000.00 lbs
Station_load.11	24x Mk82	12000.00 lbs
Station_load.12	2x GBU12D LGB	1000.00 lbs



Station_load.13	4x GBU10E LGB	8000.00 lbs
Station_load.14	4x AGM84 Harpoon	4576.00 lbs
Station_load.15	4x AGM84E SLAM	2400.00 lbs
Station_load.16	2x AGM62 Walleye	6000.00 lbs
Station_load.17	2x AGM88 HARM	3000.00 lbs

The long-range variant has a total of five drop tanks. In the fuel load-out editor the drop tanks are listed as following:

External 1:	Centerline drop tank
Left Aux.	Left inboard drop tank
Left tip	Left outboard drop tank
Right Aux.	Right inboard drop tank
Right tip	Right outboard 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.

#### **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 envelope. The auto flight system however, is fully functional and more than capable of controlling the aircraft's axes 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.