

A-4E COMMUNITY for DCS World

Kneeboard Manual

Version 2.2

Revised 2023-10-25.

This manual is provided as a PDF and in the in-game kneeboard. - "RSHIFT+K"

Not for real world flight.

Developers

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Join the community!

Thanks to the community for their many contributions, and to you, for flying the A-4E-C for DCS World. Visit the project page to download the latest version, report bugs, or to get involved on Discord:

<https://08jne01.github.io/community-a4e-c>

1 - Mission

Navigation, UHF Radio, ADF, TACAN, MCL, Radio & ILS Data, Mission Loadout, Loadout Options

2 - Radar

Radar Altimeter, Ground Radar, Search, Terrain Clearance, Plan, Profile, Scope Distortion, Air-to-Ground

3 - Weapons

Master Arm, Bombs, AWE-1, AWRS, CP/741-A Bombing Computer, Rockets, Guns, Gunpods, Missiles, Chaff, ECM, RWR

4 - Flight

Autopilot, Approach Power Compensator (APC), Carrier Operations, Fuel, Air Refueling, Structural Limits, Airspeed Limits

5 - Checklists

Start-Up, Pre-Taxi, Pre-Takeoff, Taxi, Takeoff, Landing, Engine Flame Out, Air Start, Precautionary Approaches

6 - Orientation

Throttle, Stick, Instrument Panel, Console, Controls Indicator, Gamepads

Flight Plan Waypoints

LOCATION	LATITUDE	LONGITUDE
00	_____	_____
01	_____	_____
02	_____	_____
03	_____	_____
04	_____	_____
05	_____	_____
06	_____	_____
07	_____	_____
08	_____	_____
09	_____	_____
10	_____	_____

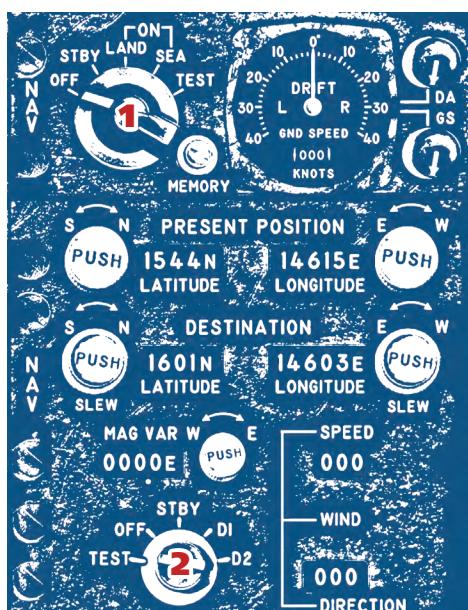
AN/APN-153 DOPPLER NAVIGATION RADAR - 6-4, 2.

Set the Mode Selector (1) to STBY at start-up. In flight, set the mode to LAND or SEA as required.

AN/ASN-41 NAVIGATION COMPUTER - 6-4, 3.

Set the Function Selector (2) to STBY at start-up. Proceed to input magnetic variance, wind direction and speed. While in the STBY position, Present Position can be set, and the destination push-to-set knobs input to D1. In the D1 or D2 position, only the slew knobs provide input. For course bearing, set the BDHI switch to NAV CMPTR - 6-2, 29.

Long flights or heavy maneuvers will cause the system to drift.

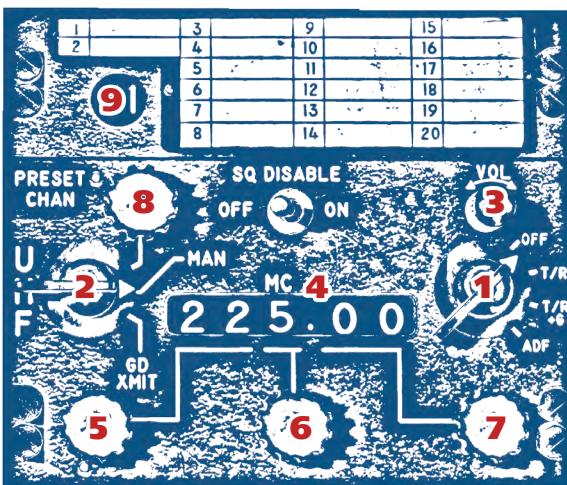


Channel Presets

CHN FREQ

01	_____ . _____
02	_____ . _____
03	_____ . _____
04	_____ . _____
05	_____ . _____
06	_____ . _____
07	_____ . _____
08	_____ . _____
09	_____ . _____
10	_____ . _____
11	_____ . _____
12	_____ . _____
13	_____ . _____
14	_____ . _____
15	_____ . _____
16	_____ . _____
17	_____ . _____
18	_____ . _____
19	_____ . _____
20	_____ . _____

- Channel presets are defined in the Mission Editor.
- Radio Microphone Push to Talk (PTT) - "RALT+V" is located on the throttle handle, 6-1, 2.
- Additional PTT bindings for VOIP are available, including a Guard transmit when in TR+G mode.



AN/ARC-51A UHF Radio - 6-4, 5.

1. UHF Radio Mode TR+G
2. Frequency Mode Switch . AS REQ'D
3. Volume Knob AS REQ'D

FREQUENCY MODES

MAN: The frequency is displayed (4), and manually set from 225 - 399 MHz, using 10 MHz (5), 1 MHz (6), and 50 kHz (7) knobs.

PRESET CHAN: Set using Preset Channel Selector (8), and displayed (9).

GD XMIT: Sets frequency to 243 MHz (Guard).

UHF RADIO MODES

OFF: The radio is powered off.

T/R: Transmits and receives on a frequency set by the Frequency Mode switch.

T/R+G: Also listens on 243 MHz AM (Guard).

ADF: Automatic Direction Finding - 1-3

Keep the canopy OPEN to talk with the ground crew, including refueling, rearming, or other procedures!

AN/ARN-25 Automatic Direction Finding (ADF) Equipment - 1-2

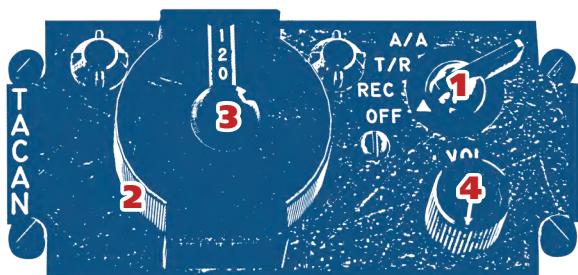
Switches UHF from the blade antenna to the ADF antenna, which rotates to the null point. Relative bearing is displayed on BDHI Needle 1.

1. UHF Radio Mode ADF - 6-4, 5.
2. BDHI Needle 1 CHECK - 6-2, 2.

ADF mode garbles UHF transmission and reception.

AN/ARN-52 TACAN

With a line of sight to a source, TACAN provides continuous directional information on BDHI Needle 2, and distance information (to 300 miles) in the range window of the BDHI instrument.



1. Mode REC - 6-4, 7.
2. Channel Selector Switch 10s
3. Channel Selector Switch 1s
4. Volume AS REQ'D - for Morse audio ident
5. BDHI Switch. TACAN - 6-2, 29.
6. BDHI Needle 2. CHECK - 6-2, 2.

- Set the mode to A/A to receive TACAN from airborne signals like tankers.
- X-band signals have priority over Y-band signals with the same number.

AN/ARA-63 MCL (ICLS) - 6-4, 11.

1. MCL Power Switch BIT - Hold for system test
2. MCL Power Switch ON
3. MCL Channel Selector Knob . . AS REQ'D
4. Vert./Horiz. Guides check ADI - 6-2, 8.

Match the indicated glide slope and heading.

Airfield Channels & Frequencies

CHN	CODE	NAME	FREQ	BRG
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

If the ground crew performs a rearm, the information on this page is updated.

- Night Vision Goggles (NVG) equipment can be added in the Mission Editor.

Fuel Stores

INT: _____ LBS.



EXT: _____ LBS.

5. 4. 3. 2. 1.

Station Loadouts

QTY.

1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

AN/ALE-29A Programmer - Countermeasures, 3-6

You can set these options in the Mission Editor, or while the engine is OFF, you can use the noted bindings to request the ground crew configure CBU and countermeasures programming.

CBU CONFIGURATION

CBU 1/A	2	Tubes Per Pulse	
CBU 2/A	_____	Tubes Per Pulse	- "RSHIFT+RALT+2"
CBU 2B/A	_____	Tubes Per Pulse	- "RSHIFT+RALT+3"

COUNTERMEASURES

BURST	_____	Bursts	- "RSHIFT+RALT+4"
BURST INTVL	_____	Seconds	- "RSHIFT+RALT+5"
SALVOS	_____	Tubes Per Pulse	- "RSHIFT+RALT+6"
SALVOS INTVL	_____	Seconds	- "RSHIFT+RALT+7"

Stations & Quantities**----- STATIONS -----**

1 & 5 2 & 4

3

A/A	AIM-9	B, J, P, P3, P5	1	1	
A/G	AGM-45	A, B	1	1	
ROCKETS	LAU-3	19 x FFAR, HYDRA	1	1 2	1 2 3
	LAU-10	4 x ZUNI	1	1 2	1 2 3
	LAU-68	7 x FFAR, HYDRA	1	1 2	1 2 3
BOMBS	AN	M30A1	1	1	1
		M57	1	1	1 3 6
		M64	1	1	1
		M65		1	1
		M66A2			1
		M81	1	1 5	1 6
	BDU	M88	1	1 5	1 6
		33	1	5	6
		M117		1	1
	MK	20	1	1 2	1 2 3
		77 MOD0		1	1
		77 MOD1	1	1	1 2
		81	1	1 5	1 6
		81SE	1	1 5	1 6
		82	1	1 2	1 3 4 6
		82SE	1	1 2	1 3 4 6
		83	1	1	1 2 3
		84		1	1
		SUU	25 (LUU-2)	1	1
PODS	CBU	1/A		1 2	
		2/A		1 2	
		2B/A		1 2	
	HIPEG	MK4	1	1	1
	ACMI	AN/ASQ-T50 TCTS	1	1	
	SMOKEWINDER		1	1	1
FUEL TANKS		150 GAL		1	1
		300 GAL		1	1
		400 GAL			1

- Master Arm, Jettison, AWRS, 3-1
- Rockets, 3-3
- Shrike, Sidewinder, 3-5
- Fuel Tanks, 4-4

- Bombs, Bombing Computer, 3-2
- Guns, Gunpods, 3-4
- Countermeasures, RHWS, 3-5
- Structural Limits, Weight Limits, 4-5

AN/APN-141 Radar Altimeter

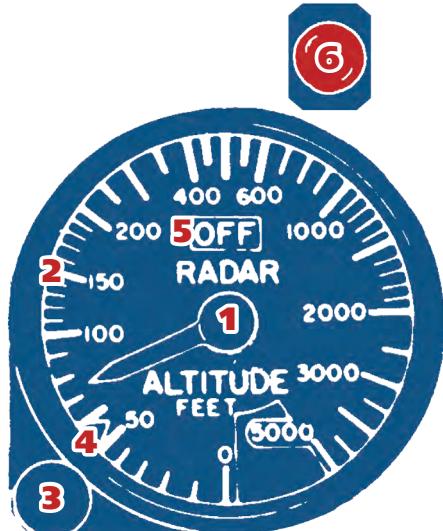
This pulse radar provides instantaneous altitude information to the pilot from 0 to 5000' terrain clearance above ground level (AGL), which is displayed on the indicator (1). - 5-2, 26.

The indicator scale (2) displays 10' increments from 0' to 200', 50' increments from 200' to 600', 100' increments from 600' to 2000', and 500' increments from 2000' to 5000'.

A control knob (3) on the indicator controls power to the system. Turning the knob adjusts the altitude setting of the low-limit indexer (4).

The radar altimeter operates in up to 50° of climb or dive, and up to 30° angles of bank, right or left.

The OFF flag (5) on the indicator appears when signal strength becomes inadequate, when power is lost, or when the system is turned off.



Low Altitude Warning System (LAWS)

The warning system warns the pilot of impending danger due to low altitude, and consists of two warning lights: the radar low limit warning light (6), and the LAWS light on the Dashboard Indicator Warning Lights. - 6-2, 16.

If the indicator (1) drops below the low-limit indexer (4), both warning lights come on, and an aural warning tone is activated for 2 seconds, alternating 700- to 1700-CPS tones with a repetition rate of 2 CPS. - Cycles Per Second (CPS = Hz)

AN/APG-53A Radar

The radar provides modes for SEARCH and mapping, two modes for TERRAIN CLEARANCE and obstacle avoidance (PLAN and PROFILE), and an AIR-TO-GROUND slant range mode for weapons delivery.

Warm up the AN/APG-53A equipment at start-up.

The AN/APG-53A Control Panel houses the Radar Mode Switch, AoA Compensation Switch, the Antenna Tilt Switch and a control knob for the Obstacle Tone Volume. - 6-3, 10.

The Miscellaneous Switches Panel houses the Radar Terrain Clearance Switch and Radar Range Switch. - 6-2, 29.

Additonal controls are located on the Radar Indicator. - 6-2, 20.

Radar Indicator

A set of range-elevation-azimuth reference lines (1) are printed on the scope. The scale and use of these lines varies in accordance with the radar mode in use.

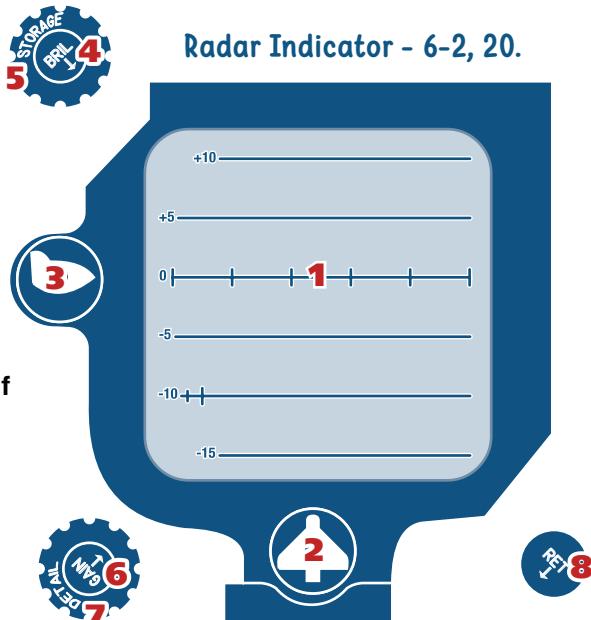
Two flag indicators enable when the mode orients the display to a plan-view aircraft (2), or a profile-view aircraft (3).

The Brilliance Knob (4) determines the brightness of the display, while the Storage Knob (5) determines how long the picture lasts.

The Gain Knob (6) varies the amplitude of the signals (sensitivity). This knob is usually three-quarters of its clockwise travel.

The Detail Knob (7) adjusts the vertical beam width in the Terrain Clearance Plan mode.

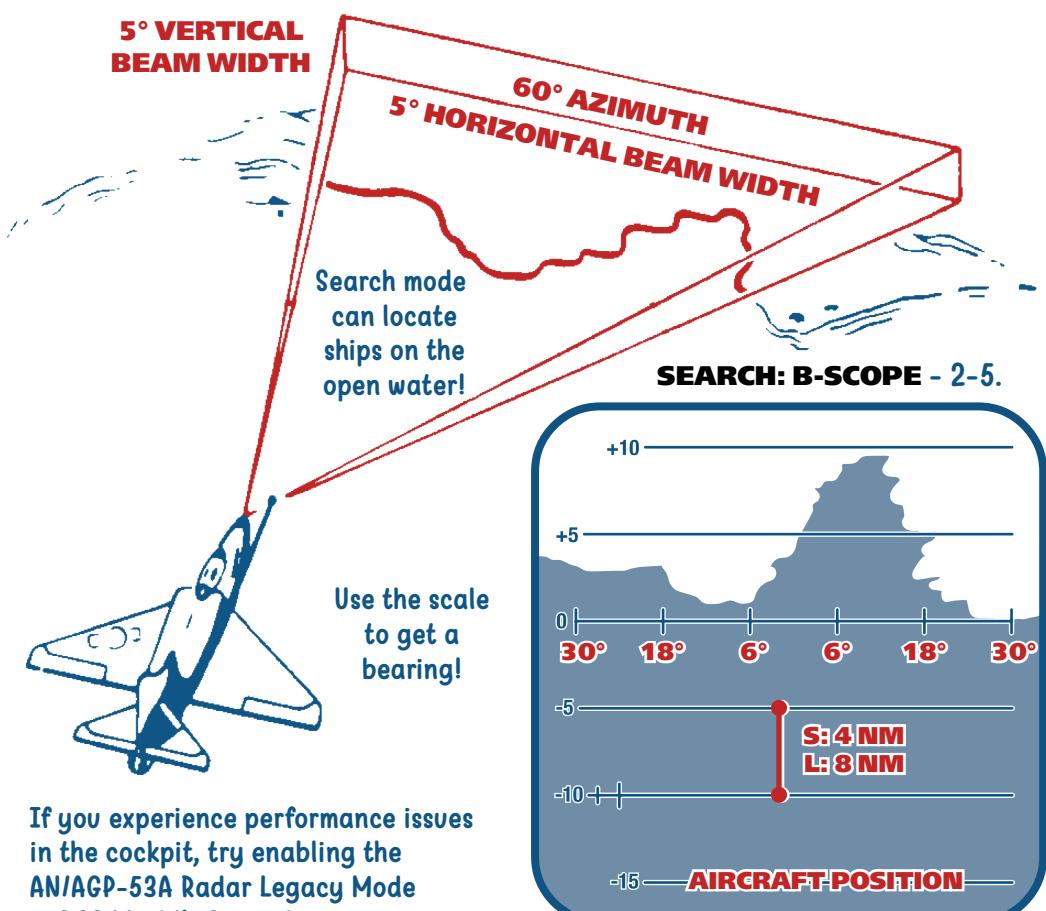
For night flying, the Reticle Knob (8) controls illumination of the range-elevation-azimuth reference lines. Seting the red Radar Indicator Filter Plate in the down position, changes the green display to red, with a brightness consistent with cockpit illumination.



Search Mode

1. Radar AoA Compensation Switch ON - 6-3, 10.
2. AN/APG-53A Radar Mode Selector SRCH
3. Radar Antenna Tilt AS REQ'D
4. Radar Range Switch SHORT/LONG - 6-2, 29.
5. Radar Indicator Knobs AS REQ'D - 6-2, 20.

To acquire a SEARCH picture, “snow” the scope by turning the Radar Indicator Gain knob to maximum, then reduce it slowly, until only a trace of snow remains. Adjust the Radar Antenna Tilt to select which terrain to scan.



If you experience performance issues in the cockpit, try enabling the AN/APG-53A Radar Legacy Mode in DCS World's Special options menu for the A-4E-C. In Legacy Mode, the radar generates a significantly less detailed picture.

RANGE
S: 20 MILES
L: 40 MILES



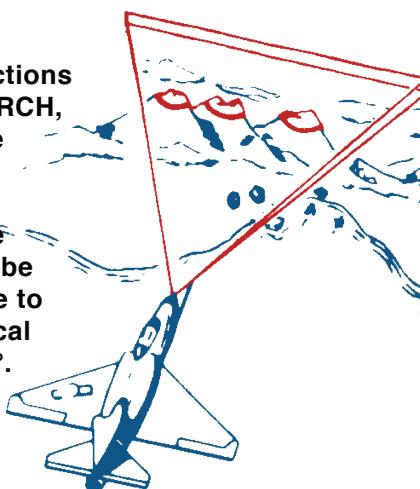
Terrain Clearance Mode

1. Radar AoA Compensation Switch ON - 6-3, 10.
2. AN/APG-53A Radar Mode Selector TC
3. Radar Antenna Tilt AS REQ'D
4. Radar Terrain Clearance Switch .. PLAN/PROFILE - 6-2, 29.
5. Radar Range Switch SHORT/LONG
6. Radar Indicator Knobs AS REQ'D - 6-2, 20.
7. OBST Dashboard Warning Indicator CHECK - 6-2, 16.
8. Radar Obstacle Tone Volume AS REQ'D - 6-3, 10.

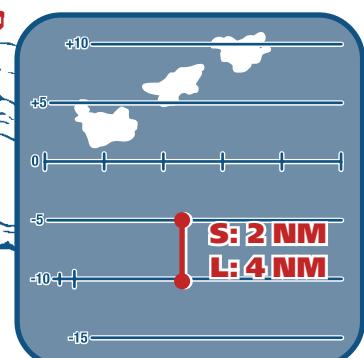
Plan

PLAN mode functions identical to SEARCH, except the range is halved.

In this mode, the Detail Knob can be turned clockwise to narrow the vertical beam width to 1°.



PLAN: B-SCOPE - 2-5.

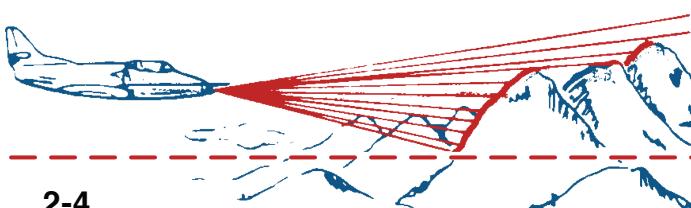


RANGE
S: 10 NM
L: 20 NM

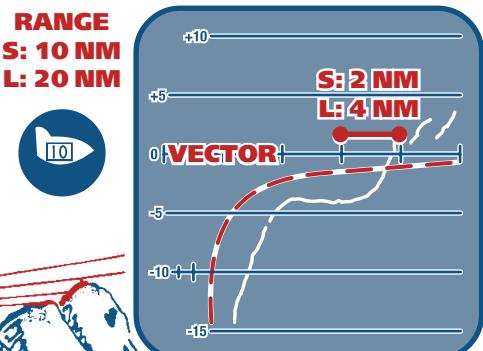
Profile

In PROFILE mode, obstacles are scribed on the indicator in relation to your vector. An imaginary reference line 1000 feet below the aircraft is also drawn, accounting for scope distortion.

A warning tone is played when obstacles are within 1000 feet of the flight path.

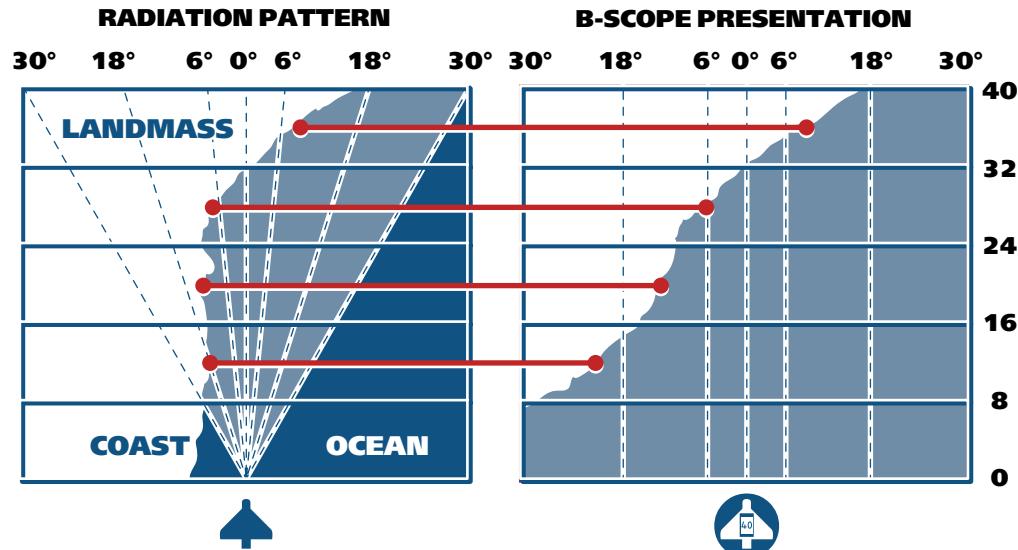


PROFILE: E-SCOPE - 2-5.

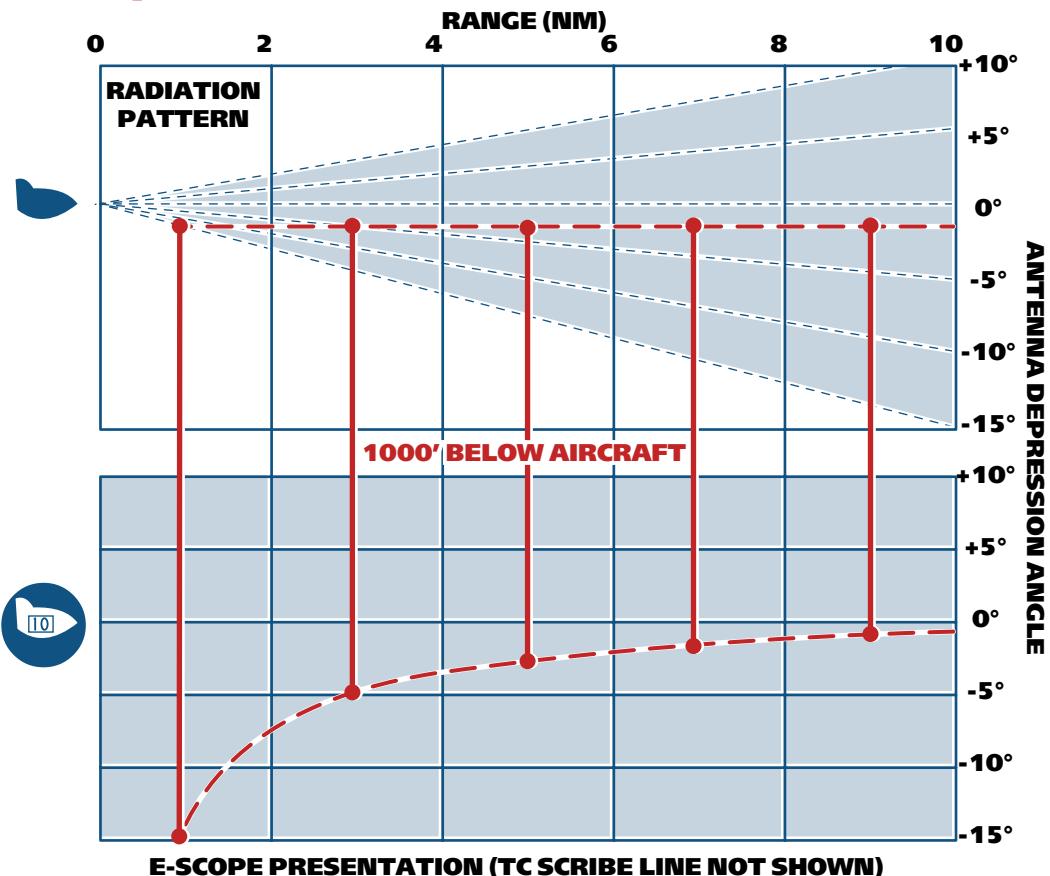


**1000' BELOW AIRCRAFT
(DISPLAYED ON SCOPE)**

B-Scope Distortion (Search & Plan)



E-Scope Distortion (Profile)



Air-to-Ground Mode

1. AN/APG-53A Radar Mode Selector A/G - 6-3, 10.
2. Radar Indicator Knobs AS REQ'D - 6-2, 20.
3. Gunsight Elevation 0 MILS - 6-2, 14.
4. Initiate Dive 10° OR MORE

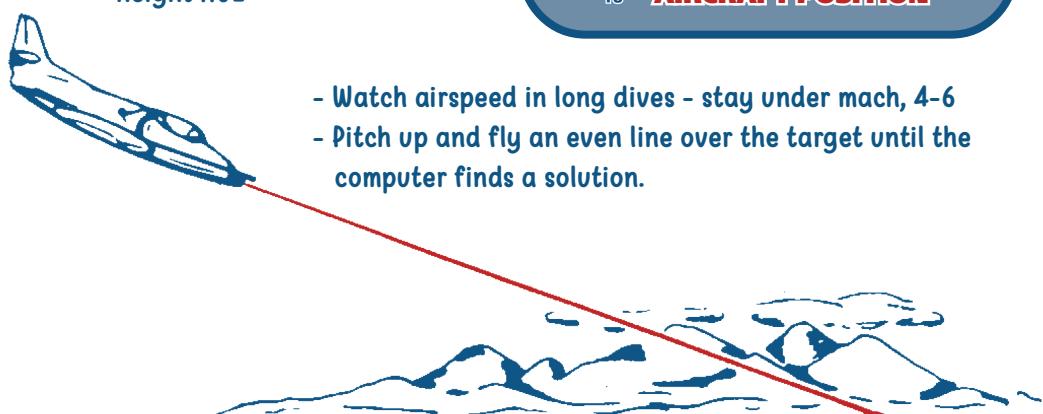
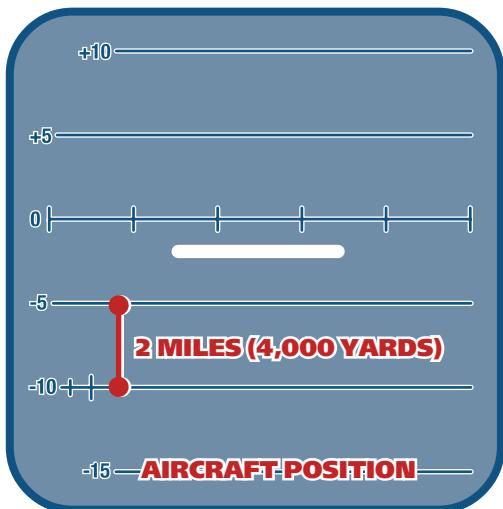
In a A/G mode, while in a dive of 10° or more, and with the optical sight intercepting the ground, the horizontal bar on the indicator shows the slant range between the nose and the ground, to a maximum of 7.5 nautical miles (15,000 yards).

The antenna is fixed at 0°, and it sweeps vertically until it makes contact with the ground, at which time the indicator bar shows the distance to the ground.

This mode is also used to inform the CP-741/A - 3-2 Bombing Computer for automatic weapons release.

COMPUTER RELEASE TIPS

- Ensure the aircraft is properly trimmed out, 6-1
- Roll in toward target and keep dive 30° or more at sufficient height AGL



Master Arm Procedure

ARMAMENT PANEL

- 1. Master Armament Switch ON - "0"
- 2. Station Selector Switches ... READY AS REQ'D - "1, 2, 3, 4, 5"
- 3. Bomb Arm Switch NOSE & TAIL - "6"
- 4. Weapon Function Selector Switch ... AS REQ'D - "7, 8"
- 5. Guns Charging Switch AS REQ'D - "9"

The MASTER ARMAMENT SWITCH must be in the ON position to fire guns or release weapons. Weapon firing systems require generator power, and are disabled by deploying landing gear.

Jettison

Set the Emergency Release Selector Switch (6) to the desired station. The WNG position selects stations 1, 2, 4 and 5. The AL position selects all stations. To jettison selected stations, pull the Emergency Stores Release Handle. - "LCTRL+J", 6-2, 31.



AWE-1 Aircraft Weapons Release

AIRCRAFT WEAPONS RELEASE SYSTEM PANEL

- 6-2, 35.

- 1. Quantity Selector AS REQ'D
- 2. Drop Interval AS REQ'D - under 80ms unsafe!
- 3. AWRS Mode AS REQ'D - Mult. Sw. = 10x interval

Configure the armament panel as required. - 3-1, 3-4

Use SALVO mode for simultaneous release of all munitions across all armed stations.



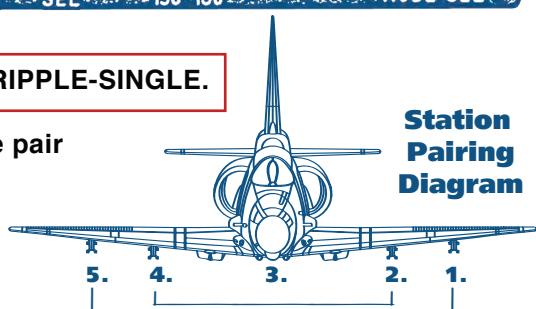
For single-munition releases, set RIPPLE-SINGLE.

In PAIR modes, both stations in the pair must be set to READY.

Stations 1 and 5 are paired.

Stations 2 and 4 are paired.

Station 3 is not paired.



Low-Drag (Slick) Bombs

WEAPON	DIVE ANGLE	REL HGT AGL	SPEED KIAS	RETICLE
LO-DRAG	30°	1000'	300	100
LO-DRAG	20°	2000'	450	50
LO-DRAG	30°	3000'	450	40
LO-DRAG	45° L 6-2, 8.	4000' L 6-2, 26.	400 L 6-2, 9.	40 L 6-2, 14.

CP-741/A Computer Release (CCRP)

The computer calculates the release point for low-drag bombs, releasing weapons in accordance with AWE-1 settings. In a dive, sight the target and ensure a lock on the AN/APG-53A Radar Indicator. Press and hold the Bomb Release Button over the target. The LABS Dashboard Warning Indicator Light turns on, and the weapon release tone is heard. In STEP mode, the tone and light clear when the Bomb Release Button is released. In RIPPLE, the tone and light clear once the release sequence completes. - [Computer Release Tips, 2-6](#)

1. AN/APN-141 Radar Altimeter ON - 2-1
2. AN/APG-53A Radar Mode A/G - 2-2, 2-6.
3. Gunsight Elevation 0 MILS - 6-2, 14.
4. Weapon Function Selector CMPTR - 3-1, 5.
5. Master Armament Switch ON - 3-1, 1.
6. Station Selector Switches AS REQ'D - 3-1, 3.
7. Bomb Release Button .. DEPRESS/COMMENCE - 6-1, 9.

The computer does not account for wind or yaw.

MK-82 Snakeyes

BASELINE

1. Gunsight Elevation 160 MILS - 6-2, 14.
2. Speed 400 KIAS - 6-2, 9.
3. Release Height AGL 400' AGL - 6-2, 26.

ADJUSTMENT

4. Speed -100 KIAS = +50 MILS
5. Release Height AGL +100' AGL = +50 MILS

Rocket Fire Modes

WEAPON FUNCTION SELECTOR KNOB

- 3-1, 5.

1. ROCKETS

A. Gun-Rocket Trigger . . . Fire GUNS & ROCKETS - 6-1, 8.

2. GM UNARM

A. Gun-Rocket Trigger Fire GUNS - 6-1, 8.

B. Bomb Release Button Fire ROCKETS - 6-1, 9.

LAU-3 / LAU-68 FFAR, HYDRA

WEAPON	DIVE ANGLE	HGT AGL	SPEED KIAS	RETICLE
FFAR MK 1	20°	5000'	375	40
FFAR MK 1	20°	4000'	400	30
FFAR MK 1	20°	3000'	400	20
FFAR MK 1	20°	2500'	400	10
FFAR MK 1	20°	2000'	400	0
FFAR MK 1	30°	2500'	400	0
FFAR MK 1	45°	3500'	400	0

L 6-2, 8.

L 6-2, 26.

L 6-2, 9.

L 6-2, 14.

LAU-10 / ZUNI

WEAPON	DIVE ANGLE	HGT AGL	SPEED KIAS	RETICLE
ZUNI	20°	5500'	350	10
ZUNI	20°	4500'	375	5
ZUNI	20°	3500'	380	0
ZUNI	30°	5000'	380	0
ZUNI	45°	7000'	380	0

L 6-2, 8.

L 6-2, 26.

L 6-2, 9.

L 6-2, 14.

MK 12 Cannons - 2 * 100 rounds, 1000 rpm.

ARMAMENT PANEL

- 5-2, 34.

1. Guns Charging Switch READY - "9"

When the GUNS CHARGING SWITCH is set to the ON position, an amount of nitrogen charge is expended. Once expended entirely, the ground crew must rearm the aircraft to maintain the guns.

SAFE ALL GUNS BEFORE LANDING.

Charging and clearing is audible - if you don't hear it, you're out of nitrogen! The MASTER ARMAMENT SWITCH must be in the ON position to fire guns, see 3-1

MK 4 HIPEG Gunpod - 750 rounds, 1000 rpm.

GUNPOD PANEL

- 6-3, 2.

1. LH/CTR/RH Gunpod Switch . . READY AS REQ'D
2. Gunpod Switch CHARGE

When the GUNPOD SWITCH is set to the CHARGE position, gunpods with stations in the READY position gunpods are immediately charged. Keep the switch in the CHARGE position to fire gunpods.

When the GUNPOD SWITCH is set to the CLEAR position, all gun pods on the aircraft will be cleared, rendering them inoperable until the ground crew rearms the aircraft and maintains the gunpods.

CLEAR ALL GUNPODS BEFORE LANDING.

LH = Station 2

CTR = Station 3

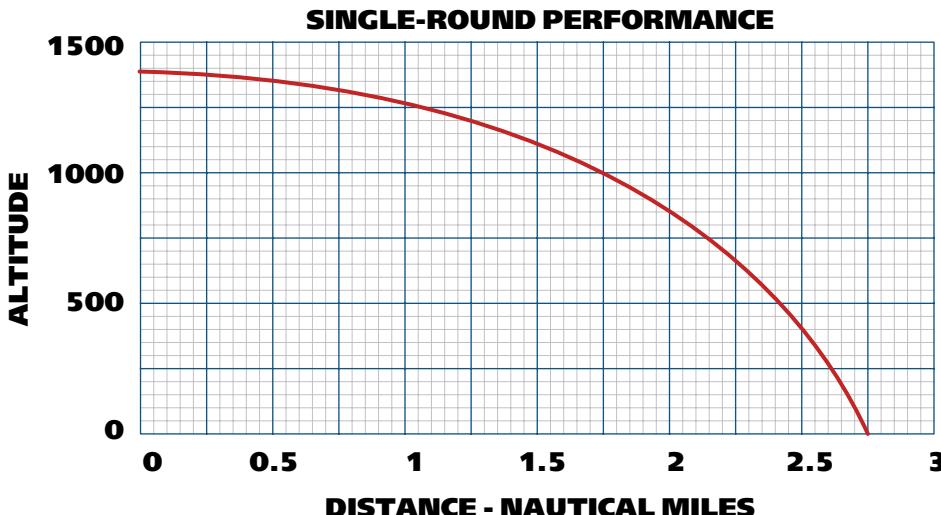
RH = Station 4

Ready gunpods on the GUNPOD PANEL, not the ARMAMENT PANEL!

Gun Strafing Sight Angles

WEAPON	REL ANGLE	HGT AGL	SPEED KIAS	RETICLE
MK12/MK4	-10°	1000'	400	0
MK12/MK4	-10°	2000'	300	27
MK12/MK4	-10°	2000'	450	17
MK12/MK4	-15°	2000'	450	15
MK12/MK4	-20°	1500'	450	0

Gun Performance



AGM-45 (Shrike) & AIM-9 (Sidewinder)

ARMAMENT PANEL

- 1. Weapon Function Selector .. BOMBS & GM ARM - 3-1, 5.
- 2. Station Selector Switches ... READY AS REQ'D - 3-1, 3.

MISCELLANEOUS SWITCHES PANEL

- 3. Shrike/Sidewinder Volume Knob AS REQ'D - 6-2, 29.

DELIVERY

AGM-45A BOMB RELEASE BUTTON - 6-1

AIM-9 GUN-ROCKET-TRIGGER

L rear-aspect only or BOMB RELEASE BUTTON

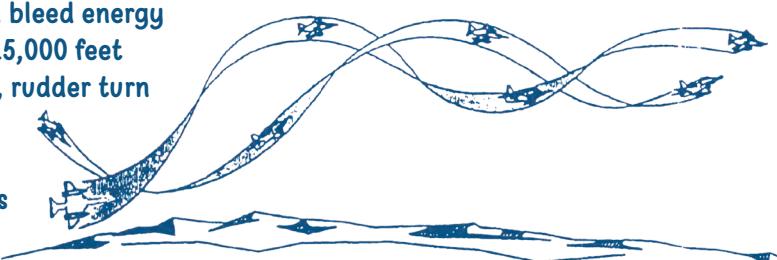
An armed AGM-45 produces a lock tone within a 3° maximum deviation of enemy SAM units.

AGM-45A - < 10 nm, 12,000 feet AGL, Gently loft for longer distance

AGM-45B - improved motor, identical targeting capability

DOGFIGHTING - LOSE SIGHT, LOSE THE FIGHT

- Slow enemy down, bleed energy
- Don't climb past 15,000 feet
- 90% RPM, nose up, rudder turn
- 150-170 KIAS
- Outmaneuver in a horizontal scissors



AN/ALE-29A Chaff Dispensing System

CHAFF PANEL

- 6-2, 11.

1. Chaff Power Switch PWR - "LCTRL+Q"
2. Dispenser Select AS REQ'D
3. Supply program AS REQ'D
 - A. JATO Firing Button BURST - "Q", 6-3, 4.
 - B. Chaff AUTO
- Pushbutton SALVO - "LALT+Q"



With the engine OFF, the ground crew can set BURST and SALVO programs. - 1-4
Abort program early by setting the Chaff Power Switch to the OFF position.

AN/APR-25 Radar Homing and Warning System (RHWS) (RWR)

ECM PANEL

- 6-2, 10.

1. APR-25 Switch ON
2. Audio ALQ Switch APR-25
3. Function Selector REC
4. APR-27 Switch ON
5. APR-27 Test PRESS - Bit Test.
6. PRF Volume AS REQ'D
7. Missile Alert Volume .. AS REQ'D



With the APR-25 Switch (1) in the ON position, and the Function Selector (3) in the REC position, operation hum and signals from E-, G-, and I-band radars are audible at PRF Volume (6). With the APR-27 Switch (4) in the ON position, the SAM light indicates an SA-2 launch, and an oscillating alert is audible at Missile Alert Volume (7). With the Function Selector in RPT, electronic countermeasures will attempt to jam incoming radar locks.

DETECTED RADARS:

- AAA (SON-9 Fire Can)
- EWRS (ship, aircraft, ground)
- SAMs (SA-2, SA-3, SA-5, SA-6)
- SPAAS (Gepard, Vulcan, Shilka)
- Aircraft S/T radars
- RPT mode's ECMs can give you away to other radars!

Automatic Flight Control System

AUTOPILOT CONTROL PANEL (AFCS)

- 6-3, 12.

1. STANDBY

A. AFCS Standby Switch . . . 90 SEC. WARM-UP - "LALT+A"

2. ENGAGE & ATTITUDE HOLD

A. Bank Angle 5 - 70° - 6-2, 8.

B. Pitch Angle under 60°

C. AFCS Engage Switch ENGAGE - "A"

Lat./Long. attitude maintained at engage and disengage.

Control Stick Steering (CSS) at 3 lbs. stick pressure.

3. STABILITY AUGMENTATION (Yaw Damper) - 5-3, 8.

A. Stability Augmentation Switch . . . STAB AUG - "LSHIFT+S"

Additional modes require AFCS switch is engaged:

4. ALTITUDE HOLD - Careful, this switch can stick in engaged position!

A. Climb 3500 - 4500' per MIN. - 6-2, 3.

B. Altitude Switch ALT - "LSHIFT+A"

5. HEADING SELECT

A. Bank Angle under 5° - 6-2, 8.

B. Pitch Angle under 60°

C. Heading Select Switch HDG SEL - "LCTRL+LSHIFT+A"

In Heading Select, the AFCS maintains a bank angle from 22° to 32°. When disengaged, the AFCS rolls to level.

6. HEADING SELECT PULL-TO-SET KNOB

7. HEADING SELECT DISPLAY

Disengage all modes and return the AFCS to standby by pressing Autopilot Override (AFCS Emergency Disconnect) on the Control Stick.

- "LCTRL+A", 6-1, 6.



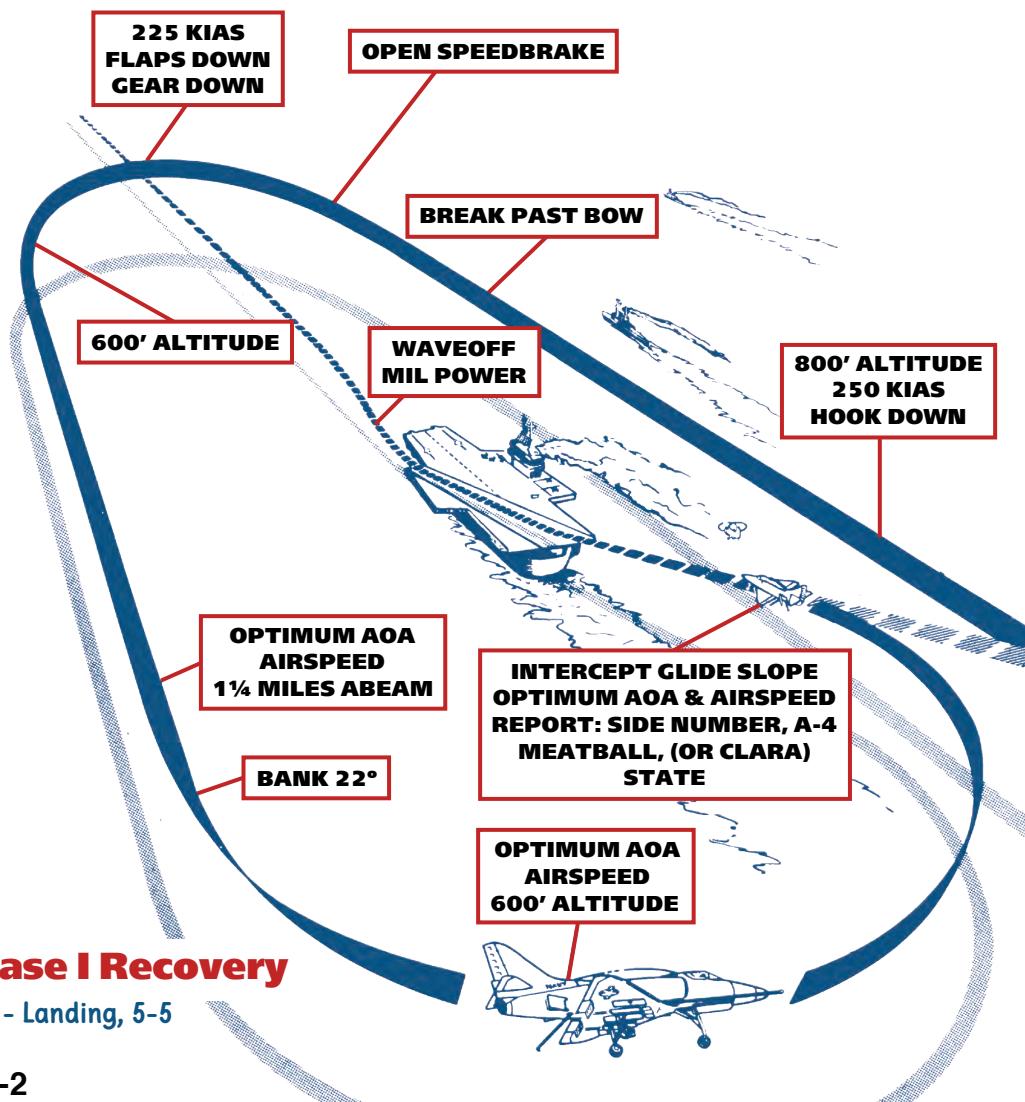
Approach Power Compensator (APC)

The APC controls throttle from 70% to MIL, and is designed to maintain the optimum AoA of 17.5 units, resulting in an optimum approach speed on the glide slope, and during normal maneuvers in the landing pattern at any landing gross weight.

APC CONTROL PANEL

- 6-3, 3.

1. APC Power Switch .. STBY (15 SEC. WARM-UP)
2. APC Power Switch ENGAGE
3. Throttle Position 25 - 70% - 6-2, 15.
4. Allow system to take control of throttle - Hands OFF 15 sec.
5. Control Stick OPTIMUM AoA - 6-2, 15.



Case I Recovery

- Landing, 5-5

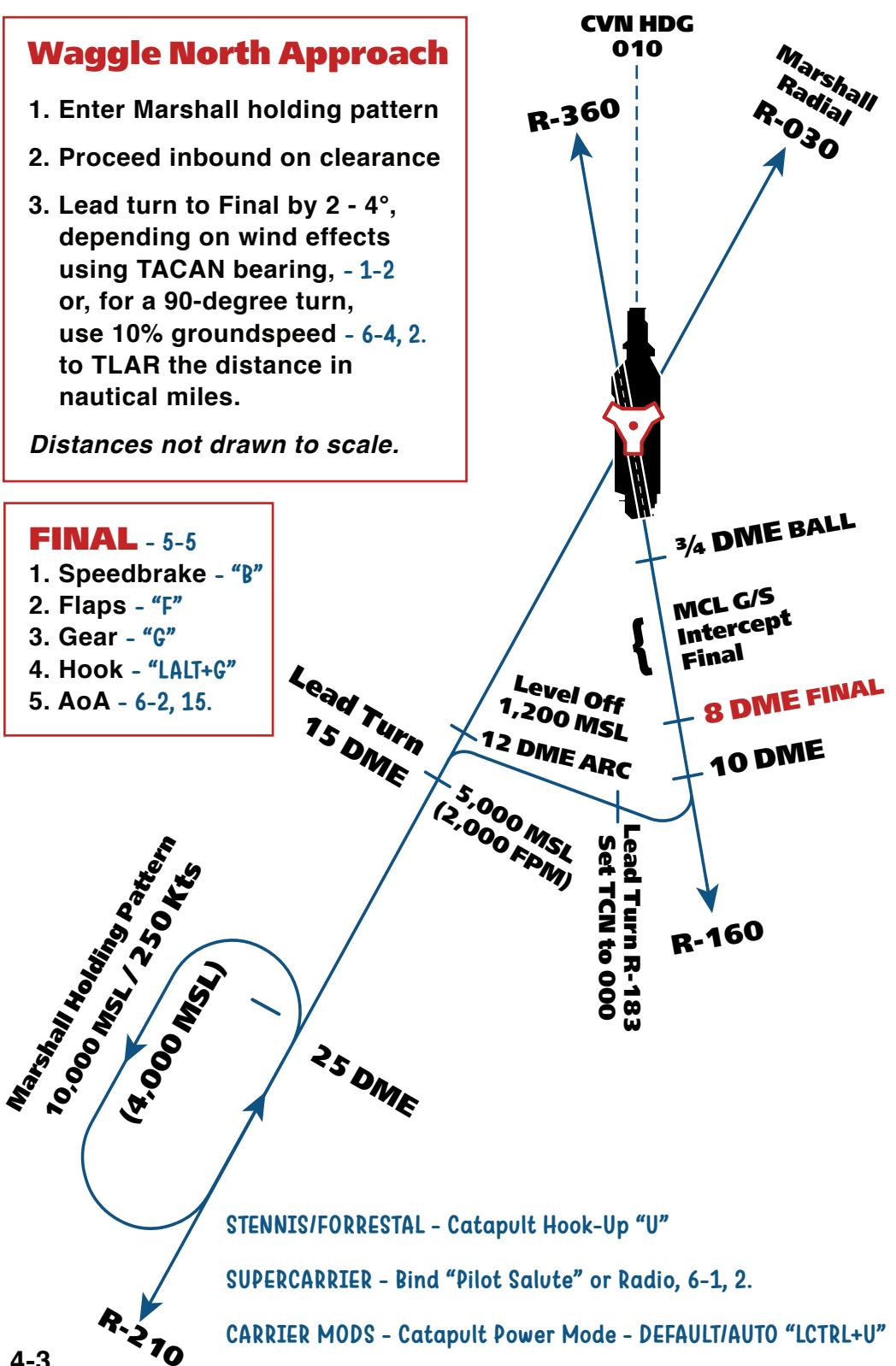
Waggle North Approach

1. Enter Marshall holding pattern
2. Proceed inbound on clearance
3. Lead turn to Final by 2 - 4°, depending on wind effects using TACAN bearing, - 1-2 or, for a 90-degree turn, use 10% groundspeed - 6-4, 2. to TLAR the distance in nautical miles.

Distances not drawn to scale.

FINAL - 5-5

1. Speedbrake - "B"
2. Flaps - "F"
3. Gear - "G"
4. Hook - "LALT+G"
5. AoA - 6-2, 15.



Fuel Quantity

INTERNAL FUEL

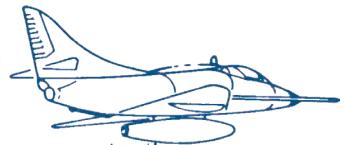
1. Fuselage Tank Capacity 1612 LBS.
2. Wing Tank Capacity 3830 LBS.
3. Fuel Quantity Indicator CHECK - 6-2, 24.

EXTERNAL FUEL STORES

4. Internal-External Fuel Switch ... PRESS - 6-2, 29.
5. Fuel Quantity Indicator CHECK - 6-2, 24.

Fuel Dumping

- ENGINE CONTROL PANEL** - 6-3, 8.
1. Fuel Dump Switch DUMP - "LSHIFT+D"
 2. Fuel Dump Rate 680 LBS. PER MIN.



Air Refueling

NAVIGATE TO TANKER POSITION

1. TACAN Mode Switch A/A - 6-3, 7.
2. TACAN Channel AS REQ'D
3. BHDI Switch TACAN - 6-2, 29.

TANKER CONTACT

4. Radio tanker PRE-CONTACT - 1-2
5. Match tanker altitude AS DIRECTED - 6-2, 7.
6. Match tanker airspeed ... AS DIRECTED - 6-2, 9.
7. Contact TAKING FUEL

REFUEL EXTERNAL STORES

8. Drop Tank Pressurization
Switch FLIGHT REFUEL - "LCTRL+D" - 6-3, 8.

The Fuel Dump and Drop Tank Pressurization Switches are 3-position switches.
The listed keyboard shortcuts cycle between the three positions.



Maximum Gross Weight Limits

1. Field Takeoff 24,500 LBS.
2. Field Landing (min. rate of descent) . 16,000 LBS.
3. Catapult 24,500 LBS.
4. FCLP (or above min. rate of descent) . 14,500 LBS.

3° GLIDE SLOPE	
GND SPEED	RATE OF DESCENT
150	795
140	745
130	690
120	635
110	585

Structural Acceleration Limits

AVOID ROLLING PULLOUTS IN MODERATE TURBULENCE



Station Limits and Thrust

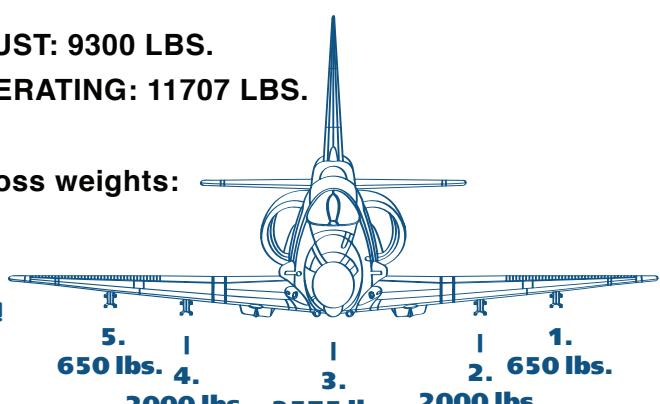
PW J52-P-8A MAX. THRUST: 9300 LBS.

EMPTY: 11587 LBS. OPERATING: 11707 LBS.

MAX: 24502 LBS.

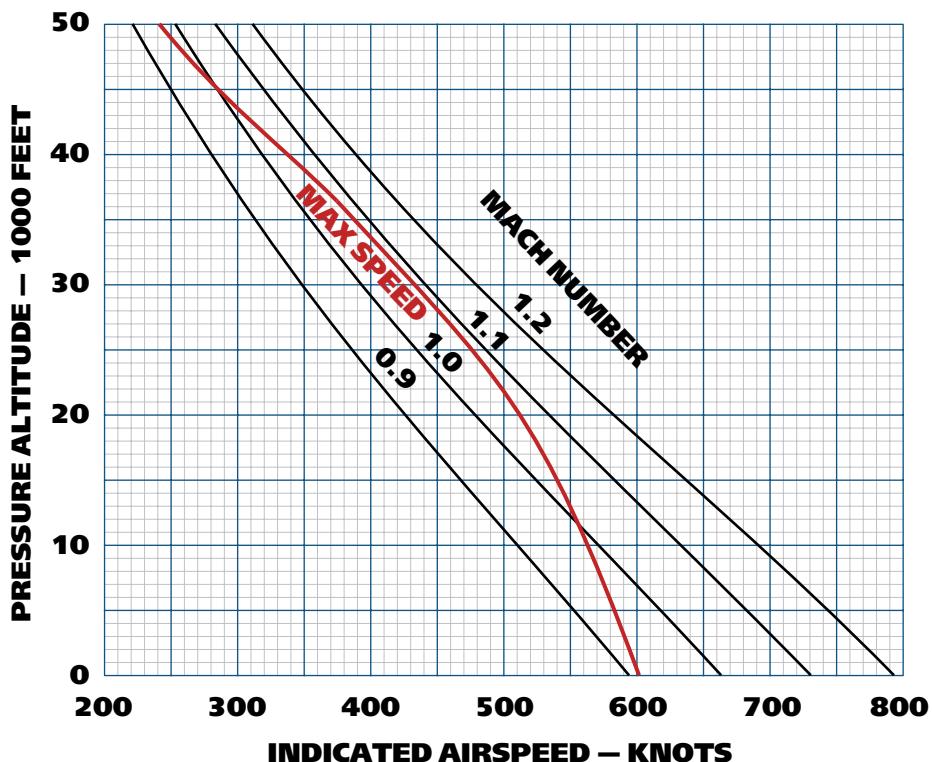
Weapon station max. gross weights:

Spool time can be quite long:
keep RPMs high and use flight
control surfaces for speed control!



Airspeed Limits

- With no external stores and with landing gear, flaps and arresting hook retracted:



- With 300-gallon drop tanks 575 KIAS - 5-2, 9.
or MACH 0.9 (whichever is lower)
- With landing gear and/or flaps extended:
 - Zero yaw 225 KIAS
 - Unrestricted yaw 170 KIAS

STRAFING SPEED: 350-450 KIAS - 3-3

LANDING GEAR OVERSPEED DAMAGE: 185 KIAS (locks gear)

INVERTED FLIGHT not to exceed 30 SECONDS

APPROVED MANEUVERS: aileron roll (under 360°), barrel roll, chandelle, Immelmann, loop, wingover

- Slats - LOCK/UNLOCK “LSHIFT+LALT+S” for formation flying
(ground crew must perform this)

Engine Start Checklist

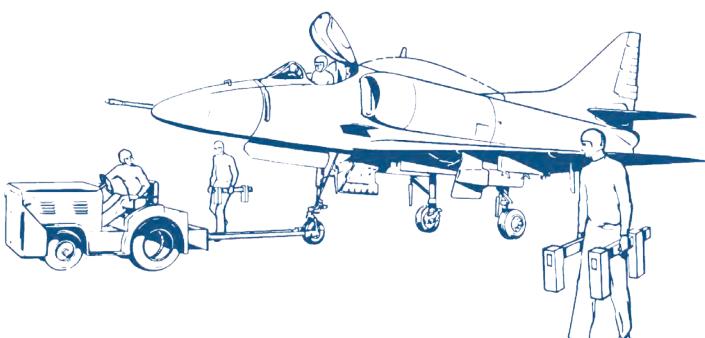
1. Canopy Lever OPEN - 6-3, 14
2. Ground Power ON
3. Engine Starter Switch DEPRESS - 6-3, 8.
4. Tachometer Check RPM - 6-2, 21.
 - A. 5% RPM THROTTLE STEP to IGN - 6-1, 4.
 - B. 15% RPM THROTTLE STEP to IDLE
 - C. 40% RPM Ground Power OFF
 - D. 55% RPM Check ENGINE STABLE
5. Caution Panel Check FUEL BOOST OFF - 6-2, 6.
6. Oil Pressure 35 - 50 PSI - 6-2, 18.
7. Exhaust Temperature Check 200 - 340° C - 6-2, 22.

Keep canopy OPEN until ground power is off, and all refueling and rearming procedures are complete.

Equipment Warm-Up Times

Systems and that require warm-up receive generator power once the engine is stable at 55% RPM.

- AN/APG-53A Radar 3 MIN. - 6-3, 10.
- AFCS 90 SEC. - 6-3, 12.
- AN/APN-153 Doppler Navigation Radar 5 MIN. - 6-4, 2.
- AN/ASN-41 Navigation Computer 2 MIN. - 6-4, 3.
- AN/ARC-51A UHF Radio 3 MIN. - 6-4, 5.
- AN/ARN-52 TACAN 3 MIN. - 6-4, 7.
- AN/ARA-63 MCL (ILCS) zero (solid state) - 6-4, 11.



Pre-Taxi Checklist

1. Ground Power OFF
2. Canopy Lever CLOSED - 6-3, 14
3. AN/ARC-51A UHF Radio Mode T/R+G - 6-4, 5.
4. AN/ARN-52 TACAN Mode REC - 6-4, 7.
5. AFCS Standby Switch STBY - 6-3, 12.
6. Altimeter Set PRESSURE - 6-2, 7.
7. Master Test Switch ON, - 6-2, 29. (Hold)
 - Check CAUTION PANEL & DASH WARNING - 6-2, 6. & 16.
 - A. Liquid Oxygen Indicator Check - 6-2, 28.
 - B. Fuel Quantity Indicator Check - 4-4
8. AN/APN-153 Doppler Nav Radar Mode TEST - 6-4, 2.
 - A. Check SPEED reading 121 ± 5 KIAS
 - B. Check ANGLE reading $121\ 0 \pm 2^\circ$
9. AN/ASN-41 Navigation Computer - 6-4, 3.
 - A. AN/ASN-41 Function Selector TEST
 - A1. BDHI switch NAV CMPTR - 6-2, 29.
 - A2. Check WIND SPEED 223 KIAS - 6-4, 3.
 - A3. Check HEADING 91° - 6-4, 2.
 - A4. Check BDHI POINTER 2 .. CURRENT LOC.
 - A5. Check BDHI POINTER 1 30° RIGHT
 - B. AN/ASN-41 Function Selector STBY - 6-4, 3.
 - B1. Input MAGVAR, WIND DIRECTION, WIND SPEED, and WAYPOINTS
10. Oxygen Switch ON - 6-3, 15.
11. AN/APG-53A Radar Mode STBY - 6-3, 10.
12. Wheels and Flaps Check WHEELS DOWN - 6-3, 1.
13. Master Exterior Lights Switch ON - 6-1, 1.
 - A. Day CVN EXTERIOR LIGHTS OFF - 6-3, 6.
 - B. Night CVN EXTERIOR LIGHTS ON
Excepting LANDING LIGHT
 - C. Day/Night AF EXTERIOR LIGHTS ON
14. Exhaust Temperature Indicator ... 200 - 340° C - 6-2, 22.

Pre-Takeoff Checklist

1. AN/APN-141 Radar Altimeter ON, - 6-2, 26.
Set LAWS INDEXER
2. Armament Panel - 6-2, 34.
 - A. Master Armament Switch OFF - 3-1, 1.
 - B. Gun Charging Switch SAFE - 3-1, 2.
 - C. Station Select Switches DOWN / OFF - 3-1, 3.
 - D. Bomb Arm Switch OFF - 3-1, 4.
 - E. Weapon Function Selector Switch OFF - 3-1, 5.
3. AN/APN-153 LAND/SEA AS REQ'D - 6-4, 2.
(Light Extg.)
4. AN/ASN-41 Set MODE to STBY, - 6-4, 3.
Check MAG VAR, WIND DIRECTION,
WIND SPEED, and WAYPOINTS
5. AN/ASN-41 Function Selector Switch D1
6. Oxygen Switch ON - 6-3, 15.
7. AFCS Panel - 6-3, 1.
 - A. AFCS Standby Switch STBY - 4-1, 1.
 - B. AFCS Stability Augmentation STAB AUG - 4-1, 3.
8. AN/APG-53A Radar Mode Switch STBY - 6-3, 10.
9. Spoiler Arm Switch OFF - 6-3, 5.
10. APC Power Switch OFF (Light Extg.) - 6-4, 4.
11. Chaff Power Switch ON - 6-2, 11.
12. MCL Power Switch ON - 6-4, 11.
13. MCL Power Switch Perform BIT TEST - 1-3
14. MCL Channel Selector Knob AS REQ'D
15. ECM Panel APR-25 Switch ON, - 6-2, 1.
Function Selector to STBY (Light Extg.), - 3-5
set PRF & MSL VOLUME
16. Trim Position Indicator Panel Nose: 8 UP - 6-4, 1.
Aileron: 0
17. Rudder Trim Switch 0 / Center - 6-3, 7.
18. Flaps ½ to FULL - 6-3, 1.

- Takeoff diagram, 5-4

Taxi

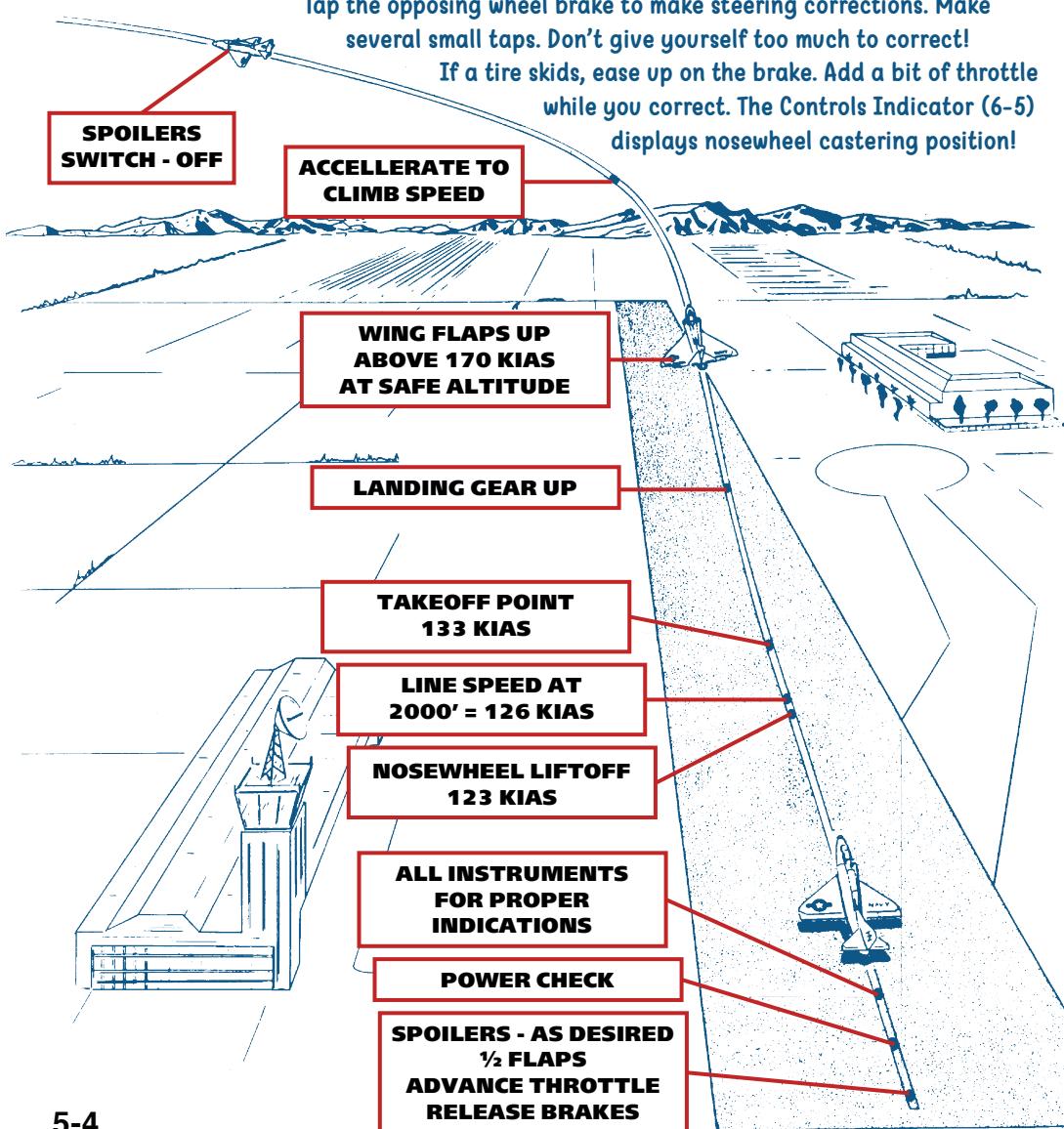
1. Extend flaps, open speedbrake & actuate spoilers - 6-1
2. Wheels roll at 75% RPM - 6-2, 21.
3. Reduce throttle to 65-70% RPM
4. Pump brake in direction of turn to caster nosewheel - Happy feet!
5. Thrust overcomes wheel brakes at 90% RPM - 4-5
6. Takeoff point speed increases with weight
(up to 160 KIAS at maximum load)

Takeoff

Apply wheelbrakes brake toward the turn. Keep a low speed, but don't stop.

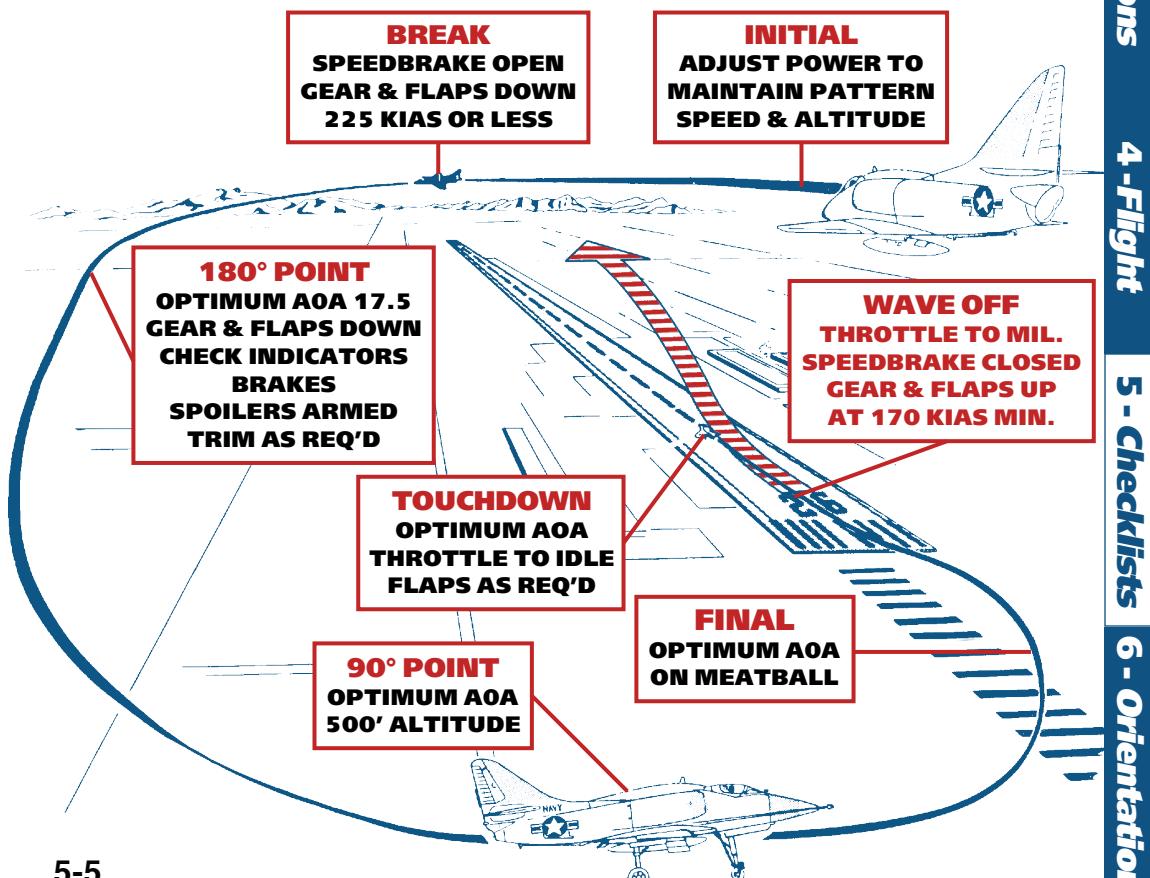
Tap the opposing wheel brake to make steering corrections. Make several small taps. Don't give yourself too much to correct!

If a tire skids, ease up on the brake. Add a bit of throttle while you correct. The Controls Indicator (6-5) displays nosewheel castering position!



Landing Checklist

1. Break Check AIRSPEED 225 KIAS - 6-2, 9.
2. Speedbrake Switch OPEN - 6-1, 3.
3. Flaps ½ to FULL - 6-3, 1.
4. Landing Gear Handle DOWN - 6-2, 5.
5. Spoiler Arm Switch (AF only) ON - 6-3, 5.
6. Arresting Hook Handle (CVN only) DOWN - 6-2, 23.
7. 90° Point Check AIRSPEED 170 KIAS, Check ALTITUDE 500' - 6-2, 9.
8. Touchdown Check AIRSPEED 125 KIAS - 6-2, 9.
9. Throttle Position 0 / IDLE - 6-1, 4.
10. Stick forward, deflect into wind, wings level
11. Rudder AS REQ'D
12. Depress wheelbrakes as rudder loses efficacy
 - Weight, glide slope maintenance and minimum rate of descent, 4-5
 - CVN landing procedures, 3-2 (Case I & APC), 4-3 (Case III)



Engine Flame Out Checklist

1. Throttle Position 0 / IDLE - 6-1, 4.
2. Throttle Step OFF
3. Emergency Generator Release Handle . . PULL - 6-2, 33.
4. Check for Fire
 - A. Fire EJECT
 - B. No Fire RESTART

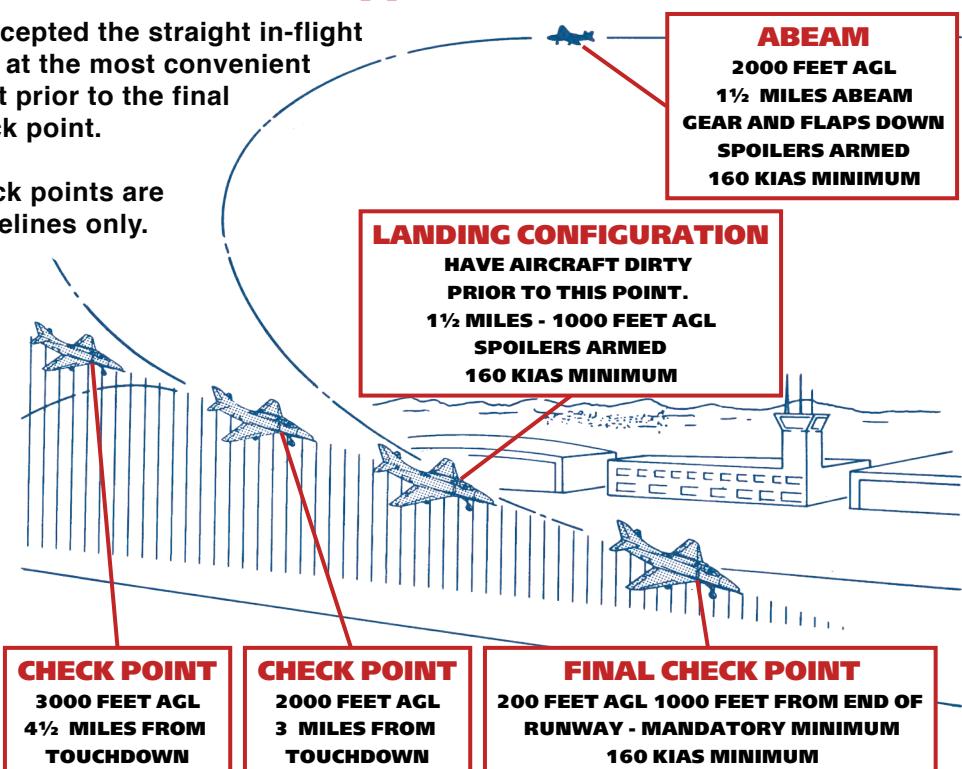
Air Start Checklist - If under 1500' AGL, eject! "LCTRL+E" (3 times)

1. Altitude Check above 5000' - 6-2, 7.
2. Throttle Step OFF - 6-1, 4.
3. Emergency Generator DEPLOYED - 6-2, 33.
4. Fuel Control Switch MANUAL - 6-3, 8.
5. Establish Glide 250 KIAS - 6-2, 9.
6. Throttle Position Lock Step IGN then IDLE - 6-1, 4.
7. Throttle Position AS REQ'D

Low Precautionary Approach

Intercepted the straight in-flight path at the most convenient point prior to the final check point.

Check points are guidelines only.



High Precautionary Flameout Approach

AIRSPEED & ALTITUDE	OPTIMUM	USABLE BAND
Approach speed	180 KIAS	170 to 200 KIAS
Initial point altitude	7000'	6000' (gear up)
180° point altitude	4500'	4000' to 5000' (Gear Down)
90° point altitude	3000'	2800' to 3200' (Gear Down)
Final approach altitude	1000'	500' minimum
Flare	200'	200' to 300'

OPTIMUM CONFIGURATION:

Gear down, flaps up.

Altitudes shown are terrain clearance.

DESCENT ENTRY

CLEAN GLIDE, USE S-TURNS AND/OR GEAR EXTENTION TO ARRIVE OVER INITIAL POINT AT 7000 FEET AGL

INITIAL TURN

MAINTAIN 20° TO 30° BANK TURN
AT 180 KIAS, DELAY INITIAL TURN
VARY BANK ANGLE OR LEAVE
GEAR UP, IF NECESSARY, TO
ARRIVE AT 180° POINT AT
OPTIMUM ALTITUDE

INITIAL POINT

7000 FEET AGL, OVER TOUCHDOWN POINT,
90° RELATIVE TO RUNWAY HEADING
180 KIAS, GEAR DOWN, FLAPS UP
START 20° TO 30° GLIDING TURN
RATE OF DESCENT AT 4000 FPM

For precautionary and practice approaches, simulate flameout conditions by setting 75% power, with speedbrakes extended.

This pattern assumes aircraft gross weight is 14,000 lbs. (empty external tanks, no stores). If fuel is exhausted, speed and altitude may be slightly lower. Add 5 KIAS for every 1000 lbs. above 14,000 lbs. gross weight.

180° POINT

4500 FEET AGL, 1½ MILES ABEAM
LANDING POINT. GEAR DOWN,
FLAPS UP, 180 KIAS, SPOILERS ARMED

90° POINT

3000 FEET AGL,
5000 FEET DOWNWIND
FROM TOUCHDOWN POINT.
GEAR DOWN, FLAPS UP,
180 KIAS

TOUCHDOWN

140 TO 150 KIAS

FLARE

200 FEET AGL
180 KIAS

FINAL

1000 FEET AGL
180 TO 200 KIAS

Throttle Panel - 6-3, 7.

1. Master Exterior Lights Switch - "L"

- Switch located on outside of throttle grip
- Exterior Lights Control Panel, 6-4, 6.

2. Radio Microphone Push to Talk (PTT) - "RALT+I"

- AN/ARC-51A UHF Radio, 1-2

3. Speedbrake Switch - "B"

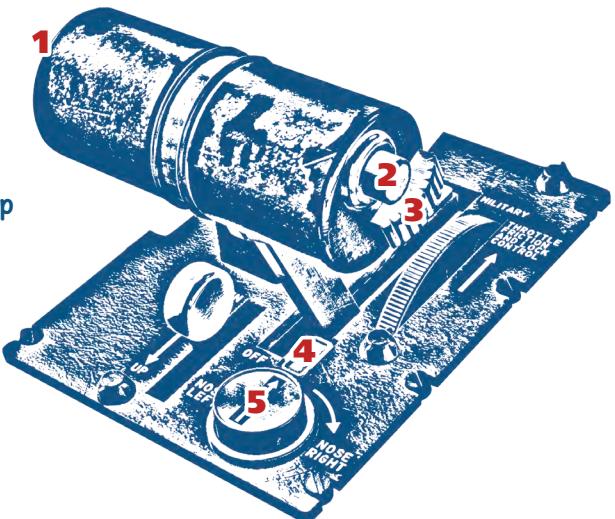
- Caution Panel, 6-2, 6.

4. Throttle Position Lock

- Zero throttle input to adjust step to or from OFF/IGN/HOME
- Step Up - "RSHIFT+HOME"
- Step Down - "RSHFIT+END"

5. Rudder Trim Switch

- "RALT+Z, RALT+X"



Control Stick

6. Autopilot Override (AFCS Emergency Disconnect) - "LCTRL+A"

- Autopilot, 4-1

7. Trim Switch

- Trim Position Indicator Panel, 6-4, 1.

8. Gun-Rocket Trigger - "SPACE"

- Weapons, 3-1, 3-3, 3-4

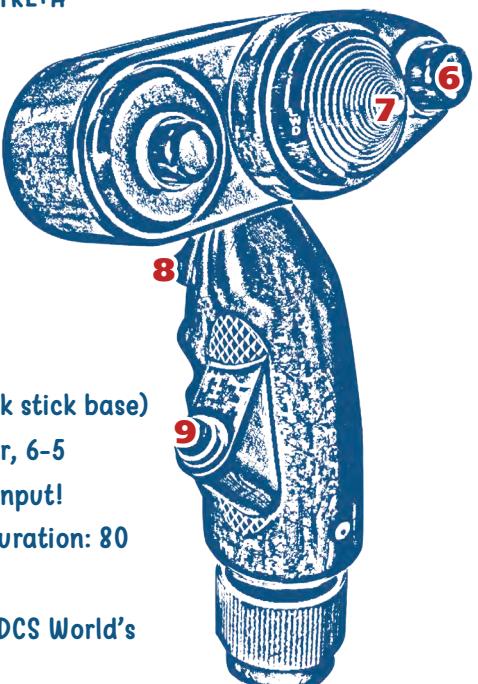
9. Bomb Release Button - "LALT+SPACE"

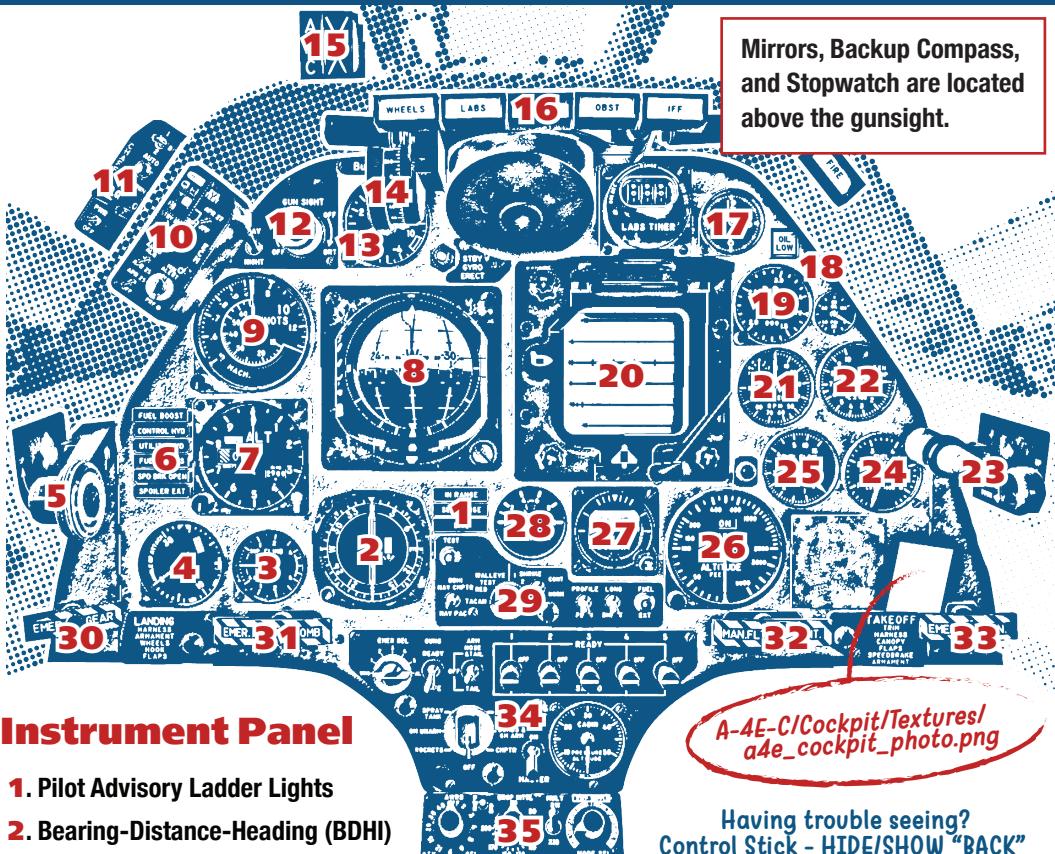
- Weapons, 3-1, 3-2, 3-4, 3-5

- Control Stick - HIDE/SHOW - "BACK" (or click stick base)
- GROUND HANDLING, 5-4 - Controls Indicator, 6-5
- ROLL TOO SENSITIVE? - Adjust the roll axis input!
- Adjust roll axis input for Curves: 20, Y saturation: 80

THROTTLE OR TRIM TOO SENSITIVE?

- Additional input options are available in DCS World's Special options menu for the A-4E-C!

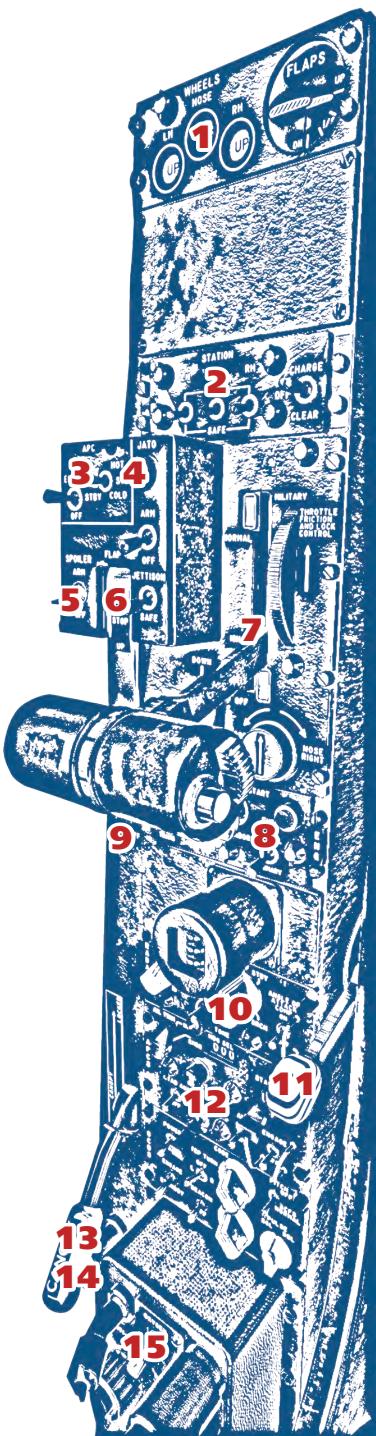




Instrument Panel

- Having trouble seeing?
Control Stick - HIDE/SHOW "BACK"
(or click stick base)
- | | |
|---|--|
| 1. Pilot Advisory Ladder Lights | 20. AN/APG-53A Radar Indicator - 2-2 |
| 2. Bearing-Distance-Heading (BDHI) | 21. Tachometer |
| 3. Vertical Velocity - Climb | 22. Exhaust Temperature |
| 4. Angle-of-Attack - Units | 23. Arresting Hook Handle - "LALT+G", 4-2, 4-3 |
| 5. Landing Gear Handle - "G", 5-4 | 24. Fuel Quantity - 4-4 |
| 6. Caution Panel Ladder Lights | 25. Fuel Flow - 4-4 |
| 7. Altimeter - Feet | 26. AN/APN-141 Radar Altimeter - 2-1 |
| 8. All-Attitude (ADI) - MCL V/H, 1-3 | 27. Standby Attitude |
| 9. Airspeed - Knots | 28. Liquid Oxygen - 6-3, 15. |
| 10. ECM Panel - 3-6 | 29. Miscellaneous Switches Panel |
| 11. Chaff Panel - 1-4, 3-6 | 30. Emergency Landing Gear Release Handle |
| 12. Gunsight Panel | 31. Emergency Stores Release Handle - 3-1 |
| 13. Accelerometer - 4-5 | 32. Manual Flight Control Handle |
| 14. Gunsight Elevation - "RCTRL+[, RCTRL+]" | 33. Emergency Generator Release Handle - 5-6 |
| 15. APC & Angle-of-Attack Indexer - Dimmer | 34. Armament Panel - 3-1 |
| 16. Dashboard Warning Indicator Lights | 35. Aircraft Weapons Release System Panel - 3-2 |
| 17. 8-Day Clock | |
| 18. Oil Pressure & Switch | |
| 19. Pressure Ratio | |

Left Console Control Panels



- 1. Wheels and Flaps Position Indicator Panel**
 - Landing Gear Handle, 6-2, 5.
- 2. Gunpod Panel - 3-1, 3-4**
- 3. APC Control Panel - 4-2**
- 4. JATO Firing Button - "Q"**
 - Chaff, 1-4
- 5. Spoiler Arm Switch - "S"**
 - Caution Panel Ladder Lights, 6-2, 1.
 - Actuate: weight on wheels, engine RPM < 70%
- 6. Flap Handle - "F"**
 - When flaps extended, WHEELS dash light blinks
- 7. Throttle Panel - 6-1**
- 8. Engine Control Panel**
 - Engine Start Checklist, 5-1
 - Air Refueling, 4-4
- 9. Manual Fuel Shutoff Control Lever**
- 10. AN/APG-53A Radar Control Panel - 2-2**
 - Additional controls, 6-2, 20. & 29.
- 11. Shoulder Harness Control Handle**
- 12. Autopilot Control Panel (AFCS) - 4-1**
- 13. Canopy Lever - "LCTRL+C"**
- 14. Emergency Speedbrake Knob**
- 15. Oxygen Switch - "0"**

Right Console Control Panels

1. Trim Position Indicator Panel

- Trim Switch, 6-1, 7.

2. AN/APN-153 Doppler Navigation Radar Control Panel - 1-1

3. AN/ASN-41 Navigation Computer Control Panel - 1-1

4. Radio Preset Channels - 1-2

5. AN/ARC-51A UHF Radio Control Panel - 1-2

- Radio Microphone Push to Talk, 6-1, 2.

6. Exterior Lights Panel

- Master Exterior Lights Switch, 6-1, 1.

7. AN/ARN-52 TACAN Control Panel - 1-2

8. White Floodlights Control

9. Compass Control Panel

- This system not modeled yet

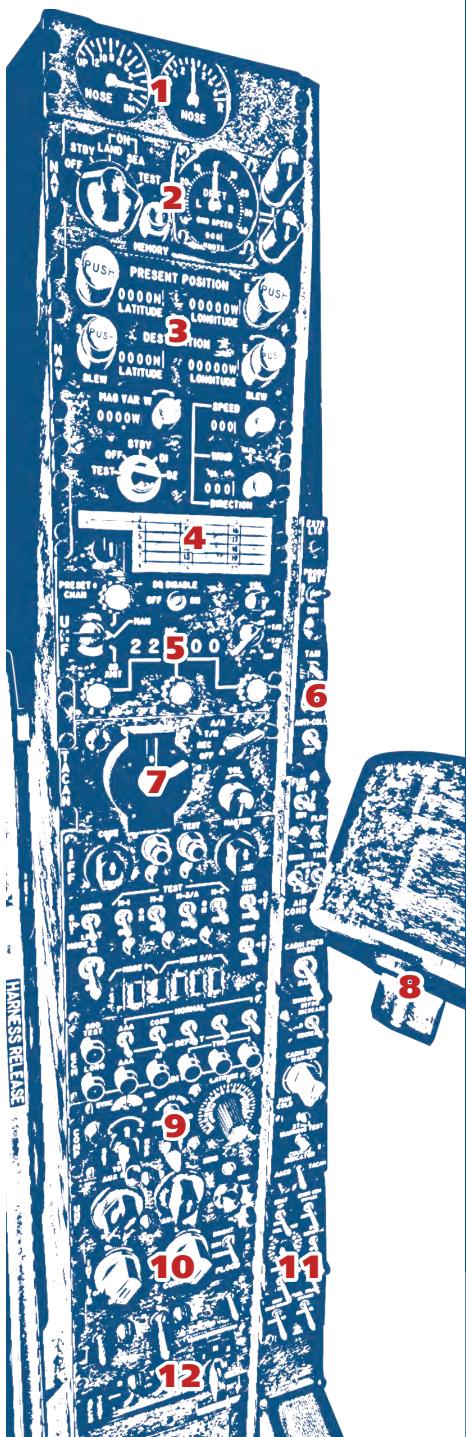
10. Interior Lights Panel

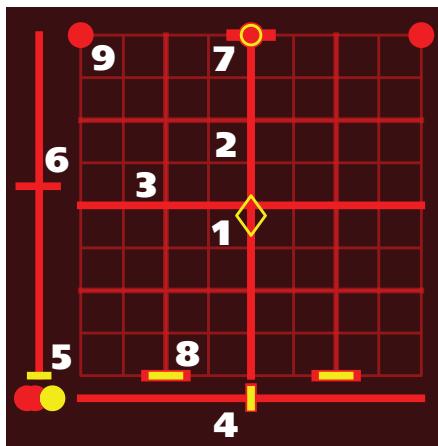
11. AN/ARA-63 MCL (ICLS) Control Panel - 1-3

- Vert/Horiz guides on ADI, 6-2, 8.

12. AFCS Test Panel

- This system not modeled yet





The controls indicator is a useful tool for testing bindings for important aircraft controls, and for learning start-up and taxi procedures.

Search the inputs using the names and terms you see in this manual for the ideal input method for your control setup.

DCS World's Special options menu for the A-4E-C includes trim speed, throttle control, cockpit shake, FFB stick options, and a Simple Braking (Rudder-Assisted) option.

- Show controls indicator "RCTRL+ENTER"

1. PITCH & ROLL - Trim Switch, 6-1. 7. - Indicator, 6-4, 1.

Position includes input, curves, trim, and nose-down from speedbrake.

2. SPEEDBRAKE - Speedbrake Switch, 6-1, 3. - Emergency Speedbrake Knob, 6-3, 14.

Speedbrakes transit to sides when open. - Caution Panel, 6-2, 6.

3. FLAPS & SPOILERS

Flaps transit down when extended. - Flap Handle, 6-3, 6. - Indicator, 6-3, 1.

Spoilers transit up when actuated. - Spoiler Arm, 6-3, 5. - Caution Panel, 6-2, 6.

4. RUDDER - Rudder Trim Switch, 6-1. 5.

Enable AFCS Stability Augmentation Switch for yaw dampener. - 4-1

5. THROTTLE & THROTTLE POSITION LOCK

If a "red ghost" throttle input is seen, the axis input is working.

Zero the throttle axis input to adjust Throttle Position Lock step. - 6-1, 4.

6. ENGINE RPM - Engine Thrust, 4-4

Useful to learn engine start-up timing. - Start-up, 5-1

7. NOSE GEAR & NOSEWHEEL CASTER - Landing Gear Handle, 6-2, 4.

Nose gear pod transits toward center when retracted. - Indicator, 6-3, 1.

Caster nosewheel using differential braking. - Taxi, 5-4

The nosewheel caster indicator's scale is logarithmic. - Responsive at center!

8. REAR GEAR & WHEELBRAKES - "W" (Both), "LCTRL+W" (Left), "LALT+W" (Right)

Rear gear pods transit to center when retracted.

Wheelbrakes transit upward when depressed.

9. AERODYNAMIC SLATS

Slat indicators transit downward when collapsed. - Slats Lock, 4-5

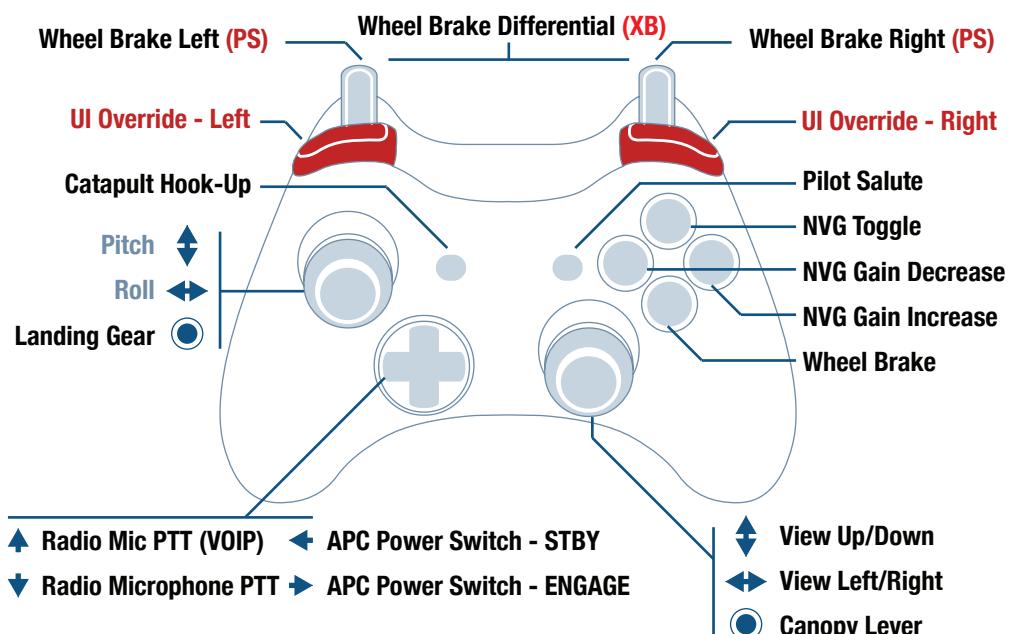
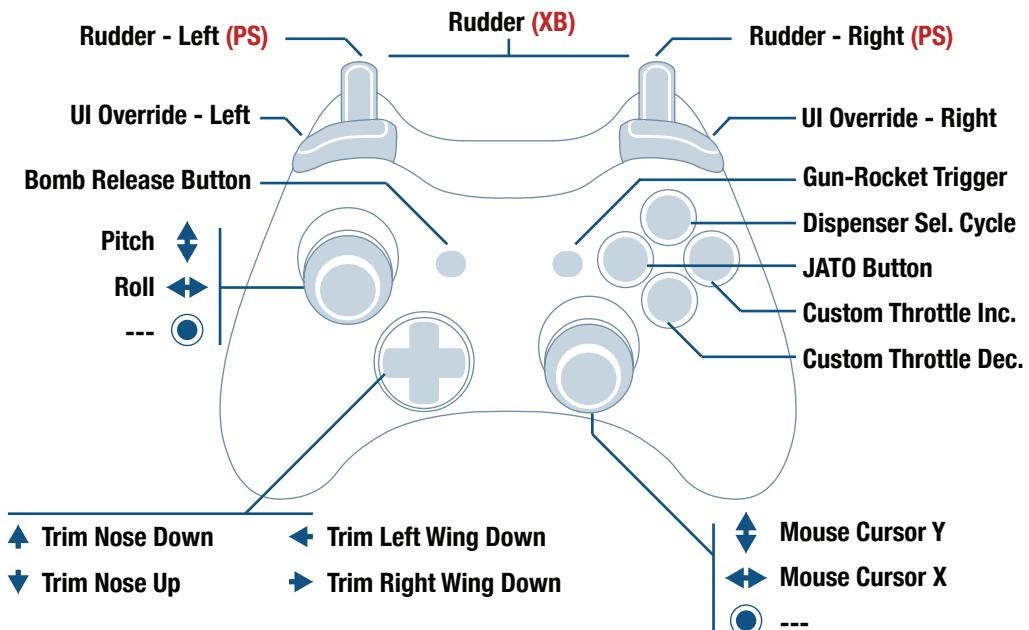
UI Override Modifier Buttons

These two inputs increase the functionality of your input devices:

- **UI Override - Left** inputs LShift + Mouse 2/Right Click.

- **UI Override - Right** inputs LCtrl + Mouse 1/Left Click.

Using these as modifiers, you can issue an alternate command with the same input. Inputs without modifiers fall back to the default layout:



Accessibility and Customizing Your Inputs

Presets for Xbox (XB) and Playstation (PS) controllers are provided in the module's \A-4E-C\Input\Joystick folder. Be sure to calibrate your controller in Windows, and tune axis dead zones, curves, and saturations. Also, use the A-4E-C entry in the DCS Special Menu to set Trim Speeds, Throttle Increment, and Custom Throttle Rate.

