



## **Operator's Checklist**

For

# **F-16C/D/MLU**

# TABLE OF CONTENTS

Normal Procedures	N-1 to N-13
Emergency Procedures	E-1 to E-9
Performance Data	P1 to P20
Flight Briefing Guide	FBG
Mission Data Card	MDC

Created By  
James "Gunslinger" Kelley, MDC by Bill "Hag" Hagan  
Special thanks to contributors and technical editors, Iain "Ziggy"  
Kirkpatrick, Edwin "Razorblade" Versijp,  
James "Mambo" Italiano, Markus "Guard" Ljoekjell,  
Dave "Storm" Huffman, Benjamin "Taco" Raymond,  
Chris "Bullitt" Cyr and Dean "Neo" Talbot ,  
[www.72nd.org](http://www.72nd.org)  
[gunny@kelleyclan.us](mailto:gunny@kelleyclan.us)

## Introduction

### Scope.

This checklist contains the operators checks to be accomplished during normal and emergency operation

### Symbols Preceding Numbered Steps.

- \* Indicates step is mandatory for all through flights  
(use starred items to get rolling quickly with only the minimum necessary steps)
- N Indicates items may need to be specially managed as applicable to night flight
- ◆ Indicates items to be checked/performed if starting flight from TAXI or T/O
- O Switch position/procedure dependant upon installed equipment
- Indicates a detailed procedure for this step is included in the Performance Section of this checklist.

### Warnings, and Notes

The following definitions apply to Warnings, and Notes found throughout the checklist

#### WARNING

Operating procedures, techniques, etc., which if not followed carefully could result in aircraft destruction, another death in your precious logbook, and a mission failure.

#### NOTE

Operating procedures, techniques, etc., which is considered essential to emphasize

### Use of words Shall, Will, Should, and May

The word Shall or Will is used to indicate a mandatory requirement. The word Should is used to indicate a non-mandatory desired or preferred method of accomplishment. The word May is used to indicate an acceptable or suggested means of accomplishment

### Use of words, As Desired and As Required

As Desired allows pilot preference in switch/control positioning

As Required indicates those actions which vary based on mission requirements

# LEAD PURSUIT PANEL REFERENCE

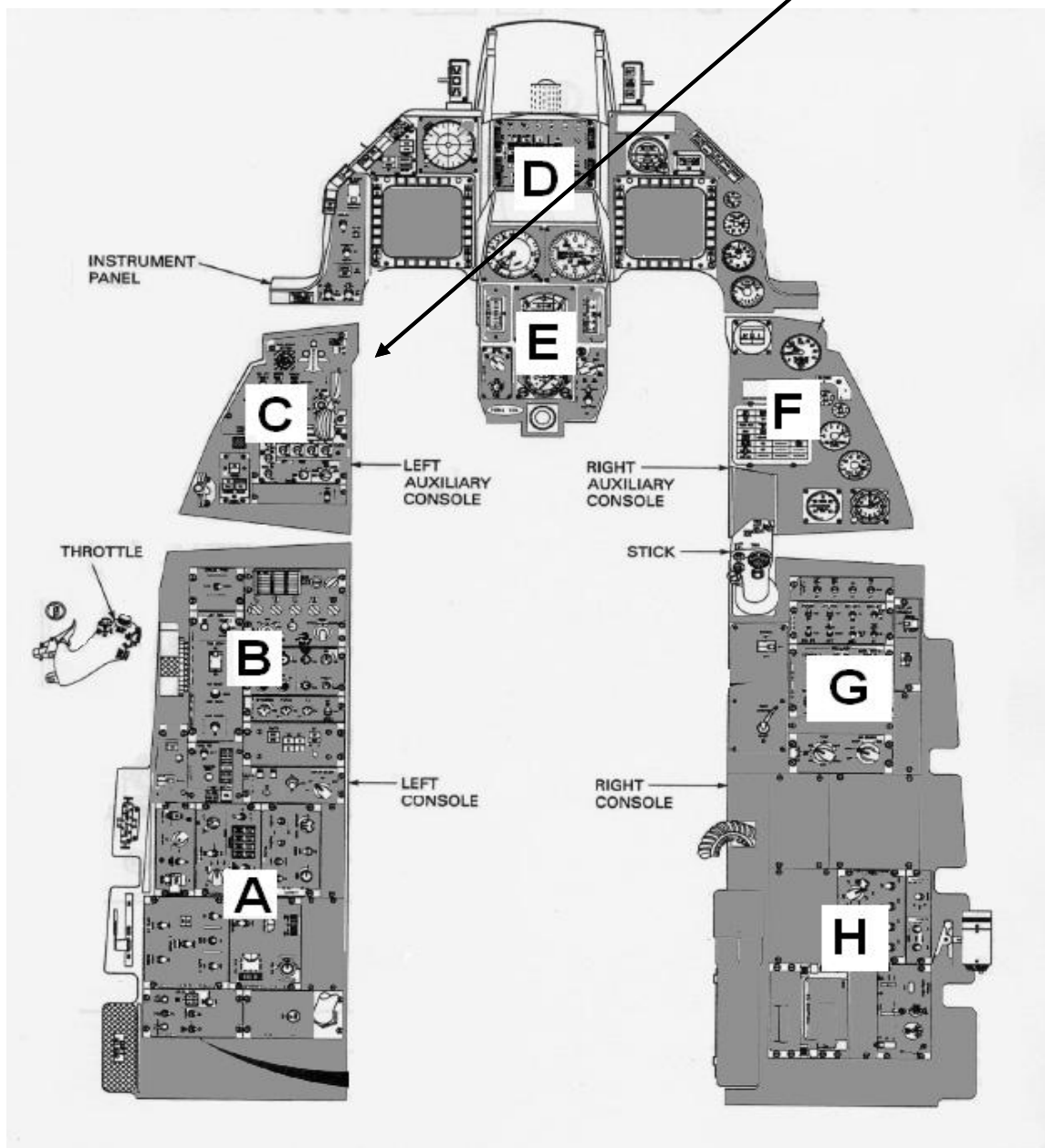
This checklist uses the standard and convenient Lead Pursuit method of panel reference designation and is used as follows:

\*1 Parking Brake

Set

[C]

Denotes which panel  
the item / action is  
located



# NORMAL PROCEDURES

## COCKPIT INTERIOR CHECK

* 1	Parking Brake	Set	[C]
2	ALT FLAPS switch	NORM	[A]
3	LE FLAPS	AUTO	[A]
4	TRIM/AP DISC switch	NORM	[A]
5	Roll, Yaw, and Pitch Trim	Center	[A]
* 6	FUEL MASTER switch	Master (Guard Down)	[B]
*♦ 7	ENG FEED knob	NORM	[B]
8	AIR REFUEL switch	CLOSE	[B]
9	CNI knob	UFC	[B]
10	TACAN	As desired	[B]
* 11	EXT LIGHTING panel	As required	[B]
* 12	MASTER light switch	NORM	[B]
13	EPU switch	NORM (Guard Down)	[B]
14	JFS switch	OFF	[B]
15	CMD5 switches	OFF	[C]
16	STORES CONFIG switch	As required	[C]

**COCKPIT INTERIOR CHECK CONT.**

17	Landing and Taxi lights	As required	[C]
18	LG handle	Down	[C]
19	GND JETT ENABLE	OFF	[C]
20	HOOK switch	UP	[C]
21	MASTER ARM switch	OFF	[D]
22	LASER ARM switch	OFF	[D]
23	INSTR MODE knob	As required	[E]
♦ 24	FUEL QTY SEL knob	NORM	[E]
♦ 25	EXT FUEL TRANS	NORM	[E]
26	SNSR PWR switches (4)	OFF	[G]
► 27	HUD control panel	Set	[G]
N 28	Interior LIGHTING Panel	As desired	[G]
*♦ 29	AIR SOURCE knob	NORM	[G]
30	Avionics Power switches (8)	OFF	[H]

**BEFORE STARTING ENGINE**

- |     |                      |                              |     |
|-----|----------------------|------------------------------|-----|
| 1   | MAIN PWR switch      | BATT                         | [B] |
|     |                      | Verify: FLCS RELAY light on  |     |
| * 2 | MAIN PWR switch      | MAIN PWR                     | [B] |
|     |                      | Verify: FLCS RELAY light off |     |
|     |                      | TOFLCS light on              |     |
|     |                      | ELEC SYS light on            |     |
|     |                      | SEC light on                 |     |
|     |                      | HYD/OIL light on             |     |
| 4   | Canopy               | As desired                   | [C] |
| * 5 | MASTER CAUTION Light | RESET                        | [D] |
| 6   | Ground Crew          | Ready                        |     |

**STARTING ENGINE**

* 1	Throttle	IDLE	
* 2	JFS switch	START 2	[B]
* 3	RPM	Increasing (max RPM approximately 24%)	[F]
* 4	SEC caution light	Off	[F]
* 5	Throttle	Advance midrange position	
* 6	Idle Detent	Toggle	[C]
* 7	RPM	Increasing above 25%	[D]
* 8	Throttle	IDLE	
9	JFS switch/light	Confirm OFF	[B]
10	HYD/OIL light	OFF	[D]
11	FUEL FLOW	500-1700 PPH	[D]
12	OIL Pressure	> 15 psi	[D]
13	NOZ POS	> 94%	[D]
14	RPM	62% to 80%	[D]
15	FTIT	650° C or less	[D]
16	HYD PRESS A & B	2850 to 3250	[F]

**AFTER ENGINE START**

* 1	AVIONICS PANEL	Set	[H]
	a. INS knob	ALIGN-NORM	
	b. GPS switch	GPS	
	c. DL switch	DL	
	d. MAP switch	MAP	
	e. UFC switch	UFC	
	f. MFD switch	MFD	
	g. SMS switch	SMS	
	h. FCC switch	FCC	
► 2	HUD Remote Panel	As desired	[G]
*o 3	SNSR PWR panel	As required	[G]
	a. LEFT HDPT switch	OFF - unless TFR/FLIR operation is planned	
	b. RIGHT HDPT switch	OFF - unless TGP or HTS operation is planned	
	c. FCR switch	FCR	
*♦ 4	Radar Altimeter	RDR ALT	[G]
* 5	ICP SYM knob	ON, adjust as desired	[D]
* 6	CMDS panel	Set	[C]
	a. RWR switch	ON	

**AFTER ENGINE START CONT.**

b. JMR switch	ON	
c. CH switch	ON	
d. FL switch	ON	
► e. PRGM knob	As briefed	
f. MODE knob	As briefed	
* 7 THREAT WARN AUX panel	SYS PWR PWR ON	[C]
*♦ 8 Audio 1 Panel	Set volumes	
a. COMM 1 and 2	As desired	
b. MSL	As desired	
c. THREAT	As desired	
9 AUX COMM panel	Alt TACAN chan as des	[C]
10 TEST Panel MAL & IND LTS button	All Cockpit Warning and Advisory lights operable	[A]
*♦ 11 ICP/DED	Program as required	[D]
a. Communications	Set	
b. Steerpoints	Set	
c. Profile	Set	
a. ALOW-MSL	as briefed	
b. Bingo	as required	
► c. VIP-OA-VRP	as desired	
* d. Bullseye	per SOP	
► e. WSPAN	as required	
► f. EWS	as desired	

**AFTER ENGINE START CONT.**

12 MFD page slot setup	As desired	[D]
13 SMS	Set-As planned/briefed	[D]
14 FUEL QTY SEL knob	Check fuel qty & gauge	[E]
a. TEST	FR/AL: 2000lbs, Tot: 6000lbs, FWD/AFT FUEL LOW Caution Lights Illuminated	
b. NORM	FR:3300lbs. AL:2800lbs.	
c. RSVR	Both Pointers: 500lbs	
d. INT WING	Each Wing: 500lbs	
o e. EXT WING	Each ext. wing tank 2500	
o f. EXT CTR	FR pointer 2000	

**NOTE**

The sum of the individual fuel tanks and the totalizer should agree within +/- 100lbs with only internal fuel or +/- 300lbs with externals. **DO NOT INCLUDE RSVR KNOB POSITION WHEN TOTALING THE NEEDLES.**

The NORM position needle indication already includes both the fuselage tanks AND the reservoir (RSVR) tanks

* 15 FUEL QTY SEL knob	NORM	[E]
16 EXT FUEL TRANS Switch	As desired/briefed	[E]
17 EPU FUEL quantity	95 - 102 percent	[F]
18 WHEELS down lights	Three green	[C]
19 Landing/Taxi Lights	ON	[C]
20 Speedbrake	Cycle (ensure closed)	[C]

**BEFORE TAXI**

- |     |                      |   |       |
|-----|----------------------|---|-------|
| 1   | MASTER MODE          | NAV   | [D]   |
| 2   | DRIFT C/O            | NORM  | [D]   |
| * 3 | Ejection Seat        | ARM   | [C]   |
| 4   | Master Caution Panel | Check/Reset   | [D/F] |
| 5   | F-ACK button         | Press/Check   | [D]   |
| * 6 | NWS                  | Engage (shift-/)  |       |
| 7   | Clock, TO time check | For greatest accuracy allow<br>INS to run in align mode<br>until time to taxi |       |
| * 8 | INS knob             | NAV<br>Ensure flashing RDY/Align<br>lights and stage 8.0 or greater           | [H]   |

**WARNING**

Failure to allow the INS to align to at least stage **3.0** will result in non-operational gyros. You will have **NO** operational Pitch Ladder, FPM, HUD Compass, HSI, or HSD heading functions.

- |     |                       |            |
|-----|-----------------------|------------|
| * 9 | Obtain Taxi Clearance | As briefed |
|-----|-----------------------|------------|

**TAXI**

- |   |                          |                           |       |
|---|--------------------------|---------------------------|-------|
| 1 | Parking Brake            | Release                   | [C]   |
| 2 | Brakes                   | Check                     |       |
| 3 | NWS                      | Check                     |       |
| 4 | Flight Instruments       | Tracks heading changes    | [D/E] |
|   | a. HUD Compass Tape      |                           |       |
|   | b. HSD                   |                           |       |
|   | c. HSI Compass Card      |                           |       |
|   | d. Stand-by Compass Card |                           |       |
| 5 | Engine Instruments       | Check/Respond to throttle |       |

**BEFORE TAKEOFF**

- |     |                     |                           |       |
|-----|---------------------|---------------------------|-------|
| 1   | Trim                | Center                    | [A]   |
| * 2 | Canopy              | Closed - Locked           | [C]   |
| 3   | Radar On            | Set for trail departure   | [D]   |
| 4   | Warn/Caution Lights | Check                     | [D/F] |
| 5   | F-ACK/PFL           | No Faults/All sys ok      | [F]   |
| 6   | Review Speeds       | Rotation, Take-off, Climb |       |
| * 7 | Departure Clearance | Obtain/as briefed         |       |

## TAKEOFF

- |     |                |                                |
|-----|----------------|--------------------------------|
| 1   | Engine Run-up  | 85% Check gauges/lights        |
| 2   | Brakes         | Release                        |
| * 3 | Throttle       | Full AB/Mil, I/A/W SOP         |
| 4   | NWS Disengage  | > 60 knots                     |
| * 5 | Pitch          | Rotate to 12° Guncross         |
| 6   | Positive Climb | FPM, Altimeter, VVI increasing |
| 7   | Landing Gear   | Retract at 225knts             |

## WARNING

Since LG and TEF retraction occurs simultaneously, LG retraction should not be rushed after takeoff. The reduction in lift may cause the aircraft to settle and contact the runway. **Do not exceed 300 kts with gear extended.**

## CLIMB/INFLIGHT

- |   |                         |                           |     |
|---|-------------------------|---------------------------|-----|
| 1 | Verify L/G Handle Light | OUT                       | [C] |
| 2 | Landing/Taxi Lights     | OFF                       | [C] |
| 3 | Climb                   | As briefed                |     |
| 4 | Engine Instruments      | Check                     | [D] |
| 5 | Warning/Caution Lights  | Check                     | [D] |
| 6 | Fuel                    | Quantity/Transfer/Balance |     |

**FENCE IN/OUT CHECK**

1	Lights	As required	[B]
2	AVTR	As required	[B]
3	COMM/MSL/RWR volume	As desired	[B]
4	ECM controls	As briefed	[C]
5	Stores Config Switch	CAT I/III - As desired	[C]
6	MASTER ARM switch	As required	[D]
o 7	Laser Arm switch	As required	[D]
8	RWR	Set as desired	[D]
9	Master Mode	As required	[D]
N 10	HUD	Intensity as desired	[D]
11	Drift Cutout Switch	As desired	[D]
12	Radar	As required	[D]
o 13	SEL JETT	Tanks selected	[D]
14	SMS	As planned/briefed	[D]
	<ul style="list-style-type: none"> <li>▶ a. MAV Pwr</li> <li>b. MSL cool</li> <li>c. Profile</li> <li>d. Pair/Single</li> </ul>	<ul style="list-style-type: none"> <li>e. Impact spacing</li> <li>f. Arming delay</li> <li>▶ g. Burst Altitude</li> </ul>	
▶ o 15	TGP	Activate	[D]
▶ 16	HUD panel	As desired	[G]

**EGRESS**

- |   |                   |                           |     |
|---|-------------------|---------------------------|-----|
| 1 | Heading           | Check                     |     |
| 2 | Damage            | Assess as req. (pg. E-5)  |     |
| 3 | Stores Config     | As required               | [C] |
| 4 | Jammer            | As required               |     |
| 5 | EWMS program/mode | As briefed/desired        | [C] |
| 6 | Master Mode       | As required               | [D] |
| 7 | Fuel              | Quantity/Transfer/Balance |     |

**REFUEL**

- |   |   |  |            |
|---|---|--|------------|
| 1 | Contact AWACS                                       | Receive vector, rng and A/A<br>TACAN channel to Tanker |            |
| 2 | CNI-BACK-UP (preferred)<br>or UFC T-ILS (alternate) | Set TACAN channel 8<br>set mode to T/R A/A             | [B]<br>[D] |
| 3 | INSTR MODE SEL Switch                               | TCN<br>Note HSI bearing and range                      | [E]        |
| 4 | Contact Tanker                                      | Request Refuel   |            |
| 5 | MASTER ARM  | SAFE   | [D]        |
| 6 | MASTER MODE   | A/A (Bug Tanker)                                       | [D]        |

**Note**

Manage overtake at 10knts per 1000' of range within 1 mile of tanker

- |    |                   |                              |     |
|----|-------------------|------------------------------|-----|
| 7  | AIR REFUEL Switch | OPEN                         | [B] |
| 8  | ICP, List, 2      | Bring Bingo page to DED      |     |
| 9  | Radar and ECM     | STBY at Pre-Contact Position |     |
| 10 | Contact Tanker    | Ready to refuel              |     |

**APPROACH**

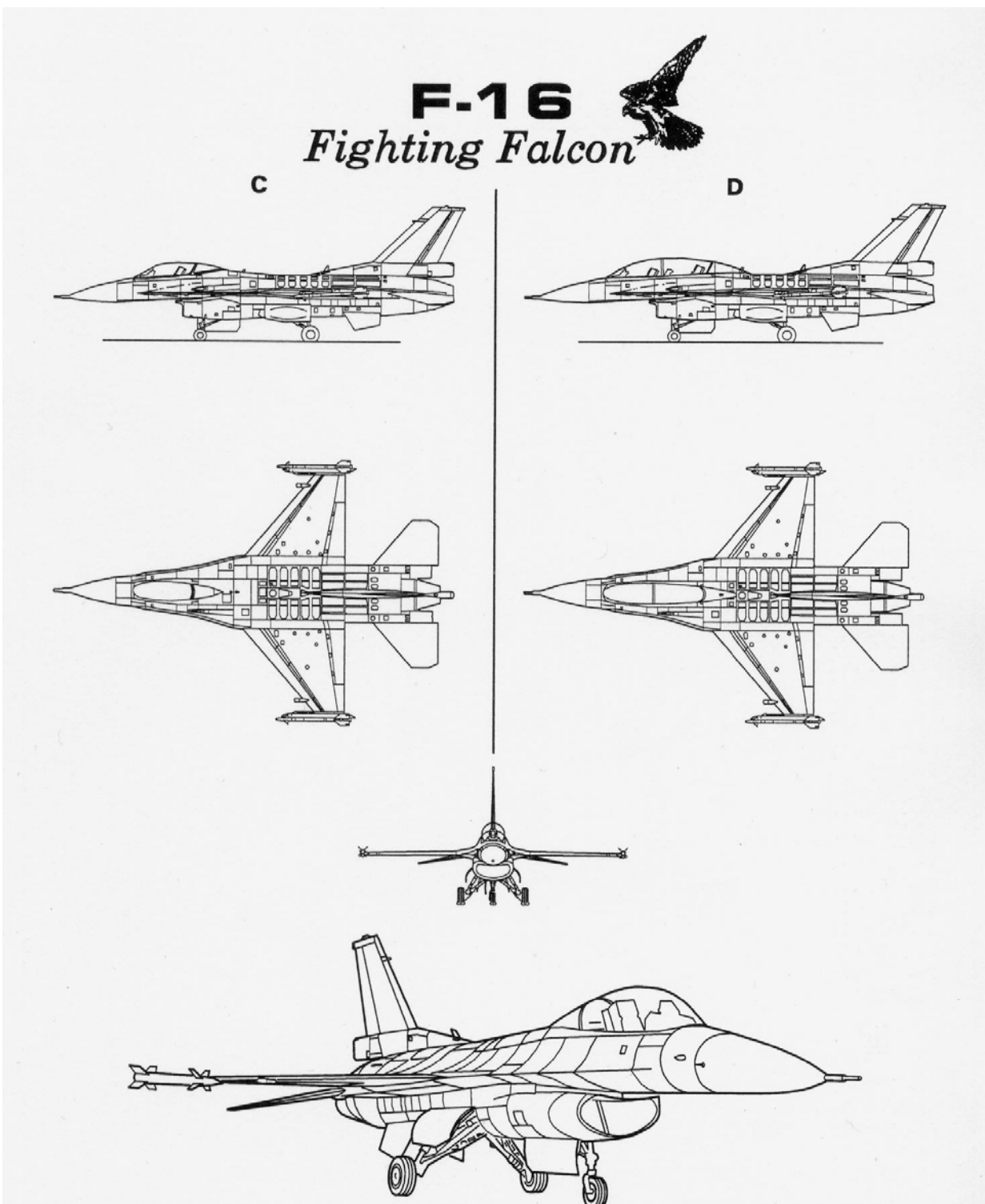
- |   |                         |                                 |     |
|---|-------------------------|---------------------------------|-----|
| 1 | Fence Out Check         | Complete (pg N-11)              |     |
| 2 | Tower                   | Call Inbound $\leq 30\text{nm}$ |     |
| 3 | Drift Cut-out Switch    | NORM                            | [D] |
| 4 | Landing light           | ON                              | [C] |
| 5 | Fuel                    | Note quantity/weight            | [F] |
| 6 | Final approach airspeed | Compute Vref for crosscheck     |     |

**BEFORE LANDING**

- |   |                   |  |  |
|---|-------------------|--|--|
| 1 | Check Clearance   | Radio if no contact inside 12nm            |  |
| 2 | Speedbrakes       | Open                                       |  |
| 3 | Landing Gear Down | Three green downlocks,<br>handle light out |  |

**SHUTDOWN**

- |   |                          |       |         |
|---|--------------------------|-------|---------|
| 1 | Parking Brake            | Set   | [C]     |
| 2 | Speedbrakes              | Close |         |
| 3 | Ejection seat            | Safe  | [C]     |
| 4 | Avionics                 | OFF   | [H,G,C] |
| 5 | Throttle/Fuel switches   | OFF   | [B]     |
| 6 | External/LDG/Taxi lights | OFF   | [C,B]   |
| 7 | MAIN PWR switch          | OFF   | [B]     |



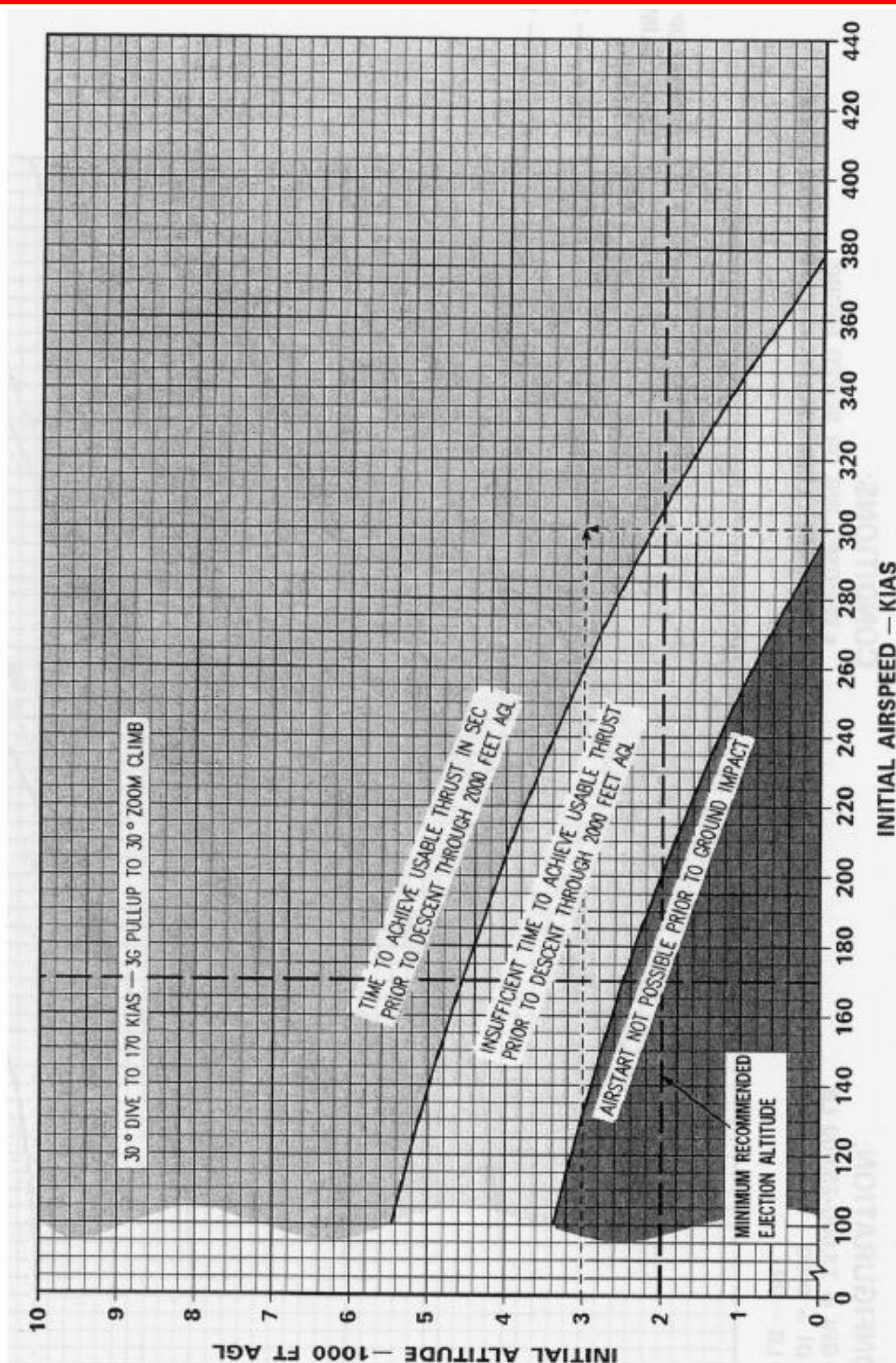
# EMERGENCY PROCEDURES

## ENGINE FAILURE

- |    |                 |                                      |
|----|-----------------|--------------------------------------|
| 1  | Speedbrake      | Close                                |
| 2  | 3g/30° Climb    | @ 250kts 0g push to arrive at 200kts |
| 3  | External stores | Jettison                             |
| 4  | Throttle        | Idle                                 |
| 5  | JFS Start 2     | Airspeed < 400kts, altitude < FL20   |
| 6  | Throttle        | Midrange                             |
| 7  | SEC light       | Out                                  |
| 8  | Idle detent     | Toggle                               |
| 9  | Check RPM       | Increasing                           |
| 10 | Throttle        | As required                          |
| 11 | EPU switch      | Off, then NORM                       |
| 11 | Heading         | Best route to FLOT when practicable  |

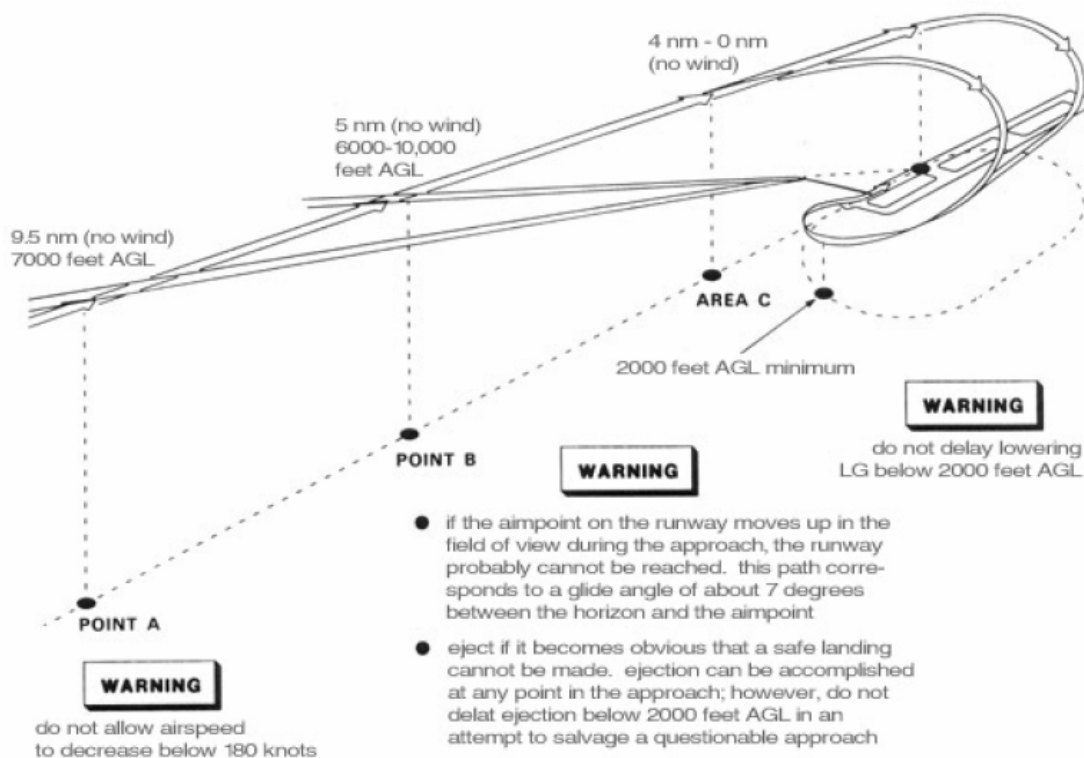
## WARNING

A spooldown relight can be accomplished without regard to altitude or airspeed **IF THE PILOT REACTS BEFORE RPM DECAYS BELOW 23%**. Simply move the throttle to midrange and toggle the Throttle Idle Detent. Reset EPU after start. Learning to quickly identify the flameout is crucial to this method and to your survival.

**ENGINE FAILURE CONTINUED****LOW ALTITUDE AIRSTART CAPABILITY**

# FLAMEOUT LANDING

- |   |                 |                                  |
|---|-----------------|----------------------------------|
| 1 | Speedbrake      | Close                            |
| 2 | Heading         | Best route desired airfield      |
| 3 | External stores | Jettison                         |
| 4 | Glide           | Maximum range glide 6° AOA       |
| 5 | Radio           | Declare Emergency                |
| 6 | Landing Gear    | Extend ONLY when landing assured |
| 7 | Speedbrake      | As required                      |



**DEEP STALL RECOVERY**

- |   |                             |  |
|---|-----------------------------|--|
| 1 | Speedbrake                  | Close  |
| 2 | Controls                    | Release  |
| 3 | Throttle                    | Idle   |
| 4 | If inverted                 | Rudder opposite of yaw rotation                                    |
| 5 | MPO                         | OVRD   |
| 6 | Control Stick<br>pitch axis | Cycle in phase with<br>pitch oscillations                          |
| 7 | Recovery                    | Throttle up, Maintain dive<br>(altitude permitting) until 200 KIAS |
| 8 | MPO                         | NORM after recovery  |

## AIRCRAFT DAMAGE ASSESSMENT

- |   |                         |   |
|---|-------------------------|---|
| 1 | Check control authority | Trim/assess/jettison stores as required |
|---|-------------------------|---|

### WARNING

DO NOT ATTEMPT TO KEEP STORES LOADED WHEN AIRCRAFT CONTROL IS COMPROMISED.

- |   |                              |                                     |
|---|------------------------------|-------------------------------------|
| 2 | Engine gauges                | Assess                              |
| 3 | Caution panel/Warning lights | Assess                              |
| 4 | F-ACK                        | Assess PFL (pg E-8)                 |
| 5 | Primary Avionics/Wep sys     | Assess                              |
| 6 | Stores                       | Jettison as required                |
| 7 | Heading                      | Best route to FLOT when practicable |

**WARNING LIGHT ANALYSIS**

<b>ENG FIRE</b>	ENGINE COMPARTMENT FIRE	Assess/EJECT
<b>TO/LDG CONFIG</b>	Aircraft Configuration wrong for take off or landing	Lower landing gear or inc KIAS/dec sinkrate
<b>HYD/OIL PRESS</b>	Low pressure in oil and/or hydraulic systems	Throttle min practical assess, if both EJECT
<b>FLCS</b>	One or more FLCS malfunctions	Refer to PFL(s)
<b>DBU ON</b>	FLCC is operating with back-up software due to branch failure	Land when practicable
<b>CANOPY</b>	Loss of cabin pressure	FL25 max, <500knts
<b>TF FAIL</b>	Terrain Following system failure	Manually fly jet to safe altitude

**CAUTION LIGHT PANEL**

<b>FLCS FAULT</b>	Failure in FLCS system	Refer to PFL(s)
<b>ELEC SYS</b>	Failure in electrical system	Refer to ELEC panel
<b>PROBE HEAT</b>	Failure of probe heater	AOA/Airspeed sensors degraded
<b>STORES CONFIG</b>	The Cat I/III stores config switch is in the wrong position for the stores loaded	Change config

**WARNING LIGHT ANALYSIS CONTINUED**

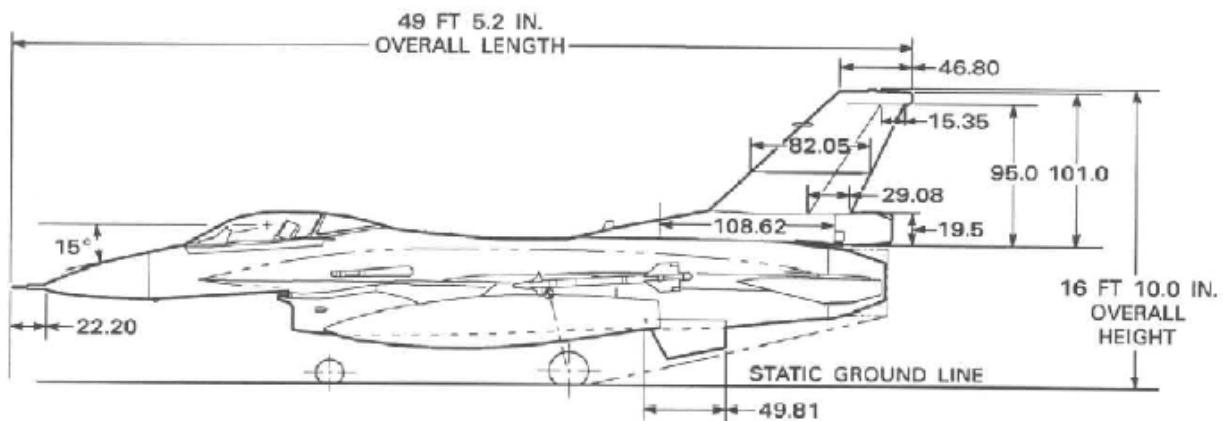
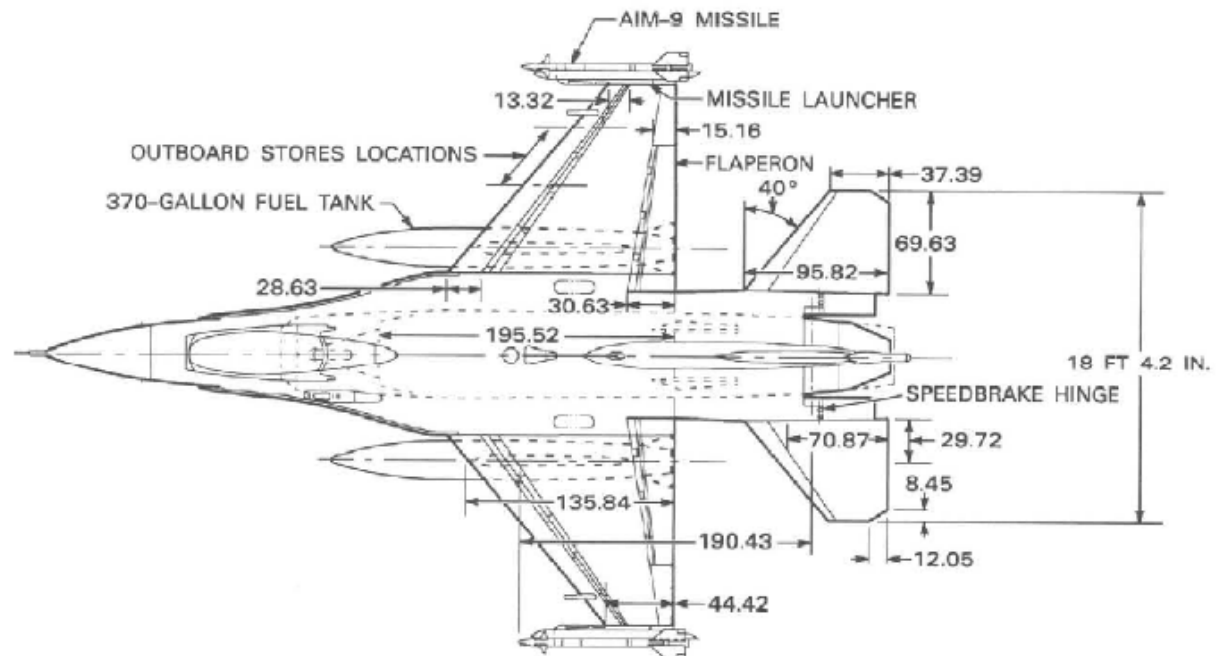
<b>FWD FUEL LOW</b>	Less than 400lbs of fuel remaining in FWD reservoir	Reduce fuel flow/Land Transfer/Balance
<b>AFT FUEL LOW</b>	Less than 400lbs of fuel remaining in AFT reservoir	Reduce fuel flow/Land Transfer/Balance
<b>ENGINE FAULT</b>	Indicates an engine PFL item was detected	Assess PFL(s)
<b>SEC</b>	Running on secondary engine controls	Start JFS
<b>FUEL/OIL HOT</b>	Temperature of fuel or oil to engine excessive	Assess PFL, land
<b>OVERHEAT</b>	Engine damaged	Throttle minimum required
<b>BUC</b>	Using back-up fuel control	Smooth throttle inputs
<b>AVIONICS FAULT</b>	Avionics fault(s) or MUX fail	Asses PFL
<b>ALT</b>	Radar altimeter inop	Reference Baro
<b>IFF</b>	IFF inop	Be advised
<b>SEAT NOT ARMED</b>	Ejection seat not armed	Arm Seat
<b>NWS FAIL</b>	Nose wheel steering inop	Land accordingly
<b>ANTI SKID</b>	Anti skid brakes inop	Land accordingly
<b>HOOK</b>	Hook is not up and locked	Hook up
<b>OXY LOW</b>	Oxygen low	Descend < FL18
<b>Cab Press</b>	Loss of cabin pressurization	FL25 max, <500knts cycle airtsource knob

**F-ACK/PFL**

<b>SYS</b>	<b>Function</b>	<b>Status</b>	<b>Results</b>	<b>Mission</b>
AMUX	BUS	FAIL	No effect unless BMUX fail, then	1 fail proceed
BMUX	BUS	FAIL	NAV mode only is available	both fail RTB
BLKR	BUS	FAIL	RWR Non-functional	RTB
CADC	BUS	FAIL	No Central Air Data Computer	Proceed
CMDS	BUS	FAIL	Countermeasure failure	RTB
CMDS	CHAF	FAIL	No chaff dispense	Assess
CMDS	FLAR	FAIL	No Flare dispense	Assess
DMUX	BUS	FAIL	HUD and MFD failure	RTB
DTE	BUS	FAIL	DTE inop	Proceed
ENG	A/I	FAIL	Ice buildup or anti-ice fail	Proceed
ENG	A/B	FAIL	Afterburner inop	Assess
ENG	FIRE	FAIL	Engine fire	Assess/Eject
ENG	HYDR	DEGR	Hyd press low, operate < Mach 1	Proceed
ENG	PFL	DEGR	Reduced fault detection	Proceed
EPOD	SLNT	DEGR	Jammer failed to ON	Assess
FCC		FAIL	FCC inop, weapons unavailable	RTB
FCR	BUS	FAIL	No Radar wep, use boresight	Assess
FCR	SNGL	FAIL	No TWS radar mode	Proceed
FCR	XMTR	FAIL	No Radar wep, use boresight	Assess
FLCS	DMUX	FAIL	No HUD display	RTB
FLCS	DUAL	FAIL	FLCS failure, operate < Mach 1	Assess
FLCS	SNGL	FAIL	FLCS Non-announced	Proceed
FLCS	A/P	FAIL	Autopilot inop	Proceed
FMS	BUS	FAIL	No low fuel warnings	Proceed
GEAR	LDGR	FAIL	Landing gear failure	Assess
HARM	BUS	FAIL	HARM missiles non-functional	Assess
HUD	BUS	FAIL	HUD failure	RTB
IFF	BUS	FAIL	IFF Inop	Proceed
ISA	RUD	FAIL	Rudders non-functional	Proceed
ISA	ALL	FAIL	Loss of hydraulics < Mach 1	Assess
MFDS	LFWD	FAIL	Left MFD inoperative	Proceed
MFDS	RFWD	FAIL	Right MFD inoperative	Proceed

**F-ACK/PFL CONTINUED**

<b>SYS</b>	<b>Function</b>	<b>Status</b>	<b>Results</b>	<b>Mission</b>
MSL	SLV	FAIL	No AIM-9 Slave, Bore only	Proceed
RALT	BUS	FAIL	Radar altimeter inop, no ALOW	Proceed
RWR	BUS	FAIL	RWR Inop	RTB
SMS	BUS	FAIL	All weapons are unavailable	RTB
SMS	STA1	FAIL	HDPT 1 unavailable	Assess
SMS	STA2	FAIL	HDPT 2 unavailable	Assess
SMS	STA3	FAIL	HDPT 3 unavailable	Assess
SMS	STA4	FAIL	HDPT 4 unavailable	Assess
SMS	STA5	FAIL	HDPT 5 unavailable	Assess
SMS	STA6	FAIL	HDPT 6 unavailable	Assess
SMS	STA7	FAIL	HDPT 7 unavailable	Assess
SMS	STA8	FAIL	HDPT 8 unavailable	Assess
SMS	STA9	FAIL	HDPT 9 unavailable	Assess
TCN	BUS	FAIL	TACAN inop	Proceed
UFC	BUS	FAIL	Upfront Control fail, select B/U	Proceed



**NOTE:** Dimensions are in inches unless specified otherwise.

# PERFORMANCE DATA

## Rotation and T/O speeds (based on 12° rotation)

<u>GW x 1000#</u>	<u>Rotation Speed, w/AB</u>	<u>Rotation Speed, non AB</u>	<u>Takeoff Speed</u>
28	149	154	164
30	155	160	170
32	161	166	176
34	165	170	180
36	169	174	184
38	175	180	190
40	181	186	196
42	187	192	202

## Rate of Descent Chart (feet per minute)

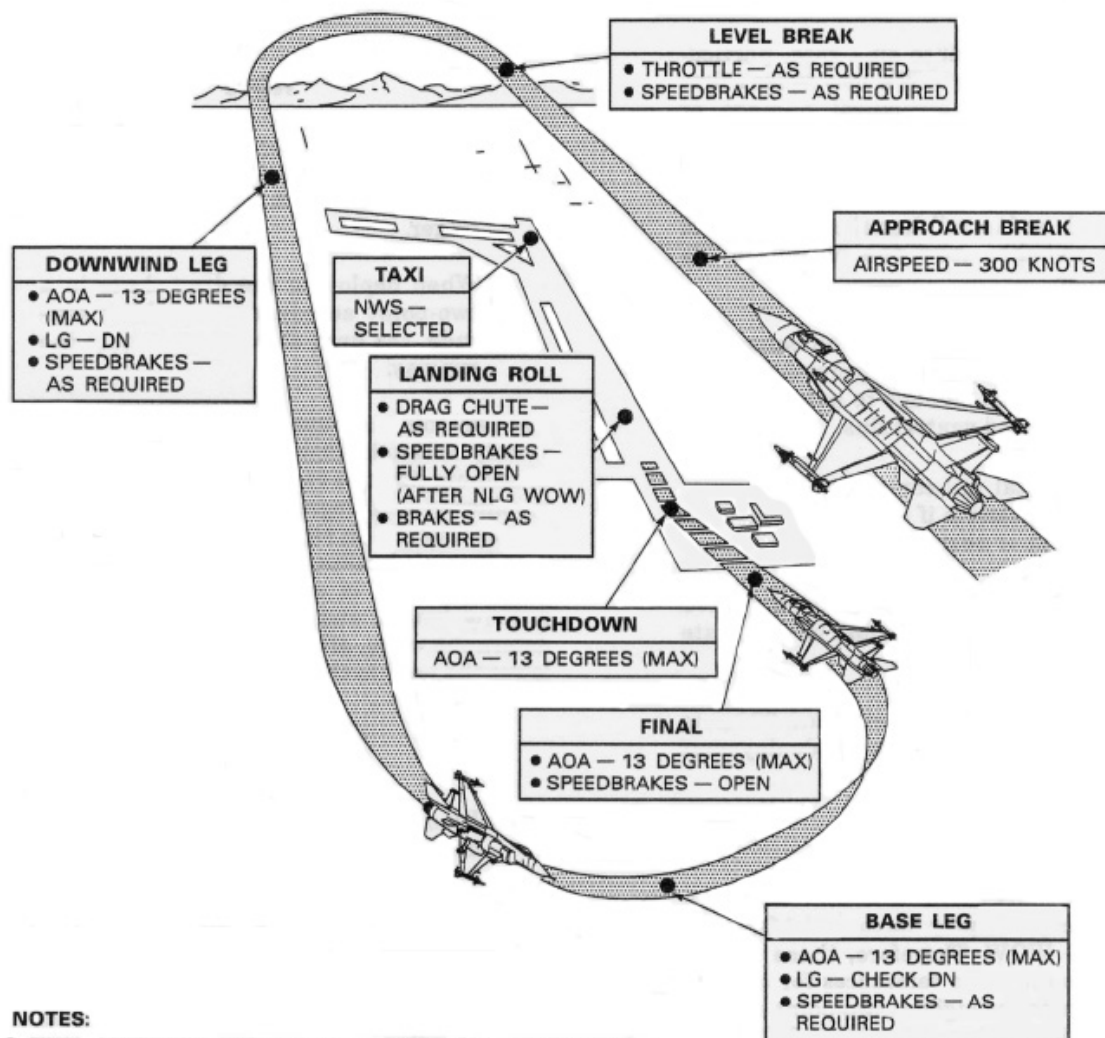
<u>Speed (knots)</u>	<u>Angle</u>		
	2.5°	2.75°	3°
130	575	630	690
150	665	730	795
160	707	778	849

## Vref Computation Chart for 13° AOA Approach, add 8 knots for 11° approach

<u>Total Fuel and External Stores in lbs.</u>	<u>Final Approach KCAS (Vref)</u>	<u>Touchdown KCAS</u>
9000	180	168
8500	178	166
8000	176	164
7500	174	162
7000	172	160
6500	170	158
6000	168	156
5500	166	154
5000	164	152
4500	162	150
4000	160	148
3500	158	146
3000	156	144
2500	154	142
2000	152	140
1500	150	138
1000	148	136
500	146	134
0	144	132

# PERFORMANCE DATA T.O. and LDG.

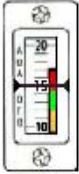



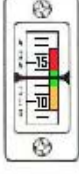

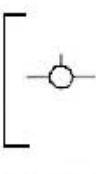

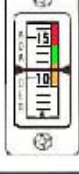


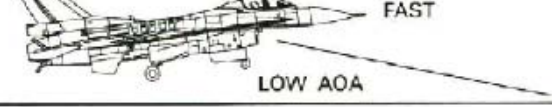
## Normal Landing Pattern (Typical)



### NOTES:

- FINAL APPROACH AIRSPEED/13 DEGREES AOA CROSS-CHECK.
  - **C** 136 KNOTS + 4 KNOTS PER 1000 POUNDS OF FUEL/STORE WEIGHTS.  
ADD 8 KNOTS FOR 11 DEGREES AOA APPROACH.
  - **D** 138 KNOTS + 4 KNOTS PER 1000 POUNDS OF FUEL/STORE WEIGHTS.  
ADD 8 KNOTS FOR 11 DEGREES AOA APPROACH.
- THE PRECEDING BASELINE AIRSPEEDS ARE BASED ON THE BASIC OPERATING WEIGHT FROM T.O. GR1F-16CJ-1-1 PLUS FULL AMMO. ACTUAL FINAL APPROACH AIRSPEED AT 11/13 DEGREES AOA MAY DIFFER BY +/-5 KNOTS DUE TO VARIATIONS IN AIRCRAFT CG.

# PERFORMANCE DATA T.O. and LDG.

INDICATOR	INDEXER	HUD DISPLAY	ATTITUDE
 <b>15</b>			 SLOW HIGH AOA
 <b>13</b>			 ON SPEED OPTIMUM AOA
 <b>11</b>			 FAST LOW AOA

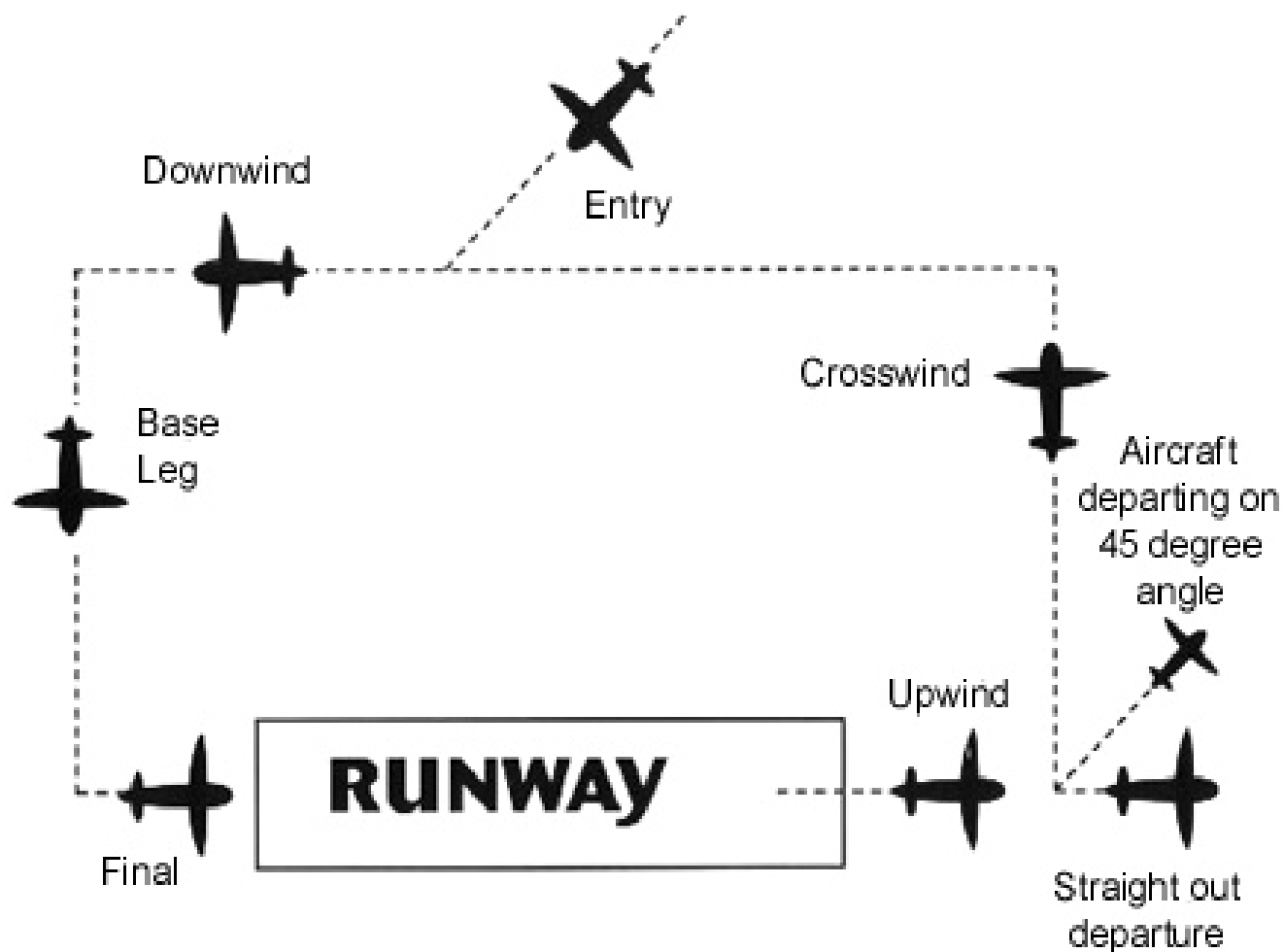
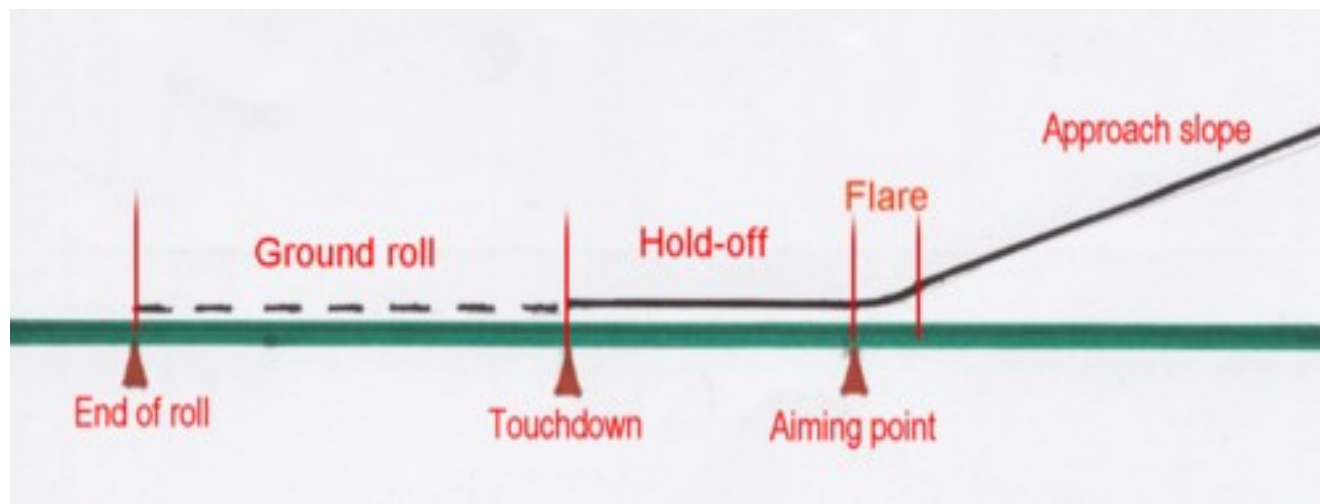
## Landing Configuration (extract from T.O. 1F-16CJ-1)

Two distinct techniques may be used when landing. One technique is to trim for approximately 11 degrees AOA and to fly that airspeed throughout the final approach. Attitude/glidepath is controlled by the stick, and airspeed/AOA is controlled by the throttle. This technique allows better pitch control, better over-the-nose visibility, and a more stable HUD presentation. In gusty wind conditions, the aircraft wallows less, and during the flare, the sink rate is easier to control. The aircraft floats approximately 800-1200 feet from flare initiation to touchdown. Another technique is to trim for 13 degrees AOA and to fly that airspeed throughout the final approach. The throttle is used primarily to control glidepath, and the stick controls airspeed angle. This type of approach primarily allows better control of touchdown point and more efficient energy dissipation; however, since the aircraft is already at 13 degrees AOA, the flare is more difficult, and care must be exercised to avoid scraping the speedbrakes or landing firm. The aircraft floats approximately 500-700 feet from flare initiation to touchdown.

Regardless of the technique used, establish computed final approach airspeed for the desired AOA early on final and trim the aircraft. Airspeed changes result in pitch changes, which may require retrimming and make glidepath control more difficult.

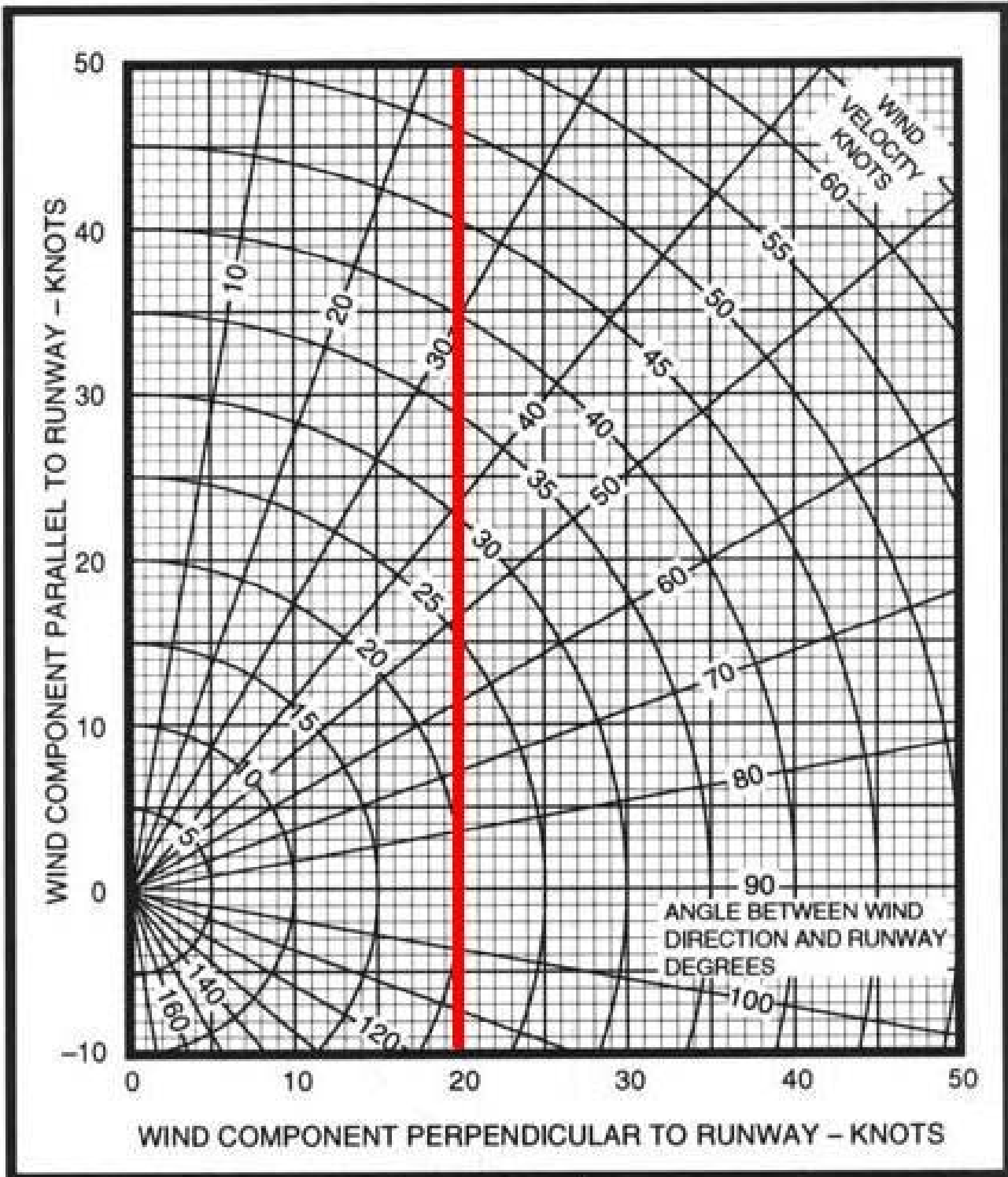
On short final, avoid premature or large thrust reductions which may cause increased sink rates and a hard landing. Use thrust rather than back stick to control undesirable sink rates. Increased back stick may result in a tail strike in this situation. AOA decreases slightly as the aircraft enters ground effect. All normal landings should be made with the speedbrakes opened to avoid a floating tendency when entering ground effect. A touchdown at the desired point at 13 degrees AOA can be achieved when flying final at either 11 or 13 degrees AOA by adjusting the initial aim point.

# PERFORMANCE DATA T.O. and LDG.



# PERFORMANCE DATA T.O. and LDG.

## Takeoff and Landing Crosswind Limits



# PERFORMANCE DATA, WEAPONS

## HARM Quick Reference

- |                      |                                |
|----------------------|--------------------------------|
| 1 RIGHT HDPT switch  | ON                             |
| 2 MASTER ARM         | ON                             |
| 3 SMS                | Select AGM-88                  |
| 4 MFD HTS page range | Adjust as required             |
| 5 Slew cursors       | Select active emitter and lock |
| 6 Check DLZ          | Pickle, "Magnum!"              |

## Maverick Quick Reference

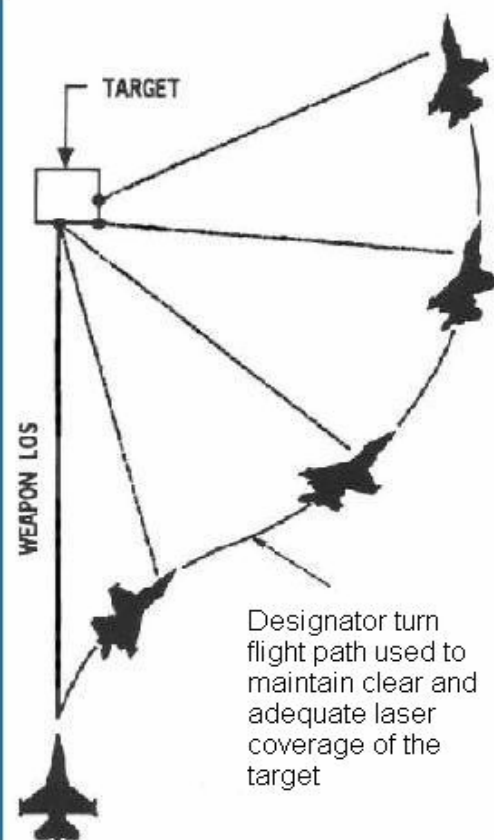
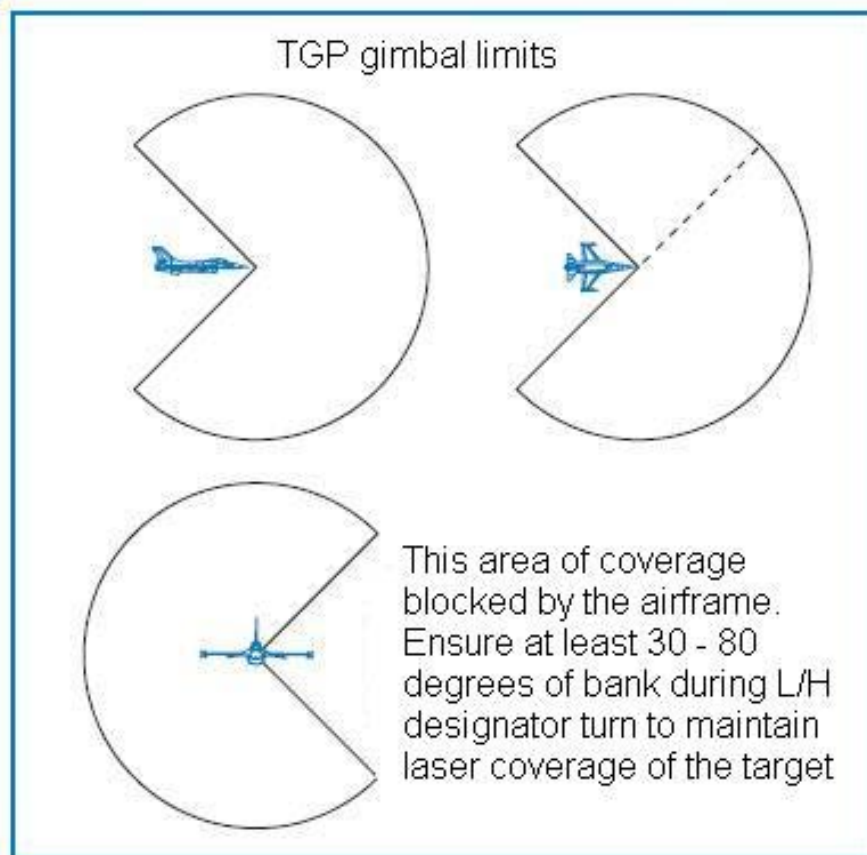
- |  |                                |
|--|--------------------------------|
| 1 MASTER ARM                               | ON                             |
| 2 SMS                                      | Select AGM-65 and pwr on (RDY) |
| 3 MFD                                      | Select WPN page                |
| 4 Uncage seeker head                       | Ensure seeker view in WPN page |
| 5 Select launch mode                       | PRE / VIS* / BORE              |
| 6 Select SOI                               | HUD (BORE) or WPN page (PRE)   |
| 7 Gnd stabilize TD box<br>over target area | Select target and hard lock    |
| 8 Check DLZ / Gimbal limits                | PICKLE, "Rifle!"               |

\* Implemented as BORE mode in F4AF

# PERFORMANCE DATA, WEAPONS

## LGB Quick Reference (N/A for blk 50/52 non CCIP)

1 RIGHT HDPT switch	ON
2 MASTER ARM	ON
4 LASER ARM	ON
5 SMS	Select GBU
6 A/G Radar mode	Set as required
7 MFD to TGP	Select as SOI
8 Slew Cursors to acquire Tgt	Ground stabilize and lock
9 Press Pickle	Hold until bomb release, "Paveway!"
10 Initiate designator turn	Maintain until impact



# PERFORMANCE DATA, WEAPONS

## CBU Munition Quick Reference

CBU	Recommended BA (AGL)	Recommended Usage
52	2000 - 2500	Anti-material / personnel. Small Bldg. trucks, infantry
58	2500 - 3000	Anti-material/personnel. Mainly infantry and non-armored vehicles
71	2000 - 2500	Anti-personnel / mixed fusing delays for area denial (no armor)
87	2000 - 3000	All purpose / light armor ( $\leq$ T-55, ZSU, APC). Medium Bldg. & Infantry
94	2000 - 2500	Power Station/Grid disruption (has questionable effectiveness in game)
97	2000 - 2500	Heavy anti-armor (all armor, all tanks)
MK-20D	1500 - 2000	Medium anti-armor (all tanks $\leq$ T-80)

### Note

BA (Burst Altitude) is critical and generally selected based on target density at the target site. Select a higher BA to achieve a larger / less dense dispersion of bomblets (larger foot print). Select a lower BA for a smaller more dense bomblet dispersion, e.g. the targets are packed closely together

The 72nd Tactical Reference Guide can be found at [www.72nd.org](http://www.72nd.org)

# PERFORMANCE DATA, WEAPONS

## Enhanced Envelope Gunsight (EEGS) Adjustment

<b>MDS</b>	<b>NATO Dsg.</b>	<b>Wingspan</b>
Default		35
Mig-15	Fagot	33
Mig-17	Fresco	32
Mig-19	Farmer	30
Mig-21	Fishbed	24
Mig-23	Flogger	27/47*
Mig-25	Foxbat	46
Mig-27	Flogger	27/47*
Mig-29	Fulcrum	38
Mig-31	Foxhound	44
Su-7	Fitter	29
Su-25	Frogfoot	47
Su-27	Flanker	48
Il-28	Beagle	70
A-10	Thunderbolt II	58
F-4	Phantom II	39
F-14	Tomcat	38/64*
F-15	Eagle	43
F-16	Fighting Falcon	32
F-18	Hornet	50
G-4	Super Galeb	33
OV-1	Mohawk	42

\* variable geometry (swept / unswept)

# PERFORMANCE DATA, EWS

## EWS Programming Quick Reference

1 CMDS MODE knob	STBY
2 ICP, List, 7	Verify REQJAM & BINGO ON adjust BINGO level as desired
3 DCS dobber	SEQ
4 Prev / next button	Select program number (1 - 4) to modify
5 Set Program	BQ, BI, SQ, SI
6 CMDS MODE knob	As Briefed
7 Save cockpit setup	ALT - c then s

### Note

#### EWS Chaff PGM 1

Burst Qty (BQ)	4
Burst Interval (BI)	0.500
Salvo Qty (SQ)	3
Salvo Interval (SI)	1.5

This example program will release 4 chaffs (BQ) at PGM actuation with a 0.5 sec. interval (BI) between chaff release. 1.5 sec. later (SI) the PGM is repeated. The loop will continue for 3 iterations (SQ) expending a total of 12 chaffs

# PERFORMANCE DATA, EWS

## Default EWS Program

PGM	TYPE	BQ, BI, SQ, SI	Description
1	Chaff	3, 0.5, 3, 2	High - med altitude SAM evasion
	Flare	0, 0, 0, 0	
2	Chaff	1, 0.5, 3, 3	Merge program for enemy with IR missiles
	Flare	4, 0.25, 2, 1	
3	Chaff	2, 0.5, 4, 2	Popup AG sequence, Chaff only
	Flare	0, 0, 0, 0	
4	Chaff	2, 0.5, 4, 3	Popup AG sequence, Chaff - Flare
	Flare	2, 0.5, 3, 3	

## Neo's Recommended EWS Program

PGM	TYPE	BQ, BI, SQ, SI	Description
1	Chaff	2, 0.75, 1, 0	<b>SAM / BVR combat</b> , radar missiles only, single burst, manual operation
	Flare	0, 0, 0, 0	
2	Chaff	2, 0.75, 1, 0	<b>BVR / WVR combat</b> , merge, mixed defense, manual operation
	Flare	1, 0, 2, 1.5	
3	Chaff	1, 0, 1, 0	<b>DGFT</b> , mixed defense, manual operation
	Flare	2, 0.25, 1, 0	
4	Chaff	1, 0, 3, 0.75	<b>Melee</b> , high threat, mixed defense program, Man or Semi
	Flare	1, 0, 3, 1.5	

### Note

Neo's excellent custom program will keep you in the fight longer by conserving your EWS stores. It is optimized for the CMDS MANUAL mode operations under which most missions take place. The complete philosophy and operation paper can be found at [www.72nd.org](http://www.72nd.org).

# PERFORMANCE DATA, VIP / OA / VRP

## VIP / OA / VRP Quick Reference

### VIP

- |              |  |
|--------------|--|
| 1 ICP STPT   | Select target steerpoint                   |
| 2 ICP List   | Select VIP                                 |
| 3 Set        | TBRG (ingress hdg), RNG (ft. prior to tgt) |
| 4 DCS dobber | RTN  |

### OA

- |              |                                    |
|--------------|------------------------------------|
| 1 ICP STPT   | Select target steerpoint           |
| 2 ICP List   | Select DEST                        |
| 3 DCS dobber | SEQ to OA1                         |
| 4 Set        | Set RNG as desired                 |
| 5 DCS dobber | SEQ to OA2 if more points are req. |
| 6 DCS dobber | RTN                                |

### VRP

- |              |   |
|--------------|---|
| 1 ICP STPT   | Select target steerpoint                |
| 2 ICP List   | Select VRP                              |
| 3 Set        | TBRG (engress hdg), RNG (ft. after tgt) |
| 4 DCS dobber | RTN                                     |

Reference Neo's Guide to using VIP/OA/VRP at [www.72nd.org](http://www.72nd.org)

# PERFORMANCE DATA FLIR / TFR

## FLIR / TFR Quick Reference

### FLIR

- |                     |  |
|---------------------|--|
| 1 LEFT HDPT switch  | ON   |
| 2 Display HUD image | Shift - H  |
| 3 Choose MFD        | Select an MFD slot and choose FLIR                                     |
| 4 Adjust            | Set pitch and FOV as desired<br>(default position FOV 19.1 Pitch -5.0) |

### TFR

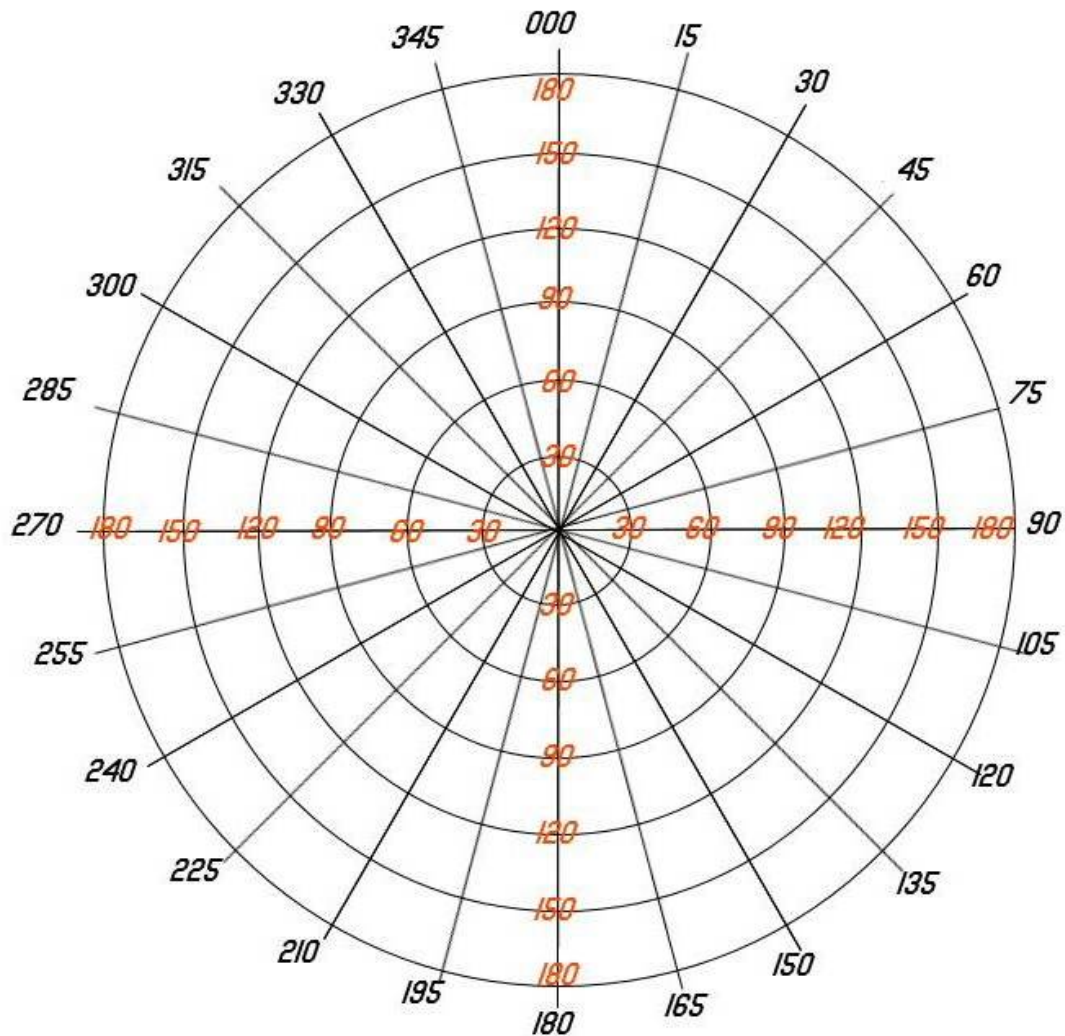
- |                           |                                   |
|---------------------------|-----------------------------------|
| 1 LEFT HDPT switch        | ON                                |
| 2 Choose MFD              | Select an MFD slot and choose TFR |
| 3 Adjust ground clearance | Set as desired                    |
| 4 Select ride type        | Soft / Med / Hard                 |
| 5 TFR ON                  | OSB 4 or ADV MODE switch          |

### NOTE

TFR not enabled for "D" model F-16's in F4AF. This includes all training missions utilizing F-16Ds.

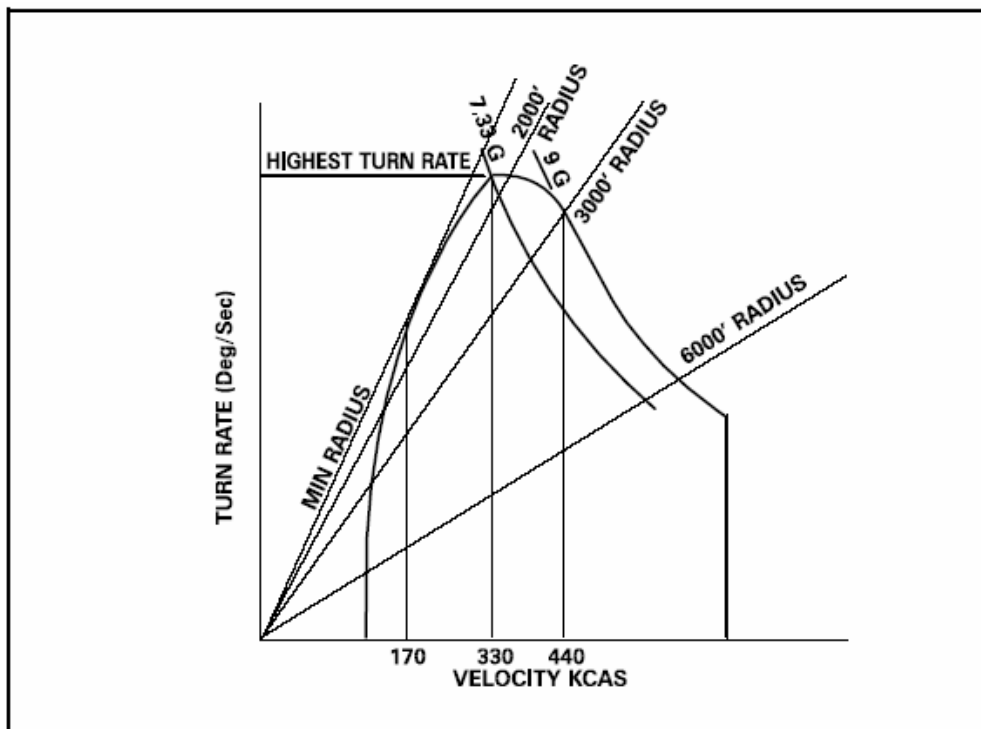
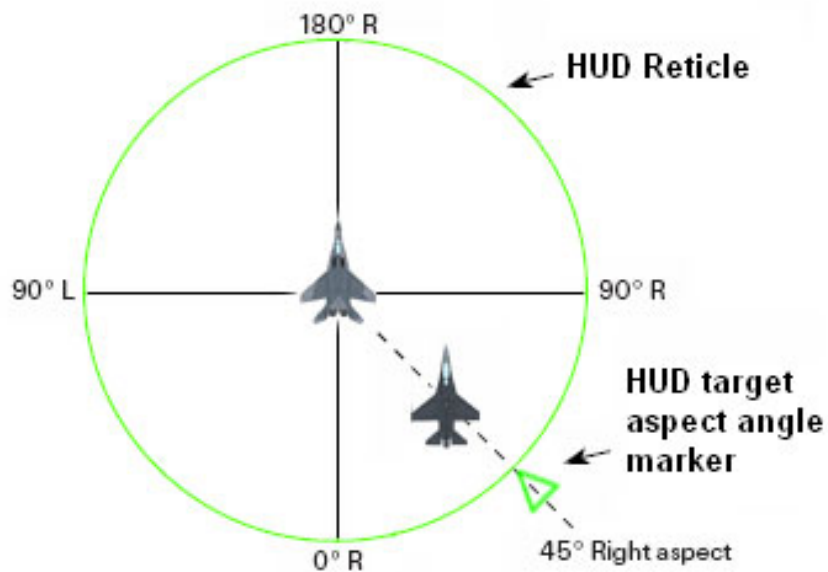
# PERFORMANCE DATA CONTINUED

## Bullseye Tool

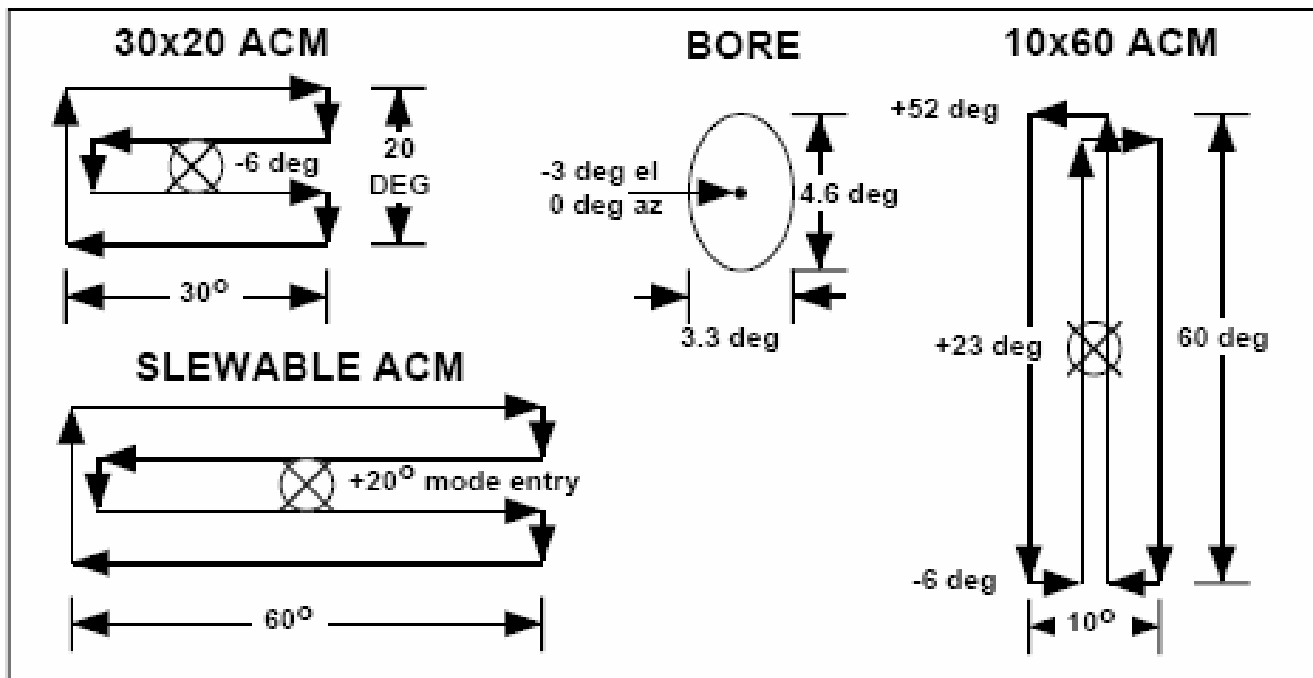
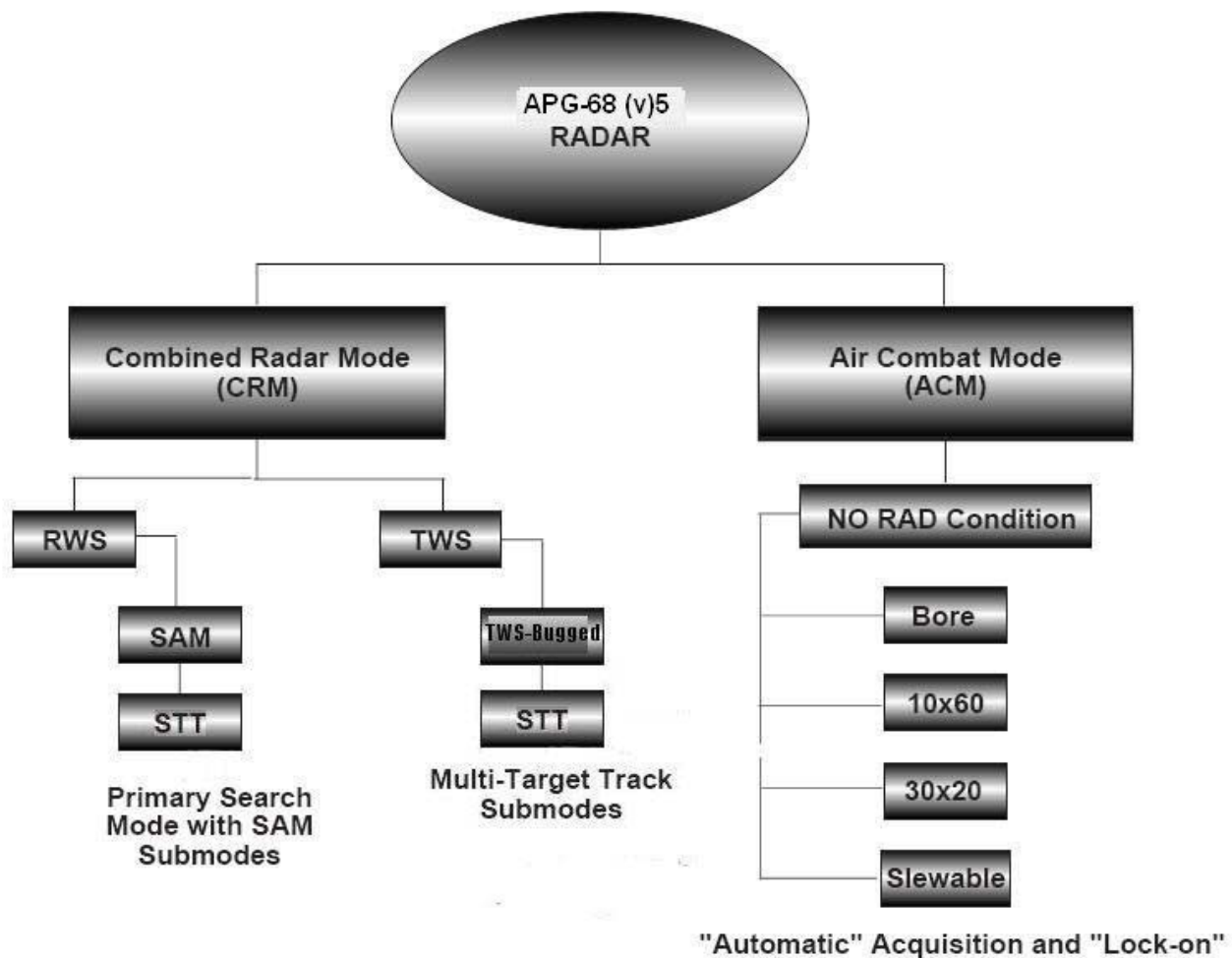


# PERFORMANCE DATA CONTINUED

## Aspect Angle Tool



# PERFORMANCE DATA, RADAR



# PERFORMANCE DATA, RADAR

## Radar Mode Reference

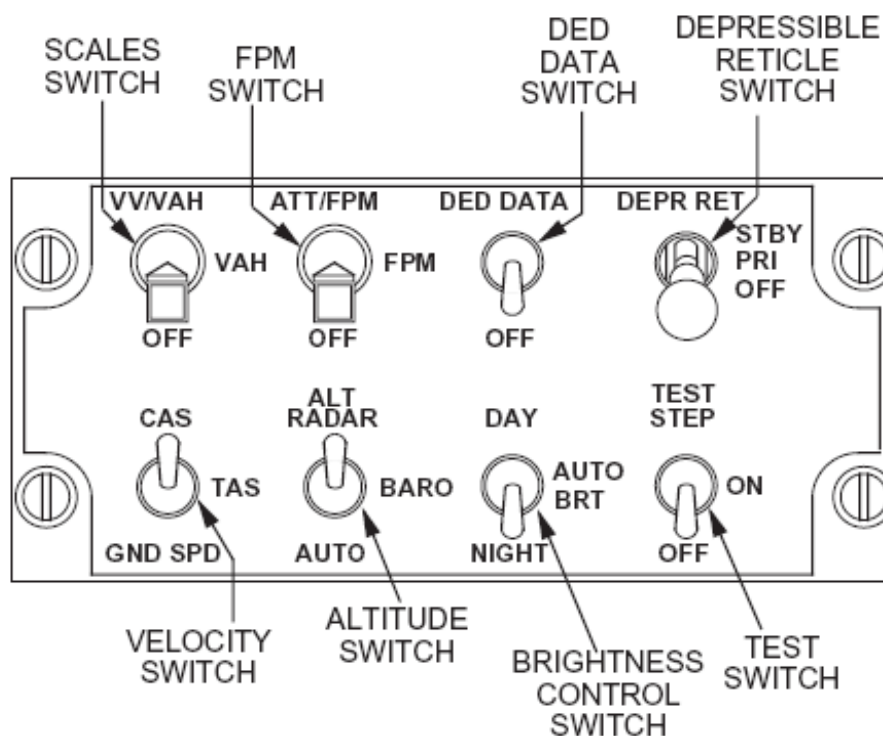
Radar Mode	Azimuth	Bar	Max Rng	Exp Mode	DBS1/2
RWS	10°, 30°, 60°	1, 2, 4	160nm	No	No
RWS-SAM	Auto	1, 2, 4	160nm	No	No
STT	2°	1°	Auto	No	No
TWS	10°, 30°, 60°	1, 2, 3	160nm	Yes	No
VSR	10°, 30°, 60°	1, 2, 4	80nm	No	No
LRS	10°, 30°, 60°	1, 2, 4	160nm	No	No
GM	10°, 30°, 60°	Fixed	80nm	Yes	Yes
GMT	10°, 30°, 60°	Fixed	40nm	Yes	No
SEA	10°, 30°, 60°	Fixed	40nm	Yes	No
ACM MODES					
ACM-HUD	30°x20°	4	10nm	No	No
ACM-SLEW	5°/60°	4	10nm	No	No
ACM-Vertical	10°x60°	2	10nm	No	No
ACM-BORE	3.3°x4.6°	1	10nm	No	No

## Expanded Field of View Reference

FOV Mode	Ratio over Normal	Resolution	Range			
			10nm	20nm	40nm	80nm
			Area Covered			
EXP	4:1	No increase	2.5x2.5nm	5x5nm	10x10nm	20x20nm
DBS1	4:1	8:1	2.5x2.5nm	5x5nm	10x10nm	20x20nm
DBS2	8:1	64:1	1.25x1.25	2.5x2.5nm	5x5nm	10x10nm

# PERFORMANCE DATA, HUD

## HUD Management



### SCALES

Selects vertical velocity, velocity, altitude and heading scales and the Bank Angle Indicator (BAI) for display in the HUD.

### FPM

Selects attitude bars and Flight Path Marker (FPM). Set to ATT/FPM position for normal operations

### DED DATA

Displays DED data in the lower portion of the HUD

### VELOCITY

Selects Calibrated (CAS), True (TAS), or Ground Speed (GS)

### ALTITUDE

Selects barometric, radar, or automatic altitude display options

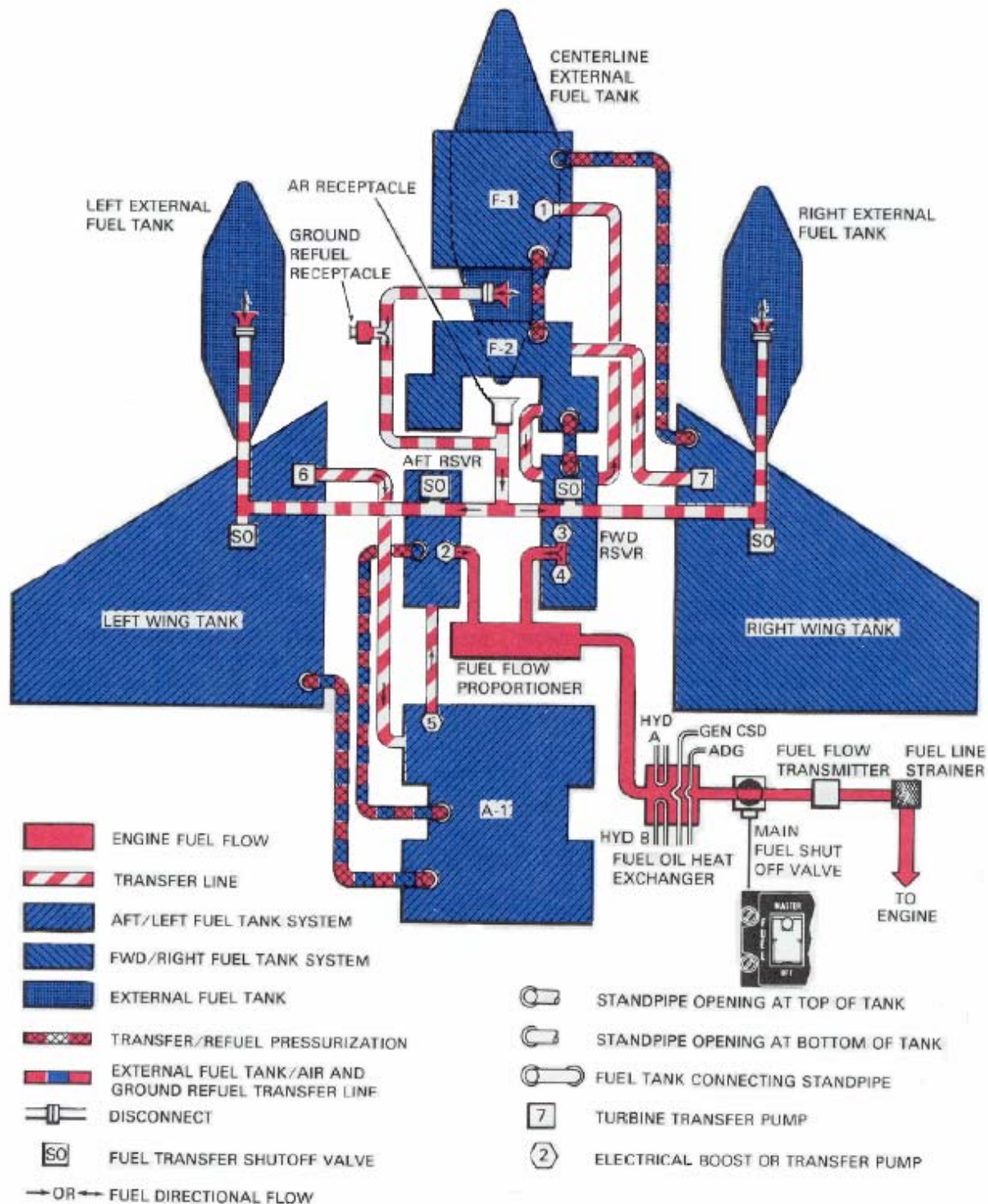
### BRIGHTNESS

Enables levels from off to full intensity for DAY, off to half intensity for NIGHT and automatic for AUTO

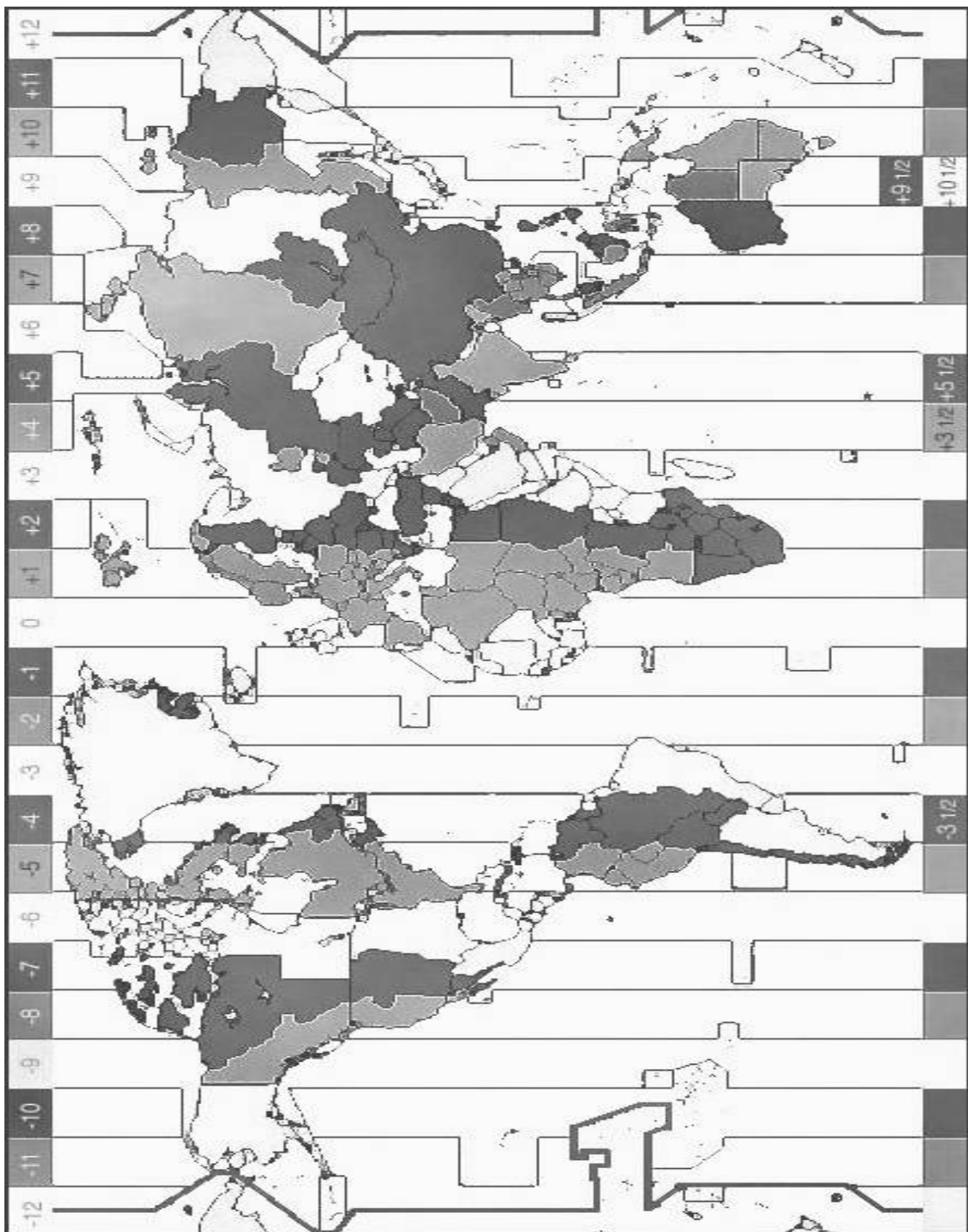
### RETICLE

Displays manual bombing reticle in HUD. Only operates when manual bombing mode is selected in SMS. Used during FCC failure and will display bombsight even with HUD failure.

# PERFORMANCE DATA, FUEL



# PERFORMANCE DATA, CONTINUED



**Attachment 1**  
**FLIGHT BRIEFING GUIDE**

**MISSION DATA**

1. Time Hack
2. Verify Controller Setup
3. Mission Data Card
  - a. Call Signs
  - b. Mission Type
    - i. Priority Target / GPS / SP
    - ii. TOT
    - iii. Alternate Targets / GPS
    - iv. Threat Analysis
  - c. Aircraft Type / Location / Status
  - c. Takeoff / Landing Data / Rotation Speed
  - d. Joker / Bingo Fuel
  - e. Homebase GPS coordinates / TACAN
  - f. Alternate GPS coordinates / TACAN
4. Actual / Forecast Weather
  - a. Homebase
  - b. Weather over Target
5. NOTAMs
6. Airfield Status
  - a. Actual versus Max Allowable Tailwind
  - b. Barriers
  - c. Navigation Aids
  - d. Hazards to Taxi / RCR
- 7.
- 8.

**GROUND PROCEDURES**

1. Aircraft / Armament Preflight
2. Cockpit Set-Up
3. Engine Run / Hot Preflight
4. Crew Chief Briefing
5. Quick Check Procedures
- 6.
- 7.

**LAUNCH PROCEDURES**

1. Notification / Channel Selection
2. Status
  - a. Airborne Order
3. Taxi
  - a. 2 minutes before TOT
  - b. #1, #2, #3, #4 Request Taxi in Sequence
4. Takeoff / Runway Lineup / Interval / Formation
  - a. as soon as #4 finished requesting Taxi and #1 is at/near Hold Line
  - b. #1, #2, #3, #4 Request Takeoff in Sequence
5. Join Up / Trail Formation / Power Settings / Airspeeds
- 6.
- 7.

**IN-FLIGHT PROCEDURES**

1. Formation
2. Airspeeds / Altitudes
3. Weapons Safe Checks
4. Radar Search Responsibilities
5. Degraded Fire Control System
6. Ops Checks
7. Region Minimum Safe Altitude (MSA)
8. Fence In/Out
9. VID Procedures
  - a. Authority Required to Close
  - b. Formation / Tactics
  - c. Range / Altitude Separation Requirements on Target
- Prior Permission to Close With / Without Visual Contact
  - d. Radar Lock-On Requirements
  - e. Maximum Closure Speed
  - f. Minimum Airspeed
  - g. Loss of Contact Procedures
  - h. Breakaway Procedures
  - i. Restrictions
10. Aircraft in Distress
  - a. Minimum Closure Distance
  - b. Visual Signals - Day / Night
  - c. Escort Procedures
  - d. Recovery / Landing Visual Signals
  - e. Dissimilar Formation Procedures
11. Jettison Procedures
12. Lost Wingman
13. SARCAP
- 14.
- 15.
- 16.

**SPECIAL SUBJECTS**

1. SAM/SEAD Treat
2. Fuel Awareness
3. Maneuvering Limitations
4. Recognition / Prevention / Recovery from Loss of Control
5. Spatial Disorientation
6. Recall Procedures
- \*7. Rules of Engagement (ROE) / Training Rules / Special Operating Instructions
8. Hazards Associated with Human Factors (i.e., Channelized Attention, Task Saturation/ Prioritization, Complacency, **(VPACAF) Transition from prolonged Auto-TF Terrain Following (TF) to visual terrain avoidance.**)
- 9.
- 10.
- 11.

Mission Data Card		Package Elements							Package	
Check-In	GMT		Role	Callsign	Block / #	TOT	Homebase	LAT(N)	LONG(E)	Tacan/Rng
Takeoff	GMT	1								
Land	GMT	2								
IP		3								
<input type="checkbox"/> Skype <input type="checkbox"/> Ventrillo		4								
Weather		5								
Wind		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">T T T</div> <div style="text-align: center;">T T T</div> <div style="text-align: center;">T T T</div> </div>							Scratch Pad	
Temp										
Clouds										
Con Layer										
Visibility										
Priority Target		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">T T T</div> <div style="text-align: center;">T T T</div> <div style="text-align: center;">T T T</div> </div>								
Type										
SP										
LAT(N)		Mission								
LONG(E)		Your Task								
Alternate Target		Threat Analysis								
Type										
LAT(N)										
LONG(E)										
Debrief	Mission	Pilot Stats	Callsign	Pilot	Status	AA	AG	Results	Gross WT	
	Your Task								Drag Co	
	P. Rating								Flt Distance	
	Actual TOT								Rotation	
	Losses								Takeoff	
FENCE CHECK LIGHTS AVTR VOLUMES ECM MASTER ARM RWR RADAR SELJETT SMS									Vref	

**TO 1F-16-1CL-MDC, 6021, 1.05**

Mission Data Card		Package Elements							Package	
Check-In	GMT		Role	Callsign	Block / #	TOT	Homebase	LAT(N)	LONG(E)	Tacan/Rng
Takeoff	GMT	1								
Land	GMT	2								
IP		3								
<input type="checkbox"/> Skype <input type="checkbox"/> Ventrillo		4								
Weather		5								
Wind		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">T T T</div> <div style="text-align: center;">T T T</div> <div style="text-align: center;">T T T</div> </div>							Scratch Pad	
Temp										
Clouds										
Con Layer										
Visibility										
Priority Target		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">T T T</div> <div style="text-align: center;">T T T</div> <div style="text-align: center;">T T T</div> </div>								
Type										
SP										
LAT(N)		Mission								
LONG(E)		Your Task								
Alternate Target		Threat Analysis								
Type										
LAT(N)										
LONG(E)										
Debrief	Mission	Pilot Stats	Callsign	Pilot	Status	AA	AG	Results	Gross WT	
	Your Task								Drag Co	
	P. Rating								Flt Distance	
	Actual TOT								Rotation	
	Losses								Takeoff	
FENCE CHECK LIGHTS AVTR VOLUMES ECM MASTER ARM RWR RADAR SELJETT SMS									Vref	

**TO 1F-16-1CL-MDC, 6021, 1.05**