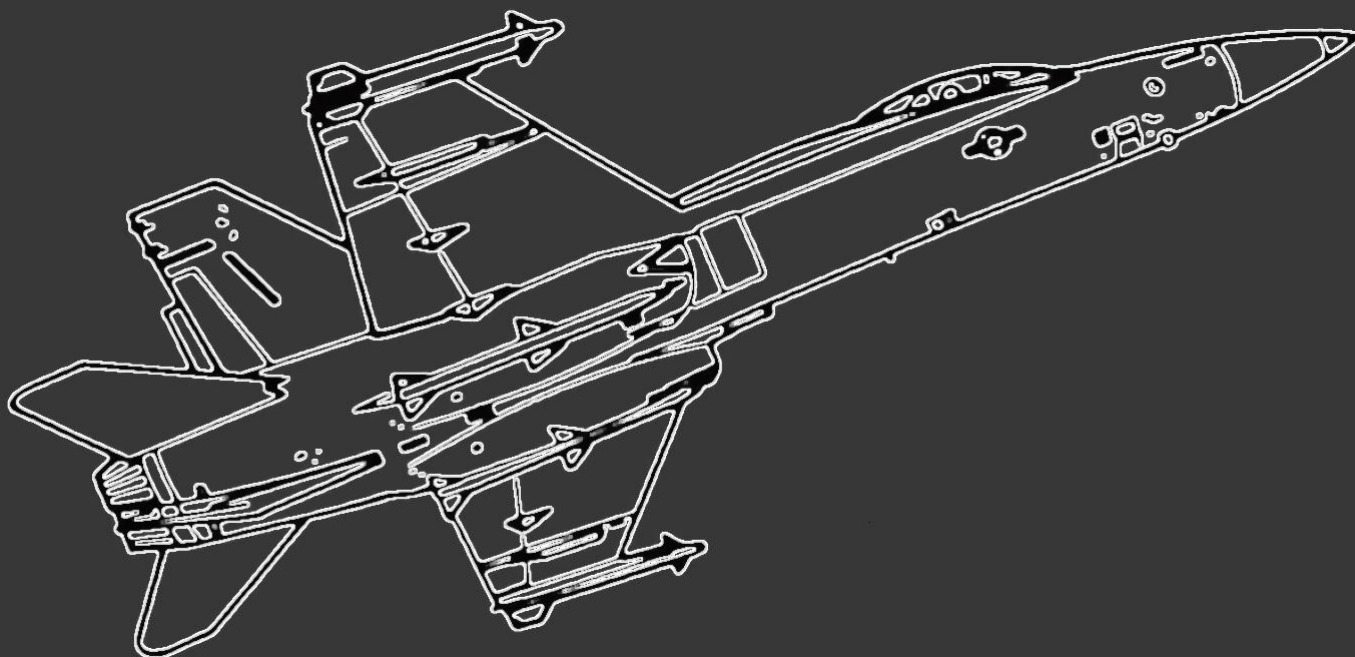




F/A-18C

Lot 20 BLOCK 51 (10)

BUNO 165407

CHECKLIST
WEAPONS
GUIDE



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INSTRUMENT PANEL	LEFT CONSOLE	RIGHT CONSOLE

Who dunnit?



GO	SUCCESSFUL BIT (Built-In Test) of ALQ-165 ASPJ Airborne Self Protection Jammer <i>Remains illuminated until BIT mode is deselected</i>	NO GO	UNSUCCESSFUL BIT (Built-In Test) of ALQ-165 ASPJ Airborne Self Protection Jammer <i>Remains illuminated until BIT mode is deselected</i> <i>ALQ-126 jammer is inoperable</i>
L BLEED	Left ENGINE BLEED AIR VALVE is automatically closed due to the Fire & Bleed Air Test switch or bleed air leak or fire has been detected in LEFT ENGINE bleed air ducting	R BLEED	Right ENGINE BLEED AIR VALVE is automatically closed due to the Fire & Bleed Air Test switch or bleed air leak or fire has been detected in RIGHT ENGINE bleed air ducting
SPD BRK	Speed brake is NOT FULLY retracted	STBY	ALQ-165 (ASPJ) is set to STBY (Standby) on the ECM (Electronic Countermeasure) panel
L BAR	Launch bar malfunction <i>NOSE GEAR CANNOT RETRACT</i> Launch bar can only be extended with weight on wheels	REC	Indicates aircraft is being ILLUMINATED by a threat's radar
L BAR	Launch bar EXTENDED with weight on wheels	XMIT	Lit when ECM Jammer is TRANSMITTING
		ASPJ OH	ALQ-165 (ASPJ) is (Airborne Self Protection Jammer) OVERHEATING



RCDR ON	Flight Recorder is ON	DISP	Countermeasure dispense program is ACTIVE
_____		_____	
_____		_____	
_____		SAM	Surface-to-Air Missile tracking radar LOCKED TO AIRCRAFT Light is ... SOLID when RADAR IS TRACKING and Light is ... FLASHING when GUIDING A MISSILE
AI	Airborne Intercept (AI) RADAR LOCKED TO AIRCRAFT	AAA	Anti-Aircraft Artillery (AAA) fire control radar is LOCKED TO AIRCRAFT STEADY LIGHT for all radar directed <u>AAA except</u> ZSU-23-4 Shilka = radar-directed gun systems in which the light will FLASH at 3 Hz
CW	Aircraft illuminated by CONTINUOUS WAVE (CW) RADAR		

Anti Aircraft Artillery (AAA)							
AAA THREAT	Acquire Time [secs]	Guidance	AMMO [rounds]	RWR	HARM PB	RNG [NM]	ALT [k feet]
ZU-23-3 Sergey	4	OPTICAL	100	-	-	1.3	6.5
ZSU-23-4 Shilka	8	RADAR	2000	A	121	1.3	6.5
ZSU-57-2 Sparka	5	OPTICAL	254	-	-	2	14
ZPU-1/2/4	3.5	OPTICAL	4800	-	-	0.7	4.5
Flakpanzer Gepard	4	RADAR	660	A	207	2	9.5
M163 Vulcan	6	OPTICAL	2280	A	208	1.4	4.5

ADVISORY LIGHTS PANEL



CK SEAT	APU ACC	BATT SW
One or both ejection seats ... not armed with ... WOW and ... right throttle at MIL	APU accumulator pressure LOW Possible leak in isolated HYD 2B system 1. HYD ISOL ORIDE (10 seconds max) If caution still ON or COMES ON again – 2. Extend landing gear as soon as practical	Battery switch ... ON without AC power on aircraft
		Battery switch ... OFF with AC power on aircraft
		Prolonged ground operation with CAUTION ON may damage battery and DC electrical system

ADVISORY LIGHTS PANEL



FCS HOT	GEN TIE
Flight control computer A or right transformerrectifier overtemperature	115/200 volt AC BUS TIE OPEN
FCS airscoop cannot be closed in flight	- RESETTING the GEN TIE switch may cause loss of the operating generator - With ... L GEN ... ON - No OBOGS - With ... R GEN ... ON - No HUD - No ADC - No ADC - No AOA information on HUD display if called up on L DDI
-----	-----
1. Airspeed ... SUBSONIC	With BOTH generators operating –
2. AV/FCS cool switch ... EMERG	1. Generator tie control ... RESET... NORM
	If light remains ON –
	2. Continue mission with GEN TIE ... ON
	With L or R GEN light –
	1. Generator switch ... CYCLE
	If generator restored –
	2. Do not attempt to reset GEN TIE
	3. Continue mission with GEN TIE ... ON
	If generator still failed –
	2. Generator switch ... OFF
	3. Land as soon as practical
	4. Refer to Emergency Power Distribution chart

ADVISORY LIGHTS PANEL



FUEL LO

At least one feed tank below 800 pounds

- No negative g
- Sideslip may be required to transfer wing fuel

1. Fuel flow ... REDUCE (if practical)

2. Refer to Fuel Transfer Failures

FCES

Third like failure or flight control function lost

- Caution light backup for DDI FCS cautions

☆ Refer to FCS Failure

*1. Speedbrake ... Check IN

*2. Decelerate slowly to below 400 knots/M0.8

3. If flaps full ... RAISE TO HALF

4. Do not exceed ... +15° AOA
(+12° AOA with asymmetric wing stores)

5. MENU FCS ... IDENTIFY FAILURE
Refer to FCS Failure Indications And Effects

6. FCS ... RESET

If no RESET and DDI warnings and cautions inoperative –

7. FCS circuit breakers ... CHECK

8. Emergency Jettison Button ... PUSH (If required)

9. Flaps ... HALF

10. Airspeed ... 200-250 knots

11. Make controllability check at safe altitude and on-speed AOA

12. If flying qualities unacceptable, make controllability check with flaps in AUTO

13. If controllability permits landing
... short field arrestment recommended

14. Reduce sink rate for landing

15. Land as soon as practical

ADVISORY LIGHTS PANEL



L GEN	R GEN
Designated generator OFFLINE	Designated generator OFFLINE
- Either generator can support the total aircraft electrical load - With both lights ON ... No OBOGS - If associated with ... BOOST LO and ... both HYD circuit cautions may be a PTS failure	- Either generator can support the total aircraft electrical load - With both lights ON ... No OBOGS - If associated with ... BOOST LO and ... both HYD circuit cautions may be a PTS failure
1. Generator switch ... CYCLE	1. Generator switch ... CYCLE
If generator still failed –	If generator still failed –
2. Generator switch ... OFF	2. Generator switch ... OFF
3. Land as soon as practical	3. Land as soon as practical

INTERIOR CHECK

- HARNESS and RUDDER PEDALS ... SECURE/ADJUST
- EJECTION CONTROL handle ... CLEAR
- EJECTION SEAT ... SAFE & LOCKED
- PARKING BRAKE ... SET

LEFT SIDEWALL

- CIRCUIT BREAKERS (4) ... IN
- NUCLEAR WEAPON consent SW ... ENABLE

LEFT UPPER CONSOLE

- MC Mission computer Switch ... NORM
 - HYD ISOL switch ... NORM
- ALE-39 DISPENSER RESET SW ... GUARDED
- ANT SEL
 - COMM 1 ... AUTO
 - IFF antennas ... BOTH

LEFT CONSOLE

- OXYGEN
 - OBOGS ... OFF
 - OXY FLOW ... OFF
- COMM panel
 - RLY ... OFF
 - G XMT ... OFF
 - ILS Preset Channel Selector ... set CHANNEL
 - ILS ... set UFC
 - CRYPTO ... NORM
 - MODE 4 ... DIS
 - MASTER ... NORM
- VOLUME CONTROL panel ... SET
 - RWR ... MID
 - WPN ... MID
- FCS GAIN SWITCH ... NORM
- REFUEL PROBE switch ... RETRACT
- EXTERNAL TANKS switches
 - WING ... NORM
 - CTR ... NORM
- DUMP switch ... OFF
- INTERNAL WING switch ... NORM
- STROBES ... BRT / DIM
- EXTERNAL LIGHTS ... SET
- GEN TIE control switch ... NORM (guard down)
- THROTTLES ... OFF
- EXTERNAL LIGHTS Master Switch ... OFF

INTERIOR CHECK (continued)

LEFT FWD CONSOLE

- **HOOK BYPASS** ... FIELD / CARRIER
 - While Switch is set to “CARRIER” AoA Indexer **FLASHES** when the hook is not down with GEAR & FLAPS down...
- **LDG/TAXI LT** ... OFF
- **ANTI-SKID switch**
 - **FIELD** ... ON
 - **CARRIER** ... OFF
- **LAUNCH BAR** ... RETRACT
- **FLAP switch** ... FULL
- **SELECTIVE JETTISON knob** ... SAFE
- **LANDING GEAR handle** ... DOWN
- **LDG GEAR handle mech stop *** ... FULLY ENGAGED **not modelled in DCS*
- **CANOPY JETTISON handle** ... FORWARD

INSTRUMENT PANEL

- **MASTER ARM switch** ... SAFE
- **FIRE and APU FIRE warn lights** ... NOT PRESSED
- **DDI, AMPCD, and HUD** ... OFF
- **ADF switch** ... OFF
- **COMM 1 and 2 knobs** ... OFF
- **ALTITUDE source** ... BARO / RDR
- **ATTITUDE source** ... AUTO

LOWER FWD PANEL

- **AUX REL** ... NORM
- **DISPENSER** ... OFF
- **ECM mode** ... OFF

LOWER RIGHT FWD PANEL

- **STBY ATT** ... CAGE / LOCK

RIGHT FWD PANEL

- **IR COOL switch** ... OFF
- **HMD** ... OFF
- **SPIN RECOVERY switch** ... GUARD DOWN / OFF

RIGHT SIDEWALL

- **CIRCUIT BREAKERS (4)** ... IN

RIGHT UPPER CONSOLE

- **DEFOG HANDLE** ... MID
- **WINDSHIELD ANTI-ICE switch** ... OFF

RIGHT FWD CONSOLE

- ARRESTING HOOK handle ... UP
- RADAR ALTIMETER ... OFF
- WING FOLD handle ... SAME AS WING
- AV COOL switch ... NORM

RIGHT CONSOLE

- GEN switches ... NORM
- BATTERY switch ... OFF
- ECS system
 - MODE ... AUTO
 - CAB TEMP ... 10 O’CLOCK
 - CAB PRESS ... NORM
 - PITOT A/I ... AUTO
 - ENG A/I ... OFF
 - BLEED AIR ... NORM & DOWN
- Interior lights
 - CONSOLES ... AS DESIRED
 - INST PANEL ... AS DESIRED
 - FLOOD ... AS DESIRED
 - WARN/CAUTION ... AS DESIRED
 - CHART ... AS DESIRED
 - MODE ... NVG / DAY
- Sensors
 - FLIR ... OFF
 - LTD/R ... AFT
 - LST/NFLR ... OFF
 - RADAR ... OFF
 - INS ... OFF
- KY-58 panel
 - MODE ... P
 - FILL SELECT KNOB ... 1
 - VOLUME ... SET
 - RADIO ENCRYPT PWR ... OFF

BEFORE START		
• PARKING BRAKE	... SET	
• FLAP switch	... FULL	
• BATTERY status	... CHECK	
○ BAT Switch	... ORIDE	LMB
○ EMER BAT VOLTS	... CHECK	
After a minimum of 5 secs in ORIDE check for minimum of 23,5 volts		
○ BAT Switch	... ON	RMB
○ UTILITY BAT VOLTS	... CHECK	
After a minimum of 5 secs in ON check for minimum of 23,5 volts		

WITH EXTERNAL ELECTRICAL POWER		
• EXTERNAL POWER switch	... RESET	
• SWITCH 1, 2, 3 and 4	... B ON	hold for 3 seconds
• DDIs, HUD, and AMPCD	... ON	
• COMM 1, 2, and ADF	... AS DESIRED	
• WARNING and CAUTION lights	... TEST	
• INS	... ALIGN	
• RADAR	... OPERATE	
• FLIR	... ON	
• INERTIAL NAVIGATION sys	... ENTER WPTs DESIRED	

ALL STARTS		
• FIRE WARNING	... PERFORM	
FIRE test switch	... TEST A	RMB
HOLD until all lights and aural warnings indicate test has been successfully passed		

Engine Fire Left, Engine Fire Left Engine Fire Right, Engine Fire Right APU Fire, APU Fire Bleed Air Left, Bleed Air Left Bleed Air Right, Bleed Air Right		
--	--	--

FIRE test switch	... NORM	
pause 7 seconds or cycle BATT switch for system reset		

FIRE test switch	... TEST B	LMB
HOLD until all lights and aural warnings indicate test has been successfully passed		
Engine Fire Left, Engine Fire Left Engine Fire Right, Engine Fire Right APU Fire, APU Fire Bleed Air Left, Bleed Air Left Bleed Air Right, Bleed Air Right		

ENGINE START

IF APU START

- APU ACCUM CAUTION LIGHT ... OFF
- APU switch ... ON *READY light within 30 seconds*
- BRAKE PRESS ... CHECK min 3000 PSI

IF EXTERNAL AIR START

- BLEED AIR knob ... OFF

ALL STARTS

- STROBES ... BRT / DIM
- EXTERNAL LIGHTS Master Switch ... CHECK whether set correctly *FIELD vs CARRIER ops*

RIGHT ENGINE START

- ENGINE CRANK switch ... R
- Right THROTTLE ... IDLE & TIMING *15% rpm minimum*

F404-GE-402			GND IDLE		ENG START	FLT IDLE		MIL steady			MAX thrust	
			MIN	MAX	PEAK	MIN	MAX	MIN	MAX	PEAK	MAX	PEAK
N1	± 0.5%	%		108			108		108		108	
N2	± 1%	%	63	70		68	73	90	102		102	
EGT	± 8°C	°C	190	590	815			715	880	902	920	942
FF	x 100	pph	4,2	9	*			60	125		(438)	
NOZZLE	± 3%	%	73	84				0	48			
OIL PRESS		psi	45	110		55	110	95	180			

* an excessive FF is an indication for a HOT START

** note PEAK EGT during ENG start

- GPWS Voice Alerts ... CHECK

ROLL LEFT, ROLL LEFT
Flight Controls, Flight Controls

- DDIs, HUD, and UFC avionics ... ON
- any DDI ... FCS
- IFEI ... CHECK

IF APU START or CROSSBLEED START

- BLEED AIR knob ... CYCLE THRU OFF TO NORM
- WARNING and CAUTION lights ... TEST

For a crossbleed start insure APU switch is OFF and a minimum of 80% RPM and 1,900 pph FF

LEFT ENGINE START

- ENGINE CRANK switch ... L
- Left THROTTLE ... IDLE & TIMING *15% RPM minimum*
- ENGINE CRANK switch ... CHECK OFF after ENG stabilized

IF EXTERNAL AIR START

- BLEED AIR switch ... Return to NORMAL
- EXTERNAL ELECTRICAL power ... DISCONNECT if required

COCKPIT SETUP

- EJECTION SEAT ... ARMED
- RADAR Switch ... OPERATE
- INERTIAL NAVIGATION SYSTEM ... CV / GND with PARKING BRAKE ... SET
... HSI OSB select "STD HDG" if possible
- STORES page ... LOADUP STORES
- AUX REL ... NORM
- DISPENSER ALE-47 ... ON
- ECM ASPJ ... REC
- RWR ALR-67 ... ON "RCV" shown = "HUD" avail

COCKPIT SETUP (continued...)

- **FCS RESET BUTTON** ... PUSH ... CHECK ADVISORY
 - If wings are FOLDED ... VERIFY aileron Xs are PRESENT
- If NO reset
 - **T/O trim BUTTON** ... PUSH *check for TRIM advisory on left DDI*
 - **FCS exerciser mode** ... INITIATE
 - **LIFT** **FCS BIT consent SWITCH** **AND**
 - **PUSH** **FCS RESET BUTTON** **SIMULTANEOUSLY**
 - CHECK for flight control movement on FCS Page
- If still NO reset
 - **FCS circuit breakers** ... PULL 4 CHANNELS ... WAIT 10 seconds
 - **FCS circuit breakers** ... RESET
 - **FCS RESET button** ... PUSH
- **FLAPS** ... AUTO
- **FCS RESET BUTTON and PADDLE SWITCH** ... ACTUATE SIMULTANEOUSLY ... CHECK ADVISORY
- **FLAPS** ... HALF
- **FCS INITIATED BIT** ... PERFORM
 - a. If wings are FOLDED ... CHECK BOTH ailerons Xd OUT
 - b. Select SUPT MENU – BIT – FCS-MC on FCS Page
 - c. While SIMULTANEOUSLY ... HOLDING FCS BIT consent SWITCH to ON ... SELECT ... FCS OSB on the FCS-MC sublevel display
 - d. RELEASE **FCS BUTTON** and **FCS BIT consent SWITCH** WHEN
FCSA and FCSB BIT display status messages indicate **IN TEST**
At successful completion of initiated BIT, FCSA and FCSB BIT display status messages read GO.
FCS initiated BIT requires less than 2 minutes

NOT RDY	Equipment OFF, not installed, or initializing
IN TEST	Initiated BIT in progress
GO	Initiated BIT completed without failure
DEGD	Failure detected; equipment operation degraded
NOGO	Equipment ON but not communicating
OVRHT	Overheat
DEGD + OVRHT	Detected failure and overheat
RESTRT	Reinitialize BIT; equipment did not respond to BIT command, remained in BIT too long and was terminated by MC
OP GO	SMS failure detected which does not affect capability to deliver currently loaded weapons
PBIT GO	IBIT has not been initiated and the system periodic BIT is not reporting any failures
OFF	System not communicating with AVMUX. OFF status indication

COCKPIT SETUP (continued...)

CHECK

AIR REFUELING PROBE	... EXTEND	
LAUNCH BAR	... EXTEND	optional for shore based operations
SPEED BRAKE	... EXTEND	
ARRESTING HOOK	... EXTEND	
PITOT HEAT	... ON	
	<u>REVERSE FLOW</u>	
PITOT HEAT	... AUTO	
ARRESTING HOOK	... RETRACT	
SPEED BRAKE	... RETRACT	
LAUNCH BAR	... RETRACT	
AIR REFUELING PROBE	... RETRACT	

TRIM

- ... CHECK
- ... PITCH TRIM
- ... ROLL TRIM
- ... YAW TRIM

NOTE

Actuation of roll trim within 20 seconds of FCS IBIT with wings folded inhibits roll trim.
Roll trim is reactivated by pressing the T/O Trim button with WOW

T/O TRIM BUTTON

- ... PRESS UNTIL TRIM ADVISORY DISPLAYED

If a trim advisory does not appear, abort. If takeoff trim is not set, full NU stabilator movement may not be available and takeoff distance will increase.
T/O TRIM button sets 12° NU and RESETS all trim inputs.

FLAPS

- ... AUTO

CONTROLS

- ... CHECK

(tolerance for rudder and stabilator position is ±1°)

CONTROL STICK

- ... CYCLE
- FULL AFT ... 24 NU STABILATOR
- FULL FWD ... 3 NU

RIGHT & LEFT AILERON

- CHECK ... 20 units differential STABILATOR
- CHECK ... differential TRAILING EDGE FLAPS

FLAPS

- ... HALF

RUDDER PEDALS

- ... CYCLE
- ... 30° LEFT and RIGHT

If takeoff trim is not set, full leading edge down stabilator movement may not be available and takeoff distance will increase.

TRIM

	... SET FOR TAKEOFF	
	... 12°	FIELD
44,000 and below	... 16°	CARRIER
45,000 – 48,000	... 17°	CARRIER
49,000 – 51,900 (MTOW)	... 19°	CARRIER

COCKPIT SETUP (continued...)

PANEL SETUP

- OXYGEN
 - OBOGS ... ON
 - OXY FLOW ... ON
- ILS panel ... CHANNEL / UFC
- APU ... VERIFY OFF
- HOOK BYPASS ... FIELD / CARRIER
- ANTI-SKID ... ON / OFF
- FLAPS ... HALF *check HOTAS Sw position*
- FUEL ... SET BINGO
- TIMEZONE ... SET Z
- ALT selector ... BARO / RDR *RDR for over the sea OPS*
- Attitude SOURCE ... STBY
- Attitude SOURCE ... AUTO
- STBY ATT INDICATOR ... UNCAGE
- Altimeter ... SET QNH
- RA ... SET 40 CARRIER
- RA ... SET 200 FIELD
- WINGFOLD
 - FIELD ... SPREAD AND LOCK
 - CARRIER ... LEAVE FOLDED

Wait 5 seconds AFTER wings are fully spread before placing the WING FOLD handle to LOCK. Placing the WING FOLD handle to LOCK before the wings are fully spread removes the WING UNLK caution even though the wings are not fully spread and could cause severe damage to the wing fold transmission

- INERTIAL NAVIGATION SYSTEM ... IFA

MISSION SETUP

- IFF ... select IFF, then PRESS “ON” until IFF is indicated
- D/L ... ON
- EW page ... SETUP *dispenser program*
- HUD ... BOXED / UNBOXED *as desired*
- TCN & BRC ... SET
- HSI ... SET RANGE 10NM *or as desired*
- TAWS ... BOXED
- COMM 1 ... SET *GND / TWR*
- COMM 2 ... SET *AWACS*
- WPT “ZERO” and MAG variation ... BUTTON LIST
- BULLSEYE & MISSION DATA ... CHECK
- ADVISORY MESSAGES ... SET
- ADVISORY MESSAGES ... CHECK & CLEAR

BUTTON LIST

BUTTON	ATC UNIT
BUTTON 1	TOWER / PADDLES
BUTTON 2	DEPARTURE
BUTTON 3	STRIKE
BUTTON 4	RED CROWN
BUTTON 5	Various TACTICAL / Mission / CVW discrete FREQs
BUTTON 6	Various TACTICAL / Mission / CVW discrete FREQs
BUTTON 7	Various TACTICAL / Mission / CVW discrete FREQs
BUTTON 8	Various TACTICAL / Mission / CVW discrete FREQs
BUTTON 9	Various TACTICAL / Mission / CVW discrete FREQs
BUTTON 10	Squadron TWR / CATCC (Carrier Air Traffic Control Centre)
BUTTON 11	
BUTTON 12	
BUTTON 13	
BUTTON 14	
BUTTON 15	APPROACH #1
BUTTON 16	MARSHAL
BUTTON 17	APPROACH #2 (if more than 1 is needed for EMER a/c)
BUTTON 18	
BUTTON 19	
BUTTON 20	Squadron COMMON



STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13 BOMBS	FLIR ATFLIR	DL13	DL13	TP
A/A Missiles	BOMBS A/G Missiles A/A Missiles ROCKETS	BOMBS A/G Missiles A/A Missiles ROCKETS FUEL	A/A Missiles	FUEL	A/A Missiles	BOMBS A/G Missiles A/A Missiles ROCKETS FUEL	BOMBS A/G Missiles A/A Missiles ROCKETS	A/A Missiles
PODS		BOMBS		A/G		A/A		ROCKETS
FLIR		LASER		LASER		SPARROW		ZUNI
ATFLIR		Paveway II		Maverick		AIM 7F		MK 71
DL13		GBU10		AGM 65E		AIM 7M		HYDRA
TP		GBU12		INFRARED		AIM 7MH		MK 151
		GBU16		Maverick		SIDEWINDER		MK 151
		GBU24		AGM 65F		AIM 9L		MK 5
		INS/GPS		GPS/INS		AIM 9M		
		J-84		SLAM		AIM 9X		
		J-109		AGM 84E		AMRAAM		
		J-83		AGM 84H		AIM 120B		
		J-82		RADAR/INS		AIM 120C		
		UNGUIDED		HARPOON				
		GBU 99		AGM 84D				
		Mk 20		HARM				
		Mk 82		AGM 88C				
		Mk 82 SE		INS/GPS				
		Mk 82Y		JSOW				
		Mk 83		AGM 154A				
		Mk 84		AGM 154C				
		DL13/TPOD						
		Walleye						
		AGM 62						



STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13 BOMBS	FLIR ATFLIR	DL13	DL13	TP
	BOMBS A/G Missiles	BOMBS A/G Missiles				BOMBS A/G Missiles	BOMBS A/G Missiles	
A/A Missiles	A/A Missiles	A/A Missiles	A/A Missiles		A/A Missiles	A/A Missiles	A/A Missiles	A/A Missiles
	ROCKETS	ROCKETS				ROCKETS	ROCKETS	
		FUEL		FUEL		FUEL		

PODS			
SMS	NAME	WEIGHT [lbs]	NOTE
FLIR	LITENING TPOD FLIR (usually UNAVAILABLE for navy aircraft) AN/AAQ-28	459	TDC • no TRK • AREA TRK ○ after TDC ... DEPRESS, OFFSET CURSOR POINT TRK ○ after TDC ... DEPRESS, OFFSET CURSOR
ATFLIR	LITENING TPOD ATFLIR (usually AVAILABLE for navy aircraft) AN/ASQ-228	430	
DL13	DATALINK POD AWW-13	441	• WALLEYE AGM-62 • SLAM AGM-84E • SLAM-ER AGM-84E
TP	TCTS POD AN/ASQ-T50	139	TAC view recorder for training

original weapons table created by “POKERACCIO”, edited by cruizzzzz

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13	FLIR ATFLIR	DL13	DL13	TP
	BOMBS	BOMBS		BOMBS		BOMBS	BOMBS	
A/A	A/G	A/G	A/A		A/A	A/G	A/G	A/A
	A/A	A/A				A/A	A/A	
	ROCKETS	ROCKETS				ROCKETS	ROCKETS	
		FUEL		FUEL		FUEL		
BOMBS – LASER								
SMS	NAME	TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE		
84LG	GBU 10	ARMOURED TGT PAVEWAY II FORTIFIED STRUCTURE	2562	8	- MODE - AUTO - FD - CCIP - MAN - MFUZ - OFF - EFUZ - INST - DLY1 - CODE - UFC INSERT	NO GOOD in IFR or LOW VIS COND		
82LG	GBU 12	PAVEWAY II SINGLE TARGET	606	8				
83LG	GBU 16	SPLASH DAMAGE PAVEWAY II MULTIPLE TARGETS	1243	8				
GB24	GBU 24	PENETRATION FORTIFIED STRUCTURE	2059	8	- MODE - CLAR PP - CLAR SL - MAN - MFUZ - TAIL - CODE - UFC INSERT	ONLY MANUAL LASING		
ATTACK PARAMETERS			350kts or more			@ 20000 to 25000 ALT		

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13 BOMBS A/G A/A ROCKETS	DL13 BOMBS A/G A/A ROCKETS FUEL	A/A	FLIR DL13 BOMBS FUEL	FLIR ATFLIR A/A	DL13 BOMBS A/G A/A ROCKETS FUEL	DL13 BOMBS A/G A/A ROCKETS	TP A/A
BOMBS – INS/GPS								
SMS	NAME	TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE		
J-84	GBU 31 (V) 1/B GBU 31 (V) 2/B	ARMOURED TGT FORTIFIED STRUCTURE	2059	15	- PP or TOO - ALIGN countdown - EFUZ - INST - DLY - JDAM DISPLAY - QTY - STA - REL TYPE - MAN - AUTO - LOFT - MSN - HT set - If PP - Set TGT - If TOO - Set WPDSG - TGP - A/G RDR - ALIGN RDY - TIMER - MAX/MIN range	GOOD in IFR or LOW VIS COND		
J-109	GBU 31 (V) 3/B GBU 31 (V) 4/B	PENETRATION FORTIFIED STRUCTURE	2163 2138	15				
J-83	GBU 32 (V) 2/B	ARMOURED TGT FORTIFIED STRUCTURE	1030	15				
J-82	GBU 38	SINGLE TARGET	531	15				

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13 BOMBS A/G A/A ROCKETS	DL13 BOMBS A/G A/A ROCKETS FUEL	A/A	FLIR DL13 BOMBS FUEL	FLIR ATFLIR A/A	DL13 BOMBS A/G A/A ROCKETS FUEL	DL13 BOMBS A/G A/A ROCKETS	TP A/A
BOMBS – UNGUIDED								
SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	SETTINGS		NOTE		
RET	CBU 99	CLUSTER MUNITION AIR-TO-GROUND MULTIPURPOSE ARMOURED VEHICLE	480	SMS - MFUZ - VT - HT 1500 - EFUZ - OFF UFC - to PROG		Almost identical to Mk20 except for the dispenser and fuze Working only on HT 1500		
RE	Mk20 Rock Eye	CLUSTER MUNITION AIR-TO-GROUND MULTIPURPOSE ARMOURED VEHICLE REQUIRING PENETRATION	489	SMS - MFUZ - VT - HT 1500 - EFUZ - OFF UFC - to PROG		CBU 100 Almost identical to CBU-99 except for the dispenser and fuze Working only on HT 1500		

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13 BOMBS A/G A/A ROCKETS	DL13 BOMBS A/G A/A ROCKETS FUEL	A/A	FLIR DL13 BOMBS FUEL	FLIR ATFLIR A/A	DL13 BOMBS A/G A/A ROCKETS FUEL	DL13 BOMBS A/G A/A ROCKETS	TP A/A
BOMBS – UNGUIDED								
SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	SETTINGS		NOTE		
82B	Mk-82	LOW DRAG GENERAL PUSPOSE IRON BOMB UNARMoured OR LIGHT ARMoured TARGETS	531	SMS - MFUZ - NOSE - EFUZ - INST UFC - to PROG		vs. SOFT, FRAGMENT SENSITIVE TARGETS SUCH AS TROOPS, POL, AND RADARS		
82XT	Mk-82 Snake Eye	HIGH DRAG FIN RETARDING GENERAL PUSPOSE IRON BOMB UNARMoured OR LIGHT ARMoured TARGETS	511	SMS - MFUZ - NOSE - EFUZ - OFF - DRAG - FF - RET UFC - to PROG		vs. SOFT, FRAGMENT SENSITIVE TARGETS SUCH AS TROOPS, POL, AND RADARS When RET @460kts = 300ft @600kts = 500ft		
82YT	Mk-82Y	CHUTE RETARDING GENERAL PUSPOSE IRON BOMB UNARMoured OR LIGHT ARMoured TARGETS	511	SMS - MFUZ - NOSE - EFUZ - OFF - DRAG - FF - RET UFC - to PROG		vs. SOFT, FRAGMENT SENSITIVE TARGETS SUCH AS TROOPS, POL, AND RADARS When RET @460kts = 300ft @600kts = 500ft		

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13 BOMBS	FLIR ATFLIR	DL13	DL13	TP
A/A	BOMBS A/G A/A ROCKETS	BOMBS A/G A/A ROCKETS FUEL	A/A	FUEL	A/A	BOMBS A/G A/A ROCKETS FUEL	BOMBS A/G A/A ROCKETS	A/A
BOMBS – UNGUIDED								
SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	SETTINGS	NOTE			
83B	Mk-83	LOW DRAG GENERAL PUSPOSE IRON BOMB UNARMoured OR LIGHT ARMoured TARGETS	985	SMS - MFUZ - NOSE - EFUZ - INST UFC - to PROG	vs. SOFT, FRAGMENT SENSITIVE TARGETS SUCH AS TROOPS, POL, AND RADARS			
84	Mk-84	LOW DRAG GENERAL PUSPOSE IRON BOMB ARMoured TARGETS	1971	SMS - MFUZ - NOSE - EFUZ - INST UFC - to PROG	BUILDINGS, RAIL YARDS, AND LINES OF COMMUNICATION			
76	BDU-33	TRAINING DUMB BOMB	24	SMS - MFUZ - NOSE - EFUZ - INST UFC - to PROG				
	BDU-45	TRAINING DUMB BOMB	24	SMS - MFUZ - NOSE - EFUZ - INST UFC - to PROG				

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13	FLIR ATFLIR	DL13	DL13	TP
	BOMBS	BOMBS		BOMBS		BOMBS	BOMBS	
	A/G	A/G				A/G	A/G	
A/A	A/A	A/A	A/A		A/A	A/A	A/A	A/A
	ROCKETS	ROCKETS				ROCKETS	ROCKETS	
		FUEL		FUEL		FUEL		
BOMBS - AIR GROUND MISSILES – DL13 / TPOD								
SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS		NOTE	
WEDL	AGM 62 Wall Eye Fat Albert	GENERAL PURPOSE FIRE-AND-FORGET STATIC TARGETS BUILDINGS BRIDGES	2339	32	w/o DL13		Extended range with TV/DATA LK Subsonic glide Best performance when flying HIGH & FAST > 30000ft NO GOOD FOR NIGHTFLYING Always needs good contrast to lock on	
					SMS			
					- WEDL - WEDL 2nd push - DDI select			
					DDI			
					- UNCAGE - TDC DEPRESS and HOLD - SENSOR SLEW SEEKER - TDC RELEASE - SLEW cursor until “WE” is no more crossed out = valid LOCK			
					with DL13			
					1st get <u>valid LOCK</u> - OSB “DL13” “WPN” ”WEDL” “UFC” - SELECT “CHNL” - Choose weapon STATION to be used			
					with TPOD			
					via TGT PT designation			

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13	FLIR ATFLIR	DL13	DL13	TP
	BOMBS	BOMBS		BOMBS		BOMBS	BOMBS	
	A/G	A/G				A/G	A/G	
A/A	A/A	A/A	A/A		A/A	A/A	A/A	A/A
	ROCKETS	ROCKETS				ROCKETS	ROCKETS	
		FUEL		FUEL		FUEL		

AIR GROUND MISSILES - LASER

SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE
MAV	AGM 65E	GENERAL PURPOSE FIRE-AND-FORGET LASER MAVERICK FORTIFIED INSTALLATIONS	760	8	- MASTER ARM - A/G ARM - SMS MAV - CODE INSERT - FLIR - LTDC INSERT - MAV (seeker page) - FUZ OPT - UNCAGE - FLIR - assign TGT - LASE once to get MAV LKD - when IN RNG 1st A/G RELEASE to LASE 2nd A/G RELEASE to FIRE MAV	CODE must match one of laser designation Designation by JTAC via radio (CH.M) or TPOD NO GOOD in IFR or LOW VIS COND

AIR GROUND MISSILES – INFRARED

SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE
MAVF	AGM 65F	GENERAL PURPOSE FIRE-AND-FORGET INFRARED MAVERICK OPTIMIZED FOR TRACKING SHIPS	793	17	SMS - MAVF - MAVF 2nd push - FOV USAGE - UNCAGE - TDC HOLD = UNCAGE MAV - TDC RELEASE = LOCK MAV	COOLDOWN TIMER REQUIRED GOOD in IFR or LOW VIS COND

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13 BOMBS A/G A/A ROCKETS	DL13 BOMBS A/G A/A ROCKETS FUEL	A/A	FLIR DL13 BOMBS FUEL	FLIR ATFLIR A/A	DL13 BOMBS A/G A/A ROCKETS FUEL	DL13 BOMBS A/G A/A ROCKETS	TP A/A
AIR GROUND MISSILES – GPS/INS ... INFRARED ... TPOD								
SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE		
SLAM	AGM 84E	STAND OFF LAND ATTACK MISSILE	1385	60	SMS - FLT - HIGH 30k - MED 15k - LOW 5k - EFUZ - INST - WEP = DL13 - Select WPN STATION SLAM loaded - MODE - SKIM - POP	USAGE with DL13 TPOD SLAM warm up @ 7:30 MAX/MIN range on HSI TTS = TIME TO SEEKER		
		SUBSONIC CRUISE MISSILE			SLAM DSPL - UFC - DIST NM for TTS - REL TYPE - MAN - MSN	TMR = TIME TO MAX RANGE UFC - TERM HDG ANG VEL		
SLMR	AGM 84H	ALL WX DAY/NIGHT PRECISION ATTACK HIGH VALUE TARGETS	1598	155	FLIR - WPDSG and adjust TPOD - TDC DEPRESS to transfer coords SLAM DSPL - OSB "RETURN" SMS - Deselect SLAM - Wait until TTS = 0 - TDC DEPRESS & HOLD to control flightpath	MODE PP - ELEV - LAT/LONG DD-MM-SS.dd TOO - WPDSG - TGP - A/G RDR		

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13	FLIR ATFLIR	DL13	DL13	TP
	BOMBS	BOMBS		BOMBS		BOMBS	BOMBS	
	A/G	A/G				A/G	A/G	
A/A	A/A	A/A	A/A		A/A	A/A	A/A	A/A
	ROCKETS	ROCKETS				ROCKETS	ROCKETS	
		FUEL		FUEL		FUEL		
AIR GROUND MISSILES – RADAR / INS								
SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS		NOTE	
HPD	AGM 84D	HARPOON OVER HORIZON ANTI-SHIP CRUISE-MISSILE	1190	70	SMS		SEARCH	
					• HPD SELECT		After xx NM search	
					• TIMER			
					• MODE			
					• POP			
• SKIM								
• BOL								
• FLT								
• HIGH		30k						
• MED		15k						
• LOW		5k						
• TERM								
• HPTP								
• FXP								
UFC								
• SEARCH		NM						
• DESTR		NM						
• BRG		°						
HARM	AGM 88C	HARM ANTI-RADAR GUIDED FIRE-AND-FORGET RADAR SAM	796	15 @ 1k/500 [alt/kts]	DDI		ALSO SP	
				25 @ 10k/400	• HARM SEL		= SELF	
				35 @ 20k/400	• TOO		PROTECTION	
				50 @ 30k/400	• SCS towards DDI		= QUICK	
				70 @ 40k/380	• TGT SEQUENCE		REACTION	
• HARM				• HARM SEL				
• RAID				• SP on HUD				
• FLIR				• TGT SEQ				
• CROSS center				• HARM				
TGT				• RAID				
• UNCAGE				• FLIR				
• H-OFF				When boxed				
• WRB FIRE				• FIRE				

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13 BOMBS	FLIR ATFLIR	DL13	DL13	TP
A/A	BOMBS A/G A/A ROCKETS	BOMBS A/G A/A ROCKETS FUEL	A/A	FUEL	A/A	BOMBS A/G A/A ROCKETS FUEL	BOMBS A/G A/A ROCKETS	A/A

AIR GROUND MISSILES – INS/GPS

SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	RANGE [NM]		SETTINGS
JSA	AGM 154A	CLUSTER BOMB	1065			- MODE - PP - TOO - ALIGN COUNTDOWN - EFUZ - INST - DLY - JSOW DSPLAY - QTY - STA - MSN - HT SET - PP = TGT - TOO = WPDSG - ALIGN RDY - TMR max/min range
		GLIDE MISSILE				
		AA SAM		11 NM	52 NM	
		FIRE-AND-FORGET JSOW		=	=	
		GLIDE MISSILE		ALT 500 ft	ALT 45k ft	
JSC	AGM 154C	MULTIPLE LIGHT ARMOURED TARGETS	1065	@	@	
		FIRE-AND-FORGET JSOW		600 kts GS	500 kts GS	
		GLIDE MISSILE				
		HARDENED BUNKER BUSTER A/C SHELTERS				

PP

COORD FORMAT

DD-MM-SS.dd

- TGT
- UFC ENTER DATA
- ELEV
- LAT/LONG DD-MM-SS
- ENTER → dd

TOO

- based on WPTDSG as
 - TGT
 - TGP
 - A/G RDR

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13 BOMBS A/G A/A ROCKETS	DL13 BOMBS A/G A/A ROCKETS FUEL	A/A	FLIR DL13 BOMBS FUEL	FLIR ATFLIR A/A	DL13 BOMBS A/G A/A ROCKETS FUEL	DL13 BOMBS A/G A/A ROCKETS	TP A/A
AIR-TO-AIR MISSILES – SEMIACTIVE RADAR – SPARROW – FOX 1								
SMS	NAME	TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE		
7F	AIM 7F	RADAR GUIDED MEDIUM RANGE	507 LAU-115 626	10	SMS • HELO • When tracking HELO • SIZE • LOFT	Blast frag warhead needs a valid lock-on until impact		
7M	AIM 7M	RADAR GUIDED MEDIUM RANGE	507 LAU-115 626	10				
7M	AIM 7MH	RADAR GUIDED MEDIUM RANGE HOME ON JAM	507 LAU-115 626	10				
AIR-TO-AIR MISSILES – INFRARED – SIDEWINDER – FOX 2								
9L	AIM 9L	INFRARED FIRE-AND-FORGET	190 2x LAU-115 697	6	• ATTK RDR ○ LOCK or • SEEKER ○ LOCK CAGE ○ LOCK UNCAGE ○ HIGH TONE IR coolant required	less advanced seeker than AIM-9M		
9M	AIM 9M		192 2x LAU-115 701	9				
9X	AIM 9X		185 2x LAU-115 692	14		SWITCH ...NORM (3h) higher range and speed than AIM-9M		

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13	FLIR ATFLIR	DL13	DL13	TP
	BOMBS	BOMBS		BOMBS		BOMBS	BOMBS	
	A/G	A/G				A/G	A/G	
A/A	A/A	A/A	A/A		A/A	A/A	A/A	A/A
	ROCKETS	ROCKETS				ROCKETS	ROCKETS	
		FUEL		FUEL		FUEL		
AIR-TO-AIR MISSILES – ACTIVE RADAR – AMRAAM – FOX 3								
SMS	NAME	TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE		
AB	AIM 120B	ACTIVE RADAR HOMING	LAU-115 467	8	SMS - SIZE - RZS - when in range - X ACT - then X TTG - Sec to TGT	BVR bigger fins		
			2x LAU-115 1016			high maneuver		
AC	AIM 120C	FIRE-AND-FORGET	LAU-115 476	10		less range		
		MEDIUM RANGE	2x LAU-115 1032			BVR smaller fins		
						less maneuver		
						higher range		

STORES								
STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13 BOMBS	FLIR ATFLIR	DL13	DL13	TP
A/A	BOMBS A/G A/A ROCKETS	BOMBS A/G A/A ROCKETS FUEL	A/A	FUEL	A/A	BOMBS A/G A/A ROCKETS FUEL	BOMBS A/G A/A ROCKETS	A/A
ROCKETS – ZUNI – HYDRA								
SMS	NAME	TARGET	WEIGHT [lbs]	RANGE [NM]	FLAVOR		NOTE	
10S	ZUNI MK71	UNGUIDED ROCKET 4x ZUNI	1144	2,16 [4km]	1x LAU-61		5 inch rocket	
		A/A & A/G TASK	2114		2x LAU-10			
61S	HYDRA MK151	UNGUIDED ROCKET 19x 2.75"	816		1x LAU-61		2.75 inch rocket	
		A/G TASK	1455		2x LAU-61			
68S	HYDRA MK151	UNGUIDED ROCKET 7x 2.75"	428		1x LAU-68		2.75 inch rocket	
		A/G TASK	679		2x LAU-68			
68S	HYDRA MK5	UNGUIDED ROCKET 7x 2.75"	401	1x LAU-68		2.75 inch rocket		
		A/G TASK	628	2x LAU-68				
SMS		▪ CCIP						

FUEL			
NAME		NOTE	
FPU-8A FUEL TANK		330 gallons; 2240 lbs (JP-5); 2150 lbs (JP-4)	
		INTERNAL FUEL CAPACITY	
TANK #1			2840
TANK #2		left ENG feed	1600
TANK #3			1440
TANK #4			3660
TOTAL			9540
WINGS		LEFT WING 620	1240 620 RIGHT WING
TOTAL INTERNAL			10780

FINAL CHECKS BEFORE TAXI

EXTERIOR LIGHTS – CARRIER OPS

DAY OPS

- Exterior lights MASTER SWITCH ... OFF
- TAXI/LANDING light ... OFF

NOTE

Turning lights ON and/or lowering the HOOK during daylight deck operations signal a LOSS OF BRAKES

NIGHT OPS

• ON THE DECK

- Exterior lights MASTER SWITCH ... OFF
- STROBE light ... DIM / BRT
- POSITION lights ... BRT
- FORMATION lights ... ON

• LAUNCH

- At night, aircraft external lights are turned ON meaning the same as the daytime hand SALUTE. When ready for launch, place the external lights master switch to “ON”.
The pilot shall ensure NO exterior lights are on before illuminating them for CAT launch

• IN FLIGHT

- As required by the wingman
 - a. SINGLE aircraft ... BRT, or as weather conditions dictate
 - b. FORMATION ... AS REQUIRED BY WINGMAN
- The last aircraft in formation should have EXTERNAL LIGHTS on “BRT” unless tactical situation demands otherwise

• ARRESTMENT AND EXIT FROM THE LANDING AREA

- DURING THE APPROACH,
 - a. ALL EXTERIOR LIGHTS should be ... ON, except
 - b. TAXI/LANDING light ... OFF
 - c. This allows the LSO to see the Approach Lights
- FOLLOWING ARRESTMENT, immediately turn the
 - a. External lights MASTER SWITCH ... OFF
 - b. Taxi clear of the landing area following the plane director’s signals

NOTE

AS TECHNIQUE: move the exterior light MASTER SWITCH (pinky switch) ... “AFT” when the throttles go to IDLE, post trap.

NOTE

Turning lights ON and/or lowering the HOOK during night deck operations signal a LOSS OF BRAKES

BEFORE TAXI

WEAPON & FUEL LOADOUT

FLIR

LEFT DDI

RIGHT DDI

NOSEWHEEL STEERING

... COMPLETED as desired

... ON / STBY

... HUD

... FCS

... ON

GROUND CREW

TAXI LT

... REMOVE CHOCKS

... ON

... OFF

/

GND PWR

FIELD OPS

for CARRIER OPS

CARRIER OPS

DAYTIME

LIGHTS ...ON or lowering the HOOK is a signal for a BRAKE FAILURE

NIGHTTIME

Switching LIGHTS ... ON signals "SALUTE" just prior to a catapult T/O

- GROUND CREW

PARKING BRAKE HANDLE

Max N2 on DECK

NORMAL BRAKES

NOSEWHEEL STEERING
- ... REQUEST LAUNCH

... FULLY STOWED

... 75% N2

... CHECK

... CHECK

TAKEOFF CHECKLIST

MENU T/O checklist	TAKEOFF CHECKLIST	
	HARNESS	LOCKED
	SEAT	ARMED
	NWS	LO / OFF
	WARN LIGHTS	CHECK
	CONTROLS	CHECK
	FLAPS	SET for T/O
	TRIM	SET
	HOOK	UP
	WINGS	SPREAD & LOCKED

FINAL CHECKS & LAUNCH

- EMERGENCY JETTISON BUTTON ... LOCATE

F404-GE-402			GND IDLE		ENG START	FLT IDLE		MIL steady			MAX thrust	
			MIN	MAX	PEAK	MIN	MAX	MIN	MAX	PEAK	MAX	PEAK
N1	± 0.5%	%		108			108		108		108	
N2	± 1%	%	63	70		68	73	90	102		102	
EGT	± 8°C	°C	190	590	815			715	880	902	920	942
FF	x 100	pph	4,2	9				60	125		(438)	
NOZZLE	± 3%	%	73	84				0	48			
OIL PRESS		psi	45	110		55	110	95	180			

CATAPULT THROTTLE SETTINGS			
WEIGHT BOARD		ENGINE POWER	
44000 and below		MIL	MIL / MAX
45000 and above			MAX

- ENGINES ... MIL CHECK ... set 60 pph FF on each ENGINE
- FLIGHT CONTROLS ... CHECK

Wait 4sec ensuring NO CAUTIONS & NO WARNINGS are displayed

- AFTERBURNER ... SELECT
- ENGINE INSTRUMENTS ... CHECK
- HOLD THROTTLES ... FIRMLY
- PLACE HEAD ... AGAINST HEADREST
- SALUTE ... WITH RIGHT HAND
- Exterior Light MASTER SWITCH ... ON *for night ops*

AFTER TAKEOFF
WHEN AIRBORNE

- LANDING GEAR ... UP
- FLAPS ... AUTO
- LDG/TAXI LIGHT ... OFF
- FORMATION LIGHTS ... as needed

CLIMB

For visibility over the nose, maintain 350 knots to 10,000 feet
or as dictated by CASE departure procedure

10,000 FEET

- Cockpit ALTIMETER ... CHECK
- FUEL TRANSFER ... CHECK
- RDR ALT low altitude warning ... CHECK / SET

CRUISE

MAXIMUM RANGE ... is establishing by 4.2° AOA but no faster than Mach 0.85
MAXIMUM ENDURANCE ... is establishing by 5.6° AOA

APPROACH CHECKLIST

HAIL – R Checks		
H	HOOK	HEATS
A	ANTI-SKID	box ACL
I	INSTRUMENTS	box ICLS
L	LDG WEIGHT	LIGHTS
R	RA bug set	RADALT

ENG A/I if required
on HSI in case of CASE III

set to the HUD

DESCENT/PENETRATION

- ENGINE ANTI-ICE
 - PITOT HEAT
 - DEFOG handle
 - WINDSHIELD ANTI-ICE/RAIN Switch
 - ALTIMETER setting
 - RADAR altimeter
- CARRIER

FIELD
- HUD Page

/

FCS Page
- NAVAIDS
 - TWR FREQ
 - HSI
 - TACAN
- ILS

ARA-63
- IFF
 - WEAPONS
 - SENSORS
- ... AS DESIRED

... AUTO

... HIGH

... AS DESIRED

... CHECK

... SET AND CHECK

... SET

... SET

... SELECT

... CROSS CHECK

... SET

... SET RANGE 10NM or as needed

... SET CHANNEL

... ON

... SET BRC / FINAL BEARING

... SET CHANNEL

... ON

... SET FINAL BEARING

... AS DIRECTED

... AS REQUIRED

... AS REQUIRED
- 360

200 or according LDG minimum

LANDING WEIGHT LIMITATION

FIELD	LDG flared	... 39000 lbs	
	FCLP / touch & go / baricade	... 30700 lbs	before AFC 029
	FCLP / touch & go / baricade	... 33000 lbs	after AFC 029
CARRIER	unrestricted	... 33000 lbs	
	restricted	... 34000 lbs	

Arrestments above 33,000 pounds are subject to the following restrictions:

1. Arresting gear

... MK 7 MOD 3 Only
2. Glideslope

... 3.5° Maximum
3. Recovery Head Wind (RHW)

a. > 40 knots

... HALF FLAPS allowed

b. < 40 knots

... FULL FLAPS only
4. Lateral Weight Asymmetry 14,500 ft-lb maximum

(External pylon stores, AIM-9 Wing tips, and wing fuel)
5. No MOVLAS recovery

NOTE

The combination of

- arresting gear
- glide slope
- RHW
- asymmetry limits

listed above ensure landing stresses remain within tested landing gear strength safety margins

HAIL – R Checks		
H	HOOK	HEATS
A	ANTI-SKID	box ACL
I	INSTRUMENTS	box ICLS
L	LDG WEIGHT	LIGHTS
R	RA bug set	RADALT

LANDING CHECKLIST			
DDIs	... HUD & FCS selected		
HARNESS	... LOCKED		
HOOK BYPASS	... FIELD	/	... CARRIER
ANTI-SKID	... ON	/	... OFF
DISPENSER	... OFF		
GEAR	... DOWN		
FLAPS	... HALF	/	... FULL
HOOK	... UP	/	... DOWN

LANDING APPROACH SPEED F404-GE-402

Aircraft Configuration FLAPS ... AS NOTED
GEAR ... DOWN
SPEEDBRAKE ... IN

NOTE
Main Gear Tire Limitation ... 210 kts GOUNDSPEED
Nose Gear Tire Limitation ... 190 kts GOUNDSPEED

CG at 25% MAC

- APPROACH SPEEDS
 - increase 1 knot for each 2% the CG is FORWARD of 25% MAC and
 - decrease 1 knot for each 2% the CG is AFT of 25% MAC
 - increase 2 knots if wingtip AIM-9’s are OFF
 - increase 2 knots if EXTERNAL STORES ON

Weight [lbs]	LDG CONFIGURATION					
	FULL FLAPS	HALF FLAPS	HALF FLAPS	HALF FLAPS	HALF FLAPS or FULL FLAPS	
	8.1° AOA	8.1° AOA	7.0° AOA	7.0° AOA	10.0° AOA	7.0° AOA
	Normal LDG	Normal LDG	DEL / MECH	0° LEF LEF Failure	0° TEF TEF Failure	0° LEF 0° TEF LEF / TEF Failure
24,000	117	126	131	133	161	192
25,000	119	129	134	135	164	196
26,000	121	131	136	135	167	200
27,000	124	134	139	141	170	204
28,000	126	136	141	143	173	208
29,000	128	139	144	146	177	212
30,000	130	141	146	148	180	215
31,000	133	144	149	151	183	219
32,000	135	146	151	153	186	222
33,000	137	148	153	156	188	226
34,000	139	151	156	158	191	229
35,000	141	153	158	160	194	232
36,000	143	155	160	162	197	236
37,000	145	157	162	165	199	239
38,000	147	159	165	167	202	242
39,000	149	161	167	169	205	245

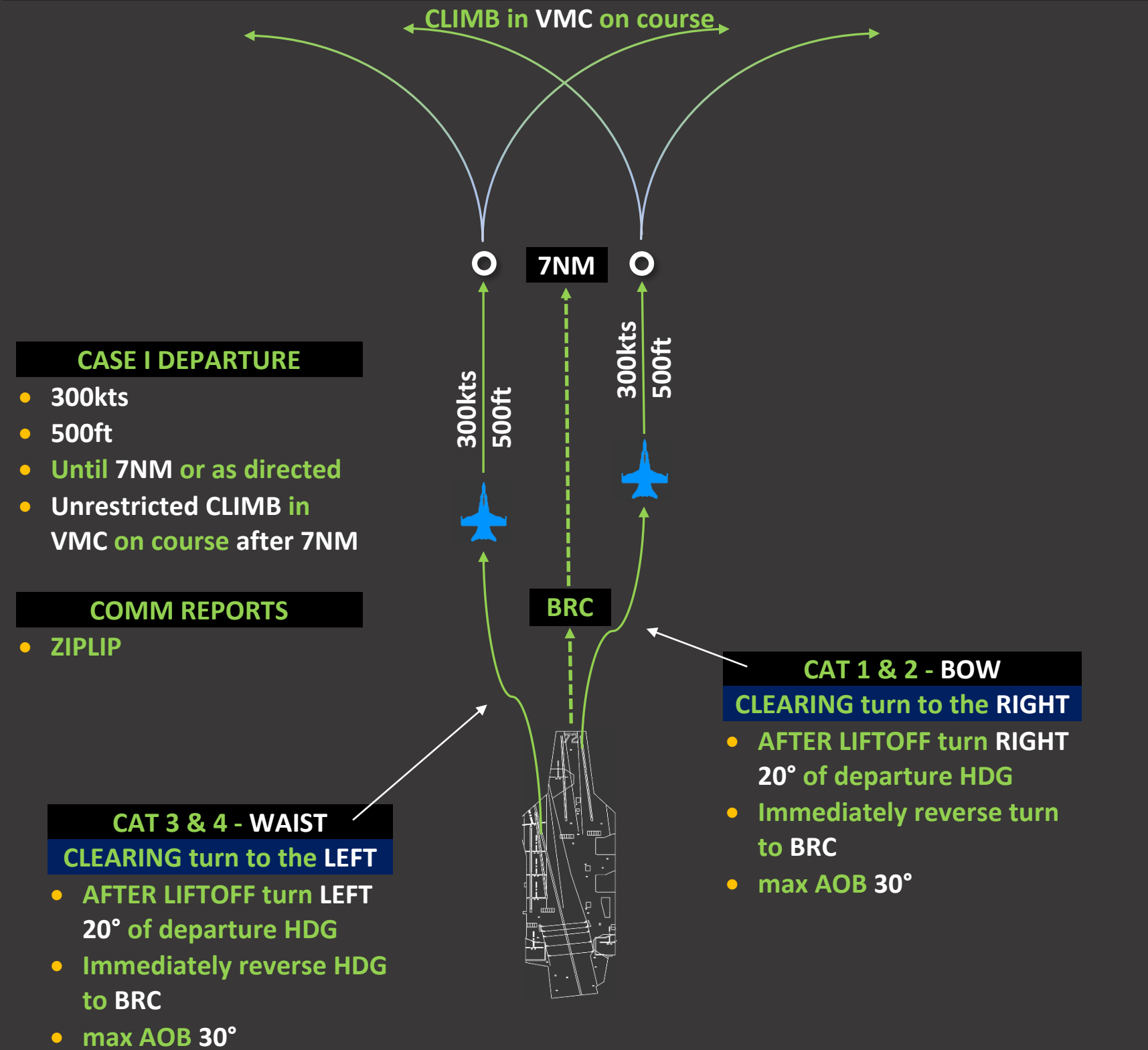
AFTER LANDING		
WHEN CLEAR OF ACTIVE RUNWAY		
• LDG GEAR HANDLE MECH STOP *	... FULLY ENGAGED	* not modelled in DCS
• FLAP switch	... AUTO	
	... HALF	for carrier OPS
• T/O TRIM BUTTON	... PUSH	
• WINGS	... UNLOCK	
	... FOLD WINGS only when cleared to	
• EJECTION SEAT	... SAFE	
• CANOPY either	... FULL UP or FULL DOWN	
BEFORE ENGINE SHUTDOWN		
• PARKING BRAKE	... SET	
• FLIR	... OFF	
• RADAR	... OFF	
• INS	... OFF	
• AVIONICS	... OFF	
• STBY ATT reference indicator	... CAGE / LOCK	
• COMM 1 and 2	... OFF	
• EXTERIOR & INTERIOR LIGHTS	... OFF	
• OBOGS control switch	... OFF	
• OXY FLOW KNOB	... OFF	
ENGINE SHUTDOWN		
• BRAKE GAUGE	... 3,000 PSI	
• NOSEWHEEL STEERING	... DISENGAGE	
• FLAPS	... FULL	
• THROTTLE	... OFF	alternate side
As N2 RPM decreases below 7%, gently pump the stick approximately ± 1 inch FORE and AFT at approximately 2 cycles per second, decreasing HYD pressure on shutdown ENGINE below 800 PSI.		
Ensure HYD system pressure on operating ENGINE remains above 1500 PSI.		
• DDIs, AMPCD, and HUD	... OFF	
• THROTTLE	... OFF	
• EJECTION SEAT	... SAFE	
When amber FLAPS light illuminates		
• BATTERY switch	... OFF	

CASE I DEPARTURE

CASE I			TURNRADIUS
WX	VIS	> 5NM	½ % of GS
	CEILING	> 3000ft AGL	

CASE II		
WX	VIS	> 5NM
	CEILING	> 1000ft AGL

CASE III		
WX	VIS	< 5NM
	CEILING	< 1000ft AGL
NIGHT OPS		



CASE I RECOVERY

COMMUNICATIONS

For Case I recoveries, Marshal will provide

- the CASE RECOVERY
- current BRC and
- expected “CHARLIE” time

upon initial check in. Charlie time is the time at which launch operations are complete and recovery operations begin; additionally, Marshal will request notification when

- the carrier is in sight, normally around 10NM

Sample communications are as follows:

- I. 401 ... “Marshal, 401, 250 for 42, Angels 9, State 2.4”
- II. Marshal ... “401, Case I. BRC is 015, Report, see me”
- III. 401 ... “401, Wilco”

At 10NM or when VISUAL with the ship:

- IV. 401 ... “401, See you at 10”
- V. Marshal ... “401, Switch Tower”

Once switched to Tower frequency, just monitor the frequency.

The majority of Case I operations are conducted “Zip Lip”.

This means that radio calls in the pattern are neither required nor desired.

However, in low-visibility situations, the following calls will be made:

- I. Descending out of overhead holding to the initial:
“401, COMMENCING”
- II. Initial (3 NM astern):
“401, INITIAL”
- III. Entering the spin pattern (when applicable):
“401, SPINNING”
- IV. 90 degrees from INITIAL when spinning:
“401, SPIN 90”
- V. Departing the landing pattern to re-enter port holding:
“401, DEPARTING _____ NM, upwind”
- VI. Breaking:
“401, BREAKING at X” where X is the DME
- VII. Ball call, when rolling into the groove, and the pilot sees the ball:
“401, Hornet BALL, 2.2” where 2.2 is the fuel state
- VIII. Clara when the ball is not visible:
“401, CLARA”

During Zip Lip operations, the ball call will not be made. The LSO will acknowledge an implied ball call with a momentary flash of the cut lights (same as a “roger ball” call from the LSO) as the aircraft rolls into the groove. If the ball is not visible, a “CLARA” call will be made. At any time during Zip Lip operations, radio calls will be made for any safety of flight situations.

*Never transmit on the radio when another aircraft is on the ball,
unless required for safety of flight*

CASE I RECOVERY

know the numbers!			
PT	BRC 302	AGL	R/D
180	T 122	600	300 – 400
135	H 077	525	300 – 400
90	H 032	450 – 500	400 – 500
45	H 347	320 – 370	500 – 600
F/B	T 293	220 – 250	650 – 750



HWC / TWC

$$(1,1 - W/A [\%]) \times W/V [\text{kts}]$$

CWC

$$(0,2 + W/A [\%]) \times W/V [\text{kts}]$$

THE BREAK
800ft AGL

THROTTLE IDLE
Maintain 800ft AGL
PULL g's acc. IAS
REDUCE IAS thru 250kts

BREAK
800ft AGL
MAX 4NM
MIN 1NM
350 kts
CALL „BREAKING at X“

WAVEOFF
CLB 600 AGL
MIL / MAX
NO config change
At bow RT parallel to BRC
@600 LT downwind
AOB 30°
FUELBURN 500 lbs

DISTANCE [NM]
1.00 to 1.25 NM

DOWNWIND
descending 600ft AGL
FINAL config
complete LDG checklist
on-speed AOA

ABEAM
600 AGL
CALL „ABEAM“,
omit when another
a/c is on the ball

the 180 (T122°)
600ft AGL
VV 1° below horizon
AOB 27° - 30°
ADD power
R/D 300 – 400
on-speed AOA

the 135 (H077°)
525ft AGL

the 90 (H032°)
450 - 500 AGL *
REDUCE power
VV 1 ½° - 2° below horizon
on-speed AOA
R/D 400 – 500
* 500ft accounts for deck

on F/B (T293°)
220 – 250 AGL
R/D 650 – 750
IC G/S @ ¾ NM
CALL “HORNET BALL”
CALL “CLARA”

the 45 (H347°)
320 – 370 AGL
REDUCE power
on-speed AOA
R/D 500 – 600

INITIAL
800 AGL
At 3NM inbound
350 kts
ALTIMETER = RDR
CALL “INITIAL”

WARNING
Never descend
below 300 ft AGL
without the ball

CASE II DEPARTURE

CASE I

WX VIS > 5NM
CEILING > 3000ft AGL

CASE II

WX VIS > 5NM
CEILING > 1000ft AGL

TURN RADIUS

½ % of GS

CASE III

WX VIS < 5NM
CEILING < 1000ft AGL
NIGHT

Intercept 10DME

ARC & briefed RADIAL

CASE II DEPARTURE

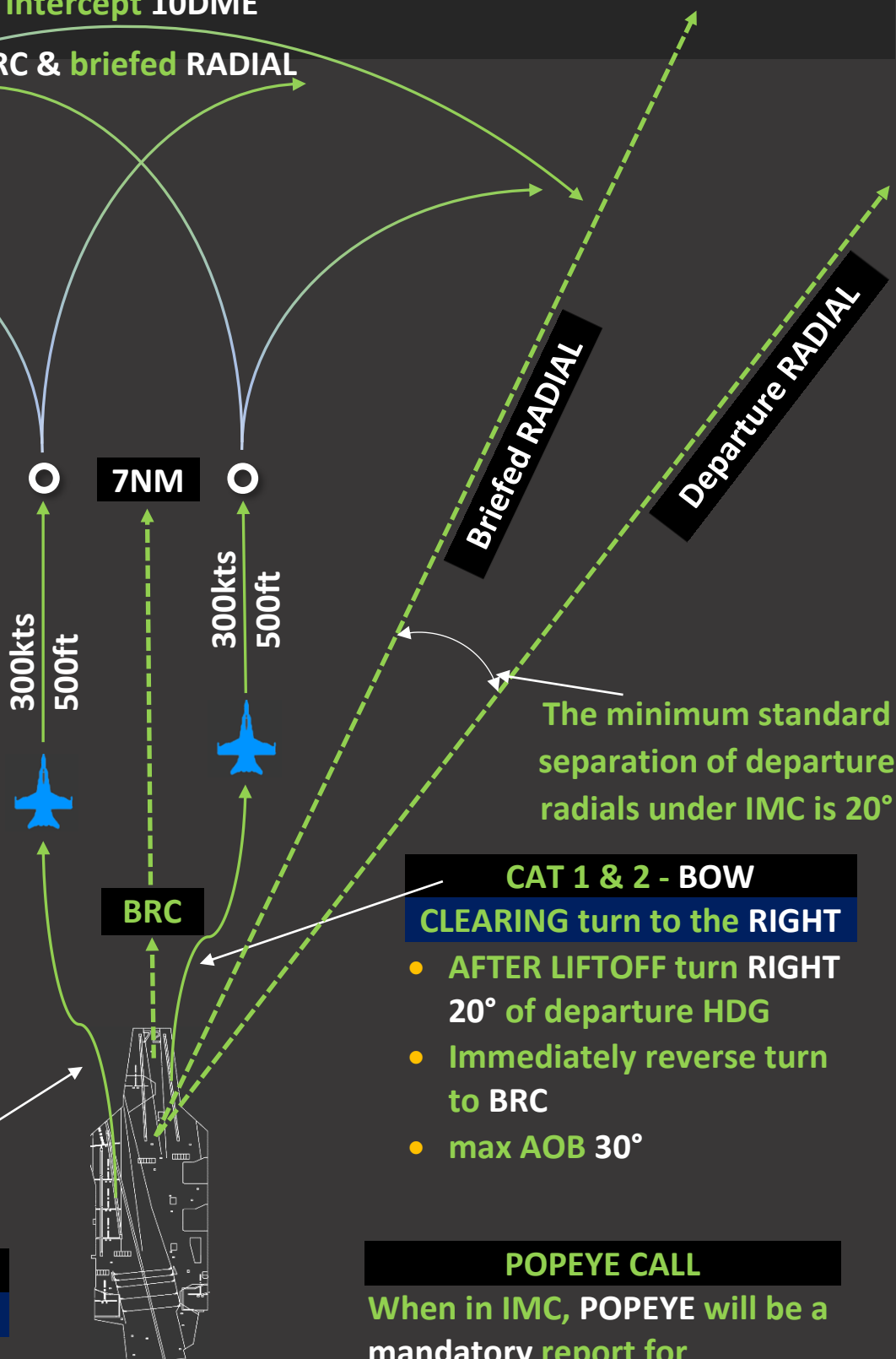
- 300kts until ON TOP
- 500ft
- Until 7NM or as directed
- JOIN 10DME ARC and intercept briefed RADIAL, while in IMC
- If VMC encountered AFTER 7NM, disregard departure ARC & RADIAL

COMM REPORTS

- During VMC: ZIPLIP otherwise
- Passing 2,500ft
- ARCING
- ESTABLISHED outbound (on assigned RADIAL)
- POPEYE, with ALTITUDE (see Note)
- ON TOP, with ALTITUDE
- KILO = combat ready

CAT 3 & 4 - WAIST CLEARING turn to the LEFT

- AFTER LIFTOFF turn LEFT 20° of departure HDG
- Immediately reverse HDG to BRC
- max AOB 30°



CAT 1 & 2 - BOW

CLEARING turn to the RIGHT

- AFTER LIFTOFF turn RIGHT 20° of departure HDG
- Immediately reverse turn to BRC
- max AOB 30°

POPEYE CALL

When in IMC, POPEYE will be a mandatory report for departing aircraft passing FL 180 (or assigned departure altitude if lower) if not on top

CASE II RECOVERY

HOLDING assumption (DME = angels + 15; LT = STD HOLD; 2min LEG)

Set minimum = RA 360
MARSHAL STACK
DME = angels + 15
SPEED = V_{MAX E} ~ 250kts
= better 5.6 AoA
= FPAS
TIMING = 2min

10NM
In IMC
POSSIBLE
DESCEND 800ft
in order to break
the clouds

5NM
Decision Point
In IMC
Call: "Recommend CASE III"
a/c will be vectored into
"bolter/waveoff pattern"
and will conduct
case III recovery

*bolter/waveoff pattern
when*
4DME or 2min
UPWIND
MAINTAIN ALT (800/1200)
LT DOWNWIND
• GEAR ... UP
• FLAPS ... HALF
• IAS ... 150kts

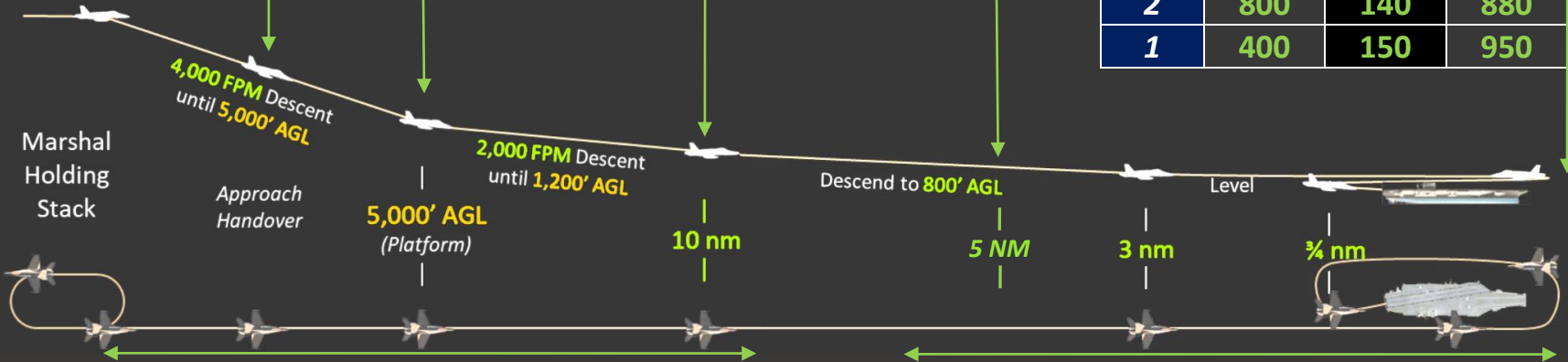
TOWER
IB to HOLD
"INBOUND"
Established ANGELS
"ESTABLISHED"
Leaving HOLD for APPR
"COMMENCING"
APPROACH
Check in to APPR FREQ
"CHECKING IN"
Passing 5000ft
"PLATFORM"

In VMC
„SEE YOU AT 10“
DESCEND 800ft

In VMC
Conduct
case I recovery

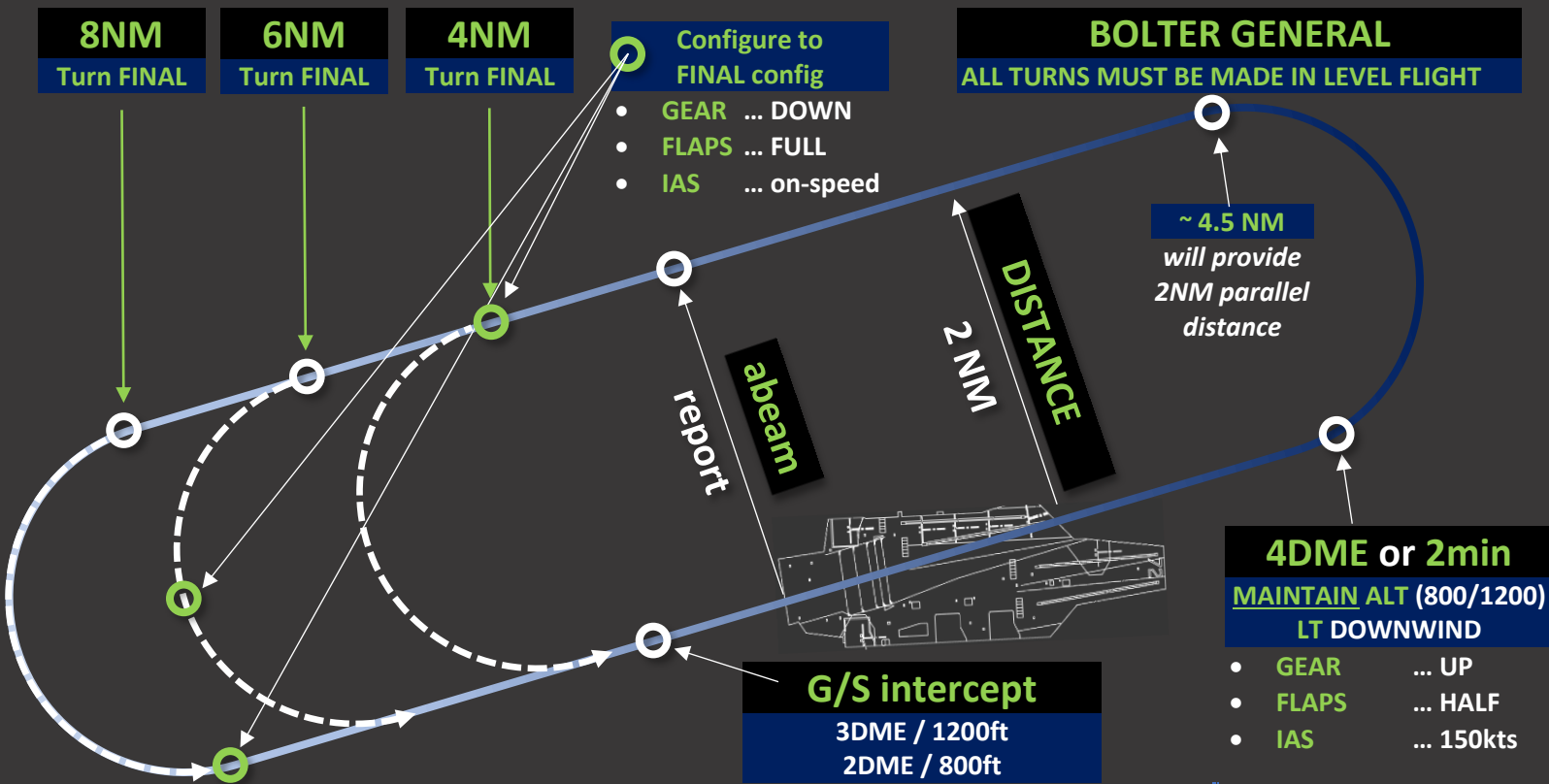
know the numbers!

DME	AGL	GS	R/D
3	1200	130	820
2	800	140	880
1	400	150	950



CASE III Procedure				CASE I Procedure		
ASSIGNED DME	DESCEND	PLATFORM	10NM	5NM <i>DECISION Pt</i>	3NM	<i>Follow standard case I recovery procedure</i>
ASSIGNED ALT	R/D 4000 fpm	5000ft AGL R/D 2000 fpm	1200ft AGL	800ft AGL		
250kts / CLEAN			350kts / CLEAN			
			CASE III Procedure			
			expect RV into the <i>bolter/waveoff pattern</i>			
			FLAPS ... HALF / IAS 150			

BOLTER / WAVEOFF PATTERN during CASE II recovery procedure



CASE III DEPARTURE

CASE I

WX VIS > 5NM
CEILING > 3000ft AGL

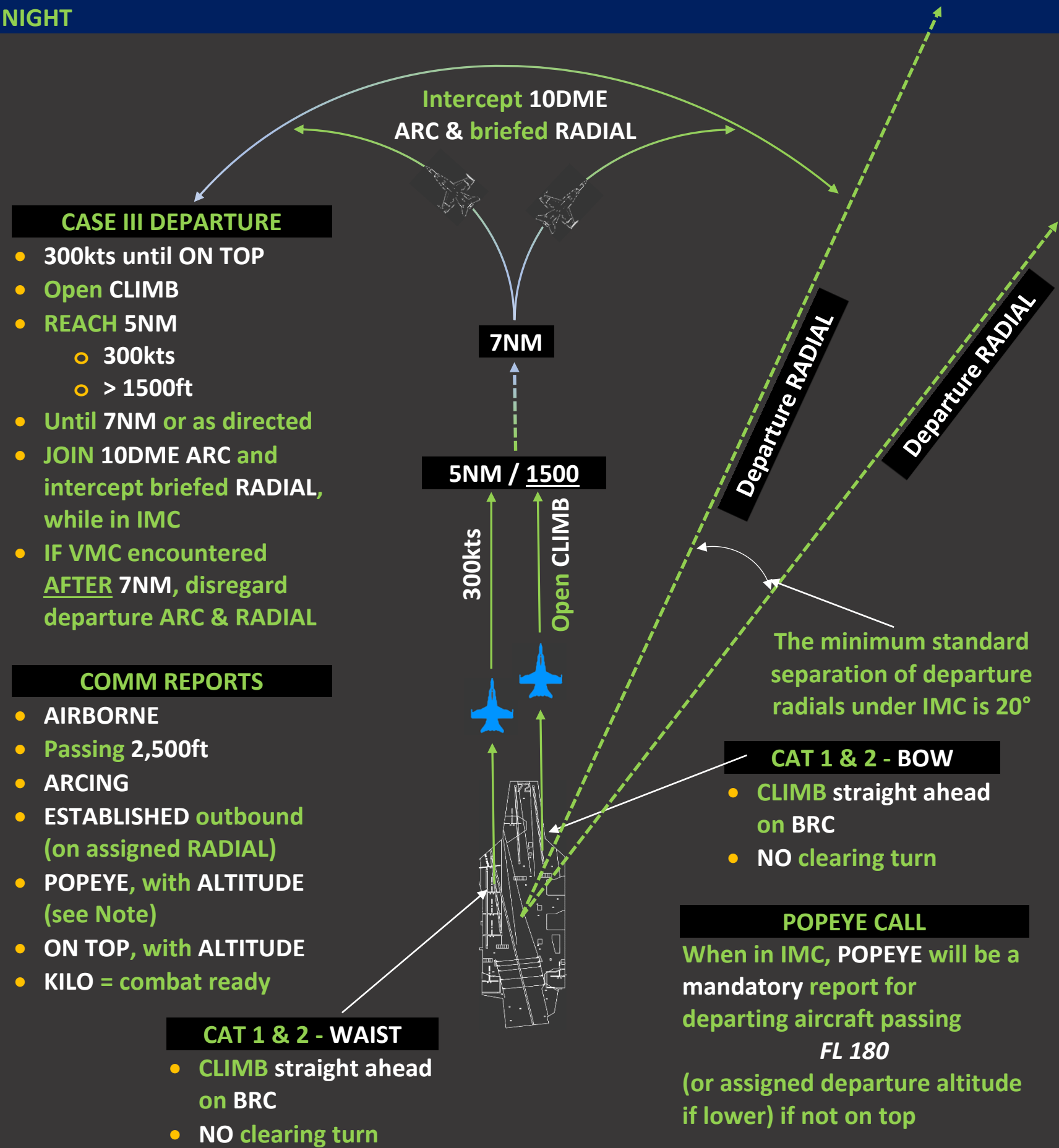
CASE II

WX VIS > 5NM
CEILING > 1000ft AGL

CASE III

WX VIS < 5NM
CEILING < 1000ft AGL
NIGHT

TURN RADIUS
 $\frac{1}{2} \% \text{ of GS}$



CASE III RECOVERY

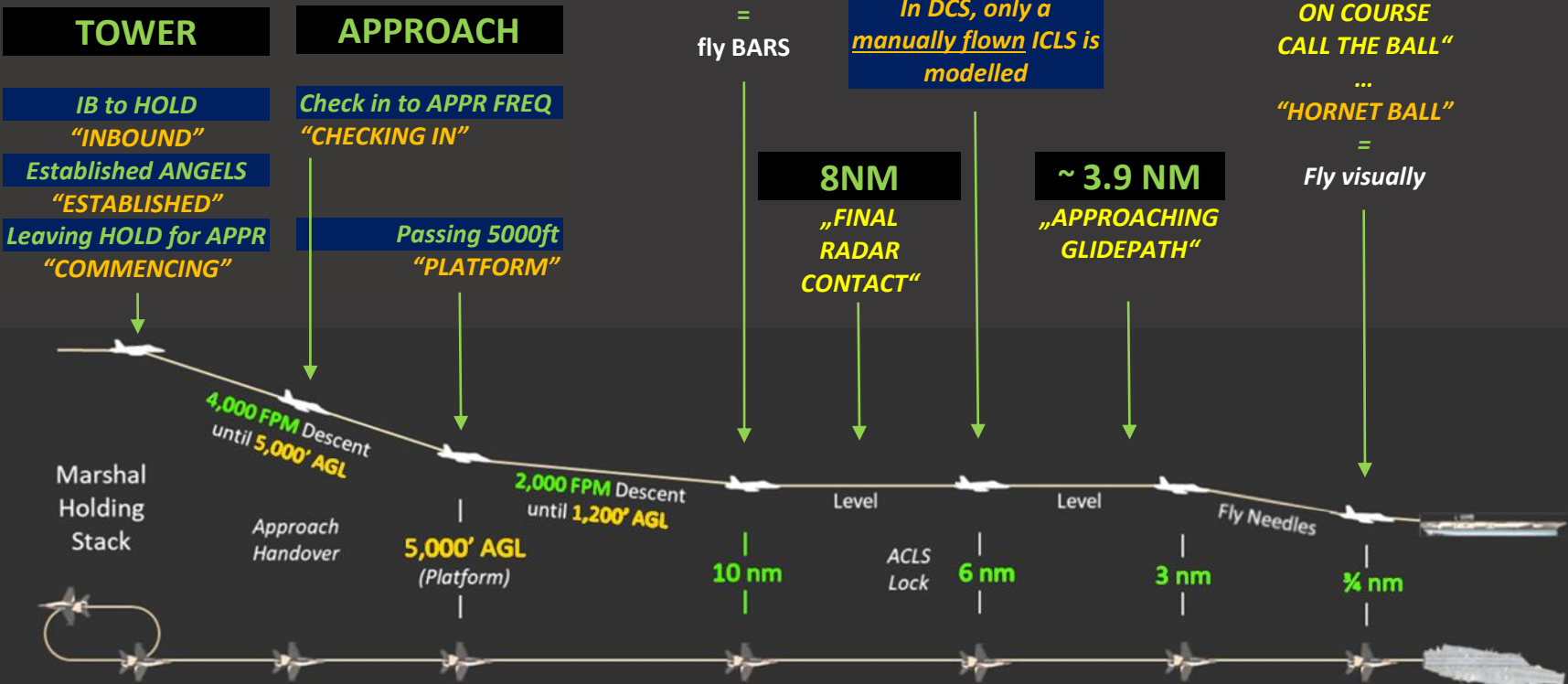
HOLDING assumption (DME = angels + 15; LT = STD HOLD; 2min LEG)

Set minimum = RA 360
MARSHAL STACK
DME = angels + 15
SPEED = V_{MAX E} ~ 250kts
= better 5.6 AoA
= FPAS
TIMING = 2min

6NM
LDG CHECKLIST
complete
„ICLS LOCK ON,
SAY NEEDLES“
...
“UP and ON”
...
“CONCUR,
FLY MODE2”
=

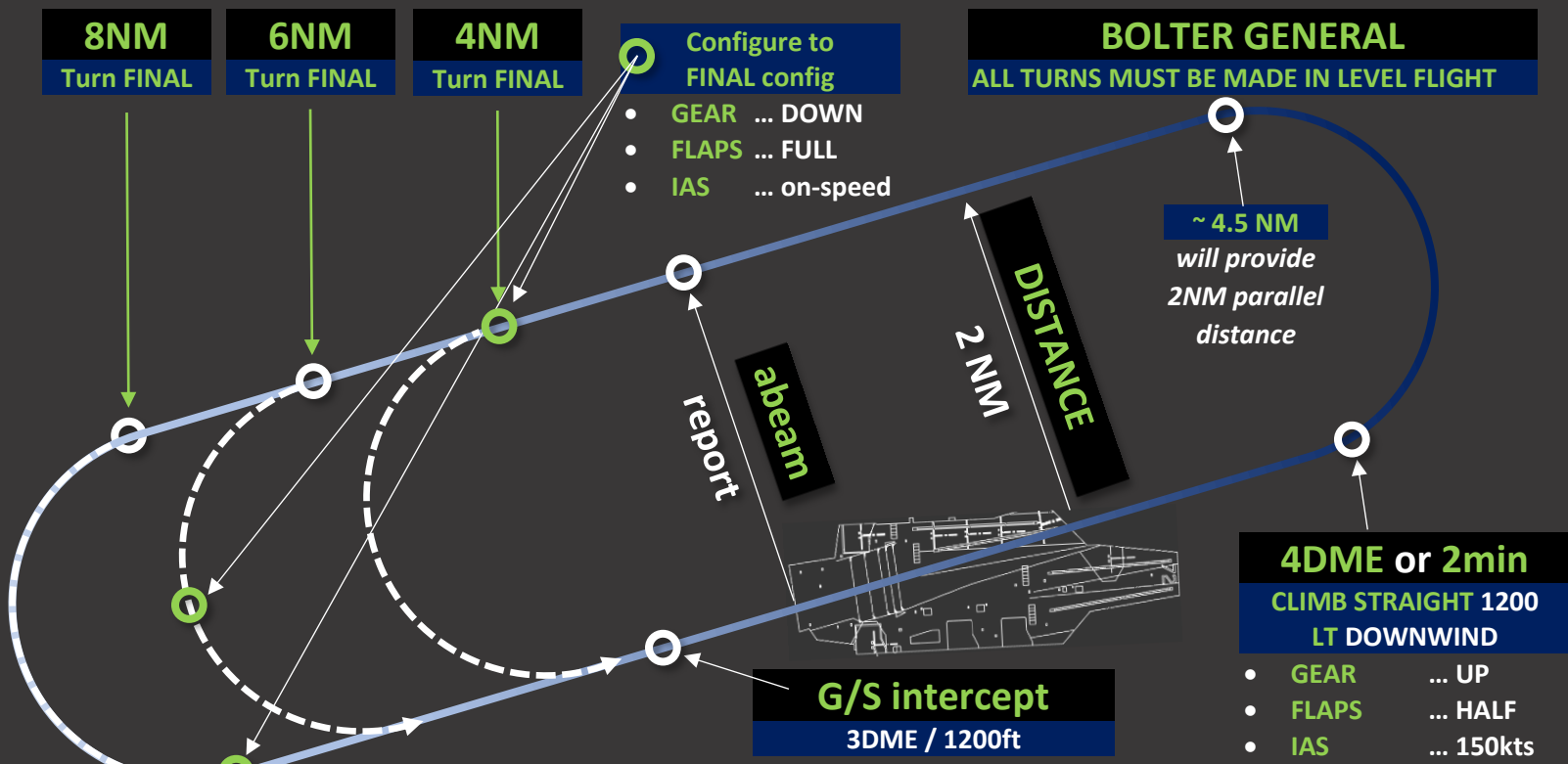
know the numbers!

DME	AGL	GS	R/D
3	1200	130	820
2	800	140	880
1	400	150	950



ASSIGNED DME	DESCEND	PLATFORM	10NM	6NM	3NM	¾ NM	BOLTER
ASSIGNED ALT	DESCEND R/D 4000 fpm	5000ft AGL R/D 2000 fpm	1200ft AGL	1200ft AGL	1200ft AGL	375ft AGL	1200 ft
250kts			DECELERATION	150kts	On speed		150kts
CLEAN			Configure for LDG	LDG CONFIG			GEAR ... UP FLAP ... HALF

BOLTER / WAVEOFF



CASE III RECOVERY

VOICE REPORTS

- ENTERING HOLD
- DEPARTING marshal
- 5000ft SIDE NUMBER, "PLATFORM"
- 10NM SIDE NUMBER, "10NM"
- Data link steering SIDE NUMBER, NEEDLES
- ¾ NM
 - SIDE NUMBER
 - HORNET "BALL" or "CLARA"
 - FUEL STATE
 - AUTO (only if ATC)

MARSHAL

- CHECK ACL 1
- T/C
- HUD CPLD HDG

PLATFORM 5000ft

- ILS STEERING DISPLAYED

10NM; LVL at 1200ft

- LDG CONFIG
- ATC ENGAGED
- RADAR ALT HOLD (if desired)

ACQUISITION (3.5 to 5NM)

- ACL RDY
- D/L STEERING
- REPORT NEEDLES

6NM

- LDG CHECK

1200ft

~ 3NM

- TIPOVER

At 200ft; ½ NM

- REPORT SIDE NUMBER
- HORNET
- BALL or CLARA
- FUEL STATE

LDG CHECK

1200ft

BOLTER / WAVEOFF

- CONTROL

CASE II / III MARSHAL consideration

OUTBOUND
fly parallel TRK

2min

1min

2min

DME = angels +15

F/B

10°

30°

Assigned ALTITUDE
• reach before **HOTSIDE** Sectors
• CALL "ESTABLISHED" when assigned ALTITUDE is acquired

No ALT change within 30° of marshal RADIAL

HOTSIDE

No ALT change within 10° of marshal RADIAL

COLDSIDE

Assigned ALTITUDE
• reach before **COLDSIDE** Sector
• CALL "ESTABLISHED" when assigned ALTITUDE is acquired

SECTOR
ALTITUDE change only permitted after clearance is obtained



VFR LANDING PATTERN

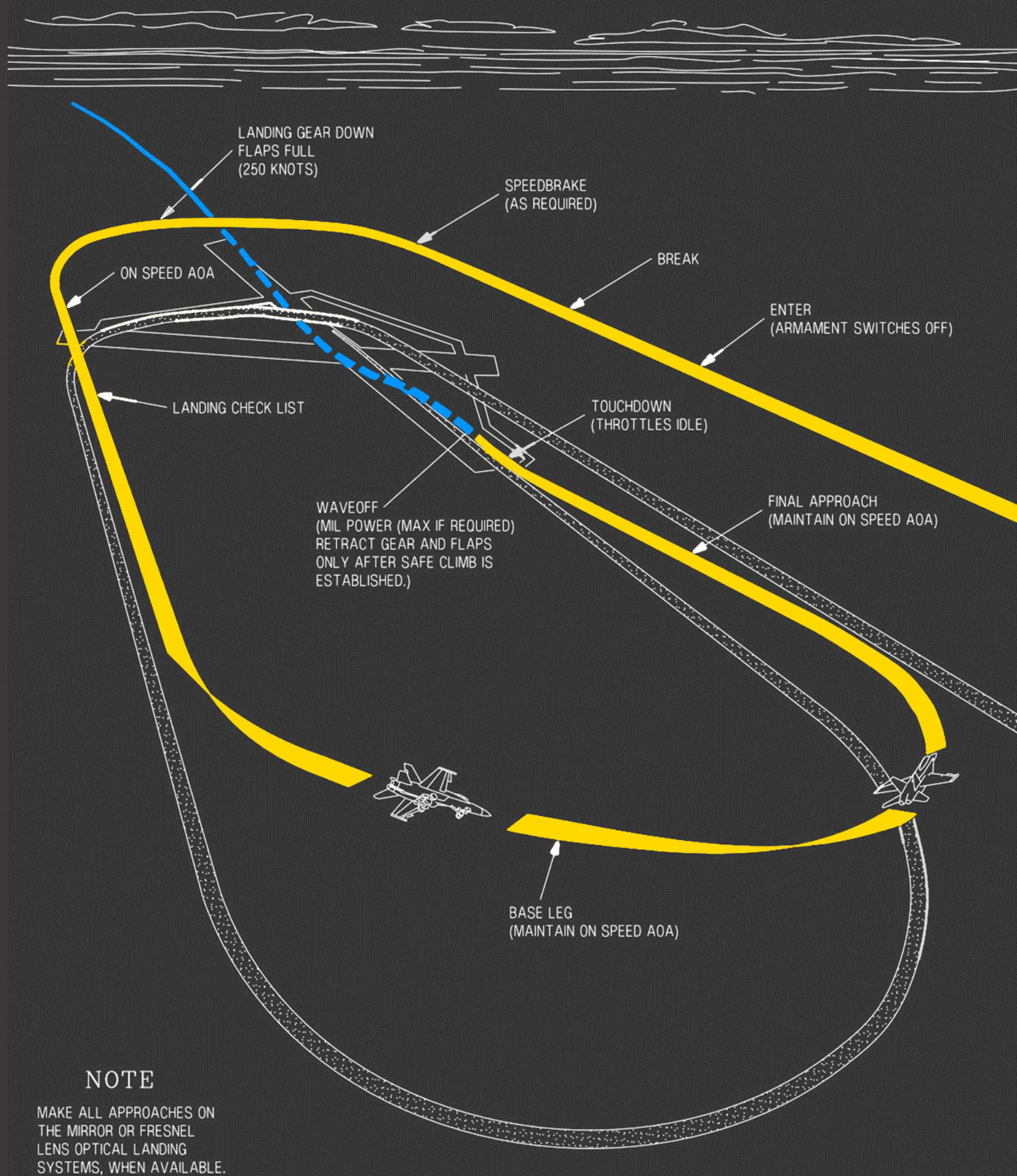


Figure 7-3. Typical Field Landing Pattern

VFR LANDING PATTERN

7.7.2 VFR Landing Pattern Entry

A1-E18GA-NFM-000

See figure 7-3. Typically, the VFR landing pattern can be entered through several methods:

- the break
- downwind entry
- VFR straight-in, or
- low approach/touch-and-go from a GCA

Regardless of the entry method, enter the pattern at the altitudes and airspeeds prescribed by local course rules. A normal break is performed by executing a level turn to downwind with the throttles reduced to IDLE and the speedbrake function enabled (if required to reduce airspeed).

*The desired abeam distance is 1.3 to 1.5 NM
(higher abeam distance due to higher APPR speeds of the E18GA)*

The g-level required to achieve the desired abeam distance will be a fallout of break airspeed.

As airspeed decelerates below 250 KCAS, lower the LDG GEAR handle and place the FLAP switch to FULL.

If enabled, the speedbrake function will retract automatically when the FLAP switch is moved from the AUTO position.

Continue to decelerate to on-speed AOA (8.1 deg). Longitudinal trim inputs are required with the flaps in HALF or FULL. The MI code for on-speed AOA is unit 14, address 15743, data 3300.

The pitch trim AOA value is displayed on the HUD while trimming and for two seconds after trimming and continuously on the FCS page with WoffW and flaps in HALF or FULL. The HUD value is displayed with or without ATC engaged but will not be displayed with autopilot engaged. If the autopilot is "paddled off" and AOA is greater than or equal to 6°, pitch trim is automatically set to on-speed.

Trim the aircraft hands-off and on-speed. Compare airspeed and AOA.

On-speed AOA is approximately the following:

A1-E18GA-NFM-000

- Flaps FULL 144 KCAS at 48,000 lb gross weight.
Add or subtract 1½ KCAS for each 1,000 lb increase or decrease in gross weight
- Flaps HALF 154 KCAS at 48,000 lb gross weight.
Add or subtract 1½ KCAS for each 1,000 lb increase or decrease in gross weight

Complete the landing checklist.

When wings level on downwind, descend to pattern altitude (600 ft AGL for the low pattern).

Ensure the ground track pointer is on the exact reciprocal of runway heading.

VFR LANDING PATTERN

Weight [lbs]	LDG CONFIGURATION					
	FULL FLAPS	HALF FLAPS	HALF FLAPS	HALF FLAPS	HALF FLAPS or FULL FLAPS	
	8.1° AOA	8.1° AOA	7.0° AOA	7.0° AOA	10.0° AOA	7.0° AOA
				0° LEF	0° TEF	0° LEF 0° TEF
	Normal LDG	Normal LDG	DEL / MECH	LEF Failure	TEF Failure	LEF / TEF Failure
24,000	117	126	131	133	161	192
25,000	119	129	134	135	164	196
26,000	121	131	136	135	167	200
27,000	124	134	139	141	170	204
28,000	126	136	141	143	173	208
29,000	128	139	144	146	177	212
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33,000	137	148	153	156	188	226
34,000	139	151	156	158	191	229
35,000	141	153	158	160	194	232
36,000	143	155	160	162	197	236
37,000	145	157	162	165	199	239
38,000	147	159	165	167	202	242
39,000	149	161	167	169	205	245

LANDING WEIGHT LIMITATION

FIELD	LDG flared	... 39000 lbs	
	FCLP / touch & go / baricade	... 30700 lbs	before AFC 029
	FCLP / touch & go / baricade	... 33000 lbs	after AFC 029
CARRIER	unrestricted	... 33000 lbs	
	restricted	... 34000 lbs	

Arrestments above 33,000 pounds are subject to the following restrictions:

1. Arresting gear
- ... MK 7 MOD 3 Only
2. Glideslope
- ... 3.5° Maximum
3. Recovery Head Wind (RHW)
- a. > 40 knots
- ... HALF FLAPS allowed
- b. < 40 knots
- ... FULL FLAPS only
4. Lateral Weight Asymmetry 14,500 ft-lb maximum
- (External pylon stores, AIM-9 Wing tips, and wing fuel)
5. No MOVLAS recovery

VFR LANDING PATTERN

7.7.2.1 Landing Checks
LANDING CHECKLIST

• ... HARNESS	... LOCKED	
• ... HOOK BYPASS	... FIELD	/ CARRIER
• ... ANTI SKID	... ON	/ OFF
• ... DISPENSER	... OFF	
• ... GEAR	... DOWN	
• ... FLAPS	... HALF	/ FULL
• ... HOOK	... UP	/ DOWN

1. LANDING CHECKLIST
2. REPORT
- i. AFT INITIATE

ii. 3 DOWN AND LOCKED

iii. FLAPS FULL (HALF)

iv. AOA CROSSCHECKED
- ... COMPLETE

7.7.3 VFR Landing Pattern and Approach

At the abeam position, pick a spot on the ground as a reference point.
(At the ship, TACAN will be used to adjust abeam distance).
Remember this abeam position, as all abeam distance corrections will use it as a reference.

- From the abeam position, time
- 20 seconds to arrive at a no-wind 180° position
- To compensate for winds,
- subtract one second for each knot of final approach headwind component

HWC / TWC

= (1,1 – windangle [%])

x

windvelocity [kts]

CWC

= (0,2 + windangle [%])

x

windvelocity [kts]

- At the 180,
- [600ft]
- place the velocity vector about 1° below the horizon with its wingtip below the horizon bar

▪ roll into 27 - 30° AOB

▪ add power

▪ adjust rate of descent to 300 to 400 fpm

▪ maintain on-speed AOA

If required, adjust rate of descent to arrive at the 90° position at 450 ft AGL.

Develop an instrument scan for the turn from the 180 to the 90, because an instrument scan will be required at the ship.

VFR LANDING PATTERN

At the 90, [450ft]
glance at runway centerline and the lens and adjust AOB to arrive on extended centerline.

- From the 90,
- rate of descent must be increased by
 - reducing power
 - adjusting the velocity vector to 1½ to 2° below the horizon
 - on-speed
 - rate of descent of 400 to 500 fpm

At the 45, [320 – 370ft]
This will produce a rate of descent of 400 to 500 fpm to arrive at the 45° position at 320 - 370 feet AGL.

- From the 45,
- continue to
- increase rate of descent to approximately 500-600 fpm
 - with a power reduction to arrive...

- at "the start" on centerline [220 – 250ft]
- at 220 to 250 feet AGL
 - with 650 to 750 fpm rate of descent
 - on-speed

The optimum rate of descent will vary with glideslope angle, approach speed, and headwind component.

The approach turn from a pattern altitude greater than 600 ft AGL is slightly different.

At the 180,
adjust rate of descent between 400 - 700 fpm to arrive at the 90 at approximately 500 ft AGL. This requires a power reduction at the 180 rather than a power addition.

Power will need to be added at the 90 to break the rate of descent to 400 to 500 fpm in order to arrive at the 45 at the same flight conditions as the low pattern.

7.7.4 Pattern Adjustments

Deviations to the standard no-wind pattern will be required based on headwind, crosswind, approach speed, and starts by adjusting abeam distance. Adjust the ground reference point and fly exactly the same AOB as the previous pass. Correct for long-in-the-groove or not-enough-straight-away starts by adjusting the timing from the abeam to 180° positions. Correct for high or low starts by adding or subtracting 20 to 50 feet from the target altitudes at and inside of the 90. The purpose of pattern adjustments is to determine a repeatable pattern technique which will produce consistent starts.

VFR LANDING PATTERN

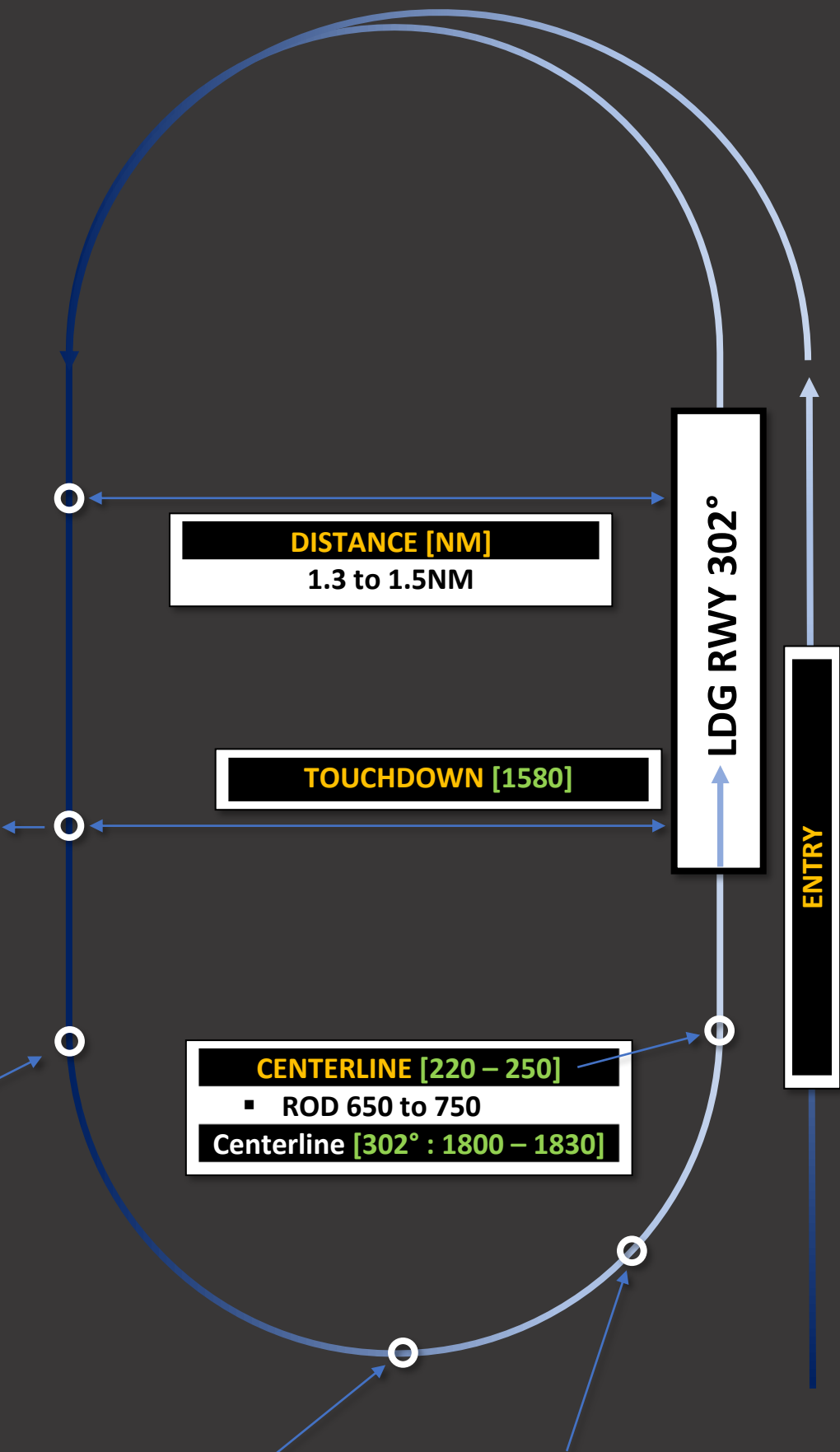
Typically, the VFR landing pattern can be entered through several methods:

- the break
- downwind entry
- VFR straight-in
- low approach
- touch-and-go from a GCA

Regardless of the entry method, enter the pattern at the altitudes and airspeeds prescribed by local course rules.

A normal break is performed by executing a level turn to downwind with the throttles reduced to IDLE and the speedbrake function enabled (if required to reduce airspeed).

HWC / TWC
(1,1 – windangle) x windvelocity
CWC
(0,2 + windangle) x windvelocity



FLIR

1. FLIR Switch

2. LTD/R Switch

3. DDI

4. ENTER FLIR UFC CODE

5. ENTER FLIR UFC CODE

6. SENSOR CONTROL SWITCH

a. SNOWFLOW

TDC DEPRESS

i. STABILIZED POINTING MODE

b. ATRK

TDC DEPRESS & HOLD

TDC RELEASE

c. PTRK

TDC DEPRESS & HOLD

TDC RELEASE

d. from CCIP to AUTO with ASL and TGT point on HUD

7. 2x UNDESIGNATE BUTTON

8. 2x UNDESIGNATE BUTTON

9. RTCL (RETICLE) MODE

10. MODES

a. CCD

b. WHT HOT

c. BLK HOT

11. SLEW

12. SLAVE
- ... ON

... ARM

... FLIR

... LTDC LASER TGT DESIGNATOR CODE (OWN)

... LSTC LASER SPOT TRACK CODE (LOOK FOR LASING)

... into direction of DDI FLIR

... FREE ... NO designation of TGT

... TGT DESIGNATION TGT DIAMOND

SLAVED ONTO TGT POINT

... TGT DESIGNATION coordinates move with cursor

... continues update of TGT coordinates

... AREA TRK

... SLEWABLE DESIGNATION "OFFSET CURSOR"

... designation of TGT coordinates

... POINT TRK

... SLEWABLE DESIGNATION "OFFSET CURSOR"

... designation of TGT coordinates

... enter VVSLV MODE

... leave VVSLV MODE

... to be used with DUMB BOMBS

... CAMERA

... INFRARED

... INFRARED

... FLIR over TGT or

... TPOD to WPDSG or

... VVSLV and point VELOCITY VECTOR → TDC

Consider AUTOLASING ("TRIG" enable) or MANUAL LASING

HMD Target Assignment

1. MASTER ARM

2. A/G Mode

3. SENSOR CONTROL SWITCH

4. TDC
- ... ARM

... SELECTED

... 2x FWD

... look at TGT area

... TDC DEPRESS to assign TGT WPT

F/A-18C RADAR MODES

AIR to GROUND RADAR

AIR to AIR RADAR

ACM ≤ 10NM

BVR ≥ 10NM

RWS (raw bricks / hits)

- STT (only ONE target is being tracked) support for
 - AIM-7
 - AIM-120

RWS + LTWS (tracks)

- STT (only ONE target is being tracked) support for
 - AIM-7
 - AIM-120
- View TRACKFILE (no fire support *)
- L&S TRACKFILE (no fire support *) STAR SOFTLOCK
- DT2 TRACKFILE (no fire support *) DIAMOND SOFTLOCK

TWS (tracks & bricks / hits)

- max 10 TRACKFILES are shown
- if more than 10 TRACKFILES, the rest is shown as BRICKS
 - STT (L&S) support for
 - AIM-7
 - AIM-120
 - View TRACKFILE (no fire support *)
 - L&S TRACKFILE (support for AIM-120 **) STAR SOFTLOCK
 - DT2 TRACKFILE (support for AIM-120 **) DIAMOND SOFTLOCK

* target is only locked

** AIM-120 can be fired on the L&S target i.e., target not being in STT

1. SOFTLOCK

L&S target is “softlocked” STAR → TDC DEPRESS
→ AIM-120 can be fired without being in STT

2. HARDLOCK

STT target has been ACTIVELY locked → TDC 2nd DEPRESS on L&S trackfile

ACM Modes			
ALL ACM modes are entered with HMD ... OFF			
ALL ACM Modes sets a target in STT			
SENSOR CONTROL SWITCH			
• AUTO	GACQ	GUN ACQUISITION	
	automatically enabled with air-to-air guns are selected		
• AFT	VACQ	VERTICAL ACQUISITION	5 NM
	search pattern covers from -13° to +46° searches targets out to 5 NM		
• FWD	BORE SIGHT		10 NM
	searches targets out to 10 NM		
• LEFT	WACQ	WIDE ACQUISITION	10 NM
	space-stabilized mode that can be slewed using the TDC controller when uncaged, searches targets out to 10 NM		

HMD			
SENSOR CONTROL SWITCH			
▪ FWD LONG	LHAQ	LONG RANGE HELMET ACQUISITION	40 NM
> 800 ms	locks targets within 40 NM of the helmet reticle		
▪ FWD SHORT	HACQ	HELMET ACQUISITION	10 NM
< 800 ms	locks targets within 10 NM of the helmet reticle		

AACQ		(Automatic Acquisition)
▪ A/A	... ENGAGED	
▪ TDC	... assigned as RDR ATTK	
▪ ACM	... NOT ENGAGED	
▪ Sensor Control Switch	... into the direction of RDR ATTK DDI	
• TDC cursor over TGT	... TARGET placed in STT	
• TDC cursor not over TGT	... closest detected TGT placed in STT	

STT	
Single Target Track (STT) is obtained by:	
▪ DEPRESSING the TDC	
• while the cursor is <u>OVER</u> THE LAUNCH & STEERING TRACKFILE or	
• while <u>OVER</u> any RAW CONTACT when in a mode where trackfiles are not displayed (e.g., RWS without LTWS)	
▪ using Automatic Acquisition ... AACQ	
▪ using an Air Combat Maneuvering mode	
▪ STT is exited by pressing the UNDESIGNATE BUTTON	
The radar is returned to the last-entered search mode	

BVR = RWS	
In BVR mode, the Sensor Control Switch has the following functions:	
• FWD	ACM (Air Combat Maneuvering) mode with Boresight selected by default
• AFT	TDC to lower AMPCD
• LEFT	TDC to left DDI
• RIGHT	TDC to right DDI

TWS DESIGNATION

- **ATTK RDR select** ... TDC into that direction of the screen
- **TWS mode** ... select with OSB
- **DESIGNATE TARGET** ... slew the TDC on the desired target
- **TDC DEPRESS** ... this is not a radar lock
- **You can set the L&S on any trackfile you want by**
 - REPEATEDLY pressing the “**UNDESIGNATE**” **BUTTON**”
 - This will CYCLE between the 10 trackfiles available
- **To designate a SECONDARY TARGET (DT2), repeat the same steps for L&S once a primary target has been designated**
- **swap L&S and DT2** ... by pressing the “**UNDESIGNATE**” **BUTTON**” on the stick
- **HUD**
 - L&S visible as a SQUARE
 - DT2 will be visible as an “X”
- **You can transition into a proper radar “STT” (Single Target Track) lock by pressing the**
 - TDC DEPRESS control a second time when TDC is over the L&S trackfile

SCAN CENTERING METHODS

Multiple methods of scan centering are available to keep trackfiles in the scan volume, with respect to both elevation and azimuth.

AUTO/MAN can be toggled with the **OSB ... AUTO/MAN OPTION** on the Attack Radar format, while

BIAS is entered by slewing the TDC and using **TDC DEPRESS** in an empty area of the tactical region

- **MAN**

Manual scan centering allows for the scan center to be set manually

- The azimuth will be centered on the TDC cursor's present position
- The antenna elevation can also be manually manipulated

- **AUTO**

Automatic scan centering mode centers the azimuth scan on the Launch & Steering (L&S) trackfile

- When the L&S is changed, or the current L&S moves, the azimuth center moves to keep it in the center
- The antenna elevation is centered on the altitude of the L&S
- If the L&S is lost/undesigned, MAN is automatically entered

- **BIAS**

The TDC can be DEPRESSED on an empty area of the tactical region to enter bias scan centering mode

- This allows for manual antenna elevation control and will center the azimuth on the point where the TDC was depressed
- This allows for the TDC to be moved without the scan center following it

TWS SUB-MODES: SCAN RAID

SCAN RAID is a raid assessment mode when an

- L&S ... EXISTS *(Launch & Steering Primary Target)*
- OSB select ... the RAID option
- Exit SCAN RAID by ... RSET option
- ... UNDESIGNATE BUTTON
- ... L&S is dropped

In SCAN RAID, the radar commands a special 22° AZIMUTH 3 BAR SCAN centered on the L&S. Doing what is called "raid assessment," the radar will attempt to detect multiple targets out of what it "thought" was a single target.

This "Doppler grouping" effect can occur when targets are in extreme close proximity and have the same closure rate.

SCAN RAID is purposed to combats this.

AIM-120 launches can be supported in SCAN RAID

As with any non-STT launch, an

AIM-7 shot will result in automatic acquisition of the L&S into Single Target Track

TWS SUB-MODES: EXP (EXPAND MODE)

The TWS Expand mode (EXP) provides a zoomed-in view of the tactical region centered around the L&S trackfile.

NO CHANGE TO THE SCAN IS MADE

- OSB select ... EXP is entered if an L&S exists
- If the L&S is changed while EXP is engaged, it will change to center on the new L&S
- EXP is exited by
 - selecting EXP again
 - via the RSET option
 - if the L&S is dropped

The EXP view is 10 NM x 20°, centered on the L&S

Manual range scale adjustment is not available

and the maximum/minimum range scale values on the top and bottom right of the format indicate the actual ranges shown while in EXP.

- The B-sweep remains "scaled" to the regular 140° view in EXP
- Trackfiles outside the EXP view are shown relative to the L&S along the border of the tactical region

OSB select... DATA

Latent Track While Scan (LTWS) is a RWS option (you need to go in the DATA sub-menu of the RDR ATTK page) allowing for raw contacts to be displayed as trackfiles with HAFU

- **HOSTILE**
 - **AMBIGUOUS**
 - **FRIENDLY**
 - **UNKNOWN**



symbology and other information

with the Multi-sensor Integration (MSI) function, OFFBOARD **TRACKFILE** information can also be shown in **LTWS**.

It also allows for the designation of

- a **LAUNCH & STEERING**
 - **SECONDARY DESIGNATED TARGET**

L&S and

DT2 trackfile

Using the TDC “Depress” and “Slew” commands, you can designate up to **THREE TARGETS**

An onboard-only track is **NOT** displayed **UNLESS** the TDC cursor is over the associated raw contact bricks (aka "target under cursor" or "TUC") or it is designated as the L&S or DT2. In these cases, the brick(s) will be replaced by a HAFU symbol representing the track. Note that since multiple raw radar contacts may be correlated to be a single aircraft and therefore one trackfile, a HAFU may replace multiple bricks.

Offboard-only tracks and tracks that are both onboard and offboard are always displayed as HAFUs and never show their corresponding raw contacts. Note that MSI must be enabled to display offboard trackfile information.

An IFF interrogation is automatically sent when a TUC is performed. Tracks in LTWS also have Launch Acceptable Region information displayed. Note that weapons cannot, however, be launched and guided from RWS.

HAFU SYMBOLOGY

	HOSTILE (RED)	UNKNOWN (YELLOW)	FRIENDLY (GREEN)	F/F PPLI (GREEN)	C2 (GREEN)
ONBOARD TRACKS					
CORRELATED ONBOARD TRACKS					
F/F DONOR TRACKS					
SURVEILLANCE TRACKS		N/A			

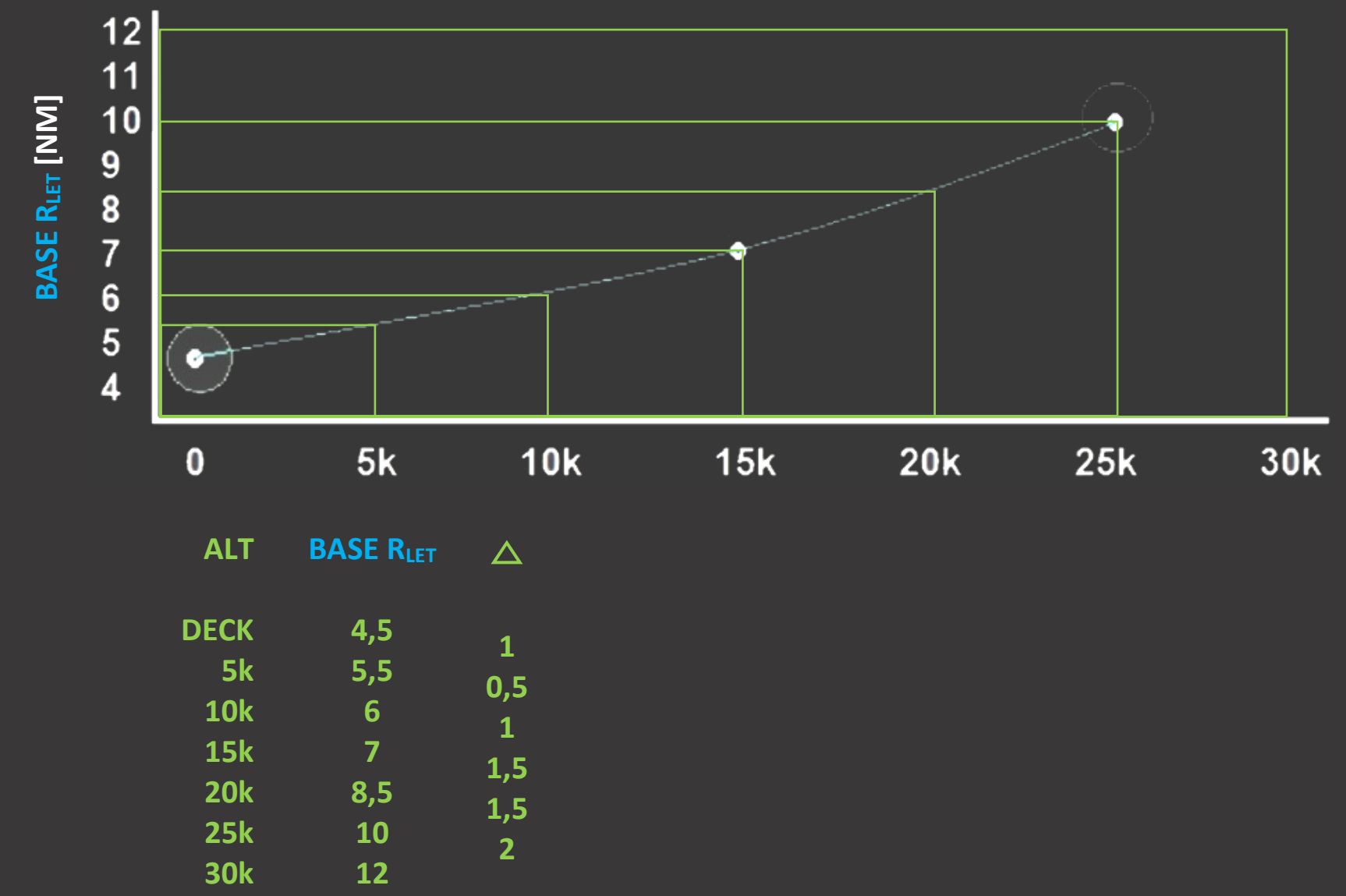
OFFENSIVE MISSILE CRANKING

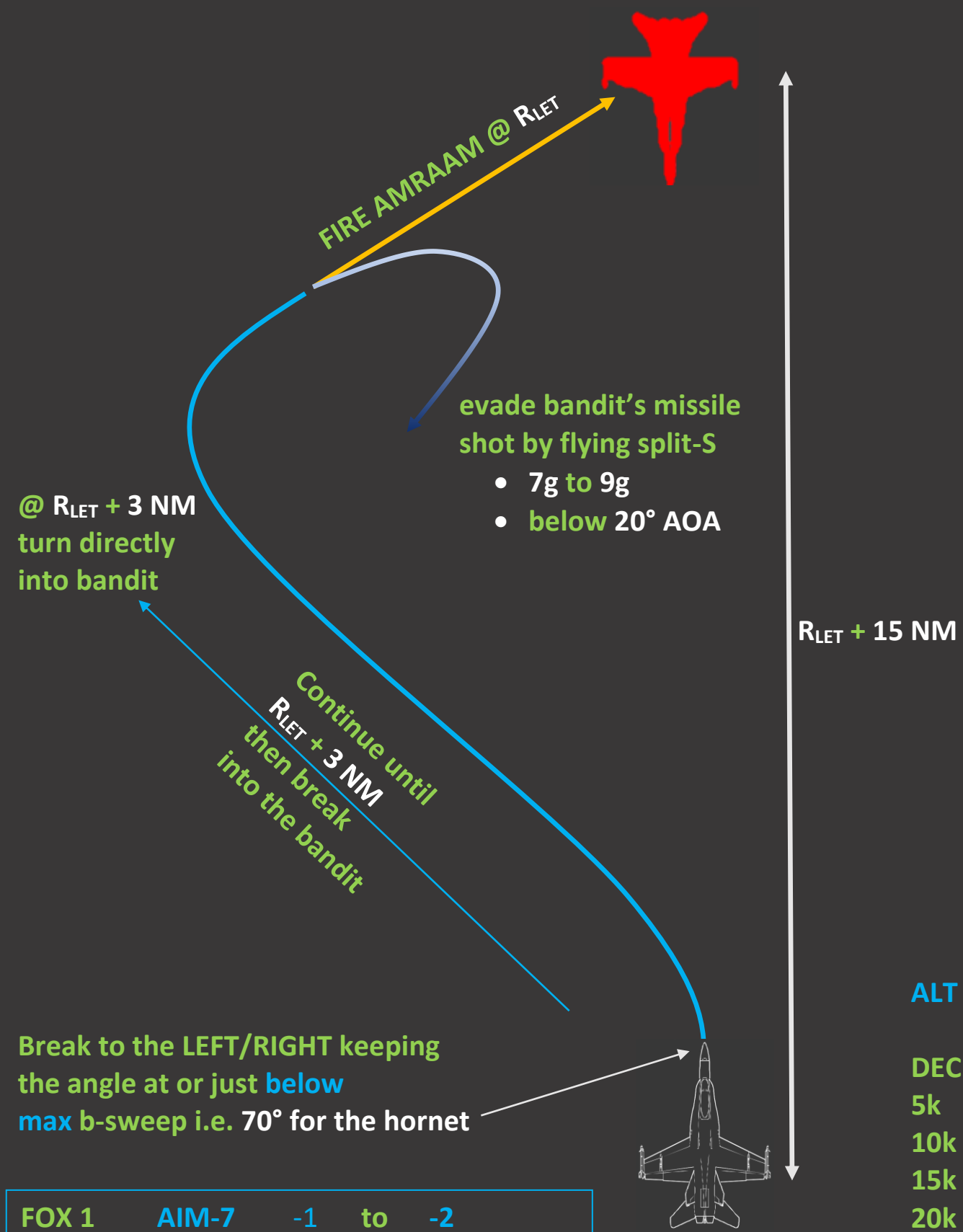
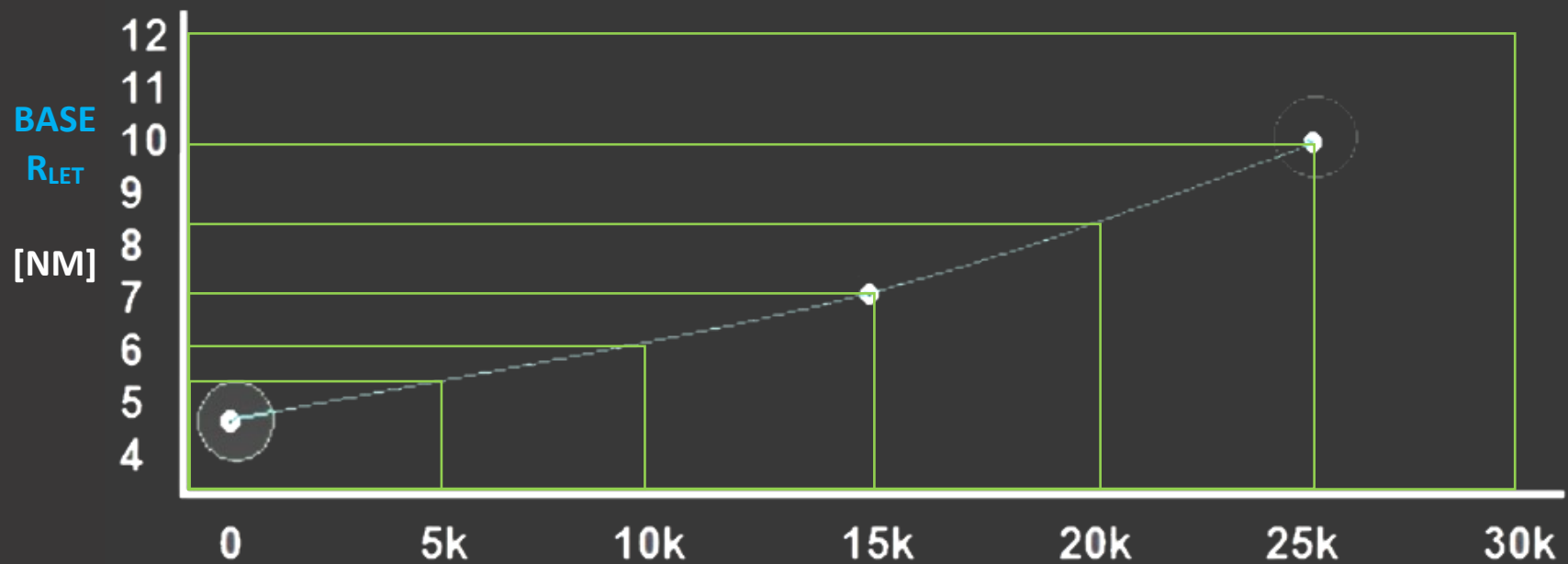
SEEKER TYPE	R _{LET} MODIFIER [NM]		
FOX 1			
▪ AIM-7	-1	to	-2
▪ R-27R / R-27ER	NIL		
▪ SUPER-530	-1,5	to	-3
FOX 3			
▪ AIM-120	0		
▪ R-77	-0,5	to	-1
▪ AIM-54	0		

V_{OPT} = MACH 1 @ ALTITUDE
if going above V_{OPT} adjust by equivalent percentage to R_{LET}, thus ADD 15% to R_{LET}
V_{MAX} = 1,15

R_{LET} = MACH x (BASE R_{LET} + R_{LET} MODIFIER)
e.g.
MACH 1,15 firing AMRAAM both @ 20k
= 1,15 x (8,5 + 0) = 9,78 = 10 NM

AIM-120C / V_{OPT} / HOT ASPECT





FOX 1 AIM-7 -1 to -2
FOX 3 AIM-120 0
R_{LET} = MACH x (BASE R_{LET} + R_{LET} MODIFIER)

ALT	BASE R _{LET}	△
DECK	4,5	
5k	5,5	1,0
10k	6	0,5
15k	7	1,0
20k	8,5	1,5
25k	10	1,5
30k	12	2,0

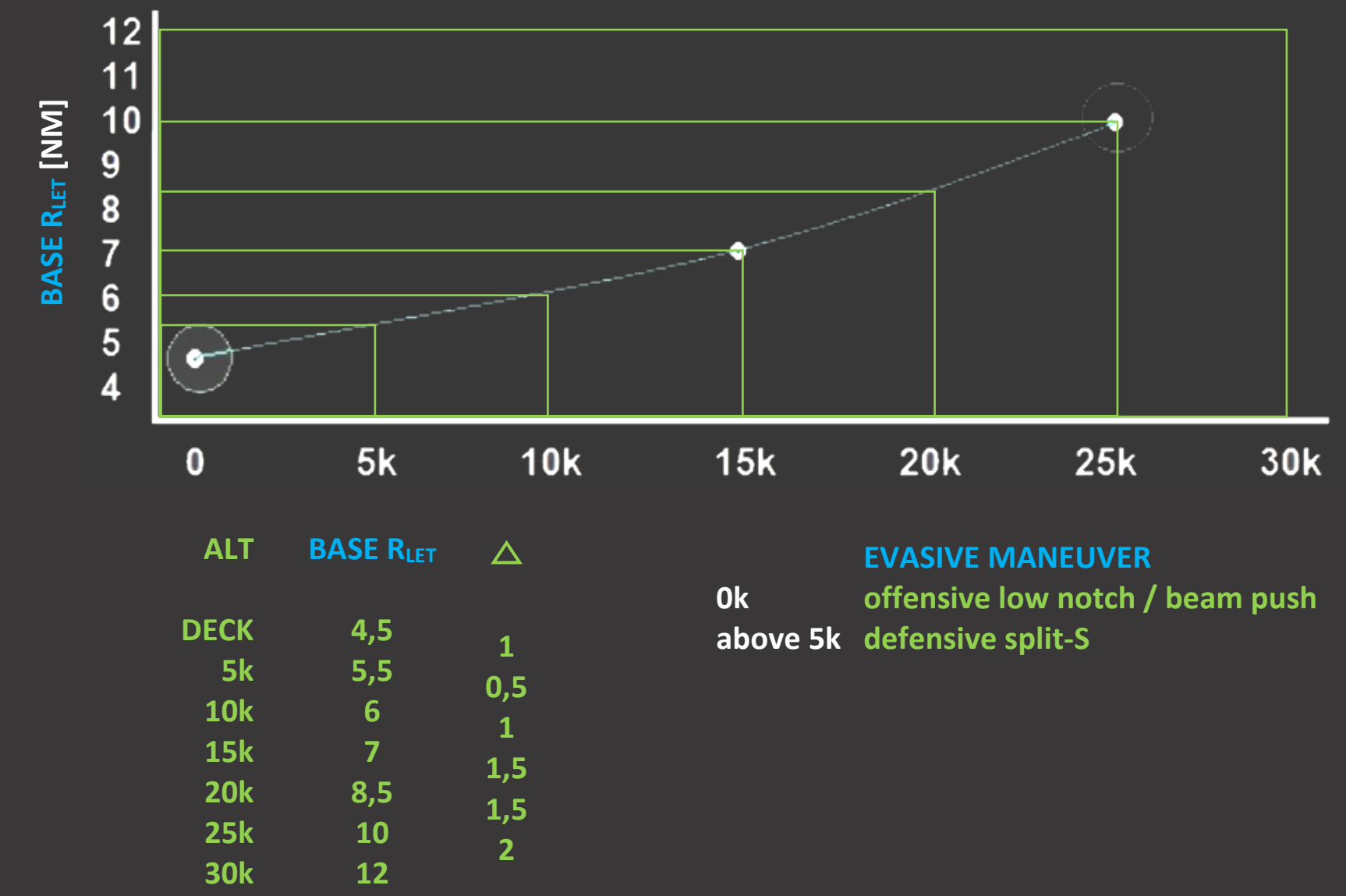
EVADING CLOSE RANGE RADAR GUIDED MISSILES

SEEKER TYPE	R _{LET} MODIFIER [NM]		
FOX 1			
▪ AIM-7	-1	to	-2
▪ R-27R / R-27ER	NIL		
▪ SUPER-530	-1,5	to	-3
FOX 3			
▪ AIM-120	0		
▪ R-77	-0,5	to	-1
▪ AIM-54	0		

V_{OPT} = MACH 1 @ ALTITUDE
if going above V_{OPT} adjust by equivalent percentage to R_{LET}, thus
V_{MAX} = 1,15 ADD 15% to R_{LET}

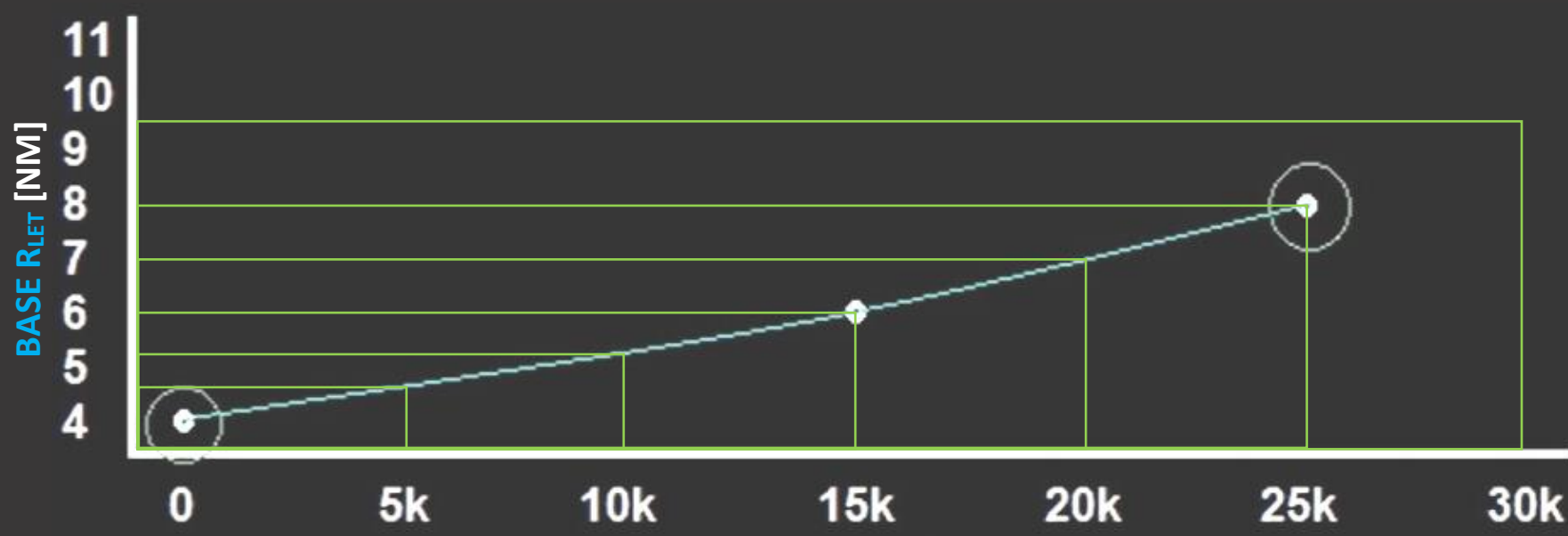
R_{LET} = MACH x (BASE R_{LET} + R_{LET} MODIFIER)
e.g.
MACH 1,15 firing AMRAAM both @ 20k
= 1,15 x (8,5 + 0) = 9,78 = 10 NM

AIM-120C / V_{OPT} / HOT ASPECT



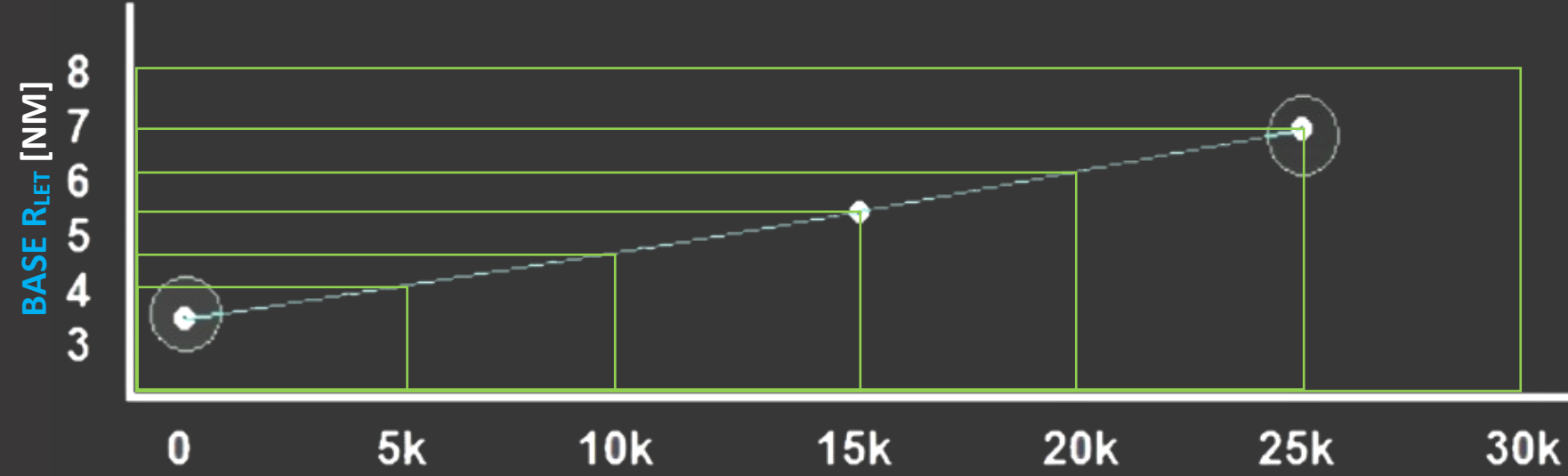
EVADING CLOSE RANGE RADAR GUIDED MISSILES

AIM-120C / V_{OPT} / SIDE ASPECT



ALT	BASE R _{LET}	△	EVASIVE MANEUVER
DECK	4		
5k	4,5	0,5	0k above 5k defensive low 45° snake defensive split turn out
10k	5,5	1	
15k	6	0,5	
20k	7	1	
25k	8	1	
30k	9,5	1,5	

AIM-120C / V_{OPT} / COLD ASPECT



ALT	BASE R _{LET}	△	EVASIVE MANEUVER
DECK	3,5		
5k	4	0,5	0k above 5k defensive notch / beam defensive split notch / beam
10k	4,5	0,5	
15k	5,5	1	
20k	6	0,5	
25k	7	1	
30k	8	1	

HARM Emitter Class for TOO

ALL CLASSES

ALL... ALL CLASSES

UNKNOWN

UKN... UNKNOWN class of emitter

PRIORITY

PRI... Emitter currently tracking the aircraft PRIORITY

FRIENDLY

FRD... Friendly emitters

FN... Friendly naval (sea-based) emitters

F1... Old friendly radar systems

F2... Modern friendly radar systems

FAA... Friendly anti-aircraft artillery

FS... Friendly search radar

SEA-BASED
RAD
RAD
AAA
SR

HOSTILE

HOS... Hostile emitters

HN... Hostile naval (sea-based) emitters

H1... Old hostile radar systems

H2... Modern hostile radar systems

HAA... Hostile anti-aircraft artillery

HS... Hostile search radar

SEA-BASED
RAD
RAD
AAA
SR



EW / RWR SYMBOLOGY

	Airborne THREAT
	Airborne FRIENDLY
	Airborne UNKNOWN
	SINGLE TARGET TRACK on you
	JAMMER
	OPTICAL TRACK
	SAM
	EARLY WARNING RADAR
	AAA
	NAVAL UNIT
	HARM (boxed = SELECTED)



HAFU SYMBOLOGY

		HOSTILE (RED)	UNKNOWN (YELLOW)	FRIENDLY (GREEN)	friendly fighter F/F PPLI (GREEN)	friendly AWACS C2 (GREEN)
ONBOARD TRACKS	self					
CORRELATED ONBOARD TRACKS	both					
F/F DONOR TRACKS	others					
SURVEILLANCE TRACKS	AWACS only		N/A			

AIRBORNE THREATS											
11	F	<u>F-111</u>	25	F	<u>MiG-25P</u>	76	T	<u>IL-76</u>	F4	F	<u>F-4E</u>
13	T	<u>C-130</u>	29	F	<u>MiG-29</u>	78	T	<u>IL-78</u>	F5	F	<u>F-5E</u>
14	F	<u>F-14</u>		F	<u>Su-27</u>	95	B	<u>Tu-95</u>	JF	F	<u>JF-17</u>
15	F	<u>F-15</u>		F	<u>Su-33</u>	AN	T	<u>AN-26B</u>	KC	T	<u>KC-10</u>
16	F	<u>F-16</u>		F	<u>J-11A</u>			<u>AN-30M</u>	KC	T	<u>KC-135</u>
17	T	<u>C-17</u>	30	F	<u>Su-30</u>	AV	B	<u>AV-8B</u>	M2	F	<u>Mirage</u>
18	F	<u>F/A-18</u>	31	F	<u>MiG-31</u>	B1	B	<u>B-1</u>	S3	B	<u>S-3</u>
19	F	<u>MiG-19</u>	34	F	<u>Su-34</u>	BJ	B	<u>Tu-160</u>	Tu	B	<u>Tu-142</u>
21	F	<u>MiG-21</u>	39	B	<u>Su-39</u>	E2	A	<u>E-2C</u>	A	AWACS	
22	B	<u>Tu-22M3</u>	50	A	<u>A-50</u>	E3	A	<u>E-3</u>		BOMBER	
23	F	<u>MiG-23</u>		A	<u>KJ-2000</u>	E6	B	<u>EA-6B</u>	F	FIGHTER	
24	B	<u>Su-24</u>	52	B	<u>B-52</u>	F2	F	<u>F-2</u>	T	TRANSPORTER	

SEARCH RADAR UNITS				
S	Unknown Search Radar			
	<u>EWR 1L13</u>			101
	<u>EWR 55G6</u>			102
	<u>S125 SR P 19</u>	[2],[3]		122
BB	Big Bird SR	[10]		104
CS	Clam Shell low-ALT	[10]		103
DE	Dog Ear 9S80M1 SR	[13]		109
HQ	HQ-7 SR	[7]		128
SD	Snow Drift SR	[11]		107
ENGAGING GND UNITS				
2	SA-2 Guideline	CH	28/++	126
3	<u>SA-3 S125 TR SNR</u>	CH	13/++	123
6	<u>SA-6 Kub STR 9S91</u>	CH	22/26	108
7	<u>HQ-7 Launcher</u>	EV	10/18	127
8	<u>SA-8 Osa 9A33</u>	CH	09/16	117
10	SA-10 S300PS TR	CH	46/++	110
11	<u>SA-11 BUK LL</u>	CH	23/++	115
12	<u>S300V 9A82</u>			
13	<u>SA-13 Strela</u>	FL	05/12	118
15	<u>SA-15 Tor 9A331</u>	CH	09/20	119
19	SA-19 Grison	EV	05/12	120
A	<u>Gepard</u>	EV	02/10	207
	<u>Vulcan M163</u>	EV	02/05	208
	<u>ZSU 23 4 Shilka</u>	EV	02/07	121
HK	Hawk SR/TR/CWAR	CH	25/++	
			203 / 204 / 206	
P	<u>Patriot MIM-104</u>	CH	48/++	202
RO	<u>Roland ADS</u>	EV	06/20	201
RP	Rapier Blindfire	--	--/--	124
RT	Rapier Launcher	EV	07/10	125

NAVAL UNITS					
40	CV	<u>Tarawa</u>	FL	08/13	407
49	FR	<u>Perry</u>	CH	50/++	401
AE	DE	<u>Arleigh Burke IIa</u>	CH	57/++	412
	CR	<u>Ticonderoga</u>	CH	55/++	315
HN	DE	<u>052C Haikou</u>	CH	64/++	410
	CR	<u>Pyotr Velikiy</u>	CH	74/++	313
HP	VE	<u>Grisha / Albatros</u>	CH	08/17	306
MR	DE	<u>052B Guandgzhou</u>	CH	27/48	409
	FR	<u>054A Yantai</u>	CH	35/++	411
PS	VE	<u>Molniya</u>	EV	04/09	312
	TT	071 Amphib Assault	EV	04/09	408
SS	CV	<u>CVN-70</u> Vinson	CH	14/35	402
	CV	<u>CVN-71</u> Roosevelt	CH	14/35	403
	CV	<u>CVN-72</u> Lincoln	CH	14/35	404
	CV	<u>CVN-73</u> Washington	CH	14/35	405
	CV	<u>CVN-74</u> Stennis	CH	14/35	406
SW	CV	<u>Kuznecow</u> 2017	CH	09/20	320
	CV	<u>Kuznecow</u> old	CH	09/20	301
T2	CR	<u>Moscow</u>	CH	47/++	303
TP	FR	<u>Neustrash</u>	CH	09/20	319
	FR	<u>Rezky</u>	CH	08/17	309
U	CV	<u>CVN-75</u> Truman	CH	14/35	---
		Unknown	... usually NAVAL		
xxx	AGM-88C HARM Radar Codes for PB Mode				
	CV	Carrier	CH	CHAFF	
	CR	Cruiser	FL	FLARE	
	DE	Destroyer	EV	EVASIVE	
	FR	Frigate	25 / ++		
	TT	Transporter	NM / ALT max		
	VE	Corvette	++	>50000 ft	

AIRSPACE SURVEILLANCE NON-NATO						
NATO Designation	Platform	RWR Symbol	Flexibility	Max detection range	Min ALT	Max ALT
Dog Ear	<u>1S80 "Sborka" PPRU</u>		self-propelled	80 km	UNK	UNK
Tall King	<u>55G6-1 NEBO</u>		stationary deployable	500 km	UNK	40 km
Box Spring	<u>1L13-3 NEBO-SV</u>		stationary deployable	500 km	UNK	40 km

Anti Aircraft Artillery (AAA)							
AAA THREAT	Acquire Time [secs]	Guidance	AMMO [rounds]	RWR	HARM PB	RNG [NM]	ALT [k feet]
ZU-23-3 Sergey	4	OPTICAL	100	-	-	1.3	6.5
ZSU-23-4 Shilka	8	RADAR	2000	A	121	1.3	6.5
ZSU-57-2 Sparka	5	OPTICAL	254	-	-	2	14
ZPU-1/2/4	3.5	OPTICAL	4800	-	-	0.7	4.5
Flakpanzer Gepard	4	RADAR	660	A	207	2	9.5
M163 Vulcan	6	OPTICAL	2280	A	208	1.4	4.5

Role	RADAR	Role	RADAR
TR	Tracking Radar for engagement	EWR	Early Warning Radar LONG RANGE
SR	Search Radar	LN + TR	Launcher & track radar (combined)
STR	SR & TR Radar (combined)	CWAR	Continuous Wave Acquisition Radar
SR (L)	Search Radar LOW ALTITUDE		

EW / RWR SYMBOLOGY

	Airborne THREAT
	Airborne FRIENDLY
	Airborne UNKNOWN
	SINGLE TARGET TRACK on you
	JAMMER
	OPTICAL TRACK
	SAM
	EARLY WARNING RADAR
	AAA
	NAVAL UNIT
	HARM (boxed = SELECTED)



RADAR SYSTEMS								
RADAR THREAT	Associated SAM		NATO	RWR	HARM PB	Range [NM]	ALT [k ft]	Role
SNR-75	S-75	SA-2	Fan Song	2	126	24	82	TR
SNR-125	S-125	SA-3	Low Blow	3	123	12	59	TR
5N26	S-200	SA-5	Square Pair	5	tbd	162	130	TR
1S91	2K12	SA-6	Straight Flush	6	108	19	33	STR
HQ-7	Launcher		-	7	127	8	20	SR
9K33	SA-8		-	8	117	8	21	TR
30N6E	S-300	SA-10	Flap Lid	10	110	40	160	TR
9K37 Buk	SA-11		Gadfly	11	115	19	45	TR
9K35 Strela	SA-13		Gopher	13	118	3	15	TR
9K331 Tor	SA-15		Gauntlet	15	119	7	26	TR
2K22M Tunguska	SA-19		Grison	19	120	4	16	TR
ZSU-23-4 Shilka				A	121	1.3	6.5	TR
Flakpanzer Gepard				A	207	2	9.5	TR
M163 Vulcan				A	208	1.4	4.5	TR
AN/MPQ-53/65	MIM104 Patriot		-	P	202	48	80	STR
1L13	-		Box Spring	S	101			EWR
55G6	-		Tall King	S	102			EWR
P-37	-		Bar Lock	S	---			EWR
PRW-11	-		Side Net	S	---			EWR
RSP-7	-		Two Spot	S	---			EWR
P-12	S-75	SA-2	Spoon Rest	S	---	24	82	SR
P-19	S-125	SA-3	Flat Face	S	122	15	59	SR
P-14	S-200	SA-5	Tall King	S	---	162	130	SR
64H6E high ALT	S-300	SA-10	Big Bird	BB	104	40	160	SR
5N66M low ALT	S-300	SA-10	Clam Shell	CS	103	40	160	SR
9S80M1	9K33	SA-8	Dog Ear	DE	109	8	21	SR
AN/MPQ-50 PAR	Hawk		-	HK	203	26	45	SR
AN/MPQ-46 HPIR	Hawk		-	HK	204	26	45	TR
AN/MPQ-55 CWAR	Hawk		-	HK	206	26	45	TR
HQ-7	Launcher		-	HQ	128	8	20	TR
Roland EWR	Roland		-	RO	205	3.4	20	SR
Roland EWR	Roland		-	RO	201	3.4	20	TR
Rapier	Launcher		Blindfire	RP	125	4.4	6.3	TR
9S18M1	9K37	SA-11	Snow Drift	SD	107	19	45	SR

SURFACE TO AIR MISSILES (SAM) SYSTEMS							
SAM THREAT	NATO	Track RADAR	RWR HARM	Search RADAR	RWR HARM	RNG [NM]	ALT [k ft]
<u>S-75</u> <u>Dvina</u>	SA-2 <i>Guideline</i>	SNR-75 <i>Fan Song</i>	2 126	P-12 <i>Spoon Rest</i>	S ---	24	82
<u>S-125</u> <u>Neva Pechora</u>	SA-3 <i>Goa</i>	SNR-125 <i>Low Blow</i>	3 123	P-19 <i>Flat Face</i>	S 122	12	59
<u>S-200</u> <u>Vega</u>	SA-5 <i>Gammon</i>	5N26 <i>Square Pair</i>	5 <i>tbd</i>	P-14 <i>Tall King</i>	5 ---	162	130
<u>2K12</u> <u>Kub</u>	SA-6 <i>Gainful</i>	1S91 <i>Straight Flush</i>	6 108	P-12 <i>Spoon Rest</i>	S ---	19	33
<u>9K33</u> <u>Osa</u>	SA-8 <i>Gecko</i>	Integrated <i>Land Roll</i>	8 117	-		8	21
<u>9K31</u> <u>Strela-1</u>	SA-9 <i>Gaskin</i>	-		-	-	3	12
<u>S-300PS</u>	SA-10 <i>Grumble</i>	30N6E <i>Flap Lid</i>	10 110	64H6E <i>Big Bird</i> 5N66M <i>Clam Shell</i>	BB 104 CS 103	40	160
<u>9K37</u> <u>Buk</u>	SA-11 <i>Gadfly</i>	Integrated <i>Fire Dome</i>	11 115	9S18M1 <i>Snow Drift</i>	SD 107	19	45
<u>9K35</u> <u>Strela-10</u>	SA-13 <i>Gopher</i>	Integrated <i>Snap Shot</i>		-	13 118	3	15
<u>9K331</u> <u>Tor</u>	SA-15 <i>Gauntlet</i>	Integrated <i>Scrum Half</i>		-	15 119	7	26
<u>2K22M</u> <u>Tunguska</u>	SA-19 <i>Grison</i>	-		-	19 120	4	16
<u>Avenger</u> <u>ADS</u>	-	-		-	-	4	11
<u>M6</u> <u>Linebacker</u>	-	-		-	-	2	11
<u>Rapier</u>	-	<i>Blindfire</i>		-	RT 125	4.4	6.3
<u>MIM-115</u> <u>Roland</u>	-	Integrated <i>Roland ADS</i>	RO 201	Roland EWR	RO 205	3.4	20
<u>MIM-23</u> <u>Hawk</u>	-	AN/MPQ-46 HPIR AN/MPQ-55 CWAR	HK 204 HK 206	AN/MPQ-50 PAR	HK 203	26	45
<u>MIM-104</u> <u>Patriot</u>	-	AN/MPQ-53/65 STR	P 202	AN/MPQ-53/65 STR	P 202	48	80

NAVAL THREATS						
NAVAL THREAT	alias	RWR	HARM PB	Range [NM]	ALT [k ft]	Role
<u>Tarawa</u>		40	407	8	13	CV
<u>Perry</u>	Fig Seven	49	401	50		FR
<u>Ticonderoga</u>		AE	315	55		CR
<u>Arleigh Burke IIa</u>		AE	412	57		DE
<u>Pyotr Velikiy</u>		HN	313	74		CR
<u>052C Haikou</u>		HN	410	64		DE
<u>Grisha / Albatros</u>		HP	306	8	17	VE
<u>052B Guandgzhou</u>		MR	409	27	48	DE
<u>054A Yantai</u>		MR	411	35		FR
<u>Molniya</u>		PS	312	4	9	VE
<u>071 Amphibious Assault Ship</u>		PS	408	4	9	TT
<u>CVN-70</u> Carl Vinson		SS	402	14	35	CV
<u>CVN-71</u> Theodore Roosevelt	Rough Rider	SS	403	14	35	CV
<u>CVN-72</u> Abraham Lincoln	Union	SS	404	14	35	CV
<u>CVN-73</u> George Washington	Warfighter	SS	405	14	35	CV
<u>CVN-74</u> John C. Stennis	Courage	SS	406	14	35	CV
<u>Kuznetsov</u>	prior 2017	SW	301	9	20	CV
<u>Kuznetsov</u>	after 2017	SW	320	9	20	CV
<u>Moskva</u>		T2	303	47		CR
<u>Rezky</u>		TP	309	8	17	FR
<u>Neustrashimy</u>		TP	319	9	20	FR
<u>CVN-75</u> Harry S. Truman	Lone Warrior	U	---	14	35	CV
unknown		U	---	--	--	--

Role	NAVAL	Role	NAVAL
CV	CARRIER	FR	FRIGATE
CR	CRUISER	TT	TRANSPORT
DE	DESTROYER	VE	CORVETTE

AIRBORNE THREATS					
AIRBORNE THREAT	RWR	Role	AIRBORNE THREAT	RWR	Role
<u>F-111</u>	11	F	<u>KJ-2000</u>	50	A
<u>C-130</u>	13	T	<u>B-52</u>	52	B
<u>F-14</u>	14	F	<u>IL-76</u>	76	T
<u>F-15</u>	15	F	<u>IL-78</u>	78	T
<u>F-16</u>	16	F	<u>Tu-95</u>	95	B
<u>C-17</u>	17	T	<u>AN-26B</u>	AN	T
<u>F/A-18</u>	18	F	<u>AN-30M</u>	AN	T
<u>MiG-19</u>	19	F	<u>AV-8B</u>	AV	B
<u>MiG-21</u>	21	F	<u>B-1</u>	B1	B
<u>Tu-22M3</u>	22	B	<u>Tu-160</u>	BJ	B
<u>MIG-23</u>	23	F	<u>E-2C</u>	E2	A
<u>Su-24</u>	24	B	<u>E-3</u>	E3	A
<u>MiG-25P</u>	25	F	<u>EA-6B</u>	E6	B
<u>MiG-29</u>	29	F	<u>F-2</u>	F2	F
<u>Su-27</u>	29	F	<u>F-4E</u>	F4	F
<u>Su-33</u>	29	F	<u>F-5E</u>	F5	F
<u>J-11A</u>	29	F	<u>JF-17</u>	JF	F
<u>Su-30</u>	30	F	<u>KC-10</u>	KC	T
<u>MiG-31</u>	31	F	<u>KC-135</u>	KC	T
<u>Su-34</u>	34	F	<u>Mirage</u>	M2	F
<u>Su-39</u>	39	B	<u>S-3</u>	S3	B
<u>A-50</u>	50	A	<u>Tu-142</u>	Tu	B

Role	AIRCRAFT	Role	AIRCRAFT
A	AWCAS	F	FIGHTER
B	BOMBER	T	TRANSPORTER

MISSILES NON-NATO							
RUSSIAN	NATO	Min [NM]	Max [NM]	Mach	Guidance	Warhead Type	Threat Level
<u>R-24R</u>	AA-7 Apex	0.25	10.8	3	SARH	High Explosive	mod
<u>R-24T</u>	AA-7 Apex	0.25	10.8	3	IR	High Explosive	mod
<u>R-27ER</u>	AA-10C Alamo	0.25	37.8	3	SARH	High Explosive	high
<u>R-27ET</u>	AA-10D Alamo	0.25	37.8	3	IR	High Explosive	high
<u>R-27R</u>	AA-10A Alamo	0.25	27	3	SARH	High Explosive	mod
<u>R-27T</u>	AA-10B Alamo	0.25	21.6	2.5	IR	High Explosive	mod
<u>R-60</u>	AA-8 Aphid	0.25	2.7	2	IR	High Explosive	mod
<u>R-73</u>	AA-11 Archer	0.25	8.09	2.5	IR	High Explosive	extreme
<u>R-77</u>	AA-12 Adder	0.25	31.07	3	ARH	High Explosive	extreme
<u>R-33</u>	AA-9 Amos	0.25	164	4.5 – 6.0	INS and SARH	High Explosive	extreme

MISSILES NATO							
NATO Designation	RWR	Min [NM]	Max [NM]	Mach	Guidance	Warhead Type	Threat Level
<u>AIM-120B</u>	N/A	0.25	29.71	4	ARH	Blast Fragment	extreme
<u>AIM-120C</u>	N/A	0.25	29.71	4	ARH	Blast Fragment	extreme
<u>AIM-7M</u>	N/A	0.25	24.31	3	SARH	Blast Fragment	extreme
<u>AIM-9M</u>	N/A	0.25	9.71	2.5	IR	Blast Fragment	extreme

OPERATING LIMITATIONS

ENGINE LIMITATIONS F404-GE-402

F404-GE-402			GND IDLE		ENG START	FLT IDLE		MIL steady			MAX thrust	
MIL	each 10900 lbs		MIN	MAX	PEAK	MIN	MAX	MIN	MAX	PEAK	MAX	PEAK
MAX	each 18000 lbs											
N1	± 0.5%	%		108			108		108		108	
N2	± 1%	%	63	70		68	73	90	102		102	
EGT	± 8°C	°C	190	590	815			715	880	902	920	942
FF	x 100	pph	4,2	9	*			60	125		(438)	
NOZZLE	± 3%	%	73	84				0	48			
OIL PRESS		psi	45	110		55	110	95	180			

* an excessive FF is an indication for a HOT START

OIL PRESSURE – GROUND

1. For ambient temperatures above -18°C (0°F)
oil pressure must peak below 180 psi and start to decrease within 30 seconds after reaching idle rpm and continue to decrease to steady state limits
2. For ambient temperatures below -18°C (0°F)
maximum oil pressure 2½ minutes after start is 180 psi
3. Steady-state GROUND IDLE oil pressure limit is 45 to 110 psi (warm oil)

SYSTEM LIMITATIONS

REFUELING PROBE	EXT – RET	300kts
	EXTENDED	400kts
LANDING GEAR	EXT – RET	250kts
	NOSE GEAR	190kts GS
TIRES	MAIN GEAR	210kts GS
	HALF / FULL	250kts
T/E FLAPS		
CANOPY	OPEN	60kts

CG LIMITATIONS

1. FORWARD LIMIT is ... 17% MAC
- NOTE
Maximum thrust field takeoffs are permissible at CG location forward to 16% subject to air density restrictions
2. AFT LIMIT is
- a. FE (Fighter Escort) config ... 28% MAC
- b. All other config ... 27% - 28% MAC
- (Refer to AOA limitations)

TRIM SETTINGS

TRIM		... 12°	FIELD
44,000	and below	... 16°	CARRIER
45,000	– 48,000	... 17°	CARRIER
49,000	– 51,900 (MTOW)	... 19°	CARRIER

OPERATING LIMITATIONS

LATERAL WEIGHT ASYMMETRY LIMITS

Field takeoff	22,000 ft-lbs
Catapult takeoff	
Weight board ≤ 36,000 lbs	6,000 ft-lbs
Weight board ≥ 37,000 lbs	22,000 ft-lbs
Inflight conditions	26,000 ft-lbs

Asymmetric jettison/normal release of a store from station 2 or 8 that weighs in excess of 2330 pounds (i.e., GBU-24, MK-60, MK65, Walleye II ER/DL) exceeds the lateral weight asymmetry limitation and is prohibited (even if this is the normal SMS release sequence, except in an emergency).

FCLP or Carrier landing with (including wingtip AIM-9 and wing fuel)	GW ≤ 33,000 lbs	17,000 ft lbs
Carrier landing with (including wingtip AIM-9 and wing fuel)	GW > 33,000 lbs	14,500 ft lbs
Field landing (flared) with sink rate at touchdown up to 500 fpm		26,000 ft lbs

ANGLE OF-ATTACK LIMITATIONS		Flaps AUTO
CONFIGURATION	AOA LIMIT [°]	CG [% MAC]
FE (Fighter Escort) Fighter Escort (FE) refers to the clean aircraft with or without pylons, fuselage stores, or wingtip missiles	Unrestricted -6° to +25°	17 to 25% 25 to 28%
FE plus centerline tanks / stores	Unrestricted -6° to +25°	17 to 23.5% 23.5 to 28%
FE with centerline tank / stores plus inboard tanks / stores	-6° to +25°	17 to 27.5%
FE without centerline tank / stores plus inboard tanks / stores	-6° to +35° -6° to +25°	17 to 24% 24 to 27.5%
FE with/without centerline tank / stores plus outboard tanks / stores	-6° to +25°	17 to 27.5%
FE with/without centerline tank / stores plus inboard and outboard tanks / stores	-6° to +20°	17 to 27%

Lateral Weight Asymmetry AOA Limits

- a. 6,000 to 12,000 ft-lbs asymmetry -6° to +20°
- b. 12,000 to 26,000 ft-lbs asymmetry -6° to +12°
- c. 22,000 to 26,000 ft-lbs asymmetry
 - Abrupt lateral stick inputs are PROHIBITED
 - Smooth inputs up to 1/2 stick for rolling maneuvers up to a maximum of 180° bank angle change are authorized
 - Rudder pedal inputs are authorized only as required to maintain balanced flight (Slip indicator ball centered)

OPERATING LIMITATIONS

AOA Limits Due to Mach No. (F/A-18B/D = two-seat hornet)

MACH	AOA LIMIT
0.7 to 0.8	-6° to +20°
0.8 to 0.9	-6° to +15°
above 0.9	-6° to +12°
Flaps HALF or FULL	0° to +15°
(transitory excursions up to +20° are allowed during catapult launch only)	

LANDING WEIGHT LIMITATION

FIELD	LDG flared	... 39000 lbs	
	FCLP / touch & go / baricade	... 30700 lbs	before AFC 029
	FCLP / touch & go / baricade	... 33000 lbs	after AFC 029
CARRIER	unrestricted	... 33000 lbs	
	restricted	... 34000 lbs	

Arrestments above 33,000 pounds are subject to the following restrictions:

1. Arresting gear

... MK 7 MOD 3 Only
2. Glideslope

... 3.5° Maximum
3. Recovery Head Wind (RHW)

a. > 40 knots

... HALF FLAPS allowed

b. < 40 knots

... FULL FLAPS only
4. Lateral Weight Asymmetry 14,500 ft-lb maximum

(External pylon stores, AIM-9 Wing tips, and wing fuel)
5. No MOVLAS recovery

ACCELERATION LIMITATIONS WITHOUT G LIMITER

Configuration	Symmetrical	Asymmetrical
Flaps HALF or FULL	+0.5g to +2.0g	+0.5g to +1.5g
Flaps AUTO	(32,357 pounds or less) -3.0g to +7.5g	-1.0g to +6.0g
GEAR Retraction and/or GEAR Extension	+0.5g to +2.0g	+0.5g to +1.5g

CATAPULT THROTTLE SETTINGS

WEIGHT BOARD	ENGINE POWER		
44000 and below	MIL	MIL / MAX	MAX
45000 and above			MAX

NOTE

MIL/MAX power setting is defined as stabilizing in Military power while in catapult tension, and selecting maximum afterburner at holdback release

OPERATING LIMITATIONS

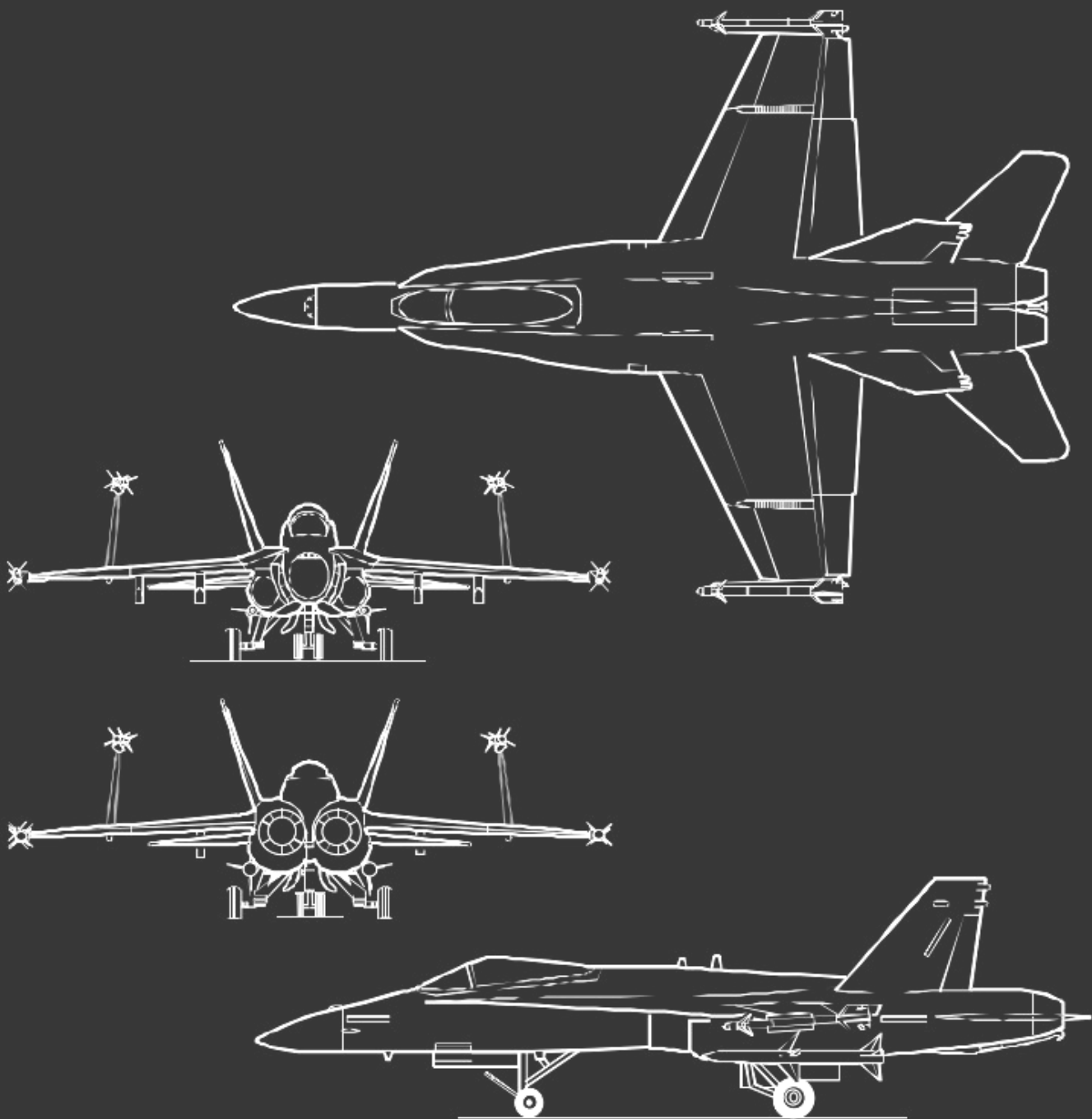
Weight [lbs]	LDG CONFIGURATION					
	FULL FLAPS	HALF FLAPS	HALF FLAPS	HALF FLAPS	HALF FLAPS or FULL FLAPS	
	8.1° AOA	8.1° AOA	7.0° AOA	7.0° AOA	10.0° AOA	7.0° AOA
	Normal LDG	Normal LDG	DEL / MECH	0° LEF LEF Failure	0° TEF TEF Failure	0° LEF 0° TEF LEF / TEF Failure
24,000	117	126	131	133	161	192
25,000	119	129	134	135	164	196
26,000	121	131	136	135	167	200
27,000	124	134	139	141	170	204
28,000	126	136	141	143	173	208
29,000	128	139	144	146	177	212
30,000	130	141	146	148	180	215
31,000	133	144	149	151	183	219
32,000	135	146	151	153	186	222
33,000	137	148	153	156	188	226
34,000	139	151	156	158	191	229
35,000	141	153	158	160	194	232
36,000	143	155	160	162	197	236
37,000	145	157	162	165	199	239
38,000	147	159	165	167	202	242
39,000	149	161	167	169	205	245

THE AIRCRAFT

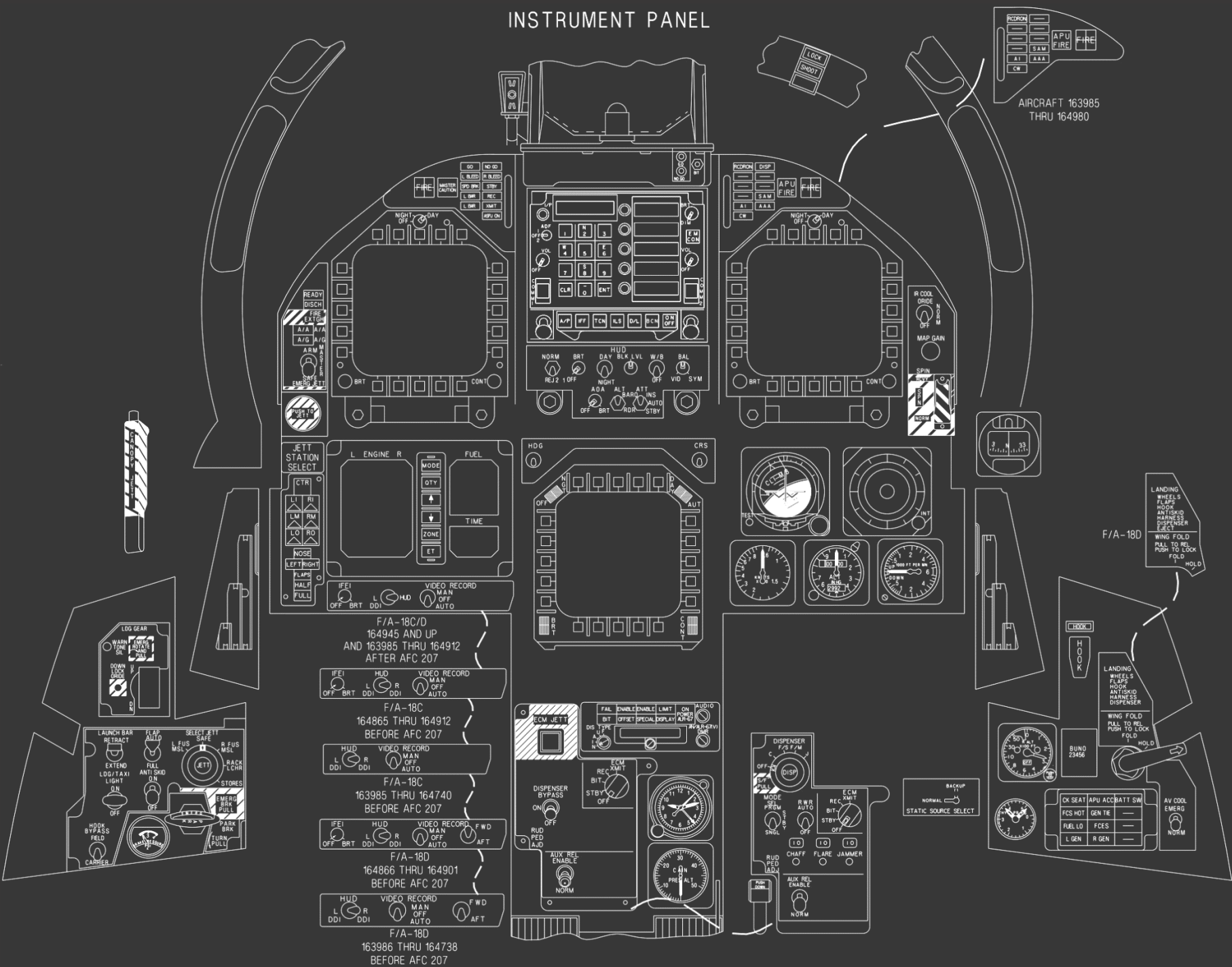
1.1.2 AIRCRAFT DIMENSIONS

The approximate dimensions of the aircraft are as follows:

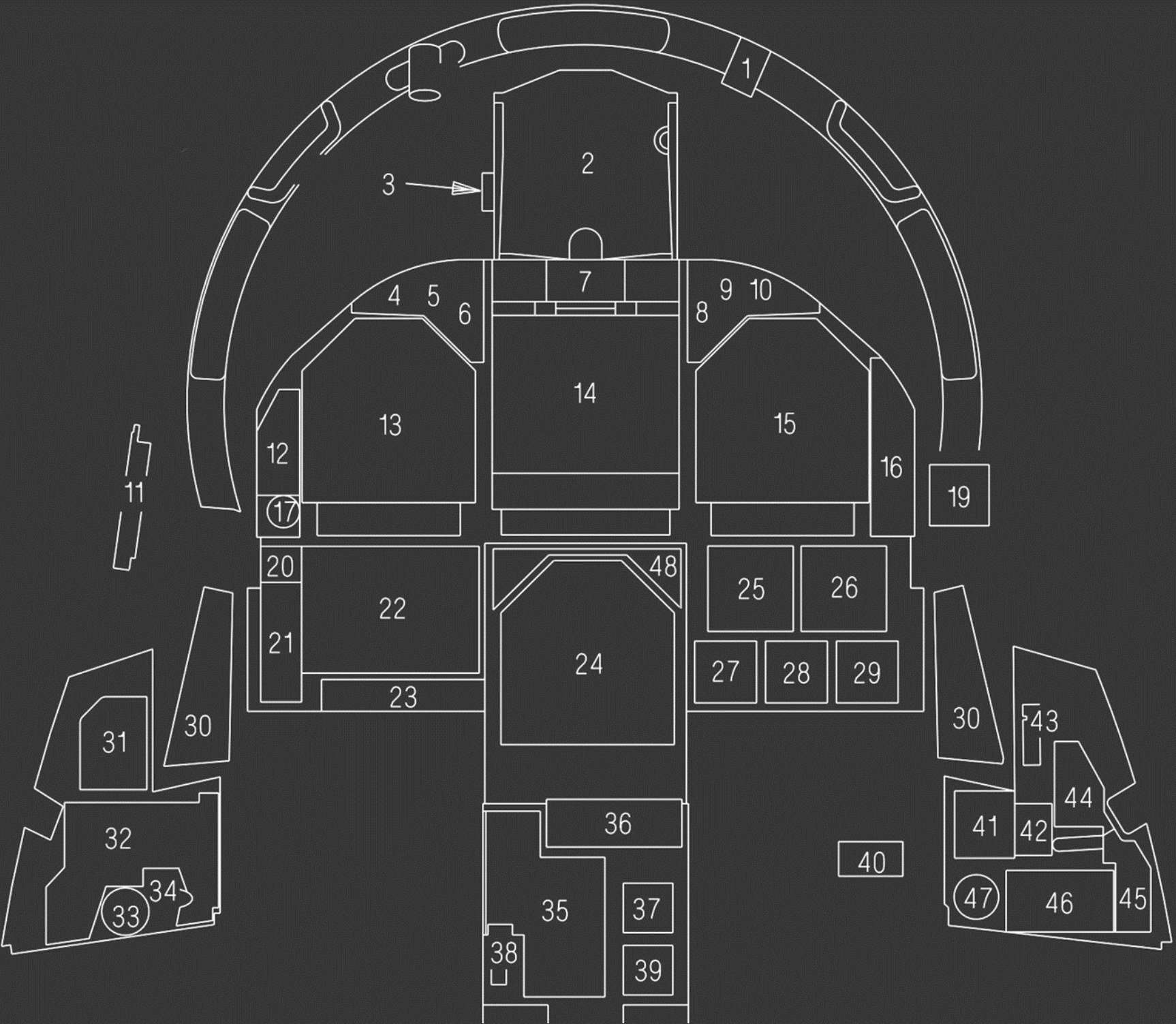
SPAN <i>(Wing Spread)</i>	WITH MISSILES 40 feet 5 inches 12,32 m	WITHOUT MISSILE 37 feet 6 inches 11,43 m
SPAN <i>(Wings Folded)</i>	27 feet 6 inches 8,38 m	
LENGTH	56 feet 17,07 m	
HEIGHT <i>(To Top of Closed Canopy)</i>	10 feet 6 inches 3,20 m	
HEIGHT <i>(To Top of Fins)</i>	15 feet 3 inches 4,65 m	



COCKPIT LAYOUT



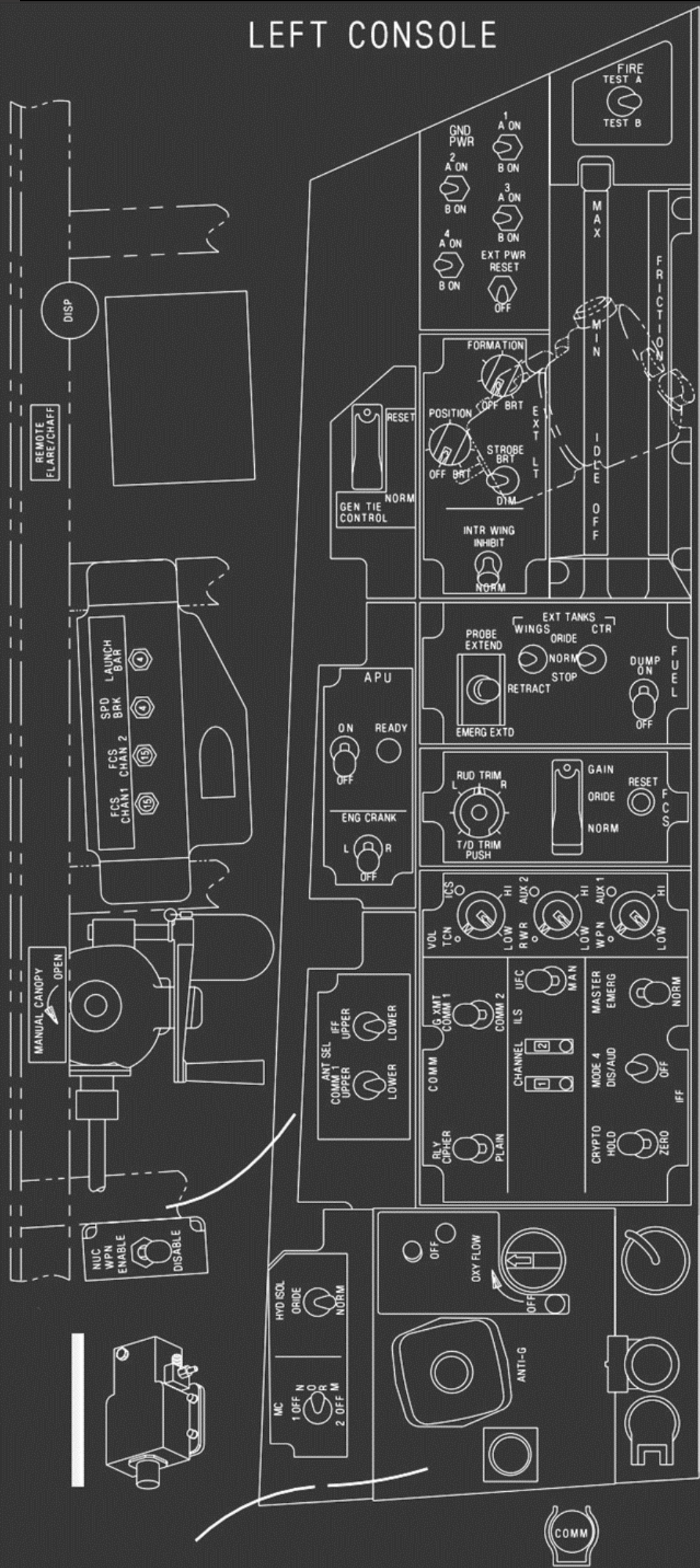
- | | |
|---|-----|
| 1. LOCK SHOOT LIGHTS | |
| 2. HEAD UP DISPLAY | HUD |
| 3. ANGLE OF ATTACK INDEXER LIGHTS | |
| 4. LEFT ENGINE FIRE WARNING / EXT LIGHT | |
| 5. MASTER CAUTION LIGHT | |
| 6. LEFT WARNING / CAUTION / ADVISORY LIGHTS | |
| 7. HUD VIDEO BIT PANEL | |
| 8. RIGHT WARNING / CAUTION / ADVISORY LIGHTS | |
| 9. AUXILIARY POWER UNIT FIRE WARNING / EXTINGUISHER LIGHT | |
| 10. RIGHT ENGINE FIRE WARNING / EXT LT | |
| 11. CANOPY INTERNAL JETTISON HANDLE | |
| 12. MASTER ARM PANEL | |
| 13. LEFT DIGITAL DISPLAY INDICATOR | DDI |
| 14. UPFRONT CONTROL DISPLAY | UFC |
| 15. RIGHT DIGITAL DISPLAY INDICATOR | DDI |
| 16. MAP GAIN / SPIN RECOVERY PANEL | |
| 17. EMERGENCY JETTISON BUTTON | |
| 18. HUD CONTROL PANEL | |
| 19. STANDBY MAGNETIC COMPASS | |
| 20. STATION JETTISON SELECT | |
| 21. LANDING GEAR AND FLAP POSITION LIGHTS | |
| 22. INTEGRATED FUEL / ENGINE INDICATOR IFEI | |
| 23. HUD VIDEO RECORD PANEL | |
| 24. MULTIPURPOSE COLOR DISPLAY MPCD | |



25. STANDBY ATTITUDE REFERENCE INDICATOR	37. CLOCK
26. AZIMUTH INDICATOR	38. RUDDER PEDAL ADJUST LEVEL
27. STANDBY AIRSPEED INDICATOR	39. COCKPIT ALTIMETER
28. STANDBY ALTIMETER	40. STATIC SOURCE SELECT
29. STANDBY RATE OF CLIMB INDICATOR	41. RADAR ALTIMETER
30. ENVIROMENT CONTROL LUVER	42. AIRCRAFT BUREAU NUMBER
31. LANDING GEAR HANDLE AND WARNING TONE SILENCE BUTTON	43. ARRESTING HOOK HANDLE AND LIGHT
32. SELECT JETTISON BUTTON	44. LANDING CHECKLIST AND WING FOLD SWITCH
33. BRAKE ACCUMULATOR PRESSURE GAGE	45. FLIGHT COMPUTER COOL SWITCH
34. EMERGENCY AND PARKING BRAKE HANDLE	46. CAUTION LIGHTS PANEL
35. DISPENCER / EMC PANEL	47. HYD 1 AND HYD PRESSURE INDICATOR
36. RWR CONTROL INDICATOR	48. HEADING AND COURSE SET SWITCHES

COCKPIT LAYOUT

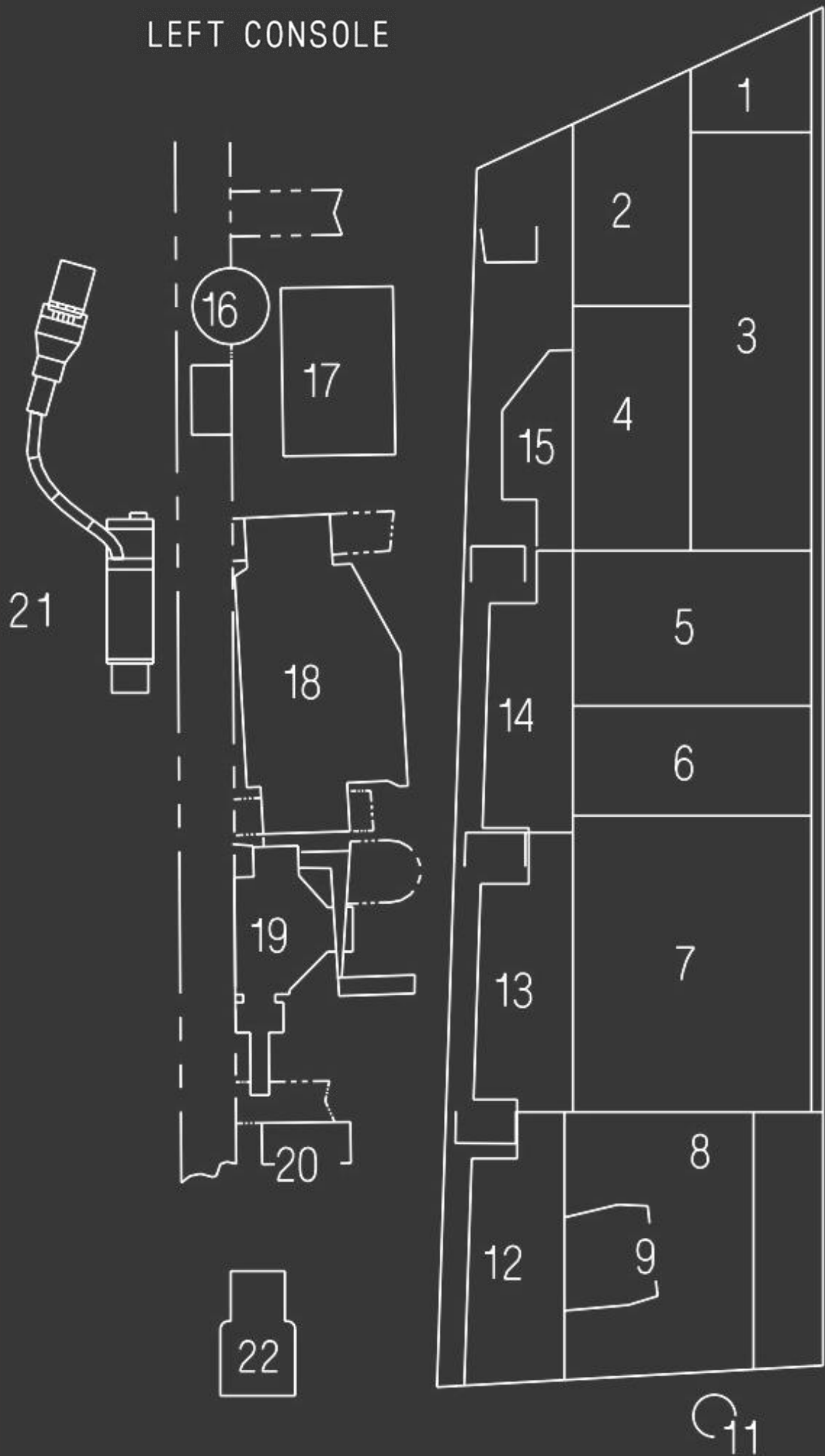
LEFT CONSOLE



LEFT CONSOLE

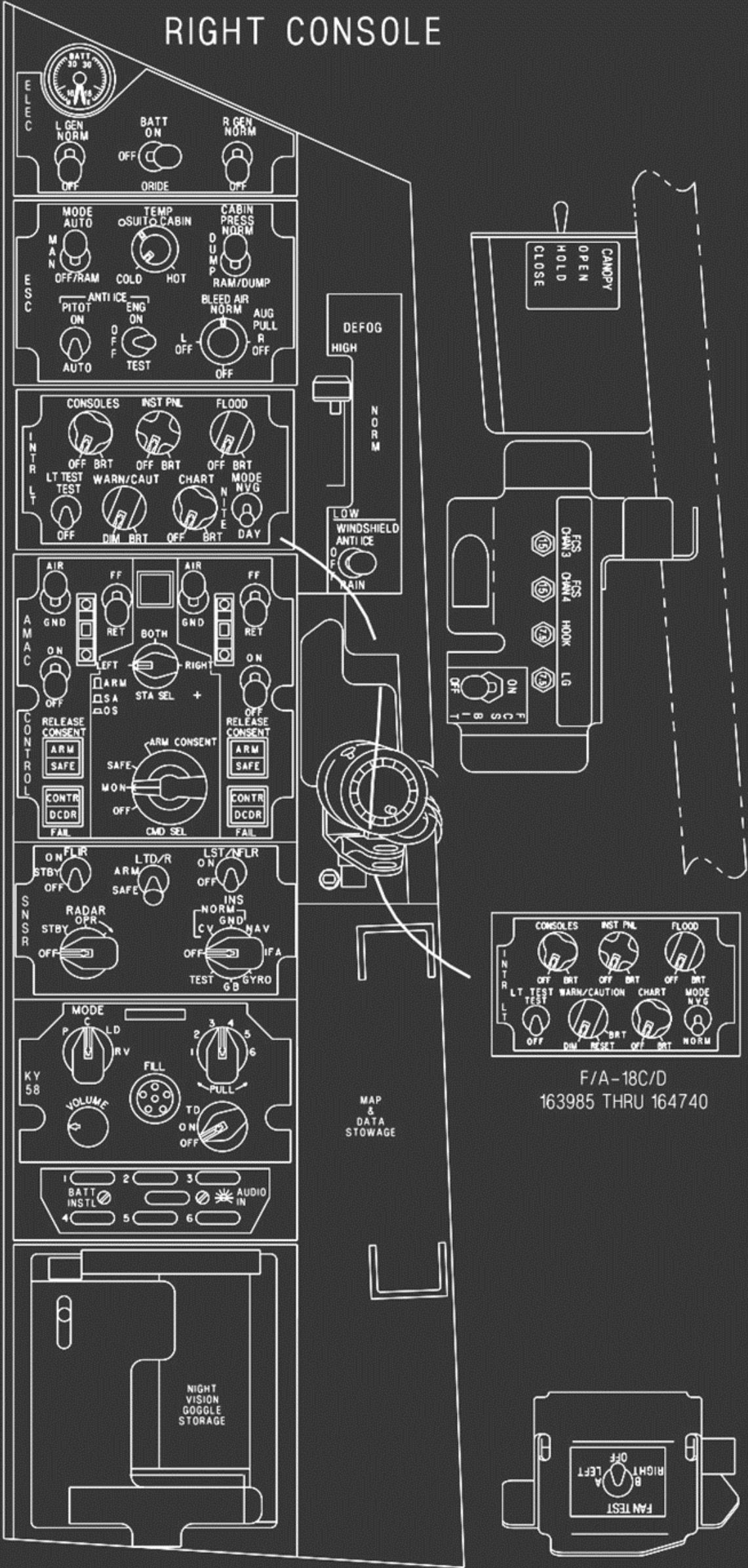
- 1. FIRE TEST PANEL
- 2. GROUND POWER PANEL
- 3. THROTTLE QUADRANT
- 4. EXTERIOR LIGHTS PANEL
- 5. FUEL PANEL
- 6. FLIGHT CONTROL PANEL
- 7. COMMUNICATION PANEL
- 8. OBOGS (164196 AND UP)
- 9. ANTI-G VALVE
- 10. PILOT SERVICES PANEL
 - a. ANTI-G
 - b. SUIT VENT
 - c. OXYGEN
- 11. COMMUNICATION CONNECT
- 12. MISSION COMPUTER AND HYDRAULIC ISOLATE PANEL
- 13. ANTENNA SELECT PANEL
- 14. AUXILIARY POWER UNIT PANEL
- 15. GENERATOR TIE CONTROL SWITCH
- 16. ECM DISPENSER BUTTON
- 17. GROUND POWER DECAL
- 18. LEFT ESSENTIAL CURCUIT BREAKERS
- 19. CANOPY MANUAL HANDLE AND DRIVE
- 20. NUCLEAR WEAPON SWITCH
- 21. VIDEO SENSOR HEAD
- 22. OBOGS MONITOR (164196 AND UP)

LEFT CONSOLE





RIGHT CONSOLE	
1.	ELECTRICAL POWER PANEL
2.	ENVIRONMENT CONTROL SYSTEM PANEL
3.	INTERIOR LIGHTS PANEL
4.	AMAC CONTROL
5.	SENSOR PANEL
6.	KY-58 CONTROL
7.	NIGHT VISION GOGGLE STORAGE
8.	FAN TEST SWITCH
9.	MAP AND DATA CASE
10.	UTILITY LIGHT
11.	DEFOG PANEL
12.	INTERNAL CANOPY SWITCH
13.	RIGHT ESSENTIAL CIRCUIT BREAKERS
14.	VIDEO SENSOR HEAD



FAILURE IS NOT AN OPTION



*created
maintained
updated
by*

cruizzzzz

REFERENCES:

QRH by Pokeraccio

THREATS TABLE by Dmitriy Kozyrev

EXTERNAL LIGHTS usage by PIETERRAS