

F/A-18C

Lot 20 BLOCK 51 (10)

BUNO 165407

CHECKLIST

WEAPONS

GUIDE

CHAPTER – 1

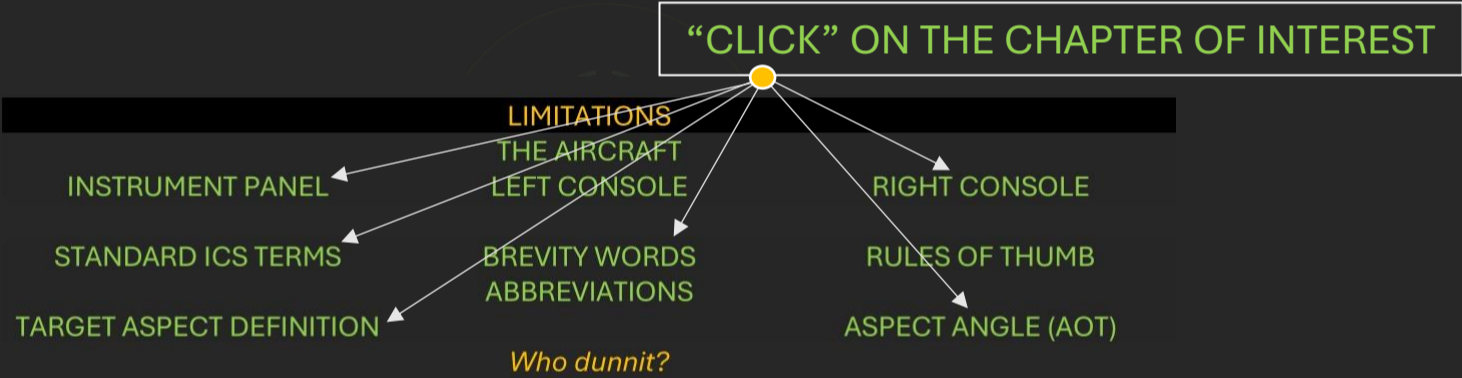


BIOHAZARD

GENERAL		
CAUTION / WARNING PANELS		ADVISORY LIGHTS PANEL
NORMAL PROCEDURES		
INTERIOR CHECK BEFORE START ENGINE START COCKPIT SETUP BUTTON LIST	FINAL CHECKS – EXT LIGHTS BEFORE TAXI FINAL CHECKS & LAUNCH TAKEOFF CHECKLIST AFTER TAKEOFF	APPROACH CHECKLIST DESCEND/PENETRATION LANDING CHECKLIST LANDING APPR SPEEDS AFTER LANDING
STORES		
PODS BOMBS LASER BOMBS INS/GPS BOMBS UNGUIDED BOMBS A/G MISSILES	A/G MISSILES LASER A/G MISSILES INFRARED A/G MISSILES GPS/INS A/G MISSILES RDR/INS A/G MISSILES INS/GPS	A/A MISSILES AIM7 A/A MISSILES AIM9 A/A MISSILES AIM 120 ROCKETS FUEL
CARRIER OPS		
CASE I DEPARTURE CASE I RECOVERY COMM CASE I CQ CASE I CYCLIC OPS	CASE II DEPARTURE CASE II RECOVERY CASE II MARSHAL CASE II / III HSI USAGE	CASE III DEPARTURE CASE III RECOVERY CASE III MARSHAL DECK PERSONNEL
FIELD OPS		
VFR LANDING PATTERN (FCLP)		
OFFENSIVE MISSILE CRANKING		
EVADING – HOT	EVADING – SIDE	EVADING – COLD
FLIR RADAR MODES ACM EW / RWR SYMBOLOGY	RADAR MODES RADAR MODES HMD HAFU SYMBOLOGY	BFM / ACM RADAR MODES TWS HARM EMITTER CLASS
THREATS TABLE AIRSPACE SURVEILLANCE AAA ANTI A/C ARTILLERY	RADAR SYSTEMS SAM SYSTEMS NAVAL THREATS	AIRBORNE THREATS MISSILES NON-NATO MISSILES NATO
LIMITATIONS		
INSTRUMENT PANEL	THE AIRCRAFT LEFT CONSOLE	RIGHT CONSOLE
STANDARD ICS TERMS	BREVITY WORDS ABBREVIATIONS	RULES OF THUMB
TARGET ASPECT DEFINITION		ASPECT ANGLE (AOT)
Who dunnit?		



All the chapters are “hyperlinked” within the manual.
So just select (click) on where you want to go.
To return to the index page, just click on the “*F/A-18C Flight Manual chapter_1*” on the bottom of each page.
Hope this manual helps all those virtual Hornet drivers out there!
Greetings,
cruizzzzz



REV 18012022 by cruizzzzz

F/A-18C Flight Manual chapter_1


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“CLICK” ON “REV DATE” to see what has changed to the previous revision

“CLICK” on “F/A-18C Flight Manual chapter_1” on any page to return to the index page

“CLICK” to return to “BREVITY INDEX”

“CLICK” to return to “ABBREVIATIONS INDEX”

JOINT BREVITY WORDS			
A	continued...		INDEX
-----	Unit or element will be performing exactly as stated by the	AIR-GEN	

ABBREVIATIONS & DEFINITIONS		
R	continued...	
R/T	Radio Telephony	



PAGE	CHANGES
ALL	REV18012022 Major overhaul





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. LIGHT will remain ON for 2 to 4 minutes.
L BAR	Launch bar malfunction NOSE GEAR CANNOT RETRACT 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. <i>DO NOT use XMIT on a CARRIER</i>
		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 AAA <u>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	EV	100	-	-	1.3	6.5
ZSU-23-4 Shilka	8	RADAR	CH	2000	A	121	1.3	6.5
ZSU-57-2 Sparka	5	OPTICAL	EV	254	-	-	2	14
ZPU-1/2/4	3.5	OPTICAL	EV	4800	-	-	0.7	4.5
Flakpanzer Gepard	4	RADAR	CH	660	A	207	2	9.5
M163 Vulcan	6	OPTICAL	EV	2280	A	208	1.4	4.5



a/c below selected RA

BIT light

CK SEAT	APU ACC	BATT SW
One or both ejection seats ... not armed with ... WOW and ... right throttle at MIL	APU accumulator pressure LOW <ul style="list-style-type: none">Possible leak in isolated HYD 2B system <hr/> <p>--</p> <p>1. HYD ISOL ORIDE (10 seconds max) If caution still ON or COMES ON again –</p> <p>2. Extend landing gear as soon as practical</p>	Battery switch ... ON without AC power on aircraft
		Battery switch ... OFF with AC power on aircraft <ul style="list-style-type: none">Prolonged ground operation with CAUTION ON may damage battery and DC electrical system



FCS HOT

Flight control computer A or right transformerrectifier overtemperature

- FCS airscoop cannot be closed in flight

1. Airspeed ... SUBSONIC

2. AV/FCS cool switch ... EMERG

GEN TIE

115/200 volt AC BUS TIE OPEN

- 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

With BOTH generators operating –

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



FUEL LO

At least one feed tank below 800 pounds

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

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

- Speedbrake ... Check IN
- Decelerate slowly to below 400 knots/M0.8
- If flaps full ... RAISE TO HALF
- Do not exceed ... +15° AOA (+12° AOA with asymmetric wing stores)
- MENU FCS ... IDENTIFY FAILURE Refer to FCS Failure Indications And Effects
- FCS ... RESET If no RESET and DDI warnings and cautions inoperative –
- FCS circuit breakers ... CHECK
- Emergency Jettison Button ... PUSH (If required)
- Flaps ... HALF
- Airspeed ... 200-250 knots
- Make controllability check at safe altitude and on-speed AOA
- If flying qualities unacceptable, make controllability check with flaps in AUTO
- If controllability permits landing ... short field arrestment recommended
- Reduce sink rate for landing
- Land as soon as practical



L GEN

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

1. Generator switch ... CYCLE
If generator still failed –
2. Generator switch ... OFF
3. Land as soon as practical

R GEN

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

1. Generator switch ... CYCLE
If generator still failed –
2. Generator switch ... OFF
3. Land as soon as practical



- 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 ... OFF
- EXTERNAL LIGHTS ... SET
- GEN TIE control switch ... NORM (guard down)
- THROTTLES ... OFF
- EXTERNAL LIGHTS Master Switch ... OFF



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

CHECK

- PARKING BRAKE ... SET
 - FLAP switch ... FULL
 - BATTERY status ... CHECK EMER BAT volts
 - BAT Switch ... ORIDE LMB
 - EMER BAT VOLTS ... CHECK

After a minimum of 5 secs in ORIDE check for minimum of 23,5 volts
 - 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
 - BATTERY status ... CHECK UTILITY BAT volts
 - BAT Switch ... ON RMB
 - UTILITY BAT VOLTS ... CHECK

After a minimum of 5 secs in ON check for minimum of 23,5 volts
 - 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

- EXTERNAL POWER switch
 - SWITCH 1, 2, 3 and 4
- ... RESET

... B ON

hold for 3 seconds

SWITCH 1		SWITCH 2	
POS A	POS B	POS A	POS B
<ul style="list-style-type: none">MISSION CMPTR 1MSDRSLDDI	<div>“POS A” EQUIP AND</div> <ul style="list-style-type: none">MISSION CMPTR 2	<ul style="list-style-type: none">RDDIHUDRADARINSEHSI	<div>“POS A” EQUIP AND</div> <ul style="list-style-type: none">TACANADCUHF 1 & 2RDR ALTMTRCSCADFBCNRDRAUG RCVRILSD/LIFFKITEMDSTBY INSTRKY-58UFC
SWITCH 3		SWITCH 4	
POS A	POS B	POS A	POS B
<ul style="list-style-type: none">ALQ-126ALE-39IN TFER BLANKERANTI-SKIDOXY-GAGINGALR-67(V)ALQ-162	<div>“POS A” EQUIP AND</div> <ul style="list-style-type: none">SMSAWW-4HARMFLIRLSTGUN DECODER	<ul style="list-style-type: none">ICS	<ul style="list-style-type: none">ICSFCS

- DDIs, HUD, and AMPCD
 - COMM 1, 2, and ADF
 - WARNING and CAUTION lights
 - INS
 - RADAR
 - FLIR
 - INERTIAL NAVIGATION sys
- ... ON

... AS DESIRED

... TEST

... ALIGN

... OPERATE

... ON

... ENTER WPTs DESIRED

- IF APU START

recommended for CARRIER ops
- APU ACCUM CAUTION LIGHT... OFF
 - APU switch... ON & TIMING

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

- RIGHT ENGINE START
- ENGINE CRANK switch... R & TIMING
 - Right THROTTLE... IDLE

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			

* excessive FF = indication for HOT START (EGT rapidly rising thru 750°C ... THROTTLE OFF)

** EGT rise during ENG start within 20 seconds

- GPWS Voice Alerts... CHECK

ROLL LEFT, ROLL LEFT

Flight Controls, Flight Controls

- DDIs, AMPCD, HUD, UFC avionics, RA... ON
- any DDI... FCS
- HMD switch (if applicable)... ON
- IFEI... CHECK GND IDLE VALUES

- 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 & TIMING
 - Left THROTTLE... IDLE

15% RPM minimum
 - ENGINE CRANK switch... CHECK OFF after ENG stabilized



IF EXTERNAL AIR START

- BLEED AIR switch
 - EXTERNAL ELECTRICAL power
- ... return to NORMAL

... DISCONNECT
- if required*





- EJECTION SEAT
 - RADAR Switch
 - INERTIAL NAVIGATION SYSTEM
 - STORES page
 - AUX REL
 - DISPENSER ALE-47
 - ECM ASPJ
 - RWR ALR-67
- ... ARMED
 - ... OPERATE
 - ... GND
 - ... CV
 - ... with PARKING BRAKE
 - ... on HSI select “STD HDG” if possible [PB18]
 - ... LOADUP STORES
 - ... NORM
 - ... ON
 - ... STBY
 - ... ON “RCV” shown = “HUD” avail
- FIELD
CARRIER
... SET



- FCS RESET BUTTON... PUSH... CHECK ADVISORY
- If wings are FOLDED... VERIFY aileron Xs are PRESENT
- If NO reset
- T/O trim BUTTON... PUSHcheck 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
- If wings are FOLDED... CHECK BOTH ailerons Xd OUT
- Select SUPT MENU – BIT – FCS-MC on FCS Page
- While SIMULTANEOUSLY... HOLDING FCS BIT consent SWITCH to ON
- ... SELECT
- ... FCS OSB on the FCS-MC sublevel display
- 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 MSGs 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

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
 - FULL AFT
 - FULL FWD
 - RIGHT & LEFT AILERON
 - CHECK
 - CHECK
 - FLAPS
 - RUDDER PEDALS
- ... CYCLE

... 24 NU STABILATOR

... 3 NU

... 20 units differential STABILATOR

... differential TRAILING EDGE FLAPS

... HALF = TAKEOFF FLAP SETTING

... 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 (for HALF flaps only)	... SET for T/O	applicable for symmetrical STORES
	... 12°	FIELD
44,000 and below	... 16°	CARRIER
45,000 – 48,000	... 17°	CARRIER
49,000 – 51,900 (MTOW)	... 19°	CARRIER

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

- 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 Switch position*
- FUEL... SET BINGO
- TIMEZONE... SET Z
- ALT selector... BARO / RDR *RDR for over the sea OPS*
- Attitude SOURCE... STBY, then AUTO
- STBY ATT INDICATOR... UNCAGE
- Altimeter... SET QNH
- RA... SET 200 FIELD
- RA... SET 40 CARRIER
- 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 when aligned
 - ... fully aligned showing “0.5 OK” on HSI



- - - INTENTIONALLY LEFT BLANK - - -





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



STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13 BOMBS	FLIR ATFLIR	DL13	DL13	TP
	BOMBS	BOMBS				BOMBS	BOMBS	
	A/G	A/G				A/G	A/G	
	Missiles	Missiles				Missiles	Missiles	
A/A	A/A	A/A	A/A		A/A	A/A	A/A	A/A
Missiles	Missiles	Missiles	Missiles		Missiles	Missiles	Missiles	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 CURSOR • no TRK moveable (SNOWPLOW MODE) • AREA TRK not moveable ○ after TDC ... DEPRESS, OFFSET CURSOR moveable • POINT TRK not moveable ○ after TDC ... DEPRESS, OFFSET CURSOR moveable
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-84H
TP	TCTS POD AN/ASQ-T50	139	TAC view recorder for training

original weapons table created by "POKERACCIO", edited by cruizzzzz



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		

BOMBS – LASER

SMS	NAME	TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE
84LG	GBU 10	ARMoured TGT PAVEWAY II FORTIFIED STRUCTURE	2562	8	<ul style="list-style-type: none">MODE<ul style="list-style-type: none">AUTOFDCCIPMANMFUZ<ul style="list-style-type: none">OFFEFUZ<ul style="list-style-type: none">INSTDLY1CODE<ul style="list-style-type: none">UFC INSERT	NO GOOD in IFR or LOW VIS COND
82LG	GBU 12	PAVEWAY II MEDIUM STRUCTURE, ARMoured VEHICLES	606	8		
83LG	GBU 16	SPLASH DAMAGE PAVEWAY II MULTIPLE TARGETS, LARGE STRUCTURES, ARMoured VEHICLES	1243	8		
GB24	GBU 24	PENETRATION FORTIFIED STRUCTURE	2059	8	<ul style="list-style-type: none">MODE<ul style="list-style-type: none">CLAR PPCLAR SLMANMFUZ<ul style="list-style-type: none">TAILCODE<ul style="list-style-type: none">UFC INSERT	

ATTACK PARAMETERS

350kts or more

@ 20000 to 25000 ALT



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		
BOMBS – INS/GPS – JDAM								
SMS	NAME	TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS	NOTE		
J-84	GBU 31 (V) 1/B	ARMOURED TGT	2059	15	<ul style="list-style-type: none">Delivery PP or TOOALIGN countdownMFUZ<ul style="list-style-type: none">OFFEFUZ<ul style="list-style-type: none">INSTDLYJDAM DISPLAY<ul style="list-style-type: none">QTYSTAREL TYPE<ul style="list-style-type: none">MANAUTOLOFTMSN<ul style="list-style-type: none">HT setPPSet TGTTOOSet WPDSGTGPA/G RDR <ul style="list-style-type: none">ALIGN RDY<ul style="list-style-type: none">TIMERMAX/MIN range	GOOD in IFR or LOW VIS COND		
	GBU 31 (V) 2/B	FORTIFIED STRUCTURE						
J-109	GBU 31 (V) 3/B	PENETRATION	2163	15				
	GBU 31 (V) 4/B	HARDENED STRUCTURES, BUNKERS	2138					
J-83	GBU 32 (V) 2/B	ARMOURED TGT	1030	15				
		MEDIUM STRUCTURES, STATIONARY ARMOUR						
J-82	GBU 38	SINGLE TARGET	531	15				



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		

BOMBS – UNGUIDED

SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	SETTINGS	NOTE
RET	CBU 99	CLUSTER MUNITION	480	SMS	Almost identical to Mk20 except for the dispenser and fuze
		AIR-TO-GROUND MULTIPURPOSE		<ul style="list-style-type: none">MFUZ<ul style="list-style-type: none">VTHT1500EFUZ<ul style="list-style-type: none">OFF	
		ARMOURED VEHICLE GROUPS		UFC	Working only on HT 1500
				<ul style="list-style-type: none">QTYMULTINT	
RE	Mk20 Rock Eye	CLUSTER MUNITION	489	SMS	CBU 100
		AIR-TO-GROUND MULTIPURPOSE		<ul style="list-style-type: none">MFUZ<ul style="list-style-type: none">VTHT1500EFUZ<ul style="list-style-type: none">OFF	
		ARMOURED VEHICLE REQUIRING PENETRATION		UFC	Working only on HT 1500
				<ul style="list-style-type: none">QTYMULTINT	

REMARK:
HOB = HEIGHT OF BURST

STATION								
9	8	7	6	5	4	3	2	1
TP	DL13	DL13		FLIR DL13	FLIR ATFLIR	DL13	DL13	TP
A/A	BOMBS A/G A/A ROCKETS	BOMBS A/G A/A ROCKETS FUEL	A/A	BOMBS FUEL	A/A	BOMBS A/G A/A ROCKETS FUEL	BOMBS A/G A/A ROCKETS	A/A
BOMBS – UNGUIDED								
SMS	NAME	PURPOSE	WEIGHT	SETTINGS		NOTE		
82B	Mk-82	LOW DRAG GENERAL PURPOSE IRON BOMB UNARMoured OR LIGHT ARMoured TARGETS	531	<div>SMS</div> <ul style="list-style-type: none"> MFUZ <ul style="list-style-type: none"> NOSE EFUZ <ul style="list-style-type: none"> INST <div>UFC</div> <ul style="list-style-type: none"> QTY MULT INT 		<div>vs.</div> <p>SOFT, FRAGMENT SENSITIVE TARGETS SUCH AS TROOPS, POL, AND RADARS</p>		
82XT	Mk-82 Snake Eye	HIGH DRAG FIN RETARDING GENERAL PURPOSE IRON BOMB UNARMoured OR LIGHT ARMoured TARGETS	511	<div>SMS</div> <ul style="list-style-type: none"> MFUZ <ul style="list-style-type: none"> NOSE EFUZ <ul style="list-style-type: none"> OFF DRAG <ul style="list-style-type: none"> FF RET <div>UFC</div> <ul style="list-style-type: none"> QTY MULT INT 		<div>vs.</div> <p>SOFT, FRAGMENT SENSITIVE TARGETS SUCH AS TROOPS, POL, AND RADARS</p> <p>When RET @460kts = 300ft @600kts = 500ft</p>		
82YT	Mk-82Y	CHUTE RETARDING GENERAL PURPOSE IRON BOMB UNARMoured OR LIGHT ARMoured TARGETS	511	<div>SMS</div> <ul style="list-style-type: none"> MFUZ <ul style="list-style-type: none"> NOSE EFUZ <ul style="list-style-type: none"> OFF DRAG <ul style="list-style-type: none"> FF RET <div>UFC</div> <ul style="list-style-type: none"> QTY MULT INT 		<div>vs.</div> <p>SOFT, FRAGMENT SENSITIVE TARGETS SUCH AS TROOPS, POL, AND RADARS</p> <p>When RET @460kts = 300ft @600kts = 500ft</p>		



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		

BOMBS – UNGUIDED

SMS	NAME	PURPOSE TARGET	WEIGHT [lbs]	SETTINGS	NOTE
83B	Mk-83	LOW DRAG GENERAL PUSPOSE IRON BOMB MEDIUM ARMOURED TARGETS	985	SMS • MFUZ ○ NOSE • EFUZ ○ INST UFC • QTY • MULT • INT	vs. SOFT, FRAGMENT SENSITIVE TARGETS SUCH AS TROOPS, POL, AND RADARS
84	Mk-84	LOW DRAG GENERAL PUSPOSE IRON BOMB LARGE REINFORCED TARGETS	1971	SMS • MFUZ ○ NOSE • EFUZ ○ INST UFC • QTY • MULT • INT	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	



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		

BOMBS - AIR GROUND MISSILES – DL13 / TPOD

SMS	NAME	PURPOSE	WEIGHT	RANGE	SETTINGS	NOTE
WEDL	AGM 62 Wall Eye Fat Albert	GENERAL PURPOSE FIRE-AND-FORGET STATIC TARGETS BUILDINGS BRIDGES ARMOURED VEHICLES	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 2 nd push	
					• DDI select	
					DDI	
					• UNCAGE	
					• TDC DEPRESS and HOLD	
					• o SENSOR SLEW SEEKER	
					• TDC RELEASE	
					• SLEW cursor until “WE” is no more crossed out = valid LOCK	
					with DL13	
					• 1 st get valid LOCK	
					• OSB	
					• o “DL13”	
					• o “WPN”	
					• o ”WEDL”	
					• o “UFC”	
					• SELECT “CHNL”	
					• Choose weapon STATION to be used	
					with TPOD	
					• via TGT PT designation	



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		

AIR GROUND MISSILES - LASER

SMS	NAME	PURPOSE	WEIGHT	RANGE	SETTINGS	NOTE
MAV	AGM 65E	GENERAL PURPOSE FIRE-AND-FORGET LASER MAVERICK FORTIFIED INSTALLATIONS, ARMoured VEHICLES, SHIPS	760	8	<ul style="list-style-type: none">MASTER ARMA/G ARMSMS MAVCODE INSERTFLIRLTDC INSERTMAV (seeker page)FUZ OPTUNCAGEFLIRassign TGTLASE once to get MAV LKDwhen IN RNG1st A/G RELEASE to LASE2nd 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	WEIGHT	RANGE	SETTINGS	NOTE
MAVF	AGM 65F	GENERAL PURPOSE FIRE-AND-FORGET INFRARED MAVERICK OPTIMIZED FOR TRACKING SHIPS, ARMoured VEHICLES	793	17	<div>SMS</div> <ul style="list-style-type: none">MAVFMAVF 2nd pushFOV <div>USAGE</div> <ul style="list-style-type: none">UNCAGETDC HOLD = UNCAGE MAVTDC RELEASE = LOCK MAV	COOLDOWN TIMER REQUIRED GOOD in IFR or LOW VIS COND



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		

AIR GROUND MISSILES – GPS/INS ... INFRARED ... TPOD

SMS	NAME	PURPOSE	WEIGHT	RANGE	SETTINGS	NOTE
SLAM	AGM 84E	STAND OFF LAND ATTACK MISSILE	1385	60	<div>SMS</div> <ul style="list-style-type: none">• FLT<ul style="list-style-type: none">○ HIGH 30k○ MED 15k○ LOW 5k• EFUZ<ul style="list-style-type: none">○ INST• WEP = DL13<ul style="list-style-type: none">○ Select WPN STATION• SLAM loaded• MODE<ul style="list-style-type: none">○ SKIM○ POP	USAGE with DL13 TPOD
		SUBSONIC CRUISE MISSILE				SLAM warm up @ 7:30
		ALL WX DAY/NIGHT				MAX/MIN range on HSI
		PRECISION ATTACK				TTS = TIME TO SEEKER
SLMR	AGM 84H	HIGH VALUE TARGETS	1598	155	<div>SLAM DSPL</div> <ul style="list-style-type: none">• UFC• DIST NM for TTS• REL TYPE<ul style="list-style-type: none">○ MAN• MSN	TMR = TIME TO MAX RANGE
		HARDENED STRUCTURES, SHIPS			<div>FLIR</div> <ul style="list-style-type: none">• WPDSG and adjust TPOD• TDC DEPRESS to transfer coords	UFC - TERM HDG ANG VEL
					<div>SLAM DSPL</div> <ul style="list-style-type: none">• OSB “RETURN”	MODE PP
					<div>SMS</div> <ul style="list-style-type: none">• Deselect SLAM• Wait until TTS = 0• TDC DEPRESS & HOLD to control flightpath	ELEV LAT/LONG DD-MM-SS.dd



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		
AIR GROUND MISSILES – RADAR / INS								
SMS	NAME	PURPOSE	WEIGHT	RANGE	SETTINGS		NOTE	
HPD	AGM 84D	HARPOON			SMS		SEARCH	
					<ul style="list-style-type: none">HPD SELECTTIMERMODE<ul style="list-style-type: none">POPSKIMBOLFLT<ul style="list-style-type: none">HIGH 30kMED 15kLOW 5kTERM<ul style="list-style-type: none">HPTPFXP		After xx NM search	
		OVER HORIZON	1190	70			DESTRUCT	
							After xx NM destruct	
		ANTI-SHIP CRUISE-MISSILE					BRG	
							xxx° to fly	
					R/BL MODE			
							SML 5.4NM MED 10.8NM LRG 16.2NM	
					UFC		NM to start search from TGT	
					<ul style="list-style-type: none">SEARCH NMDESTR NMBRG °			
HARM	AGM 88C	HARM			DDI		ALSO SP	
					<ul style="list-style-type: none">HARM SELTOOSCS towards DDI<ul style="list-style-type: none">TGT SEQUENCEHARMRAIDFLIRCROSS center TGTUNCAGEH-OFFWRB FIRE		= SELF PROTECTION = QUICK REACTION	
		ANTI-RADAR GUIDED	796		15 @ 1k/500 [alt/kts]			
					25 @ 10k/400			
		FIRE-AND-FORGET			35 @ 20k/400			
					50 @ 30k/400			
		RADAR SAM			70 @ 40k/380			
							When boxed • FIRE	



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		FUEL		ROCKETS	ROCKETS	
		FUEL				FUEL		

AIR GROUND MISSILES – INS/GPS – JSOW

SMS	NAME	PURPOSE	WEIGHT	RANGE [NM]		SETTINGS
JSA	AGM 154A	CLUSTER BOMB	1065	11 NM	52 NM	<ul style="list-style-type: none">MODE<ul style="list-style-type: none">PPTOOALIGN COUNTDOWNEFUZ<ul style="list-style-type: none">INSTDLYJSOW DSPLAY<ul style="list-style-type: none">QTYSTAMSNHT SETPP = TGTTOO = WPDSGALIGN RDY<ul style="list-style-type: none">TMRmax/min range
		GLIDE MISSILE				
		AA SAM				
		FIRE-AND-FORGET JSOW				
		GLIDE MISSILE				
JSC	AGM 154C	MULTIPLE LIGHT ARMOURED TARGETS	1065	600 kts GS	500 kts GS	
		FIRE-AND-FORGET JSOW				
		GLIDE MISSILE				
		HARDENED BUNKER BUSTER				
		A/C SHELTERS				

PP COORD FORMAT ➔ DD-MM-SS.dd

- TGT
- UFC ENTER DATA
- ELEV [feet / metres]
- LAT/LONG DD-MM-SS [press ENTER]
- dd [press ENTER]

TOO

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

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 – SEMIACTIVE RADAR – SPARROW – FOX 1								
SMS	NAME	TARGET	WEIGHT [lbs]	RANGE [NM]	SETTINGS		NOTE	
7F	AIM 7F	IMPROVED RANGE	507		<div>SMS</div> <ul style="list-style-type: none">HELOWhen tracking HELOSIZELOFT		Blast frag warhead needs a valid lock-on until impact	
7M	AIM 7M	IMPROVED WARHEAD	LAU- 115	10				
		MEDIUM RANGE	626					
7M	AIM 7MH	IMPROVED TRACKING	507					
		MEDIUM RANGE	LAU- 115	10				
		HOME ON JAM	626					
AIR-TO-AIR MISSILES – INFRARED – SIDEWINDER – FOX 2								
9L	AIM 9L	INFRARED	190		<ul style="list-style-type: none">ATTK RDR<ul style="list-style-type: none">LOCKor<ul style="list-style-type: none">SEEKER<ul style="list-style-type: none">LOCK CAGELOCK UNCAGEHIGH TONE		less advanced seeker than AIM-9M	
9M	AIM 9M		2x LAU-115	6				
			697					
9M	AIM 9M	SHORT RANGE ALL ASPECT	192		IR coolant required			
			2x LAU-115	9				
		FIRE-AND-FORGET	701					
9X	AIM 9X		185		SWITCH ...NORM (3h)			
			2x LAU-115	14				
			692					

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		FUEL		ROCKETS	ROCKETS	
		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	<div>SMS</div> <ul style="list-style-type: none">SIZERZSwhen in range<ul style="list-style-type: none">X ACTthen X TTG<ul style="list-style-type: none">Sec to TGT	BVR bigger fins		
			2x LAU-115 1016			high maneuver		
AC	AIM 120C	FIRE-AND-FORGET	LAU-115 476	10		less range		
			2x LAU-115 1032			BVR smaller fins		
		MEDIUM RANGE				less maneuver		
						higher range		

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		
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	right ENG feed		
TANK #4					3660			
TOTAL					9540			
WINGS			LEFT WING	620	1240	620	RIGHT WING	
TOTAL INTERNAL					10780			



- IFF
 - D/L
 - EW page
 - HUD selector box
 - TCN & BRC
 - HSI
 - TAWS
 - COMM 1
 - COMM 2
 - WPT “ZERO” and MAG variation
 - BULLSEYE & MISSION DATA
 - ADVISORY MESSAGES
- ... select IFF, then UFC HOLD “ON” till IFF is shown
 - ... ON
 - ... SETUP
 - ... BOXED / UNBOXED
 - ... SET
 - ... SET RANGE 10NM
 - ... BOXED
 - ... SET
 - ... SET
 - ... according BUTTON LIST
 - ... CHECK
 - ... SET
 - ... CHECK & CLEAR
- dispenser program
as desired

or as desired
HSI / DATA / A/C / TAWS [PB 17]

or as desired

BUTTON LIST		
BUTTON	ATC UNIT	NOTE
BUTTON 1	TOWER / PADDLES	“ziplip“ during CYCLIC OPS
BUTTON 2	DEPARTURE	during CASE II / CASE III
BUTTON 3	STRIKE	
BUTTON 4	RED CROWN	
BUTTON 5	Various <ul style="list-style-type: none">• TACTICAL• Mission• CVW discrete FREQs	
BUTTON 6		
BUTTON 7		
BUTTON 8		
BUTTON 9		
BUTTON 10	Squadron TWR / CATCC (Carrier Air Traffic Control Centre)	
BUTTON 11		
BUTTON 12		
BUTTON 13		
BUTTON 14		
BUTTON 15	APPROACH #1	during CASE II / CASE III
BUTTON 16	MARSHAL	complete HAIL-R, i.e. HOOK down, when checking-in to “MARSHAL”
BUTTON 17	APPROACH #2 <i>(if more than 1 is needed for EMER a/c)</i>	during CASE II / CASE III
BUTTON 18		
BUTTON 19		
BUTTON 20	Squadron COMMON	



BIT TEST

- SUPT page
- BIT
- DISPLAYS
- HMD
- HMD TEST PATTERNS

... PERFORM

- ... SELECT
- ... SELECT
- ... SELECT
- ... SELECT
- ... CHECK ALL

during cold start

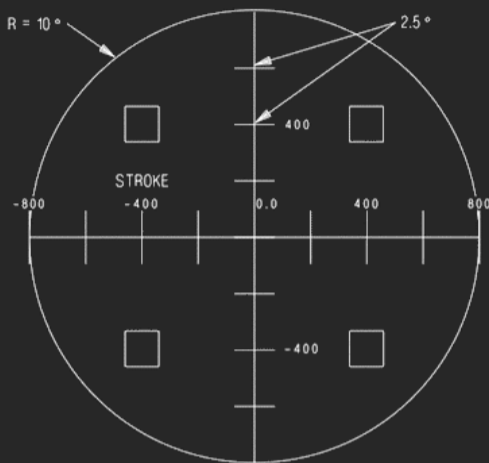
[PB 8]

[PB 11]

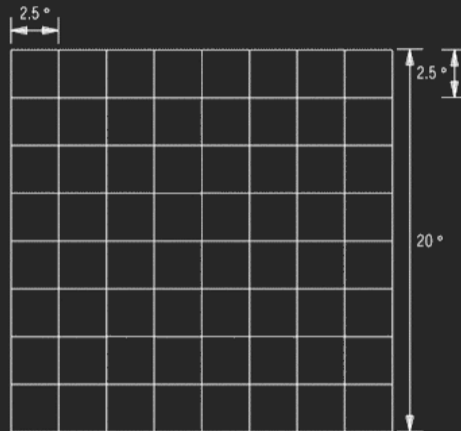
[PB 11]

do not abort

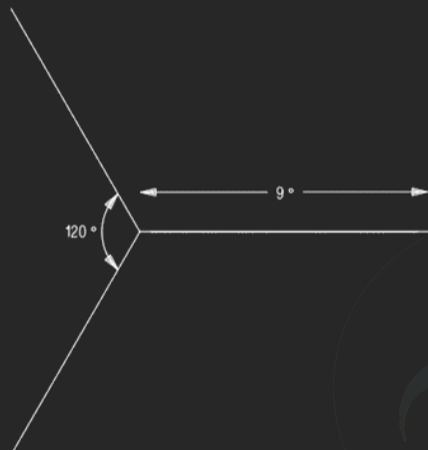
PATTERN 1



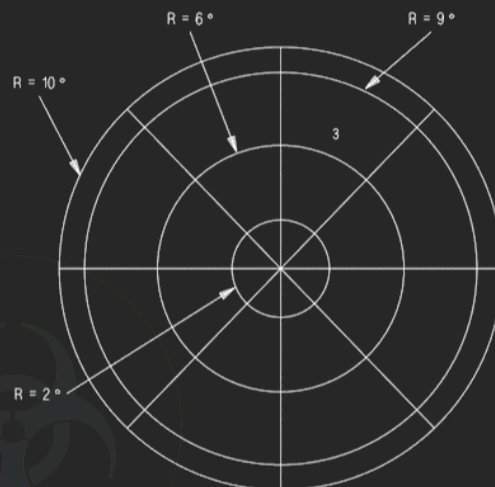
PATTERN 2



PATTERN 3



PATTERN 4



- HMD GO message
- EXIT BIT TEST

- ... CHECK
- ... STOP select

[PB 10]

NOTE

Canopy must be **DOWN AND LOCKED** to align HMD

- SUPT / HMD [PB 3] / ALIGN [PB 20] ... SELECT
 - Superimpose the HMD alignment cross on the HUD alignment cross
 - CAGE/UNCAGE button ... PRESS and HOLD until ALIGNING turns to **ALIGN OK** or **ALIGN FAIL**
- If **ALIGN FAIL** ... Repeat steps b. and c.
- If **ALIGN OK** and HMD alignment crosses are not coincident with HUD alignment cross ... perform FINE ALIGN

- With **FA DXDY** displayed, use TDC to align azimuth and elevation HMD alignment crosses with the HUD alignment cross
- CAGE/UNCAGE button ... PRESS and RELEASE
- With **FA DROLL** displayed, use TDC to align the roll axis HMD alignment crosses with the HUD alignment cross
- CAGE/UNCAGE button ... PRESS and RELEASE

If **SATISFIED** with alignment

- ALIGN ... UNBOX

[PB 20]



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

- WEAPON & FUEL LOADOUT
 - FLIR
 - LEFT DDI / RIGHT DDI
 - AMPCD
 - STBY ATTITUDE INDICATOR
 - TRIM
- ... COMPLETED as desired

... ON or STBY

... HUD / HSI

... CHECKLIST

... ensure SET

... CHECK SETTING
- incase of HUD failure

for HALF flaps only; applicable for symmetrical STORES

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

NOTE: a/c will rotate to trimmed AOA after launch without pilot input

- NOSEWHEEL STEERING
 - GROUND CREW
 - TAXI LT
- ... ON

... REMOVE CHOCKS & GND PWR

... ON

... OFF
- FIELD
- CARRIER

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
 - Before CATAPULT hook-up
- ... REQUEST LAUNCH

... FULLY STOWED

... 75% N2

... CHECK

... CHECK

... TAKEOFF CHECKLIST completed (bottom to top)
- CARRIER

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

- 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
- 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 = SALUTE
- for night CARRIER ops



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			

- AIRCRAFT
 - NWS
 - N2
 - N2
 - RPM / EGT / NOZZLE / OIL PRESS
 - N2 advance smoothly
 - 100kts
 - Approaching $V_{NOSE\ LIFTOFF}$
 - MIL TAKEOFF
 - STICK
 - STICK
 - STICK
 - MAX TAKEOFF
 - STICK
 - STICK
 - At positive RATE OF CLIMB
 - Prior 250kts
 - ACCELERATE
- ... aligned with RWY centerline
 - ... LOW GAIN
 - ... 80%
 - ... MIL
 - ... CHECK
 - ... MAX if desired
 - ... CHECK
 - ... AFT of NEUTRAL
 - ... HOLD until waterline symbol is 6° to 8°
 - ... adjust to maintain ATTITUDE
 - ... FULL AFT
 - ... adjust waterline symbol to 10° to 12°
 - ... GEAR UP
 - ... FLAPS AUTO
 - ... to ENROUTE CLIMB SPEED

NOTES

- Ensure computed nosewheel liftoff speed does not exceed nose tire speed limitation (190 knots groundspeed) during takeoffs under certain combinations of the following conditions:
 - high gross weight
 - high pressure altitude
 - high temperature or
 - forward CG
- Premature aft stick input below nose wheel liftoff speed will increase takeoff roll
- Full stabilator (with 12° nose up trim) is not available at airspeeds greater than approximately 180 knots.
- The location of the main landing gear well aft of the CG does not allow the aircraft to be rotated early in the takeoff roll.



CROSSWIND TAKEOFF

The initial portion of the crosswind takeoff technique is the same as the normal takeoff.

Aft stick pressure should not be applied until approaching liftoff speed.

Do not assume an immediate wing low attitude in order to counteract for wind drift; the pilot cannot properly judge the wing tip ground clearance on a swept wing aircraft.



AFTER TAKEOFF

- When positive RATE OF CLIMB is assured
 - LANDING GEAR ... UP
 - FLAPS ... AUTO
- LDG / TAXI LIGHT ... OFF

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

CRUISE CHECK

CAB PRESS ... CHECK

AIRCRAFT ALTITUDE	CABIN ALTITUDE
up to 23,000 - 24,000 feet	8,000 feet
30,000 feet	10,000 to 12,000 feet
40,000 feet	15,000 to 17,000 feet



HAIL – R CHECKS

H	HOOK	HEATS	ENG A/I if required
A	ANTI-SKID	box ACL	
I	INSTRUMENTS	box ICLS	
L	LDG WEIGHT	LIGHTS	
R	RA bug set	RADALT	set to HUD

DESCENT / PENETRATION

- ENGINE ANTI-ICE ... AS DESIRED
- PITOT HEAT ... AUTO
- DEFOG handle ... HIGH
- WINDSHIELD ANTI-ICE/RAIN Switch ... AS DESIRED
- ALTIMETER setting ... CHECK
- RADAR altimeter ... SET AND CHECK
 - CARRIER ... SET 500 or according LDG minimum
 - FIELD ... SET 200 or according LDG minimum
- LEFT DDI / RIGHT DDI ... HUD / HSI
- AMPCD ... CHECKLIST
- NAVAIDS ... CROSS CHECK
- APPR / TWR FREQ ... SET
- HSI ... SET RANGE 10NM or as needed
- TACAN ... SET CHANNEL
 - ... ON
 - ... “TCN” BOXED on HSI
 - ... SET BRC / FINAL BEARING (for CASE II / III)
- ILS ARA-63 ... SET CHANNEL
 - ... ON
 - ... “ILS” BOXED on HSI
 - ... “ACL” BOXED ON HSI if required not usable
- ACL ... AS DIRECTED
- IFF ... AS REQUIRED
- WEAPONS ... AS REQUIRED
- SENSORS ... AS REQUIRED

LANDING CHECKLIST

DDIs	... HUD / HSI / CHECKLIST
HARNESS	... LOCKED
HOOK BYPASS	... FIELD / ... CARRIER
ANTI-SKID	... ON / ... OFF
DISPENSER	... OFF
GEAR	... DOWN
FLAPS	... FULL / ... FULL
HOOK	... UP / ... DOWN

MAX LANDING WEIGHT



FIELD	LDG flared	... 39000 lbs
	FCLP / touch & go / baricade	... 33000 lbs
CARRIER	unrestricted	... 33000 lbs
	restricted	... 34000 lbs

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

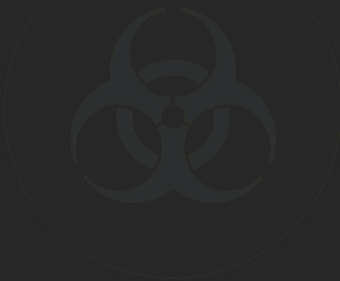
- 1. Arresting gear ... MK 7 MOD 3 Only
- 2. Glideslope ... 3.5° Maximum
- 3. Recovery Head Wind (RHW)
 - a. > 40 knots ... HALF FLAPS allowed
 - b. < 40 knots ... FULL FLAPS only
- 4. Lateral Weight Asymmetry 14,500 ft-lb maximum
(External pylon stores, AIM-9 Wing tips, and wing fuel)
- 5. No MOVLAS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

NOTE

The combination of

- arresting gear
- glide slope
- RHW
- asymmetry limits

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



LANDING APPROACH SPEED TABLE



Aircraft Configuration

FLAPS ... AS NOTED

GEAR ... DOWN

SPEEDBRAKE ... IN

NOTE

Main Gear Tire Limitation ... 210 kts GOUNDSPEED

Nose Gear Tire Limitation ... 190 kts GOUNDSPEED

Landing CG ... 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 CONFIGIGATION					
	FULL FLAPS	HALF FLAPS	HALF FLAPS	HALF FLAPS	HALF FLAPS or FULL FLAPS	7.0° AOA
	8.1° AOA	8.1° AOA	7.0° AOA	7.0° AOA	10.0° AOA	
	Normal LDG	Normal LDG	DEL / MECH	0° LEF LEF Failure	0° TEF 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

Landing Approach Speed – F404-GE-402



WHEN CLEAR OF ACTIVE RUNWAY

- LDG GEAR HANDLE MECH STOP * ... FULLY ENGAGED
- FLAP switch ... AUTO
- T/O TRIM BUTTON ... PUSH
- WINGS ... UNLOCK
- CANOPY either ... FOLD WINGS only when cleared to
- ... FULL UP or FULL DOWN

* not modelled in DCS
FIELD
CARRIER OPS

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



One thing to note is that during CARRIER OPS the callsign to be used is the aircraft TAILSIGN instead of the FLIGHTS CALLSIGN.

CASE I

When it is anticipated that flights will not encounter instrument conditions during daytime departures, recoveries, and the ceiling and visibility in the carrier control zone are no lower than 3,000 feet and 5 NM respectively.

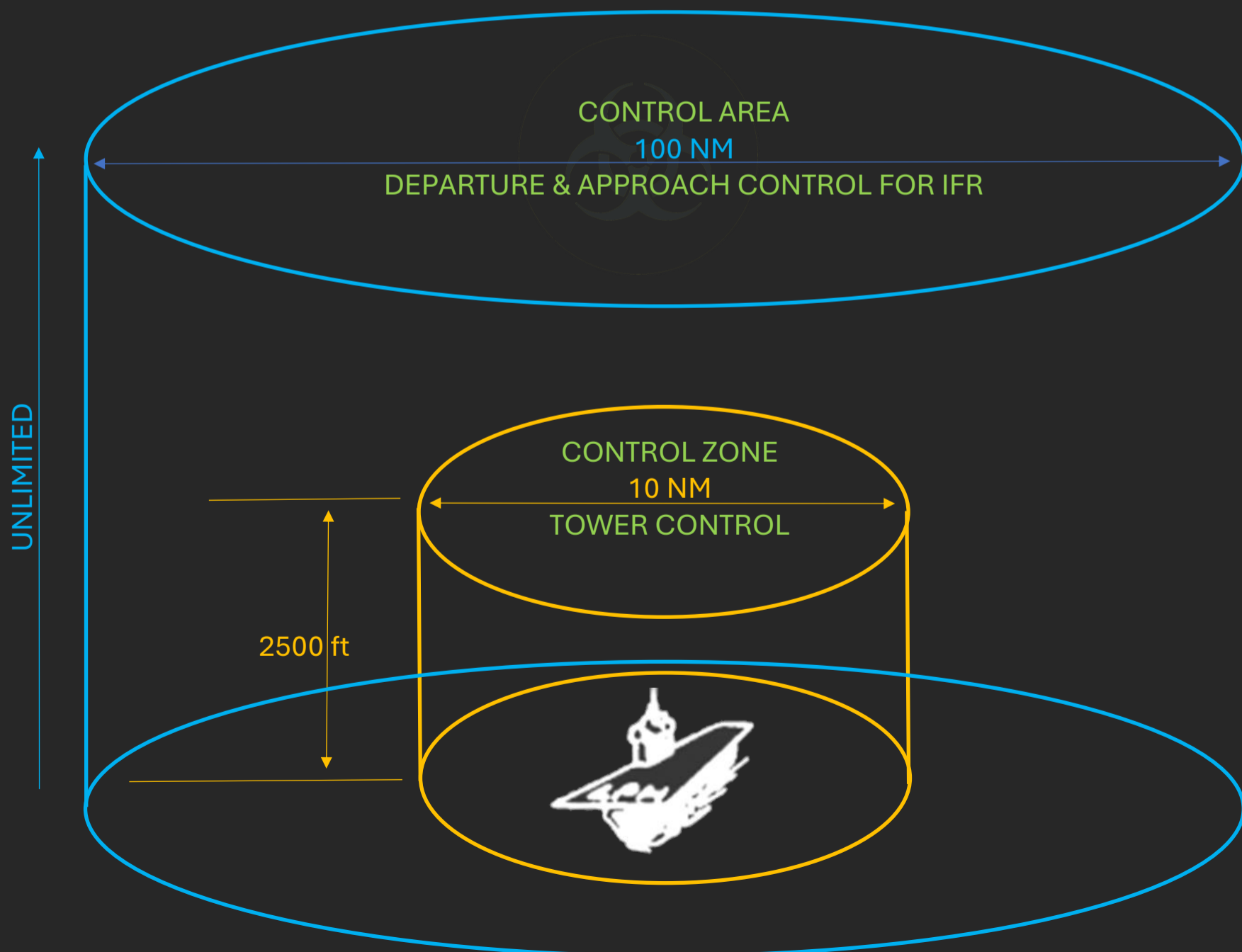
CASE II

When it is anticipated that flights may encounter instrument conditions during a daytime departure or recovery, and the ceiling and visibility in the carrier control zone are no lower than 1,000 feet and 5 NM respectively.

CASE III

When it is anticipated that flights will encounter instrument conditions during a departure or recovery because the ceiling or visibility in the carrier control zone are lower than 1,000 feet and 5 NM respectively; or a nighttime departure or recovery (one- half hour after sunset and one-half hour before sunrise).

Specified CONTROL AREAS (IFR):

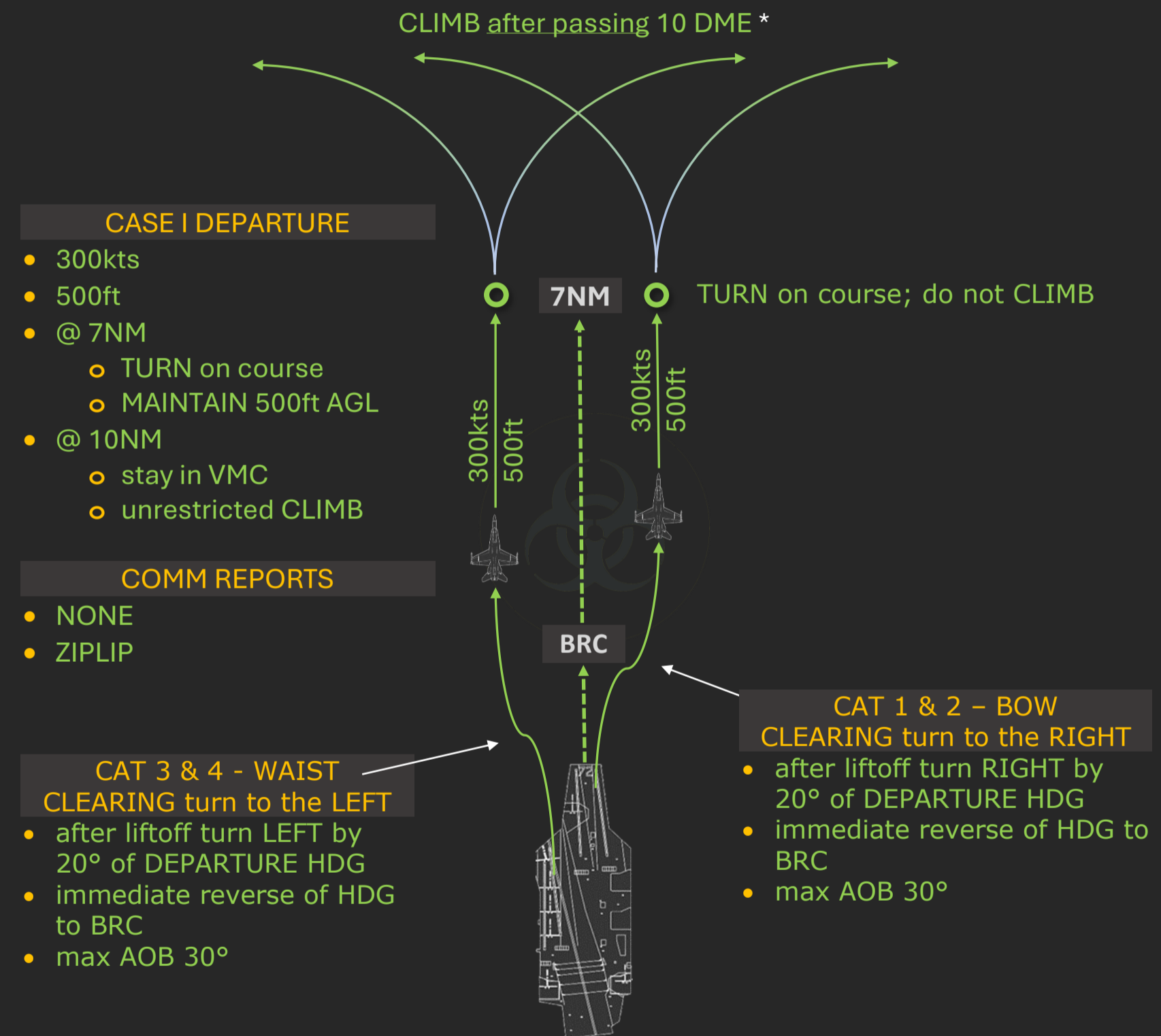


CASE I DEPARTURE



CASE I	WX	VISIBILITY	> 5NM	TURNRADIUS
		CEILING	> 3000ft AGL	1/2 % of GROUND SPEED
CASE II	WX	VISIBILITY	> 5NM	
		CEILING	> 1000ft AGL	
CASE III	WX	VISIBILITY	< 5NM	
		CEILING	< 1000ft AGL	

NIGHT OPS



* NO ALTITUDE CHANGE within 10NM of the Carrier, WITHOUT a clearance (CLIMB / DESCENT)



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.	426	... “MARSHAL ... 426 ... 250 DME 42 ... ANGELS 9 ... STATE 2.4”	MARSHAL OWN TAIL NUMBER POSITION: RADIAL / DME ANGELS FUEL STATE
II.	Marshal	... “426 ... CASE I ... BRC IS 015 ... REPORT, SEE ME”	CASE RECOVERY BRC
III.	426	... “426 ... WILCO”	
At 10NM or when VISUAL with the ship			
IV.	426	... “426 ... SEE YOU AT 10”	SEE YOU
V.	Marshal	... “426 ... 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 or during CQ (Carrier Qualification) the following calls will be made. Don't do any calls during CASE I Cyclic Ops!

- I. Descending OUT OF overhead holding to the initial
... "426
... COMMENCING"

COMMENCING
- II. INITIAL (3 NM astern)
... "426
... INITIAL"

INITIAL
- III. Entering the SPIN PATTERN (when applicable)
... "426
... SPINNING"

SPINNING
- IV. 90 degrees from INITIAL when spinning
... "426
... SPIN 90"

SPIN 90
- V. Departing the landing pattern to re-enter port holding
... "426
... DEPARTING _____ NM, upwind"

DEPARTING
- VI. BREAKING
... "426
... BREAKING at X" where X is the DME

BREAKING
- VII. BALL CALL, when rolling into the groove, and the pilot sees the ball
... "426
... Hornet BALL
... 2.2" where 2.2 is the fuel state

BALL CALL
FUEL STATE
- VIII. CLARA when the ball is not visible
... "426
... CLARA"

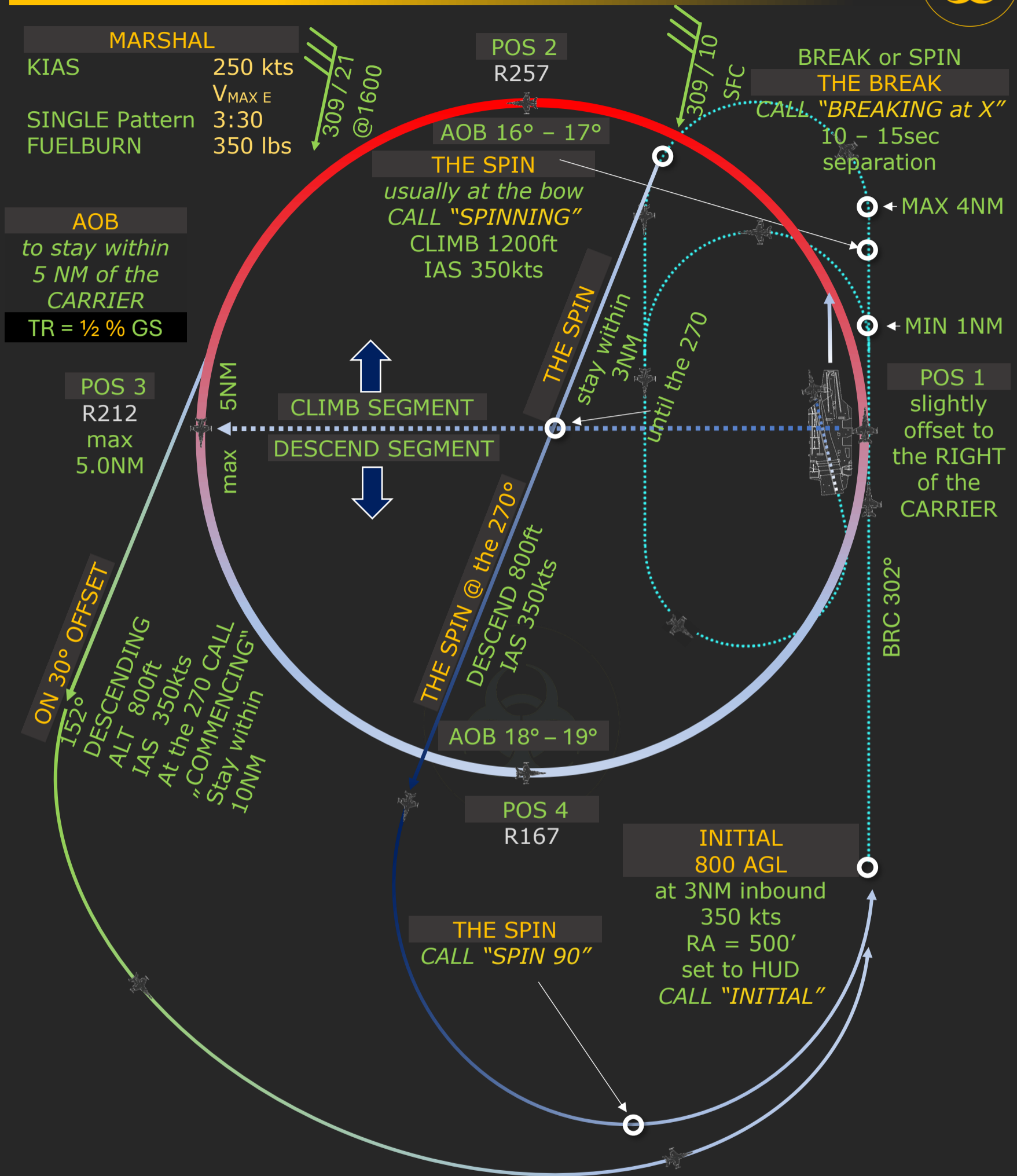
CLARA



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.

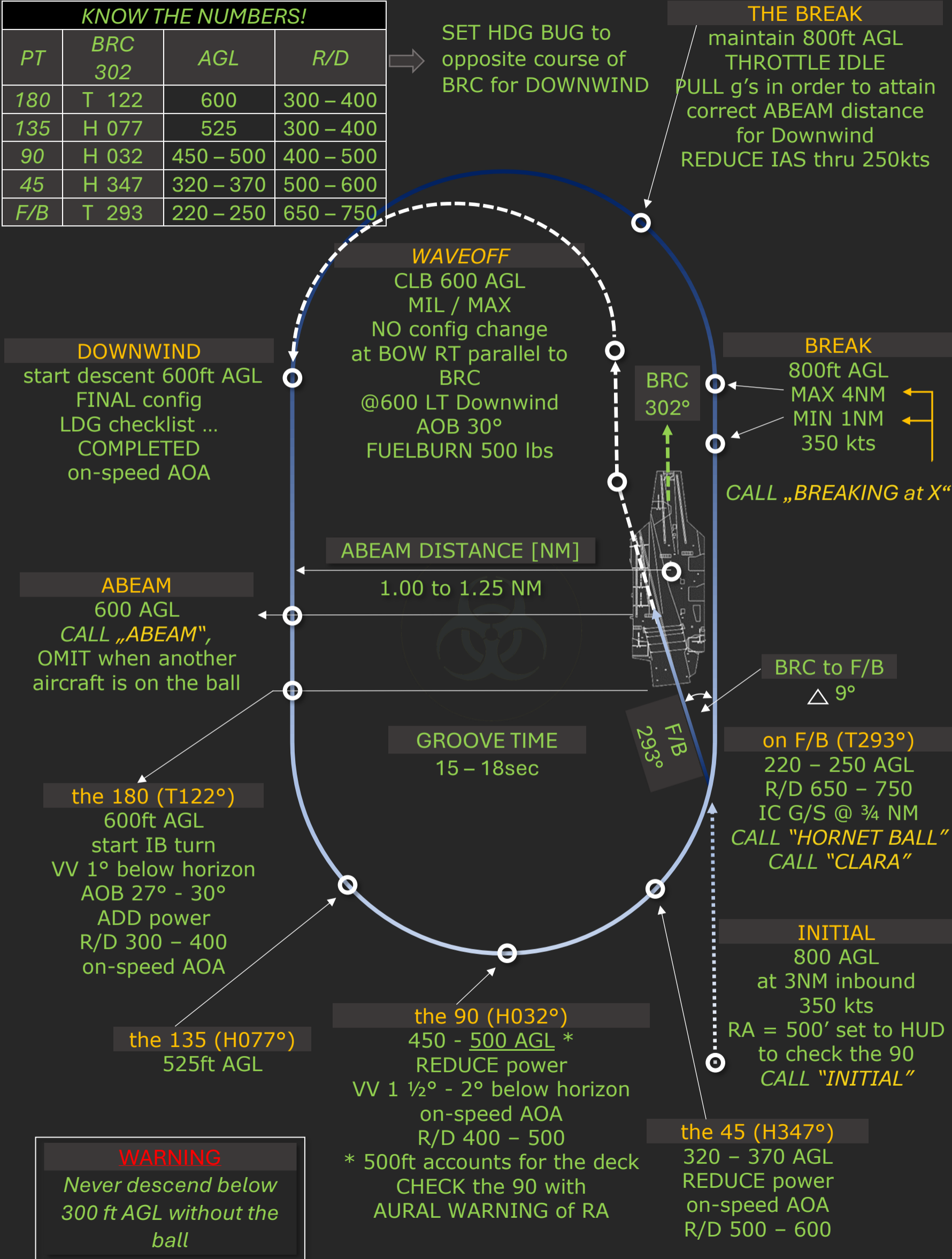
Never transmit on the radio when another aircraft is on the ball,
unless required for safety of flight

CASE I RECOVERY - CQ

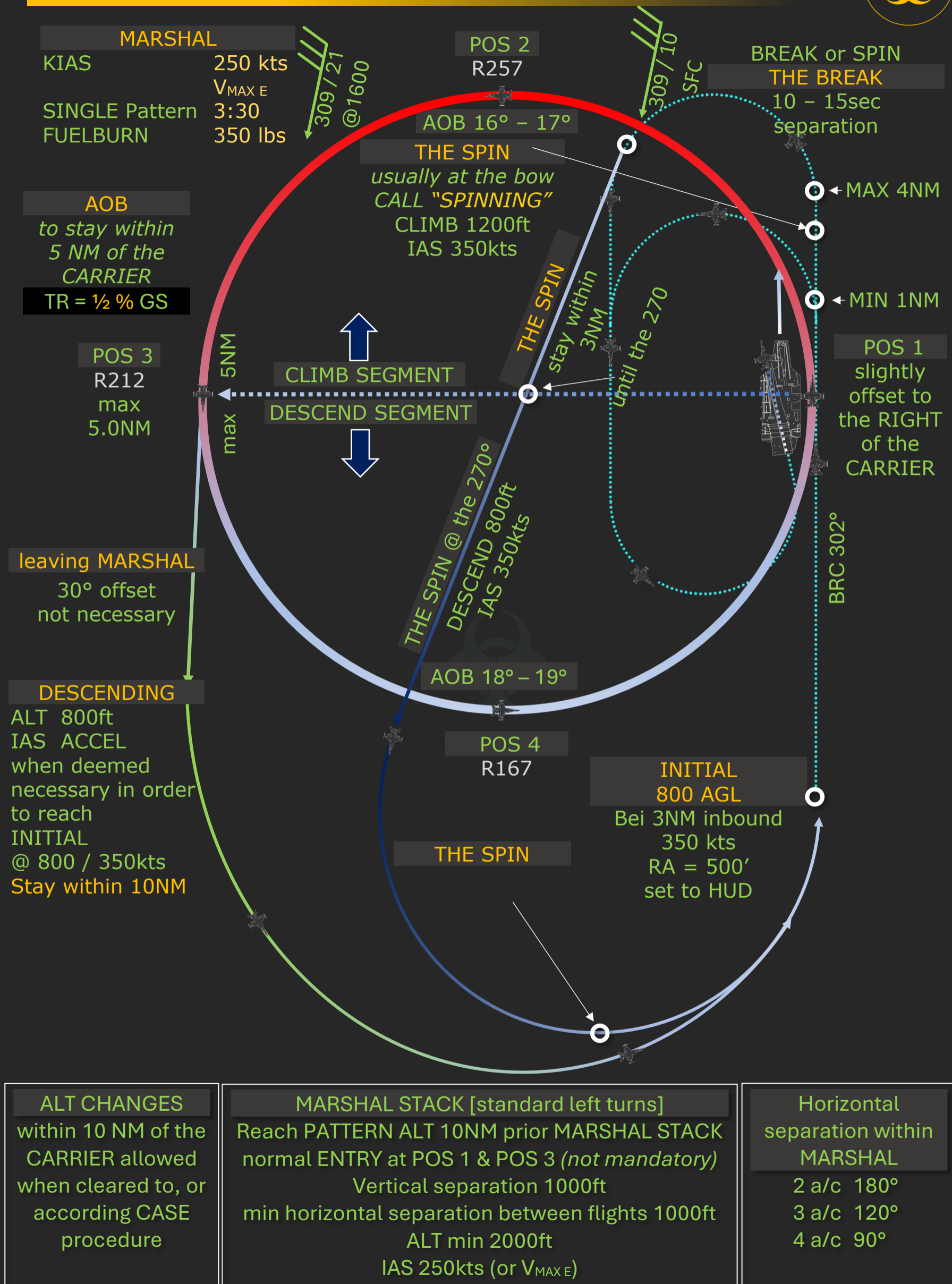


ALT CHANGES within 10 NM of the CARRIER allowed when cleared to, or according CASE procedure	MARSHAL STACK [standard left turns] Reach PATTERN ALT 10NM prior MARSHAL STACK normal ENTRY at POS 1 & POS 3 (not mandatory) Vertical separation 1000ft min horizontal separation between flights 1000ft ALT min 2000ft IAS 250kts (or V _{MAX E})	Horizontal separation within MARSHAL 2 a/c 180° 3 a/c 120° 4 a/c 90°
--	---	--

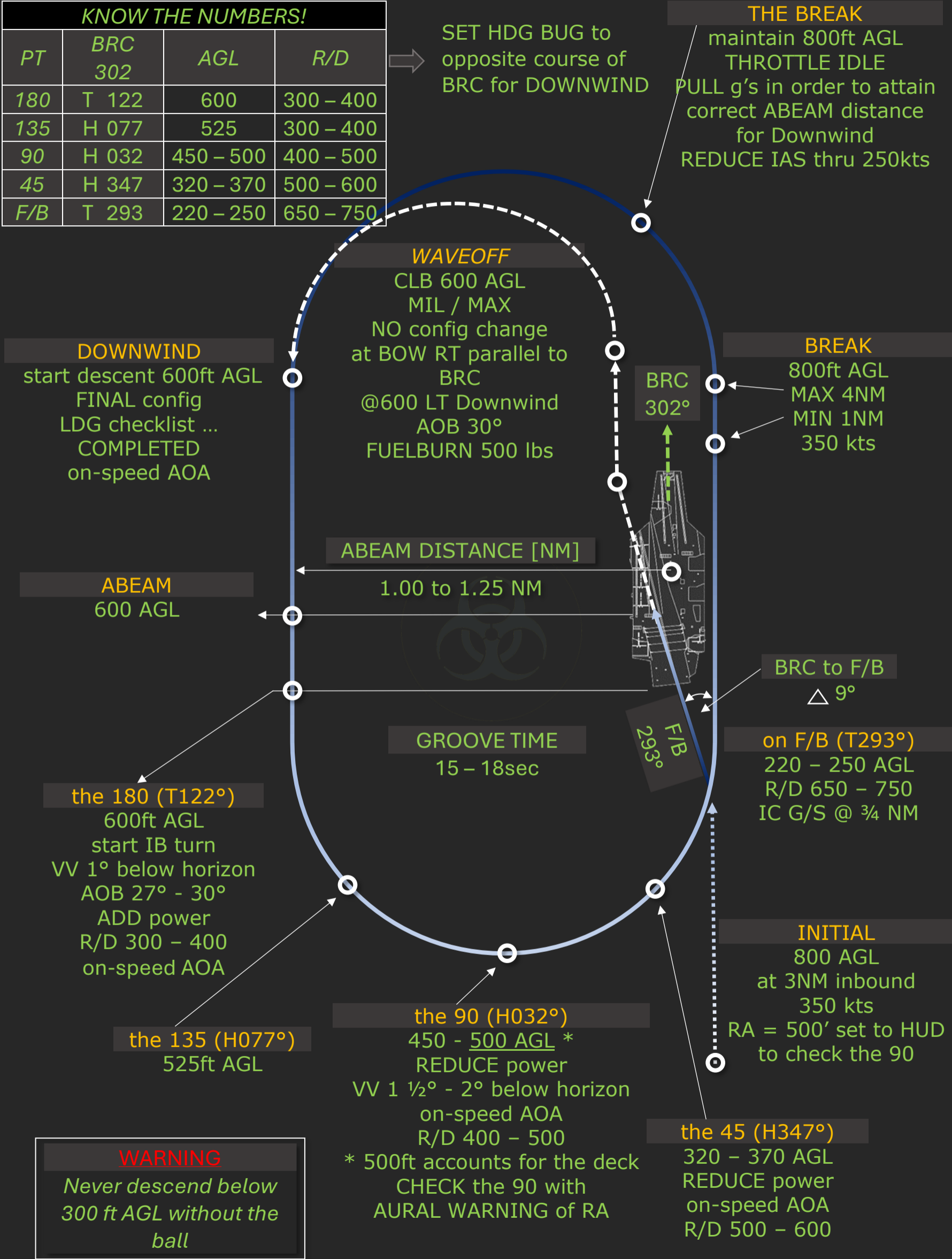
KNOW THE NUMBERS!			
PT	BRC	AGL	R/D
180	T 122	600	300 – 400
135	H 077	525	300 – 400
90	H 032	450 – 500	400 – 500
45	H 347	320 – 370	500 – 600
F/B	T 293	220 – 250	650 – 750



CASE I RECOVERY – CYCLIC OPS



KNOW THE NUMBERS!			
PT	BRC	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





NIGHT OPS

- 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

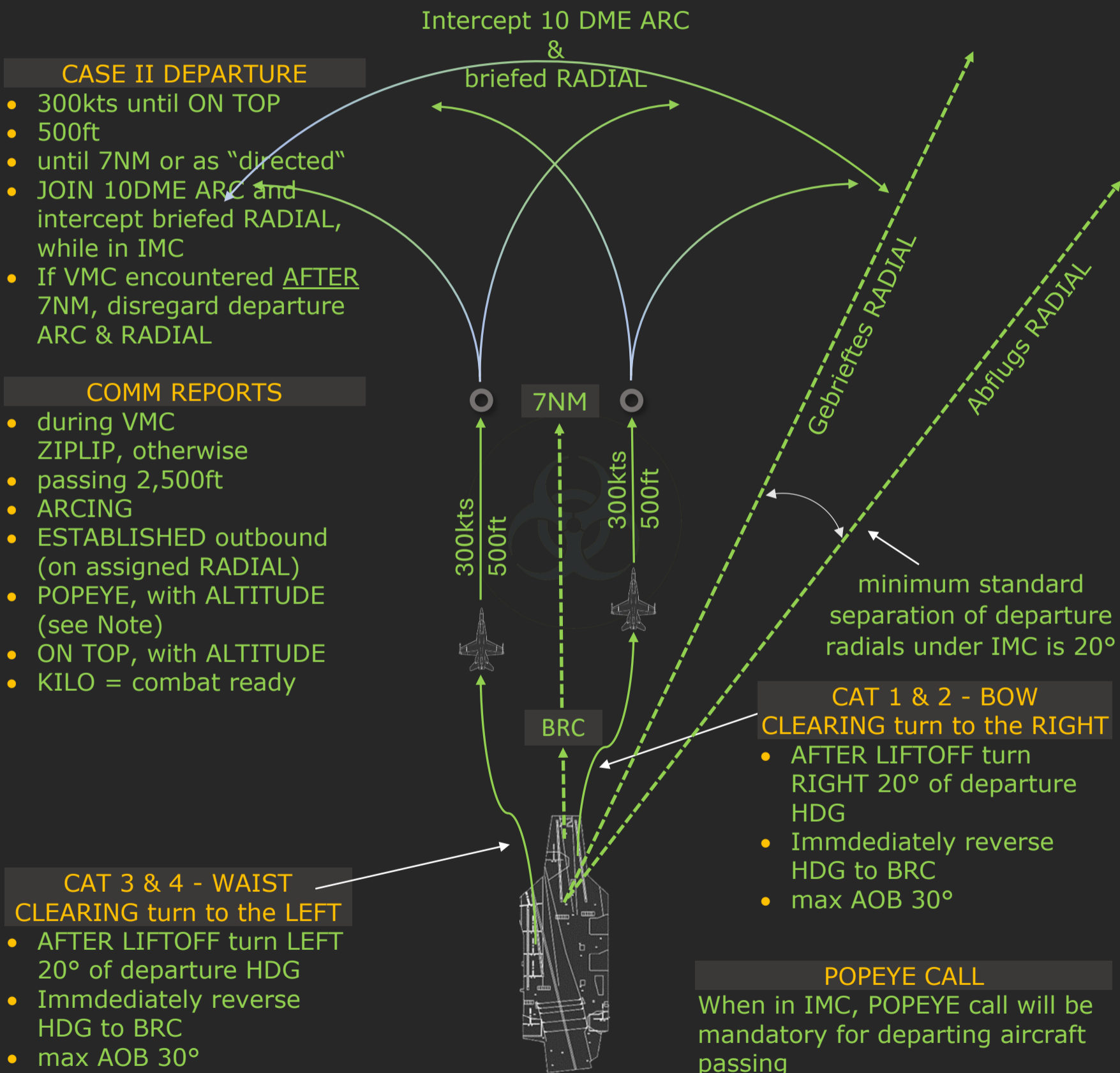
- during VMC
ZIPLIP, otherwise
- passing 2,500ft
- ARCING
- ESTABLISHED outbound
(on assigned RADIAL)
- POPEYE, with ALTITUDE
(see Note)
- ON TOP, with ALTITUDE
- KILO = combat ready

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

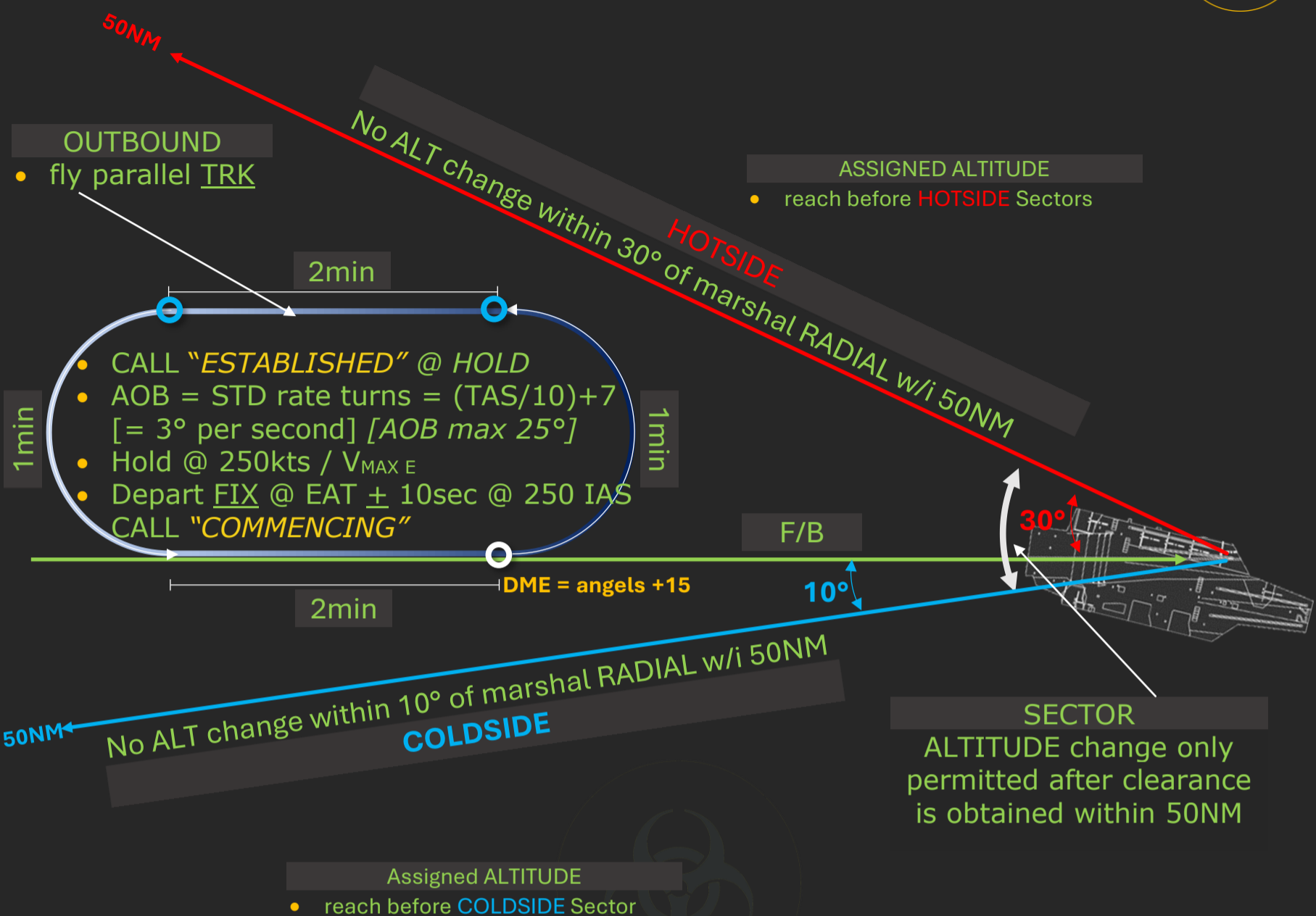
- AFTER LIFTOFF turn RIGHT 20° of departure HDG
- Immediately reverse HDG to BRC
- max AOB 30°

When in IMC, POPEYE call will be mandatory for departing aircraft passing

(or assigned departure ALTITUDE if lower) if NOT on top



CASE II RECOVERY – COMM



COMMS

For Case II recoveries, Marshal will provide the following information upon check in:

- Current weather and altimeter
- Case recovery
- Marshal instructions
- Expected final approach button (frequency) if required
- Expected approach time (EAT)
- Expected BRC

WX / QNH
RECOVERY
INSTRUCTIONS
APPR BUTTON
EAT
BRC

Additional information such as divert field, fuel data and bingo information.

Notify Marshal when established in holding. Marshal may periodically update the weather and BRC. Notify Marshal when the approach is commenced. When the ship is in sight, aircrew will call “see you” and Marshal will switch them to Tower.

To reduce radio traffic, items of general or collective interest may be transmitted as a “99” broadcast by Marshal or approach control.

A readback of ANY aircraft is NOT required NOR wanted!

INITIAL CALL

- i. 426

... “MARSHAL
... 426
... 250 DME 42
... ANGELS 14
... STATE 2.4”

MARSHAL
OWN TAIL NUMBER
POSITION: RADIAL / DME
ANGELS
FUEL STATE
- ii. Marshal

... “426
... MOTHER’S WEATHER IS 1,500 OVERCAST, VISIBILITY 5 MILES
... ALTIMETER 29.87
... CASE II RECOVERY
... MARSHAL ON THE 160
... 22 ANGELS 7
... BRC IS 015
... EXPECTED APPROACH TIME 22”

WX
QNH
RECOVERY
HOLDING RADIAL
DME / ANGELS
BRC
EAT
- iii. 426

... “426
... ALTIMETER 29.87
... MARSHAL ON THE 160
... 22, ANGELS 7
... EXPECTED APPROACH TIME 22”

QNH
HOLDING RADIAL
DME / ANGELS
ETA

When established in HOLDING

- iv. 426

... “426
... ESTABLISHED
... ANGELS 7
... STATE 2.3”

ESTABLISHED
ANGELS
FUEL STATE

While HOLDING

v.	Marshal	... “99	99 = ALL STATIONS
		... <i>ALTIMETER 29.88</i>	QNH
		... <i>BRC 020”</i>	BRC

When BEGINNING the penetration

vi.	426	... “426	
		... <i>COMMENCING</i>	COMMENCING
		... <i>ALTIMETER 29.88</i>	QNH
		... <i>STATE 2.2”</i>	FUEL STATE

When VISUAL with the ship

vii.	426	... “426	
		... <i>SEE YOU AT 12”</i>	SEE YOU
viii.	Marshal	... “426	
		... <i>SWITCH TOWER”</i>	SWITCH TOWER
ix.	426	... “426	
		... <i>SWITCHING TOWER”</i>	

Approaching the INITIAL with nobody on the ball

x.	426	... “TOWER	
		... 426	
		... <i>INITIAL”</i>	INITIAL
xi.	Tower	... “426	
		... <i>ROGER”</i>	

Normal CASE I calls will be made in the landing pattern.

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

Set minimum = RA 360

MARSHAL STACK

DME = angels + 15
SPEED = V_{MAX E} ~ 250kts
= better 5.6 AoA
= FPAS
TIMING = 2min

5NM

Decision Point

In IMC

Call:
"Recommend CASE III"
a/c will be vectored into "bolter/waveoff pattern" and will conduct case III recovery

In VMC

conduct case I recovery

BOLTER/WAVEOFF PATTERN

when 4DME or 2min UPWIND MAINTAIN ALT (800/1200) LT DOWNWIND

- GEAR ... UP
- FLAPS ... HALF
- IAS ... 150kts

TOWER

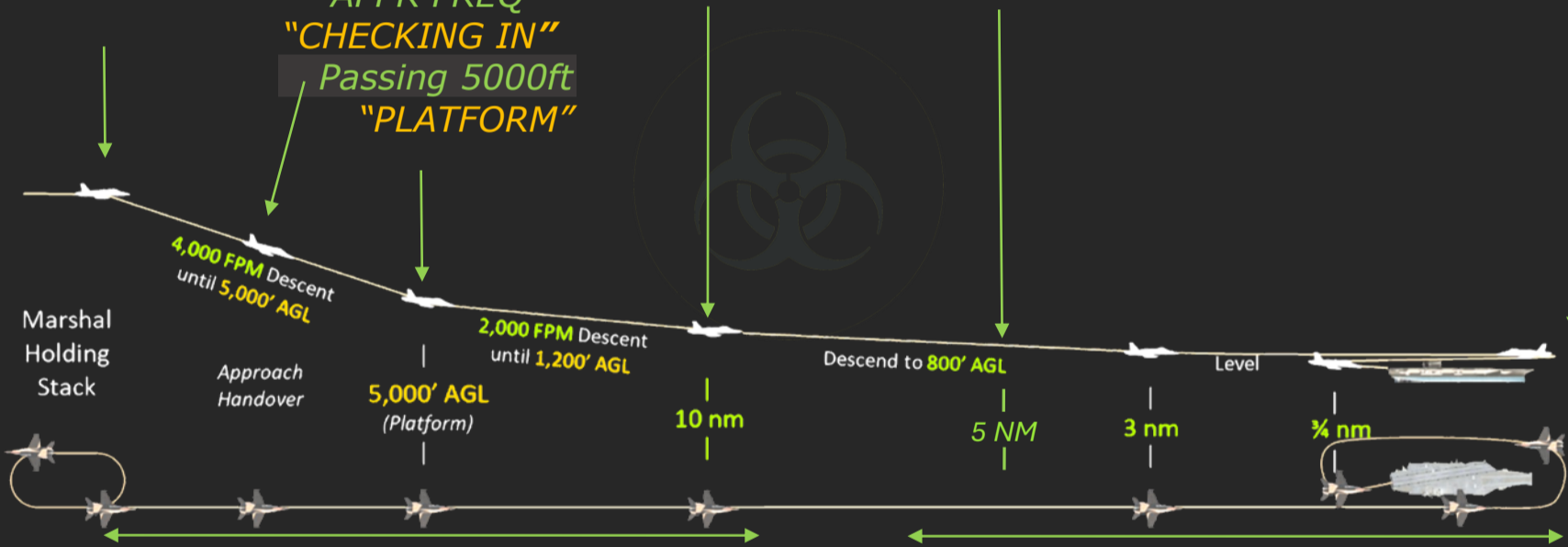
IB to HOLD
"INBOUND"
Established HOLD
"ESTABLISHED"
Leaving HOLD for APPR
"COMMENCING"

APPROACH

Check in to APPR FREQ
"CHECKING IN"
Passing 5000ft "PLATFORM"

10NM

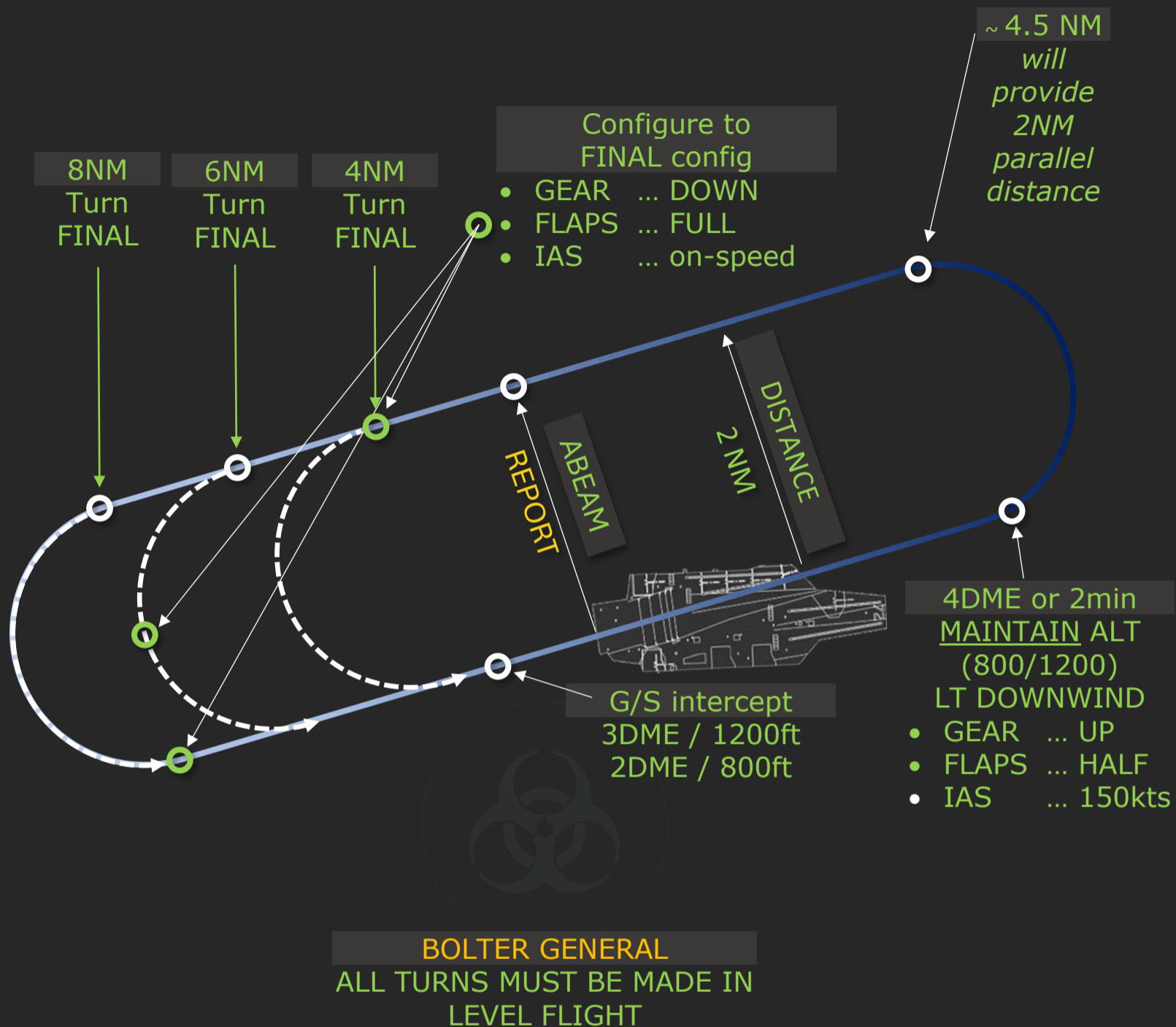
In IMC POSSIBLE DESCEND 800ft in order to break the clouds



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			250kts / CLEAN	350kts / CLEAN		CONFIG accordingly
				CASE III Procedure		
				expect RV into the <i>bolter/waveoff pattern</i>		
				FLAPS ... HALF / IAS 150		

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

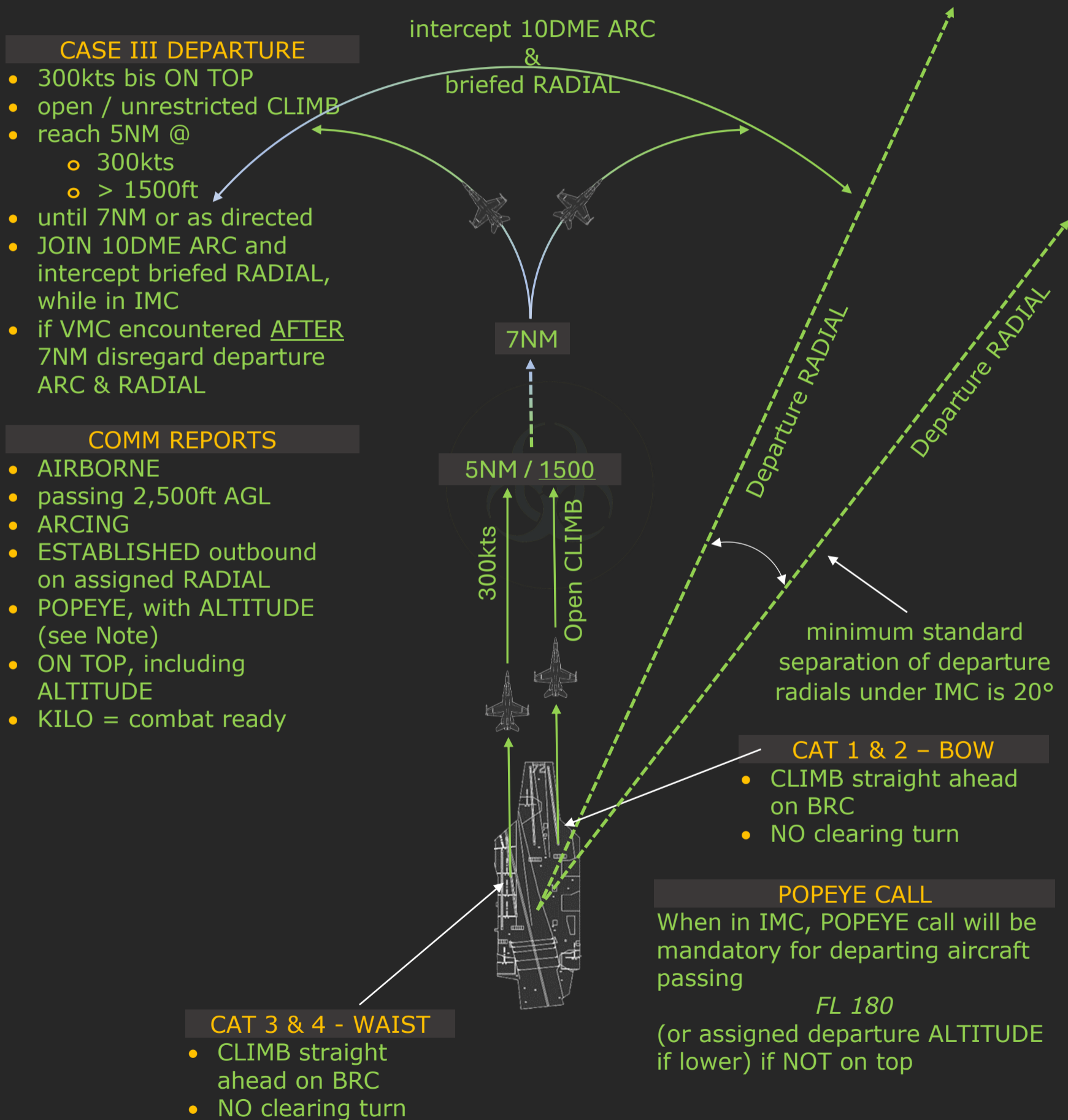
CASE II RECOVERY – WAVEOFF / BOLTER



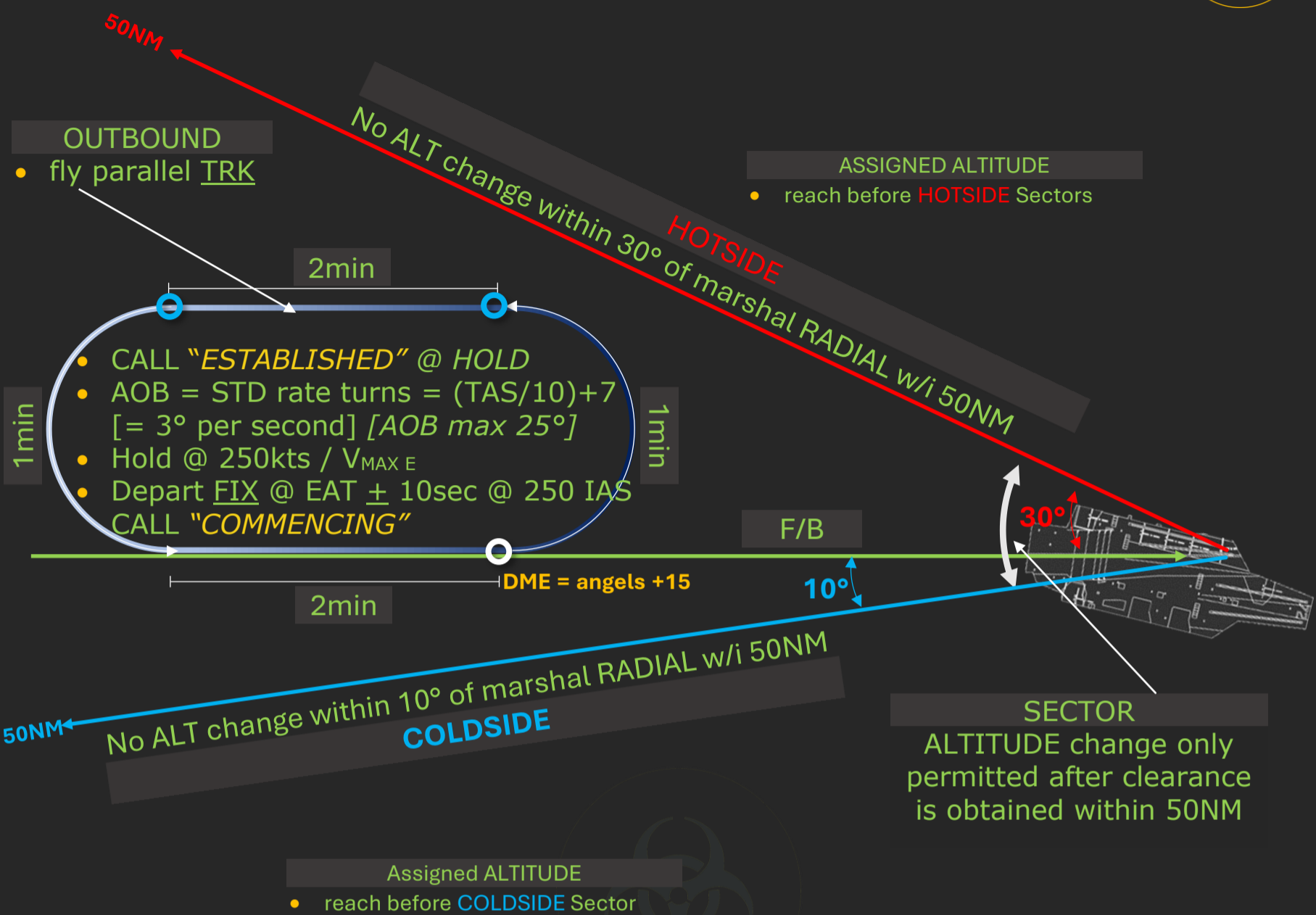
CASE III DEPARTURE



CASE I	WX	VISIBILITY	> 5NM	
		CEILING	> 3000ft AGL	
CASE II	WX	VISIBILITY	> 5NM	
		CEILING	> 1000ft AGL	
CASE III	WX	VISIBILITY	< 5NM	
		CEILING	< 1000ft AGL	
NIGHT OPS				TURNRADIUS ½ % of GROUND SPEED



CASE III RECOVERY – MARSHAL & COMM



COMMS

For Case III recoveries, Marshal will provide the following information upon check in:

- | | | |
|------|--|---------------|
| i. | Current weather and altimeter | WX / QNH |
| ii. | Case recovery | RECOVERY |
| iii. | Marshal instructions | INSTRUCTIONS |
| iv. | Expected final approach button (frequency) | APPR BUTTON |
| v. | Expected approach time (EAT) | EAT |
| vi. | Expected final bearing | FINAL BEARING |

Additional information such as divert field, fuel data and bingo information.

Notify Marshal when established in holding. Marshal may periodically update the weather and BRC while in holding. Notify Marshal when the approach is commenced. Marshal will hand aircraft off to the final controller during the penetration, ideally before reaching platform.

INITIAL CALL		
i. 426	... “MARSHAL ... 426 ... 250 DME 42 ... ANGELS 14 ... STATE 2.4”	MARSHAL OWN TAIL NUMBER POSITION: RADIAL / DME ANGELS FUEL STATE
ii. Marshal	... “426 ... MOTHER’S WEATHER IS 600 OVERCAST, VISIBILITY 3 MILES ... ALTIMETER 29.87 ... CASE III RECOVERY ... CV-1 APPROACH ... MARSHAL ON THE 160 ... 22 ANGELS 7 ... EXPECTED FINAL BEARING 015 ... EXPECTED APPROACH TIME 22 ... APPROACH BUTTON 18”	WX QNH RECOVERY APPR TYPE HOLDING RADIAL DME / ANGELS FINAL BEARING EAT APPR BUTTON
iii. 426	... “426 ... ALTIMETER 29.87 ... MARSHAL ON THE 160 ... 22 ANGELS 7 ... EXPECTED APPROACH TIME 22”	QNH HOLDING RADIAL DME / ANGELS EAT
When established in HOLDING		
iv. 426	... “426 ... ESTABLISHED ... ANGELS 7 ... STATE 2.3”	ESTABLISHED ANGELS FUEL STATE

While HOLDING

v.	Marshal	... “99 ... <i>ALTIMETER 29.88</i> ... <i>NEW FINAL BEARING 020”</i>	99 = ALL STATIONS QNH FINAL BEARING
----	---------	--	---

When BEGINNING the penetration

vi.	426	... “426 ... <i>COMMENCING</i> ... 29.88 ... <i>STATE 2.2”</i>	COMMENCING QNH FUEL STATE
vii.	Marshal	... “426 ... <i>ROGER”</i>	

HANDOFF to approach

viii.	Marshal	... “426 ... <i>SWITCH APPROACH</i> ... <i>BUTTON 18”</i>	SWITCH APPR BUTTON
ix.	426	... “426 ... <i>SWITCHING BUTTON 18”</i>	

CHECK IN with Approach

x.	426	... “426 ... <i>CHECKING IN</i> ... <i>STATE 2.1”</i>	CHECKING IN FUEL STATE
xi.	Approach	... “426 ... <i>FINAL BEARING 017”</i>	

At PLATFORM

xii.	426	... “426 ... <i>PLATFORM”</i>	PLATFORM
------	-----	----------------------------------	----------

At ACLS lock-on

xiii.	Approach	... “426 ... <i>SAY NEEDLES”</i>	
xiv.	426	... “426 ... <i>FLY UP, ON”</i>	FLY UP, ON
xv.	Approach	... “426 ... <i>FLY YOUR NEEDLES”</i>	

At ¾ mile

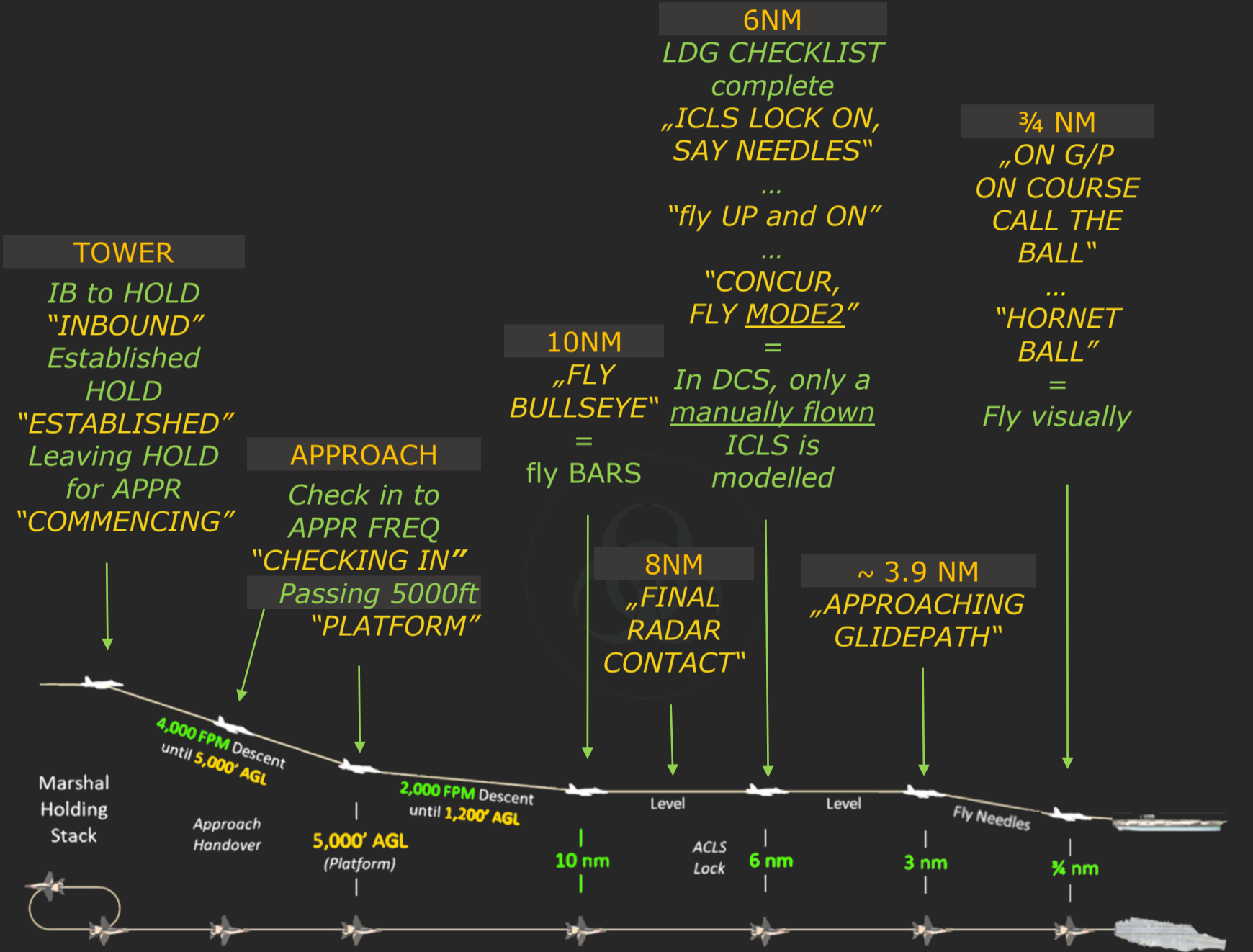
xvi.	Approach	... “426 ... ¾ MILE ... <i>CALL THE BALL”</i>	
xvii.	426	... “426 ... <i>HORNET BALL</i> ... 2.0”	HORNET BALL
xviii.	LSO	... “ <i>ROGER BALL</i> ”	

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

Set minimum = RA 360

MARSHAL STACK

- DME = angels + 15
- SPEED = $V_{MAX E} \sim 250kts$
- = better 5.6 AoA
- = FPAS
- TIMING = 2min



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

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





“TIMEUFC” TOGGLES displayed time on „HUD“ via UFC

- Zulu time (EI) ... UFC select “:ZTOD” (EI = Engine Indicator)
- Local time ... UFC select “:LTOD”
- ET (elapsed time) ... UFC select “:ET” ... 00:00 ... UFC “ENTER” starts timer
- CD (countdown) ... UFC select “:CD” ... 06:00 ... UFC “ENTER” starts countdown

- i. Marshal ... “426
- ... MOTHER’S WEATHER IS 600 OVERCAST, VISIBILITY 3 MILES WX
 - ... ALTIMETER 29.87 QNH
 - ... CASE III RECOVERY RECOVERY
 - ... CV-1 APPROACH APPR TYPE
 - ... MARSHAL ON THE 113 HOLDING RADIAL
 - ... 21 ANGELS 6 DME / ANGELS
 - ... EXPECTED FINAL BEARING 293 FINAL BEARING
 - ... EXPECTED APPROACH TIME 22 EAT
 - ... APPROACH BUTTON 18” APPR BUTTON



IDENTIFICATION AND ROLES

NOTE:

- Flight Deck Officers
- Chief Warrant Officers
- Chief Petty Officers
wear khaki pants
- Catapult and Arresting Gear Officers
can be identified by orange and green reflective tape on their cranials

YELLOW plane directors
catapult director
catapult officer
flight deck officer
arresting gear officer

GREEN maintenance
catapult
arresting personnel

BROWN plane captains

BLUE plane handlers

- pushers
- chockers
- chainers

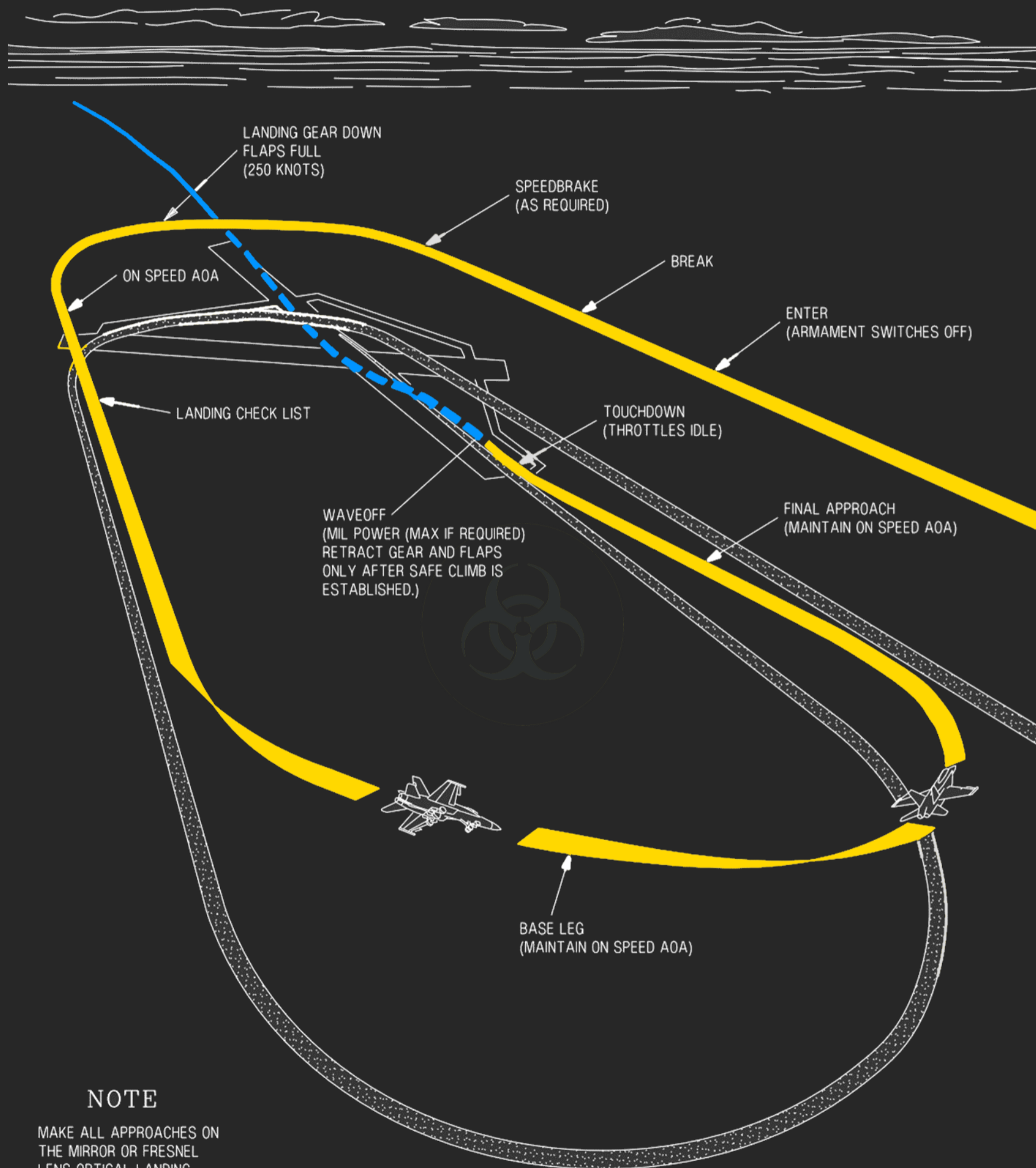
phone talkers
elevator operators



PURPLE fueling crews

WHITE safety personnel
medical personnel
LSOs
final checker
Quality Assurance (QA)

RED ordnance crew
crash crew



NOTE

MAKE ALL APPROACHES ON THE MIRROR OR FRESNEL LENS OPTICAL LANDING SYSTEMS, WHEN AVAILABLE.

F C L P = FIELD CARRIER LANDING PRACTICE

Figure 7-3. Typical Field Landing Pattern



VFR Landing Pattern Entry

A1-E18GA-NFM-000

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

see figure 7-3

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 (for F/A-18C: 1.00 to 1.25NM)

CHECK XTRK DISTANCE on HSI, if available

REMEMBER: turn radius is ½% of GS

NOTE: 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.

VFR LANDING PATTERN – FCLP



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.

Weight [lbs]	LDG CONFIGURATION F/A-18C					
	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° LEF 0° TEF
	Normal LDG	Normal LDG	DEL / MECH	LEF Failure	0° TEF 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
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

LANDING WEIGHT LIMITATION

FIELD	LDG flared	... 39000 lbs
	FCLP / touch & go / baricade	... 33000 lbs
CARRIER	unrestricted	... 33000 lbs
	restricted	... 34000 lbs

Landing Checks

LANDING CHECKLIST

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

1. LANDING CHECKLIST

... COMPLETE
2. REPORT

i. AFT INITIATE

ii. 3 DOWN AND LOCKED

iii. FLAPS FULL (HALF)

iv. AOA CROSSCHECKED

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.



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.

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 – FCLP



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).

ASSUMPTION
PATTERN ALT
600ft AGL

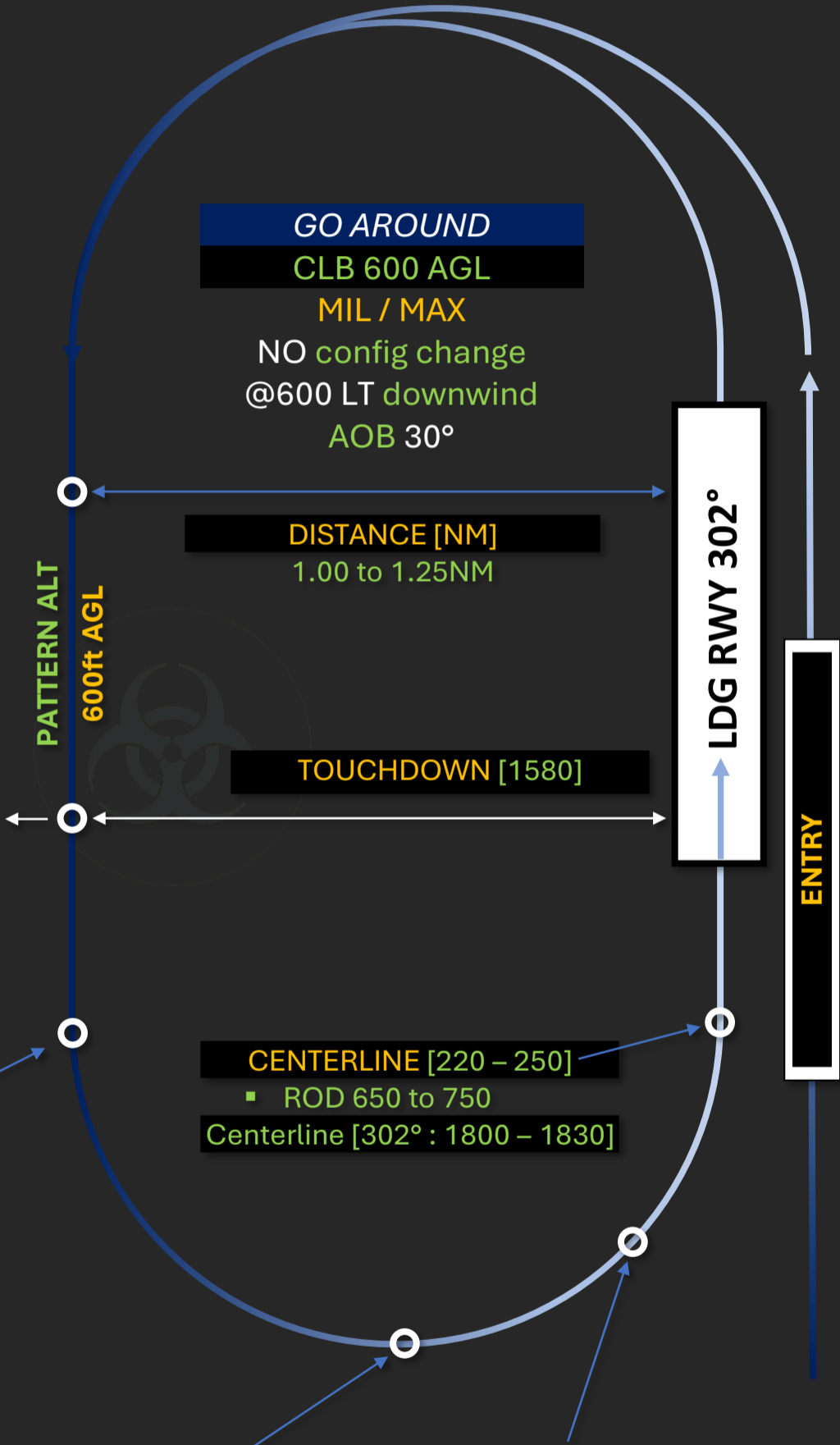
ABEAM TOUCHDOWN [600]
▪ Start timing
▪ 20secs – TWC
ABEAM TOUCHDOWN [122° : 2180]

At the 180 [600]
After 20sec – TWC
▪ VV 1° below horizon
▪ Bank 27° - 30°
▪ ADD power
▪ ROD 300 to 400
▪ Maintain on-speed AOA
[122° : 2180]

At the 90 [450]
▪ REDUCE power
▪ VV 1½° to 2° below horizon
▪ On-speed AOA
▪ ROD 400 to 500
At the 90 [032° : 2030]

At the 45 [320 – 370]
▪ REDUCE power
▪ ROD 500 to 600
At the 45 [347° : 1900 – 1950]

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





- | | | |
|--|--|---|
| 1. FLIR Switch | ... ON | |
| 2. LTD/R Switch | ... ARM | |
| 3. DDI | ... FLIR | |
| 4. ENTER FLIR UFC CODE | ... LTDC | LASER TGT DESIGNATOR CODE (OWN) |
| 5. ENTER FLIR UFC CODE | ... LSTC | LASER SPOT TRACK CODE (LOOK FOR LASING) |
| 6. SENSOR CONTROL SWITCH | ... into direction of DDI FLIR | |
| a. SNOWFLOW | ... FREE | ... NO designation of TGT |
| TDC DEPRESS | ... TGT DESIGNATION | TGT DIAMOND |
| i. STABILIZED POINTING MODE | | SLAVED ONTO TGT POINT |
| | ... TGT DESIGNATION coordinates move with cursor | |
| | ... <u>continues</u> update of TGT coordinates | |
| b. ATRK | ... AREA TRK | |
| TDC DEPRESS & HOLD | ... SLEWABLE DESIGNATION "OFFSET CURSOR" | |
| TDC RELEASE | ... designation of TGT <u>coordinates</u> | |
| c. PTRK | ... POINT TRK | |
| TDC DEPRESS & HOLD | ... SLEWABLE DESIGNATION "OFFSET CURSOR" | |
| TDC RELEASE | ... designation of TGT <u>coordinates</u> | |
| d. from CCIP to AUTO with ASL and TGT point on HUD | | |
| 7. 2x UNDESIGNATE BUTTON | ... enter | VVSLV MODE |
| 8. 2x UNDESIGNATE BUTTON | ... leave | VVSLV MODE |
| 9. RTCL (RETICLE) MODE | ... to be used with DUMB BOMBS | |
| 10. MODES | | |
| a. CCD | ... CAMERA | |
| b. WHT HOT | ... INFRARED | |
| c. BLK HOT | ... INFRARED | |
| 11. SLEW | ... FLIR over TGT or | |
| 12. SLAVE | ... TPOD to WPDSG or | |
| | ... VVSLV and point VELOCITY VECTOR → TDC | |

Consider AUTOLASING ("TRIG" enable) or MANUAL LASING

HMD Target Assignment	
1. MASTER ARM	... ARM
2. A/G Mode	... SELECTED
3. SENSOR CONTROL SWITCH	... 2x FWD
4. TDC	... look at TGT area
	... TDC DEPRESS to assign TGT WPT

- 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

BFM rule
LOOSE SIGHT
LOOSE THE FIGHT

Apart from that, utterly important for BFM is a successful usage of the RADAR displays and their modes

(RWS / RWS+LTWS / TWS) during an engagement.

Obviously, it is important on one side to know what the indications mean, on the other side to use RADAR in conjunction with the SA display and the HMD, to create and maintain your situational awareness.

Furthermore, if you want to fly BFM / ACM successfully you will need to setup your HOTAS accordingly. This is especially true while flying DCS in VR. Trying to find your way around the DDIs with a mouse cursor during a combat situation will not be of much help, as you are going to waste precious time while being “head down”, leading to either losing the hostile or completely losing your situational awareness and thus losing the fight.

Apart from your general setup of HOTAS concerning:

- TDC manipulation
- TDC DEPRESS
- Sensor control Switch

you will have to consider the setup of DDIs shown on the next page, and setup your HOTAS accordingly:

RIGHT DDI		
MAP RANGE	... INCREASE / DECREASE	PB 11 / PB 12
TWS PAGE	... RAID function	PB 9
TWS PAGE	... AUTO / MANUAL / BIAS Mode	PB 13
AZIMUTH SCAN	... TOGGLE	PB 19
EXP	... TOGGLE	PB 20

AMPCD		
MAP RANGE	... DECREASE	PB 8
STEP	... TOGGLE	PB 19
EXP	... TOGGLE	PB 20

Modes to be used according to situation:

NO TARGET ACQUIRED		
RWS	... basic search mode	
	... RECOMMENDED mode during search	6B / 140°

TARGET ACQUIRED		
RWS+LTWS	... RECOMMENDED mode during search	4B / 40°
TWS	... search and track mode for weapon employment	
	... RECOMMENDED mode during acquisition	4B / 40°

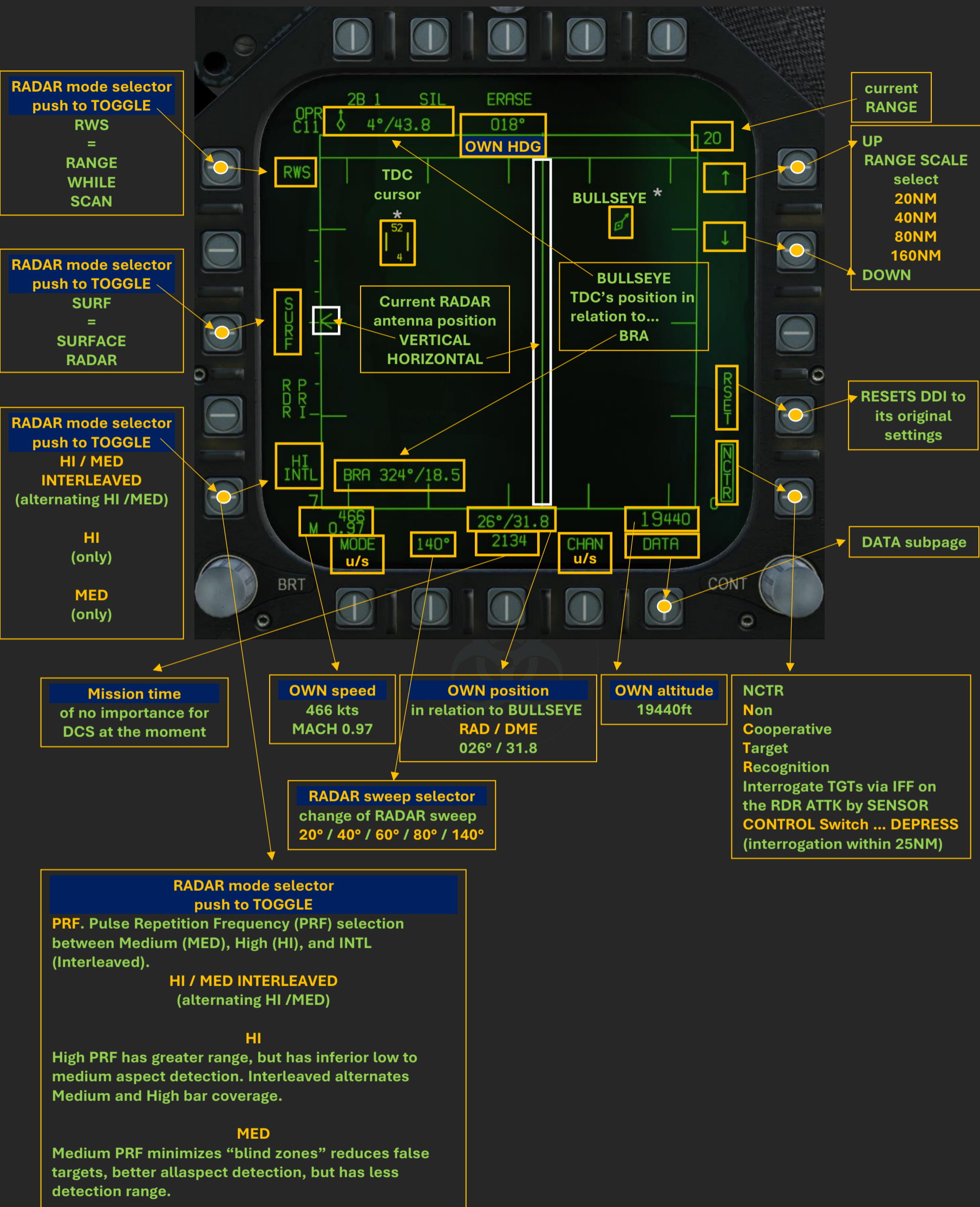


Thus, it is recommended to have **HMD ... ON** and got your DDI's setup as such:



In order to set up the HORNET for engagement, use the “**FENCE IN**” procedure:

- | | |
|-------------------------|-----------------------------|
| 1. BULLSEYE | ... SET via HSI |
| 2. Countermeasures | ... ARMED |
| 3. ECM | ... AS FRAGGED |
| 4. Weapons | ... PREPARED and CONFIGURED |
| 5. TACAN | ... A/A TCN set if required |
| 6. External Lights | ... OFF |
| 7. MASTER ARM | ... ARM |
| 8. EW / SA / RDR ATTK | ... SELECTED |
| 9. HMD | ... ON |
| 10. FUEL State | ... CHECK |
| 11. External FUEL Tanks | ... FEEDING |
| 12. WARNING LIGHTS | ... CHECK |



NOTE: “TDC CURSOR” and “BULLSEYE” were added to the display and don’t reflect their true position in relation to the readouts shown on the RWS page



DDI is select by
SENSOR CONTROL Switch

"FADE time" of targets
2 / 4 / 8 / 16 / 32 [secs]

ECCM

Electronic
Counter
Counter
Measures
Enables or
disables ECCM.
When enabled, the
jamming effects of
hostile aircraft are
less pronounced,
but the sensitivity
of the RADAR is
reduced. (Coming
later in Open Beta)

RWR ATTCK

Is boxed by standard and
shouldn't be unboxed. As
when unboxed NO RWR
contacts will be displayed

PUSH

alternates between
NORM:
WIDE:

BRA toggle
ON / OFF

PUSH

Return to current
RDR ATTCK Page
(RWS / TWS)

PUSH

DCLTR OFF: VV + "HUD" horizon shown
DCLTR 1:
DCLTR 2:

LTWS

Latent
Track
While
Scan

LTWS OFF

- TDC DEPRESS 1x over TGT
→ STT

LTWS ON

- TDC DEPRESS 1st over TGT
→ L&S
- TDC DEPRESS 2nd over TGT
→ STT

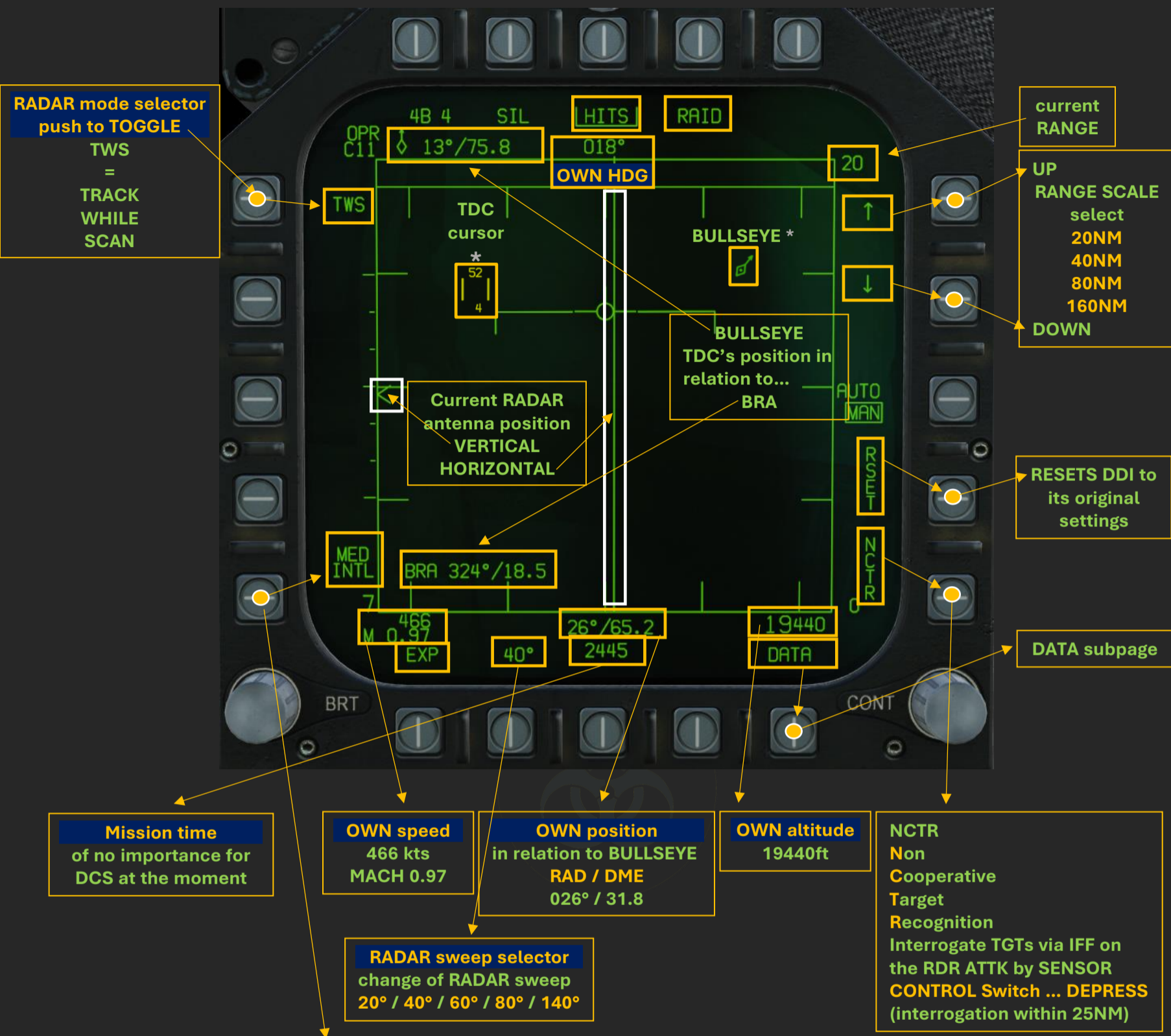
1LOOK RAID

When 1LookRAID is selected, boxed
from the AIR-TO-AIR radar data
sublevel, the RADAR will
automatically perform scans around
the STT target. Targets immediately
around the STT are displayed as raw
hits (bricks). Unlike other RAID
modes, the scale of the attack radar
does not change; it simply displays
raw hits around the STT.
These hits cannot be designated.

MSI

MULTI SENSOR INTEGRATION

ALWAYS must be ON, so the RDR
ATTCK is able connect target's
information with an RWR.
Additionally, it connects to LINK16



NOTE: “TDC CURSOR” and “BULLSEYE” were added to the display and don’t reflect their true position in relation to the readouts shown on the RWS page



DDI is select by
SENSOR CONTROL Switch

"FADE time" of targets
2 / 4 / 8 / 16 / 32 [secs]

ECCM

Electronic
Counter
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When enabled, the
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reduced. (Coming
later in Open Beta)

RWR ATTK

Is boxed by standard and
shouldn't be unboxed. As
when unboxed NO RWR
contacts will be displayed

PUSH

alternates between
NORM:
WIDE:

BRA toggle
ON / OFF

PUSH

Return to current
RDR ATTK Page
(RWS / TWS)

PUSH

DCLTR OFF: VV + "HUD" horizon shown
DCLTR 1:
DCLTR 2:

LTWS

Latent
Track
While
Scan

LTWS OFF

- TDC DEPRESS 1x over TGT
→ STT

LTWS ON

- TDC DEPRESS 1st over TGT
→ L&S
- TDC DEPRESS 2nd over TGT
→ STT

LDF

Speed Gate.
Selects between Normal (NORM) and WIDE target speed gates to
determine the width of the doppler radial velocity notch. This is used to
not detect/filter out slow moving targets like cars and general aviation
aircraft. When in WIDE mode, the notch filter is increased and slow
targets will be detected and displayed. (Coming later in Open Beta)

1LOOK RAID

When 1LookRAID is selected, boxed
from the AIR-TO-AIR radar data
sublevel, the RADAR will
automatically perform scans around
the STT target. Targets immediately
around the STT are displayed as raw
hits (bricks). Unlike other RAID
modes, the scale of the attack radar
does not change; it simply displays
raw hits around the STT.
These hits cannot be designated.

MSI

MULTI SENSOR INTEGRATION

ALWAYS must be ON, so the RDR
ATTK is able connect target's
information with an RWR.
Additionally, it connects to LINK16



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 OVER THE LAUNCH & STEERING TRACKFILE or
 - while OVER 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

LTWS

Latent Track While Scan

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.



- AIRBORNE THREAT
- AIRBORNE FRIENDLY
- AIRBORNE UNKNOWN
- SINGLE TARGET TRACK ON YOU
- JAMMER
- OPTICAL TRACK
- SAM
- EARLY WARNING RADAR
- AAA
- NAVAL UNIT
- HARM (boxed = SELECTED)





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



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 <u>naval</u> (sea-based) emitters	SEA-BASED
F1...	Old friendly radar systems	RAD
F2...	Modern friendly radar systems	RAD
FAA...	Friendly anti-aircraft artillery	AAA
FS...	Friendly search radar	SR
HOSTILE		
HOS...	Hostile emitters	
HN...	Hostile <u>naval</u> (sea-based) emitters	SEA-BASED
H1...	Old <u>hostile</u> radar systems	RAD
H2...	Modern <u>hostile</u> radar systems	RAD
HAA...	Hostile anti-aircraft artillery	AAA
HS...	Hostile search radar	SR

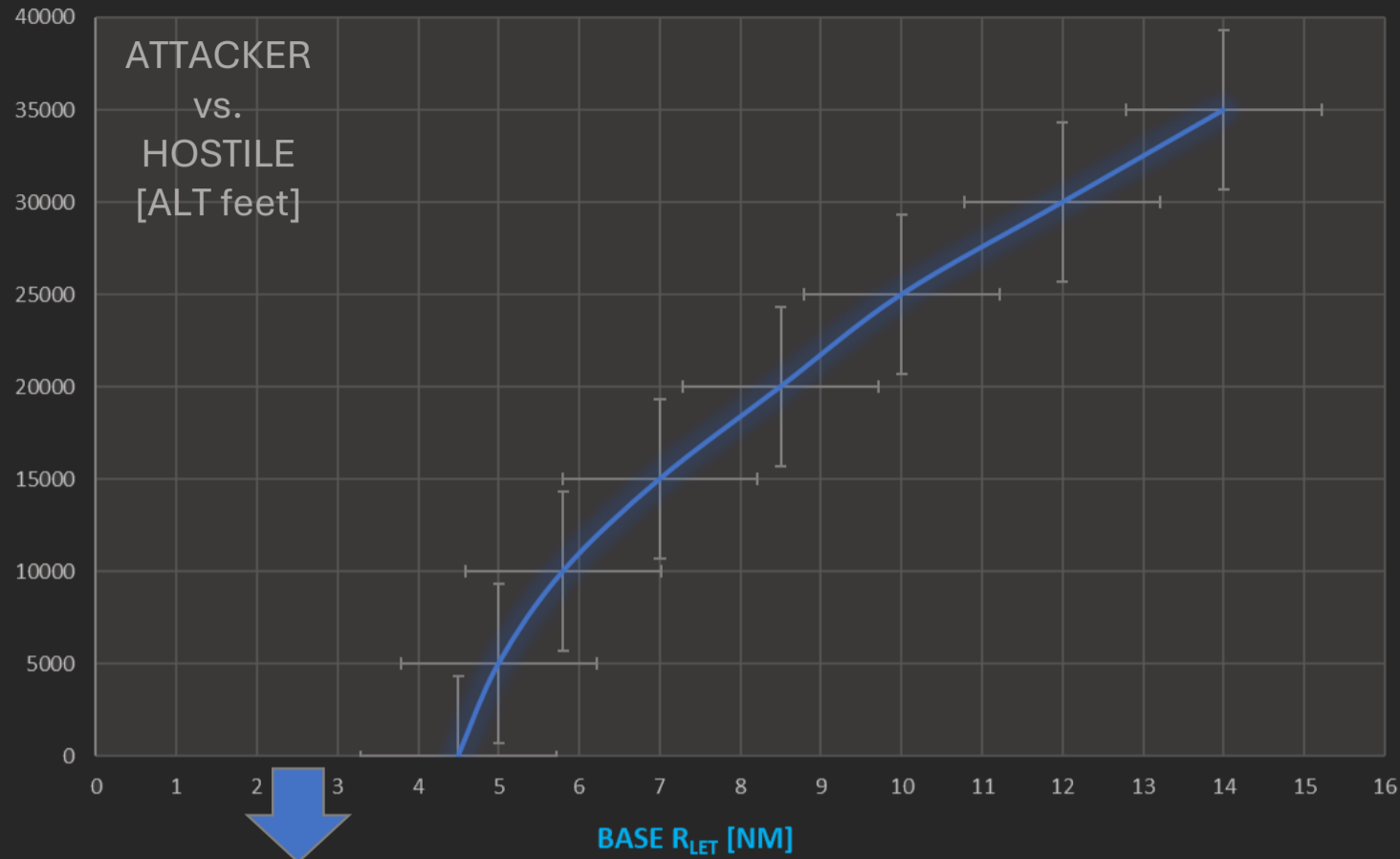




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AIM-120C / V_{OPT}



[ALT feet]	BASE R _{LET}	DELTA
DECK	4,5	
5000	5,0	0,5
10000	5,8	0,8
15000	7,0	1,2
20000	8,5	1,5
25000	10,0	1,2
30000	12,0	2,0
35000	14,0	2,0

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

or just simply multiply the MACH value, whether being higher or lower than M1,0

CALCULATE R_{LET}

R_{LET} = MACH x (BASE R_{LET} + R_{LET} MODIFIER)

e.g.

= M1,15 x (both @ 20k + AIM-120)

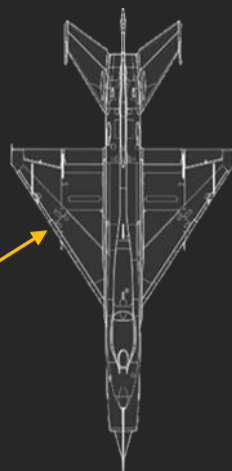
= 1,15 x (8,5 + 0)

= 9,78 NM

= 10 NM



AIM-120C / V_{OPT}



FIRE AMRAAM @ R_{LET}

evade HOSTILE's missile shot by flying SPLIT-S

- 7g to 9g
- below 20° AOA

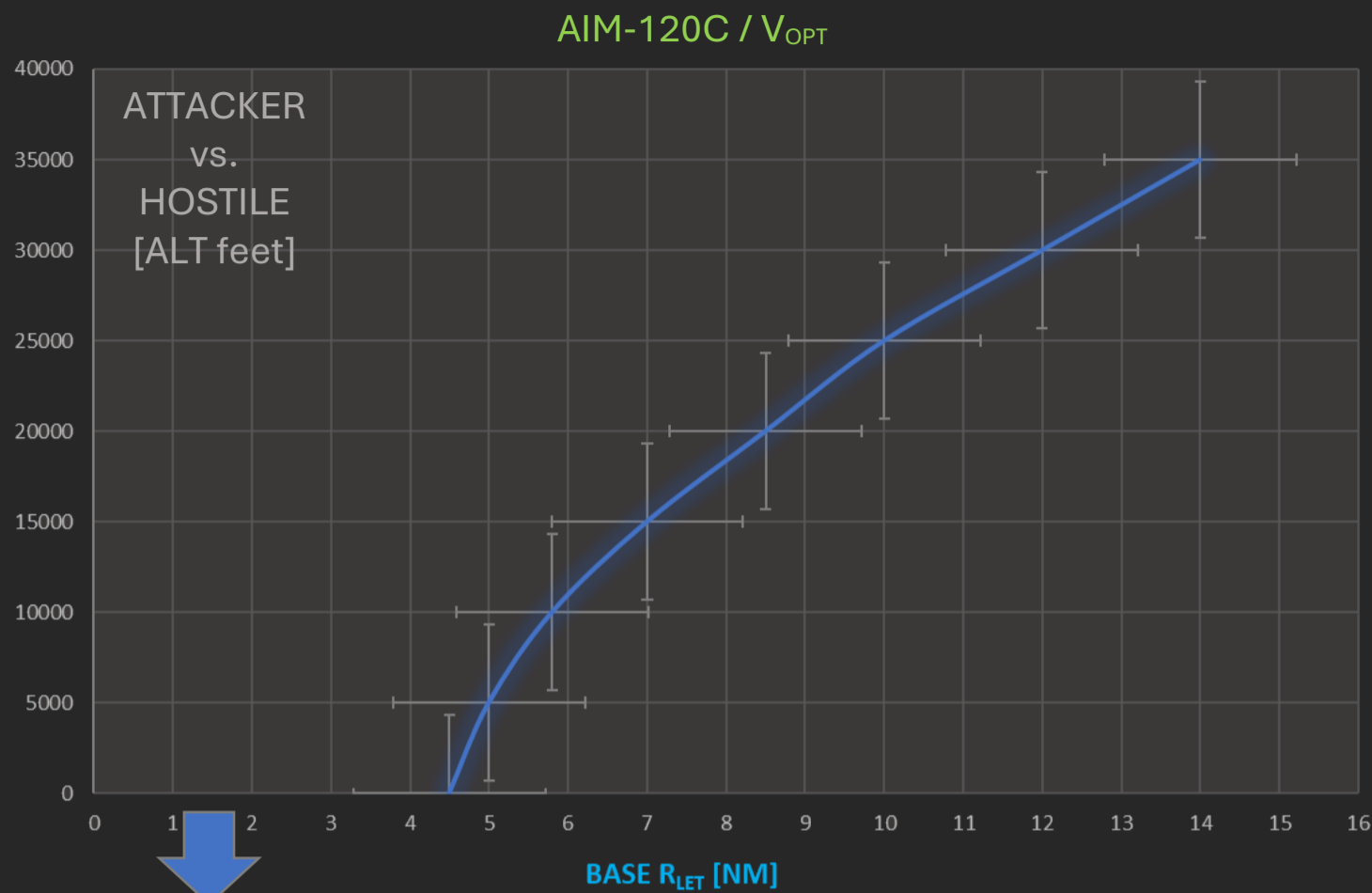
@ R_{LET} + 3 NM
turn DIRECTLY
INTO BANDIT

Continue until
R_{LET} + 3 NM
then BREAK
INTO THE
BANDIT

BREAK to the LEFT/RIGHT keeping
the angle at or just below max
B-SWEEP i.e. 70° for the hornet

R_{LET} + 15





[ALT feet]	BASE R _{LET}	DELTA
DECK	4,5	
5000	5,0	0,5
10000	5,8	0,8
15000	7,0	1,2
20000	8,5	1,5
25000	10,0	1,5
30000	12,0	2,0
35000	14,0	2,0

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

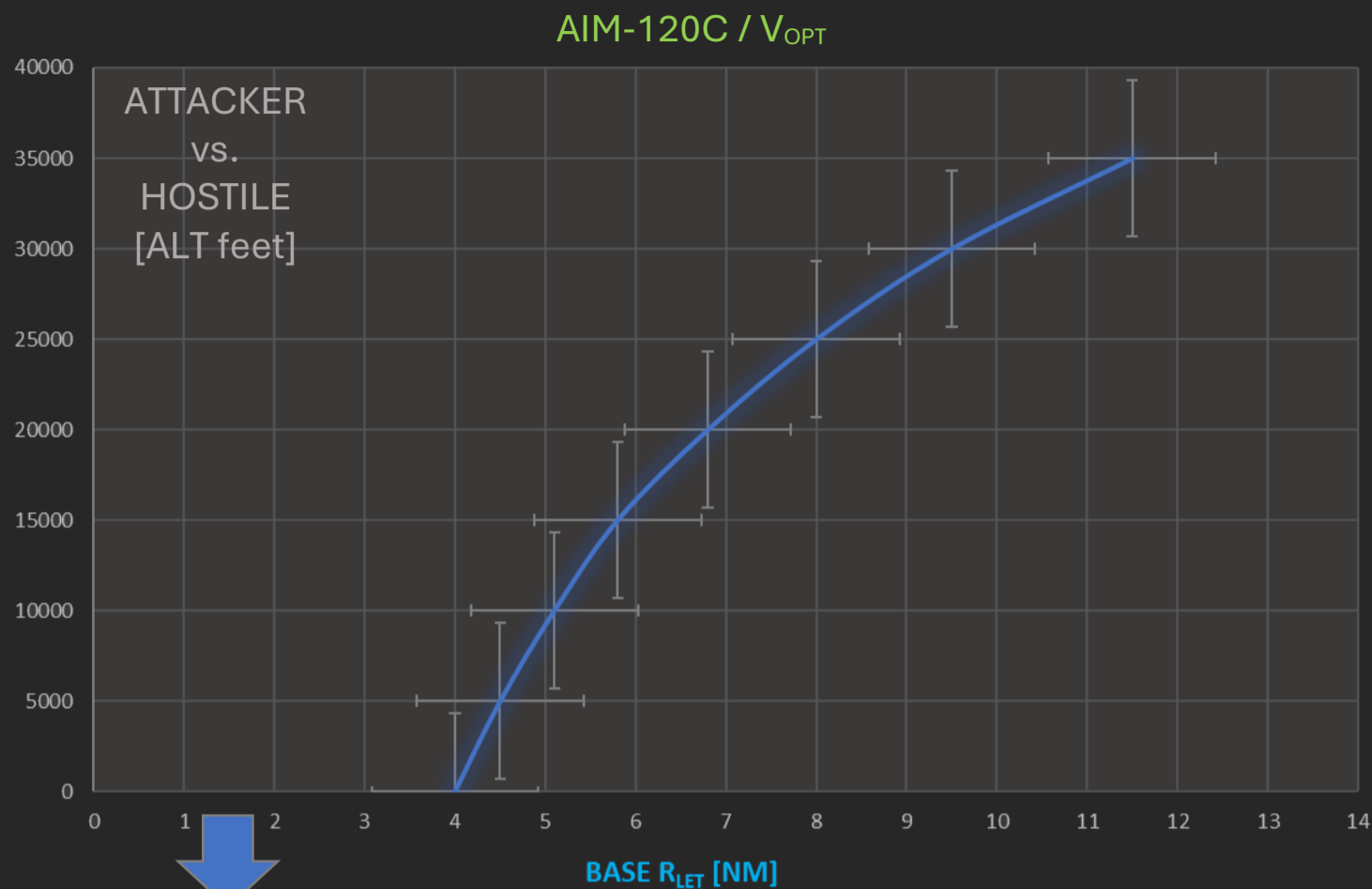
V_{OPT} = MACH 1 @ ALTITUDE
if going above V_{OPT} adjust by equivalent percentage to R_{LET}, thus ADD 15% to R_{LET}
V_{MAX} = 1,15
or just simply multiply the MACH value, whether being higher or lower than M1,0

CALCULATE R_{LET}

R_{LET} = MACH x (BASE R_{LET} + R_{LET} MODIFIER)
e.g.
= M1,15 x (both @ 20k + AIM-120)
= 1,15 x (8,5 + 0)
= 9,78 NM
= 10 NM

EVASION

DECK OFFENSIVE LOW NOTCH / BEAM PUSH
ABOVE 5000ft AGL DEFENSIVE SPLIT-S



[ALT feet]	BASE R _{LET}	DELTA
DECK	4,0	
5000	4,5	0,5
10000	5,1	0,6
15000	5,8	0,7
20000	6,8	1,0
25000	8,0	1,2
30000	9,5	1,5
35000	11,5	2,0

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

or just simply multiply the MACH value, whether being higher or lower than M1,0

CALCULATE R_{LET}

R_{LET} = MACH x (BASE R_{LET} + R_{LET} MODIFIER)

e.g.

= M1,15 x (both @ 20k + AIM-120)

= 1,15 x (6,8 + 0)

= 7,82 NM

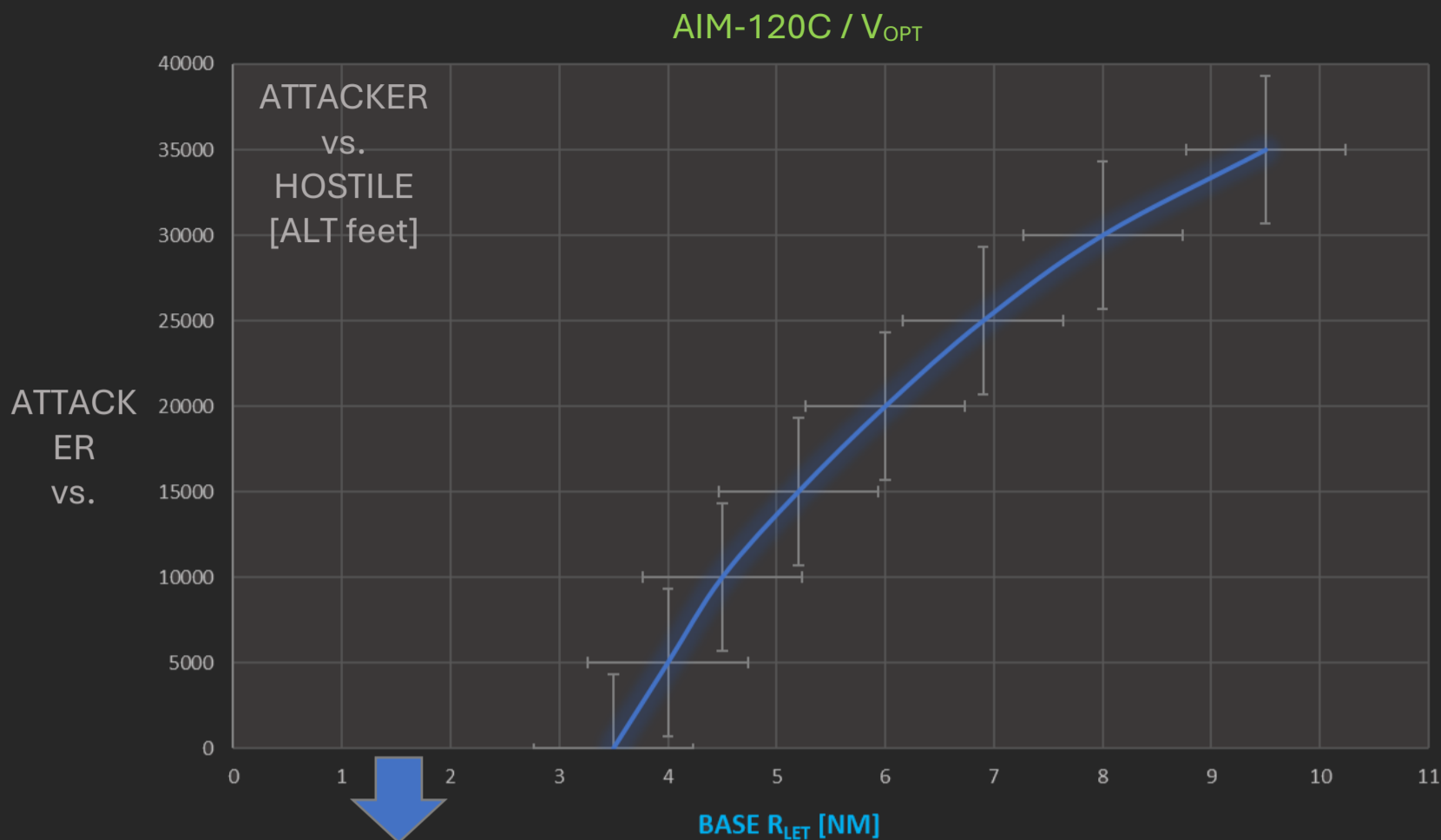
= 8 NM

EVASION

DECK DEFENSIVE LOW 45° SNAKE

ABOVE 5000ft AGL DEFENSIVE SPLIT TURN OUT

EVADING MISSILES – COLD ASPECT



[ALT feet]	BASE R _{LET}	DELTA
DECK	3,5	
5000	4,0	0,5
10000	4,5	0,5
15000	5,2	0,7
20000	6,0	0,8
25000	6,9	0,9
30000	8,0	1,1
35000	9,5	1,5

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

or just simply multiply the MACH value, whether being higher or lower than M1,0

CALCULATE R_{LET}

$$R_{LET} = MACH \times (BASE R_{LET} + R_{LET} MODIFIER)$$

e.g.

$$= M1,15 \times (both @ 20k + AIM-120)$$

$$= 1,15 \times (6,0 + 0)$$

$$= 6,90 NM$$

$$= 7 NM$$

EVASION

DECK DEFENSIVE NOTCH / BEAM

ABOVE 5000ft AGL DEFENSIVE SPLIT NOTCH / BEAM



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

SEARCH RADAR				
S	Unknown Search Radar			
	EWR 1L13			101
	EWR 55G6			102
	S125 SR P 19	[2],[3]		122
BB	Big Bird	[10]		104
CS	Clam Shell	[10]		103
DE	Dog Ear	[13]		109
HQ	HQ-7	[7]		128
SD	Snow Drift	[11]		107
TS	Tin Shield	[5]		130
TRACKING RADAR				
2	SA-2 Guideline	CH	28/++	126
3	SA-3 S125 TR SNR	CH	13/++	123
5	SA-5 GAMMON	CH	160/++	129
6	SA-6 Kub STR 9S91	CH	22/26	108
7	HQ-7 Launcher	EV	10/18	127
8	SA-8 Osa 9A33	CH	09/16	117
10	SA-10 S300PS TR	CH	46/++	110
11	SA-11 BUK LL	CH	23/++	115
13	SA-13 Strela	FL	05/12	118
15	SA-15 Tor 9A331	CH	09/20	119
19	SA-19 Grison	EV	05/12	120
A	Gepard	EV	02/10	207
	Vulcan M163	EV	02/05	208
	ZSU 23 4 Shilka	EV	02/07	121
HK	Hawk SR/TR/CWAR	CH	25/++	
	203 / 204 / 206			
NS	NASAMS AIM120	CH	06/35	209
P	Patriot MIM-104	CH	48/++	202
RO	Roland ADS	EV	06/20	201
RP	Rapier Blindfire	--	--/--	124
RT	Rapier Launcher	EV	07/10	125

NAVAL UNITS					
40	CV	Tarawa	FL	08/13	407
49	FR	Perry	CH	50/++	401
AE	DE	Arleigh Burke IIa	CH	57/++	412
	CR	Ticonderoga	CH	55/++	315
HN	DE	052C Haikou	CH	64/++	410
	CR	Pyotr Velikiy	CH	74/++	313
HP	VE	Grisha / Albatros	CH	08/17	306
MR	DE	052B Guandgzhou	CH	27/48	409
	FR	054A Yantai	CH	35/++	411
PS	VE	Molniya	EV	04/09	312
	TT	071 Amphib Assault	EV	04/09	408
SS	CV	CVN-70 Vinson	CH	14/35	402
	CV	CVN-71 Roosevelt	CH	14/35	403
	CV	CVN-72 Lincoln	CH	14/35	404
	CV	CVN-73 Washington	CH	14/35	405
	CV	CVN-74 Stennis	CH	14/35	406
	CV	CVN-75 Truman	CH	14/35	413
SW	CV	Kuznecow 2017	CH	09/20	320
	CV	Kuznecow old	CH	09/20	301
T2	CR	Moscow	CH	47/++	303
TP	FR	Neustrash	CH	09/20	319
	FR	Rezky	CH	08/17	309
U		Unknown NAVAL			

xxx	AGM-88C HARM Radar Codes for PB Mode			
	CV	Carrier	CH	CHAFF
	CR	Cruiser	FL	FLARE
	DE	Destroyer	EV	EVADE
	TT	Transporter	25 / ++ = NM / ALT max ++ >50k ft	
	VE	Corvette		
	[x]	associated SAM		
chart created by “Dmitriy Kozyrev”, edited by <u>cruizzzzer</u>				

AIRSPACE SURVEILLANCE NON-NATO						
NATO Designation	Platform	RWR Symbol	Flexibility	Max detection range	Min ALT	Max ALT
Dog Ear	1S80 "Sborka" PPRU		self-propelled	80 km	UNK	UNK
Tall King	55G6-1 NEBO		stationary deployable	500 km	UNK	40 km
Box Spring	1L13-3 NEBO-SV		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	EV	100	-	-	1.3	6.5
ZSU-23-4	Shilka	8	RADAR	CH	2000	A	121	1.3	6.5
ZSU-57-2	Sparka	5	OPTICAL	EV	254	-	-	2	14
ZPU-1/2/4		3.5	OPTICAL	EV	4800	-	-	0.7	4.5
Flakpanzer Gepard		4	RADAR	CH	660	A	207	2	9.5
M163 Vulcan		6	OPTICAL	EV	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				

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	129	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
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
ST-68U			Tin Shield	TS	130			SR

SAM THREAT	NATO	Track RADAR	RWR HARM	Search RADAR	RWR HARM	RNG [NM]	ALT [k ft]
S-75 Dvina	SA-2 Guideline	SNR-75 Fan Song	2 126	P-12 Spoon Rest	S ---	24	82
S-125 Neva Pechora	SA-3 Goa	SNR-125 Low Blow	3 123	P-19 Flat Face	S 122	12	59
S-200 Vega	SA-5 Gammon	5N26 Square Pair	5 129	P-14 Tall King	5 ---	162	130
2K12 Kub	SA-6 Gainful	1S91 Straight Flush	6 108	P-12 Spoon Rest	S ---	19	33
9K33 Osa	SA-8 Gecko	Integrated Land Roll	8 117	-		8	21
9K31 Strela-1	SA-9 Gaskin	-		-	-	3	12
S-300PS	SA-10 Grumble	30N6E Flap Lid	10 110	64H6E Big Bird 5N66M Clam Shell	BB 104 CS 103	40	160
9K37 Buk	SA-11 Gadfly	Integrated Fire Dome	11 115	9S18M1 Snow Drift	SD 107	19	45
9K35 Strela-10	SA-13 Gopher	Integrated Snap Shot		-	13 118	3	15
9K331 Tor	SA-15 Gauntlet	Integrated Scrum Half		-	15 119	7	26
2K22M Tunguska	SA-19 Grison	-		-	19 120	4	16
Rapier	-	Blindfire		-	RT 125	4.4	6.3
MIM-115 Roland	-	Integrated Roland ADS	RO 201	Roland EWR	RO 205	3.4	20
MIM-23 Hawk	-	AN/MPQ-46 HPIR AN/MPQ-55 CWAR	HK 204 HK 206	AN/MPQ-50 PAR	HK 203	26	45
NASAMS AIM 120B			NS 209				
NASAMS AIM 120C			NS 209				
MIM-104 Patriot	-	AN/MPQ-53/65 STR	P 202	AN/MPQ-53/65 STR	P 202	48	80

A-100	"Kama"	Early warning ground control radar
P-3	"Dumbo"	Early warning ground control radar
P-8	"Knife Rest A"	Early warning ground control radar
P-10	"Knife Rest B"	Early warning ground control radar
P-12	"Spoon Rest"	Early warning ground control radar
P-14	"Tall King"	Early warning radar
P-15	"Flat Face A"	Surveillance/Target acquisition radar
P-18	"Spoon Rest D"	Early warning radar
P-19	"Flate Face B"	Surveillance/Target acquisition radar
P-20	"Bar Lock"	Early warning ground control radar
P-30	"Big Mesh"	Early warning ground control radar
P-35	"Bar Lock"	Early warning ground control radar
P-37	"Bar Lock"	Early warning ground control radar
P-40	"Long Track"	Early warning/TGT acquisition radar
P-70		Early warning radar
P-80	"Back Net", E-band	Early Warning Radar
P-100	Kasta 2E "Flat Face E"	Surveillance radars
PRV-11	"Side Net"	Height finding radar
SNR-75	"Fan Song"	Fire control/Target acquisition radar
SNR-125	"Low Blow"	Fire control/Target acquisition radar
1S91	"Straight Flush"	Fire control/Target acquisition radar
30N6	"Flap Lid"	Fire control/Target acquisition radar
36D6	"Tin Shield"	Surveillance radar
64N6	"Big Bird"	Surveillance radar
76N6	"Clam Shell"	Low-altitude detection radar
91N6E		Surveillance radar
92N6E		Fire control/Target acquisition radar
96L6E	"Cheese Board"	All altitude surveillance radar
9S15	"Bill Board A"	Surveillance radar
9S19	"High Screen"	Sector surveillance radar
9S32	"Grill Pan"	Fire control/Target acquisition radar
Azov radar	"Flat Twin"	ABM radar
Duga	"Steel Yard" or "Russian Woodpecker"	Over the horizon radar
Dnestr	"Hen House"	ABM radar
Dnepr	"Hen House"	ABM radar
Daryal	"Pechora"	ABM radar
Dunay	"Dog House"/"Cat House"	ABM radar
Volga		ABM radar
Don 2N	"Pill Box"	ABM radar
Voronezh		ABM radar
29B6 Container		ABM radar



NAVAL THREAT	alias	RWR	HARM PB	Range [NM]	ALT [k ft]	Role
Tarawa		40	407	8	13	CV
Perry	Fig Seven	49	426	50		FR
Ticonderoga		AE	315	55		CR
Arleigh Burke Ila		AE	412	57		DE
Pyotr Velikiy		HN	313	74		CR
052C Haikou		HN	410	64		DE
Grisha / Albatros		HP	306	8	17	VE
052B Guandgzhou		MR	409	27	48	DE
054A Yantai		MR	411	35		FR
Molniya		PS	312	4	9	VE
071 Amphibious Assault Ship		PS	408	4	9	TT
CVN-70 Carl Vinson		SS	402	14	35	CV
CVN-71 Theodore Roosevelt	Rough Rider	SS	403	14	35	CV
CVN-72 Abraham Lincoln	Union	SS	404	14	35	CV
CVN-73 George Washington	Warfighter	SS	405	14	35	CV
CVN-74 John C. Stennis	Courage	SS	406	14	35	CV
CVN-75 Harry S. Truman	Lone Warrior	SS	413	14	35	CV
Kuznetsov	<i>prior 2017</i>	SW	301	9	20	CV
Kuznetsov	<i>after 2017</i>	SW	320	9	20	CV
Moskva		T2	303	47		CR
Rezky		TP	309	8	17	FR
Neustrashimy		TP	319	9	20	FR
unknown		U	---	--	--	--

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

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

FOX 1	R _{LET}	PEAK MACH	IMPACT @	MiG-23 23	MiG-25 25	MiG-29A 29	MiG-29S 29	Su-27 29	Su-33 29	Su-30 30	MiG-31 31
semi active RDR	NM sec	M sec	M TAS	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec
<u>R-24R</u>	18,2 19	4,30 8	tbd ---	18,2 19							
<u>R-27R</u>	15,3 27	3,44 7	2,09 1207			15,3 27	15,3 27	15,3 27	15,3 27	15,3 27	
<u>R-27ER</u>	21,0 29	4,81 9	2,84 1637			21,0 29	21,0 29	21,0 29	21,0 29	21,0 29	
<u>R-33</u>	23,6 36	3,84 21	2,80 1614								23,6 36
<u>R-40R</u>	8,6 13	3,93 8	3,56 2052		8,6 13						8,6 13
FOX 2	R _{LET}	PEAK MACH	IMPACT @	MiG-23 23	MiG-25 25	MiG-29A 29	MiG-29S 29	Su-27 29	Su-33 29	Su-30 30	MiG-31 31
infrared	NM sec	M sec	M TAS	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec
<u>R-24T</u>	11,2 21	4,04 7	1,25 719	11,2 21							
<u>R-27T</u>	4,0 8	3,36 7	3,32 1916			4,0 8	4,0 8	4,0 8	4,0 8	4,0 8	
<u>R-27ET</u>	18,7 24	4,87 8	3,12 1798			18,7 24	18,7 24	18,7 24	18,7 24	18,7 24	
<u>R-40T</u>	7,0 10	3,84 6	3,58 2064		7,0 10						7,0 10
<u>R-60M</u>	6,1 12	2,78 4	1,87 1082	6,1 12	6,1 12	6,1 12	6,1 12				6,1 12
<u>R-73</u>	3,2 6	3,55 6	3,54 2045			3,2 6	3,2 6	3,2 6	3,2 6	3,2 6	
FOX 3	R _{LET}	PEAK MACH	IMPACT @	MiG-23 23	MiG-25 25	MiG-29A 29	MiG-29S 29	Su-27 29	Su-33 29	Su-30 30	MiG-31 31
active RDR	NM sec	M sec	M TAS	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec	NM sec
<u>R-77</u>	15,7 23	4,39 7	2,62 1513				15,7 23			15,7 23	

Parameter:
ALT 35000ft
ASPECT HOT
own Mach 1,0

FOX 1	R _{LET}	PEAK Mach	IMPACT @
semi active RDR	NM sec	M sec	M TAS
<u>AIM-7F</u>	20,3 40	2,76 15	1,55 895
<u>AIM-7M</u>	12,8 23	2,82 16	2,33 1345
<u>AIM-7MH</u>	8,3 15	2,73 15	2,72 1567
FOX 2	R _{LET}	PEAK Mach	IMPACT @
infrared	NM sec	M sec	M TAS
<u>AIM-9L</u>	12,5 21	3,79 6	1,95 1125
<u>AIM-9M</u>	13,4 23	3,78 6	1,82 1048
<u>AIM-9X</u>	9,1 14	4,03 5	2,39 1379
FOX 3	R _{LET}	PEAK Mach	IMPACT @
active RDR	NM sec	M sec	M TAS
<u>AIM-120B</u>	21,9 39	3,65 8	2,24 1295
<u>AIM-120C</u>	38,2 68	3,75 8	1,92 1105



- - - INTENTIONALLY LEFT BLANK - - -





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

- 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
- For ambient temperatures below -18°C (0°F) maximum oil pressure 2½ minutes after start is 180 psi
- 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
TIRES	NOSE GEAR	190kts GS
	MAIN GEAR	210kts GS
T/E FLAPS	HALF / FULL	250kts
CANOPY	OPEN	60kts

CG LIMITATIONS

- FORWARD LIMIT is ... 17% MAC
 NOTE
 Maximum thrust field takeoffs are permissible at CG location forward to 16% subject to air density restrictions
- AFT LIMIT is
 - FE (Fighter Escort) config ... 28% MAC
 - 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



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 <i>(including wingtip AIM-9 and wing fuel)</i>	GW ≤ 33,000 lbs	17,000 ft lbs
CARRIER landing with <i>(including wingtip AIM-9 and wing fuel)</i>	GW > 33,000 lbs	14,500 ft lbs
FIELD landing <i>(flared)</i> <i>with sink rate at touchdown up to 500 fpm</i>		26,000 ft lbs

FCLP FIELD CARRIER LANDING PRACTICE

ANGLE OF-ATTACK LIMITATIONS Flaps AUTO

CONFIGURATION	AOA LIMIT [°]	CG [% MAC]
FE (Fighter Escort) <i>Fighter Escort (FE) refers to the clean aircraft with or without pylons, fuselage stores, or wingtip missiles</i>	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%

AURAL WARNING sounds whenever AOA LIMIT is exceeded

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
 - 1. Abrupt lateral stick inputs are PROHIBITED
 - 2. Smooth inputs up to 1/2 stick for rolling maneuvers up to a maximum of 180° bank angle change are authorized
 - 3. Rudder pedal inputs are authorized only as required to maintain balanced flight (Slip indicator ball centered)



WEIGHTS		
ZFW	... 25093 lbs	no racks / no ammo M61A1
ZFW	... 25424 lbs	no racks / with ammo M61A1
ZFW	... 26804 lbs	with racks / with ammo M61A1
MTOW	... 51900 lbs	

MAX CROSSWIND COMPONENT		
CWC DRY / WET	... 30 kts	NORMAL T/O or FLARED LDG
CWC DRY / WET	... 15 kts	SECTION T/O or LDG

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)
6. NO MOVLAS recovery (Manual Operated Visual Landing Aid System)

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

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
45000 and above			MAX

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

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

AIRCRAFT APPROACH CATEGORY

F/A-18C Hornet: CAT D in respect of “aircraft approach category”.

The following table indicates the range of aircraft speeds used as a basis for ICAO procedure design.

CAT KIAS	A	B	C	D	E
V _{AT} <i>see Note 1</i>	< 91	91-120	121-140	141-165	166-210
Range for Initial Approach	90-150	120-180	160-240	185-250	182-251
Reversal and Racetrack Procedure	MAX 110	MAX 140	160-240	185-250	185-251
Range for Final Approach	70-100	85-130	115-160	130-185	154-230
Circling Maneuver	MAX 100	MAX 135	MAX 180	MAX 205	MAX 240
Missed Approach Intermediate Phase	100	130	160	185	230
Missed Approach Final Phase	110	150	240	265	275

Note 1:

V_{AT} speed based on 1.3 times stall speed V_{SO}

or

1.23 times stall speed V_{S1G} in the landing configuration at maximum certificated landing mass.

For precision approach procedures, the dimensions of the aircraft are also a factor for the calculation of the OCH. For Category D_L aircraft, additional OCA/H is provided, when necessary, to take into account the specific dimensions of these aircraft. In this case, the maximum dimensions are shown in the description line of the IAC approach minima.

It is essential that pilots comply with the appropriate speed limits shown in the table above. Where airspace requirements are critical, certain procedures may be restricted to a lower category. Alternatively, the procedure may specify a maximum speed for particular segments without reference to aircraft category.

DIMENSIONS

The approximate dimensions of the aircraft are as follows:

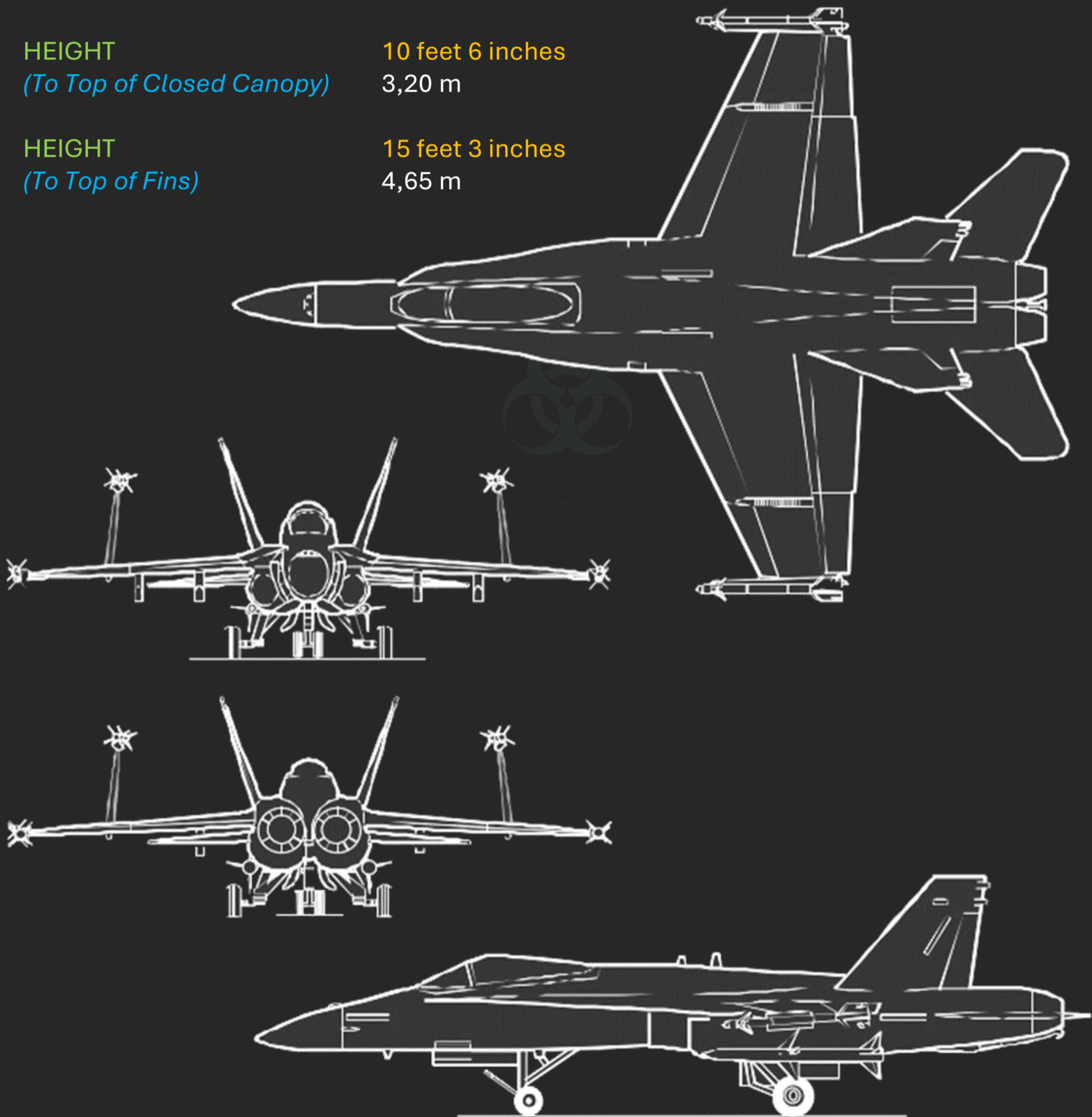
SPAN	WITH MISSILES	WITHOUT MISSILE
(Wing Spread)	40 feet 5 inches	37 feet 6 inches
	12,32 m	11,43 m

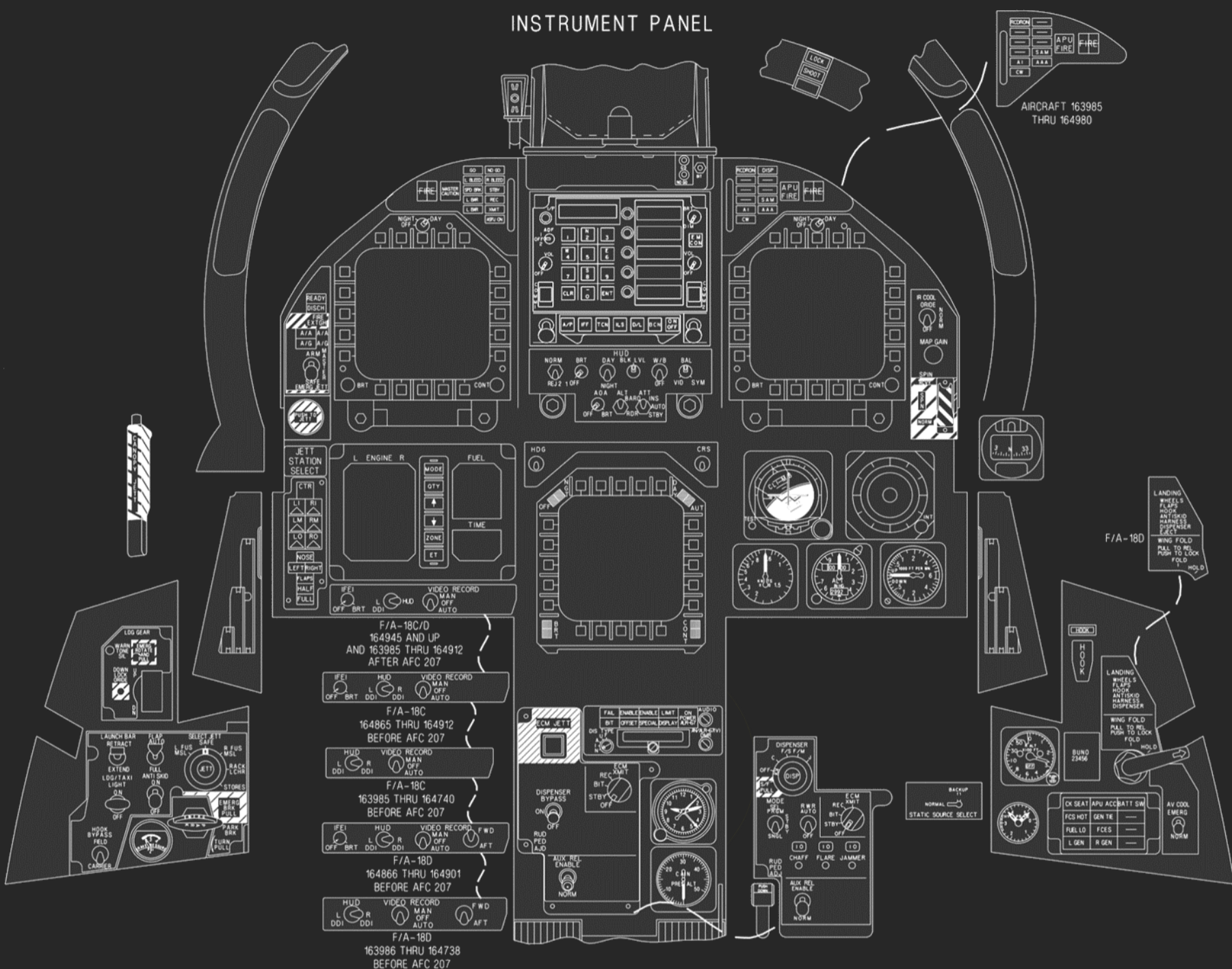
SPAN	27 feet 6 inches
(Wings Folded)	8,38 m

LENGTH	56 feet
	17,07 m

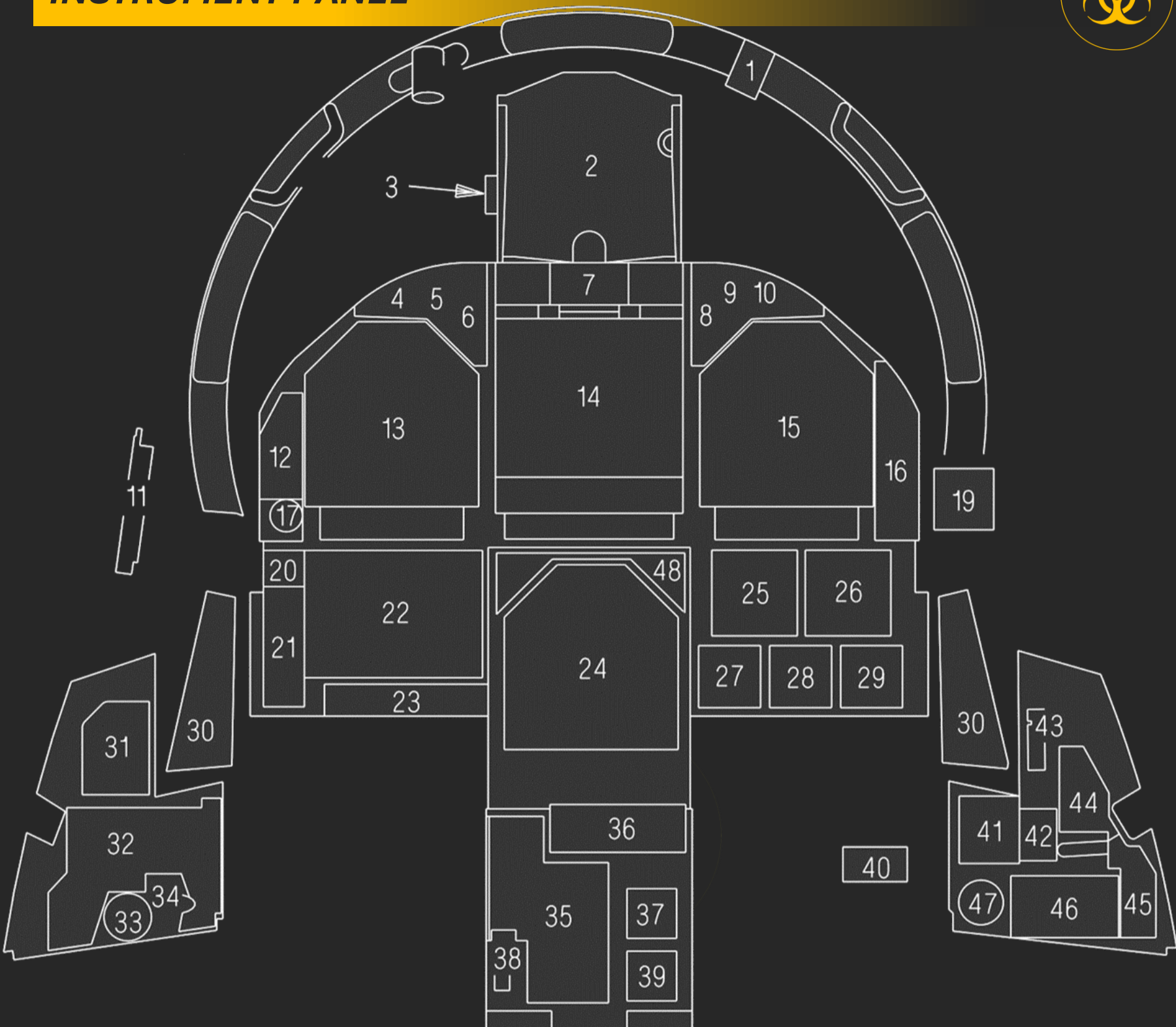
HEIGHT	10 feet 6 inches
(To Top of Closed Canopy)	3,20 m

HEIGHT	15 feet 3 inches
(To Top of Fins)	4,65 m





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

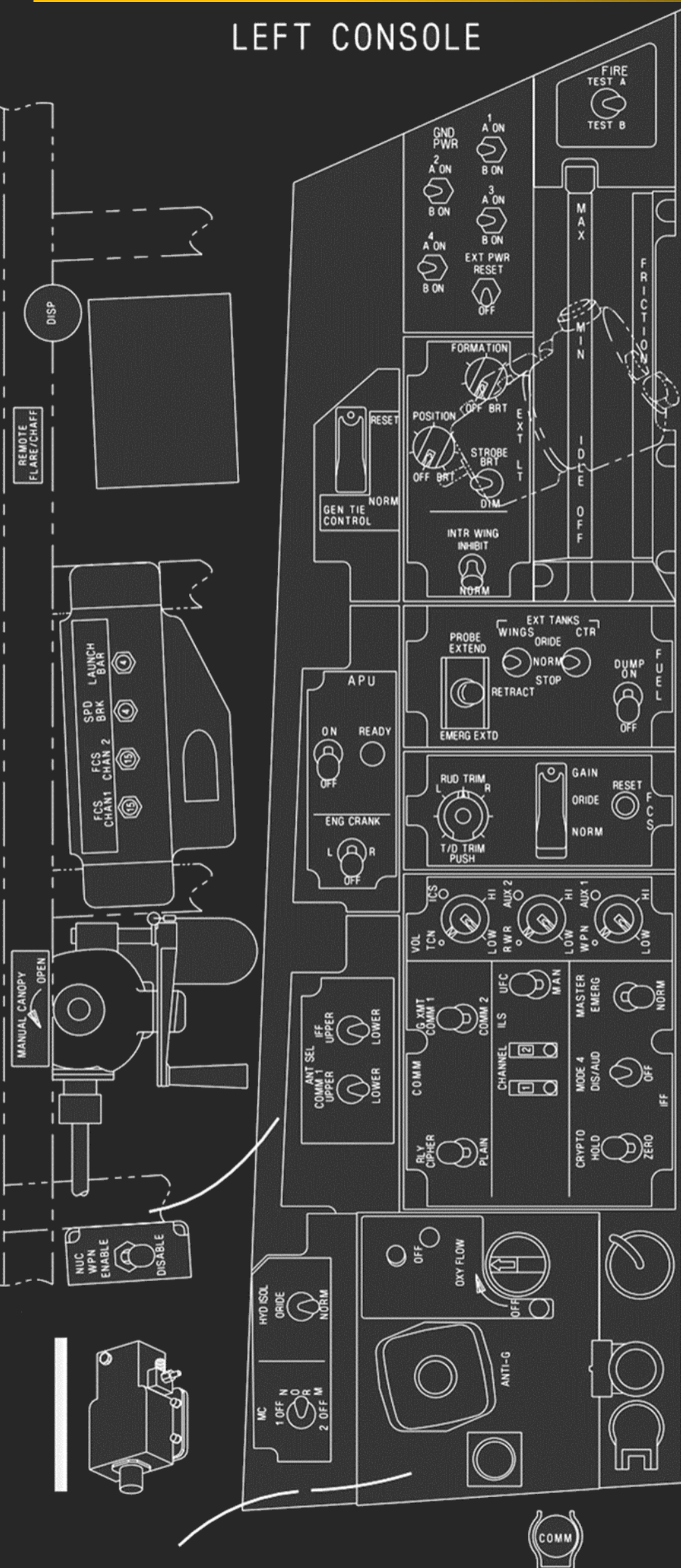


- 25. STANDBY ATTITUDE REFERENCE INDICATOR
- 26. AZIMUTH INDICATOR
- 27. STANDBY AIRSPEED INDICATOR
- 28. STANDBY ALTIMETER
- 29. STANDBY RATE OF CLIMB INDICATOR
- 30. ENVIROMENT CONTROL LUVER
- 31. LANDING GEAR HANDLE AND WARNING TONE SILENCE BUTTON
- 32. SELECT JETTISON BUTTON
- 33. BRAKE ACCUMULATOR PRESSURE GAGE
- 34. EMERGENCY AND PARKING BRAKE HANDLE
- 35. DISPENCER / EMC PANEL
- 36. RWR CONTROL INDICATOR

- 37. CLOCK
- 38. RUDDER PEDAL ADJUST LEVEL
- 39. COCKPIT ALTIMETER
- 40. STATIC SOURCE SELECT
- 41. RADAR ALTIMETER
- 42. AIRCRAFT BUREAU NUMBER
- 43. ARRESTING HOOK HANDLE AND LIGHT
- 44. LANDING CHECKLIST AND WING FOLD SWITCH
- 45. FLIGHT COMPUTER COOL SWITCH
- 46. CAUTION LIGHTS PANEL
- 47. HYD 1 AND HYD 2 PRESSURE INDICATOR
- 48. HEADING AND COURSE SET SWITCHES



LEFT CONSOLE

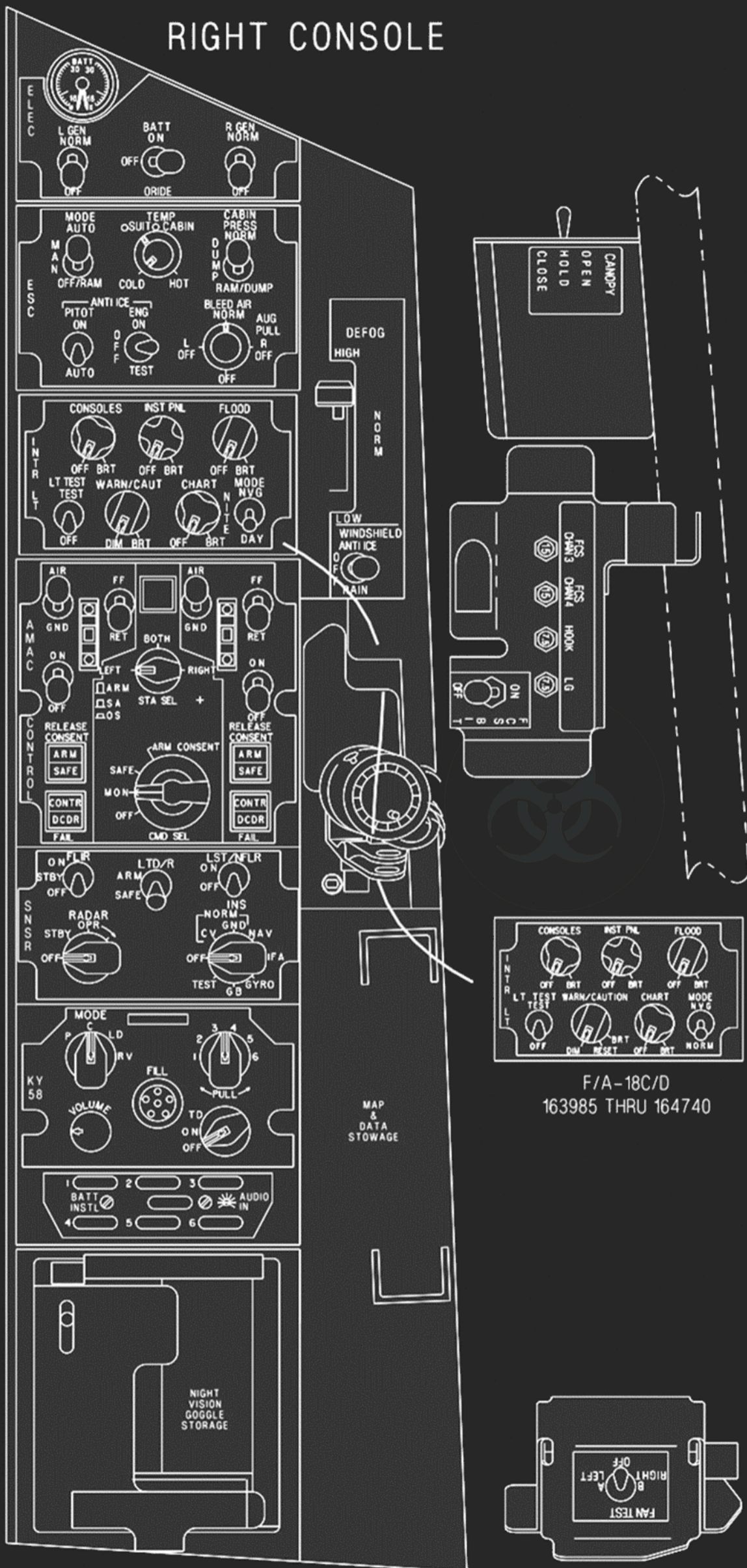


LEFT CONSOLE

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. COMMUNICTATION 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)







CWC =

$\sin(\text{windangle}) \times \text{windvelocity}$

[kts]

CWC =

$(0.2 + \text{windangle} / 100) \times \text{windvelocity}$

[kts]

HWC / TWC =

$\cos(\text{windangle}) \times \text{windvelocity}$

[kts]

$\sin(90 - \text{windangle}) \times \text{windvelocity}$

[kts]

$20 + (90 - \text{windangle}[\%]) \times \text{windvelocity}$

[kts]

HWC / TWC =

$(1.1 - \text{windangle} / 100) \times \text{windvelocity}$

[kts]

WIND CORRECTION ANGLE

WCA =

$\frac{\text{CWC}}{\text{TAS} : 60}$

or

$\frac{\text{CWC}}{\text{NM per min}}$

TAS [kts]										
140	150	170	180	190	210	220	250	300	330	400
2,3	2,5	2,8	3,0	3,1	3,5	3,6	4,2	5,0	5,5	6,7
[NM per min]										

Required ROD =

$\frac{GS}{60} \times \frac{HEIGHT}{DISTANCE}$

[ft / min]

ROD =

$\tan \alpha \times GS \text{ [kts]} \times 6080 / 60$

[fpm]

ROD =

$GS \text{ [kts]} \times 5 + 50$

[fpm]

RATE OF TURN

$R = \frac{60 \times \tan \alpha}{0,055 \times TAS}$

R = RATE OF TURN

[° per sec]

α

= BANK ANGLE

[°]

Rule of life =

$\max R/D \leq \text{indicated ALTITUDE}$

[fpm]

GND mileage =

$1\text{NM per } 40 \text{ kts deceleration in LVL flight}$

[NM]

FUEL DENSITY =

$800 : (1000 + (\text{FUEL TEMP} - 15^\circ\text{C}))$

[kg / ltr]

TAS =

$IAS + \frac{1}{2} (\text{FL} + 39)$

[kts]

Relative humidity =

$100 - (\text{Spread} \times 5)$

[%]

Ceiling =

$\text{Spread} \times 400$

[ft]

SAT =

$(\text{Mach} - 0,5) + \text{TAT}$

[°C]

Leadpoint D =

$\frac{1}{2} \% \text{ of } GS \text{ [kts]}$

[NM]

RULES OF THUMB



Angle of Attack = Pitch – Flight Path Vector [°]

CAS = TOTAL FF to fly CLEAN in HOLDING [kts]

Aquaplaning speed = 9 x $\sqrt{PSI \text{ tire pressure}}$ [kts]

TURNRADIUS (TR)

$\frac{1}{2}$ % of GS [NM]

Bank angle on a DME ARC

TR = $\frac{1}{2}$ % of GS [NM]

[bank°] = atan (TR : (2,11 x DME ARC) [°]
= $\frac{30 \times TR}{DME \text{ ARC}}$

STANDARD RATE TURNS

STD Rate Turns = $\frac{TAS}{10} + 7$ [= turnspeed of 3°/sec] [° bank]
or
= 25° bank, whichever requires lesser bank

CONVERSION hPa / inchHG

1013.2 hPa = 29.92 inchHG
1hPa = 0,0295302 inchHG

CHANGE OF SURFACE WIND (QAN) TO WIND ALOFT (QAO)

The change of surface wind due to height applies up to 3000ft AGL.
Wind will change by roughly 2kts per 300ft height increase and changes by 5° TO THE RIGHT.

TERRAIN	SURFACE WIND TO WIND ALOFT
Over the SEA	15° RIGHT TURN, INCREASE BY 50%
Over flat terrain	30° RIGHT TURN, INCREASE BY 100%
Over normal terrain	45° RIGHT TURN, INCREASE BY 150%

Boundaries of surface wind to the wind aloft:

TERRAIN	BOUNDARY SURFACE WIND VS. WIND ALOFT
Over the SEA	600ft AGL
Over flat terrain	2000ft AGL
Over mountainous terrain	3000ft AGL overhead the peak

NOTE:

QAN MAGNETIC NORTH
QAO TRUE NORTH

TERMS	ACTION(S)
"FIRE TEST"	Pilot is initiating the fire test switch. Expect to see FIRE / APU / BLEED lights with voice, twice
"GOOD WAYPOINT 0"	implies good waypoint 0 and MAGVAR. Used when not using the waypoint 0 loaded on the mu. SHORE OPS ONLY
"CANOPY"	Pilot call before raising or lowering the canopy. Listen for "CLEAR" or "STANDBY" from EWO
"FOUR DOWN"	Pilot is accomplishing the four down portion of NATOPS checks. Hands above the canopy rail if in f(t)
"MOVING"	Pilot informative call that the aircraft is taxiing
"ORDIES"	Both aircrew hands up for weapon arming
"FENCE COMPLETE", "FENCE COMPLETE, EXCEPT __"	Informative that all the aircrew's systems are set according to STAN / BRIEF. Implies ready for taxi. Normally EWO reports first after double checking the EW suite if required
"WINGS"	Pilot call before spreading or folding wings. Listen for "CLEAR" or "STANDBY" from EWO
"SEATS"	call to either SAFE or ARM ejection seats. For both SAFING and ARMING the seats, whoever initiates the call, the other aircrew must report safe or armed first
"GOING FLYING"	Pilot call at briefed MAX ABORT speed on takeoff roll
"CONTINUE, (CAUTION)"	TAKEOFF ROLL CAUTION. EWO call and opinion to continue. ex: "continue, mu load"
"ABORT"	Abort TAKEOFF, DIVE, etc.
"CODES CHECKED"	EWO call that BOAS, BITS, MSP's, and FLIR codes checked
"GOOD UPDATE"	INS is updated
"READY FOR SHUTDOWN"	Informative call from EWO that all electrical equipment is off
"SHUTTING DOWN"	Informative call from pilot that the last motor is being shut down
"COUPLED (WAYPOINT, TACAN SEQUENCE)"	Pilot informative call that the aircraft AUTOPILOT is coupled to what is mentioned. NOTE: also shows on the advisories
"UNCOUPLE (D) (WAYPOINT, TACAN, SEQUENCE)"	Directive to uncouple or informative that the aircraft is uncoupled from the AUTOPILOT

TERMS	ACTION(S)
"YOUR (SENSOR, AVIONICS, MENU, ETC.)"	Directive for other aircrew to operate the specified DISPLAY / SENSOR. Initiating aircrew is relinquishing control ex: "your radar", "your TDC", "your HSI"
"MY (SENSOR, AVIONICS, MENU, ETC.)"	I am operating the specified DISPLAY / SENSOR ex: "my RADAR", "my FLIR", "my HSI"
"CHECK (SENSOR, AVIONICS, MENU, ETC.)"	Imp other aircrew to check what is specified. ex: "check AZ/EL", "check ALE-47 program", "check ALTITUDE"
"SET (SENSOR, AVIONICS, MENU, ETC.) ____"	Directive for other aircrew to set what is specified. ex: "set RADALT 450", "set 35 ALPHA"
"(SENSOR, AVIONICS, MENU, ETC.) SET ____"	Informative to other aircrew. ex: "RADALT set 450", "BINGO set 3.5", "STORES set", "ALTIMETER set 2992", "EW suite set" NOTE: mandatory ICS calls when changing BINGO, RADALT, or ALTIMETER
"CYCLE (WEAPON, AVIONICS, ETC.)"	Directive to cycle off and on what is requested ex: "cycle TACAN"
"GO (RADAR MODE, WEAPON, MASTER MODE, ETC.)"	Directive for other aircrew to select what is requested ex: "go WINDER", "go WACQ", "go AIR TO GROUND"
"GOING (RADAR MODE, WEAPON, MASTER MODE, ETC.)"	Informative that the aircrew is selecting what is stated after a short pause for objections ex: "going WACQ", "going AIR TO GROUND" NOTE: mandatory ICS call before changing MASTER modes



1. FIRST COLUMN	BREVITY WORD
2. SECOND COLUMN	MEANING
3. THIRD COLUMN	OPERATIONS describes the type of operation(s) the brevity word is meant for
AIR-GEN	Air Operations General
AIR-AAO	Air Operations Air to Air
AIR-AGO	Air Operations Air to Ground
AIR-AAR	Air Operations Air to Air Refueling
AIR-MAR	Air Operations Maritime
EW	Electronic Warfare
LAND -	Land Operations

JOINT BREVITY SHORTCUTS				
<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>
<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>O</u>
<u>P</u>	<u>Q</u>	<u>R</u>	<u>S</u>	<u>T</u>
<u>U</u>	<u>V</u>	<u>W</u>	<u>Y</u>	<u>Z</u>

"TACTICAL ASPECT DEFINITION"



A		INDEX
ABORT (ABORT CODE)	Cease ACTION / ATTACK / EVENT / MISSION FAC directs aircrew to abort the attack. This is a mandatory instruction.	AIR-GEN AIR-AAO
ABORTING (ED)	ACTION / ATTACK / EVENT / MISSION has ceased	AIR-GEN AIR-AAO
ACTION	Initiate a briefed attack sequence or manoeuvre	AIR-GEN
ACTIVATE / ACTIVE	Radiate(ing) on electronic equipment, specify type if desired	EW
AIRBORNE ALERT	Combat equipped aircraft are airborne and ready for immediate action	AIR-MAR
ALARM	Indicates the termination of emcon procedures	EW
ALFA CHECK	Confirm/verify position of BULLSEYE or other specified point relative to the friendly aircrafts position. “GN 55 ALFA CHECK - 045/20” i.e. BULLSEYE in use is 20 NM north-east of fighter position	AIR-AAO
ALTERNATE	The attacker will attack the alternate target	AIR-AGO
ALTITUDE	Height of CONTACT reported in hundreds of ft in three digits (especially used for BANDITS / HOSTILES) e.g. “ALTITUDE zero zero five” equals 500 ft	MAR-PIC AIR-AAO
ANAPROP	Conditions for abnormal propagation of electronic emissions	EW
ANCHOR (ED)	1. Involved in a visual fight and unable to leave. 2. Orbit about a specific point; refuelling track flown by tanker	AIR-AAO
ANGELS_____	Height of FRIENDLY AIRCRAFT in thousands of ft from mean sea level (MSL) e.g. “ANGELS one decimal five” equals 1500 ft, e.g. “ANGELS decimal five” equals 500 ft	MAR-PIC
ANYFACE	Friendly GCI / AEW&CS / C2 agency when callsign is not known	MAR-GEN AIR-GEN
ARCTIC_____	Polarisation of signal is _____	EW
ARIZONA	No anti-radiation missile ordnance remaining	AIR-AGO
(__) ARM	(north/south/east/west/lead/trail) CONTACT(s) within a group that manoeuvre outside GROUP criteria	AIR-AAO
ARM (SAFE / HOT)	ORDER / COMMAND to switch select armament to SAFE / HOT	AIR-GEN
ARMED (SAFE / HOT)	CONFIRMATION select armament is switched SAFE / HOT	AIR-GEN

A	continued...	INDEX
AS FRAGGED	Unit or element will be performing exactly as stated by the air tasking order	AIR-GEN AIR-MAR
ASSUME DECK	Carrier prepare deck for possible emergency landing of aircraft as soon as possible	AIR-MAR
ATTACK (ING)	Attack or am commencing attacking run with weapon indicated. Direction/bearing from which the weapon will be coming may be given	MAR-GEN
ATTACK COMPLETE	(A/S) Mandatory call from the attack aircraft to the FAC during type III control indicating completion of ordnance release	AIR-AGO
AUTHENTICATE	To request or provide a response for a coded challenge	AIR-GEN
AUTOCAT	Any communications relay using automatic retransmissions	AIR-GEN
AZIMUTH	A picture label describing two groups separated laterally. Group names will be referenced by cardinal directions (e.g. NORTH GROUP, SOUTH GROUP, EAST GROUP, WEST GROUP)	AIR-GEN
B		
BANDIT	An aircraft identified as enemy, in accordance with theatre identification (ID) criteria. The term DOES NOT necessarily imply direction or authority to engage	AIR-GEN
BANZAI	Execute launch and decide tactics	AIR-AAO
BARCAP	Barrier Combat Air Patrol	AIR-MAR
BASE (NUMBER)	Reference number used to indicate such information as headings, ALTITUDE, fuels, etc.	AIR-GEN
BAY	Carry out deception plan indicated or in accordance with previous orders	EW
BEADWINDOW	Your last transmission disclosed an essential element of friendly information	EW
BEAM (ING) (with sub-cardinal direction)	CONTACT stabilized within 60 and 120 degrees. (see <u>"TACTICAL ASPECT DEFINITION"</u>)	AIR-AAO
BENT	Equipment indicated is inoperative (Cancelled by OKAY)	MAR-GEN AIR-GEN
BERTHA	AEW Search radar equipment	MAR-PIC

B	continued...	INDEX
BIF	Bomb in face. Informative or directive call to indicate dropping a bomb as a defensive action <i>“Blue lead, BIF”</i>	AIR-AGO
BINGO	1. Fuel state needed for recovery 2. Proceed / am proceeding to specified base (field) or carrier	AIR-GEN AIR-MAR
BIRD	Friendly surface to air missile	AIR-MAR
BIRD(S) AFFIRM HOSTILE_____	Missile radar is locked on designated target	AIR-MAR
BIRD(S) NEGATE HOSTILE_____	Information call indicating unit is unable to engage designated target (is used for SAM as well)	AIR-GEN AIR-MAR
BIRD(S) AWAY HOSTILE_____	Missile has been fired on designated target (is used for SAM as well)	AIR-GEN AIR-MAR
BLEMISH	Notification of possible blue-on-blue (fratricide) or blue-on-neutral situation	AIR-GEN
BLIND	Aircraft has lost visual contact with another friendly aircraft or ground position <i>opposite of VISUAL</i>	AIR-GEN
BLOTTER	ECM receiver	EW
BLOW THROUGH	Aircraft will continue straight ahead at the merge and not turn with target(s)	AIR-GEN
BOGEY	Unidentified aircraft	AIR-AAO
BOGEY DOPE	Request target information (BRAA) to the specified target. If a threat is not specified BEARING/RANGE will be given to the closest threat	AIR-AAO

B	continued...	INDEX
BOWWAVE	<p>Long form weather report giving</p> <p>B. Below or Base of cloud in thousands of ft. If below one thousand ft, use hundreds of ft but add the word “hundred”</p> <p>O. Over or Top of cloud level in thousands of ft. If unknown, use the word “unknown”. NOTE: If there is more than one cloud layer, report the base and top of the lower formation, followed by the base and top of progressively higher layers (e.g. two, twelve, seventeen, twenty-five)</p> <p>W. Wind. (8 points, N, NE ,E, SE, S, SW, W, NW) plus the velocity in knots. When wind is missing, omit or use the word “unknown”</p> <p>W. Weather. General description of weather in plain language; such as clear, partly cloudy, cloudy, overcast light, moderate or heavy rain, mist, haze, thunderstorm and distantlighting. Amplification of the weather should be made at the end of the report under “E”</p> <p>A. Amount of clouds in eights</p> <p>V. Visibility in miles. Use a fraction if less than one mile</p> <p>E. Extra phenomena of significance such as turbulence icing, heavy sea or swell and description of front. This is an elaboration of the report which includes anything of interest in plain and concise language</p>	AIR-MAR
BOX	Picture label with groups in square or offset square (see CHAMPAGNE and VIC for group names)	AIR-GEN
BRAA	<p>1. Following formation is in tactical control format providing target bearing, range altitude and aspect relative to the specified friendly aircraft</p> <p>2. Switch to tactical BRAA control format for a specific group/contact</p>	AIR-AAO
BRACKET	Aircraft will manoeuvre to a position on opposing sides, either laterally and/or vertically from target(s)	AIR-AAO
BREAK (direction)	Perform “An immediate maximum performance turn in the direction indicated”	AIR-GEN
BREAK AWAY	Tanker or receiver call indicating that an immediate disconnect and vertical and nose or tail separation between tanker and receiver is required	AIR-AAR
BREAK OFF	Discontinue approach but maintain contact unless otherwise indicated	AIR-MAR
BRIDGE	Pulse width in microseconds	EW
BROKE LOCK	Intentional termination of radar/IR lock-on	AIR-GEN



B	continued...	INDEX
BRUISER	Air Launched Anti Ship Missile	AIR-MAR
BRUSH	Antenna rotation rate in seconds per revolution. (SPR)	EW
BUDDY (LASE / GUIDE)	To have guidance of a weapon from a source other than delivering aircraft	AIR-GEN
BUDDY LOCK	Fighter has radar locked to a known friendly aircraft. Normally a response to a SPIKE or BUDDY SPIKE call	AIR-AAO
BUDDY SPIKE	RWR indication of a friendly AI-radar lock-on “RED 3, BUDDY SPIKED, BULLSEYE 240/15”	AIR-AAO
BUG OUT (DIRECTION)	Separation from that particular engagement/attack/ operations; no intent to reengage/return	AIR-AAO
BUGSY	Unit/entity conducting terrorist or asymmetric warfare activities	AIR-GEN
BULLDOG	Surface/Sub-surface Launched Anti Ship Missile	AIR-MAR
BULLRING	Aircraft patrol zone	AIR-MAR
BULLS EYE	A common reference point Position of an object will be established by bearing (magnetic) and range (NM) from this point	AIR-AAO
BUMP/BUMP-UP	A fly-up to acquire LOS to the target or laser designation	AIR-AGO
BURN	EO/IR illuminator is being used to provide illumination of surface points of interest	AIR-AGO
BUSTER	Fly at maximum continuous speed (MIL POWER)	AIR-GEN
C		
CANDYGRAM	Electronic warfare targeting information is available on a briefed secure net	EW
CANYON	Use electronic jamming on radar frequency indicated or in accordance with previous orders	EW
CANYON AFFIRM	Designated track is being jammed by this units (or unit indicated)	EW
CAP / CAPPING (LOCATION)	1. Establish an orbit at a specified location 2. An orbit at a specified location	AIR-AAO
__CAP TARGET	Used by the AAWC to indicate that a target is primary target for CAP	AIR-MAR
CAPTURED	Aircrew has identified and is able to track a specified A/G target with an onboard sensor	AIR-AGO

C	continued...	INDEX
CAVOK	Cloud and Visibility Okay (International Civil Aviation Organization(ICAO) term meaning no significant clouds below 5,000 ft, visibility at least six miles, no precipitation or storms)	AIR-GEN AIR-MAR
____ CEASED	Subject emitter has stopped radiating	EW
CEASE ENGAGEMENT	In air defence, break the engagement on the target specified and prepare to engage another target. Missiles in flight will continue to intercept	AIR-AAO
CEASE FIRE	Do not open fire/cease firing (missiles in flight continue to intercept)	MAR-GEN
CHAFF	Chaff has been detected or to deploy chaff	AIR-GEN MAR-GEN EW
CHAMPAGNE	A picture label of three distinct groups with two in front and one behind. Group names should be quote NORTH LEAD GROUP/SOUTH LEAD GROUP unquote or quote WEST LEAD GROUP/EAST LEAD GROUP unquote and quote TRAIL GROUP unquote	AIR-GEN
CHARLIE	1. Land aircraft on ship. 2. The expected landing time on a ship 3. (time in minutes) Modifying/delaying the briefed recovery time (e.g. quote CHARLIE TEN unquote)	AIR-MAR
CHATTER	Communications jamming	EW
CHATTERMARK	Commence briefed radio procedures to counter communication jamming	AIR-GEN EW
CHEAPSHOT	Active radar missile data link is supported to high PRF, but not to medium PRF active	AIR-AAO
CHECK (__)	Directive to momentarily monitor (specified items/systems). No response is required if status is normal	AIR-GEN
CHECK CAPTURE	Informative call from FAC to the aircrew that target appears to be no longer tracked by the targeting pod	AIR-AGO
CHECK FOCUS	Informative call from FAC to the aircrew that FLIR image appears to be out of focus	AIR-AGO
CHECK PORT (LEFT) STARBOARD (RIGHT)	Turn (__) degrees left/right and maintain new heading	AIR-GEN
CHICKS	1. Friendly aircraft 2. Friendly interceptor aircraft	AIR-AAO AIR-MAR
CINDER	Off board infra red decoy	EW



C	continued...	INDEX
CLAM	Cease emissions on specified equipment	EW
CLARA (air)	The radar scope is clear of enemy contacts "BLUE 1, CONTACT, BULLSEYE 270/20, BLUE 2, CLARA"	AIR-AAO
CLEAN (air)	No radar contacts on BANDITS, BOGIES or aircraft of interest. No visible battle damage. Aircraft not carrying external stores.	AIR-GEN
CLEARED	Requested action is authorized (no engaged or support roles are assumed)	AIR-GEN
CLEARED HOT	Type 1 and 2 close air support terminal control clearance to release ordnance on this pass. Training range operations: range control officer/range safety officer authorizes ordnance release	AIR-AGO
CLOSING	Decreasing in range or azimuth	AIR-GEN
COLD (air)	a) Start of the CAP leg away from the threat b) Low Attack geometry will result in a pass or roll out behind the target Threat group heading away from fighters (see "TACTICAL ASPECT DEFINITION")	AIR-AAO
COLOUR (system/position)	Request for information on a type (system) at stated location; implies a request for ambiguity resolution	AIR-GEN
COMEBACK (LEFT / RIGHT)	Directive to reverse course	AIR-GEN
COME OFF (direction/ instruction)	1. Regain mutual support or de-conflict flight paths. Implies both VISUAL and TALLY 2. Manoeuvre or execute a specific direction/instruction (e.g. quote COME OFF DRY unquote)	AIR-AAO AIR-AGO
COMMENCING	I have left final approach fix on an instrument approach for landing	AIR-GEN AIR-MAR
COMMIT (TED) (bullseye position)	The intention to conduct an intercept against BOGEY(S)/ BANDIT(S)	AIR-AAO
CONFETTI	Chaff lane or corridor	EW
CONFIDENCE	Confidence indication of intercepted transmission 1. DOUBTFUL 2. POSSIBLE 3. PROBABLE 4. CERTAIN	EW
CONFIRM	Verify the existence of the contact designated	MAR-PIC
CONS / CONNING	THREAT / BOGEY aircraft leaving contrails	AIR-GEN



C	continued...	INDEX
CONTACT (air)	1. Sensor contact at the stated position 2. Acknowledges sighting of a specific reference point 3. Individual radar returns within a quote GROUP or ARM unquote	AIR-GEN AIR-AAO
CONTACT POSITION	Receiver position where the receptacle of the aircraft makes contact with the drogue or boom	AIR-AAR
CONTAINER	Inner group formation with four contacts oriented in a square or offset square	AIR-GEN
CONTINUE	Continue present manoeuvre, does not imply clearance to engage or expend ordnance	AIR-GEN
CONTINUE DRY	Continue present manoeuvre, ordnance release is not authorized	AIR-AGO
CONTINUE PORT / LEFT	Continue turning left at present rate of turn to magnetic heading indicated (3 figures) or continue turning left for number of degrees indicated	AIR-GEN AIR-MAR
CONTINUE STBD / RIGHT	Continue turning right at present rate of turn to magnetic heading indicated (3figures) or continue turning right for the number of degrees indicated	AIR-GEN AIR-MAR
CONTROL	The unit designated as EWC	EW
COUNTDOWN	I am about to open fire within ____ seconds	AIR-MAR
COVER____	1. Keep fighters between force/base and contact designated at distance stated from force/base (e.g. Cover HOSTILE 27 to 30 miles) 2. An order from the AAWC to a MRSAM/LRSAM equipped ship to initiate an engagement on specified track up to but not including the point of firing. This procedure allows a track to be designated to more than one firing unit without multi-engagement of the track 3. Directive/informative to take surface-to-air action or establish an air-to-air posture that will allow engagement of a specified target or threat 4. An order from the ASUWC to an ASM-fitted platform to initiate an engagement on a specific track up to but not including the point of firing	AIR-MAR
CRANK (direction)	An F/A-Pole manoeuvre in a specific direction (RED 1, crank south)	AIR-AAO
CRISS CROSS	A position or track derived from the plotting of DF bearings	EW
CROSSING	When two groups initially separated in azimuth decrease azimuth separation to pass each other	AIR-GEN
CRUISE	Return to cruise speed (after BUSTER or GATE)	AIR-GEN



C	continued...	INDEX
CURVE	Deception signal	EW
CUTOFF	Intercept using cut-off geometry	AIR-AAO
CYCLOPS	Unmanned Aerial Vehicle	AIR-GEN
D		
DANCE	Shift all lines to complan (__) (column codeword / designator)	EW
DART	Aircraft rocket/aerial gunnery target	AIR-GEN
DASH (-)	Aircraft position within a flight. Use if specific callsign is unknown	AIR-GEN
DATA (object/position)	Standby for data link message concerning object at stated location	AIR-GEN
DEADEYE	Laser designator indicating the laser system is inoperative	AIR-AGO
DECK ALERT__	An aircraft alert state expressing the time in minutes required for a specified number and type of aircraft to become airborne after the order to launch has been given	AIR-MAR
DECK CLEAR	Deck now ready to resume launching or landing operations	AIR-MAR
DECK FOUL	Unable to launch or land aircraft (followed by a numeral to indicate minutes anticipated before ready to resume operations)	AIR-MAR
DECLARE	Inquiry by fighter to AEW/GCI or capable aircraft as to the identification of a specified track(s), target(s), or correlated group	AIR-AAO
DECLUTTER	FAC requests the pilot/operator to remove targeting symbology to allow the FAC to see a better picture of the target area	AIR-AGO
DEEP	1. Contact is below layer depth 2. Indicates separation between the nearest and farthest groups in range in a relative formation of three or more groups, used to describe a quote LADDER / VIC / CHAMPAGNE / BOX unquote	MAR-ASW AIR-AAO
DEFENDING (with direction)	Aircraft is in a defensive position and maneuvering with reference to a surface-to-air threat	AIR-GEN
DEFENSIVE	Aircraft is under attack, manoeuvring defensively, and unable to ensure deconfliction or mutual support	AIR-GEN
DELAY	The signal is to be retransmitted as soon as possible as ordered	AIR-MAR



D	continued...	INDEX
DELOUSE (AIR)	Detect, identify and engage (if required) unknown platform trailing friendly platform	AIR-AOO
DELTA (___) (___)	Hold and conserve fuel at ALTITUDE and POSITION indicated	AIR-MAR
DEPLOY	Manoeuvre to briefed positioning	AIR-AAO
DETAILS	Request for a modified 9-line/15-line brief	AIR-AGO
DIAMONDS (with position)	A surface IR event location	AIR-AGO
DISCONNECT	Command by tanker or receiver that BOOM / DROGUE will be disconnected	AIR-AAR
DITCHING	The forced alighting of an aircraft on water	AIR-MAR
DIVERT	Proceed to planned diversion base or specified field or carrier	AIR-GEN AIR-MAR
DOG	Air towed decoy	AIR-GEN
DOLLY	LINK-4A / TADIL C	AIR-GEN
(SYSTEM) DOWN (location/ direction)	Referenced emitter has stopped radiating at the stated location or along the stated bearing. (note: DOWN does not mean system destroyed)	AIR-GEN
DRAG (ING)	Contact stabilized within 120 and 230 degrees. (see “TACTICAL ASPECT DEFINITION”)	AIR-AAO
DROP	1. Stop monitoring of specified emitter/target/contact and resume search responsibilities 2. Remove a specific system or EOB category from search responsibilities	AIR-GEN EW
DROPPING	Fighter has discontinued tracking responsibility. GCI is responsible for further monitoring of the respective target	AIR-AAO
DROP TRACK___	Remove the EMITTER / TARGET from TACTICAL PICTURE / TRACK stores	AIR-GEN
DRY CONTACT	AAR contact during which no fuel is transferred	AIR-AAR
DUCK	Descend and increase speed	AIR-GEN
DUCKBUTT	Aircraft assigned to perform precautionary SAR. Performs secondary role as NAVAID to passing aircraft providing tracking, homing and steering information as well as position and weather reports when required	AIR-MAR
DUFFER	DF equipped unit	EW

E		INDEX
EAGLE NET	The air attack safety net	AIR-MAR
EAGLE	The air safety cell callsign established in ships with a full control capability, during an exercise involving simulated attacks on the fleet, either by carrier or land based aircraft	AIR-MAR
EARLY____	Your wave is early indicated minutes	AIR-GEN
ECHELON (subcardinal direction)	Fill in to a picture label describing groups aligned behind and to the side of the closest group	AIR-GEN
ECHO	Positive SEESAW / EWWS / System M / Mode X reply	AIR-AAO
ELBOW	Aircraft - home on this signal with appropriate homing equipment. Submarine-radiate signal on the 400-500 Kilohertz range	AIR-MAR
ELFIN	LINK 22-A secure nodeless data link which utilizes the NATO Improved Link 11 communications equipment and protocols, conventions and fixed word message formats defined by STANAG 5522	AIR-MAR
EMERGENCY FOUL	Unable to land aircraft within their safe endurance limits, followed by numbers and types of planes needing bases (Other carriers report with EMERGENCY SPACE)	AIR-MAR
EMERGENCY LAUNCH	Carrier(s) addressed-launch all aircraft as quickly as possible	AIR-MAR
EMERGENCY PREP CHARLIE	Carrier(s) addressed-recall and land all aircraft as soon as possible	AIR-MAR
EMERGENCY SCRAMBLE	Carrier(s) addressed-immediately launch all available fighter aircraft as CAP. If all available aircraft are not required, numerals/type may be added	AIR-MAR
EMERGENCY SPACE	I am able to land aircraft in addition to own, followed by numbers and types	AIR-MAR
EMPTY	No emitters of interest detected	EW
ENGAGE	A fire control order used to direct or authorize units and/or weapons systems to fire on a designated target	AIR-GEN
ENGAGED	Inter-flight call from a fighter manoeuvring in the visual arena to establish deconfliction responsibilities	AIR-AAO
ESTIMATE	Provide a quick estimate of the HEIGHT /DEPTH / RANGE / SIZE of designated contact or I estimate that HEIGHT / DEPTH / RANGE / SIZE of designated contact is ____	AIR-GEN
EXECUTE (air)	Carry out briefed action	AIR-GEN



E	continued...	INDEX
EXTEND (direction)	Short term manoeuvre to gain energy, distance or separation normally with the intent of re-engaging	AIR-AAO
EXPECT HOLLOW	Informative call from the aircrew to the Full Motion Video(FMV) operator that a condition will likely exist momentarily that limits FMV reception (manoeuvres, terrain, etc.)	AIR-AGO
EYEBALL	1. Fighter with primary visual identification responsibility 2. EO / IR / NVD acquisition of an aircraft. Normally followed by () number of aircraft observed	AIR-AAO
F		
FADED	Radar contact is lost on unknown/non friendly contact	AIR-GEN
FAKER	A friendly track acting as a HOSTILE for exercise purposes	AIR-AAO
FALCON	The air safety contact cell callsign established in ships that do not have a full control capability, during an exercise involving simulated attacks on the fleet either by carrier or land based aircraft	AIR-MAR
FAMISHED	Have you any instructions or information for me	AIR-AAO
FAN__TACK__	Left and right hand edges of jammed sector are__and__	EW
FAST	Target ground speed is between 600-900kts./1.0-1.5 M	AIR-GEN
FATHER	TACAN	AIR-GEN
FEELER	Shipborne fire control radar	EW
FEET WET/DRY	Flying over water/land	AIR-GEN
FENCE IN/OUT	Set cockpit switches as appropriate prior to entering/exiting the combat area	AIR-GEN
FERRET	Airborne electronic reconnaissance activity or aircraft	EW
FILLY	In AIR/SUB co-operation, an ESM homing method (submarine as transmitting unit)	EW
FLANK (ING)	Contact stabilized within 30 and 60 degrees aspect. (see <u>“TACTICAL ASPECT DEFINITION”</u>)	AIR-AAO
FLARES	Deploy flares	AIR-GEN
FLASH ()	Temporarily activate specified system for ID purpose. (e.g. IFF / AFTERBURNER / FLARE / CHAFF / etc.)	AIR-GEN

F	continued...	INDEX
FLASHLIGHT	Directive term for helicopter to turn on IR floodlight (pointed at ground to aid visual acquisition by escort aircraft)	AIR-AGO
FLIGHT LEVEL	ICAO term giving height in hundreds of ft (e.g. FLIGHT LEVEL 250 equals 25.000 ft MSL). The term “FL” is used in conjunction with ATC units like AWACS, TANKER etc...	AIR-GEN
FLOAT	Expand the formation laterally within visual limits to maintain a radar contact or prepare for a defensive response	AIR-AAO
FLOW (direction)	Fly stated heading	AIR-AAO
FORCE CAP	Combat Air Patrol over friendly forces	AIR-MAR
FORD	Assume intercept GUARD / WATCH on band or guard indicated	EW
FOX (number)	Simulated/actual launch of air to air weapons. ONE Semi active Radar-guided missile. AIM 7 TWO Infrared - guided missile. AIM 9 THREE Active radar-guided missile. AIM 120	AIR-GEN
FOX MIKE	VHF / FM radio	AIR-GEN
FOX THREE / TWO (X) SHIP	Valid missile shot against (x) separate targets (assumes one missile per target)	AIR-AAO
FREAK	Frequency in MHertz	EW
FREDDIE	Callsign for ACU	AIR-MAR
FREEZE	Execute order to designated helicopter(s) to remain hovering in present position (cancelled only by MELT)	AIR-MAR
FREEZE BURN	Freeze the EO/IR illuminator position in the present location	AIR-AGO
FUEL STATE	A helicopter’s fuel quantity, expressed in hours and minutes before having to make a controlled emergency landing	AIR-MAR
FURBALL	Non-friendly aircraft and friendly aircraft are in close proximity to each other. Can be response to a DECLARE - request	AIR-AAO

G		INDEX
GADABOUT____	The upper limit of height sanctuary for fighters in the MEZ. (“GADABOUT 25” means the upper limit of the height sanctuary is 25,000 ft; “GADABOUT 16 to 24” means the height sanctuary is between 16,000 to 24,000 ft)	AIR-GEN
GADGET	Radar or emitter equipment (type of equipment may be indicated by a letter as listed in OPORD or APP-1)	EW
GATE	Fly at maximum speed (afterburner)	AIR-GEN
GENIE	Emitter is employing electronic protection measures	AIR-GEN
GIMBALS WITH BRAA	Call indicating radar target is approaching azimuth or elevation limits, implies a request to flight lead to modify intercept geometry, or direct PRESS/SPLIT/DROP	AIR-AAO
GINGERBREAD	Voice imitative deception is suspected on this net	EW
____GO____ (either / or)	(directive) preceded/ followed by a frequency or radio channel. To be acknowledged by all flight members.	AIR-GEN
GO ACTIVE	Initiate Have Quick communications	AIR-GEN
GO BROADCAST	Quest or directive call to switch to broadcast control	AIR-AAO
GO CLEAR	Use unencrypted voice communications	AIR-GEN
GO TACTICAL	Switch to tactical control	AIR-AAO
GOODWILL	The boundary of an active MEZ	AIR-GEN
GOPHER	A tracked CONTACT that has not conformed to safe passage routing, airspeed or altitude procedures. Will only be used when safe passage or minimum risk routing procedures are part of an ID matrix	AIR-GEN
GORILLA	Large force of indeterminate numbers and formation of unknown/non friendly aircraft	AIR-AAO
GO SECURE	Activate encrypted voice communications	AIR-GEN
GRANDSLAM	All aircraft of a designated track (or against which the mission was tasked) are shot down	AIR-MAR
GREEN (direction)	Direction of no known enemy threats (BLUE 3, GREEN North)	AIR-AAO
GREYHOUND	Friendly ground attack cruise missile (e.g. TLAM)	AIR-GEN
GRIDIRON	Jamming signal appears on my PPI scope or jamming signal prevents determination of range and bearing____% of time	EW

G	continued...	INDEX
GROUP	Any number of contacts within 3 NM in azimuth or range of each other.	AIR-AAO
GROWLER	LF beacon.	EW
GUINEA PIG	Radar simulator.	EW
GUNS	An air-to-air or air-to-surface gunshot.	AIR-GEN
H		
HANDSHAKE	1. Link 16 Air Control NPG initiation between air control unit and controlled aircraft	AIR-GEN
	2. Usable downlink to FMV	AIR-AGO
HANDYMAN	Helicopter in the ASUW support role. (NO WEAPONS)	AIR-MAR
HARD HOSE	A hose condition that is likely to damage receiver’s probe	AIR-AAR
HARD PORT / LEFT STBD / RIGHT	High-G, energy sustaining turn	AIR-GEN
HAYRAKE MEDIUM HIGH ULTRA	Homing signals in radio frequency band indicated	EW
HEAD ON	BOGEY / BANDIT which is closing a reporting aircraft from ahead. (see “TACTICAL ASPECT DEFINITION”)	AIR-AAO
HEADS DOWN	Leader or wingman is head down in the cockpit and wingman or leader is responsible for clearing	AIR-GEN
HEADS UP	Alert of an activity of interest. (Normally followed by amplifying information)	AIR-GEN AIR-AAO
HEAVY	A group known to contain three or more individual entities	AIR-AAO
HECKLERS	Night strike group	AIR-MAR
HIGH	Target altitude is above 40.000’ MSL	AIR-GEN AIR-AAO
HIGHDRINK	Helicopter in flight refueling from a surface vessel	AIR-MAR
HIT (S)	1. (A/A) momentary radar return(s) in search. (Indicates approximate altitude information from fighter) 2. (A/G) Weapons impact within lethal distance	AIR-AAO
HOLD DOWN	Key transmitter for DF steer	AIR-GEN



I		INDEX
HUSKY	Active radar missile is at high PRF active	AIR-AAO
ID	Intercept and identify the target or ID accomplished, followed by type of aircraft	AIR-AAO
IDENT A-F	Perform relevant identification action	AIR-MAR
I GO (___)	I am leaving my patrol mission in _____ minutes	AIR-MAR
IDLE	Surface vehicles are stationary	AIR-GEN
IN (DIRECTION)	1. Indicating a turn towards a known THREAT Opposite of OUT 2. Indicating entering terminal phase of an air-to-ground attack Opposite of OFF	AIR-AGO AIR-AAO
INDIA	Mode IV	AIR-GEN
INDICATE (ING)	A command to set (or have set) a particular speed. May be in knots indicated or in Mach, depending upon the controlled aircraft expressed as follows; knots indicated in three digits, i.e. three five zero (350); Mach - two or three digits with the word point separated whole numbers from tenths and hundreds, i.e. one point one three (1.13) or point nine three (.93)	AIR-MAR
IN HOT / DRY	Aircrew has begun final attack run and intends to expend ordnance (HOT) or to conduct a simulated attack without expending ordnance (DRY)	AIR-AGO
IN PLACE (direction)	Perform indicated manoeuvre simultaneously	AIR-AAO
INSTANT	The signal is to be retransmitted as soon as possible	AIR-MAR
INTERROGATE	Interrogate the designated CONTACT / TRACK or RAID on the IFF-mode indicated	AIR-MAR
INTERVENE TO (___)	Immediately divert a track of interest to: 1. an airport 2. a specified direction	AIR-AAO
IN THE DARK	Contact is in a known radar blind zone	AIR-AAO
INTRUDER	An individual, unit or weapon system in or near an operational or exercise area, which represents the threat of intelligence gathering or disruptive activity	AIR-GEN AIR-MAR
INVESTIGATE	Verify specified element(s) of ROE, positive identification(PID), collateral damage estimate (CDE) and/or coordination of forces on the referenced target/track	AIR-GEN

I	continued...	INDEX
I STAY (____)	I am remaining with you on patrol/mission____ hours	AIR-MAR
J		
JACKAL	Surveillance network participating group (NPG) of LINK-16 / TADIL J	AIR-GEN
JAMMER	Non-friendly jammer	EW
JELLO	Inverse synthetic aperture radar	AIR-GEN AIR-MAR
JINK	Perform an unpredictable manoeuvre to negate a gun tracking solution	AIR-GEN
JINKING	Unpredictable manoeuvres, i.e. to negate a weapons tracking solution	AIR-GEN
JOE	AEW IFF equipment	AIR-MAR
JOINING	Aircraft joining or rejoining the formation	AIR-GEN
JOKER (air)	Fuel state above BINGO at which SEPARATION / BUGOUT / EVENT TERMINATION should begin	AIR-GEN
JUDY ANGLE	I have a contact and am tracking over intercept by angle lock-on; continue to give frequent range data	AIR-GEN AIR-MAR
JUDY	AD fighter has radar/ visual contact and is taking control of the intercept within a close control mission	AIR-AAO
K		
KEY	Communication signal	EW
KH	GOBLIN detected by hydrophone effect	EW
KICK	(Degrees RH / LH or HEADING) – a defensive check turn in a specified direction	AIR-GEN
KICK__TACK__	Shift line number (line identifier) to frequency column (column identifier) as indicated	EW
KILL	A fighter call to indicate the targeted threat aircraft has been successfully engaged	AIR-AAO
KNOCK IT OFF	Safety directive to cease AIR COMBAT EXERCISE MANOEUVRES / ATTACKS / ACTIVITIES	AIR-GEN



L		INDEX
LADDER	Picture label with three or more groups on the same azimuth but separated by range. Group names should be LEAD GROUP, MIDDLE GROUP, TRAIL GROUP.	AIR-GEN
LAME DUCK	An aircraft in a minor state of emergency resulting from ordnance or radio failure, oxygen leak, or other cause	AIR-GEN AIR-MAR
LASER ON	Start laser designation	AIR-AGO
LASING	Speaker is firing the laser	AIR-AGO
LAST	Command and control (C2) term that provides the last contact altitude from a high fidelity source (fighter, radar, etc.)	AIR-AAO
LAZY	Equipment indicated is at standby	AIR-GEN
LEAD TRAIL	Inner group, formation of two or more contacts separated in range	AIR-AAO
LEAKER	Airborne threat has passed through a defensive layer	AIR-AAO
LEAN (direction)	OFFSET / OFFSETTING in the specified direction to avoid a threat	AIR-AAO
LEVEL	Contact designated is at your ANGELS	AIR-AAO
LIGHTBULB	Turn all position lights to bright	AIR-GEN
LIGHTS ON/OFF	Turn ON / OFF exterior lights	AIR-GEN
LINE ABREAST	Two contacts within a group SIDE-BY-SIDE	AIR-GEN
LINER	Fly at speed giving maximum cruising range	AIR-GEN
LITTLE JOE	AEW IFF transponder	AIR-MAR
LOCKED (____)	Final radar/IR lock-on 1. With group label – radar lock-on, sort is not assumed 2. With position – radar lock-on, correct targeting is not assumed	AIR-AAO
LONG RIFLE report launch location in bullseye format and weapons track direction	Friendly, long range air to surface missile launch (e.g. AGM-130, SLAM-ER)	AIR-AGO
LOOKING	Aircrew has not got the ground object, reference point, target in sight opposite of CONTACT	AIR-GEN

L	continued...	INDEX
LOOSE CONTROL	A form of aircraft mission control in which the aircraft commander selects his own speed, altitude, heading and appropriate tactics required to accomplish the assigned task	AIR-GEN AIR-MAR
LOST CONTACT	1. Previous contact is lost, provide target information 2. Sensor information on a friendly aircraft is lost	AIR-MAR AIR-GEN
LOST LOCK	Loss of radar/IR lock-on. GCI is to provide target information	AIR-GEN
LOST____	Reporting unit doesn't hold contact anymore for which it has reporting responsibility	AIR-AAO
LOW	Target altitude is between 500 and 1000' MSD	AIR-GEN AIR-AAO
M		
MACK NO	I have reached maximum speed and am NOT CLOSING my target	AIR-MAR
MACK YES	I have reached maximum speed and am CLOSING my target	AIR-MAR
MADDOG	Visual AIM-120 launch	AIR-AAO
MAGNUM	(H)ARM launch	AIR-AGO
MANOEUVRE AZIMUTH RANGE ALTITUDE	Specified group is maneuvering in AZIMUTH RANGE and/or ALTITUDE	AIR-AAO
MAPPING	Multi-function radar in an A/G mode	AIR-GEN
MARK	Record the location of a POINT / OBJECT of interest	AIR-AGO
MARKING	Friendly aircraft is leaving contrails	AIR-AAO
MARKPOINT	Datalink non-designated geographic point of interest	AIR-GEN
MATCH SPARKLE	Overlay IR point	AIR-AGO
MEATBALL	Pilot has landing aid source light image	AIR-MAR
MEDIUM	Target ALTITUDE between 1000 ft MSD and 40.000 ft MSL	AIR-GEN
MELD	Adjust radar scan volume to cover the same target group	AIR-AAO
MELT	Informs helicopters that their movements are no longer restricted by FREEZE order	AIR-MAR

M	continued...	INDEX
MERGED (air)	1. Radar returns/tracks have come together 2. Friendlies and targets have arrived in the same visual arena	AIR-AAO
MICKEY	Referencing the Have Quick Time of the Day (TOD) signal	AIR-GEN
MIDDLEMAN	Communication relay which requires receipt and subsequent manual retransmission	AIR-MAR
MIDNIGHT	Informative C2 functions are no longer available opposite of SUNRISE	AIR-AAO
MIKEDUFF	MFDF equipment or unit fitted with MFDF equipment	EW
MILLER TIME (A-S)	Completion of air-ground ordnance delivery. Generally used by the last striker in conjunction with a pre-coordinated egress plan	AIR-AGO
MINIMIZE	Radio frequency is becoming saturated, degraded or jammed and briefer transmissions must follow (see ZIPLIP)	AIR-GEN
MONITOR	Maintain radar awareness on or assume responsibility for a specified group	AIR-AAO
MOTHER	Parent ship	AIR-MAR
MOVE BURN (bearing)	Move EO/IR illumination to specified direction	AIR-GEN
MOVER (S)	Unidentified surface vehicle(s) in motion	AIR-AGO
MUD Type with DIRECTION RANGE if able	RWR ground threat displayed with no launch indication	AIR-GEN
MUD SPIKED Type with DIRECTION RANGE if able	RWR ground threat displayed with launch indication	AIR-GEN
MULTIPLE	There are a number of stations on the same frequency	EW
MUSIC	Electronic jamming	EW

N		INDEX
NAILS	RWR indication of AI-radar in search	AIR-AAO
NAKED	No RWR indications on the RWR scope	AIR-GEN
NEAR - FAR	Fighter term describing a radar-apparent description of two or more contacts within a group separated in range	AIR-AAO
NEGATIVE CONTACT	No sensor information is available on a friendly aircraft	AIR-GEN
NEGATIVE LASER	Aircraft has not acquired laser energy	AIR-AGO
NEGATIVE TROUT	Transmitted to control when the racket to which a Duffer has been assigned is detected but bearing cannot be obtained	EW
NEW PICTURE	Used by controller or aircrew when tactical picture has changed. Supersedes all previous calls and re-establishes picture for all players	AIR-AAO
NO FACTOR	Not a threat	AIR-AAO
NO JOY (air)	Aircrew does not have visual contact with the TARGET / BANDIT / BOGEY / LANDMARK or ENEMY position	AIR-GEN
NORMAL	Target ground speed is between 200 and 600 kts	AIR-GEN
NOTCH (ING) (direction)	Directive / Descriptive that an aircraft is manoeuvring defensively to position the bandit on the aircraft's wingline "WHITE 2, NOTCHING south"	AIR-AAO

O		INDEX
OBSERVATION POSITION	Initial formation position of a receiver joining a tanker which is echelon right for all receivers	AIR-AAR
OCCUPIED	Ground equipment present at tasked target location. Opposite of VACANT	AIR-AGO
___O’CLOCK___	In clock code section and at range indicated (heading of own aircraft or unit being twelve o’clock)	AIR-GEN AIR-MAR
OFF (direction)	Attack is terminated and manoeuvring to the indicated direction	AIR-AGO
OFF LOAD	Tanker fuel assigned for off-load to receiver(s) during a AAR mission	AIR-AAR
OFF SET (direction)	Manoeuvre in a specific direction: “BLACK is OFFSETTING north – WHITE is OFFSETTING south”, or “WHITE OFFSET south – BLACK is OFFSETTING north”	AIR-AAO
ON / OFF STATION	I have REACHED / LEFT my assigned station	AIR-GEN
OPENING	Increasing in range or azimuth	AIR-AAO
ORBIT(ING)	Hold on current or indicated position	AIR-GEN
OUT (direction)	A turn to a cold aspect relative to a target/threat. Opposite of IN	AIR-GEN
OUTHOUSE	My position in true bearing/miles from my reference point (assigned station)	AIR-MAR
OUTLAW	Contact has met point of origin criteria for ROE	AIR-GEN
P		
PACKAGE	Geographically isolated collection of groups/contacts/formations	AIR-AAO
PACMAN	Fighters have found the end of the threat formation and are converting; given in range and bearing from the FAOR BULLSEYE “BLUE 4 is PACMAN 290/5”	AIR-AAO
PADLOCKED	Aircrew cannot take his eyes off another aircraft without losing tally or visual	AIR-AAO
PAINT(S)	Interrogated group/radar contact that is responding with any of the specified IFF modes and correct codes established for the ID criteria	AIR-AAO
PANCAKE	Land or I wish to land (reason may be specified, e.g. PANCAKE AMMO, PANCAKE FUEL)	AIR-GEN AIR-MAR
PARROT	A military IFF transponder	AIR-GEN

P	continued...	INDEX
PARROT INDIA	A military IFF interrogator	AIR-GEN
PASSING	Descriptive term for when two groups initially separated in range, decrease range separation and pass each other	AIR-AAO
PEEPSHOW	Perform non-traditional ISR on the referenced TARGET / TRACK	AIR-GEN
PELICAN	Long range patrol maritime aircraft capable of both search and attack	AIR-MAR
PENTHOUSE	The range safety cell callsign established in the target towing ship and responsible for the safety conduct of all live/dummy attacks against a towed target during an exercise involving simulated attacks on the fleet, either by carrier or landbased aircraft	AIR-MAR
PHANTOM	A position or track derived from the triangulation of Spikes originating from HOSTILE jamming	EW
PICTURE	Request for/Informative to provide tactical situation status pertinent to mission. (picture CLARA north)	AIR-AAO
PIGEONS	Bearing and distance to base (or specified destination) Bearing is to be suffixed. TRUE or MAGNETIC	AIR-GEN
PIGS note: report launch location in bullseye format and weapon direction	 Friendly glide weapon (i.e., JSOW)	AIR-AGO
PILLOW	Pulse Repetition Interval in microseconds	EW
PINCE/PINCER	Threat manoeuvring for a bracket attack	AIR-AAO
PINNACLE	An emission believed to originate from a platform assumed FRIENDLY	EW
PITBULL	The Active radar Missile is at MPRF active	AIR-AAO
PITCH	Broad pulse repetition rate in thousands of units, e.g. 1.5 is equivalent to 1,500	EW
PITCH / PITCHBACK (left/right)	Fighter or flight to execute a nose-high heading reversal	AIR-AAO
PLANE GUARD	Combatant assigned to steam in wake of carrier conducting flight operations	AIR-MAR
PLAYBOY	Tactical air coordinator - Airborne	AIR-MAR



P	continued...	INDEX
PLAYMATE	Friendly ship, submarine or aircraft with which I am co-operating	AIR-AAO
PLAYTIME	Amount of time aircraft can remain on station, given in hours plus minutes (e.g. ONE PLUS THIRTY equals one hour and thirty minutes)	AIR-GEN
___POGO___	Switch to communications channel number preceding POGO. If unable to establish communications, switch to channel number following POGO. If no channel number is following POGO return to this channel	AIR-GEN
POINT	Datalink sensor/point track of interest	AIR-GEN
POLAR BEAR (direction)	Friendly aircraft has VISUAL/CONTACT on the Friendly package and is joining	AIR-GEN
POND	Carry out jamming plan indicated or in accordance with previous orders	EW
POPCORN	Combat search and rescue aircraft departing the landing zone. Usually followed by number of recovered personnel (e.g. POPCORN PLUS 2)	AIR-GEN
POPEYE	In clouds or area of reduced visibility	AIR-GEN
POP	1. Starting climb for Air to Ground attack. 2. Directive for maximum performance climb out of low altitude structure	AIR-AGO
POP-UP	Informative call about a contact or group that has suddenly appeared inside decision range (DR)	AIR-AAO
POSIT	Friendly aircraft current position from a fixed reference point (i.e. CAP datum or BULLSEYE)	AIR-GEN
POSITIVE CONTROL	The controlling unit is responsible for taking actions for collision avoidance, such as ordering the necessary alterations to HEADING, SPEED and ALTITUDE to maintain separation criteria	AIR-GEN AIR-MAR
POST ATTACK	Desired direction after completion of INTERCEPT / ENGAGEMENT	AIR-GEN
POSTHOLE	Rapid descending spiral	AIR-AAO
POWER	Set the throttle(s) to an appropriate setting. In an A/A engagement, this may mean to reduce the throttles to idle to reduce the IR signature	AIR-GEN
PRE-CONTACT POSITION	Stabilized position behind the AAR equipment, to be achieved before being cleared to contact position	AIR-AAR
PREP CHARLIE	Carrier(s) addressed land aircraft when ready (RELAY TO AIRCRAFT WHEN READY)	AIR-MAR

P	continued...	INDEX
PRESS	Requested action is approved and will be supported	AIR-AAO
PRINT BANDIT FRIENDLY	Valid non co-operative target recognition (NCTR) reply	AIR-AAO
PULSE	ILLUMINATE / ILLUMINATING an enemy position with flashing energy	AIR-AGO
PUMP	The fighters are manoeuvring up to 180 degrees away from the threat with the intention of recommitting, depending on the tactical situation	AIR-AAO
PUPPIES	Emission control plan (EMCON plan) is modified as follows	EW
PURE	Pure pursuit is being used or directive to go pure pursuit	AIR-AAO
PUSH FREQ CHANNEL TAD	Switch to designated frequency, channel or TAD. Without response to the speaker	AIR-GEN
PUSHING	Departing designated point	AIR-GEN
PUSHING GROUP DESCRIPTION	Group(s) have turned cold and will continue to be monitored	AIR-AAO
Q		
QUAIL	Enemy air/surface launched cruise missile	AIR-AGO
R		
RACKET	Intercepted electronic emission which has been assigned to a number of the trackblock	EW
RANGE	A picture label describing two groups separated in distance along the same line of bearing. Group names will be LEAD GROUP/ TRAIL GROUP	AIR-AAO
RAYGUN position heading altitude	1. Indicates a radar lock-on to unknown aircraft that is presumed to be a threat 2. A request for a BUDDY SPIKE reply from friendly aircraft meeting these parameters	AIR-AAO
READINESS	A two digit group denoting time (in minutes) required to get airborne	AIR-MAR
READY CAP	Fighter aircraft in condition of STANDBY	AIR-MAR
RECCO	Aircraft search units	AIR-MAR

R	continued...	INDEX
REDHEAD	Pulsating red light	AIR-MAR
RED LIGHT	Time when search and rescue (SAR) aircraft is no longer SAR capable	AIR-GEN
REFERENCE (direction)	Assume stated heading	AIR-AAO
RENEGADE	A civil platform that is assessed as operation in such a manner as to raise suspicion that it might be used as a weapon to perpetrate a terrorist attack	AIR-GEN
RENT	Report of characteristics of an intercepted signal	EW
REPORTED (information)	Information provided is derived from an off-board source	EW
RESCAP	Rescue Combat Air Patrol. Provides protection to rescue vehicles from HOSTILE forces during all phases of SAR	AIR-GEN
RESET	Proceed to pre-briefed position or area of operations	AIR-GEN
RESTAKE — - —	Request for FAC to drive a new STAKE at the target centroid reported with direction of travel and distance (units/ yardstick) from the old stake. Initiated by aircrew	AIR-AGO
RESUME	Resume last FORMATION / STATION / MISSION ordered	AIR-GEN
RESUMED	Emission resumed and is identified as previous intercept	EW
RETROGADE	WITHDRAW / WITHDRAWING in response to a threat, continue mission as able, may RESET / RESUME if threat is negated	AIR-GEN
REVERT	Resume search on the previously assigned intercept guard (watch)	EW
RIDER	A BOGEY that is complying with ACO/safe passage procedures	AIR-AAO
RIFLE	AGM-65 MAVERICK launch	AIR-AGO
RIM CONTACT	A contact which strikes the rim or periphery of the drogue	AIR-AAR
RIPPLE	Two or more munitions released or fired in close succession	AIR-AGO
ROCKIES	In AIR/SUB co-operation, the aircraft approaches the contact area with homing assistance from the co- operating submarine	AIR-MAR
ROGER	Indicates aircrew understands the radio transmission; does not indicate compliance or reaction	AIR-GEN



R	continued...	INDEX
ROLEX ____	Time change in minutes from a given datum. The term “PLUS” will indicate later time and the term “MINUS” will indicate an earlier time “MISSION 4TK148, ROLEX PLUS 2” means two minutes have been added to the datum times	AIR-GEN
ROPE	Illumination of an aircraft with an IR pointer	AIR-AGO
ROTATOR	MTI returns that signifies a high probability of a rotating antenna	AIR-GEN
ROVER	Platform is video downlink transmit / receive capable	AIR-GEN
S		
SADDLED	Informative from wingman/element indicating the return to briefed formation position	AIR-GEN
SAFE / HOT	Select armament (SAFE/HOT) or armament is SAFE/HOT	AIR-GEN
SALVO	Am about to open fire. friendly unit(s) keep clear or get clear of indicated contact, HOSTILE or area (Direction of withdrawal may be indicated)	AIR-MAR
SAM (direction)	Visual acquisition of a SAM or SAM launch “BLUE 3, SAM, right 4 o’clock”	AIR-GEN
SAME	Aircrew has the identical information as was just stated	AIR-GEN
SANDWICHED	A situation where an aircraft or element finds themselves between opposing aircraft or elements	AIR-AAO
SAUNTER	Fly at best endurance speed	AIR-AAO
SCAN	Search sector indicated and report any contacts	AIR-GEN
SCRAM (direction)	Called friendly asset is in immediate danger. Withdraw clear in the direction indicated for survival. No further mission support from the friendly asset is expected	AIR-GEN
SCRAMBLE	Take off as quickly as possible. (Usually followed by the appropriate instructions)	AIR-GEN
SCRUB	MTI return that signifies a low slow airborne target	EW
SCUD	Any threat TBM	AIR-GEN
SEARCHER	Unit having intercept equipment without DF capability. All references to duffers are applicable to searchers within their capabilities	EW
SECOND FOX THREE	Simulated or actual launch of multiple missiles on the same target	AIR-AAO
SEPARATE	Leaving a specific engagement; may or may not re-enter	AIR-AAO



S	continued...	INDEX
SEPARATION	Request for separation between two groups. Response will include the follow-on group's SEPARATION, ALTITUDE and FILL-INS	AIR-GEN
SET____	<p>1. A command to set (or have set) a particular speed. May be in knots/indicated or in Mach, depending upon the controlled aircraft expressed as follows: knots indicated in three digits, i.e. THREE FIVE ZERO (350); Mach two or three digits with the word POINT separating whole numbers from tenths and hundreds i.e. ONE POINT ONE THREE (1.13) or POINT NINE THREE (.93)</p> <p>2. Informative call from the aircrew to FMV operator indicating no longer slewing the targeting pod and waiting for further updates</p>	<p>AIR-GEN</p> <p>AIR-AGO</p>
SHACKLE	One weave; a single crossing of flight paths; manoeuvre to adjust or regain formation parameters	AIR-GEN
SHADOW (ING) (air)	Follow indicated target	AIR-MAR
SHAKE OFF	Take avoiding action against aircraft	AIR-MAR
SHIFT (direction)	Shift laser/IR/radar/device energy	AIR-AGO
SHINING	Fighter is radar locked to a BOGEY - discriminator such as heading, BULLSEYE or ANGELS may be necessary	AIR-AAO
SHOOTER	Aircraft designated to employ ordnance	AIR-AAO
SHOPPING	An aircraft request to FAC/C2 platform for a target	AIR-AGO
SHORE	The signal is to be retransmitted on operational point to point circuits as soon as possible after landing. (Source APP-1)	AIR-MAR
SHORT SKATE	Informative or directive call to execute launch-and-leave tactics and to be out no later than minimum abort range (MAR) / decision range (DR)	AIR-AAO
SHOTGUN	Pre-briefed weapons state	AIR-AAO
SIDE-SIDE	Fighter term describing a radar-apparent description of two or more contacts within a group separated in azimuth	AIR-AAO



S	continued...	INDEX
SILENT	1. (time) System will be unavailable for time indicated 2. Datalink is, or should be placed, in receive only 3. Broadcast station is not transmitting. May also be used as an order and must be followed by a frequency or station designator. If possible it should be followed by an estimated time of return to the air	EW
SINGER (type/ direction)	RWR indication of SAM launch	AIR-AAO
SINGLE	One aircraft	AIR-GEN
SKATE	Informative or directive call to execute launch-and-leave tactics and to be out no later than desired out range (DOR) / minimum out range (MOR)	AIR-AAO
SKINNY	Current survivor coordinates	AIR-GEN
SKIP IT	Veto of fighter commit, usually followed with further directions	AIR-AAO
SKOSH	Aircraft is OUT OF / OR unable to employ active radar missiles	AIR-AAO
SKYROCKET	Am about to fire AA shells to burst at HOSTILE's estimated ALTITUDE and direction to indicate his approach	AIR-MAR
SLAM____	A submarine in the process of missile launch has been detected. The position of the launch is to be given immediately after SLAM	AIR-MAR
SLAMEYE____	A visual bearing of the missile, missile vapor track, or missile exhaust. The bearing of the launch from the reporting unit and the position of the reporting unit are given immediately after SLAMEYE	AIR-MAR
SLAPSHOT (type / bearing)	Employ a range unknown HARM against a specified threat at the specified bearing	AIR-AGO
SLICE / SLICEBACK	Perform a high-G descending turn in the direction stated usually 180-degree turn	AIR-AAO
SLIDE	To/from HVAA to continue present mission while flowing from station in response to perceived threat, implies intent to RESET	AIR-GEN
SLINGSHOT	Launch by catapult	AIR-MAR
SLIP	1. The attacker will attack the target at the alternate TOT 2. Time delay to individual flight/element event	AIR-AGO AIR-GEN
SLOPE	Pulse repetition rate in pulses per second	EW
SLOW	Target ground speed is below 200 kts	AIR-GEN

S	continued...	INDEX
SMACK	Clearance to employ ordnance/fires on surface target coordinates. ROE, PID, CDE, coordination of forces and commander's guidance requirements on the referenced target/track have been satisfied and coordinate accuracy is sufficient for GPS weapon employment	AIR-AGO
SMASH	Turn ON / OFF anti-collision lights	AIR-GEN
SMOKE	Smoke marker used to mark a position or datum	AIR-MAR
SNAKE	Oscillate an IR pointer about a target	AIR-AGO
SNAP	1. Fighter request for immediate BRAA call (with appropriate fill-ins) to the group described. Indicated fighter intent to INTERCEPT / JOIN	AIR-AAO
	2. (heading) Urgent directive call to turn to a heading	AIR-MAR
SNAPLOCK (BRAA)	Fighter has obtained a radar lock inside prebriefed threat range	AIR-AAO
SNEAKER	An intelligence gathering vessel	EW
SNIFF (type)	Passive sensor indication of a radar emitter	AIR-GEN
SNIPER	Employ a range known HARM against a specified threat at the specified location	AIR-AGO
SNOOZE	Initiation of EMCON procedures	AIR-GEN EW
SNOW	Sweep jamming	EW
SOFT	The probe has not fully engaged in the drogue	AIR-AAR
SOLO	Aircraft proceed on independent operations	AIR-MAR
SORT	Assign responsibility within a group; criteria can be met VISUALLY, electronically (RADAR) or on basis of DATALINK systems	AIR-AAO
SORTED	Sort responsibilities within Group have been met	AIR-AAO
SOUR	1. Equipment indicated is not operating efficiently opposite of SWEET 2. (mode type) Invalid/no responses to an administrative IFF/SIF check 3. (link name) (e.g. TIMBER SOUR) indicates there are potential problems with net entry and initiates premission link troubleshooting	AIR-GEN



S	continued...	INDEX
SPADES	An interrogated group/radar contact which lacks the Air Tasking Order (ATO) established (or equivalent) IFF modes and codes required for the ID criteria	AIR-AAO
SPARKLE	1. Target marking by infrared pointer 2. Target marking by gunship or airborne forward air controller using incendiary rounds 3. Platform is IR point capable	AIR-AGO
SPIKED (direction)	RWR indication of a HOSTILE AI radar lock-on “RED 4, SPIKED, right 2 o’clock”	AIR-GEN
SPIN	Execute a prebriefed timing/ spacing manoeuvre	AIR-GEN
SPITTER (direction)	An aircraft that has departed from the engagement or is departing the engaged fighters targeting responsibility	AIR-AAO
SPLASH (ED) (air)	HOSTILE aircraft shot down. Weapons impact (A/G) (A/A)	AIR-GEN
SPLIT	Request to engage a threat visual will not be maintained requires flight lead acknowledgement (AIR-TO-AIR)	AIR-AAO
SPLITTING	Contact is dividing	AIR-AAO
SPOKE	Bearing of a single jamming transmission is__ degrees T	EW
SPOKED	The receiver has damaged the drogue	AIR-AAR
SPOOFER	A contact employing electronic or tactical deception measures	EW
SPOOFING	Voice deception is being employed	AIR-GEN
SPOT	1. Acquisition of laser designation 2. Platform is laser spot track (LST) capable	AIR-AGO
SPOTTED	RWR indication of a HOSTILE search radar	AIR-GEN
SQUAWK (ING)	Operate IFF as indicated or IFF is operating as indicated (e.g. squawk three code zero zero and ident)	AIR-GEN
SQUAWKING (mode)	Bogey is responding with an IFF mode	AIR-GEN
SQUAWK CHARLIE	Turn IFF, mode CHARLIE on for altitude read out	AIR-GEN
SQUAWK ECHO	Operate (operating) I-band transponder in ECHO Enhanced mode	AIR-GEN
SQUAWK FOUR	Turn mode 4 switch on	AIR-GEN
SQUAWK IDENT	Activate IFF transponder I/P switch	AIR-GEN
SQUAWK LOW	Turn IFF master control to the low sensitivity position	AIR-GEN

S	continued...	INDEX
SQUAWK MAYDAY	Turn IFF master control to emergency	AIR-GEN
SQUAWK MIKE	Place IFF master control to MIC. Make short radio transmission	AIR-GEN
SQUAWK NORMAL	Turn IFF master control to NORMAL	AIR-GEN
SQUAWK STANDBY	Turn IFF master control to STANDBY	AIR-GEN
STACK	Two or more contacts within group criteria with an altitude separation in relation to each other	AIR-AAO
STAKE	The nominated starting point for a talk on which is near the target	AIR-AGO
STATE CHICKEN	I am at a fuel state requiring recovery, tanker service or diversion to an airfield	AIR-MAR
STATE LAMB	I do not have enough fuel for an intercept plus reserve for carrier recovery	AIR-MAR
STATE TIGER	I have sufficient fuel to complete my mission as assigned	AIR-MAR
STATE TIGER SLOW	I have sufficient fuel to complete a subsonic interception and return to base	AIR-MAR
STATUS	1. Request for an individual’s tactical situation 2. (group) Request for a full positional update in digital BULLSEYE format on the specific group	AIR-GEN
STEADY	Stop oscillation of IR pointer	AIR-GEN
STEER___	Set magnetic heading indicated to reach me (or___)	AIR-MAR
STERN	Intercept using STERN geometry	AIR-AAO
STINGER	Three-ship inner group formation with two lead contacts line abreast and a single contact in trail	AIR-AAO
STOP	1. Stop IR illumination of a target 2. (BURN) Directive call to stop IR/EO illumination of a target	AIR-AGO
STRANGER	An unknown contact not associated with action in progress BEARING, RANGE and ALTITUDE relative to you	AIR-GEN
STRANGLE	Switch off equipment indicated	EW
STRANGLE SQUAWK FOUR	Turn mode 4 switch off. Continue squawking other modes as appropriate	AIR-MAR

S	continued...	INDEX
STREAM	Dispensing ASMD decoys: BRAVO Barrier chaff CHARLIE Confusion chaff DELTA Distraction chaff FOXTROT Floating decoy HOTEL Helicopter chaff INDIA Infrared SIERRA Seduction chaff	EW
STRIPPED	An AC separated from its element formation	AIR-GEN
STROBE	Radar indications of noise jamming	EW
SUCAP	Surveillance Combat Air Patrol	AIR-MAR
SUGAR	Surface to air missile (SAM) state report	AIR-MAR
SUNRISE	C2 functions are available opposite of MIDNIGHT	AIR-AAO
SUNSHINE	(A/S) Illumination of target is being conducted with artificial illumination	AIR-AGO
SUPERDUFF	SHFDF equipment or unit fitted with SHFDF equipment	EW
SUPPORTING	Speaking unit or element is assuming a supporting role, is in a position to influence the outcome, assumes deconfliction responsibility	AIR-GEN
SWEET	1. Equipment indicated is operating efficiently Opposite of SOUR 2. (mode type) Valid response to an administrative IFF/SIF check request 3. (link name) (e.g. TIMBER SWEET) confirms receipt of datalink information	AIR-GEN
SWEPT with subcardinals	Inner group formation with the trailer displaced approximately 45 degrees behind the leader	AIR-GEN
SWITCH	Cease general searching and shift to the frequency of the specified racket, whether or not the racket is within the DUFFER's intercept search responsibility	EW
SWITCH (ED)	Indicates an attacker is changing from one aircraft to another	AIR-AAO
SWITCH FIELD OF VIEW	Switch between wide (field of view) FOV or narrow FOV	AIR-AGO
SWITCH POLARITY	Request from the FMV operator to ask the aircrew to switch the FLIR polarity	AIR-AGO
SWITCH SENSOR	Request from the FMV operator to ask the aircrew to switch to CCD (TV) mode or FLIR (IR) mode	AIR-AGO



T		INDEX
___SYSTEM___ TRACKING	Enemy air defence system is maintaining situational awareness on friendly	AIR-GEN
TAG (system location)	Response to an emitter ambiguity resolution request (COLOUR)	AIR-GEN
TAKE (ING)___ WITH___	Engage/am engaging target (indicated) with weapon (indicated)	AIR-MAR
TALLY	SIGHTING of a TARGET, BANDIT, BOGEY, LANDMARK or ENEMY position opposite of NO JOY	AIR-GEN
TARCAP	Target Area Combat Air Patrol	AIR-MAR
TARGET	1. Assignment of targeting responsibilities 2. ROE, PID, coordination of forces and commander’s guidance requirements on the referenced target/track have been satisfied. Target/track correlation and CDE must be accomplished prior to employing ordnance/fires	AIR-GEN
TARGETED (-)	Group responsibility has been met	AIR-AAO
TEN SECONDS	Directive to terminal controller to standby for Laser on call in approximately ten seconds	AIR-AGO
TERMINATE	1. Cease local engagement without affecting the overall exercise 2. Stop laser illumination of a target	AIR-GEN
THREAT	Untargeted BANDIT / BOGEY with prebriefed RANGE / ASPECT of a friendly	AIR-AAO
THROTTLES	Reduction in power to decrease IR signature	AIR-AAO
THUNDER	One minute prior to A/S weapons impact	AIR-AGO
TIED	Positive radar contact with element/aircraft	AIR-GEN
TIED ON	Number two or other formation aircraft has established contact on leader and will maintain appropriate position	AIR-GEN
TIGER	Enough fuel and ordnance to accept a commit	AIR-AAO
TIMBER	LINK 16 network	AIR-GEN
TIMBER CHANNEL	Stacked net within a Link 16 network	AIR-MAR
TIMECHECK	Check/change IFF code	AIR-GEN
TOGGLE	Execute a briefed change of an avionic setting	AIR-GEN

T	continued...	INDEX
TOMCAT	A surface picket or picket group which is responsible for early identification of friendly aircraft returning and for acting as reference point for such aircraft when they proceed through the AAW area	AIR-MAR
TOY	HARM targeting system (HTS) pod	AIR-AAO
TRACKING	1. Stabilized gun solution 2. Continuous illumination of a target 3. Group/contact direction of flight/movement	AIR-GEN
TRACKING ___SPEED___	By my evaluation, contact is steering TRUE COURSE and at SPEED indicated	AIR-AAO
TRACK NUMBER (number)	Datalink information file	AIR-GEN
TRACTORS	Towing aircraft	AIR-MAR
TRASHED	Missile has been defeated	AIR-AAO
TRAVEL	Change radar frequency	EW
TREMBLE	Modulation/rate of conical scan in Hertz	EW
TRESPASS (position)	Flight is entering surface to air threat ring of a specific system at the stated location	AIR-MAR
TROUT	Take a DF bearing on transmission indicated	EW
TUCKER	Main gun armament	AIR-MAR
TUMBLEWEED	Limited situation awareness; NO JOY; BLIND; a request for information	AIR-GEN
U		
ULTRADUFF	UHFDF equipment or unit fitted with UHFDF receiver	EW
UNABLE	Cannot comply as requested or directed	AIR-GEN
UNIFORM	UHF/AM radio	AIR-GEN
UNIT OF MEASURE / YARD STICK	The suggested length is from the centre of the crosshairs to the outer edge of a horizontal leg. The screen size can although be utilized (i.e. SLEW right ½ screen). Traditional methods for defining this may also be used	AIR-AGO



V		INDEX
VACANT	Ground equipment not present at tasked target location. Opposite of OCCUPIED	AIR-AGO
VALLEY	Interfere with threat communications frequency indicated or in accordance with previous orders. May be modified by JULIETT to indicate jamming or SIERRA to indicate spoofing. With proword AM VALLEY indicates activity is taking place.	EW
VAMPIRE	HOSTILE anti-ship guided missile	AIR-MAR
VAT"B" (see also bowwave)	Short form weather report giving V ... VISIBILITY in miles A ... Amount of CLOUDS in eighths T ... Height of CLOUD TOP in thousands of ft B ... Height of CLOUD BASE in thousands of ft	AIR-MAR
VECTOR	Alter heading to magnetic heading indicated. (Use of true headings to be established before operation commences)	AIR-GEN
VECTOR LEFT / RIGHT	Alter course to left/right of present course	AIR-AAO
VERY FAST	Target ground speed is greater than 900 kts/1.5M	AIR-GEN
VERY LOW	Target altitude less than 500 ft MSD	AIR-GEN
VIC	Picture label with three groups with the single closest in range and two groups, azimuth split, in trail. Group names should be LEAD GROUP, NORTH TRAIL GROUP, SOUTH TRAIL GROUP, EAST TRAIL GROUP and WEST TRAIL GROUP.	AIR-AAO
VICTOR	VHF/AM radio	AIR-GEN
VICTORDUFF	VHFDF equipment or unit fitted with VHFDF receiver	EW
VISUAL	Sighting of a friendly aircraft ground position; opposite of BLIND	AIR-GEN
VOICE	The signal is to be retransmitted as soon as the aircraft is in UHF/VHF contact with its shore base	AIR-MAR
VOLCANO	HOSTILE anti-ship guided missile signal	EW

W		INDEX
WALL	Picture label with three or more groups primarily split in azimuth. Group names should be NORTH GROUP MIDDLE GROUP SOUTH GROUP WEST GROUP and EAST GROUP	AIR-AAO
WALTZ	The unit(s) indicated commence parallel keying on current circuit(s) and ordered circuit(s). (To be used with DANCE or KICK for ordering antijam countermeasure two)	EW
WATCHDOG	A surface picket whose main task is AAW	AIR-MAR
WATCHER	Helicopter sub-control unit	AIR-MAR
WAVE OFF	Do not land. Further approach dangerous. Clear ship	AIR-MAR
WEAPONS _ _ _ _ _	I have # _ _ active FOX 3 # _ _ semi-active FOX 1 # _ _ IR missiles FOX 2 gun ammunitions (PLUS / MINUS / ZERO) GUNS and CHAFF and/or FLARES CHAFF/FLARE PLUS GUNS FITTED and SUFFICIENT ammunition for a gun attack. MINUS GUNS FITTED but NOT SUFFICIENT ammunition for a gun attack ZERO NO GUNS fitted	AIR-GEN
WEAVE	Continuous crossing of flight paths.	AIR-GEN
WEDGE	Three ship inner group formation with a single contact closest in range and two trail contacts line abreast.	AIR-GEN
WEIGHTED (cardinal direction)	Multiple group formation (WALL / LADDER / VIC / CHAMPAGNE) that is offset in one direction	AIR-AAO
WHAT LUCK	Request for results of assigned mission or task	AIR-GEN

W	continued...	INDEX															
WHAT STATE	<p>Request for amount of FUEL and MISSILES remaining. Response to WHAT STATE is given as follows:</p> <p>(1st number) # of active RADAR MISSILES remaining (2nd number) # of SEMI-ACTIVE MISSILES remaining (3rd number) # of IR MISSILES remaining (4th detail) “MINUS” = NO GUN / not sufficient ammunition for a gun attack (5th number) Thousands of pounds of fuel (given to one decimal point), or playtime</p> <p>Example response to WHAT STATE: “BLUE TWO IS 3-1-2 “MINUS” BY 7 POINT 5” is equivalent to</p> <table><tr><td>3</td><td>AIM-120</td><td>FOX 3</td></tr><tr><td>1</td><td>AIM-7</td><td>FOX 1</td></tr><tr><td>2</td><td>AIM-9</td><td>FOX 2</td></tr><tr><td>MINUS</td><td>NO AMMUNITION</td><td>GUNS</td></tr><tr><td>7.5</td><td>7,500lbs of FUEL remaining</td><td>FUEL</td></tr></table> <p>OXYGEN are reported only when specifically requested or critical</p>	3	AIM-120	FOX 3	1	AIM-7	FOX 1	2	AIM-9	FOX 2	MINUS	NO AMMUNITION	GUNS	7.5	7,500lbs of FUEL remaining	FUEL	AIR-GEN AIR-MAR
3	AIM-120	FOX 3															
1	AIM-7	FOX 1															
2	AIM-9	FOX 2															
MINUS	NO AMMUNITION	GUNS															
7.5	7,500lbs of FUEL remaining	FUEL															
WHAT WEAPONS	Report number of semi-active and passive homing missiles/gun ammunition remaining (See WEAPONS for methodology)	AIR-MAR															
WHAT’S UP	Is anything the matter	AIR-MAR															
WIDE	Separation between the farthest group in azimuth in a relative formation of three or more groups, used to describe a WALL / VIC / CHAMPAGNE / BOX	AIR-AAO															
WILCO	Will comply with received instructions	AIR-GEN															
WINCHESTER	Aircraft is out of ordnance	AIR-GEN															
WOODPECKER	Close In Weapon System (CIWS)	AIR-MAR															
WOOFER	Off board active radar decoy	EW															
WORDS	Directive or interrogative regarding further information or directives pertinent to mission	AIR-GEN															
WORKING	<p>1. SEAD aircraft is gathering EOB on a signal of interest. Generally followed by SIGNAL TYPE, BEARING and RANGE if able</p> <p>2. A/A aircraft executing EID on a specific aircraft group to obtain identification necessary for BVR employment (air)</p>	AIR-GEN															

Y		INDEX
YARDSTICK	Directive to use A/A TACAN for ranging TCN FREQ set up between two aircraft. The separation is always 63 and must be on the same mode and band. E.g.: TCN#1 20 Y-channel MODE A/A TCN#2 83 Y-channel MODE A/A	AIR-GEN
Z		
ZAP	Request for datalink information	AIR-GEN
ZERO POSITION	References position for navigational systems of tactical fighter aircraft	AIR-MAR
ZIPLIP	Limit transmissions to critical information only (see MINIMIZE)	AIR-GEN
ZIPPO	Alerts units that a missile attack is imminent or in progress. Suffix letters/numbers indicated the type of threat and reactions required.	AIR-MAR
ZIPPO LOOSE	Cancels ZIPPO TIGHT	AIR-MAR
ZIPPO TIGHT	Inhibits all reactions to threats. ZIPPO's should not be called	AIR-MAR
ZOOM (in / out)	Use the zoom feature to examine target detail	AIR-AGO



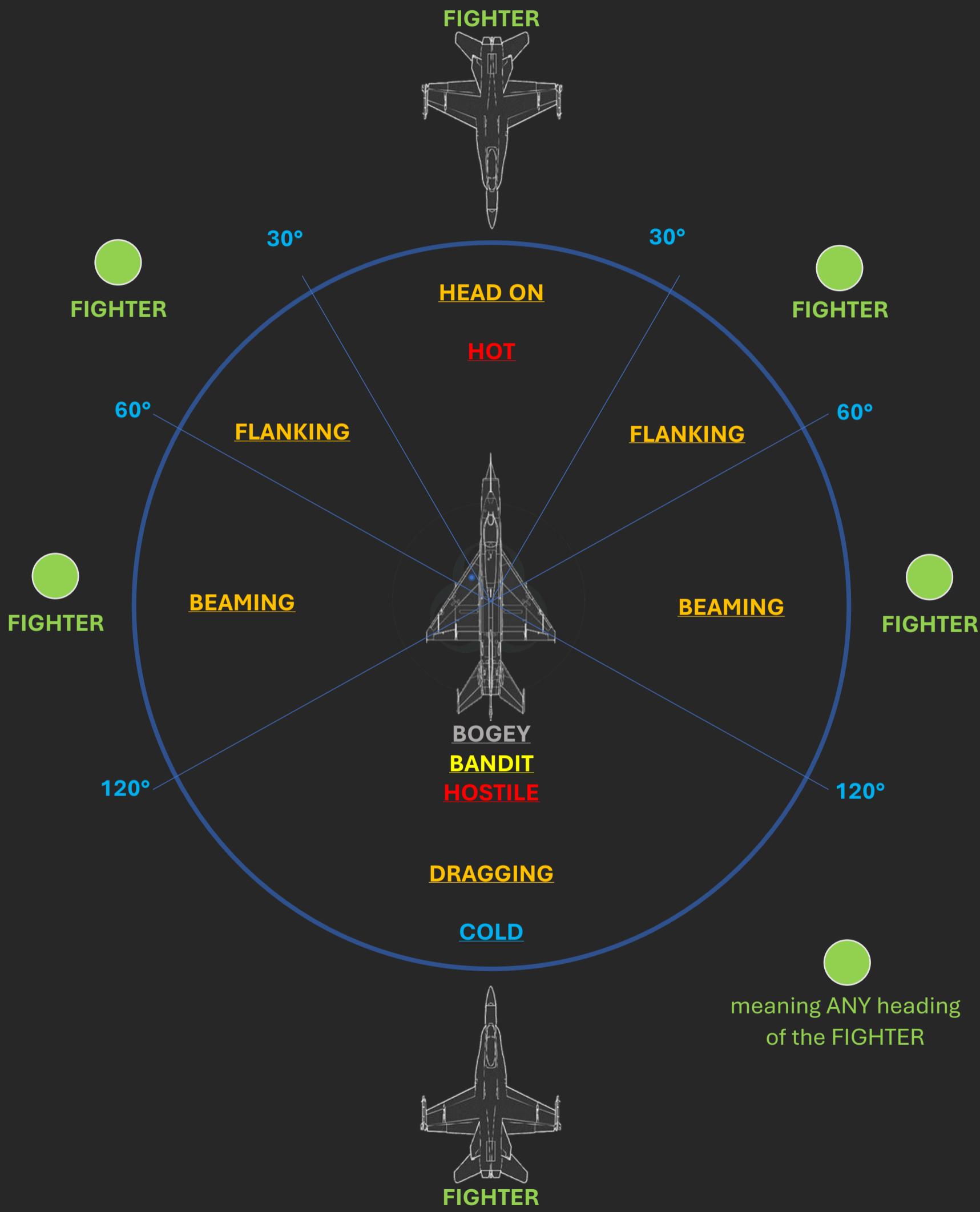
EMISSION CONTROL PUSHBUTTON

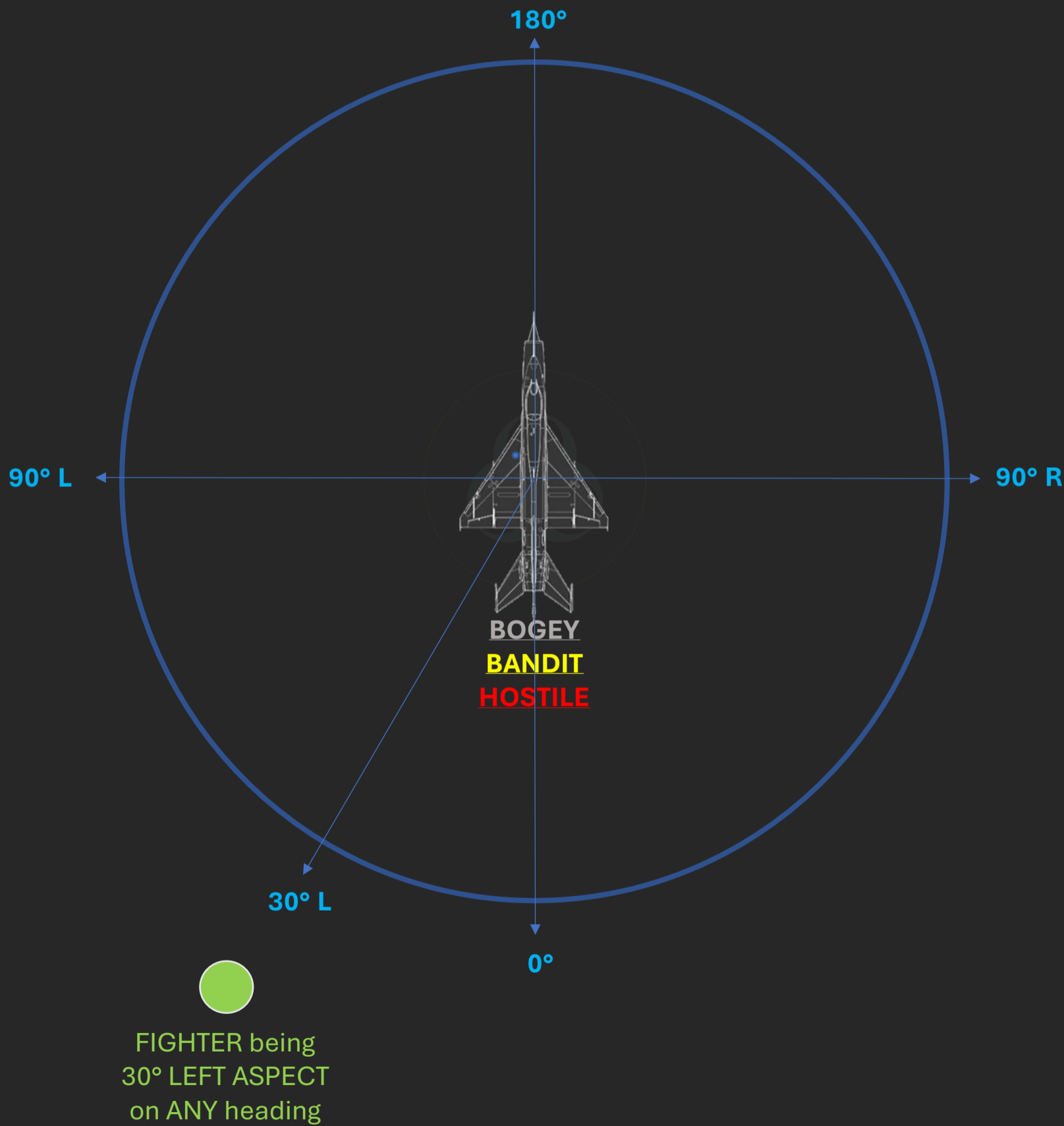
This pushbutton is labeled EMCON. Pushing the button inhibits

- IFF
- TACAN
- RADAR
- RADAR BEACON
- RADAR ALTIMETER
- two-way data link, and
- WALLEYE

from transmitting.

The letters E, M, C, O, and N are displayed in a vertical column in the five option windows when EMCON is selected. Pushing the button again permits the transmitters to radiate.







ABBREVIATIONS SHORTCUT				
„ <u>UNDEFINED</u> “				
<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>
<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>O</u>
<u>P</u>	<u>Q</u>	<u>R</u>	<u>S</u>	<u>T</u>
<u>U</u>	<u>V</u>	<u>W</u>	<u>X</u>	<u>Y</u>
<u>Z</u>				



UNDEFINED	
.. C	Center (preceded by runway designation number)
.. L	Left (preceded by RWY designation number to identify a parallel runway)
.. R	Right (preceded by runway designation number to identify a parallel runway)
... M / ... m	Meters (preceded by figures)
... R	RVR (Minima)
... T	True (preceded by a bearing to indicate reference to True North)
... V	Visibility (Minima)
... V ...	Variations from the mean wind direction ... preceded and followed by figures in METAR / SPECI, e.g. 350V070
°C	Centigrade ... °C = (°F – 32) : 2 + 10%
°F	Degree(s) Fahrenheit ... °F = °C x 2 – 10% + 32
A	
A	Amber
A B C	Air Breathing Circulation (first aid)
A/A	Air-to-air
A/C	Aircraft
A/C	Air conditioning
A/G	Air-to-ground
A/I	Anti-ice
A/P	Autopilot
A/T	Autothrottle
A01	Automated weather reporting stations without a precipitation discriminator
A02	Automated stations with a precipitation discriminator
AAA AAB	Amended Meteorological Message

A	continued...
AAC	Aeronautical Administrative Communications
AACQ	automatic acquisition mode
AAD	Assigned Altitude Deviation
AAE	Above Aerodrome Elevation
AAF	Army Air Field
AAIM	Aircraft Autonomous Integrity Monitoring
AAL	Above Aerodrome Level
AAR	Air to Air Refuelling
AARA	Air to Air Refuelling Area
AAS	Airport Advisory Service
AAS	Automatic Aerodrome Selection
AB	Air Base
AB	afterburner
AB LIM	afterburner limiting
ABAS	Aircraft-Based Augmentation System
ABB	Abbreviations
ABC	Aeroplane Briefing Card
ABI	Advance Boundary Information
ABM	Abeam
ABN	Aerodrome Beacon
ABT	About
ABV	Above
AC	AltoCumulus
ac	alternating current

A	continued...
AC	Advisory Circular
AC	Alternating Current
AC	Aircraft / Alternating Current
ACA	Arctic Control Area
ACA	Approach Control Area
ACARS	Aircraft COMM Addressing and Reporting System
ACARS	Aircraft COMM Addressing and Reporting System
ACAS	Airborne Collision Avoidance System
ACC	Alto cumulus Castellanus
ACC	Area Control Center / Area Control
ACC	Assessment center
ACCAS	Alto cumulus Castellanus
ACCID	Notification of an Aircraft Accident
ACCUM	Accumulate
ACCUM	accumulator
A-CDM	Airport Collaborative Decision Making
ACDNT	Accident
ACFT	Aircraft
ACI	amplifier control intercommunication
ACK	Acknowledge
ACL	Altimeter Check Location
ACL	Air Traffic Services Clearance
ACL	Aeroplane Cabin Log
ACLS	automatic carrier landing system

A	continued...
ACM	Air Combat Maneuvers
ACM	air combat maneuvering
ACM	Air Traffic Services Communication Management
ACMI	Aeroplane Crew Maintenance Insurance
ACN	Aircraft Classification Number
ACNOT	Accident Notice
ACNTR	aft center (8 x 10) display
ACP	Acceptance
ACP	Audio Control Panel
ACPT	Accept / Accepted
ACR	Air Carrier
ACT	Active / Activated / Activity
AD	Aerodrome
AD	Airworthiness Directive
ADA	Advisory Area
ADB	aircraft discrepancy book
ADC	Aerodrome Chart
ADC	Air Data Computer
ADC	Air Defence Clearance
ADD	additionally
ADD	Acceptable Deferred Defect
ADDN	Addition / Additional
ADEP	Aerodrome of Departure
ADES	Aerodrome of Destination

A	continued...
ADF	Automatic Direction-Finding Equipment
ADG	Airplane Design Group
ADG	Air Driven Generator ADF Automatic Direction Finder
ADI	Attitude Director Indicator
ADIRS	Air Data Inertial Reference System
ADIRU	Air Data Inertial Reference Unit
ADIZ	Air Defence Identification Zone
ADIZ Air	Defence Identification Zone
ADJ	Adjacent
ADMIN	Administration
ADO	Aeorodrome Office
ADR	Advisory Route
ADS	Automatic Dependent Surveillance
ADS WPR	Automatic Dependent Surveillance Waypoint Position Reporting
ADS-B	Automatic Dependent Surveillance - Broadcast
ADS-C	Automatic Dependent Surveillance - Contract
ADSU	Automatic Dependent Surveillance Unit
ADT	Approved (aimed) Departure Time
ADV	advisory
ADVS	Advisory Service
ADZ	Advise
ADZD	Advised
AEA	Association of European Airlines
AEA	Eastern Region

A	continued...
AEA	airborne electronic attack
AED	Defibrillator
AED	Automated external Defibrillator
AEO	All Engines Operative
AER	Approach End Runway
AES	Aircraft Earth Station
AESA	active electronically scanned array
AF	Africa (RFC)
AFB	Air Force Base
AFC	Airport Facility Chart
AFC-B	Airport Facility Chart Class B Airspace (United States)
AFCS	Automatic Flight Control System
AFD	Airport/Facility Director
AFDS	Autopilot Flight Director System
AFE	Above Field Elevation
AFFF	Aqueous Film Forming Foams
AFI	Africa Indian Ocean (ICAO Region)
AFIL	Flight Plan Filed in the Air
AFIS	Automatic Flight Information Service
AFIS	Aerodrome Flight Information Service
AFL	Aeroplane Flight Log
AFM	Aircraft Flight Manual
AFM	Yes / Affirm / That is correct
AFN	Air Traffic Services Facilities Notification

A	continued...
AFN	Aeroplane Flight Notification
AFS	Aeronautical Fixed Service
AFSS	Automated Flight Service Station
AFT...	After (followed by time or place)
AFTN	Aeronautical Fixed Telecommunication Network
AGA	Aerodromes, Air Routes and Ground Aids
AGC	Airport Ground Chart
AGCS	Air Ground Communication System
AGI	armament gas ingestion
AGINS	Azimuth Guidance For Nose In Stand
AGL	Above Ground Level
AGN	Again
AGN	Aircraft Group Number
AGNIS	Azimuth Guidance for Nose-in Stand
AH	Alert Height
AHD	Ahead
AHRS	attitude heading reference set
AHRS	Attitude Heading Reference System
AIAA	Area of Intense Air Activity
AIC	Aeronautical Information Circular
AIDC	Air Traffic Services Interfacility Data Communications
AIDS	Acquired Immune Deficiency Syndrome
AIDS	Aeroplane Integrated Data System
AIL	aileron

A	continued...
AIM	Aeronautical Information Management
AIM	Aeronautical Information Manual
AIM	Air Traffic Flow Management Information Message
AIM	air intercept missile
AIME	Autonomous Integrity Monitored Extrapolation
AINS	aided INS
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation And Control
AIREP	Air Report
AIRMET	Information concerning en-route weather phenomena which may affect the safety of low-level aircraft operations
AIRMET	Airmen’s Meteorological Information
AIS	Aeronautical Information Services
AIS	Airport Information Sheet
AL	Autoland
ALA	Alighting Area
ALARP	As Low As Reasonably Practicable
ALD	Available Landing Distance
ALDDI	aft left digital display indicator
ALERFA	Alert Phase
ALF	Amount Location Fastening
ALR	Alerting (message type designator)
ALR-67	radar warning receiver
ALRS	Alerting Service
ALS	Approach Lighting System

A	continued...
ALSF	Approach Lighting System with Sequenced Flashing Lights
ALSF-1	Standard 2400' high-intensity approach lighting system with sequenced flashers (Category I configuration)
ALSF-2	Standard 2400' high-intensity approach lighting system with sequenced flashers (Category II configuration)
ALSTG	Altimeter Setting
ALT	Altitude
ALTM	Altimeter
ALTN	Alternate / Alternating (light alternates in color)
ALTN	Alternate (aerodrome)
ALTNLY	Alternately
ALTRV	Altitude Reservation (FPL)
AM	Amplitude Modulation
AMA	Area Minimum Altitude
AMAD	airframe mounted accessory drive
AMC	Air Traffic Services Microphone Check
AMC	Acceptable Means of Compliance (JAA)
AMC	Aviation Medical Center
AMCD	advanced mission computers and displays
AMD	Amend / Amended
AMD	Aeroplane Maintenance Department
AMDT	Amendment (AIP amendment)
AME	Authorized Medical Examiner
AMGR	Airport Manager
AML	Aeroplane Maintenance Licence
AML	Aeroplane Maintenance Log



A	continued...
AMM	Aircraft Maintenance Manual
AMO	Aeroplane Maintenance Organization
AMOS	Automatic Meteorological Observing System
AMP	Aeroplane Maintenance Program
AMPCD	aft multipurpose color display
AMPD	advanced multipurpose display
AMS	Aeronautical Mobile Service
AMS	Aero Medical Section AMSL Above Mean Sea Level
AMSCR	Aircraft Movement Surface Condition Report
AMSL	Above Mean Sea Level
AMSS	Aeronautical Mobile Satellite Service
AMT	Aeroplane Maintenance Technician
AN	Analyse Number (warnings)
AN/ALE-47	countermeasures dispensing set
AN/APN-194	radar altimeter set
AN/ASN-139	inertial navigation system
ANAV	accurate navigation
ANC...	Aeronautical Chart - 1:500 000
ANCS...	Aeronautical Navigation Chart - small scale
ANGLE-OFF	The difference between my HDG and the bearing of the BANDIT
ANM	Air Traffic Flow Management Notification Message
ANO	Air Navigation Order
ANP	Actual Navigation Precision / Performance
ANS	Answer

A	continued...
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
AO	Aircraft Operator
AOA	Angle Of Attack
AOB	angle of bank
AOBT	Actual Off-Block Time
AOC	Aeronautical Operational Control
AOC	Air Operator Certificate
AOC	Aerodrome Obstruction Chart
AOC	Aeronautical Operational Control
AOC...	Aerodrome Obstacle Chart
AOE	Airport of Entry
AOG	Aircraft on Ground (grounded ACFT)
AOG	Aeroplane On Ground
AOI	Airport Operational Information
AOM	Aircraft Operations Manual
AOM	Aerodrome Operating Minima
AOM	Aeroplane Operating Manual
AOR	Area of Responsibility
AORRA	Atlantic Ocean Random Routing RNAV Area
AOS	Aeroplane Operating Supplement
AOT	Angle of Tail Is the angle measured from the TAIL of the BANDIT to my POSITION (irrespective of my HDG); same as Aspect Angle; measured in RIGHT and LEFT aspect, with max 180°
AOT	All Operators Telex

A	continued...
AP	Autopilot System
AP	Airport
APA	Accident Prevention Advisor
APAP	Approach Path Alignment Panel
APAPI	Abbreviated Precision Approach Path Indicator
APC	Area Positive Control
APC	Airport Parking Chart
APCH	Approach
APDC...	Aircraft Parking/Docking Chart (followed by name / title)
APIS	Aircraft Parking & Information System
APL	Approach Lights
APN	Apron
APP	Approach Control Office
APP / APPR	Approach
APR	April
APRNT	Apparent
APRX	Approximate / Approximately
APSG	After Passing
APT	Airport
APU	Auxiliary Power Unit
APV	Approach Procedure with Vertical Guidance
AQ	align quality
AQB	Airport Qualification Briefing
AR	Authorization Required

A	continued...
ARA	Advisory Radio Area
ARA	Airborne Radar Approach
ARA	Authority Requirements for Aircrew ARINC Aeronautical Radio Incorporated
ARC	Area Chart
ARC	Airworthiness Review Certificate
ARCAL	Aircraft Radio Control of Aerodrome Lighting
ARCID	Aircraft Identification
ARDDI	aft right digital display indicator
ARDT	Actual Ready Time
ARFF	Aircraft Rescue and Fire Fighting
ARFOR	Area Forecast
ARH	Active Radar Homing missile
ARI	attitude reference indicator
ARINC	Aeronautical Radio Incorporated
ARIWS	Autonomous Runway Incursion Warning System
ARNG	Arrange
A-RNP	Advanced RNP
ARO	Air Traffic Services Reporting Office
ARO	Authority Requirements for Air Operations
ARP	Aerodrome Reference Point
ARP	Air-Report
ARP	Aerodrome Reference Point
ARP	Aerospace Recommended Practices
ARPT	Airport

A	continued...
ARQ	Automatic Error Correction
ARR	Arrive / Arrival
ARS	Special Air-Report
ARS	air refueling store
ARST	Arresting
ARTC	Air Route Traffic Control
ARTCC	Air Route Traffic Control Center
AS	Altostratus
AS	Asia (RFC)
AS	Airport Services
ASAP	As Soon As Possible
ASB	Airport standby
ASC	Ascend to / Ascending to
ASC	Air Safety Committee
ASDA	Accelerate Stop Distance Available
ASDE	Airport Surface Detection Equipment / Area Surveillance Detection Equipment (Radar)
ASDE-X	Airport Surface Detection Equipment – Model X
ASE	Altimetry System Error
ASEPS	Advanced Surveillance Enhanced Procedural Separations
ASHTAM	Special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations
ASL	Above Sea Level
ASL	azimuth steering line
ASOS	Automated Surface Observing System

A	continued...
ASP	Airspace
ASPECT ANGLE	Is the angle measured from the TAIL of the BANDIT to my POSITION (irrespective of my HDG); same as AOT (Angle of Tail); measured in RIGHT and LEFT aspect, with max 180°
ASPH	Asphalt
ASR	Airport Surveillance Radar
ASRM	automatic spin recovery mode
ASSC	Airport Surface Surveillance Capability
ASU	Air Start Unit
AT	Atlantic (RFC)
AT	Auto Throttle
AT...	At
ATA	Aerial Tactics Area
ATA	Actual Time of Arrival
ATA	Air Transport Association
ATARS	advanced tactical air reconnaissance system
ATC	Air Traffic Control
ATCC	Air Traffic Control Center
ATCSCC	Air Traffic Control System Command Center
ATCSMAC...	Air Traffic Control Surveillance Minimum Altitude Chart (followed by NAME / TITLE)
ATD	Actual Time of Departure
ATF	Aerodrome Traffic Frequency
ATFM	Air Traffic Flow Management
ATFMX	Exemption from ATFM measures (FPL)
ATIS	Automatic Terminal Information Service



A	continued...
ATM	Air Traffic Management
ATN	Aeronautical Telecommunication Network
ATN	Air Traffic Navigation
ATN B1	Aeronautical Telecommunication Network Baseline 1 (data link)
ATO	Actual Take-Off Time (Eurocontrol)
ATOT	Actual Takeoff Time
ATOW	Actual Take Off Weight
ATP...	At (followed by time or place)
ATPL	Airline Transport Pilot Licence
ATQP	Alternative Training and Qualification Programme
ATS	air turbine starter
ATS	Air Traffic Services
ATSC	Air Traffic Services Communication
ATSCV	air turbine starter control valve
ATSU	Air Traffic Services Unit
ATT	Attitude
ATTH	attitude hold
ATTN	Attention
AT-VASIS	Abbreviated T Visual Approach Slope Indicator System
ATZ	Aerodrome Traffic Zone
AU	Australia (RFC)
AU	Approach UNICOM
AUFCD	aft upfront control display
AUG	August

A	continued...
AUG	augment
AUR	aural
AUSOTS	Australian Organized Track Structure
AUTH	Authorized / Authorization
AUTO	Automatic
AUW	All Up Weight
AUX	Auxiliary
AVASI	Abbreviated Visual Approach Slope Indicator
AVASIS	Abbreviated Visual Approach Slope Indicator System AVIH
AVBL	Available / Availability
A-VDGS	Advanced Visual Docking Guidance System (A-VDGS)
AVG	Average
AVGAS	Aviation Gasolene
AVMUX	avionics multiplex
AVTAG	Aviation Turbine Gasoline (wide-cut fuel)
AWB	Air Waybill
AWIB	Aerodrome Weather Information Broadcast
AWIS	Airport Weather Information
AWIS	Automated Weather Information System / Aviation Weather Information Service
AWO	All Weather Operations
AWOS	Automated Weather Observation System
AWSS	Automated Weather Sensor System
AWTA	Advise At What Time Able
AWW	Severe Weather Forecast Alert



A	continued...
AWY	Airway
B	
B	Blue
BA	Braking Action
BALS	Basic Approach Light System
BALT	barometric altimeter
BARO	VNAV Barometric Vertical Navigation
BARO-VNAV	Barometric Vertical Navigation
BASE	Cloud Base
BAT	Battery
BC	Back Course
BC	Patches
BCFG	Fog Patches
BCM	Back Course Marker
BCN	Beacon
BCRS	Back course
BCST	Broadcast
BDRY	Boundary
BECMG	Becoming
BER	Brake Energy Requirements
BERM	Snowbank(s) Containing Earth/Gravel
BFR	Before
BGN	Began or Begin
BI	Basic Index

B	continued...
BIRDTAM	Special NOTAM Concerning Bird Activity
BIT	built in test
BITD	Basic Instrument Training Device
BITE	Build In Test Equipment
BKN	Broken
BKSP	Backspace
BL	Blank (intentionally)
BL	Blank Off
BL...	Blowing ... followed by
BLD	bleed
BLDG	Building
BLIM	bank limit
BLIN	BIT logic inspection
BLO	Below Clouds
BLW	Below
BLZD	Blizzard
BM	Back Marker
BND	Bound
BNK	bank
BOBCAT	Bay of Bengal Cooperative Air Traffic Flow Management System
BOMB	Bombing
BOTA	Brest Oceanic Transition Area
BP	Briefing Package
BPOC	Before Proceeding On Course

B	continued...
BR	Mist
BRAF	Braking Action FAIR
BRAG	Braking Action GOOD
BRAN	Braking Action NIL
BRAP	Braking Action POOR
Brc	Base Recovery Course
BRF	Short used to indicate the type of approach desired or required
BRG	Bearing
BRK	brake
BRK / BRKG	Braking
B-RNAV	Basic Area Navigation
B-RNAV / BRNAV	Basic aRea NAVigation (RNP 5)
BRT	Bright
BS	Commercial Broadcasting Station
BSR	Blue Spruce Routes
BST	boresight acquisition mode
BTL	Between Layers
BTL	Bottle
BTMS	Brake Temperature Monitor System
BTN	Between
BUFR	Binary universal form for the representation of meteorological data
BUL	Bulletin
BVR	Beyond Visual Range in conjunction with A/A and A/G
BWS	Bermuda Weather Services

B	continued...
BYD	Beyond
C	
C	Crossing (Chart Designator)
C	Center
C / °C	Degrees Celsius (Centigrade)
C...	Controlled Firing Area
C/B	Circuit Breaker
C/F	chaff/flare
C/L	Check List
C/L	Centre Line (RWY OR TWY)
C/S	Call Sign
C02	Carbon Dioxide
CA	Course to an Altitude
CA	Canada (RFC)
CA/GRS	Certified Air/Ground Radio Service
CAA	Civil Aviation Administration
CAC	Close Air Combat
CAC	Community Air Carrier
CADIZ	Canadian Air Defence Identification Zone
CAME	Continuing Airworthiness Management Exposition
CAMO	Continuing Airworthiness Management Organisation
CAO	Cargo Aeroplane Only
CAP	Civil Aviation Publication (CAA UK)
CAP	Control Access Parameters



C	continued...
CAPT	Captain
CAR	Caribbean (ICAO Region)
CARS	Community Aerodrome Radio Station
CAS	control augmentation system
CAS	Calibrated Airspeed
CASA	Computer Assisted Slot Allocation
CAT	Category
CAT	Clear Air Turbulence
CAT	Commercial Air Transport
CAT	Clear Air Turbulence or Category
CAT	Commercial Air Transport
Cat 1, 2, 3, 3a, 3b, 3c	ILS Category
CAT I, II, III, IIIA, IIIB, IIIC	ILS Category
CAUT	caution
CAVOK	Ceiling And Visibility OK
CB	circuit breaker
CB	Cloud Base
CB / Cb	Cumulonimbus
CBMAM	Cumulonimbus Mamma
CC	Cirrocumulus
CCA, CCB ...	Corrected meteorological message
CCI	Company & Crew Information
CCLKWS /	Counterclockwise
CCO	Continuous Climb Operations

C	continued...
CCQ	Cross Crew Qualification
CCS	communications countermeasures set
CCSL	Standing Lenticular Cirrocumulus
CCW	Counterclockwise
CD	Clearance Delivery
CD	Candela
CD	countdown
CD	Compact Disk
CDA	Continuous Descent Approach
CDA	Current Data Authority
CDA	Departure Clearance Readback Message
CDA	Canadian Domestic Airspace
CDA	Constant Descent Angle
CDFA	Continuous Descent Final Approach
CDI	Course Deviation Indicator
CDL	Configuration Deviation List
CDM	Collaborative Decision Making
CDN	Coordination
CDO	Continuous Descent Operations
CDP	compressor discharge pressure
CDR	Conditional Route
CDTI	Cockpit Display of Traffic Information
CDU	Control Display Unit
CEIL	Ceiling

C	continued...
CEP	Central East Pacific Region
CERAP	Combined Center
CF	Change Frequency to
CF	Course to a Fix
CF	Cumulus Fractus
CFE	Coast Out Fix Estimate
CFIT	Controlled Flight Into Terrain
CFIT	Controlled Flight Into Terrain CFL Cleared Flight Level
CFL	Cleared Flight Level
CFM	Confirm / I confirm
CFMU	Central Flow Management Unit
CFP	Computerized Flight Plan
CFR	Crash Fire Rescue
CFR	Code of Federal Regulations
CFR	Critical Fuel Required
CFRI	Runway Friction Index
CFS	Critical Fuel Scenario (ETOPS EXTRA), if required
CG	Centre of Gravity
CGL	Circling Guidance Light(s)
CGO	Cargo
CH	Channel
CHAMAN	Chaotic Situation Management
CHAN	channel
CHEM	Chemical



C	continued...
CHG	Change
CHG	Modification
CHKLST	checklist
CI	Cirrus
CI	Course Introduction
CI	Checklist Introduction
CI	Chief Instructor
CI	Cost Index
CIG	Ceiling
CIS	Commonwealth of Independent States
CIT	combined interrogator/transponder
CIV	Civil
CK	Check
CKPT	cockpit
CL	Center Line
CL	Centre Lights (of Runway)
CLA	Clearance Acknowledgement Downlink Message
CLA	Clear type of ice formation
CLB	Climb
CLBR	Calibration
CLD	Cloud
CLD	Departure Clearance Uplink Message
CLG	Calling
CLIMB-OUT	Climb-Out Area

C	continued...
CLKWS	Clockwise
CLL	Center Line Lights
CLR	Clear(s) / Cleared to / Clearance
CLR	Clear
CLRD	Runway(s) cleared
CLSD	Close / Closed / Closing
CLSD	Closed
CLX	Oceanic Clearance Uplink Message
CM	Crew Member
CM / cm	Centimeter
CMA	Central Monitoring Agency
CMB	Climb to / Climbing to
CMD	Command
CMDR	Commander
CMNPS	Canadian Minimum Navigation Performance Specification
CMP	Configuration, Maintenance and Procedures
CMPL	Completion / completed / complete
CMR	Certification Maintenance Requirements
CMSND	Commissioned
CMV	Converted Meteorological Visibility
CNF	Computer Navigation Fix
CNI	communication, navigation, and identification
CNL	Cancel / Cancelled / Flight Plan Cancellation
CNL	Cancel C of A Certificate of Airworthiness



C	continued...
CNS / ATM	Communications, Navigation and Surveillance / Air Traffic Management
CNTRLN	Centerline
CNV	Conversion Training
CNVG	Converge
Co	County
CO	Compliance Officer
CoA	Certificate of Airworthiness
COBT	Calculated Off-Block Time
COI	Course Introduction Instructor
COM / Com	Communication
COMLO	Compass Locator
COMM	communication radio
COMSND	Commissioned
CON / CONS	Continuous
CONC	Concrete
COND	Condition
CONFIG	Configuration
CONST	Construction / Constructed
CONT	Continue(s) / Continued
CONT PVU	continuous precision velocity update
CONV	Convergency
COOR	Coordinate / Coordination
COORD	Coordinates
COP	Change-Over Point

C	continued...
COP	Code Of Practice
COR	Correct / Correction / Corrected
CoR	Certificate of Registration
COSPAS-SARSAT	Cosmicheskaya Sistyema Poiska Avariynich Sudov – Search and Rescue Satellite-Aided Tracking
COT	At the coast
COV	Cover / Covered / Covering
CP	Captain
CP	Committal Point
CPA	Closest Point of Approach
CPD	Coupled
CPDLC	Controller Pilot Data Link Communication
C-PED	Controlled Portable Electronic Device
CPL	Current Flight Plan
CPL	couple
CPL	Commercial Pilot Licence
CPLD	coupled
CPT	Cockpit Procedure Trainer
CPT	Captain
CPU	Central Planning Unit
CPWS	cabin pressurization warning system
CRAM	Conditional Route Availability Message
CRAR	Country Rules and Regulations
CRC	Cyclic Redundancy Check
CRE	Class Rating Examiner

C	continued...
CRFI	Canadian Runway Friction Index
CRM	Collision Risk Model
CRM	Crew / Company Resource Management
CRMI	Crew Resource Management Instructor
CRP	Compulsory Reporting Point
CRS	Course
CRS	Certificate of Release to Service
CRS	Course
CRT	Cathode Ray Tube
CRVR	Calculated RVR
CRZ	Cruise
CS	Cirrostratus
CS	Call sign
CS	Certificate Specifications
CS/T	Combined Station/Tower
CSC	communication system control
CSEL	course select
CSP	Communication Service Provider
CT	Contactable
CTA	Control Area
CTA	Controlled Time of Arrival
CTA	Control Area
CTAF	Common Traffic Advisory Frequency
CTAM	Climb to and Maintain

C	continued...
CTC	Contact
CTL	Control
CTN	Caution
CTO	Calculated Time Over (Waypoint)
CTOT	Calculated Takeoff Time
CTR	Control Zone
CTRA	Cold Temperature Restricted Airports
CU	Cumulus
CUF	Cumuliform
CUST	Customs
CV	carrier
CVFR	Controlled Visual Flight Rules
CVR	Cockpit Voice Recorder
CVRS	cockpit video recording system
CVSM	Conventional Vertical Separation Minima
CW	Clockwise
CW	Continuous Wave
CWA	Center Weather Advisory
CWC	Cross Wind Component
CWP	Central West Pacific Region
CWS	Control Wheel Steering
CWY	Clearway

D	
D	Downward (tendency in RVR during previous 10min)
D	Duty diverse
D...	Danger Area (followed by identification)
D...	DME Distance in NM
D/L	data link
D/S	Direction Speed
DA	density altitude
DA	Decision Altitude
DA/H	Decision Altitude/Height
DALGT	Daylight
DAM	De-/Anti-Icing Manual
DAP	Downlinked Aeroplane Parameters
DARP	Dynamic Airborne Reroute Procedure
D-ATIS	Digital Automatic Terminal Information Service
D-ATIS	Data Link Automatic Terminal Information Service
dB	Decibel
DBFS	dry bay fire suppression
DBS	doppler beam sharpening
DC	designator controller
dc	direct current
DC	Director customer service
DC	Direct Current
DCD	Double Channel Duplex
DCKG	Docking



D	continued...
DCL	Departure Clearance (data link service)
DCMSND	Decommissioned
DCP	Datum Crossing Point
DCPC	Direct Controller - Pilot Communications
DCS	Double Channel Simplex
DCS	decompression sickness
DCS	Departure Control System (computerised check in)
DCT	Direct
DDG	Dispatch Deviation Guide
DDI	digital display indicator
DDL	Dispatch Deviation List
DEC	December
DECD	digital expandable color display
DEG	Degrees
DEGD	degraded
DEGS	Degrees
Delta P/ Δ P	hydraulic filter indicator
DEM	Demand
DEP	Depart / Departure
DEP ARR	Departure Arrival
DEPO	Deposition
DEPPROC	Departure Procedures
DER	Departure End of the Runway
DES	De-suspension Message

D	continued...
DES	Descend to / Descending to
DES	Descent
DEST	Destination
DETRESFA	Distress Phase
DEV	Deviation / Deviating
DEW	Distant Early Warning
DEWIZ	Distant Early Warning Identification Zone
DF	Direction Finding
DFDAU	Digital Flight Data Acquisition Unit
DFDR	Digital Flight Data Recorder
DFIRS	deployable flight incident recorder set
D-FIS	Data Link Flight Information Service
DFR	Diversion Fuel Required
DFTI	Distance from Touchdown Indicator
DG	Dangerous Goods
DGR	Dangerous Goods
DGR	Dangerous Goods Regulations
DH	Decision Height
DI	Daily Inspection
DIAS	Dial Indicated Airspeed
DIF	Diffuse
DIFF	Deck Integrated Fire Fighting System
DISABLD	Disabled
DISCH	discharge

D	continued...
DIST	Distance
DIV	Divert / Diverting
DK	Deck
DLA	Delay / Delayed
DLAD	Delayed
DLIC	Data Link Initiation Capability
DLR	Data Link Recorder
DLT	Delete
DLV	Delivery
DLY	Daily
DM	Downlink Message
DMD	digital memory device
DME	Distance Measuring Equipment
DMEP	Data Management Entry Panel
D-METAR	Data Link – Meteorological Aerodrome Report
DMS	digital map set
DMSTN	Demonstration
DN	Down
DNG	Danger / Dangerous
DOC	Document
DOD	Department of Defense
DOF	Date of Flight
DOI	Dry Operating Index
DOM	Domestic

D	continued...
D-OTIS	Data Link – Operational Terminal Information Service
DOW	Dry Operating Weight
DP	(Instrument) Departure Procedure
DP	Dew Point Temperature
DP	Descent Point
DPATO	Defined Point After Takeoff
DPBL	Defined Point Before Landing
DPT	Depth
DR	Dead Reckoning
DR	Decision Range
DR...	Low Drifting
DRA	Direct Route Airspace
DRCO	Dial-up Remote Communications Outlet
DRFT	Snowbank(s) Caused by Wind Action
DRG	During
DRT	Door Training
DRVSM	Domestic Reduced Vertical Separation Minimum
DS	Duststorm
DSB	Double Sideband
DSC	Down Stream Clearance
DSN	Defence Switched Network
DSNT	Distant, >10SM from OBS Point
DSPLCD	Displaced
DST	Daylight Savings Time (Summer Time)

D	continued...
DSTRK	Desired Track
DSU	data storage unit
DT	Duty Time
DT2	second designated target
DTAM	Descend to and Maintain
DTED	digital terrain elevation data
DTG	Date-Time Group
DTG	Distance To Go
DTGO	Distance To GO
DTHR	Displaced Runway Threshold
DTRT	Deteriorate / Deteriorating
DTW	Dual Tandem Wheels
DTW	Downwind Termination Waypoint
DU	Dust (widespread)
DU	Dust
DUATS	Direct User Access Terminal System
DUC	Dense Upper Cloud
DUR	Duration
DVFR	Defense Visual Flight Rules
DVMC	digital video map computer
D-VOLMET	Data Link VOLMET
d-VOLMET	Digital Meteorological Information for Aircraft in Flight
DVOR	Doppler VOR
DW	Dual Wheels

D	continued...
DWPNT	Dew Point Temperature
DZ	Drizzle
E	
E	East / Eastern Longitude
e.g.	For Example (latin: exempli gratia)
e.g.	example given
EA	East Asia
EADI	Electronic Attitude Director Indicator
EAI	Engine Anti-Ice
EALT	En-route Alternate
EAS	Equivalent Airspeed
EASA	European Aviation Safety Agency
EAT	Expected Approach Time
EAU	electronic attack unit
EB	Eastbound
EBB	essential bus backup
EC	European Community
ECAC	European Civil Aviation Conference
ECAM	Electronic Centralized Aircraft Monitor
ECAS	Engineering Customer Approval Sheet
ECM	Engine Condition Monitoring
ECO fuel	Economy fuel
ECON	Economy
ECOS	Engineering Coordination Sheet

E	continued...
ECS	environmental control system
EDA	Elevation Differential Area
EDCT	Expect Departure Clearance Time
EDL	Equidistant Line
EDP	Electronic Data Processing
EDP	Equidistant Point
EDTO	Extended Diversion Time Operations
EEA	European Economic Area
EEC	Electronic Engine Control
EET	Estimated Elapsed Time
EFAS	En-route Flight Advisory Service
EFATO	Engine Failure After Takeoff
EFB	Electronic Flight Bag
EFC	Expect Further Clearance
EFD	engine fuel display
E-FD	Electronic Flight Deck
Eff	Effective
EFI	Electronic Flight Instrument
EFIS	Electronic Flight Instrument System
EFOB	Estimated Fuel On Board
EFP	Engine Failure Procedure
EFT	external fuel tank
EGNOS	European Geostationary Navigation Overlay System
EGPWS	Enhanced Ground Proximity Warning System

E	continued...
EGT	Exhaust Gas Temperature
EHF	Extremely High Frequency (30000 to 300000MHz)
EHSI	Electronic Horizontal Situation Indicator
EI	Engine indicator / Engine indicated (zulu time display on HUD)
EICAS	Engine Indication and Crew Alerting System
EIS	Electronic Instrument System
ELBA	Emergency Location Beacon - Aircraft
ELEV	Elevation
ELR	Extra Long Range
ELT	Emergency Locator Transmitter
ELT(AD)	Emergency Locator Transmitter
ELT(AF)	Emergency Locator Transmitter
ELT(AP)	Emergency Locator Transmitter
ELT(S)	Survival Emergency Locator Transmitter
EM	Emission
EMAS	Engineered Material Arresting System
EMBD	Embedded in a layer
EMCON	emission control
EMER	Emergency
EMERG	Emergency
EMI	Electro Magnetic Interference
EMIS	electro magnetic interference shield
END	Stop-End (related to RVR)
ENE	East-North-East

E	continued...
ENG	Engine
ENR	En Route
ENRC...	Enroute Chart (followed by name/title)
ENRT	Enroute
ENT	Enter
ENTR	Entire
EOBD	Estimated Off-Block Date
EOBT	Estimated Off-Block Time
EOD	Explosive Ordnance Disposal
EOSID	Engine Out Standard Instrument Departure
EPE	Enhanced Performance Engine
EPE	Estimated Position of Error
EPIRB	Emergency Position-Indicating Radio Beacons
EPR	Engine Pressure Ratio
EPU	Estimated Position of Error
EQN	Equatorial Latitudes Northern Hemisphere
EQPT	Equipment
EQS	Equatorial Latitudes Southern Hemisphere
ER	Extended Range
ER1	Emergency and Rescue Training - Teilnehmer
ERA	En-Route Alternate (Aerodrome)
ERF	electronic fill remote
ERM	Electronic Route Manual
EROPS	Extended Range Operations

E	continued...
ERP	Emergency Response Plan
ES	Escape Strap
ESAD	Equivalent Still Air Distance
ESCAT	Emergency Security Control of Air Traffic
ESCORT	Authorised escort for deportee
ESE	East-South-East
EST	Estimate / Estimated / Estimation
ESWL	Equivalent Single Wheel Load
ET	elapsed time
ETA	Estimated Time of Arrival / Estimating Arrival
ETB	Estimated Time Between
ETD	Estimated Time of Departure / Estimating Departure
ETE	Estimated Time En-Route
ETO	Estimated Time Over Significant Point
ETO	Estimated Time Overhead
ETOPS	Extended Range Operations With Two-Engined Aeroplanes
ETOPS	Extended Range Twin-engine Aircraft Operations
ETOT	Estimated Take-Off Time
ETP	ETOPS
ETP	Equal Time Point
EU	Europe (RFC)
EU	European Union
EU OPS 1	European Union requirements Commercial Air Transportations (Aeroplanes)
EUR	Europe

E	continued...
EV	Every
EVAC	Evacuation
EVS	Enhanced Visual System
EWH	Eye to Wheel Height
EWO	electronic warfare officer
EXC	Except
EXCL	Excluding / Exclusive
EXER	Exercises / Exercising / To Exercise
EXP	Expect / Expected / Expecting
EXT	Extension
EXT	external
EXTD	Extend / Extending / Extended
EUROCAE	European Organization for Civil Aviation Equipment
F	
F	Cleared to Fix
F	Fixed
F/D	Flight Director
F/O or FO	First Officer
FA	Area Forecast
FA	Course from a fix to an altitude
FA	GAMET forecasts
FA	First Aid
FAA	Federal Aviation Administration
FAB	Functional Airspace Block

F	continued...
FAC	Facilities
FADEC	Full Authority Digital Engine Control
FAF	Final Approach Fix
FAIL	Failure
FAK	Fly Away Kit
FAL	Facilitation of International Air Transport
FALS	Full Approach Lighting System
FAM	Familiar / Familiarization
FAM	Flight Activation Monitoring
FAN MKR	Fan Marker
FANS	Future Air Navigation System
FAP	Final Approach Point
FAPA	Final Approach Profile Angle
FAR	Federal Aviation Regulation
FAROS	Final Approach Runway Occupancy Signal
FARP	Forward Arming and Refueling Point
FAS	Final Approach Segment
FAT	Final Approach Track
FATO	Final Approach and Take-off Area
FATO	Final Approach and Takeoff
FAWP	Final Approach Waypoint
FAX	Facsimile Transmission
FBL	Light
FC	Funnel cloud (tornado or waterspout)

F	continued...
FC	TAF valid for less than 12HR
FC	Funnel Cloud (Tornado or Water Spout)
FC	Friction Coefficient
FC	Flight Cycles
FC	Forecast (9 or 12 hours period)
FCC	Flight Control Computer
FCCA	flight control computer A
FCCB	flight control computer B
FCES	flight control electronic system
FCF	functional checkflight
FCL	Flight Crew Licensing
FCLP	field carrier landing practice
FCM	Flight Crew Member
FCNS	fiber channel network switch
FCOM	Flight Crew Operation Manual
FCS	flight control system
FCST	Forecast
FCT	Friction Coefficient
FCTM	Flight Crew Training Manual
FD	Flight Director System
FD	Fire Drill
FDA	Fuel Dumping Area
FDA	Flight Data Recorder
FDAS	Flight Deck Access System

F	continued...
FDAU	Flight Data Acquisition Unit
FDC	Flight Data Center
FDE	Fault Detection and Exclusion
FDEM	Flight Data Exceedance Monitoring
FDI	Fire Drill Instructor
FDM	Flight Data Monitoring
FDO	Flying Display Operation
FDP	Flight Duty Period
FDPS	Flight Data Processing System
FDR	Flight Data Recorder
FDT	Flight Duty Time
FE	Far End RVR Value
FE	fighter escort configuration
FEB	February
FEGP	Fixed Electrical Ground Power
FEH	Fire Extinguisher - Halon
FEW	Few
FEW	Fire Extinguisher - Water
FF	Fuel Flow
FFM	Force Flight Monitor
FFR	Fire Fighting (FPL)
FG	Fog



F	continued...
FG	Fog – Reported when visibility is less than 1000m, except when qualified by <ul style="list-style-type: none">• “MI”• “BC”• “PR”• “VC”
FG	Fire Gloves
FGS	Flight Control / Guidance System
FH	Flight Hours
FIC	Flight Information Center
FICON	Field Condition NOTAM
FID	Flight Identification
FIP	form-in-place
FIR	Flight Information Region
FIRAMS	flight incident recording and monitoring system
FIRAV	First Available
FIS	Flight Information Service
FISA	Automated Flight Information Service
FISE	Flight Information Service Enroute
FIZ	Flight Information Zone
FK	Tropical Cyclone Advisory Information
FL	Flight Level
FLAS	Flight Level Allocation Scheme
FLBIT	fuel low BIT
FLCH	Flight Level Change
FLD	Field
FLG	Flashing

F	continued...
FLIFO	Flight Following
FLIP	Flight Information Publication
FLIPCY	Flight Plan Consistency
FLIR	forward looking infrared
FLR	Flares
FLR	Field Length Requirement
FLS	Flight Suspension Message
FLT	Flight
FLTA	Forward - Looking Terrain Avoidance
FLTCK	Flight Check (FPL)
FLUC	Fluctuating / Fluctuation / Fluctuated
FLW	Follow(s) / Following
FLY	Fly / Flying
FM	Fan Marker
FM	Course from a fix to manual termination
FM	Frequency Modulation
FM...	From
FMA	Flight Mode Annunciation
FMC	Flight Management Computer
FMC WPR	Flight Management Computer Waypoint Position Reporting
FMCRES	Final Reserve Fuel PLUS Alternate Fuel
FMECA	Failure Mode, Effects and Criticality Analysis
FMGS	Flight Management and Guidance System
FMP	Flow Management Position

F	continued...
FMS	Flight Management System
FMU	Flow Management Unit
FNA	Final Approach
FNT	Front
FO	foldout
FOB	Fuel On Board
FOCA	Federal Office for Civil Aviation
FOD	Foreign Object Debris
FOD	Foreign Object Damage
FOI	Form Of Indemnity
FOM	Flight Operations Manual
FOV	field of view
FPA	Flight Path Angle
FPAH	flight path angle hold
FPAP	Flight Path Alignment Point
FPAS	flight performance advisory system
FPL	Flight Plan (ATC)
F-PLN	Flight Plan
FPM / fpm / ft/min	Feet per Minute
FPPM	Flight Planning and Performance Manual
FPR	Flight Plan Route
FPT	first pilot time
FQI	Fuel Quantity Indication

F	continued...
FQIS	Fuel Quantity Indicator System
F-QTY	fuel quantity
FR	Fuel Remaining
FRA	Free Route Airspace
FREQ	Frequency
FRH	Fly Runway Heading
FRH	Flap Retraction Height (above aerodrome elevation)
FRI	Friday
FRM	Fault Reporting Manual
FRNG	Firing
FRONT	Front (relating to weather)
FROPA	Front Passage
FROST	Frost
FRQ	Frequent
FRS	Fire Rescue Services
FRS	fleet replacement squadron
FRTST	Front Seat
FRZN	Frozen
FS	Flight Simulator
FSL	Full Stop Landing
FSM	Flight System Uplink Message
FSP	Flight Safety Programme
FSS	Flight Service Station
FST	First

F	continued...
FSU	Flight Support Unit
FT	TAF valid for 12 HR or more
FT	Flight Time
FT	Forecast (18 or 24 hour period)
FT / ft	Foot, Feet
FTE	Flight Technical Error
FTE	Full Time Equivalent
FTG	Flighttraining on Aircraft
FTL	Flight and Duty Time Limitations
FTP	Fictitious Threshold Point
FTT	Flight Technical Tolerance
FU	Smoke
FU	Fuel Used
FUA	Flexible Use of Airspace
FUS	fuselage
FV	Volcanic ash advisory information
FWD	Forward
FYI	For Your Information
FZ	Freezing
FZDZ	Freezing Drizzle
FZFG	Freezing Fog
FZRA	Freezing Rain
FZRANO	Freezing Rain INFO not Available



G	
G	Green
G	Grid (Track)
G	Grounded
G	Gusts
g	gram
G or g	gravity
G...	Variations from the mean wind speed (gusts)
G/A	Ground-to-Air
G/A/G	Ground-to-Air and Air-to-Ground
G/S	Glide Slope
GA	General Aviation
GA	Go Around
GACQ	gun acquisition mode
GAGAN	GPS And Geostationary Earth Orbit Augmented Navigation
GAGAN	GPS Aided Geo Augmented Navigation
GAIN	Airspeed or headwind gain
GAL	Gallons
GALS	Gallons
GAMET	Area Forecast for Low-Level Flights
GARP	GBAS Azimuth Reference Point
GAT	General Air Traffic
GB	gyro bias
GBAS	Ground-based Augmentation System
GC	Ground Control

G	continued...
GC	Great Circle
GCA	Ground Controlled Approach System / Ground Controlled Approach
GCAS	Ground Collision Avoidance System
GCI	Ground Distance in Percent of G/C
GCO	Ground Communication Outlet
GCU	generator converter unit
GE	General Electric
GEN	General
GEN	Generator
GEN TIE	generator tie
GenDec	General Declaration
GEO	Geographic / True
GES	Ground Earth Station
GFA	Graphical Forecast for Aviation
GFA	Graphic(al) Area Forecast
GHM	Ground Handling Manual
GIDS	Ground Ice Detection System
GLD	Glider
G-LIM	g-limiter
G-LOC	g-induced loss of consciousness
GLONASS	Global Orbiting Navigation Satellite System
GLS	GPS or GNSS Landing System
GLS	GBAS Landing System
GLS	Global Navigation Satellite Landing System

G	continued...
GM	Guidance Material
GMC...	Ground Movement Chart (followed by name/title)
GMT	Greenwich Mean Time
GMU	GPS (Height) Monitoring Unit
GND	Ground
GNDCK	Ground Check
GNE	General Navigation Error
GNS	Global Navigation System
GNSS	Global Navigation Satellite System
GNSS	Global Navigation System Sensor
GOC	Ground Operations Centre
GOLD	Global Operational Data Link Document
GOTA	Gander Oceanic Transition Area
GOV	Government
GOVT	Government
GP	Glide Path
GP	General Purpose
GP	Glide Path
GPA	Glide Path Angle
GPIP	Glide Path Intercept Point
GPS	global positioning system
GPS	Global Positioning System
GPS	Global Positioning System ILS Instrument landing system
GPU	Ground Power Unit

G	continued...
GPWS	ground proximity warning system
GPWS	Ground Proximity Warning System
GR	Hail – Reported when diameter of largest hailstones is 5mm or more
GRADU	Gradually
GRAS	Ground-based Regional Augmentation System
GRASS	Grass Landing Area
GRCV	guard receive
GRD	Ground
GRIB	Processed meteorological data in the form of grid point values expressed in binary form (in meteorological code)
GRVL	Gravel
GS	Small hail and/or snow pellets – Reported when diameter of largest hailstones is less than 5mm
GS	Glide Slope
GS	Ground Speed
GS	Small hail and / or snow pellets
GS	Ground Speed
GT	Grid Track
GT	Ground Time
GUI	Graphic User Interface
GUND	Geoid Undulation
GWT	Gross Weight
GWY	Gateway
GXMT	guard transmit

H	
H	Heavy (Wake Turbulence Category)
H	High pressure area / the center of high pressure
H	High Level Chart
H	High (Light Intensity)
H...	Significant wave height
H+	Minutes Past the Hour
H24	Continuous Day and Night Service
HA	Holding / racetrack to an altitude
HAA	Height Above Aerodrome
HAFU	Hostile, Ambiguous, Friendly, Unknown
HAL	Height Above Landing
HAPI	Helicopter Approach Path Indicator
HAT	Height Above Threshold / Touchdown
HAZMAT	Hazardous Material (FPL)
HBN	Hazard Beacon
HCH	Heliport Crossing Height
HDF	High Frequency Direction-Finding Station
HDG	Heading
HDG	Hydraulic Driven Generator
HDG/SLV	heading slaved
HDWND	Headwind
HEAD	Head of State status (FPL)
HEL	Helicopter
HELI	Heliport

H	continued...
HEMS	Helicopter Emergency Medical Services
HF	High Frequency (3000-30000KHz)
HF	Holding / Racetrack to a fix
HF	High Frequency (3-30 MHz)
HF	Human Factors
HFDL	High Frequency Data Link
HFR	Human Factors Reporting
HG	Mercury
HGR	Hangar
HGS	Head-Up Guidance System
HGT	Height / Height Above
HGT	Height
HI	High Intensity / High Intensity Approach Lights
HI	high
HIAL	High Intensity Approach Lighting
HIAL(S)	High Intensity Approach Lights (System)
HIRL	High Intensity Runway Lights
HIRO	High Intensity Runway Operations
HIWAS	Hazardous In-flight Weather Advisory Service
HJ	Sunrise to Sunset
HJ+	Sunrise to ... Minutes after Sunset
HL	Combined High/Low Level Charts / High Level
HLA	North Atlantic High Level Airspace (NAT HLA)
HLD	Hold

H	continued...
HLDG	Holding
HLP	Heliport
HLS	Helicopter Landing Site
HM	Holding / Racetrack to a manual termination
HMD	helmet mounted display
HMU	Height Monitoring Unit
HN	Sunset to Sunrise
HN+	From Sunset to ... Minutes after Sunrise
HNH	High Latitudes Northern Hemisphere
HO	Service Available to Meet Operational Requirements
HOBS	high off-boresight
HOL	Holiday
HOSP	Hospital Aircraft
HOT	Holdover Time
HOTAS	hands on throttle and stick
HP	Holding Pattern
HP	High Pressure
HPA / hPa	Hectopascal
hPa / Hpa	Hecto Pascal
HPSOV	High Pressure Shut Off Valve
HQ	Headquarters
HQ	have quick
HR / HRS	Hour(s)
HRC	helmet release connector

H	continued...
HRP	Heliport Reference Point
HS	Service Available During Hours of Scheduled Operations
HS&E	Health, Safety and Environment
HSEL	heading select
HSH	High Latitudes Southern Hemisphere
HSI	Horizontal Situation Indicator
HSIB	high speed interface bus
HSVN	high speed video network
HUD	head up display
HUD	Head Up Display
HUDLS	Head-Up Guidance Landing System
HUM	Humanitarian
HUMS	Health Usage Monitor System
HURCN	Hurricane
HVC	High Visibility Clothing
HVDF	High and Very High Frequency Direction Finding Stations
HVY	Heavy
HWC	Head Wind Component
HX	No Specific Working Hours
HYD	hydraulic, hydraulic system
HYD1	hydraulic system 1
HYD2	hydraulic system 2
HYR	Higher
HZ	Haze

H	continued...
HZ	Hertz
I	
i.e.	That Is (latin: id est)
I/P (IDENT)	identification of position
IAC...	Instrument Approach Chart (followed by name/title)
IAF	Initial Approach Fix
IAL	Instrument Approach and Landing Chart
IALS	Intermediate Approach Lighting System
IALS	Intermediate Approach Light System
IAO	In and Out of Clouds
IAP	Instrument Approach Procedure
IAR	Intersection of Air Routes
IAS	Indicated Airspeed
IASTA	International Air Services Transit Agreement
IATA	International Air Transport Association
IATP	International Aviation Training Professionals
IAVW	International Airways Volcano Watch
IAWP	Initial Approach Waypoint
IBIT	initiated built in test
IBN	Identification Beacon
ICA	InterContinAl flight
ICAO	International Civil Aviation Organisation
ICE	Icing
ICE	Dry Ice

I	continued...
ICG	Icing
ICLS	instrument carrier landing system
ICS	intercockpit communication system
ID	Identifier / Identify
ID	identification
ID	Identity (Number)
IDE	Instruments, Data and Equipment
IDECM	integrated defensive electronic countermeasures
IDENT	Identification
IDG	Integrated Drive Generator
IDI	Induction Day Instructor
IDPS	Integrated Disposition Planning and Statistic
IEM	Interpretative and Explanatory Material
IF	Intermediate Approach Fix / Intermediate Fix
IF	Intermediate Fix
IFA	inflight alignment
IFBP	In-Flight Broadcast Procedure
IFF	identification friend or foe
IFL	In-Flight
IFPL	Individual Flight Plan Message
IFPLID	Flight Plan Identification used by IFPS
IFPS	Integrated Initial Flight Plan Processing System
IFPS	Integrated Flight Planning System
IFR	Instrument Flight Rules

I	continued...
IFSD	In-Flight Shut Down
IFSS	International Flight Service Station
IFTB	In-Flight Turn Back
IGA	International General Aviation
IGE	In Ground Effect
IGS	Instrument Guidance System
IHD	International Help to Disabled
IHP	Intermediate Holding Position
ILS	Instrument Landing System
IM	Inner Marker
IMC	Instrument Meteorological Conditions
IMG	Immigration
IMN	indicated mach number
IMPR	Improve / Improving / Improved
IMT	Immediate / Immediately
IMT	Initial Magnetic Track
IMU	inertial measurement unit
In / IN	Inch(es)
IN LAR	Launch Acceptability Region - HUD READOUT IN LAR shows for FRIENDLY, AMBIGUOUS and UNKNOWN, as it should. Only targets confirmed hostile with the ROE matrix get the SHOOT cue
IN2	Square Inch
INA	Initial Approach

I	continued...
INBD	Inbound
INC	In Cloud
INCANS	interference cancellation system
INCERFA	Uncertainty Phase
INCL	Including
INCORP	Incorporated
INDEF	Indefinitely
INDEFLY	Indefinitely
INF	Inland Navigational Fix
INF	Inland Navigation Facility
INFO	Information
InHG	Inches of Mercury
INLAR	represents the minimum effect range of weapon
INO	Indian Ocean
INOP	Inoperative
INP	If not Possible
INPR	In Progress
INS	Inertial Navigation System
INST	Instrument
INSTL	Install / Installed / Installation
INSTR	Instrument
INSTR	Instructor
INSTR	Instruments
INT	Interception

I	continued...
INTCPT	Intercept
INTER	Intermittent
INTL	International
INTRG	Interrogator
INTRP	Interrupt / Interruption / Interrupted
INTSF	Intensify / Intensifying
INTST	Intensity
INV	invalid
INVOF	In the Vicinity of
IO	Indian Ocean (RFC)
IOE	Initial Operating Experience
IOI	Intermediate Operational Information
IP	Initial Point
IP	instructor pilot
IP	Intermediate Point
IR	Implementing Rule
IR	Ice on Runway
IR	infrared
IR	Instrument Rating
IRC	in-line release connector
IRC	International Route Charge
IRLAR	represents the range from the target that a JDAM released under the current flight conditions can still hit the target with greater than 35° impact angle and greater than 300kts. Varies with altitude, GS and HDG "IN RANGE"

I	continued...
IRS	Inertial Reference System
IRU	Inertial Reference Unit
ISA	International Standard Atmosphere
ISB	Independent Sideband
ISLN	Isolation Light
ISO	Instead of
ISO	International Organisation for Standardisation
ISOL	Isolate / Isolated
ISSR	Independent Secondary Surveillance Radar
ITB	image transfer bus
ITCZ	Inter Tropical Convergence Zone
ITF	Inter Tropical Front
ITP	In Trail Procedure
ITT	Interstage Turbine Temperature
ITT	Initial True Track
IVA	Independent Visual Approach
IWP	Intermediate Waypoint
IZLAR	represents the region in which the JDAM can impact the target and achieve the terminal parameters. Intended to provide realease cues to achieve the terminal parameters, even if the current flight conditions are different from the pre-planned conditions. "IN ZONE"

J	
J	Super (WTC)
J(+No.)	Jet Routes
JAA	Joint Aviation Authorities
JAN	January
JAR	Joint Aviation Requirements
JAR-FCL	Joint Aviation Requirement for Flight Crew Licensing
JAR-OPS	Joint Aviation Requirements - Operations
JAR-OPS	Joint Aviation Requirements for Commercial Air Transportation
JB I	James Brake Index
JDAM	GPS guided Joint Direct Attack Munition JDAM-equipped bombs are guided by an integrated inertial guidance system coupled to a Global Positioning System (GPS) receiver, giving them a published range of up to 15 nautical miles (28 km).
JETT	jettison
JHMCS	Joint Helmet Mounted Cueing Display
JRCC	Joint Rescue Coordination Center
JSOW	Joint Standoff Weapon glide bombs The JSOW has the same guidance and is a bomb with wings to provide lift and maneuvering flight controls. As such, it has a significantly longer range than JDAMs. The JDAMs/JSOWs have (at optimal INS alignment) a margin of error of approximately 16ft (5m). Independent programming of each individual bomb allows for simultaneous multi-target attacks.
JTAC	Joint Terminal Attack Controller With the integration of the datalink, a JTAC can now send digital tasking onto the moving map display and a text message. However, this does not preclude the traditional verbal directions over a radio to talk the pilot’s eyes onto the intended target.
JTRS	Joint Tactical Radio System JTRS Powers Situational Awareness Datalink (SADL), which helps you to identify and see friendly/enemy forces on your monitors
JTST	Jet Stream



ABBREVIATIONS & DEFINITIONS	
J	continued...
JUL	July
JUN	June
K	
KCAS	knots calibrated air speed
KG / kg	Kilogram(s)
KGS	knots ground speed
KHZ / kHz	Kilohertz
KIAS	Knots Indicated Airspeed
KM / km	Kilometer(s)
KMH / km/h	Kilometers per Hour
kN	Kilonewtons
Kpa / kPa / KPA	Kilopascal
KT / kt	Knot(s)
KTAS	knots true airspeed
KTS or kts	Knots
KW	Kilowatt(s)

K	continued...
KY-58	SECURE SPEECH SYSTEM (KY-58)
	The secure speech system is used for ciphering (coding) or deciphering (decoding) audio routed through the COMM 1 and COMM 2 receiver-transmitters
	Mode Select Knob. The mode select knob has positions of P, C, LD, and RV. Placing the knob to P enables plain mode of operation. Placing the knob to C enables the cipher mode of operation. With the knob set to LD the load mode of operation is enabled. This mode is used for loading data into the KY-58 control panel assembly. Information pertaining to the RV knob position (receiver variable) will be supplied later.
	Fill Select Knob. The fill select knob has positions of 1 thru 6, a Z 1-5 position, and a Z ALL position. Setting the knob to one of the six numbered positions selects the position to be loaded with data. Placing the knob to Z 1-5 zeroizes data in positions 1 thru 5. Placing the knob to Z ALL zeroizes all data in positions 1 thru 6.
L	
L	Litre(s)
L	Locator
L	Low Pressure Area / The Center of Low Pressure
L	Light (WTC)
L	Low Level (Chart Designator)
L	Left
L	Light
L ACC	Lateral Accelerometer
	FCS function Figure 15-10. FCS Failure Indications and Effects (Sheet 9 of 10)
L ACC	lateral accelerometer
L BAR	launch bar
L FUS MSL	L FUS MSL and R FUS MSL are used to jettison AIM-7 or AIM-120 missiles attached to the fuselage



L	continued...
L&S	Launch & Steering Target (L&S) = Primary Target: primary trackfile which weapons will be guided against vs. Secondary Designated Target (DT2) = Secondary Target: secondary trackfile which weapons will be guided against
LAA	Local Airport Advisory
LAAP	Low Altitude Autopilot
LAAS	Local Area Augmentation System
LAHSO	Land and Hold Short Operations
LAL	Lowest Available Level within Free Route Airspace (FRA)
LAMPD	left advanced multipurpose display
LAN	Inland
Landing Grade	(LOX) (/IM) (HCDIC) (SAR) OK (LOX) = little low on start (/IM) = little fly through up in the middle (HCDIC) = little high come down in close (SAR) = little settle at the ramp GRADE = OK () = a little _ = a lot (you don't want these)
LAR	Look Aside Ranging
LAR	Live Animal Regulations
LASTE	Low Altitude Safety and Targeting Enhancement
LAT	Latitude
LAT	Legends And Tables
LATLN	latitude longitude
LAU-117	single rail launcher for mavericks

L	continued...
LAW	Landing Weight
LAWRS	Limited Aviation Weather Reporting Station
LB / lb	Pound(s)
lb(s)	pound(s)
LB(s)	Pounds (weight)
LBA	limit basic aircraft
lbs	Pound(s)
LC	Local Control
LCA	Local / Locally / Location / Located
LCFZ	Laser-beam Critical Flight Zone
LCG	Load Classification Group
LCN	Load Classification Number
LCS	liquid cooling system
LCTD	Located
LCTR	Locator
LD	Landing Distance
LDA	Localizer Type Directional Aid
LDA	Landing Distance Available
LDAH	Landing Distance Available, Helicopter
LDC	left designator controller
LDDI	left digital display indicator
LDG	Landing
LDI	Landing Direction Indicator
LDIN	Lead-in Lighting



L	continued...
LDOC	Long Distance Operational Control
LDOCF	Long Distance Operational Control Facility
LDP	Landing Decision Point
LDW	Landing Weight
LE	Leading Edge
LED	leading edge down
LED	Leading Edge Device
LED	Light Emitting Diode
LEF	leading edge flaps
LEN	Length
LEU	leading edge up
LEX	leading edge extension
LF	Low Frequency (30-300KHz)
LFFZ	Laser-beam Free Flight Zone
LG	Landing Gear
LGT	Light / Lighting
LGTD	Lighted
LH	Left Hand
LH	Long Haul
LHS	Left Hand Seat
LHSP	Left Hand Seat Pilot
LI	left inboard
LI	Low Intensity
LIAL	Low Intensity Approach Lighting

L	continued...
LIFR	Low IFR (weather reports only)
LIFUS	Line Flying Under Supervision
LIH	Light Intensity High
LIL	Light Intensity Low
LIM	Light Intensity Medium
LINE	Line (SIGMET)
LIR	Loading Instruction Report
LIRL	Low Intensity Runway Lights
LIZFW	Loaded Index at Zero Fuel Weight
LLWAS	Low Level Wind Shear Alert System
LLZ	Localizer
LM	Locator, Middle
LM	left midboard
LM (M)	Locator, Middle (Marker)
LMC	Last Minute Change(s)
LMM	Compass Locator at ILS Middle Marker
LMT	Local Mean Time
LNAV	Lateral Navigation
LNAV / VNAV	Lateral Navigation / Vertical Navigation
LNDG	Landing
LNG	Long
LNS	Launch And Steer
LO	Locator, Outer
LO	left outboard

L	continued...
LO	low
LO	Low Intensity
LoA	Letter of Acceptance
LOC	Local / Locally / Location
LOC	Localizer
LOC-BC	Localizer Back Course
LOE	Line Orientated Evaluation
LOFT	Line Orientated Flight Training
LOI	Low Visibility Operations Instructor
LOI	Letter Of Intend
LOM	Compass Locator at ILS Outer Marker
LOM	Locator Outer Marker
LON	limit of NATOPS
LONG	Longitude
LOP	Line of Position
LOQE	Line Orientated Quality Evaluation
LORAN	Long Range Air Navigation System
LOS	Line Of Sight
LOS	Limited Obstacle
LOSS	Airspeed or headwind loss
LOUT	Lowest Operational Use Temperature
LP	Localizer Performance
LP	Left Traffic Pattern
LP	Pilot in left-hand pilot seat



L	continued...
LPC	Licence Proficiency Check
LPU	life preserver unit
LPV	Localizer Performance with Vertical Guidance
LRC	Long Range Cruise
LRCS	Long Range Communication System
LRG	Long Range
LRN	Loran
LRNP	Long Range Navigation Procedures
LRNS	Long Range Navigation System
LRU	Line Replaceable Unit
LRU	Line Replaceable Unit
LS	Left Side
LSALT	Lowest Safe Altitude
LSB	Lower Side Band
LSFZ	Laser-beam Sensitive Flight Zone
LSO	landing signal officer
LSR	Loose Snow on Runway(s)
LSS	Laser Spot Search (LSS) Mode Selector Button Targeting pod searches for a laser code of either a JTAC or someone else’s targeting pod laser (buddy lasing).
LST	Licence Skill Test
LST/NFLR switch	Laser Spot Tracker/Navigation Forward-Looking Infrared (LST/NFLR) sensor
LSTC	Laser Spot Track Code used to search for a target which was designated by a fellow pilot
LT	Left Turn
LT	light

L	continued...
LT	Local Time
LTA	Lower Control Area
LTB	Local Time Base
LTD	Limited
LTD/R switch	LTD/R stands for Laser Target Designator/Ranger <ul style="list-style-type: none">• Switch can be set to ARM, SAFE or AFT used to designate a target
LTDC	Laser Target Designator Code
LTGCA	Lightning Cloud-to-Air
LTGCC	Lightning Cloud-to-Cloud
LTGCCCCG	Lightning Cloud-to-Cloud, Cloud-to-Ground
LTGCG	Lightning Cloud-to-Ground
LTGCW	Lightning Cloud-to-Water
LTGIC	Lightning in Clouds
LTNG	Lightning
LTOD	local time of day
LTP	Landing Threshold Point
LTR	Liter
LTS	Lower Than Standard
LTWS	<p>Latent Track While Scan</p> <p>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 (L&S) and Secondary Designated Target (DT2) trackfile.</p> <p>Using the TDC “Depress” and “Slew” commands, you can designate up to three targets.</p>

L	continued...
LUT	Local Users Terminals
LV	Light and Variable
LVC	Low Visibility Taxi Chart
LVE	Leave / Leaving
LVL	Level
LVO	Low Visibility Operations
LVOP	Low Visibility Operations Plan
LVP	Low Visibility Procedures
LVTO	Low Visibility Takeoff
LWIS	Limited Weather Information System
LYR	Layer / Layered
M	
M	Medium (WTC)
M	Mach
m / M	Metric, meters
M..	Mach Number (followed by figures)
M...	Minimum Value of RVR
m/s	Meters Per Second
M61A2	Guns
MA	Missed Approach
MAA	Maximum Authorized Altitude
MABH	Minimum Approach Break off Height
MAC	Mean Aerodynamic Chord
MAD	magnetic azimuth detector

M	continued...
MAG	Magnetic
MAHF	Missed Approach Holding Fix
MAHWP	Missed Approach Holding Waypoint
MAINT	Maintain
MAINT	Maintenance
MALS	Medium Intensity Approach Lighting System
MALSF	Medium Intensity Approach Lighting System with Sequenced Flashers
MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
MAN	Manual
MAN	Maneuver
MAP	Missed Approach Point
MAP	Aeronautical Maps and Charts
MAP	Missed Approach Point
MAP	Missed Approach Procedure
MAPT / MAPt	Missed Approach Point
MAR	March
MAR	At Sea
MAREP	Maintenance Write-Up
MARSA	Military Assumes Responsibility for Separation of Aircraft (FPL)
MAS	Message Assurance
MASPS	Minimum Aircraft System Performance Specifications
MASPS	Minimum Aviation System Performance Standards
MASPS	Minimum Aeroplane System Performance Specification
MATF	Missed Approach Turning Fix

M	continued...
MATT	multi-mission advanced tactical terminal
MATZ	Military Aerodrome Traffic Zone
MAWP	Missed Approach Waypoint
MAX	Maximum
MAX	maximum afterburner thrust
MAY	May
MB	Marker Beacon
MB	Milibar
Mb	Millibars
MBOH	Minimum Break Off Height
MBST	Microburst
MBZ	Mandatory Broadcast Zone
MC	mission computer
MC1	mission computer 1
MC2	mission computer 2
MCA	Minimum Crossing Altitude
MCAS	Marine Corps Air Station
MCC	Mission Control Centre
MCC	Multi Crew Cooperation
MCDU	Multifunction Control and Display Unit
MCL	Minimum Cruising Level
MCP	Mode Control Panel
MCR	Minimum Climb Requirements
MCT	Maximum Continuous Thrust

M	continued...
MCTOM	Maximum Certified Takeoff Mass
MCTR	Military Control Zone
MCW	Modulated Continuous Wave
MDA/H	Minimum Descent Altitude / Height
MDF	Medium Frequency Direction-Finding Station
MDH	Minimum Descent Height
MDI	Minimum Departure Interval
MDT	Moderate
ME	Middle East (RFC)
ME	Multi Engine
MEA	Minimum En-Route Altitude
MEA	Minimum En-route IFR Altitude
MED	Medium
MEDEVAC	Medical Evacuation Flight (FPL)
MEHT	Minimum Eye Height Over Threshold
MEL	Minimum Equipment List
MER	multiple ejector rack
MET	Meteorological / Meteorology
MET REPORT	Local Routine Meteorological Report
METAR	Aviation Routine Weather Report
METAR	Aerodrome Routine Meteorological Report
METAR	Aviation Routine Weather Report
METAR	Meteorological Aerodrome Report
MF	Medium Frequency (300-3000KHz)

M	continued...
MF	Mandatory Frequency
MF	Medium Frequency
MFA	Minimum Flight Altitude
MFCD	Multifunction Color Display
MFRA	Minimum Flap Retraction Altitude
MFRH	Minimum Flaps Retraction Height
MFRQ	Minimum Fuel required
MFS	multifunction switch
MGA	Minimum Grid Altitude
MGRS	Military Grid Reference System
MH	Magnetic Heading
MHA	Minimum Holding Altitude
MHDF	Medium and High Frequency Direction-Finding Stations
MHVDF	Medium, High and Very High Frequency Direction Finding Stations
MHZ / MHz	Megahertz
MI	Shallow
MI	Medium Intensity (Lights)
MIALS	Medium Intensity Approach Light System
MID	Mid-point (RVR)
MID	Middle Runway Portion
MID	Midpoint
MID / ASIA	Middle East/Asia (ICAO Region)
MIDS	multifunctional information distribution system
MIFG	Shallow Fog

M	continued...
MIL	Military
MIL	military thrust
MIN	Minimum
MIN	Message Identification Number
MIN	Minute
MIN / min	Minute(s)
MIN / min	Minimum
MINLINEUP	Minimum Time to Line-up for Take-off
MIRL	Medium Intensity Runway Lights
MISAP	Missed Approach Procedure
MISC	Miscellaneous
MKR	Marker Radio Beacon
ML	Missile Launch (ML) Light
MLAT	Multilateration System
MLM	Maximum Landing Mass
MLR	Manuals, Logs and Records
MLS	Microwave Landing System
MLW	Maximum Landing Weight
MLX	Millilux mm Millimeters
mm	Millimeter
MM	Middle Marker
MM	Multi-Mode
MMCB	Master Mode Control Button
MME	Maintenance Management Exposition

M	continued...
MMEL	Master Minimum Equipment List
mmHG	Milimeter of Mercury
MMP	maintenance monitor panel
MNH	Middle Latitudes Northern Hemisphere
MNM	Minimum
MNPA	Minimum Navigation Performance Airspace
MNPS	Minimum Navigation Performance Specifications
MNPSA	Minimum Navigation Performance Specifications Airspace
MNT	Mach Number Technique
MNT	Monitor / Monitoring / Monitored
MNTCD	maintenance card
MNTN	Maintain
MOA	Military Operating Area
MOC	Minimum Obstacle Clearance
MOCA	Minimum Obstacle Clearance Altitude
MOCA	Minimum Obstruction Clearance Altitude
MOD	Moderate
MOD	Modify
MOD	Modify
Mode 4 Switch	<p>This switch has positions of OFF, DIS, and DIS/AUD.</p> <p>OFF Disables M4 OK advisory, mode 4 audio tone, IFF 4 caution, and voice alert.</p> <p>DIS Mode 4 advisory (M4 OK) appears when the IFF is responding to mode 4 interrogations. IFF 4 caution/voice alert enabled.</p> <p>DIS/AUD M4 OK advisory and audio tone enabled when IFF is interrogated with valid mode 4 is interrogations. IFF 4 caution/voice alert enabled.</p>
MOE	Maintenance Organization Exposition

M	continued...
MON	Monday
MON	Above Mountains
MOPS	Minimum Operational Performance Standards
MORA	Minimum Off-Route Altitude
MOV	Move / Moving / Movement
MP	Mid Point (RVR)
MPa	Megapascal
MPCD	multipurpose color display
mph	(Statute) Miles per Hour
MPS	Meters per Second
MRA	Minimum Reception Altitude
MRAD	master radiate
MRC	Minimum Radar Vectoring Chart
MRC	Minimum Range Cue
MRC	Maximum Range Cruise Speed
MRFA	Minimum Retraction Flap Altitude
MRFCS	Manual Reversion Flight Control System The MRFCS is an emergency system for use when dual hydraulic failure is impending or has occurred.
MRFH	Minimum Retraction Flap Height
MRG	Medium Range
MRGS	Multiple Reference Gunsight
MRN	Message Reference Number
MROT	Minimum Runway Occupancy Time
MRP	ATS / MET Reporting Point

M	continued...
MRS	Minimum Range Staple
MRT	Minimum Rest Time
MRVA	Minimum Radar Vectoring Altitude
MS	Minus
MSA	Minimum Safe Altitude
MSA	Minimum Sector Altitude
MSAS	Multifunctional Transport Satellite
MSAS	Multi-functional Satellite Augmentation System
MSAW	Minimum Safe Altitude Warning
MSG	Message
MSH	Middle Latitudes Southern Hemisphere
MSH	Minimum Sector Height
MSI	Multi-Sensor Integration which is basically contact/target information gathered from the Link-16 Datalink
MSL	Mean Sea Level
MSM	Management System Manual
MSN	Manufacturer Serial Number
MSNCD	mission card
MSRM	manual spin recovery mode
MSSR	Monopulse Secondary Surveillance Radar
MT	Mountain
MT	Magnetic Track
MTA	Military Training Area
MTCA	Minimum Terrain Clearance Altitude

M	continued...
MTCA	Military Terminal Control Area
MTL	Maximum Traffic Load
MTMA	Military Terminal Maneuvering Area
MTOM	Maximum Take-Off Mass
MTOW	Maximum Take-Off Weight
MTS	Maximum certified Tire Speed
MTT	Minimum Time Track
MTT	Mean True Track
MTU	Metric Units
MTW	Mountain Waves
MU	MU Meters
MU	memory unit
MUMI	memory unit mission initialization
Muni	Municipal
MUX	multiplex bus
MVA	Minimum Vectoring Altitude
MVAR	magnetic variation
MVDF	Medium And Very High Frequency Direction-Finding Stations
MVF	Multi Variant Flying
MVFR	Marginal VFR
MVI	Manoeuvre à Vue Imposée
MVL	Manoeuvre à Vue Libre (Circling)
MVPA	Military Variable Profile Area
MWO	Meteorological Watch Office

M	continued...
MWS A-10C II Tank Killer	<p>Missile Warning System</p> <p>The MWS (Missile Warning System) will indicate whether a missile is heading straight to your face or not. If the MWS warning light (red) is lit, immediately start evasive manoeuvres and deploy countermeasures ASAP.</p> <p>You can have three different messages:</p> <ul style="list-style-type: none">• ACTIVE MWS system is active• LAUNCH A missile is launched and heading towards you• OFF Your MWS system is off <p>The Radar Warning Receiver will display the direction of the missile launch with a “M” with a circle.</p>
MX	Mixed Type of Ice Formation
MX	Maintenance
MZFM	Maximum Zero Fuel Mass
MZFW	Maximum Zero Fuel Weight
N	
N	North / Northern Latitude
N	No Distinct Tendency (in RVR during previous 10min)
N	No
N	North
N ACC	Normal Accelerometer – FCS function Figure 15-10. FCS Failure Indications and Effects (Sheet 10 of 10)
N ACC	normal accelerometer
N/A	Not Applicable / Not Available
N/C	Non-compliance
N1	fan rpm
N2	compressor rpm
NA	Not Authorized
NA	North America (RFC)

N	continued...
NA	Not applicable
NAB	Not Above
NACES	navy aircrew common ejection seat
NAD-83	North American Datum 1983
NADP	Noise Abatement Departure Procedure
NAI	Nacelle Anti-Ice
NAILS	RWR contact, which emits radar waves but does not have a radar lock on you
NALS	No Approach Light System
NAM	North America (ICAO Region)
NAP	Noise Abatement Procedure
NAR	North American Routes
NARTEL HF	North Atlantic En-Route HF RTL Network
NAS	National Airspace System
NASC	National AIS System Centre
NAT	North Atlantic (ICAO Region)
NAT	North Atlantic Track
NAT OTS	North Atlantic Organized Track System
NAT-HLA	North Atlantic Track High Level Airspace
Natl	National
NATOPS	naval air training and operations procedures standardization
NAV	Navigation
NAV BAG	Navigation Baggage
NAVAID	Navigational Aid
NB	Northbound

N	continued...
NBFR	Not Before
NC	No Change
NCA	North Central Asia Region
NCA	Northern Control Area
NCC	Non-Commercial operations with Complex motor-powered aircraft
NCD	No Cloud Detected (METAR / SPECI)
NCRP	Non-compulsory Reporting Point, reporting point on request
NCTR	Non-Cooperative Target Recognition is done from the RDR ATTK (Radar Attack) page. Mode 4 Transponder operation is done when interrogating a contact. In NCTR Mode, targets that are farther than 25 NM may remain UNKNOWN or AMBIGUOUS. To get a proper identification, make sure you are within 25 NM.
ND	nose down
NDA	Next Data Authority
NDB	Non Directional Radio Beacon
NDV	No Directional Variations Available (METAR/SPECI)
NE	North-East
NEB	North-Eastbound
NEG	No / Negative / Permission not granted / That is not correct
NERS	North Atlantic European Routing Scheme
NERS	North Atlantic Routing Scheme
NEWCTOT	New Calculated Take-off Time
NEZ	No Escape Zone for a hostile when a missile is fired. The missile is going to REACH the hostile, but not meaning that it is going to destroy the hostile. It is the range between RTR (Turn and Run) and RMIN
NF	Free power turbine speed



N	continued...
NFP	Net Flight Path
NFZ	Normal Flight Zone
NG	Engine gas generator speed
NGT	Night
NIL	None / I have nothing to send to you
Nil	None / Nothing / No change
NIL	No Items Listed (Nothing)
NITS	Nature Intention Time Special
NL	No Licence
NLT	no later than
NM / nm	Nautical Miles
NML	Normal
NMR	Nautical Mile Radius
NMSP	Navigation Mode Select Panel
NN	No name, unnamed
NNC	Non-Normal Checklist
NNE	North-North-East
NNP	Non-Normal Procedures
NNW	North-North-West
No PDC	No Pre-Departure Coordination
NOAA	National Oceanic and Atmospheric Administration
NOF	International NOTAM Office
NONRVSM	Non-RVSM capable flight intending to operate in RVSM airspace
NONSTD	Non-standard

N	continued...
NOPAC	North Pacific
NOPT	No Procedure Turn Required
NOR OTS	Northern Organized Track System
NORAD	North American Aerospace Defense Command
NORM	normal
NOSIG	No Significant Change
NOTA	Northern Oceanic Transition Area
NOTAM	Notice to Airmen
NOTAMC	Cancelling NOTAM
NOTAMN	New NOTAM
NOTAMR	Replacing NOTAM
NOTAMS	notice(s) to airmen
NOTECHS	Non-technical skills evaluation
NOTOC	Notification to Captain
NOV	November
NOZ	Normal Operating Zone
NOZ	nozzle
NP	North Pacific (RFC)
NP	Normal Procedures
NP	Nominated Person
NPA	Non-Precision Approach
NPA	Notice of Proposed Amendment
NPS	Navigation Performance Scales
NPZ	No Planning Zone

N	continued...
NR	Number
NRG	Nuclear Research & Consultancy Group
NRH	No Reply Heard
NRS	Navigation Reference System
NS	Nimbostratus
NSC	No Significant Clouds
NSE	Navigation System Error
NSGA	Non-SSR Glider Areas
NSW	Nil Significant Weather
NTL	National
NTO	No Technical Objection
NTSB	National Transportation Safety Board
NTZ	No Transgression Zone
NU	nose up
NVD	Night Vision Device
NVG	Night Vision Goggles
NVIS	Night Vision Imaging System
NW	North-West
NWB	North-Westbound
NWS	National Weather Service
NWS	nosewheel steering
NXT	Next
Nz REF	reference load factor

O	
O/R	On Request
O/T	Other Times
OAC / OACC	Oceanic Area Control Centre
OAP	offset aim point
OAS	Obstacle Assessment Surface
OAT	Operational Air Traffic
OAT	Outside Air Temperature
OBOGS	onboard oxygen generating system
OBS	Observe / Observed / Observation
OBSC	Obscure / Obscured / Obscuring
OBST	Obstacle
OBSTN	Obstruction
OCA	Obstacle Clearance Altitude
OCA	Oceanic Control Area
OCA/H	Obstacle Clearance Altitude/Height
OCC	Operations Control Center
OCC	Occulting (light)
OCD	Oceanic Clearance Delivery Service
OCD	Oceanic Clearance Delivery
OCF	Out of Control Flight
OCH	Obstacle Clearance Height
OCL	Oceanic Clearance
OCNL	Occasional / Occasionally
OCR	Obstacle Clearance Requirements

<u>O</u>	<i>continued...</i>
OCS	Obstacle Clearance Surface
OCT	October
OD	Operational Directive
ODALS	Omni-Directional Approach Lighting System
OEI	One Engine Inoperative
OEP	Oceanic Entry Point
OEW	Operating Empty Weight
OFP	operational flight program
OFP	Operational Flight Plan
OFS	Obstacle Free Surface
OFZ	Obstacle Free Zone
OGE	Out of Ground Effect
OHD	Overhead
OIP	Offset Initiation Point
OIS	Obstacle Identification Surface
OIT	Operator Information Telex
OK	We Agree / It is correct
OM	Outer Marker
OM	Operations Manual
OMGWS	Outer Main Gear Wheel Span
OML	Operational Multi Crew Limitation
ONC	Operational Navigation Charts
OP	Operation Procedure
OPA	Opaque, white type of ice formation



<u>O</u>	<i>continued...</i>
OPC	Control indicated is Operational Control
OPC	Operators Proficiency Check
OPMET	Operational Meteorological Information
OPN	Open / Opening / Opened
OPR	Operator / Operate / Operative / Operating / Operational
OPS	Operations
OpSpec	Operations Specification
OPT	Onboard Performance Tool
OPT	Optimum
ORD	Order
ORIDE	override guide
ORIG	Original
Orig	Original issue
ORO	Organization Requirements for air Operations
ORP	Optimal Release Point
OSB	Option Select Button
OSV	Ocean Station Vessel
OTA	Oceanic Tailored Arrival
OTLK	Outlook
OTP	On Top
OTR	Oceanic Transition Route
OTS	Other Than Standard
OTS	Out of Service
OTS	Organized Track System

O	continued...
OTS	Organized Track Structure
OTS	Oceanic Track System
OTS	Other Than Standard
OUBD	Outbound
OUTREG	Out of Regulation
OVC	Overcast
OVFLY	overfly
OVHT	Overheat
OVR	Over
OVRD	Override
OVRSPD	overspeed
OWC	Obstacle Warning Cue
OXY	oxygen
P	
P CAS	pitch control augmentation system
P...	Prohibited Area (followed by identification)
P...	Maximum value of wind speed or RVR
PA	Pressure Altitude
PA	Precision Approach
PA	Pacific (RFC)
PA	powered approach
PAC	Pacific (ICAO Region)
PAC	Precision Attitude Control
PACOTS	Pacific Organised Track System

P	continued...
PAEW	Personnel and Equipment Working
PAJA	Parachute Jumping Activities
PAL	Pilot Activated Lighting
PALS	Precision Approach Lighting System
PANS	Procedures for Air Navigation Services
PANS/OPS	Procedures for Air Navigation Services - Aeroplane Operations
PANS/RAC	Procedures for Air Navigation Services - Rules of the Air
PANS-ATM	Procedures for Air Navigation Services - Air Traffic Management
PANS-OPS	Procedures for Air Navigation Services - Aircraft Operations
PAPA	Parallax Aircraft Parking Aid
PAPI	Precision Approach Path Indicator
PAR	Precision Approach Radar
PARA	Paragraph
PARL	Parallel
PARROT	transponder
PASI	Passive Approach Slope Indicator
PAT	Pattern
PATC...	Precision Approach Terrain Chart
PBC	Performance-based Communication
PBCS	Performance-based Communication and Surveillance
PBH	Power By the Hour
PBIL	Projected Bomb Impact Line
PBIT	periodic BIT
PBN	Performance-Based Navigation

P	continued...
PBS	Performance-based Surveillance
PC	plane captain
PCA	Positive Control Area
PCA	Pre-Conditioned Air
PCD	Proceed / Proceeding
PCL	Pilot-Controlled Lighting
PCL	pocket checklist
PCN	Pavement Classification Number
PCT	Per cent
PDA	Premature Descent Alert
PDC	Pre-departure Clearance
PDG	Procedure Design Gradient
PDM	Peaks Display Mode
PDP	Pre-Determined Point
PDU	Power Drive Unit
PEL	Portable Emergency Light
PER / PERF	Performance
PERM	Permanent
PES	Pitch Enhancement System
PET	Point of Equal Time
PF	Performance Unterricht
PF	Pilot Flying
PFC	Porous Friction Course
PFC	Pre-Flight Check

P	continued...
PFD	Primary Flight Display
PFI	Pre-Flight Inspection
PFL	Preflight
PGOG	Protective Goggles
PI	Performance In-flight
PIB	Pre-flight Information Bulletin
PIC	Pilot in Command
PIN	Personal Identification Number
PIO	pilot induced oscillation
PIP	Performance Improvement Package
PIREP	Pilot Weather Report
PIREPS	Pilot Reports
PIS	Public Interest Site
PITBULL	Any FOX 3 (active radar) missile that starts using its onboard radar for tracking
PJE	Parachute Jumping Exercise
PK	Probability of Kill for a missile
PK WND	Peak Wind
PL	Ice Pellets
PLA	Practice Low Approach
PLASI	Pulse Light Approach Slope Indicator
PLB	Pre Line Briefing
PLB	Personal Locator Beacons
PLD	Estimated Payload
PLF	parachute landing fall



P	continued...
PLI	Instructor "Pre Line Briefing"
PLS	Please
PLTOW	Performance Limited Takeoff Weight
PLVL	Present Level
PLW	Plow / Plowed
PM	Pilot Monitoring
PMG	permanent magnet generator
PN	Prior Notice Required
PNdb	Perceived Noise Decibels
PNF	Pilot Not-Flying
PNL	panel
PNO	Precipitation Amount Not AVBL
PNR	Point of No Return
PNR	Prior Notice Required
PO	Dust / Sand Whirls (dust devils)
POFZ	Precision Obstacle Free Zone
POL	Polar Region
POS	Position Report Message
POS	position
POSS	Possible
pph	pounds per hour
PPI	Plan Position Indicator
PPLI	Precise Participant Location and Identification used on the SA Page → goto SENSOR
ppm	pounds per minute

P	continued...
Ppmv	Parts per million by volume
PPR	Prior Permission Required
PPSN	Present Position
PR	Passive Ranging
PR	pressure
PrefA	Preflight Alternate
PRES	Pressure
PRESFR	Pressure Falling Rapidly
PRESRR	Pressure Rising Rapidly
PRESS	Pressure
PREV	Previous
PRF	Pulse Repetition Frequency
PRFG	Aerodrome partially covered by fog
PRI	Primary
PRKG	Parking
PRM	Precision Runway Monitor
PRM	Preferred Route Message
PRN	Pseudo Random Noise
P-RNAV	Precision Area Navigation
PRNAV	Precision RNAV
PROB	Probably, Probability
PROC	Procedure
PROC	Processor – FCS function Figure 15-10. FCS Failure Indications and Effects (Sheet 10 of 10)
PROP	Propeller

P	continued...
PROV	Provisional
PROX	Proximity
PRP	Point-in-space Reference Point
PRSOV	Pressure Regulating Shut Off Valve
PRV	Pressure Regulating Valve
PS	Plus
PSBL	Possible
PSG	Passing
psi	Pounds per Square Inch
PSI / Psi	Pound(s) per Square Inch
PSN	Position
PSN	Priority Serial Number
PSP	Pierced Steel Plank
PSR	Packed Snow on Runway(s)
PSR	Primary Surveillance Radar
PST	Pacific Standard Time
PSTN	Public Switched Telephone Network
PSYS	Pressure System(s)
PT	Procedure Turn
Pt	Pint
PT	Procedure Turn
PTCHY	Patchy
PTH	Path
PTN	Procedure Turn

P	continued...
PTS	Polar Track Structure
PTS	power transmission shaft
PTS	pressure transmitter set
PUS	Picus-Meeting
PVI	Para Visual Indicator
PVT	Private
PWINO	Precipitation Identifier Information Not Available
PWR	Power
PWS	Predictive Windshear System
PY	Sea Spray
Q	
QA	Quality Assurance
QAR	Quick Access Recorder
QC	Quota Count (Noise abatement control)
QDC	quick disconnect connector
QDL	Do you intend to ask me for a series of bearings? / I intend to ask you for a series of bearings (to be used in radiotelegraphy as a Q Code)
QDM	Magnetic Heading to the Station (Zero Wind)
QDM	Magnetic Track to Station
QDR	Magnetic Bearing from the Station
QFE	Atmospheric Pressure at Aerodrome Elevation
QFU	Magnetic orientation of runway
QGE	What is my distance to your station? / Your distance to my station is (distance figures and units) (to be used in radiotelegraphy as a Q Code)
QM	Quality Manager

Q	continued...
QME	Quality Management Exposition
QNE	Pressure altitude (indicated altitude with altimeter setting 1013.25 hPa / 29.92 inHG)
QNH	Altimeter sub-scale setting to obtain elevation when on the ground
QNH	Atmospheric Pressure at Nautical Height
QRH	Quick Reference Handbook
Qt	Quart
QTE	True Bearing from the Station
QTF	Will you give me the position of my station according to the bearings taken by the D/F stations which you control? / The position of your station according to the bearings taken by the D/F stations that I control was . . . latitude . . . longitude (or other indication of position), class . . . at . . . hours
QTS	Quarts (0,95 liter)
QTY	Quantity
QUAD	Quadrant
QUJ	Will you indicate the TRUE track to reach you? / The TRUE track to reach me is . . . degrees at . . . hours (to be used in radiotelegraphy as a Q Code)
R	
R	Red
R	Rate of turn
R	Restricted Area (followed by identification)
R	Right
R CAS	roll control augmentation system
R FUS MSL	L FUS MSL and R FUS MSL are used to jettison AIM-7 or AIM-120 missiles attached to the fuselage
R...	Restricted Area (followed by identification)
R...	Runway (followed by figures in METAR / SPECI)
R...	Radial from VOR (followed by three figures)
R/T	receive/transmit

R	continued...
R/T	Radio Telephony
RA	Rain
RA	Resolution Advisory (TCAS / ACAS)
RA	Radio Altimeter Height
RA	Radio Altimeter
RA	Resolution Advisory
RAAS	Remote Aerodrome Advisory Service
RAC	Rules of the Air and Air Traffic Services
RAC	Route and Aerodrome Competency (Flughafeneinweis)
RACK/LCHR	drops the weapon and its launcher rack
RAD	Route Availability Document
RAD	Radar
R _{aero} / R _{max}	Max Range of a fired missile (F-Pole distance); defined as the maximum balistacal range of a missile; hostile does not perform any defending maneuvers
RAG	Ragged
RAG	Runway Arresting Gear
RAI	Runway Alignment Indicator
RAIL	Runway Alignment Indicator Lights
RAIM	Receiver Autonomous Integrity Monitoring
RALT	radar altimeter
RAM	radar absorbing material
RAMOS	Remote Automatic Meteorological Observing System
RAMPD	right advanced multipurpose display
RAPCON	Radar Approach Control

R	continued...
RAR	Rules and Regulations
RASN	Rain and Snow
RASS	Remote Altimeter Setting Source
RAT	Ram Air Turbine
RATS	reduced authority thrust system
RAYGUN	when locking a target with your radar, it is good practice to say "RAYGUN" so your teammates are aware that you are locking someone. It is often used to identify a contact as friend or foe. If a person yells “BUDDY SPIKE!”, it’s very likely that you are locking a friendly contact.
RB	Rescue Boat
RCA	Reach Cruising Altitude
RCAG	Remote Center Air/Ground
RCC	Rescue Coordination Center
RCD	Request for Departure Clearance Downlink
RCDR	recorder
RCF	Radio Communication Failure
RCF	Reduced Contingency Fuel
RCH	Reach / Reaching
RCL	Request for Clearance
RCL	Runway Center Line
RCL	Request Oceanic Clearance Downlink Message
RCLL	Runway Center Line Light(s)
RCLM	Runway Center Line Markings
RCLR	Recleared
RCLS	Runway Centerline Lighting System
RCO	Remote Communications Outlet

R	continued...
RCP	Required Communication Performance
RCR	Runway Condition Report
RCS	radar cross section
RCV	Receive
RCVY	recovery
RDARA	Regional and Domestic Air Route Area
RDC	right designator controller
RDDI	right digital display indicator
RDH	Reference Datum Height
RDH	Radio Decision Height
RDL	Radial
RDO	Radio
RDOACT	Radioactive
RDR	radar
RDR ATTK	Radar Attack
RE	Recent
REA	Ready Message
REC	Receive / Receiver
REC	radar elevation control
REC	record or receive
RECCE	reconnaissance
REDL	Runway Edge Light(s)
REF	Reference to / Refer to
REG	Registration

R	continued...
REGCAUSE	Regulation Reason
REGUL	Regulation
REIL	Runway End Identifier Lights
REJ	reject
REL	Runway Entrance Lights
RELCTD	Relocated
RENL	Runway End Lights
REP	Report / Reporting / Reporting Point
REQ	Request / Requested
ERTE	Re-route
RESA	Runway End Safety Area
RESP	Response
RESPBY	Response Required By (Time)
RESTR	Restrict
RET	Rapid Exit Taxiway
RETIL	Rapid Exit Taxiway Indicator Lights
REUP	Recent Unidentified Precipitation
RF	Constant Radius Arc to a Fix
RF	Fixed Radius
RF	Radio Frequency
RFC	Route Facility Chart
RFF	Rescue and Fire Fighting
RFFS	Rescue and Fire Fighting Services
RFL	Requested Flight Level

R	continued...
RFP	Replacement Flight Plan
RG	Range (lights)
Rgnl	Regional
RGS	Radio Ground Station
RGS	Required Ground Speed
RHC	Right-hand Circuit
RHS	Right Hand Seat
RHSP	Right Hand Seat Pilot
RI	right inboard
RI	Ramp Inspection
RI	Rectification Interval
RIAS	Required Indicated Airspeed
RIE	Rectification Interval Extension
RIF	Reclearance In Flight
RIFLE	AGM-65 Air-GND Missile
RIL	Runway Intersection Lights
RIL	Runway Identification Lights
RIME	Rime
RIS	Infectious Substances
RL	Report Leaving
RL	Rhumb Line
RL	Runway edge Lighting
RLA	Relay to
RLatSM	Reduced Lateral Separation Minimum

R	continued...
RLCE	Request Level Change En-Route
RLG	ring laser gyro
R-LIM	roll rate limiter
RLLS	Runway Lead-In Lighting System
RLNA	Request Level Not Available
RLongSM	Reduced Longitudinal Separation Minimum
RLY	Controls and Indicators. The only cipher control on the communication control panel is the RLY CIPHER/PLAIN switch (relay switch). The controls on the KY-58 control panel assembly are the MODE select knob, the unlabeled fill select knob, the VOLUME control knob, and the unlabeled power select knob (see figure 23-3).
RM	Route Manual
RM	right midboard
RMA	Regional Monitoring Agency
R _{max} / R _{aero}	Max Range of a fired missile (F-Pole distance); defined as the maximum balistacal range of a missile; hostile does not perform any defending maneuvers
RMD	Miscellaneous Dangerous Goods
RMI	Radio Magnetic Indicator
R _{min}	Minimum Range of a missile
RMK	Remark
RMM	removable memory module
RMNDR	Remainder
RMZ	Radio Mandatory Zone
RNAV	Area Navigation
RNG	Radio Range
RNG	range

R	continued...
RNG	Non-Flammable Non-Toxic Gas
RNP	Required Navigation Performance
RNPC	Required Navigation Performance Capability
RNSFC	Royal Navy School of Fighter Control Training Areas
RO	Roll Out RVR Value
RO	right outboard
ROC	Rate of Climb
ROD	Rate of Descent
ROE	rules of engagement
ROFOR	Route Forecast
ROMA	removable optics module assembly
RON	Receiving Only
R _{opt}	Optimum Range of a fired missile; missile climbs to a higher altitude; defined as such that a hostile performs defending maneuvers in the last instance
ROT	Runway Occupancy Time
ROX	Oxidizing Substances
RP	replacement pilot
RP	Reporting Point
RP	Rotation Point
RPB	Poisonous (Toxic) Substances
RPDS	Reference Path Data Selector
RPG	Toxic Gas
RPI	Radar Position Indicator
RPL	Repetitive Flight Plan
RPLC	Replace / Replaced

R	continued...
RPM	Rotation per Minute
rpm	revolutions per minute
RPM	Revolutions (rotations) Per Minute
RPS	Radar Position Symbol
RPT	Repeat
RQMNTS	Requirements
RQRD	Required
RR	Report Reaching
RRA (RRB, RRC, ...)	Delayed Meteorological Message
RRL	Runway Remaining Lights
RRN	Rerouteing Notification Message
RRP	Rerouteing Proposal Message
RRSLV	Radar Slave (Radar Mode for A/A identify in order to pass it on to FLIR)
RRW	Radioactive Material
RRY	Radioactive Material of Category II and III
RSC	Rescue Sub-Center
RSC	Runway Surface Condition
RSC	Substances liable to Spontaneous Combustion
RSCD	Runway Surface Condition
RSET	reset
RSM	Ramp Service Manual
RSP	Responder Beacon
RSP	Required Surveillance Performance
RSR	En-Route Surveillance Radar



R	continued...
RSRI	rolling-surface-to-rudder interconnect
RSS	Root Sum Square
RSVN	Reservation
RT	Right Turn
RT	Radio Telecommunication
RTA	Required Time of Arrival
RTAS	Required True Airspeed
RTCA	Radio Technical Commission for Aeronautics
RTCA	Requirements and Technical Concepts for Aviation
RTD	Delayed Meteorological Message
RTE	Route
RTF	Radio telephone / Radiotelephony
RTG	Radiotelegraph
RTHL	Runway Threshold Light(s)
RTIL	Runway Threshold Identification Lights
RTN	Return / Returned / Returning
RTO	Rejected Takeoff
RTODAH	Rejected Take-Off Distance Available, Helicopter
RTOW/M	Regulated Takeoff Weight/Mass
R _{tr}	Turn and Run; max range of a missile, where the hostile immediately "turns and runs" after the missile has been launched... (E-Pole distance)
RTR	Remote Transmitter/Receiver
RTR	Radar Termination Range (NM)
RTS	Return to Service
RTS	Routes



R	continued...
RTZL	Runway Touchdown Zone Light(s)
RUD	rudder
RUF	Rough
RUT	Standard Regional Route Transmitting Frequencies
RV	Radar Vector
RV	Rescue Vessel
RVA	Radar Vectoring Area
RVOP	Reduced Visibility Operations Plan
RVR	Runway Visual Range
RVRA	Runway Visual Range Ten Minute Average
RVRENO	Runway Visual Range Ten Minute Extremes Not Available
RVRM	Runway Visual Range Midpoint
RVRMNO	Runway Visual Range Midpoint Not Available
RVRNO	Runway Visual Range Not Available
RVRR	Runway Visual Range Rollout
RVRRNO	Runway Visual Range Rollout Not Available
RVRT	Runway Visual Range Touchdown
RVRTNO	Runway Visual Range Touchdown Not Available
RVSM	Reduced Vertical Separation Minimum
RVV	Runway Visibility Values
RWL	Runway Lights



R	continued...
RWR	<p>Radar Warning Receiver</p> <p>A symbol without a circle around it means that the radar is in search mode (in other words: not tracking you yet).</p> <p>A symbol with a steady circle around it indicates that the radar is tracking/locked on to your aircraft.</p> <p>A missile is not heading your way yet, but it can be any second now if the symbol is an enemy SAM site.</p> <p>A symbol with a flashing circle around it indicates that the radar is supporting a missile that has been launched at you.</p> <p>You are about to receive a missile. This is where you pop chaff, flares, ECM and start your evasive maneuvers.</p>
RWR PRI	<p>RWR PRI (Priority Mode) Selector</p> <p>Displays 5 highest priority contacts only</p>
RWR SEP	<p>RWR SEP (Separate) Selector</p> <p>Expands groupings of symbols on the RWR display such that they can be more easily read</p>
RWR Programms A-10C II Tank Killer	<p>The four main programs you should be using are:</p> <ul style="list-style-type: none">• Program A: Old generation radar SAM site• Program B: New generation radar SAM site• Program C: IR heat-seeking SAM site• Program D: Unknown/Miscellaneous
RWS	<p>Range While Scan</p> <p>RWS radar mode allows for detection of contacts in a large volume. It is the default search mode for air-to-air or when an air-to-air missile is placed in priority. RWS mode provides all-aspect (nose-on, tail-on) and all altitude (look-up, look-down) target detection. The display shows range as the vertical axis and azimuth angle on the horizontal. While in RWS mode, the RADAR can maintain up to 10 trackfiles.</p>
RWSL	Runway Status Lights
RWY	Runway
RWYM	Runway Markings
S	
s	Second(s)
S	South / Southern Latitude
S	South

S	continued...
S...	State of the Sea
S/W	software
SA	Sand
SA	METAR including trend forecasts, if provided
SA	South America (RFC)
SA	Special Authorization (Minima)
SA	Situational Awareness
SA	Safety Altitude
SA	Station Actual
SAAAR	Special Aircraft and Aircrew Authorization Required
SADL	Situational Awareness Datalink
SAE	Society of Automotive Engineers
SAFA	Safety Assessment of Foreign Aircraft
SAI	Special Airline Information
SAI	Standby Attitude Indicator
SAL	for Salvo
SALS	Simple Approach Lighting System
SALSF	Simple Approach Lighting System with Sequenced Flashing Lights
SALSF	Short Approach Lighting System with Sequenced Flashing Lights
SAM	Slot Allocation Message
SAM	South America (ICAO Region)
SAM	surface to air missile
SAN	Sanitary
SAP	Stabilized Approach

S	continued...
SAP	System Access Parameters
SAR	Search and Rescue
SARPS	Standards and Recommended Practices
SAS	Stability Augmentation System
SAT	Saturday
SAT	Satellite
SAT	South Atlantic Region
SAT	Static Air Temperature
SATCOM	Satellite Communication
SATVOICE	Satellite Voice Communication
SAWR	Supplementary Aviation Weather Reporting Station
SAXFRA	Slovenian Austrian Cross Border Free Route Airspace
SB	Southbound
SB	Service Bulletin
SBAS	Satellite-based Augmentation System
SBC	Standby Callout (EASA-FTL)
SC	Stratocumulus
SCA	Southern Control Area
SCATANA	Security Control of Air Traffic and Air Navigation Aids
SCR	Screening
SCT	special crew time
SCT	Scattered
SD	Standard Deviation
SDA	Southern Domestic Airspace



S	continued...
SDBY	Stand by
SDC	signal data computer
SDCR	signal data computer replacement
SDF	Simplified Directional Facility
SDF	Stepdown Fix
SE	South-east
SEA	South East Asia Region
SEA	Sea (sea-surface temperature and state of the sea)
SEAD	Suppression of Enemy Air Defenses
SEAWARS	seawater parachute release mechanism
SEB	South-eastbound
SEC	Second(s)
SEC	source error correction
SECN	Section
SECT	Sector
SEENFRA	South-East Europe Night Free Route Airspace
SEI	Standby Engine Indicator
SEL	Select
SELCAL	Selective Call System
SEP	September
SEP	Safety and Emergency Procedures
SEQ	Sequence
SER	Service / Servicing / Served
SER	Single Ejector Rack

S	continued...
SERA	Standardised European Rules of the Air
SETI	Single Engine Taxi-In
SEV	Severe (i.e. icing and turbulence reports)
SF	Stratus Fractus
SFC	Surface
SFC	Special Facility Chart
SFL	Sequenced Flashing Lights
SFT	Surface Friction Tester
SG	Snow grains
SG	Specific Gravity
SGAP	Special Go-Around Procedure
SGL	Signal
SGL	Single
SH	Safety Height
SH	Short Haul
SH ...	Shower ... followed by RA = rain SN = snow PL = ice pellets GR = hail GS = small hail and/or snow pellets or combinations thereof, e.g. SHRASN = showers of rain and snow)
SHF	Super High Frequency (3000-30000MHz)
SI	International System of Units
SIA	Standard Instrument Approach
SIAP	Standard Instrument Approach Procedure
SID	Standard Instrument Departure

S	continued...
SIDPT	Standard Instrument Departure Procedure Text
SIF	Selective Identification Feature
SIG	Significant
SIGMET	Information concerning en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations
SIGMET	SIGnificant METeorological Report
SIGWX	Significant Weather
SIM	Simulator
SIMUL	Simultaneous / Simultaneously
SIP	Slot Improvement Proposal Message
SIR	Packed or Compacted Snow and Ice on Runway(s)
SITA	Société Internationale de Télécommunications Aéronautiques
SIWL	Single Isolated Wheel Load
SKC	Sky Clear
SKED	Schedule / Scheduled
SLAM	Standoff Land Attack Missile AGM-84E SLAM Cruise Missile
SLC	Slot Cancellation Message
SLOP	Strategic Lateral Offset Procedures
SLOT	Time window on takeoff for ATC (flow control)
SLP	Sea Level Pressure
SLP	Speed Limiting Point
SLPNO	Sea Level Pressure Not Reported
SLR	Slush on Runway(s)
SLT	Sleet
SLW	Slow

S	continued...
SM	Statute Mile(s)
SMB	Side Marker Board
SMC	Surface Movement Control
SMGCS	Surface Movement Guidance Control System
SMGSC	Surface Movement Guidance and Control System
SMM	Safety Management Manual
SMR	Surface Movement Radar
SMS	stores management set
SMS	Safety Management System
SN	Snow
SN	Serial Number
SNAS	Satellite Navigation Augmentation System
SNBNK	Snowbank(s) Caused by Plowing
SNGL	Single
SNINCR	Snowfall Increasing Rapidly
SNOCLO	Aerodrome Closed Due to Snow (METAR/SPECI)
SNOWTAM	Special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format
SNOWTAM	Snow Notice To Airmen
SOC	Start of Climb
SOCAL	Southern California Terminal Radar Approach Control
SOI	Sensor of Interest
SOIA	Simultaneous Offset Instrument Approach
SOP	Standard Operating Procedure(s)

S	continued...
SOPG	Standard Operation Procedure Group
SOTA	Shannon Oceanic Transition Area
SP	SPECI including trend forecasts, if provided
SP	South Pacific (RFC)
SP	MODE: Self Protect for HARM AGM-88C SP Mode allows for 360° engagement; however, more kinetic energy is sacrificed to turn as the angle increases. Self-Protect is named as such because it is primarily designed for quick reaction to a threat. On these three RWR displays, whenever the HARM and SP mode is selected, a square is placed around the selected emitter; the highest priority emitter is selected automatically. Note that a maximum of 6 emitters are displayed on the HUD, but the HARM will always cycle all emitters. Once fired, the HARM will either have already acquired the selected emitter or, if it is outside the HARM seeker field of view, it will acquire it postlaunch.
SP	Supplementary Procedures
SPA	Operations Requiring Specific Approvals
SPD	Speed
SPD BRK	speedbrake
SPEC	Specification
SPECI	Aerodrome Special Meteorological Report
SPECI	Aviation Selected Special Weather Report
SPECI	Special Report Amending a METAR
SPECIAL	Local Special Meteorological Report
SPI	Special Position Indicator
SPI	Sensor Point of Interest
SPIKE	Air-to-Air radar is locked on you
SPJ	Self Protection Jammer
SPL	Supplementary Flight Plan
SPN	spin

S	continued...
SPO	Specialised operations
SPOC	SAR Point of Contact
SPOC	Search and rescue Point Of Contact
SPOT	Spot Wind
SQ	Squall
SQL	Squall Line
SR	Sunrise
SR	Vertical Shear
SRA	Surveillance Radar Approach
SRA	Special Rule Airspace
SRE	Surveillance Radar Element of Precision Approach Radar System
SRE	Surveillance Radar Equipment
SRG	Short Range
SRM	Slot Revision Message
SRM	Spin Recovery Mode
SRR	Search and Rescue Region
SRU	Shop Replaceable Unit
SRW	Short Runway
SRY	Secondary
SRZ	Special Rules Zone
SS	Sandstorm
SS	Sunset
SSA	Sector Safe Altitude
SSALF	Simplified Short Approach Lighting System with Sequenced Flashing Lights



S	continued...
SSALR	Simplified Short Approach Lighting System with Runway Alignment Indicator Lights
SSALS	Simplified Short Approach Lighting System
SSB	Single Sideband
SSE	South-south-east
SSEC	Static Source Error Correction
SSR	solid state recorder
SSR	Secondary Surveillance Radar
SST	Supersonic Transport
SSW	South-south-west
ST	Stratus
STA	Straight-in Approach
STAB	stabilator
STAR	Standard Terminal Arrival Route
STATE	Flight engaged in military, customs or police services (FPL)
STBY	Standby
STC	Supplemental Type Certificate
STD	Standard
STD	Scheduled Time of Departure
STD HDG	stored heading
STF	Stratiform
STN	Station
STNR	Stationary
STOL	Short Take-Off and Landing
STOPS	Standard Operations



S	continued...
STORES	drops the weapon but not its attachment rack
STPD	Standard Temperature Pressure Day
STS	Status
STS	Speed Trim System
STT	Standard Taxi Time
STT	<p>SINGLE TARGET TRACK</p> <p>STT (Single Target Track): STT mode is a traditional radar "lock" where the radar continuously scans a single target, resulting in a very high update rate; this makes it the primary method of providing guidance to air-to-air weapons. STT maintains a trackfile for its target and automatically designates it as the L&S if it is not already. The radar is slaved to this trackfile; as such, manual antenna elevation control is inhibited and the B-sweep follows the trackfile.</p> <p>Only the trackfile that is placed in STT is visible and all onboard trackfiles are dropped. In STT, the RDR ATTK format is presented in azimuth along the horizontal axis and range along the vertical axis.</p> <p>Single Target Track is obtained by:</p> <ul style="list-style-type: none">• depressing the TDC while the cursor is over the Launch & Steering trackfile or while over 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 <p>STT is exited by pressing the Undesignate button. The radar is returned to the last-entered search mode.</p>
STWL	Stopway Light(s)
SUA	Special Use Airspace
SUBJ	Subject to
SUN	Sunday
SUP	Supplement (AIP Supplement)
SUPPS	Regional Supplementary Procedures

S	continued...
SUPT	support
SVC	Service Message
SVC	Service
SVCB	Serviceable
SVCBL	Servicable
SW	South-west
SW	Single Wheel
SW	switch
SWAP	Severe Weather Avoidance Plan
SWB	South-westbound
SWC	Significant Weather Chart
SWEPT	Swept or Broom/Broomed
SWX	Space Weather
SWXC	Space Weather Centre
SWY	Stopway
SYS	System
I	
t	Ton(s)
T	Temperature
T	Torch
T	True (bearing)
T&G	touch and go
T/B	Tons per Bogey
T/J	Tons per Twin Wheel



T	continued...
T/O	Takeoff
T/RSI	Tons per Single Isolated Wheel
T1	engine inlet temperature
TA	Traffic Advisory
TA	Transition Altitude
TA	Tailored Arrival
TA	Traffic Advisory (TCAS) or Transition Altitude
TA/H	Turn at an Altitude/Height
TAA	Terminal Arrival Area
TAA	Terminal Arrival Altitude
TAC	Terminal Area Chart
TAC	tactical
TAC	Terminal Approach Chart
TACAN	UHF Tactical Air Navigation Aid
TAD	Tactical Awareness Display
TAF	Aerodrome Forecast (meteorological code)
TAF	Terminal/Aerodrome Forecast
TAFOR	Terminal Aerodrome Forecast in Full
TAI	Thermal Anti-Ice
TAIL	Tail Wind
TAMMAC	tactical aircraft moving map capability
TAR	Terminal Area Surveillance Radar
TAS	True Airspeed
TAS	Knots True Air Speed

I	continued...
TAT	Total Air Temperature
TAW	Taxi Weight
TAWS	terrain awareness warning system
TAWS	Terrain Awareness and Warning System
TAX	Taxiing / Taxi
TBA	To Be Advised
TBC	To Be Confirmed
TBD	To Be Determined
TC	Tropical Cyclone
TC	Transport Canada
TC	Type Certificate
TCA	Terminal Control Area
TCA	Tropical Cyclone Adivsory
TCAC	Tropical Cyclone Advisory Center
TCAS	Traffic Alert and Collision Avoidance System
TCAS RA	Traffic Alert and Collision Avoidance System Resolution Advisory
TCH	Threshold Crossing Height
TCH	Type Certificate Holder
TCN or TACAN	tactical air navigation
TCT	Training Contactable
TCU	Towering Cumulus
TCV	thermal control valve
TD	Touchdown RVR Value
TDC	Throttle Designator Control(ler)

I	continued...
TDM	Track Definition Message
TDO	Tornado
TDP	turbine discharge pressure
TDP	Takeoff Decision Point
TDWR	Terminal Doppler Weather Radar
TDZ	Touchdown Zone
TDZ LG	Touchdown Zone Lights
TDZE	Touchdown Zone Elevation
TDZL	Touchdown Zone Lights
TE	Trailing Edge
TEC	Tower En Route Control
TECR	Technical Reason
TED	trailing edge down
TEF	trailing edge flaps
TEMP	Temperature
TEMPO	Temporary / Temporarily
Tempo	Temporary (Used on Lido Temporary Charts)
TER	Triple Ejector Rack
TERPS	Terminal Instrument Procedures (U.S.)
TERR	Terrain
TET	Total Elapsed Time
TEU	trailing edge up
TF	Track to Fix
TF	Trip Fuel

I	continued...
TFC	Traffic
TFR	Temporary Flight Restriction
TFU	Technical Follow-Up
TGL	Touch-and-go Landing
TGP	Targeting Pod
TGS	Taxiing Guidance System
TH	Transition Height
THA	throttle handle angle
THL	Take-off Hold Lights
THN	Thin
THR	Threshold
THR	Thrust
THRL	Threshold Lights
THRU	Through
THU	Thursday
TI	Technical Instructions
TI	Transport Index
TIBA	Traffic Information Broadcast by Aircraft
TIL	Until
TIP	Temperature Indicator Placard
TIP...	Until Past (followed by place)
TIT	Turbine Inlet Temperature
TIZ	Traffic Information Zone
TK PRESS	fuel tank pressure



I	continued...
TKOF	Take-off
TL	Taxilane
TL	Traffic Load
TL	Transition Level
TL ...	Till
TLD	Tailored (customized) pages
TLOF	Touchdown and Lift-off Area
TLS	Transponder Landing System
TM	Traffic Management
TM	Transmissometer
TMA	Terminal Control Area
TMA	Terminal Manoeuvring Area
TMC	Thrust Management Computer
TMI	Track Message Identification
TMPA	Traffic Management Program Alert
TMS	Target Management Switch
TMSP	Thrust Management System Panel
TMU	Traffic Management Unit
TMZ	Transponder Mandatory Zone
TN...	Minimum Temperature (followed by figures in TAF)
TNA	Turn Altitude
TNH	Turn Height
TO	Takeoff
TO ...	To (followed by place)

I	continued...
TOAC	Time of Arrival Control
TOBT	Target Off-Block Time
TOC	Table Of Contents
TOC	Top Of Climb
TOD	Top of Descent
TOD	Takeoff Distance
TODA	Takeoff Distance Available
TODAH	Take-off Distance Available, Helicopter
TOF	Time of Fall Time of Flight
TOGA	Takeoff / Go-Around
TOGW	Takeoff Gross Weight
TOM	Take-Off Mass
TOO	MODE: Target of Opportunity
TOP	Cloud Top
TOR	Takeoff Run
TORA	Takeoff Run Available
TOT	Time On Target
TOW	Takeoff Weight
TOX	Toxic
TP	Turning Point
TP	Target Practice
T-PED	Transmitting Portable Electronic Device
TR	Track
TR	transformer rectifier



I	continued...
TR	Type Rating
TRA	Temporary Reserved Airspace
TRACON	Terminal Radar Approach Control
TRAG	Temporary Reserved Area (Gliding)
TRANS	Transmits / Transmitter
TREND	Trend Forecast
TRG	Training
TRL	Transition Level
TRM	Thrust Reference Mode
TRML	Terminal
TRNG	Training
TROP	Tropopause
TRSN	Transition
TRTO	Type Rating Training Organization
TS	Thunderstorm
TS ...	Thunderstorm ... followed by RA = rain SN = snow PL = ice pellets GR = hail GS = small hail and/or snow pellets or combinations thereof, e.g., TSRASN = thunderstorm with rain and snow
TSA	Temporary Segregated Area
TSAT	Target Start-up Approval Time
TSE	Total System Error
TSIL	Target Identification Set Laser
TSNO	Thunderstorm Information not Available

I	continued...
TSNT	Transient
TSO	Technical Standard Order
TSUNAMI	Tsunami (aerodrome warnings)
TT	True Track
TTF	Trend Forecast (Australia)
TTG	Time To Go
TTI	Time To Impact
TTK	True Track
TTRN	Time to Release Numeric
TUE	Tuesday
TURB	Turbulence
T-VASIS	T Visual Approach Slope Indicator System
TVE	Total Vertical Error
TVOR	Terminal VOR
TVV	Total Velocity Vector = FPV
TW	Tailwind
TWC	Tail Wind Component
TWEB	Transcribed Weather Forecast
TWIP	Terminal Weather Information for Pilots
TWR	Aerodrome Control Tower / Aerodrome Control
TWR	Tower (Aerodrome Control)

I	continued...
TWS	<p>TRACK WHILE SCAN</p> <p>TWS (pronounced "TWIS") maintains an actual track on several aircraft while still searching for others. The radar allocates part of its power to tracking the target or targets while part of its power is allocated to scanning, unlike the straight tracking mode, when the radar directs all its power to tracking the acquired targets. In the TWS mode the radar has a possibility to acquire additional targets as well as providing an overall view of the airspace and helping maintain better situational awareness. Since the radar is sharing it's computing time between targets, the accuracy is less precise than for a single target track (STT) mode of operation. TWS mode allows for trackfiles to be kept at a high update rate. To accomplish this, TWS artificially limits the scan volume (bars/azimuth) and provides for automatic scan centering. It is also optimal for providing post-launch datalink for the AIM-120 AMRAAM missile while remaining in search.</p>
TWY	Taxiway
TWYL	Taxiway Link
TX ..	Maximum Temperature
TXL	Taxilane
TYP	Type of Aircraft
TYPH	Typhoon
U	
U.S.	United States
U/S	Unserviceable
U/S	Under Supervision
U/T	Under Training
UA	Unmanned Aircraft
UA	Air-report (AIREP)
UA	up-AUTO
UAB	Until Advised By...
UAC	Upper Area Control Center

U	continued...
UAR	Upper Air Route
UAS	Unmanned Aircraft System
UAT	Universal Access Tranceiver
UAV	Unmanned Aerial Vehicles
UDA	Upper Advisory Area
UDF	Ultra High Frequency Direction-finding Station
UFC	Up Front Controller
UFCD	upfront control display
UFN	Unfit for flying ohne Attest
UFN	Until Further Notice
UHDT	Unable Higher Due Traffic
UHF	Ultra High Frequency (300-3000 MHZ)
UIC	Upper Information Center
UIR	Upper Flight Information Region
ULD	Unit Load Device
ULM	Ultra Light Motorized Aircraft
ULR	Ultra Long Range
UM	Uplink Message
UMS	Usage Monitoring System
UN	Four-digit number for identification of dangerous goods
UN	United Nations
UNA	Unable
UNAP	Unable to Approve
UNAVBL	Unavailable

U	continued...
UNICOM	Aeronautical Advisory Station
UNICOM	Universal Communications
UNK	Unknown
UNL	Unlimited
UNLGTD	Unlighted
UNLKD	Unlock(ed)
UNMKD	Unmarked
UNMNT	Unmonitored
UNREL	Unreliable
UNUSBL	Unusable
UP	Unidentified Precipitation (automated METAR / SPECI)
UPDT	update
UPK	Universal Precaution Kit
UPR	User Preferred Route
URL	Uniform Resource Locator (Web Site)
US	Unserviceable
USAF	United States Air Force
USB	Upper Side Band
USC	Used Standby Cabin Crew
USD	US Dollar
USG	U.S. Gallons
UTA	Upper Control Area
UTC	Coordinated Universal Time
UTC	Universal Time Coordinated



U	continued...
UTM	universal transverse mercator
V	
V/S	Vertical Speed
V ₁	Takeoff Decision Speed
V ₂	Takeoff Safety Speed
V _A	Maximum maneuverspeed
VA	Heading to an Altitude
VA	Volcanic Ash
VAA	Volcanic Ash Advisory
VAAC	Volcanic Ash Advisory Center
vac	volts alternating current
VAC...	Visual Approach Chart (followed by name / title)
VACQ	Vertical Acquisition Mode
VAL	In Valleys
VAN	Runway Control Van
VAR	Magnetic Variation
VAR	Visual-aural Radio Range
VASI	Visual Approach Slope Indicator
VASIS	Visual Approach Slope Indicator System
V _{AT}	Indicated airspeed at the threshold (landing)
V _B	Turbulence Penetration Speed
V _C	HUD READOUT
	Closure Speed in kts
	POSITIVE VALUE target is moving towards NEGATIVE VALUE target is moving away



<u>V</u>	<i>continued...</i>
VC...	Vicinity of the Aerodrome ... followed by
VCY	Vicinity
vdc	volts direct current
VDF	Very High Frequency Direction-finding Station
VDF	VHF Direction Finder
VDGS	Visual Docking Guidance System
VDI	Vertical Deviation Indicator
VDL	VHF Data Link
VDP	Visual Descent Point
V _{EF}	Engine Failure Speed
VEL	velocity
VER	Vertical
VER	vertical ejector rack
V _{ER}	One Engine Out En Route Climb Speed
V _{ETO}	Final T/O Speed
VFR	Visual Flight Rules
VGSI	Visual Glide Slope Indicator
VHF	Very High Frequency (30-300 MHz)
VI	Heading to an Intercept
VIA	By Way Of
VIB	vibration
VICE	Instead / Versus
VID	Visual Identification
VIP	Very Important Person or “VIP class” passenger

<u>V</u>	<i>continued...</i>
VIPEX	Very Important Person Expedition
VIS	Visibility
VISNO	Visibility at Secondary Location Not Available
V _{LE}	Max Speed with Gear Extended
VLF	Very Low Frequency (3-30KHz)
V _{LO}	Max Gear Extend / Retract Speed
VLR	Very Long Range
VM	Heading to a Manual Termination
VMC	Visual Meteorological Conditions
V _{MIN}	Minimum Operating Speed
V _{MO}	Maximum Operating Speed
VNAP	Vertical Noise Abatement Procedure
VNAV	Vertical Navigation
VOL	volume
VOL ...	Volume (followed by I, II . . .)
VOLMET	Meteorological Information For Aeroplane In Flight
VOR	Very High Frequency Omni Directional Radio Range
VOR	VHF Omni-directional Range
VOR/DME	VOR and DME Collocated
VORTAC	VOR and TACAN combination
VOT	VOR Airborne Equipment Test Facility
VPA	Vertical Path Angle
VPT	Visual Maneuver With Prescribed Track
VPU	Vertical Position Uncertainty



<u>V</u>	<i>continued...</i>
V _R	Rotation Speed
VRB	Variable
V _{REF}	Reference Speed
VS	Velocity Search
V _S	Stall Speed
VSA	By visual reference to the ground
VSI	Vertical Speed Indicator
VSM	Vertical Separation Minimum
V _{SO}	Stall Speed Landing Configuration
VSP	Vertical Speed
VSS	Visual Segment Surface
V _{SS}	Stick Shaker Speed
VT	Variable Timing
V _T	Threshold Speed
VTF	Vector To Final
VTOL	Vertical Take-off and Landing
V _{TOSS}	Takeoff Safety Speed
VTR	video tape recorder
VV ...	Vertical Visibility
VVI	Vertical Velocity Indicator
VVSLV	Vertical Velocity Slaved (FLIR Mode for A/A identify) vs. RRSLV (Radar Slave)
VVSLV	velocity vector slave
V _{ZF}	Zero Flap Minimum Safe Maneuvering Speed

<u>W</u>	
W	West / Western Longitude
W	White
w	with (Used only for Minima Charting)
	Waterline Symbol = pitch
W ...	Sea-surface temperature
W DIR	Wind Direction
W SPD	Wind Speed
W/V	Wind Velocity
WA	AIRMET information
WAAS	Wide Area Augmentation System
WAC	World Aeronautical Chart
WAC...	World Aeronautical Chart - ICAO 1:1 000 000 (followed by name/title)
WACQ	Wide Acquisition Mode
WAFC	World Area Forecast Center
WAFS	World Area Forecast System
WAGTS	Windshear Alert and Guidance System
WAH	When Able Higher
WAM	Wide Area Multilateration
WARN	Warning
WAT	Warning, Advisory, Threat
WAT	Weight And Temperature
WATIR	Weather and Terminal Information Reciter
WATRS	Western Atlantic Route System
WB	Westbound

W	continued...
WBAR	Wing Bar Lights
WBM	Weight and Balance Manual
WC	SIGMET information for tropical cyclones
WCMD	Wind Corrected Munition Dispensor
WCN	Warning, Caution, and Notes
WCP	Average Wind Component
WDI	Wind Direction Indicator
WDSHLD	windshield
WDSPR	Widespread
WE	AGM-62 Walleye
WED	Wednesday
WEDL	AGM-62 Walleye Datalink
WEE	Whichever is Earlier
WEF	With Effect From / Effective From
WEL	Whichever is Later
WGD	Windshield Guidance Display
WGS	World Geodetic System (WGS-84 is used by GPS)
WGS-84	World Geodetic System 1984
WHO	World Health Organization
WI	Within
WID	Width / Wide
WIE	With Immediate Effect / Effective Immediately
WILCO	Will Comply
WIND	Wind

W	continued...
WIP	Work In Progress
WKDAYS	Weekday
WKEND	Weekend
WKN	Weaken / Weakening
WMO	World Meteorological Organization
WND	Wind
WNW	West-north-west
WO	Without
wo	Without (Used only for Minima Charting)
WO	Work Order
WOCL	Window of Circadian Low (refer to list of definitions)
WoffW	weight off wheels
WonW	weight on wheels
WOW	Weight on Wheels
WP	Waypoint
WPDSG	Waypoint Designate
WPR	Waypoint Position Reporting
WPT	Waypoint
WRNG	Warning
WRX	Weather
WS	Wind Shear
WS	SIGMET information
WSHFT	Wind Shift
WSP	Weather System Processor

W	continued...
WSPD	Wind Speed
WSR	Wet Snow on Runway(s)
WST	Convective SIGMET
WSW	West-south-west
WT	Weight
WTC	Wake Turbulence Category
WTH	Wheel to Threshold Height
WTR	Water on Runway(s)
WTSPT	Waterspout
WTWS	Windshear and Turbulence Warning System
WUT	Wheels-Up Time
WV	SIGMET information for volcanic ash
WW	Severe Weather Watch Bulletin
WWW	Worldwide Web
WX	Weather
WXR	Weather Radar
WYPT	waypoint

ABBREVIATIONS & DEFINITIONS	
X	
X	Cross
XBAR	Crossbar (approach lighting system)
XCP	Except
XFER	transfer
XMITS	Transmits
XNG	Crossing
XPC	Expect
XPDR	Transponder
XPLOS	Explosive
XPNDR	Transponder
XS	Atmospherics
XW	Crosswind
Y	
Y	Yellow
Y	Yes
Y CAS	yaw control augmentation system
YCZ	Yellow Caution Zone (runway lighting)
YD	Yard(s)
yd	yards
YR	Your

Z	
Z	Zulu
ZFCG	Zero Fuel Center of Gravity
ZFM	Zero Fuel Mass
ZFT	Zero Flight Time
ZFTT	Zero Flight Time Training
ZFW	Zero Fuel Weight
ZSL	Zero Sight Line
ZTOD	zulu time of day





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