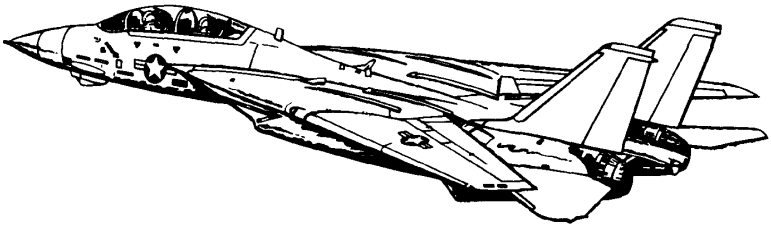
Pocket Checklist

F-14A/B AIRCRAFT

REV: 20210808



Procedures

Systems

AWG-9
Radar

TCS
ALQ-100

LANTIRN

A/G
Weapons

A/A
Weapons

Contents

1 PROCEDURES

1.1 PILOT - PRE-START

1.	Parking Break	**ENGAGED**
2.	Ground Power	connected
3.	Compressed Air	connected
4.	ICS	**HOT MIC**
5.	TO RIO	*"Begin Start-Up"*
6.	ICS	**Comm Check**
7.	MASTER TEST Selector	(a) **LTS** • **Warning Lights** ..... checked • **Caution Lights** ..... checked • **Advisory Lights** ..... checked (b) **FIRE DET/EXT** • **L FIRE GO** ..... illuminated • **R FIRE GO** ..... illuminated (c) **INST** • **RPM** ..... 96% • **EGT** ..... 960 C • **FF** ..... 10500 pph • **AOA** ..... 18 $\pm$ 5 • **Wing Sweep** ..... 45 $\pm$ 2.5 • **FUEL QTY** ..... 2000 $\pm$ 200 • **Oxygen QTY** ..... 2 liters • **L&R FF lights** ..... illuminated (d) **OFF**
8.	Ejection Seat	Armed
9.	RIO	Canopy Closed
10.	Oxygen	**ON (FWD)**
11	Emergency Wing Sweep	**OVERSWEEP**

1.2 PILOT - ENGINE START

1.	AIR SOURCE	**OFF**
2.	Hydraulics	(a) **HYD TRANSFER PUMP** ..... **SHUTOFF** (b) **Emerg. Hyd.** ..... **AUTO (LOW)**
3.	L&R MASTER GEN	**NORM**
4.	**RIO**	*"Ready to Start"*
5.	Right Engine Start-Up	(a) **Engine Crank** ..... **R** (b) **R Eng N2** ..... 20% (c) **R Throttle** ..... **IDLE** (d) **TIT** ..... < 890 C during start (e) **R GEN CAUTION** ..... extinguished
6.	Stabilized Parameters	• **RPM** ..... 62-78% • **TIT** ..... approx 500 C • **Fuel Flow** ..... 950-1400 pph • **NOZ** ..... 5 (100%) • **Oil Pressure** ..... 25-35 psi • **Hyd Pressure** ..... 3000 psi
7.	Left Engine Start-Up	(a) **Engine Crank** ..... **L** (b) **L Eng N2** ..... 20% (c) **L Throttle** ..... **IDLE** (d) **TIT** ..... < 890 C during start (e) **L GEN Caution** ..... extinguished
8.	Stabilized Parameters	• **RPM** ..... 62-78% • **TIT** ..... approx 500 C • **Fuel Flow** ..... 950-1400 pph • **NOZ** ..... 5 (100%) • **Oil Pressure** ..... 25-35 psi • **Hyd Pressure** ..... 3000 psi
9.	HYD TRANSFER PUMP	**NORM**
10.	HYD PRESSURE	3000 psi
11.	AIR SOURCE	**BOTH ENG**
12.	Ground Power	disconnected
13.	Compressed Air	disconnected

1.3 PILOT - POST-START

1.	**TO RIO**	*"Both Engines Running"*
2.	**Displays Control Panel**	• **VDI** ..... **ON** • **HUD** ..... **ON** • **HSD** ..... **ON** • **HDS MODE** ..... **TID** (monitor INS)
3.	**RIO**	**Select Align Quality** • **INS GO NOW:** shortest but least precise alignment • **INS GO COARSE:** does not meet Launch Criteria for AIM-7 / AIM-54 • **INS GO MIN WPN LAUNCH:** allows AIM-7 / AIM-54 launch • **INS GO FINE** fine align (8 min)
4.	**ACM Panel**	• **GUN RATE** ..... as required • **SW COOL** ..... **OFF** • **MSL PREP** ..... **OFF** • **Missile MODE/STP** ..... **NORM**
5.	**Gun Rounds**	**Set**
6.	**ANTI-SKID SPOILER BK**	**OFF**
7.	**Emergency Wing Sweep**	(a) **Handle** ..... **AFT** (b) **Angle** ..... Verify 68 deg
8.	**AFCS Panel - SAS STAB AUG**	• **PITCH** ..... **ON** • **ROLL** ..... **ON** • **YAW** ..... **ON**
9.	**WING/EXT TRANS**	**AUTO**
10.	**UHF 1 Function Selector**	**BOTH**
11.	**TACAN Function Selector**	**T/R**
12.	**ARA-63 ICLS RECEIVER**	**ON**

13.	**Radar Altimeter**	(a) **Control Knob** ..... one click CW to turn on (b) **Display** ..... 6000 ft (warm up) (c) **Display** ..... 0 ft (ready)
14.	**Standby ADI**	erect at least 2 min before T/O
15.	**KY-28 Crypt. Key**	**Set** (refer to GROUND SETTINGS kb)
16.	**RIO**	set D/L frequency
17.	**Lights**	As desired

1.4 RIO - PRE-START

1.	**Oxygen**	**ON (FWD)**
2.	**PILOT**	• **Ground Power** ..... connected • **Compressed Air** ..... connected
3.	**ICS**	Comm Check
4.	**Lights**	As required
5.	**LTS Test**	Coordinate with Pilot
6.	**Ejection Seats**	**ARMED**
7.	**Canopy**	**CLOSED**
8.	**TO PILOT**	*"Ready to Start"*

1.5 RIO - POST-START - SHORE

1.	**PILOT**	• **Engines** ..... started • **AIR SOURCE** ..... BOTH ENG
2.	**INS STARTUP**	(a) **LIQUID COOLING** ..... **ON (FWD)** (b) **WCS Switch** ..... **STANDBY** (c) **IR/TV Power** ..... **STBY/IR/TV** (d) **TID/DDD** ..... illuminated after 40 s
3.	**Kneeboard**	Retrieve Coordinates, Elevation, Magnetic Variation from GROUND SETTINGS Page
WARNING Input Coords **BEFORE** selecting **GND ALIGN** if using ASH		
4.	**Start INS Align**	(a) **Nav Mode** ..... **GND ALIGN** (b) **CAP** • **Category** ..... **NAV** • **MESSAGE** ..... **OWN AC** (c) **Keyboard** • **CLEAR**, **LAT**, latitude, **ENTER** • **LONG**, longitude, **ENTER** • **ALT**, altitude, **ENTER** (d) **CAP MESSAGE** ..... **MAG HDG VAR** (e) **Keyboard** ..... **HDG**, mag var, **ENTER** (f) **Align Progress** ..... Monitor
5.	**U/VHF Mode**	**T/R G**

6.	**Datalink**	(a) **Kneeboard** ..... TACTICAL DL (b) **DL Power** ..... **ON (FWD)** (c) **DL Mode** ..... **TAC (AFT)** (d) **DL Freq.** ..... **Set**
7.	**TACAN**	**T/R**
8.	**RWR Panel**	(a) **Display Type** ..... **NORM** (b) **PWR** ..... **ON** (c) **TEST** ..... **SPL** (d) **MODE** ..... **LMT**
9.	**DECM**	**STBY**, then **ACT**
10.	**IFF**	(a) **MASTER** ..... **STBY** (b) **CODE** ..... as required
11.	**Altimeter**	Reset
12.	**CAP**	Enter Data (WP, FP, *etc.*)
13.	**Displays**	• **DDD** ..... Set • **TID** ..... Set • **Multiple Display Indicator** ..... Set
14.	**Hand Control Panel**	Set
15.	**AN/ALE-39**	Set (as required) • **AUTO (CHAFF)/MAN** • **MAN**
16.	**Flare Mode**	**PILOT**
17.	**Complete INS Align**	• **Duration Full Fine** ..... 8 min • **Duration ASH** ..... much faster (a) **Align Complete** ..... Caret → Diamond (b) **NAV Mode** ..... **INS NAV**
18.	**Standby ADI**	Erect at least 2 min before T/O
19.	**TO PILOT**	*"Ready to Taxi"*
Once Airborne		
20.	**IR/TV Power**	**ON**
21.	**WCS Switch**	**WCS XMT**

1.6 RIO - POST-START - CARRIER

1.	**PILOT**	• **Engines** ..... started • **AIR SOURCE** ..... BOTH ENG
2.	**INS STARTUP**	(a) **LIQUID COOLING** ..... **ON (FWD)** (b) **WCS Switch** ..... **STANDBY** (c) **IR/TV Power** ..... **STBY/IR/TV** (d) **TID/DDD** ..... illuminated after 40 s
3.	**Datalink**	(a) **Kneeboard** ..... TACTICAL DL (b) **DL Power** ..... **ON (FWD)**
4.	**Start INS Align**	(a) **DL FREQ** ..... Set (b) **DL Mode** ..... **CAINS/WAYPT** (c) **Nav Mode** ..... **CVA**
5.	**U/VHF Mode**	**T/R G**
6.	**TACAN**	**T/R**
7.	**RWR Panel**	(a) **Display Type** ..... **NORM** (b) **PWR** ..... **ON** (c) **TEST** ..... **SPL** (d) **MODE** ..... **LMT**
8.	**DECM**	**STBY**, then **ACT**
9.	**IFF**	(a) **MASTER** ..... **STBY** (b) **CODE** ..... as required
10.	**Altimeter**	Reset
11.	**CAP**	Enter Data (WP, FP, *etc.*)
12.	**Displays**	• **DDD** ..... Set • **TID** ..... Set • **Multiple Display Indicator** ..... Set
13.	**Hand Control Panel**	Set
14.	**AN/ALE-39**	Set (as required) • **AUTO (CHAFF)/MAN** • **MAN**
15.	**Flare Mode**	**PILOT**
16.	**Complete INS Align**	• **Duration Full Fine** ..... 9 min • **Duration ASH** ..... much faster (a) **Align Complete** ..... Caret → Diamond (b) **NAV Mode** ..... **INS NAV**

17.	**Datalink**	(a) **DL Mode** ..... **TAC (AFT)** (b) **DL Freq.** ..... **Set**
18.	**Standby ADI**	Erect at least 2 min before T/O
19.	**TO PILOT**	*"Ready to Taxi"*
Once Airborne		
20.	**IR/TV Power**	**ON**
21.	**WCS Switch**	**WCS XMT**

1.7 PRE-TAXI

1.	**ANTI-SKID SPOILER BK**	**OFF**
2.	**HOOK BYPASS**	As Required
3.	**Nose Strut**	**RETRACTED**
4.	**HUD MODE**	**TO**
5.	**Parking Brake**	**Released (IN)**
6.	**NWS**	**ENGAGED**
7.	**Path**	verify clear

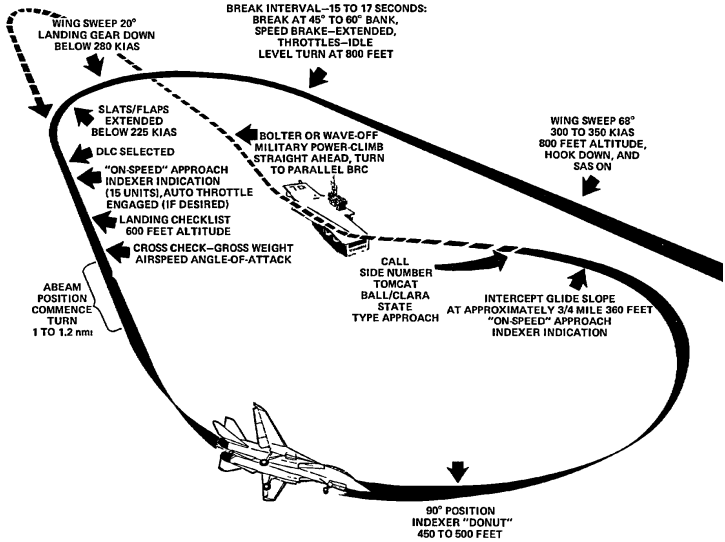
1.8 TAKEOFF - SHORE

		After Lining Up On Runway
1.	**Wing Sweep**	(a) **EM WING SWEEP** ..... **FWD**, then **IN** (b) **MASTER RESET** ..... **PRESS** (c) **Wings** ..... Verify thumb controller (d) **WING SWEEP** ..... **AUTO** (e) **Wings** ..... Verify at 20 deg
2.	**ANTI SKID SPOILER BK**	**BOTH (UP)**
3.	**FLAPS**	**UP**
4.	**Trim**	0 deg
5.	**NWS**	**DISENGAGED**
6.	**Takeoff**	(a) **Throttle** ..... **MIL** (90% RPM) (b) **Stick** ..... **Back** at 130 KIAS (c) **Rotation** ..... approx 140 KIAS (d) **GEAR** ..... **UP** < 250 KIAS

1.9 TAKEOFF - CARRIER

	Lineup	• Wait behind JBD until Catapult is clear • Follow Taxi Directors Instructions to line up on Catapult
1.	**Wing Sweep**	(a) **EM WING SWEEP** ..... **FWD**, then **IN** (b) **MASTER RESET** ..... **PRESS** (c) **Wings** ..... Verify thumb controller (d) **WING SWEEP** ..... **AUTO** (e) **Wings** ..... Verify at 20 deg
2.	**FLAPS**	**DOWN**
3.	**Launch Bar Preparation**	(a) **Nose Strut** ..... **KNEEL** when directed (b) **Throttle** ..... **UP** when directed (c) **Taxi** ..... launch bar into shuttle (d) **Throttle** ..... **IDLE** when directed
4.	**Trim**	2-3 deg nose up
5.	**Speed Brakes**	**IN**
6.	**Final Checks**	(a) **Throttle** ..... **MIL** when directed (b) **Control Wipeout** • Stick Full Forward • Stick Full Aft • Stick Full Left • Stick Full Right • Rudder Full Left • Rudder Full Right (c) **Eng. Inst.** ..... **Checked** (d) **Caution/Warnings** ..... **None**
7.	**Catapult Shot**	(a) **Salute** ..... **CAT SHOT** (b) **Gear** ..... **UP** < 250 KIAS (c) **Flaps** ..... **UP** < 225 KIAS
8.	**Clearing Turn**	

1.10 LANDING - OVERHEAD PATTERN



1.	**Initial Approach**	• **WING SWEEP** ..... **68 deg** • **HOOK** ..... **DOWN** • **SAS** ..... **ON** • **HUD** ..... **LDG** • **Airspeed** ..... **300-350 KIAS** • **Altitude** ..... **800 ft**
2.	**Initial Break**	• **Break Interval** ..... **15-17 s** • **BANK** ..... **45-60 deg** • **SPEED BRAKE** ..... **EXTEND** • **Throttle** ..... **IDLE** • **G** ..... **3-4 G** • **Altitude** ..... **800 ft**
3.	**Break Turn**	• **Wing Sweep** ..... **AUTO** < 280 KIAS • **Landing Gear** ..... **DOWN** < 280 KIAS • **FLAPS** ..... **DOWN** < 225 KIAS
4.	**Downwind**	• **DLC** ..... **Selected** once flaps out • **AOA** ..... **ON-SPEED** • **LANDING CHECKLIST** • **Altitude** ..... descend to **600 ft**

5.	Final Turn	180 Deg Position • Abeam Pos. ..... 1-1.2 nmi 90 Deg Position • AOA ..... DONUT • Altitude ..... 400-500 ft
6.	Intercept Glides-lope	• Distance ..... 3/4 Mile • Altitude ..... 360 ft • AOA ..... ON-SPEED

1.11 LANDING - CHECKLIST

1.	Wing Sweep	20 deg AUTO
2.	Wheels	• Lights ..... 3 DOWN • Transition Light ..... OUT
3.	SAS	ON
4.	FLAPS	DOWN
5.	DLC	Checked
6.	Hook	• HOOK ..... DOWN • Transition Light ..... OUT
7.	Harness	Locked
8.	Speedbrakes	EXT
9.	Brakes	Check
10.	Fuel	Check

1.12 AIRSTART

• **Spooldown**	Before significant spooldown (a) **Non-Running ENG** .... **IDLE** or above If no relight occurs (b) **Non-Running ENG** ... **OFF** then **IDLE** If still no relight occurs (c) **ENG MODE** ..... **SEC** (d) **Non-Running ENG** ... **OFF** then **IDLE**
• **Cross-Bleed Restart**	With one ENG running, if Spooldown fails (a) **Non-Running ENG** ..... **OFF** (b) **FUEL SHUT OFF** .....check (c) **Running throttle** .....80%+ (d) **BACK UP IGNITION** ..... **ON** (e) **ENG CRANK** ..... non-running eng (f) **Non-Running ENG** ..... **IDLE** If no start occurs (g) **Non-Running ENG** ... **OFF** then **IDLE** If still no start (h) **ENG MODE** ..... **SEC** (i) **Non-Running ENG** ... **OFF** then **IDLE**
• **Windmill Restart**	(a) **Airspeed** ..... >450 kts (b) **Throttle** .....IDLE or above (c) **BACK UP IGNITION** ..... ON If no relight occurs (d) **Throttle** .....OFF then IDLE If still no relight (e) **ENG MODE** ..... SEC (f) **Throttle** .....OFF then IDLE
• **Post Restart**	(a) **BACK UP IGNITION** .....OFF (b) **ENG MODE** ..... PRI

2 SYSTEMS

2.6 RWR THREAT SYMBOLOGY

SHIPS	
AB	Arleigh Burke
AK	Admiral Kuznetsov
GR	Grisha 5 (Albatros)
HP	Oliver Hazard Perry
J2	Type 054A Frigate, “Jiangkai II class"
KK	Krivak 3 (Rezky)
KV	Kirov (Pyotr Velikiy)
L1	Type 052B Destroyer, “Luyang I class"
L2	Type 052C Destroyer, “Luyang II class"
N	*Ship with Nav Radar*
NE	Neustrashimy
NZ	Nimitz (Vinson, Stennis)
SV	Slava (Moscow)
TC	Ticonderoga
TT	Tarantul 3 (Molniya)
TW	Tarawa
YU	Type 071 Amphibious Transport Dock, “Yuzhao class"

AIRCRAFT	
14	F-14A/B
15	F-15C/E
16	F-16C
17	JF-17
18	F/A-18C
19	MiG-19
21	MiG-21bis
23	MiG-23MLD
24	Su-24M/MR
25	MiG-25PD
29	MiG-29A/G/S Su-27 Su-33 J-11A
30	Su-30
31	MiG-31
34	Su-34
37	AJS-37
39	Su-25TM
50	A-50
52	B-52
AN	AN-26B AN-30M
AP	AH-64D
B1	B-1B
BE	Tu-95 Tu-142M
BF	Tu-22M3
BJ	Tu-160
E2	E-2D
E3	E-3C
F4	F-4E
F5	F-5E
HX	Ka-27
IL	IL-76MD IL-78M
KC	KC-135

KJ	KJ-2000
M2	Mirage 2000-C Mirage 2000-5
S3	S-3B
SH	SH-60B
TO	Tornado
TR	C-130 C-17A

AIR DEFENSE

2	S-75 TR SNR (SA-2) “Fan Song"
3	S-125 TR SNR-125 (SA-3) “Low Blow"
6	Kub SA-6
7	HQ-7 TR
8	OSA (SA-8)
10	S-300PS 30N6 TR (SA-10)
11	Buk (SA-11)
12	S-300V
15	Tor 9A331 (SA-15)
19	Tunguska 2C6M (SA-19)
A	Gepard M-163 Vulcan ZSU-23-4 Shilka
BB	S-300PS 64H6E SR (SA-10/Big Bird)
BF	Rapier Blindfire TR
CS	S-300PS 5N66M SR (SA-10/Clam Shell)
DE	Sborka (Dog Ear)
FF	S-125 P-19 SR (SA-3/Flat Face)
GR	Roland SR
HA	Hawk SR
HK	Hawk TR
HQ	HQ-7 SR
PT	Patriot
RO	Roland
RP	Rapier SR
S	1L13 55G6 EWR
SD	Buk TR (SA-11/Snow Drift)
SN	PRW-11 (Side Net)

MISSILES

M	AIM-54 AIM-120 MICA-EM R-37 R-77 SD-10

ATC

T	Airport ATC Radar

3 AWG-9 RADAR

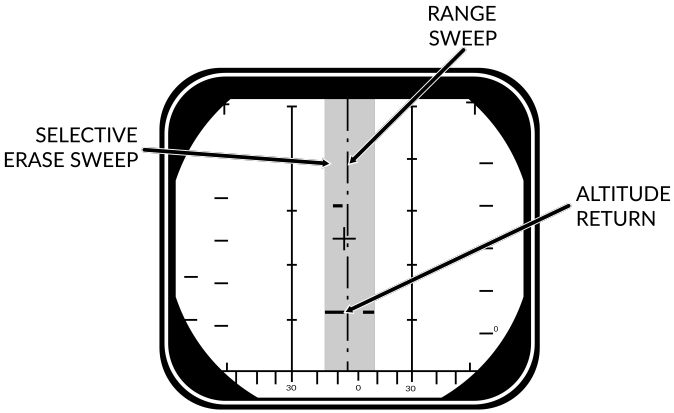
3.1 MAIN MODES - OVERVIEW

	Pulse		Pulse Doppler			
	Pulse Search	**P-STT**	**PD Search**	**RWS**	**TWS**	**PD-STT**
Range	60 nm	50 nm	110 nm	90 nm	90 nm	90 nm
AIM-7	BRSIT	CW	BRSIT		-	PD
AIM-54	BRSIT	ACT	BRSIT		Multi TGT	PD/ACT

3.2 MAIN MODES

- **Pulse**
  - **Basic Pulse w/o doppler filtering**
    - Cannot be notched
    - Ground Clutter
    - Rudimentary Ground mapping
  - **Pulse Sub-Modes**
    - **Pulse Search**
    - **Pulse-STT**
- **Pulse Doppler**
  - **Doppler filter –> no ground returns**
    - Susceptible to notching
    - No ground clutter
    - Greater range
    - Advanced sub modes
    - AIM-54 Guidance
  - **Pulse Doppler Sub-Modes**
    - **PD Search**
    - **RWS**
    - **TWS**
    - **PD-STT**

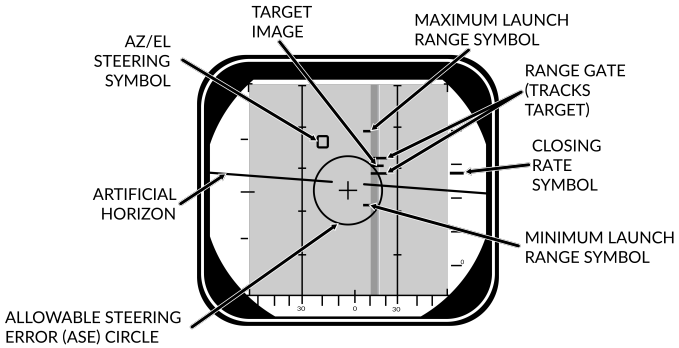
3.3 PULSE MODE - PULSE SEARCH



SEARCH (±10° SCAN)

• **Pulse Search**	Basic Mode, AWG-9 does not use pulse doppler filtering • **Advantages** – All aspect target detection – Cannot be notched – Rudimentary ground mapping • **Disadvantages** – Cannot discern ground returns and targets – Lower range
• **DDD**	• **Range/Azimuth** • Visual representation of radar and erase sweeps
• **TID**	• **No Information from Pulse** • **Cannot guide AIM-54**

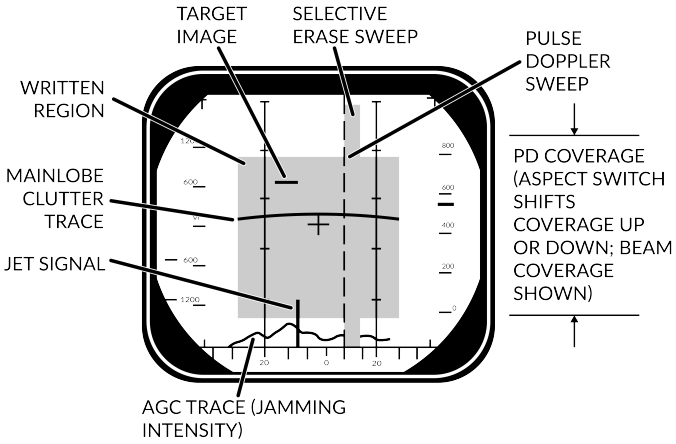
3.4 PULSE MODE - PSTT



SINGLE TARGET TRACK

• **Pulse STT**	Lock Target w/o doppler filtering • **Advantages** – Cannot be notched • **Disadvantages** – Susceptible to ground clutter
• **Lock Target**	• **Conditions** – Pulse Search Mode selected – RDR HCU Mode selected • **Lock Target** (a) Hold HCU Half-action (b) Slew to desired Target (c) HCU Full-Action to lock • **Unlock Target** (d) HCU Half-action
• **DDD**	• **Track Indications** – ANT TRK light – RDROT light – Tracking gates – Closure rate – Attack Symbology

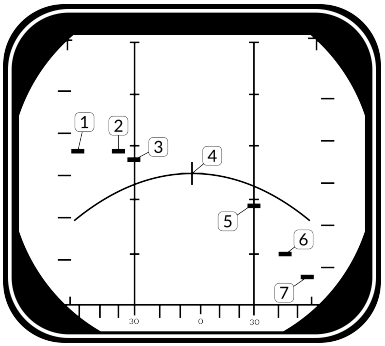
3.5 PULSE DOPPLER MODE - PULSE DOPPLER SEARCH



SEARCH (±40° SCAN)

• **Pulse Doppler Search**	**"Early Warning" Mode**, Longest Range, cannot display range • **Advantages** – Longest Range – Doppler Filtering – **"Look Down Shoot Down"** • **Disadvantages** – Can be notched – No range information
• **DDD**	• **Closure Rate/Azimuth** • Visual representation of radar and erase sweeps
• **Doppler Filters**	• **Main Lobe Clutter (MLC) Filter** – **Own GS +/- 133 knots** – Removes main ground return – Source of notching • **Zero Doppler Filter** – **Negative own GS +/- 100 knots** – Removes Radar reflection from ground directly beneath own AC

• **MLC Switch**	• **IN:** Enables MLC filter • **AUTO:** Enables MLC filter if look-up angle less than 3 deg • **OUT:** Disables MLC filter
• **Vc Switch**	Changes closure rate DDD scale • **X-4:** -800 to 4000 knots • **NORM:** -200 to 1000 knots • **VID:** -50 to 250 knots
• **ASPECT Switch**	Changes closure rate processing scale • **NOSE:** -600 to 1800 knots • **BEAM:** -1200 to 1200 knots • **TAIL:** -1800 to 600 knots



	Look Angle	Line of Sight Rate	Target Heading
1	60 deg	1490	180 deg
2	45 deg	1500	120 deg
3	30 deg	1428	100 deg
4	0 deg	1200	90 deg
5	30 deg	672	80 deg
6	45 deg	210	60 deg
7	60 deg	-300	0 deg

3.6 PULSE DOPPLER MODE - RWS

• **Range While Search**	**FM Ranging**, used for getting good A/A picture before selecting TWS • **FM Ranging** – Pulse Doppler with ranging – TID shows momentary tracks with ranges – Processing reduces max range • **Advantages** – Long Range – Doppler Filtering – **“Look Down Shoot Down”** – Signal Processing • **Disadvantages** – Can be notched
• **DDD**	• **Closure Rate/Azimuth** • Visual representation of radar and erase sweeps
• **TID**	• **Momentary Tracks** • Max concurrent tracks: 48 • **Cannot lock targets from TID**
• **Filtering**	**Same as Pulse Doppler Search**

3.7 PULSE DOPPLER MODE - TWS

• **Track While Scan**	**Builds Track Files**, high situational awareness, multi-target AIM-54 launch • **Track Files** – AWG-9 builds Trackfiles for contacts – Can launch multiple AIM-54 – Processing reduces max range – Can lock targets from TID • **FM Ranging** – Pulse Doppler with ranging – TID shows momentary tracks with ranges – Processing reduces max range • **Advantages** – Doppler Filtering – **Multi-Target AIM-54** • **Disadvantages** – **Lowest Range** – Can be notched
• **DDD**	• **Closure Rate/Azimuth** • Visual representation of radar and erase sweeps
• **TID**	• **Tracksfiles** • Max concurrent tracks: 24 • Max displayed tracks: 18
• **Filtering**	**Same as Pulse Doppler Search**
• **Scan Volume**	Trackfiles require update every 2.5 s –> • 20 deg 4 bar (if selected) • 40 deg 2 bar (else)
• **TID Mode Selector**	• **GND STAB:** Ground Stabilized, True North is up on TID • **A/C STAB:** Aircraft Stabilized • **ATTAK:** same as A/C STAB with superimposed attack steering symbology • **TV:** Displays TCS on TID, dispays LANTIRN on TID if equipped

• **TID Display Selector Buttons**	• **RID DISABLE:** Not simulated • **ALT NUM:** Enables display of track altitudes on left side of track symbols • **SYM ELEM:** Enables display of all supplementary symbology of tracks and waypoints • **DATA LINK:** Enables display of D/L contacts • **JAM STROBE:** Enables display of jam strobes • **NON-ATTK:** enables/disables display of targets not possible to engage (friendlies) • **LAUNCH ZONE:** Enables display of weapon launch zones • **VEL VECTOR:** Enables display of velocity vectors
• **Track Hold & Collision Steering**	• **TRACK HOLD** – Normally: Tracks maintained for 14 s after last observation – Track Hold: maintained for 2 min after last observation • **CLSN Button** – begins collision steering to currently tracked target – enables Steering Centroid if in TWS – LD CLSN presents azimuth steering only – CLSN presents both azimuth and elevation steering
• **TWS AUTO / MAN**	• **TWS MAN:** Manual azimuth/elevation control, target designation by RIO • **TWS AUTO:** Automatic prioritization of targets and azimuth elevation control

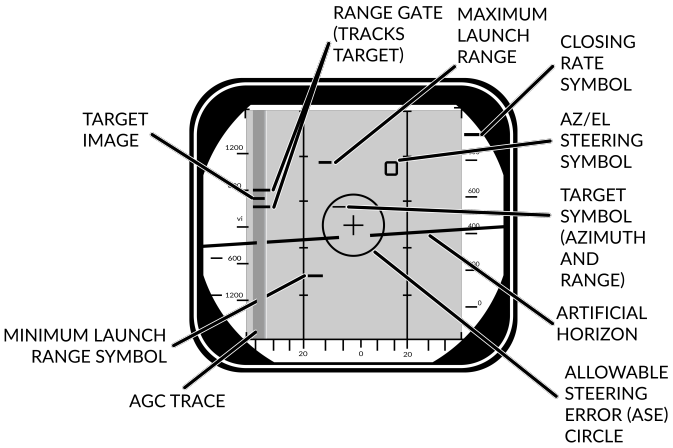
3.8 PULSE DOPPLER MODE - TWS MAN

• **TWS MAN**	• **Target Selection:** Manual • **Scan Azimuth/Elevation:** Manual
• **Target Selection**	• **Conditions** – TWS MAN Radar Mode selected – TID CURSOR TID Mode selected • **Hook Target** (a) Hold HCU Half-Action (b) Slew TID Cursor over desired Tgt (c) HCU Full-Action to select Tgt • **TID Symbology** – Range (**RA**) – Bearing (**BR**) – Altitude (**AL**) – Magnetic course (**MC**) • **Lock Target** (d) Press **PD STT** or **Pulse STT** buttons • **Deselect Target** (e) press HCU Half-Action
• **AIM-54 Launch**	• **Automatically selects TWS AUTO** • **Prevents selection of TWS MAN**

3.9 PULSE DOPPLER MODE - TWS AUTO

• **TWS AUTO**	• **Target Selection:** prioritizes contacts based off range, aspect, closure • **Scan Azimuth/Elevation:** Geometric center of targets in scan volume
• **Centroid / Steering Cues**	• **Steering Centroid** – facilitates steering cues – HUD, VDI, TID, DDD – Appears as **X** on TID – Takes Gimbal limits into account – Weights individual Tracks based on parameters • **Illumination Centroid** – **Not Visible** – Controls azimuth and elevation of scan pattern – Takes scan volume into account
• **Pilot Steering Cues**	• **Conditions** – A-A HUD Mode selected – Master Arm ON (UP) – AIM-54 or AIM-7 selected – TWS-AUTO selected

3.10 PULSE DOPPLER MODE - PDSTT



SINGLE TARGET TRACK

• **Pulse Doppler STT**	Lock Target with doppler filtering • **Advantages** – Ground Clutter filtering • **Disadvantages** – Susceptible to notching
• **Lock Target**	• **Conditions** – Pulse Doppler Mode selected (PD Search, RWS, TWS) – RDR HCU Mode selected • **Lock Target** (a) Hold HCU Half-action (b) Slew to desired Target (c) HCU Full-Action to lock • **Unlock Target** (d) HCU Half-action
• **DDD**	• **Track Indications** – ANT TRK light – RDROT light – Tracking gates – Closure rate – Attack Symbology

3.11 ACM MODES - OVERVIEW

	PLM	VSL	PAL	MRL
Range	5 nm	5 nm	15 nm	5 nm
Description	Boresight	Vertical	Horizontal	RIO
Weapons	Gun + All Missiles			

- **PLM**
  - **Pilot Lockon Mode**
  - **Highest Priority ACM**
  - **Search Pattern**
    - Small Boresight
    - Range: 5 nm
- **VSL**
  - **Vertical Scan Lockon**
  - **HI Search Pattern**
    - Width: 5 deg
    - Vertical: +15 to +55 deg
    - Range: 5 nm
  - **LO Search Pattern**
    - Width: 5 deg
    - Vertical: -15 to +25 deg
    - Range: 5 nm
  - **RIO/PILOT Controlled**
- **PAL**
  - **Pilot Automatic Lockon**
  - **Search Pattern**
    - Width: +/- 20 deg
    - Vertical: 8-bar
    - Range: 15 nm
- **MRL**
  - **Manual Rapid Lockon**
  - **RIO Controlled**
  - **Search Pattern**
    - HCU Controlled
    - Range: 5 nm

3.12 TID SYMBOLOGY

GENERAL	
Center Dot	
Own AC	
TID Cursor	
TWS Steering Centroid	
ONBOARD SENSORS	
Unknown	
Hostile	
Friend	
Angle-Tracked Radar Target	
Angle-Tracked Radar Target with Altitude Difference Ranging	
TCS-Angle Tracked Target	
TCS-Angle Tracked Target with Altitude Difference Ranging	
D/L TARGETS	
Unknown	
Hostile	
Friendly	

MANUAL REF POINTS	
Home base	
Waypoint	
Defended Point	
Fixed Point	
Hostile Area	
Surface Target	
IP	
D/L REF POINTS	
Home Base	
Waypoint	
Data Link Fixed Point	
Surface Target	
POS SYMB MODIFIERS	
Mandatory Attack	
Data Link Destroy	
Do Not Attack	
Multiple Targets	
Data Link Challenge	
Track Extrapolated	

Altitude Numerics	
Firing Order Numerics	
Time-to-Impact (TTI)	
Velocity Vector	
Launch Zone Vectors	
Jamming Strobe	
Radar Antenna Scan Pattern Azimuth Limits	
Data Link Jamming Strobe	
Data Link Pointer	
Data Link Priority Kill	
ATTACK DISPLAY SYMB	
Artificial Horizon	
Steering Guidance Symbol	
Allowable Steering Error Circle	
Breakaway Indication	

4 TCS/ALQ-100

5 LANTIRN

6 A/G WEAPONS

7 A/A WEAPONS

7.1 M61 GUN (MANUAL)

1.	**Conditions**	• **MASTER ARM** ..... **ON** • **HUD** ..... **A/A** • **Gun Rate** ..... **HIGH** • Gunsight Lead ..... as required
2.	**Employment**	(a) **WEAPON SELECTOR** ..... **GUNS** (b) **Gun Mode** ..... **MANUAL** • Press **CAGE/SEAM** to select • No ranging • No lead information (c) **Pipper** ..... on target (d) **Trigger** ..... **FIRE**

7.2 M61 GUN (RTGS/NO RADAR)

1.	**Conditions**	• **MASTER ARM** ..... **ON** • **HUD** ..... **A/A** • **Gun Rate** ..... **HIGH**
2.	**Employment**	(a) **WEAPON SELECTOR** ..... **GUNS** (b) **Gun Mode** ..... **RTGS** • Real-Time Gunsight Mode • Selected automatically • No ranging • Diamond ranged for 2000 ft • Pipper ranged for 1000 ft (c) **Pipper** ..... on target (d) **Trigger** ..... **FIRE**

7.3 M61 GUN (RTGS/RADAR)

1.	**Conditions**	• **MASTER ARM** ..... **ON** • **HUD** ..... **A/A** • **Gun Rate** ..... **HIGH** • **Radar** ..... **STT lock** – RIO STT lock – ACM Modes
2.	**Employment**	(a) **WEAPON SELECTOR** ..... **GUNS** (b) **Gun Mode** ..... **RTGS** • Real-Time Gunsight Mode • Selected automatically (c) **Pipper** ..... on target (d) **Trigger** ..... **FIRE**

7.4 AIM-9 SIDEWINDER (SIL)

1.	**Conditions**	• **MASTER ARM** ..... **ON** • **HUD** ..... **A/A** • **SW COOL** ..... **ON**
2.	**Employment**	(a) **WEAPON SELECTOR** ..... **SW** (b) **MODE/STP** ..... as desired • **NORM** – Uncage seeker with **CAGE/SEAM** – 4.5 sec search time – 40 deg track limit • **BRSIT** – Seeker slaved to ADL – 2.5 deg FOV (c) **CAGE/SEAM** ..... press to uncage (if using **NORM**) (d) **Tone** ..... high pitched (e) **Trigger** ..... **FIRE**

7.5 AIM-9 SIDEWINDER (RADAR)

1.	**Conditions**	• **MASTER ARM** ..... **ON** • **HUD** ..... **A/A** • **SW COOL** ..... **ON** • **Radar** ..... STT lock – RIO STT lock – ACM Modes
2.	**Employment**	(a) **WEAPON SELECTOR** ..... **SW** (b) **MODE/STP** ..... **NORM** • **NORM** – Uncage seeker with **CAGE/SEAM** – 4.5 sec search time – 40 deg track limit • **BRSIT** – Seeker slaved to ADL – 2.5 deg FOV (c) **CAGE/SEAM** ..... press to slave to radar (d) **Tone** ..... high pitched (e) **Steering** ..... center T-shaped cue with ASE (f) **Trigger** ..... **FIRE**

7.6 AIM-7 SPARROW

1.	**Conditions**	• **MASTER ARM** ..... **ON** • **HUD** ..... **A/A** • **MSL PREP** ..... **ON** • **Radar** ..... STT lock – RIO STT lock – ACM Modes
2.	**Employment**	(a) **WEAPON SELECTOR** ..... **SP/PH** (b) **MODE/STP** ..... **NORM** • **NORM** – Used for STT engagement – WCS can use CS or PD • **BRSIT** – Boresight flood mode – Tracks strongest return (c) **Target** ..... <20 deg from ADL (d) **Steering** ..... center T-shaped cue with ASE (e) **Trigger** ..... **FIRE** (f) **Radar** ..... **Maintain Lock**

7.7 AIM-54 PHOENIX (SINGLE)

7.8 AIM-54 PHOENIX (MULTI)