

# F-16 C/D

## Block 52

Avionics Check-lists

**Not suited for Real Operations  
For FALCON 4.0 SuperPAK Use Only**

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### FOREWORD

Most settings can be saved in the cockpit configuration with the ALT+C then S keystroke. Therefore, it is advised to set all parameters once and for all during a full startup procedures. When the aircraft is ready to roll, save your settings. They can be reloaded anytime (at a start of a new mission) with the ALT+C then L keystroke.

For a more complete rundown of avionics system check the Operating guides OG-AN/APG-68, OG-LANTIRN,...

### MFD SLOTS SELECTION

Note:

Each MFD has 3 Available SLOTS per Master Mode. According to your mission, the default MFD slots may be changed. It is advised to set your required MFD slots during your pre-flight checklists (while waiting for the INS to align).

1. Select the required Master Mode
2. Select the required MFD
3. Select the required MFD page you want to change
4. Depress the highlighted OSB button
5. Select the New SLOT you want to be displayed by depressing the corresponding OSB button.
6. Repeat for the 2 other MFD slots and for the other MFD if required
7. Repeat for other Master Modes if required.

Note:

When setting up the MFD slots, bear in mind the SOI switching.

Example of MFD SLOTS Configuration:

**NAV:**

**FCR – TEST – TFR**

FCR – TGP – FLIR

**AA:**

FCR – MENU – TFR

**FCR – WPN – TFR**

**AG:**

FCR – TGP – TFR

**FCR – TGP – FLIR**

**HSD – SMS – RWR**

HSD – SMS – TFR

HSD – SMS – RWR

**HSD – SMS – RWR**

SMS – WPN – FLIR

**SMS – WPN – TFR**

### EWS PROGRAMING

Note:

EWS programing is mainly done through the ICP. 4 programs are available and each one is divided in two sections : chaffs and flares. Within each section, 4 parameters are set: **BQ**: Burst Quantity; **BI**: Burst Interval; **SQ**: Salvo Quantity; **SI**: Salvo Interval. Input the new value with the numerical ICP buttons. When done, hit the ICP Enter button to select the next one.

- |                 |                                    |                     |
|-----------------|------------------------------------|---------------------|
| 1. EWS mode     | STDBY                              |                     |
| 2. ICP page     | Select LIST                        | LIST Btn            |
|                 | Select EWS                         | ICP 7 Btn           |
| 3. PGR Select   | Select PGR 1 – 4                   | Prev/Next Btn       |
| 4. Chaff rule   | Enter PGR mode                     | SEQ Btn             |
|                 | SET BQ                             | ICP Num + ICP ENTER |
|                 | SET BI                             |                     |
|                 | SET SQ                             |                     |
|                 | SET SI                             |                     |
| 5. Flare rule   | Enter PGR mode                     | SEQ Btn             |
|                 | SET BQ                             | ICP Num + ICP ENTER |
|                 | SET BI                             |                     |
|                 | SET SQ                             |                     |
|                 | SET SI                             |                     |
| 6. Next Program | Redo the same for the next program |                     |
| 7. ICP          | Return to master page              | RTN Btn             |
| 8. EWS mode     | Return to SEMI or AUTO position    |                     |

Note:

When setting all 4 programs at the same time, it may be quicker to save all chaffs settings followed by all flares settings for the 4 programs.

**EWS OPERATION**

EWS Mode

EWS has 4 distinct modes. SHF z/x  
**STBY:** is set to allow manual programming through the ICP.  
**MAN:** Manual launch of the selected sequence.  
**SEMI:** Auto release of the sequence upon Msl launch. And jammer request if **reqjmr** is ON  
**AUTO:** Auto release upon Msl launch and jammer activation if **reqimr** is ON

EWS Selection

You can select one of the four available programs by moving the PGRM knob. When the Release button is depressed, the corresponding chaffs and flares are ejected according to the EWS active program. SHF a/w

**AN/AAQ-13 FLIR OPERATION**

Note

For better results use FLIR in conjunction with NVG

- |                    |  |        |
|--------------------|--|--------|
| 1. Hardpoint power | Check RIGHT HDPT ON                                  |        |
| 2. MFD             | Access FLIR page                                     | OSB 16 |
| 3. FLIR power      | ON   | SHF h  |
| 4. FLIR image      | Check FLIR display through HUD<br>ADJUST as required |        |
|                    | OSB19 – OSB 7: Dec & Inc Pitch                       |        |
|                    | OSB 20 – OSB 6: Dec & Inc FOV                        |        |

Note

Due to the position of the AN/AAQ-13 pod below the pilot, the FLIR FOV may need some minor adjustments to reflect the same FOV as the pilot.

FLIR Limitation

Clouds and smoke are obstrusive to IR images. Therefore FLIR is degraded in such conditions.

**AN/AAQ-13 TFR OPERATION**

Note

The TFR system emits radiowaves that are detectable by opposing forces. According to the tactical situation, use the NORM mode (OSB 20) or the LPI (Low Probability of Intercept mode - OSB 19). LPI emits forward only and less often.

- |                              |  |             |
|------------------------------|--|-------------|
| 1. RF Switch                 | Check NORM position  |             |
| 2. RALT switch               | Check ON   |             |
| 3. MFD                       | Access TFR page  | OSB 17      |
| 4. Ground clearance          | Set as required  | OSB 6 to 10 |
| 5. Ride type                 | Set as required  | OSB 2       |
| 6. TFR mode                  | Select NORM/LPI  | OSB 20/19   |
| 7. TFR master                | Enable   | OSB 4       |
| 8. <b>Let Down</b>           |  |             |
| AP Light                     | Check AP enabled   |             |
| Flight controls              | Keep hands on flight controls  |             |
| 9. <b>Taking control</b>     |  |             |
|                              | When TFR is enabled, the pilot can override the AP to execute small headings corrections by depressing the AP override switch (paddle) |             |
| 10. <b>Monitoring TFR</b>    |  |             |
|                              | In bad weather or at night, monitor closely the TFR MFD in case of a TFR failure.  |             |
| 11. <b>Disconnecting TFR</b> |  |             |
| TFR master                   | Disable  | OSB 4       |
| (or) RF Switch               | Silent   |             |

Note:

SOFT/MED/HARD settings determine how many G the AP is allowed to pull.  
 VLC is Very Low Clearance (100 feet). Activate only over extremelv flat terrain or over sea.

**AN/AAQ-14 TARGETING POD OPERATION**

Note:

Ensure TGP Power is enabled well before you need the pod. It requires 7 to 15 min before being operational.

- |                    |                          |
|--------------------|--------------------------|
| 1. Hardpoint power | Check LEFT HDPT ON       |
| 2. Master ARM      | ARM (or SIM)             |
| 3. LASER switch    | ON (if required for LGB) |
| 4. TGP Time Out    | Allow 7-15 min cooling   |

**Slaved**

- |               |                                     |
|---------------|-------------------------------------|
| 5. AG Radar   | Seek target and designate           |
| 6. SOI to TGP | Refine target aiming.               |
| 7. TGP FOV    | Increase if required (wide-naro-ex) |
| 8. Target     | LOCK or point to TMS up             |
| 9. Weapon     | Release                             |

**Unslaved**

- |            |                  |          |
|------------|------------------|----------|
| 10. SOI    | Switch to TGP    | DMS down |
| 11. TGP    | Ground stabilise | TMS up   |
| 12. Target | LOCK or point    | TMS up   |
| 13. Weapon | Release          |          |

**Post release**

- |                      |                                     |
|----------------------|-------------------------------------|
| 14. Target countdown | Monitor countdown                   |
| 15. Auto Lasing      | Check laser activation (L flashing) |
| 16. Manual Lasing    | Start Lasing when required.         |

**After target hit**

- |                 |                       |          |
|-----------------|-----------------------|----------|
| 17. Target      | Unlock                | TMS down |
| 18. TGP cursors | Slave to radar cursor | TMS down |
| 19. Laser       | OFF                   |          |

Note:

Avoid violent manoeuvring during weapon TOF. Maintain TGP LOS with the target as long as the weapon is in the air. Switching target can be done as long as the laser hasn't fired.

**AN/AAQ-14 TARGETING POD OPERATION (Continued)**

Note:

The TGP is slewed to the radar cursors until target designation. From that point, the TGP is ground stabilised and becomes SOI. It can be slewed and expanded for better aiming. The AREA clue is displayed when the TGP is Ground stabilised. The TGP moves slowly when ground stabilised.

**AN/APG-68 RADAR**

Available radar modes:

**Air to Air**

- RWS:** Range While Search  
**SAM:** Situational Awareness Mode  
**STT:** Single Target Track  
**TWS:** Track While Scan  
**LRS:** Long Range Scan  
**VS:** Velocity Search  
**ACM:** Air Combat Mode

- |          |        |
|----------|--------|
| Slew     | CTL F7 |
| Hud      | CTL F6 |
| Bore     | CTL F5 |
| Vertical | CTL F8 |

**Air to Ground**

- GM:** Ground Mapping  
 EXP, DBS1, DBS2  
**GMT:** Ground Moving Target  
 EXP  
**SEA:** Anti Ship  
 EXP

Note:

The AA radar is a B scope display and can look 120° x 120° in front of the aircraft. Scanning the full cone is not possible and subzones need to be set with the azimuth (60, 30, 25, 10°), bar scan (1 bar = 4.9° in the vertical, 2 bars = 4.9+2.2+4.9° = 12°, 4 bars = 26.2°. The highest bar setting, the longest scan), range (10 to 160Nm) and antenna elevation. The AG radar is a Pie Scope and azimuth and elevation are fixed. The scan is always the full 120°.

**AN/APG-68 RADAR - AIR TO AIR: RWS**

Range While Search: **Suited for General purpose Search.**  
 RWS → (bug) → SAM → (lock) → STT

RWS	Detection probability 2/5	
	All contacts displayed without info	
Range Settings	10 to 160 NM	F3/F4
Azimuth	10°, 30°, 60°	F8
Bar Scan	1, 2, 4	SHF F8
Ant Elevation	All range	F5/F6/F7

**AN/APG-68 RADAR - AIR TO AIR: SAM (bugged RWS)**

Situational Awareness Mode: Special RWS submode.  
**Suited when info is requested for one target.**

SAM	Detection probability 3/5	
	One contact displayed with relevant info (heading – airspeed – closure – aspect)	
Range Settings	10 to 160 NM	F3/F4
Azimuth	reduced and mobile	F8
Bar Scan	1, 2, 4	SHF F8
Ant Elevation	All range	F5/F6/F7
DLZ	Displayed if AA weapon selected	

**AN/APG-68 RADAR - AIR TO AIR: STT (locked SAM)**

Single Target Track: **Suited for attacking a target (BVR).**

STT	Detection probability 5/5	
	Only one contact displayed - full info	
Azimuth - Bar	Fixed 2° - Fixed 1	
DLZ	Displayed if AA weapon selected	
NCTR	Enabled	

NCTR will try to classify target. Best results inside 25Nm and in front of target. If NCTR fails to classify, UNKN will be displayed

**AN/APG-68 RADAR – AIR TO AIR : TWS**

Track While Scan : **Suited for surveillance (CAP – Escort)**  
 TWS → (bug) → TWS → (lock) → STT

TWS	Detection probability 3/5 (no bugged tgt)	
	Max 16 targets all with relevant info	
	Slower than RWS	
Range Settings	10 to 80 NM (effective)	F3/F4
Azimuth	10°, 30°, 60°	TAC on the sides or F8
Bar Scan	1, 2, 3	
Ant Elevation	All range	F5/F6/F7
NCTR	Enabled (70% capabilities from STT)	
Expand	Possible to 4x Scrollable.	OSB3 or v
	EXP indication will flash when in EXP.	

EXP mode will allow to zoom in around a formation of target to allow better sorting.

**AN/APG-68 RADAR – AIR TO AIR : TWS (bugged target)**

TWS	Detection probability 4/5 (bugged tgt)	
	One target with full info – all other targets with same info as non bugged target.	
Range Settings	10 to 80 NM (effective)	F3/F4
Azimuth	Fixed 25°	F8
Bar Scan	Max 3	
Ant Elevation	All range	F5/F6/F7
NCTR	Enabled (70% capabilities from STT)	
Expand	Possible to 4x.	OSB3 or v
	Fixed around bugged target.	

In TWS with a bugged target, you get more information but you increase the detection probability.

When locking the target from TWS bugged target, radar is switched to STT mode.

**AN/APG-68 RADAR – AIR TO AIR : LRS**

Long Range Scan: **Suited for long range large aircraft search during BARCAPS or DCA missions.** Soonest detection allows to plan the correct intercept early on.

LRS Detection probability 4/5  
 Same as RWS but more powerfull and slower  
 Best Range Between 80 and 160 Nm

**AN/APG-68 RADAR – AIR TO AIR : VS**

Velocity Search: **Suited for fishing out high closure speed, high aspect bogeys. It can help you decide whether to fight or run away (Highest closure = Hostile)**  
 VS →(Lock) → STT

VS Detection probability 2/5  
 No Range info - replaced by Speed.  
 Target at Top is target approaching at highest closure rate.

**AN/APG-68 RADAR – AIR TO AIR : ACM**

Air Combat Modes : **Suited for Dogfights or Snap defense**

ACM Detection probability 5/5 (when locked)  
 Range Max 10 Nm  
 Lock Auto Lock  
 Radar OFF when selected

4 Submodes

**HUD** HUD area : 20° x 30° Merge  
**VERTICAL** Lift Line: 10° x 60° Turning dogfight  
**BORE** Boresight: 5° x 5° Pick target by pointing the boresight cross in the HUD. (Sorting)  
**SLEW** Manual Scan (5° x 5°) by slewing the cursor.

**AN/APG-68 RADAR – AIR TO GROUND**

STP STEERPOINT  
 Preplanned target centred on cursor.  
 Radar ground stabilized.  
 Best suited for preplanned strike.

SP SNOWPLOW  
 Radar scan ahead and is not ground stabilized  
 Best suited for avoiding contact or attacking target of opportunity.

FREEZE Freeze the radar picture  
 Best suited to attack a non mob-ving target with radar OFF.

CZ CURSOR ZERO  
 To replace the cursor in the centre of the display.

**AN/APG-68 RADAR – AIR TO GROUND: GM**

Ground Map : **Display non moving structures.**  
 Preferred mode is STP

NORM Normal Field Of View  
 EXP 4x FOV – Same resolution  
 DBS1 4x FOX – 8x resolution  
 DBS2 8x FOV – 64x resolution

Note:

Use STP mode when increasing the FOV to avoid making the radar screen unreliable.  
 DBS modes used in conjunction with radar gain allows to pick target precisely.  
 Use EXP from 20 Nm and DBS modes from 10 miles for better results

**AN/APG-68 RADAR – AIR TO GROUND: GMT**

Ground Moving Target : **Display moving units.**  
Preferred mode is SP.

NORM	Normal Field Of View
EXP	4x FOV – Same resolution
DRS	Not available

Note:

GMT can be used for navigating at low level by avoiding radar contacts. Usefull to stay out of SHORAD and MANPAD range. When used with radar gain, GMT can display roads along which units move. To ensure maximum weapon efficiency, try aligning with the vehicules.

**AN/APG-68 RADAR – AIR TO GROUND: SEA**

Sea Mode : **Suited for Anti-Ship missions**  
Preferred mode is STP or SP.

Note:

SEA is the same as GMT mode but optimized for water overflight (minimizing ground clutter)

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