

F-16 C/D

Block 52

Weapons Check-lists

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

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FOREWORD

This Booklet is only intended to give you an idea on how to release weapon with SP. By no means is it the only method or the best one. Use this booklet as a basis to build your own procedure.

AGM-65 B/D/G MAVERICK - SLAVE MODE

Note:

For a Maverick launch, you need the following MFD slots:
FCR – SMS – WPN at minimum in your MFD SLOTS config

First missile

- | | | |
|------------------|---------------------------|---------|
| 1. Master ARM | SET ARM | (SHF m) |
| 2. Master Mode | SET A-G | |
| 3. MFD Slot | Check Correct | |
| 4. SMS | Select AGM-65 | |
| 5. SMS | Power Up Missile | (OSB 7) |
| 6. AG RADAR Mode | AS Required | |
| 7. AG RADAR | Designate Target | (TMS) |
| 8. Missile | Uncage | (U) |
| 9. MFD | Select WPN SLOT | (DMS) |
| 10. Weapon | Ground designate and LOCK | |
| 11. Weapon | Confirm In Range | |
| 12. Weapon | Pickle | |

Second missile

- | | | |
|----------------|---------------------------|---------|
| 13. SMS | Select next AGM-65 | |
| 14. Missile | Uncage | (U) |
| 15. MFD | Select WPN SLOT | (DMS) |
| 16. Weapon | Ground designate and LOCK | |
| 17. Weapon | Confirm In Range | |
| 18. Weapon | Pickle | |
| 19. Master ARM | SET SAFE | (CTL m) |

Note:

The WPN MFD slot is where the camera in the nose of the missile shows you what it sees. It's activated by **UNCAGING** the missile (removing protecting lens cover)

LASER GUIDED BOMBS – MANUAL LASING

For a LGB release, you need the following MFD slots:
TGP– SMS – FLIR – FCR in your MFD SLOTS config

Note:

In Manual LASING, the pilot has to fire the LASER manually. This is done by holding down the trigger detent. The laser fire is confirmed by the flashing L in the FLIR MFD. If Manual LASING was started – the AUTO LASING is overridden. Manual LASING needs to be performed until weapon impact.

- | | | |
|-------------------|---|---------|
| 1. Master ARM | SET ARM | (SHF m) |
| 2. Master Mode | SET A-G | |
| 3. MFD Slot | Check Correct | |
| 4. SMS | Select GBU to be released | |
| | (note station number) | |
| 5. LASER ARM | SET ARM | (ALT I) |
| 6. AG RADAR Mode | SET As Required | |
| 7. AG RADAR | Designate Target | (TMS) |
| 8. MFD | Select TGP Slot | |
| | (Confirm Hardpoint number) | |
| 9. FLIR | Slew and LOCK target in POINT | (TMS) |
| | (Lock is not mandatory – maintaining the cursor over the target is enough) | |
| 10. Weapon CUE | Pickle and HOLD (CCRP) | |
| 11. Active LASING | Active Lase Target until impact with First trigger detent. (Press and Hold CTL /) | |
| | Confirm LASING with flashing L | |
| 12. LASER ARM | SAFE (after impact) | (ALT I) |
| 13. Master ARM | SET SAFE | (CTL m) |

LASER GUIDED BOMBS – AUTO LASING

Note:

AUTO lasing mode will lase target after bomb release according to the Laser Timer set in the LASER DED page. If you set 10 sec in the LASER Timer the LASER will fire 10 seconds BEFORE bomb Impact. When the LASER fire, a flashing L is displayed on the FLIR MFD.

- | | | |
|----------------------|--|---------|
| 1. Master ARM | SET ARM | (SHF m) |
| 2. Master Mode | SET A-G | |
| 3. MFD Slot | Check Correct | |
| 4. SMS | Select GBU to be released
(note station number) | |
| 5. LASER ARM | SET ARM | (ALT I) |
| 6. LASER TIMER | Check Timer ACTIVE Access DED
LASER page (LIST/MISC/LASER) and
check that the timer is different than "0" | |
| 7. AG RADAR Mode | SET As Required | |
| 8. AG RADAR | Designate Target | (TMS) |
| 9. MFD | Select TGP Slot
(Confirm Hardpoint number) | |
| 10. FLIR | Slew and LOCK target in POINT (TMS)
(Lock is not mandatory – maintaining
the cursor over the target is enough) | |
| 11. Weapon CUE | Pickle and HOLD (CCRP) till bomb
release | |
| 12. Weapon in flight | Check that L starts flashing as soon as
the impact timer meets the Laser timer
value. | |
| 13. LASER ARM | SAFE (after impact) | (ALT I) |
| 14. Master ARM | SET SAFE | (CTL m) |

Note:

DO NOT modify any settings after bomb release or the AUTO LASING will not work!

LGB– INFLIGHT RETARGETTING

Note:

It is possible to destroy 2 targets in one pass with LGB. The procedure is tricky and requires a lot of practise and experience to perform. Manual Lasing is recommended although Auto lasing will work too. Do not Lock the target !

- | | | |
|----------------------|--|------------------|
| 1. Flight parameters | 400 Kts, 16000ft. | |
| 2. MFD Slots | FCR – TGP – xxx | SMS – HSD – xxx |
| 3. Master Arm | SET ARM | (SHF m) |
| 4. Master Mode | SET A-G | |
| 5. SMS | Select GBU to be released | |
| 6. Laser Arm | SET ARM | (ALT I) |
| 7. AG RADAR | Designate Target | (TMS) |
| 8. MFD | Switch to TGP | |
| 9. TGP FOV | As required | (Pinky switch) |
| 10. TGP cursor | Slew over primary tgt - DO NOT LOCK | |
| 11. CCRP max range | Release 1 st weapon | (Pickle) |
| 12. CCRP min range | Release 2 nd weapon (6 – 10 sec interv.) | |
| 13. Manual Lasing | Start lasing when 1 st weapon counter
hits 00:17 or less | (Trigger detent) |
| 14. Weapon hit | Stop lasing
Slew cursor over secondary target
Manual Lase | (Trigger detent) |
| 15. Second hit | Stop Lasing | |
| 16. Laser Arm | SAFE | |
| 17. Master Arm | SAFE | |

Note:

The trick is not to miss the designation of the 2nd target. Carefull planning is the key. Bear in mind also that the 1st bomb will hit the target just after overflight. As the TGP looks backwards, The cursor direction will be inverted. Plan accordingly and inverse the cursor movement when you designate the 2nd target if you have overflowed the target area.

ARMING DELAYS

Note:

Arming DELAYS are set in the CNTL page (Access via the SMS page). For SP2 C3, C4, and LADD are not implemented. Use C2 for CBUs (burst altitude setting) and C1 for all the other weapons (dumb bombs and GBUs).



To set an ARMING DELAY:

1. From the SMS page, select the OSB labelled CNTL.
2. The highlighted mode is the active mode.
3. The highlighted AD is dependant on the NOSE/TAIL/NSTL setting in the SMS page
4. Depress the OSB next to the mode to change (C1 or C2)
5. Use the labelled OSB to enter a new AD value
6. Hit the OSB labelled ENT to confirm entry.
7. Hit the OSB labelled RTN to return to the CNTL page.
8. Repeat process for AD2 if you are in C1 mode.
9. If you are in C2 mode, use labelled OSB to enter a new burst altitude value.
10. Confirm by hitting the OSB labelled ENT to confirm
11. Depress the OSB labelled CNTL to get back to SMS page.

ARMING DELAYS (Continued)

To set a RELease ANGLE:

The Release Angle is used ONLY for DTOS delivery. The set angle is the climb up angle the aircraft has to fly during bomb release to successfully hit the target.

1. From the SMS page, select the OSB labelled CNTL.
2. Depress OSB 10 to access the REL ANG page
3. Use the labelled OSB to enter a new angle value
4. Hit the OSB labelled ENT to confirm entry.
5. Hit the OSB labelled RTN to return to the CNTL page
6. Depress the OSB labelled CNTL to get back to SMS page.
7. Fly at that angle during bomb release to ensure that the bomb hit the target

NOSE / TAIL / NSTL Selection:

1. By Selecting NOSE the value in AD1 will be active (C1)
2. By selecting TAIL the value in AD2 will be active (C1)
3. By Selecting NSTL – Both Detonators are selected.

Select NSTL when using C2 in CNTL page
Use NOSE or TAIL with C1 in CNTL page according to the inserted values in AD1 and AD2.

CBUs RELEASE - CCRP

- | | | |
|------------------|-------------------------------|---------|
| 1. Master ARM | SET ARM | (SHF m) |
| 2. Master Mode | SET A-G | |
| 3. Release mode | SET CCRP | |
| 4. SMS | Select CBU to be released | |
| | SET Weapons (RIPPLE – INTVL) | |
| | Select NOSE / TAIL / NSTL | |
| 5. Arming | SET AD to C2 in CTNL Page and | |
| | enter required AD values | |
| 6. BURST ALT | SET BA in CTNL Page | |
| 7. ALT CHECK | Check release ALT>BA>FRAG | |
| 8. AG RADAR MODE | Set AS REQUIRED | |
| 9. AG RADAR | Designate Target | |
| 10. Weapon CUE | Pickle and HOLD (CCRP) | |
| 11. Bomb release | Call BOMBS AWAY | |
| 12. Master ARM | SET SAFE (after release) | (CTL m) |

Note:

The GP bomb release procedure is the same except that you select C1 as AD from the CTNL page. No BA value can be entered – but a second AD2 can.

Note2:

Be aware of Bomb FRAG Pattern – Stay on the safe altitude side. Check wingmen separation for deconfliction

Note3

If target area is defended by SHORAD (AAA or Manpads) Stay above 14000ft – USE A-LOW setting of 16000ft and level off before 14000ft

CBUs RELEASE - CCIP

- | | | |
|------------------|-------------------------------|---------|
| 1. Master ARM | SET ARM | (SHF m) |
| 2. Master Mode | SET A-G | |
| 3. Release mode | SET CCIP | |
| 4. SMS | Select CBU to be released | |
| | SET Weapons (RIPPLE – INTVL) | |
| | Select NOSE / TAIL / NSTL | |
| 5. Arming | SET AD to C2 in CTNL Page and | |
| | enter required AD values | |
| 6. BURST ALT | SET BA in CTNL Page | |
| 7. ALT CHECK | Check release ALT>BA>FRAG | |
| 8. TARGET | AQUIRE visually | |
| 9. ROLL IN | Place Piper before Target | |
| 10. Bomb release | Call BOMBS AWAY | |
| 11. TARGET AREA | EGRESS | |
| 12. Master ARM | SET SAFE | (CTL m) |

Note:

The GP bomb release procedure is the same except that you select C1 as AD from the CTNL page. No BA value can be entered – but a second AD2 can.

Note2:

Be aware of Bomb FRAG Pattern – Stay on the safe altitude side. Check wingmen separation for deconfliction

Note3

If target area is defended by SHORAD (AAA or Manpads) Stay above 14000ft – USE A-LOW setting of 16000ft and level off before 14000ft

GP BOMB RELEASE - DTOS**IP – Low Level**

1. RADAR
2. Master ARM
3. Master Mode
4. Release mode
4. SMS

Setting Up

- CHECK STDBY - EMCON
 SET ARM (SHF m)
 SET A-G
 SET DTOS
 Select weapon to be released
 SET weapons (RIPPLE – INTVL)
 (be sure to release multiple bombs)
 Select NOSE / TAIL / NSTL
 SET AD to C2 in CTNL Page and
 enter required AD values
 SET BA in CTNL Page if required
 SET REL ANG in CTNL Page – 30°

5. Arming

6. BURST ALT
7. Release Angle

10NM from Target

8. Altitude
9. Speed
10. HUD TD Box
11. HUD TD Box
12. Altitude
13. Speed
14. CCRP Steering Line

Acquiring Target

- Pop to 1500ft
 Reduce to 300-350Kts MAX
 Place ON TARGET and designate
 Refine with TMS if necessary
 Drop to 300 ft
 Accelerate to 450 Kts
 Align with FPM

DTOS

15. First solution CUE
16. G-Forces.
17. PICKLE
18. Climb angle
19. 2nd solution CUE
20. After bomb release
21. Master ARM

POP UP Manoeuvre

- Start climbing
 Do not climb before seeing the 1st
 solution Cue
 MAX 3.5G
 DEPRESS and HOLD
 Set REL ANG – 30°
 Bomb release
 Execute dive turn to EGRESS
 Set SAFE (CTL m)

Note:

Dive-Toss is a Low Altitude mode. It's very useful when flying NOE during INGRESS. A POP-UP manoeuvre is mandatory and is the weak point of the delivery. The method is not very precise – Best results are obtained when saturating the area with weapons.

GP BOMB RELEASE – MANUAL BOMBING MODE**Note:**

Manual Bombing Mode is a backup mode. Use it when FCR or HUD are damaged.

- | | |
|-----------------|---|
| 1. Master ARM | SET ARM (SHF m) |
| 2. Master Mode | SET A-G |
| 3. Release mode | SET MAN (OSB2 then OSB16) |
| 4. SMS | Select weapon to be released
SET weapons (RIPPLE – INTVL)
Select NOSE / TAIL / NSTL |
| 5. ARMING DELAY | SET AD to C2 in CTNL Page and
enter required AD values |
| 6. BURST ALT | SET BA in CTNL page if required |
| 7. ALT CHECK | Check release ALT>BA>FRAG |
| 8. RETICLE | Toggle to PRI (SHF CTL m)
Adjust MILS Up (CTL)
(see next table) Down (CTL) |
| 8. TARGET | AQUIRE visually |
| 9. ROLL IN | Position Piper |
| 10. Master ARM | SET SAFE (CTL m) |

Note:

In Manual bombing, Pilot has to account for all parameters that the FCR usually provides. Think WWII era when you use this mode.

AGM-154 JSOW - SLAVE MODE

Note:

For a JSOW release, you need the following MFD slots:
FCR – SMS – WPN at minimum in your MFD SLOTS config

First bomb

- | | | |
|------------------|---------------------------------|---------|
| 1. Master ARM | SET ARM | (SHF m) |
| 2. Master Mode | SET A-G | |
| 3. MFD Slot | Check Correct | |
| 4. SMS | Select JSOW | |
| 5. SMS | Power Up weapon | (OSB 7) |
| 6. AG RADAR Mode | AS Required | |
| 7. AG RADAR | Designate Target | (TMS) |
| 8. Weapon | Uncage | (U) |
| 9. MFD | Select WPN SLOT | (DMS) |
| 10. Weapon | Ground designate and LOCK | |
| 11. Range | According to ALT. Disregard DLZ | |
| 12. Weapon | Pickle | |

Second Jsow

- | | | |
|----------------|---------------------------------|---------|
| 13. SMS | Select next JSOW | |
| 14. Weapon | Uncage | (U) |
| 15. MFD | Select WPN SLOT | (DMS) |
| 16. Weapon | Ground designate and LOCK | |
| 17. Range | According to ALT. Disregard DLZ | |
| 18. Weapon | Pickle | |
| 19. Master ARM | SET SAFE | (CTL m) |

Note:

in SP3 the JSOW behaves exactly like an AGM-65 due to GPS code not being implemented. Release procedure is the same as the Maverick but don't wait till the DLZ shows IN RNG. Release weapon as soon as you have a solid lock.
 Range depends on release altitude.

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AIM-120: BORESIGHT MODE

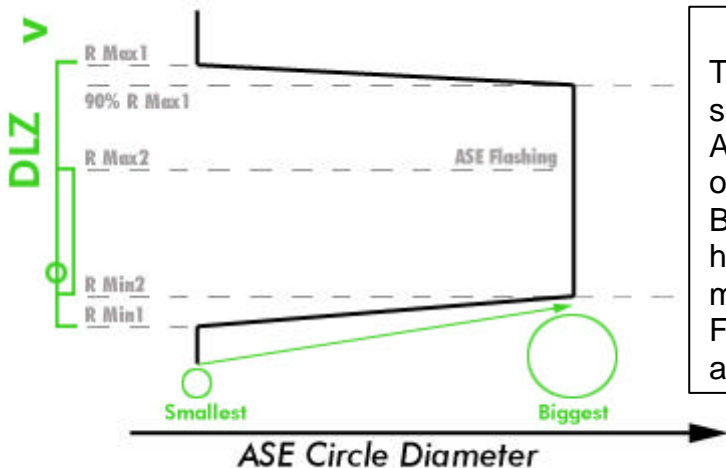
Note:

In Boresight mode, the missile becomes active as soon as launched and attacks the first target found.
DO NOT FIRE in this mode if friendly aircraft are in the area unless you are sure they are safe.

- | | |
|----------------|---------------------------|
| 1. Master Arm | Arm |
| 2. Master mode | Set AA |
| 3. SMS | Select AIM-120 |
| 4. MSL Mode | Set Bore (OSB 19) |
| 5. Friendly AC | Check friendlies position |
| 6. Radio | Call FOX 3 – MADDOG |
| 7. Weapon | Pickle |

This mode is suited when you want to distract a bandit or when you don't have time to go through the radar lock sequence.

AIM-120: ASE



Note
 This diagram shows the ASE geometry of a typical BVR head to head engagement based on F4 SP3 avionics.

AIM-120: SLAVE MODE

- | | |
|----------------------|---|
| 1. Master Arm | ARM |
| 2. Master mode | Set AA |
| 3. AA Radar | Radiate CRM (RWS or TWS) |
| 4. SMS | Select AIM-120 |
| 5. MSL Mode | Set SLAVE (OSB 19) |
| 6. Target | bug or lock as required |
| 7. NCTR | Check status |
| 8. Target Parameters | Check (aspect – closure) |
| 9. ASE | Wait biggest |
| 10. DLZ | Wait between Rmax2 and Rmin2 |
| 11. Radio | Call FOX 3 |
| 12. Weapon | Pickle |
| 13. Target | Maintain in WEZ |
| 14. Countdown | Monitor A = guided by ac radar
T = MSL onboard radar |
| 15. Radar | Break lock when counter shows T to engage another bandit – Call PITBULL |

AIM-120: ARH COMPARATIVE TABLE

ARH Missiles	Guidance	Max Range (Nm)	Active Range (Nm) From tgt	Platform
Aim-120	datalink - ARH	25-30	10	F14 - F15 - F16 - F18
Aim-54	ARH	45+	?	F14
AA12	ARH	28 - 32	8 - 9	Mig29C - Su27/30/33

Note

Among the ARH missiles, the Phoenix has the longest range but it's carried only by the F-14. The AA-12 has the best range compared to to amraam but needs to be supported longer negating its advantage.

AIM-9 WITH RADAR LOCK

- | | |
|----------------|-------------------------------|
| 1. Master Arm | ARM |
| 2. Master mode | Set AA |
| 3. AA Radar | Radiate CRM (RWS or TWS) |
| 4. SMS | Select AIM-9 |
| | Cool (see note) (OSB8) |
| 5. Target | bug or lock as required |
| 6. NCTR | Check status |
| 7. Good tone | Uncage missile (u) |
| 8. HUD | Check diamond tracking target |
| 9. DLZ | Check target range |
| 10. Radio | Call FOX 2 |
| 11. Weapon | Pickle |

AIM-9 WITHOUT RADAR LOCK

- | | |
|----------------|-------------------------------|
| 1. Master Arm | ARM |
| 2. Master mode | Set AA |
| 3. SMS | Select AIM-9 |
| | Cool (see note) (OSB8) |
| 4. HUD | Place diamond over target |
| 5. Good tone | Uncage missile (u) |
| 6. HUD | Check diamond tracking target |
| 7. Target | Check aspect and range |
| 8. Radio | Call FOX 2 |
| 9. Weapon | Pickle |

Note

The AIM-9L/M needs to be cooled by argon for better accuracy. Cooling is started when entering Dogfight master mode and can last 60 – 90 minutes. Manually stop cooling when required. If firing from outside Dogfight master mode, enable and disable manually the cooling system.

TD Uncage automatically the missile when the IR signature goes higher than a preset level. **BP** bypasses TD.

Scan nutates seeker about LOS, larger FOV. **Spot** requires the diamond to be placed over the target.

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