

Training Manual

388th Fighter Squadron

Training Manual

132nd Virtual Wing

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Training Manual

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Contents

[1. INTRODUCTION 4](#_Toc25526993)

[2. **INITIAL QUALIFICATION TRAINING** (IQT) 5](#_Toc25526994)

[2.1 IQT-3: 388-BAS-02: **BASIC AIRCRAFT PROCEDURES** (SQ) 5](#_Toc25526995)

[2.2 IQT-4: 388-BAS-03: **BASIC FLIGHT** (SQ) 5](#_Toc25526996)

[2.3 IQT-5: 388-BAS-04: **AIR TO AIR REFUELLING** (SQ) 5](#_Toc25526997)

[2.4 IQT-6: 388-BAS-04: **PRECISION FLIGHT** (SQ) 5](#_Toc25526998)

[2.5 IQT-7: 388-BAS-04: **THE 132ND WAY OF FLYING** (IP) 5](#_Toc25526999)

[3. **MISSION QUALIFICATION TRAINING** (MQT) 5](#_Toc25527000)

[3.1 MQT-1: 388-TAC-01: **FORMATION AND TURNS** (IP) 5](#_Toc25527001)

[3.2 MQT-6: 388-TAC-02: **DEFENSIVE SYSTEMS AND MANOEUVRES** (SQ) 5](#_Toc25527002)

[3.3 MQT-7: 388-TAC-03: **NIGHT OPERATIONS** (SQ) 5](#_Toc25527003)

[3.4 MQT-8: 388-TAC-04: **AWACS COMMUNICATIONS** (SQ) 5](#_Toc25527004)

[3.5 MQT-9: 388-SAT-01: **HIGH AND MEDIUM ALTITUDE DELIVERIES** (SQ) 5](#_Toc25527005)

[3.6 MQT-10: 388-SAT-02: **LOW ALTITUDE DELIVERIES** (SQ) 5](#_Toc25527006)

[3.7 MQT-11: 388-ACT-01: **ACM 1v1 WVR MANOEUVRING** (IP) 5](#_Toc25527007)

[3.8 MQT-12: 388-ACT-02: **BVR ENGAGEMENTS AND MUTUAL SUPPORT** (IP) 5](#_Toc25527008)

[3.9 MQT-13: 388-TAC-05: **MISSION QUALIFICATION TRAINING CHECKOUT** (IP) 5](#_Toc25527009)

[4. **CONTINUATION TRAINING** (CT) 5](#_Toc25527010)

[4.1 CT-2: 388-ACT-03: **DCA CAP** (SQ) 5](#_Toc25527011)

[4.2 CT-3: 388-ACT-04: **OCA SWEEP** (SQ) 5](#_Toc25527012)

[4.3 CT-4: 388-ACT-05: **OCA ESCORT** (SQ) 5](#_Toc25527013)

[4.4 CT-5: 388-SAT-03: **SAT FLIGHT LEAD** (SQ) 5](#_Toc25527014)

[4.5 CT-6: 388-SAT-04: **ARMED RECONNAISSANCE** (SQ) 5](#_Toc25527015)

[4.6 CT-7: 388-ACT-06: **DCA INTERCEPT** (SQ) 5](#_Toc25527016)

[4.7 CT-8: 388-SAT-05: **CLOSE AIR SUPPORT** (IP- CAS INSTRUCTOR) 5](#_Toc25527017)

[4.8 CT-9: 388-SAT-06: **SCAR** (SQ) 5](#_Toc25527018)

[5. **UPGRADES** (UGT) 5](#_Toc25527019)

[5.1 UGT-1: 388-SAT-07: **FLUG 2-SHIP: OPPOSED SAT** (IP) 6](#_Toc25527020)

[5.2 UGT-2: 388-ACT-07: **FLUG 4-SHIP: DCA CAP** (IP) 6](#_Toc25527021)

[5.3 UGT-3: 388-SAT-08: **FLUG 4-SHIP: OPPOSED SAT** (IP) 6](#_Toc25527022)

[5.4 UGT-4: 388-ACT-08: **MISSION COMMANDER UPGRADE: DCA CAP** (IP) 6](#_Toc25527023)

[5.5 UGT-5: 388-SAT-09: **MISSION COMMANDER UPGRADE: SAT AI** (IP) 6](#_Toc25527024)

[5.6 UGT-6: 388-SAT-10: **FORWARD AIR CONTROLLER (AIRBORNE)** (IP- CAS INSTRUCTOR) 6](#_Toc25527025)

[6. **CONVERSION TO TYPE TRAINING** (CTT) 6](#_Toc25527026)

[7. TO BE ADDED LATER 6](#_Toc25527027)

[8. TERMS 7](#_Toc25527028)

# **INTRODUCTION**

**Scope**: The Training Manual is a supplement to the 132nd wing Standard Operating Procedures (SOP), Tactics, Techniques and Procedures (TTP) and other documents such as the range orders and airfield charts, which are common to all squadrons and air frames, and the 388th SOP and kneeboard pack, which is specific to the 388th and the F-16C.

The Training Manual provides information, context and detail that are not found in the above documents, such as *how* to actually perform a tactical turn or set up the datalink correctly. It follows the Training Programme step by step, and you as a pilot should read and refer to it as you go through the programme.

This should also save you from having to research a lot of material on your own, as we have already compiled this document with information about how to perform most tasks in the jet, and within the flight, all within the context of the squadron’s standard operating procedures.

Note that this document does not describe every track in the training programme. Weapons, avionics and similar that are not specific to the 132nd should be learned from other sources, such as the flight manual provided by Eagle Dynamics.

The Training Manual also sets out the *expectations* of the 132nd Virtual Wing to a pilot in the Peregrines, by providing a clear baseline for what we expect you to be able to do at each point in the training programme, and of course afterwards as a mission qualified pilot.

We hope this document will be some help in preparing you to fly with the 388th “Peregrines” Virtual Fighter Squadron.

**Pilot responsibility**: Use common sense

* SOPs describe standardised *procedures* for routine operations.
* TTP’s describe *techniques* that can be used in different situations.

Neither are substitutes for common sense and judgment, nor they represent the sum of all experience. You’ll make a few new experiences on your own, or find yourself in a situation the SOP or TTP’s do not describe. It is the pilot's responsibility to fly the aircraft safely and effectively in all circumstances, as required to accomplish the overall mission.

Weapon, sensor and avionics mechanics and operational descriptions are not covered here, nor is air and ground vehicle recognition. I.e. we won’t tell you how a radar works or what a BMP looks like, but will have an expectation that you find this hobby interesting enough to learn new things.

**Recommended changes**: Improvements and recommended changes to this SOP should be stated to the parties nominated in the Document Responsible section above.

# **INITIAL QUALIFICATION TRAINING** (IQT)

## IQT-5: 388-BAS-04: **AIR TO AIR REFUELLING** (SQ)

Air- to- air refuelling (AAR) is a critical skill to master. It should be conducted regularly by any pilot, outside of the regular hosted training- and combat events if need be, in order to maintain proficiency. Familiarisation with the procedures outlined below is essential in order to be able to conduct safe and efficient aerial refuelling operations in a multiplayer environment.

The following explains how AAR is conducted in the 132nd Virtual Wing. There are no squadron- specific SOP’s for AAR, because several aircraft types use the same tanker types. This means that in a mission, you can find yourself on the tanker with any other aircraft capable of refuelling from a boom (as opposed to the drogue used by the F/A-18 and F-14), namely the Mirage and A-10C. With the A-10C in particular, different tankers are usually available due to the difference in preferred refuelling airspeed and altitude between the types.

Note that AAR begins on the ground, with mission preparation. Fuel is a very scarce resource in the F-16, and fuel considerations will be an important factor in any mission planning. As a minimum, the pilot should familiarise himself with the tanker information provided through the Mission Data Card (MDC): TACAN, frequency and altitude, and also the location of the tanker track.

TIP: When planning a mission, it is a good idea to place a waypoint in the middle of the tanker track in order to provide you with real-time information about your ability to refuel from your current location in the most optimal manner using the ICP CRUS TOS and RNG subpages.

Tankers will typically fly the following “contract":

* + 40- 50nm racetrack pattern
  + Mach 0.6 (around 300KCAS)
  + Turns at X degrees of bank

Before refuelling, the jet shall be FENCED OUT and lights set according to SOP or Flight Lead’s instruction.

AAR IN SIX STAGES:

1. RENDEVOUZ

*Communications and deconfliction*

When the Flight Lead makes the decision to head for the tanker, he will coordinate with the controlling agency and push the flight to the tanker frequency at an appropriate distance from the tanker, normally about 10- 15nm. Note that the tankers normally operate on VHF in order to enable the flights to monitor the AWACS nets on UHF while on the tanker. This means that you will use the tanker frequency as your internal frequency. There may be other flights on the same frequency, so keep use brevity and keep chatter to a minimum.

Flight Lead will check in on the tanker frequency, typically with the following:

* + Number and type of aircraft (“Viper is two times F-16…)
  + Position (“inbound TEXACO from the North, FL190, 20 miles”)
  + Lowest fuel state in the flight (“fuel six eight”, meaning 6800lbs)

This is an informative call to other flights. If there is another flight inbound, the flight with the least fuel refuels first unless the others mission is more time critical. The flight leads will coordinate deconfliction.

If there is another flight already on the tanker, you’ll hear something like: “Copy Viper, this is SPECTER1, two times chicks in tow.” (Other flights that are in formation with the tanker (stages 2 through 5 below) are referred to as “chicks in tow”.)

*The rendezvous:*

Because the tanker is anchored in a racetrack, the fighter has to come to the tanker. This means there’s a bit of geometry involved. For **low-aspect** **rendezvous** (i.e. if you’re chasing the tanker), it is relatively straightforward:

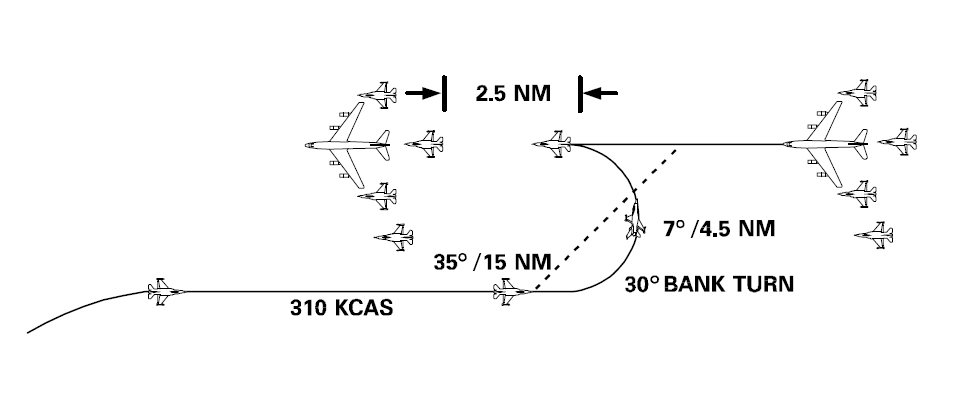
* + Approach at the tanker’s designated altitude *minus* 1000ft.
  + Gradually reduce overtake.

This means that if the tanker is at FL200, you approach at FL190 until you are visual with the tanker and ready to join the left observation position or, if cleared to do so, the pre-contact position.

The 388th contract speed is 350KCAS or M0.8, whichever is lower, so you will have about 50 knots overtake on the tanker. Reduce this gradually as you approach, but also be careful not to spend excessive amounts of time crawling up on the tanker. You can use the radar closure rate in STT mode and TACAN readout to judge your rate of closure.

For **high- aspect rendezvous**, we use the “fighter turn-on” technique. This is a real-life technique designed to provide a standardised and effective method for joining on the tanker:

* + Turn towards the tanker when it is at 35° relative bearing and 15nm distance.
  + Turn using the standard 30° of bank and 350KCAS energy sustaining turn. (See chapter 3.1. for a cockpit reference for 35°.)
  + The tanker should be at 4.5nm at 7° relative bearing, and you should exit the turn 2.5nm in trail of the tanker.
  + For a more aggressive rendezvous, start the turn earlier, but only after passing the tanker.
  + You can switch to DGFT or MSL OVRD to quickly re-gain radar lock if it is lost during the turn.



REF p206 11-f-16v5

WHAT IF’s:

* Rendezvous overrun
* Other flights

1. LEFT OBSERVATION
2. PRE-CONTACT
3. CONTACT
4. RIGHT OBSERVATION
5. (LEAVING)

## IQT-6: 388-BAS-04: **PRECISION FLIGHT** (SQ)

## IQT-7: 388-BAS-04: **THE 132ND WAY OF FLYING** (IP)

# **MISSION QUALIFICATION TRAINING** (MQT)

## MQT-1: 388-TAC-01: **FORMATION AND TURNS** (IP)

## MQT-6: 388-TAC-02: **DEFENSIVE SYSTEMS AND MANOEUVRES** (SQ)

## MQT-7: 388-TAC-03: **NIGHT OPERATIONS** (SQ)

## MQT-8: 388-TAC-04: **AWACS COMMUNICATIONS** (SQ)

## MQT-9: 388-SAT-01: **HIGH AND MEDIUM ALTITUDE DELIVERIES** (SQ)

## MQT-10: 388-SAT-02: **LOW ALTITUDE DELIVERIES** (SQ)

## MQT-11: 388-ACT-01: **ACM 1v1 WVR MANOEUVRING** (IP)

## MQT-12: 388-ACT-02: **BVR ENGAGEMENTS AND MUTUAL SUPPORT** (IP)

## MQT-13: 388-TAC-05: **MISSION QUALIFICATION TRAINING CHECKOUT** (IP)

# **CONTINUATION TRAINING** (CT)

## CT-2: 388-ACT-03: **DCA CAP** (SQ)

## CT-3: 388-ACT-04: **OCA SWEEP** (SQ)

## CT-4: 388-ACT-05: **OCA ESCORT** (SQ)

## CT-5: 388-SAT-03: **SAT FLIGHT LEAD** (SQ)

## CT-6: 388-SAT-04: **ARMED RECONNAISSANCE** (SQ)

## CT-7: 388-ACT-06: **DCA INTERCEPT** (SQ)

## CT-8: 388-SAT-05: **CLOSE AIR SUPPORT** (IP- CAS INSTRUCTOR)

## CT-9: 388-SAT-06: **SCAR** (SQ)

# **UPGRADES** (UGT)

## UGT-1: 388-SAT-07: **FLUG 2-SHIP: OPPOSED SAT** (IP)

## UGT-2: 388-ACT-07: **FLUG 4-SHIP: DCA CAP** (IP)

## UGT-3: 388-SAT-08: **FLUG 4-SHIP: OPPOSED SAT** (IP)

## UGT-4: 388-ACT-08: **MISSION COMMANDER UPGRADE: DCA CAP** (IP)

## UGT-5: 388-SAT-09: **MISSION COMMANDER UPGRADE: SAT AI** (IP)

## UGT-6: 388-SAT-10: **FORWARD AIR CONTROLLER (AIRBORNE)** (IP- CAS INSTRUCTOR)

# **CONVERSION TO TYPE TRAINING** (CTT)

CTT offers a type conversion arc from the F/A-18C Hornet to the F-16C Viper, and is only available for 494th MQT- pilots with 75+ flight hours logged with the squadron.

The 388th SOP and training programme is derived from the 494th, and both jets have a great deal of SOP- and type similarity, as well as with regard to mission types. Therefore, the CTT is designed to offer a basic conversion, focusing primarily on avionics that are specific to the F-16C.

CTT consists of:

* BAS-05 (SQ)
* AVI-03 (SQ)
* AVI-04 (SQ)
* AVI-05 (SQ)
* TAC-05 (IP)

After passing CTT, the pilot achieves MQT- status in the 388th.

# TO BE ADDED LATER

* IP
* AGGRESSOR

# **TERMS**

|  |  |  |
| --- | --- | --- |
| Term | meaning |  |
|  |  |  |
|  |  |  |
|  |  |  |
| ACT | Air Combat Tactics |  |
| AI | Air Interdiction |  |
| AR | Armed Reconnaissance |  |
| BVR | Beyond Visual Range |  |
| CAP | Combat Air Patrol |  |
| DCA | Defensive Counter Air |  |
| FLUG | Flight Lead Upgrade |  |
| OCA | Offensive Counter Air |  |
| SAT | Surface Attack Tactics |  |
| SCAR |  |  |
| WVR | Within Visual Range |  |
| mdc | Mission Data Card | A standardised card with all critical mission information, such as frequencies and flightplan. |
| kcas | Knots Calibrated Air Speed |  |