



# 1 (F) SQUADRON

## Air to Ground operations



## OPERATING PROCEDURES -TWO SHIP ATTACK FORMATIONS-

Version 0.1



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## INTRODUCTION

The following document is intended to be a detailed description of the different attack profiles we can employ during sorties with 1(F) Squadron.

Our squadron mission statement is *"To generate, operate and sustain effective Combat Air power in all tasked roles and environments."* We focus on close air support, interdiction, armed recce, pinpoint strikes and recce from airfields, FARP's and aircraft carriers. As we fly in different threat environments, this guide should give all pilots a source of reference in how we can employ our weapons in the most efficient way.

In this document we will go over the rules and roles of the flight crew and the different attack profiles like pop-up attacks, lay-down attacks, toss/loft attacks and PGM tactics.

Sources used in this document:

Hog Basics: RAF Bentwaters Tactics Guide, 1982 by Andy Bush

Falcon 4.0 Korea Manual



## CHAPTER 1 - THE ROLES OF LEAD AND WINGMAN

During missions the flight lead and wingman cooperation and mutual support are an essential part of having a fun and successful flight. The wingman needs to be a thinking member of the flight and know where he needs to be and assist the flight lead in achieving the mission and be ready to step up if lead does something stupid. Flight lead needs to trust his wingman and should not micromanage. Thinking is a good thing to do, generally.

Mutual support responsibilities:

### 1. FLIGHT LEAD

- a. Think
- b. Navigate - find target
- c. Maneuver the formation
- d. Plan and perform the attack
- e. Mutual support for the wingman
- f. Communication with control, FAC's, package etc.

### 2. Wingman

- a. Think
- b. Formation integrity
- c. Monitor navigation and situational awareness
- d. Mutual support for the leader



## **FENCE CHECKS**

Before entering the area of operations, the flight needs to perform the FENCE CHECKS. This is in place to make sure that all airframes are ready for combat when entering the area of operations. FENCE is an acronym for the following:

### FENCE

F - Fire control systems: *Master arm, weapons set up (interval, mode and warm-up IR-MAVS etc)*

E - EW systems (*set RWR, flare programs*)

N - Navigation systems set and ready (*INS, GPS etc*)

C - Communications set on correct frequencies and nets

E - Emitters (*TACAN, DECM, Exterior lights OFF*)

Flight lead will call the flight to FENCE IN. Flight members respond in order when checks are done with fuel state.

*"Two, fenced in, 10.5"*



## CHAPTER 2 - ATTACK FORMATIONS

There are generally three attack formations, these are: **line**, **wedge** and **split attacks**. All of these attacks can be employed in different profiles like in pop-ups, lofts or lay down attacks. Each formation has their own pros and cons

### SHOOTER/SHOOTER or SHOOTER/COVER

In a shooter/shooter situation, both aircraft attack the target. In a shooter/cover situation, one aircraft attacks and the other one covers the attacking aircraft. The covering aircraft warns the attacker if AAA is being fired or a SAM. The job of the covering aircraft is to detect, alert the attacker and suppress the threat.

### IP ALLOCATION

An *initial point* or IP is a pre-planned geographical location where from a flight does his run-in towards the target. An IP can be pre-planned or be set on the fly. A geographical landmark is typically a good place to put an IP, as it is easier to find it prior to an attack.

### LINE ATTACK

A line attack formation is where two aircraft are side-by-side formation and both attack the target. A line attack is mostly used in attacks with forward firing weapons like rockets, guns and AGM-65's. Best suited for area attacks like big vehicle parks and large convoys. Targets need to be separated from each other in order for the flight to not crash into each other. Only useful in large flat and open terrain. The problem is that both aircraft attack and can't check each other's 6. Ideal attack formation in low-threat environments.

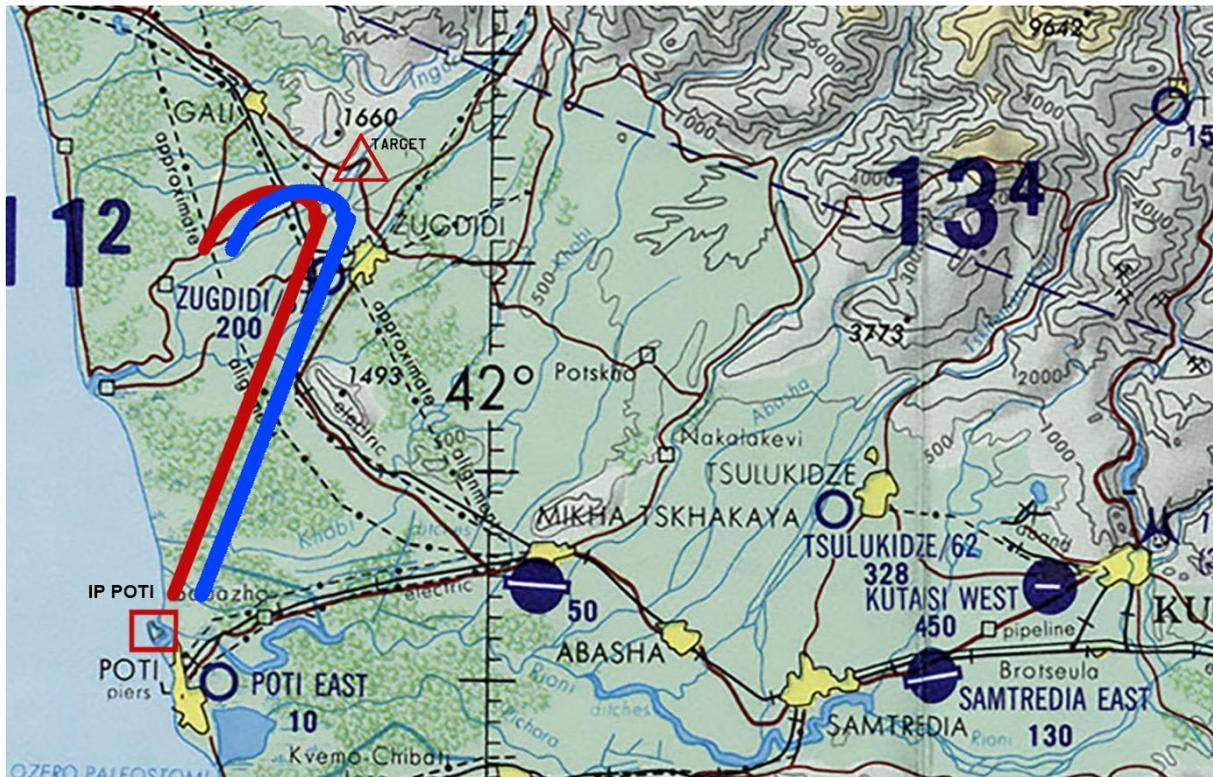


Figure 1: Line attack with a left egress back to the southwest.

As an example, here is the map of the Abkhazian/Georgian border with the ENGURI river acting as the border. The target is an enemy bridgehead on the ENGURI river, north of the town of ZUGDIDI. The IP has been allocated to the small island at the river mouth at POTI. The two aircraft fly side-by-side and both attack the target with rockets, with the BUMP POINT being just north of ZUGDIDI. After the attack both aircraft pull hard left and egress back to the southwest, back to IP POTI. Egress can also be in different directions, so that air defenses only can target one at the time. The lower plains of Georgia are an ideal location for line attacks.



### WEDGE ATTACKS

A wedge attack is very similar to the line attack, only is the aircraft in a wedge formation, more to the back. While a line attack is always shooter/shooter, a wedge attack can be used in shooter/cover. Wedge attacks, like line attacks, are used with forward firing munitions. Wedge attacks are more suitable for high threat environments as one aircraft can cover. The leading aircraft (can be both wingman or lead) does the attack while the number two in the formation covers and warns for any surface or airborne threats and can suppress if needed.

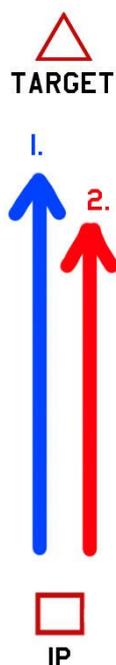


Figure 2: A wedge attack

### SPLIT ATTACKS

A split attack is an attack where both aircraft attack the same target while maintaining deconfliction. This is normally used in attacks using free-fall munitions like iron bombs and clusters. When using forward firing munitions like guns, mavericks and rockets you normally don't overfly the target. When dropping bombs you do fly over the target. To prevent your wingman taking blast damage from your bombs, deconfliction is needed. We will discuss methods of deconfliction in a bit.

The two-ship will both attack the target, either from different directions, altitude separations or time separation. Besides preventing frag and blast damage, it also divides the attention of the enemy.



### SINGLE SPLIT

A single split is when one aircraft of the two-ship will fly directly to the target, while his number two will split off 30° degrees offset for 30 seconds and then proceeds to attack the target.

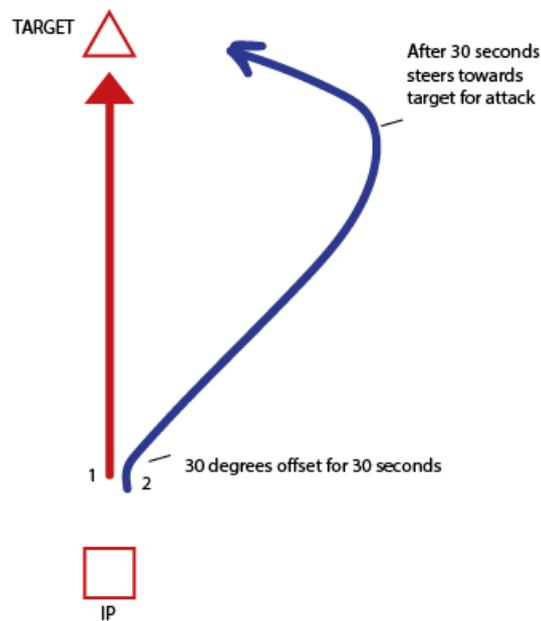


Figure 3: A single split attack

With this attack, the target will be attacked from two directions and gives at least a 30 seconds interval between the attacking aircraft, enough to clear for any blast damage. The enemy will likely still have their eyes towards the first attacking aircraft. This is good if you need the time deconfliction, for instance if attacking the same DMPI's or DMPI who are in close proximity of each other.



### DOUBLE SPLIT ATTACK

A double split is a formation quite similar to the single split, only uses both aircraft to attack. At the action point both aircraft will split off 30° degrees offset for 30 seconds and then attack the target.

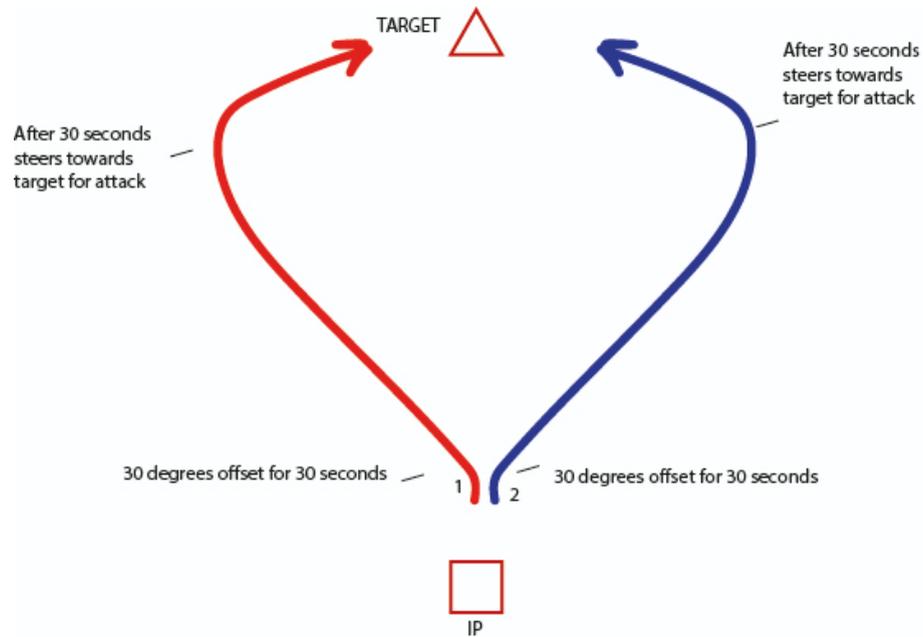


Figure 4: a double split attack

The double split attack is a good way to deconflict between the two airframes. Both aircraft come in from different directions, splitting the attention of the defending enemy into two. Deconfliction can be done via DMPI allocation, altitude separation or time deconfliction.



### TRAIL SPLIT

A trail split is a formation where the wingman is holding 30 seconds to get separation between lead. Useful in situations where there is limited room, like valleys.

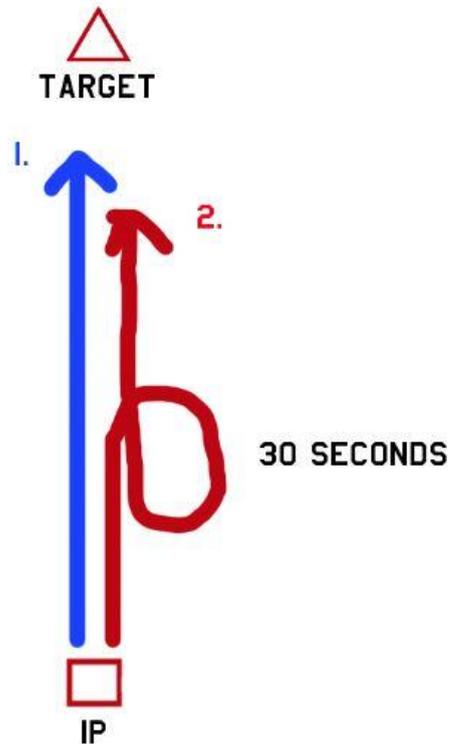


Figure 5: a trail split attack

A trail split is mostly started from a wedge formation. This method of attack is suited for valleys and other difficult terrain. Flight lead comes from the IP and initiates his attack run. On the action call, the wingman holds at the point for 30 seconds. The wingman keeps visual of lead to give mutual support. He goes into a clockwise or counterclockwise orbit and commits after 30 seconds. This way there is a deconfliction between leads bombs hitting and the wingsmans attack.