Forward Air Controller (Airborne) -FAC(A)

How to be an effective Killer Scout

How to Series #4 by Demo

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CHAPTER 1

INTRODUCTION

1.1. General

This is something I was going to do at the FreeBirds, but never had time to, so I'm going to start it here. I've been working on it over the past few weeks. Since time is of the essence, I'm going to skip making the fancy power point presentation explaining how to be a FAC, and instead type it out here in Word. I also will schedule a flight so I can record an example of how to be a FAC, and I'll be available for training flights. So here is the next 'installment of my *How-to Training Series.* Please feel free to email me at Demo@1stvfw.com if you have any questions or comments.

1.2. Introduction

Air support comes in two forms, aircraft that shoot down enemy aircraft (Combat Air Patrol, or CAP) and aircraft that attack ground targets (Close Air Support, or CAS). When enemy bombers and fighters are attacking targets on the ground, you need CAP to kill them or drive them away. When enemy ground forces are attacking, you want CAS to bomb them for you.

Getting CAS on targets can be tough, though. It is hard for a pilot to spot targets on the ground, because of his altitude, high speed and the need to stay aware of everything around him in the sky (situational awareness, or SA). He may not be able to stay in the area very long (called "loitering over the target") because of fuel levels or enemy aircraft. Even if he does spot a target, it may not be the target most important to those on the ground. All of these things make it difficult to provide effective CAS. But there is a way to dramatically improve CAS, and that is to have a Forward Air Controller (FAC) on the ground directing the CAS aircraft.

1.3. What is a Forward Air Controller?

A forward air controller (FAC) is an individual in a military service who directs Close Air Support (CAS). The primary role of the forward air controller is to direct combat strike aircraft onto enemy targets in support of ground troops. He or she is trained to request, plan, brief and execute CAS operations both for Low Level and Medium/High Level operations. Their training includes electronic warfare, suppression of enemy air defenses, enemy air defense, air command and control, attack methods and tactics. There is considerable commonality between the roles of a FAC and a joint terminal attack controller (JTAC) and the precise definition of the roles and qualifications of these two differs between countries. FACs may form part of a Fire Support Team or Tactical Air Control Party, they may be ground based, airborne FACs in fixed wing aircraft (FAC-A) or in helicopters (ABFAC).

A primary function of a Forward Air Controller is ensuring the safety of friendly troops. Enemy targets in the Forward Edge of the Battle Area (FEBA) are often close to friendly forces and therefore friendly forces are at risk of friendly fire through proximity during air attack. The danger is twofold: the bombing pilot cannot identify the target clearly, and is not aware of the locations of friendly forces. Camouflage, constantly changing situation and the fog of war all increase the risk.

1.3.1. Difference between a FAC(A), JTAC, JOST?

As stated earlier, there is a considerable amount of similarity between a FAC(A) and a JTAC, and in some cases the definition of each varies between world's militaries, and even between services within one nation's military. Both FACs and JTAC may form part of a Fire Support Team or Tactical Air Control Party (TACP), they may be ground based, airborne FACs in fixed wing aircraft (FAC-A) or in helicopters (ABFAC). JTAC is a relatively new term for the US military, and refers to a ground based FAC. A FAC(A) is a airborne FAC, which in these days (in the US military) usually means a guy in a F-16, A-10, F-15E, Harrier, or an F/A-18. JOST are "Joint Operational Support Teams" are employed within Artillery Regiments and Infantry battalions and on ops, with the battle groups deployed (basically artillery support). If you're calling for artillery support, it most likely comes from JOST. But as I stated earlier, the definitions depend on which military you're referring to. In this guide, we will use the designation FAC(A) or FAC when we refer to a airborne Forward Air Controller.

1.4. History of FACs

1.4.1. Early Close Air Support

Even as close air support began during World War I, there were pioneer attempts to direct the trench strafing by the ground troops laying out signal panels on the ground, firing flares, or lighting smoke signals. Aircrews had difficulty communicating with the ground troops; they would drop messages or use messenger pigeons.

Benno Fiala von Fernbrugg, an Austro-Hungarian pilot, pioneered the use of radio for fire control; at the Battle of Gorlice he used a radio transmitter in his airplane to send changes via morse code to an artillery battery on the ground. Colonel Billy Mitchell also equipped his Spad XVI command airplane with a radio, and the Germans experimented with radios in their Junkers J 1.

The Marines in the so-called Banana Republic wars of the 1920s and 1930s used Curtiss Falcons and Vought Corsairs that were equipped with radios powered by airstream-driven generators, with a range of up to 50 miles. Another method of communication was for the pilot to drop messages in a weighted container, and to swoop in and pick up messages hung out by ground troops on a "clothesline" between poles. The objective was aerial reconnaissance and air attack.

Using these various methods, the Marine pilots combined the functions of both FAC and strike aircraft, as they carried out their own air attacks on the Sandinistas in Nicragua in 1927. The commonality of pilots and ground troops belonging to the same service led to a close air support role similar to that sought by use of FACs, without the actual use of a FAC.

French colonial operations in the Moroccan Rif War of 1920 - 1926 used air power similarly to the Marines in Nicaragua against the Sandinistas but in a different environment, the desert. The French Mobile Groups of combined arms not only used aircraft for scouting and air attack; the airplanes carried trained artillery officers as observers. These aerial observers called in artillery fire via radio.

1.4.2. World War II Precursors to Forward Air Control

When the United States Army Air Force was founded on 20 June 1941, it included provisions for Air Ground Control Parties to serve with the United States Army at the division, corps, and Army headquarters. The Air Ground Control Parties functions were to regulate bombing and artillery in close conjunction with the ground troops, as well as assess bomb damage. They were thus the first of similar units to try to fulfill the functions of the FAC without being airborne. However, these units were often plagued by "turf wars" and cumbersome communications between the respective armies and air forces involved. As a result, it could take hours for an air strike requested by ground troops to actually show up.

During the North African Campaign in 1941 the British Army and the Royal Air Force established Forward Air Support Links (FASL, a mobile air support system using ground vehicles. Light reconnaissance aircraft would observe enemy activity and report it by radio to the FASL; the FASL would then call in air strikes.

Forward Air Control came into existence as a result of exigency, and was used in several theaters of World War II. It was a result of field expedience rather than planned operations. It was most successfully and widely used by the United States.

1.4.3. Post World War II

In the United States, despite its success in battle, the role of the FAC was not codified into doctrine until after the war's end, by which time no FACs remained in service in the US. In 1946, Army Field Manual 31-35 became the repository of the lessons learned by experience in battle. However, in 1947, the United States Air Force became a separate service, intent on strategic bombing. Forward Air Control expertise existed only on paper.

The United Kingdom and Commonwealth continued to build on its experience in the Second World War in various campaigns around the would in the second half of the twentieth century, including the Malayan Emergency, the Indonesian Confrontation

and operations in the Middle East. With the re-formation of the Army Air Corps in 1957 this new corps's functions included airborne forward air control.

1.4.4. Korean War

Two weeks into the Korean War, the need for forward air control was starkly apparent. A powerful North Korean offensive was advancing so rapidly that the locations of the invaders could literally change hourly. U. S. F-80 Shooting Stars flying from Japan had barely enough range to dump their bombs and turn back to base. Tactical Air Control Parties struggled to direct the air effort, but found their powers of observation limited by rugged terrain, near horizons, and an ever shifting tactical situation.

Once again, there are dual and non-contradictory tales of the FAC startup effort.

Lieutenant Colonel Stanley P. Latiolas, operations officer of the Fifth Air Force that was operating in Korea, suggested having a slower airplane spot target for the fuel-hog jets.

Colonel John R. Murphy, who knew of the success of the Horseflies, asked the Commanding General of the Fifth Air Force, Earle E. Partridge for five pilots to fly reconnaissance.

On 9 July 1950, two lieutenants, Frank G. Mitchell and James E. Bryant, flew the first FAC missions of the Korean War from K-5 in Taejon. They flew into K-5 with two L-5 Sentinels. The L-5s' VHF radios didn't work, so the lieutenants borrowed Cessna U-17s and went airborne. Working under the call signs Angelo Fox and Angelo George, during the next three hours, the FACs managed to direct ten flights of F-80s in wreaking severe damage to North Korean tanks and vehicles.

The following day, Lieutenant Harold Morris tried using a T-6 Texan for a FAC plane. During his direction of RAAF P-51 Mustangs, his radio became unserviceable. He continued indicating targets by flying over them and rocking his wings. The resulting strikes were the first of many successful attacks made without radio contact, as United Nations bombers operated on many non-compatible frequencies.

The T-6 became the standard FAC aircraft for Korean use. Several of the smaller slower liaison planes were shot down by North Korean Yaks, and they were retired.

> Other Korean War FACs
>
> Fifth Air Force also turned to higher performance aircraft for the FAC mission. P-51 Mustangs and F4U Corsairs were used to penetrate enemy air space after it had become too hazardous for T-6s.

1.4.5. Vietnam War

In 1961, the U. S. Air Force sent five FACs who were experienced fighter pilots to teach forward air control to the South Vietnamese Air Force. The aircraft of choice was the O-1 Bird Dog. The American advisors flew combat sorties along with the South Vietnamese, though only the latter could call in air strikes. Target validation was a South Vietnamese government responsibility. Escalation of the war caused an increased need for FACs. In May, 1963, the advisory effort was escalated to an entire squadron, the 19th Tactical Air Support Squadron.

The Vietnam War brought special challenges to the task of the FAC. Much of Vietnam and most of Laos were inadequately mapped. The civilian population was intermixed with the Viet Cong and People's Army of Vietnam. Single, double, and triple canopy jungle made observation difficult. As a result, FACs often flew low altitude reconnaissance sorties in low performance aircraft such as the O-1 Bird Dog. These FACS, usually U. S. Air Force fighter pilots from Tactical Air Support Squadrons, operated under stringent rules of engagement. Quite often, they spotted their enemy only by the muzzle flashes of ground fire aimed at them. Yet, the rules of engagement stated that air strikes in South Vietnam and parts of Laos had to be directed by a FAC.

Forward Air Controllers would then call for fighter-bomber support and fire a white phosphorus smoke rocket to mark enemy forces. The fighter-bombers would then be "cleared in hot" to "hit my smoke." After the strike was over, FACs usually swooped in at low level to survey and report bomb damage assessment.

Because of their effectiveness as an intelligence source and as a force multiplier, FACs were sometimes assigned to covert operations, and upon occasion worked with the Central Intelligence Agency. A prime example of this was the Raven FACs' support of the CIA's Clandestine Army in the Laotian Theater.

Political constraints resulting in highly restrictive Rules of Engagement also limited FAC effectiveness over the course of the war.

Increasing threat from antiaircraft fire during the course of the war made for ever more hazardous sorties by the unarmored low-speed O-1, O-2, and U-17 FAC aircraft. The American counter to the increased threat was the use of the purpose built OV-10 Bronco when it became available.

Surface to air missile use made North Vietnam just north of the Demilitarized Zone too hazardous for piston 'engined' FAC aircraft. The United States Air Force began to use jet aircraft for Forward Air Control. The USAF operated a specialist dedicated airborne "fast mover" FAC team, known as Misty. These teams piloted F-100Fs, and were founded by Medal of Honor winner Colonel Bud Day. Later on, the 8th Tactical Fighter Wing would use fast mover FACs flying F-4 Phantom IIs out of Ubon Royal Thai Air Force Base under call sign Wolf.

Experimentation by Vietnam FACs led to many instruments and techniques that would supersede the need for an airborne controller. Among these were the use of night vision equipment, and laser guided stand-off munitions. Although FACs were a tiny minority of the USAF, they won two Medals of Honor and over 20 Air Force Crosses. They suffered 338 killed or missing in action.

1.5. Why Does a FAC Exist?

Air interdiction the term used for air attacks conducted at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required, thus it by definition does not involve the participation of a FAC. A Forward Air Controller is an airman who is in contact with the ground commander and the CAS aircraft, so he understands what the ground commander wants to be done and can convey that to the CAS pilots while making sure the CAS flight does not mistakenly attack friendly ground forces. The FAC can be an airman (usually a pilot) on the ground with a rifle, or as all of you know, he could be airborne in a jet (sometimes called a "Killer Scout").

A FAC exists for several reasons, but the primary purpose is to efficiently call in Close Air Support (CAS) aircraft, and talk them onto enemy targets, while minimizing the risk to friendly forces. The FAC speeds up the CAS process by putting the ground commander in direct contact with the CAS aircraft while still abiding by strict safety guidelines. The airborne FAC (FAC-A) does the same thing as a ground based FAC, including lasing targets, except he's in a fighter/attack aircraft instead of on the ground with the ground units (although he is still in communication with ground commanders).

The reason most military's use a airborne FAC is because they can control a larger block of land/airspace with less FAC's. Also, FAC-A's allow modern militaries to use the concepts of Push CAS, which is when aircraft are tasked to attack a certain target, but if needed, the FAC(A) can divert the aircraft to help friendly ground forces. For example, a 4-ship flight could be tasked with taking out an oil factory, but in route to the factory, a FAC(A) can divert them to help friendly ground forces in trouble. And the best part of Push CAS is that operational airborne aircraft aren't wasted. Instead of assigning a CAS flight to fly to the FAC(A) and wait for targets (and they may never get a target), the aircraft are tasked with attacking an assigned target (like the oil factory), if the FAC-A doesn't need them.

1.6. Summary

As you've seen, the FAC, and even more so the airborne FAC, can bring a lot of fire power to the fight. Close Air Support is a major force multiplier, in that it can make a small force into a large deadly force. A Special Forces unit can take on an entire armored division if there's A-10s and Apaches on station providing CAS. In Open Falcon we don't have to worry about real fratricide. Luckily if we make a mistake and hit some of our own guys, it doesn't mean we've taken a life. However, using a FAC in Open Falcon can bring an increased sense of immersion, and moreover if using realistic FAC procedures that can get us as close to the real thing as possible. We may not break a

sweat worrying about hurting our guys on the ground (since they are AI soldiers) when flying a CAS mission, but using a FAC effectively in a CAS environment can significantly improve our mission capabilities and really be a lot of fun all at the same time. We enjoy Open Falcon because it's as close to the real thing as we can get, and it's for that same reason you'll enjoy learning and utilizing real like FAC/9-Line procedures in the sim. The following document will outline how to be a FAC, and also how to communicate with a FAC. As you'll see, there's a lot to learn and you may have to take some notes, but I encourage getting airborne and trying to apply the concepts learned in this document. The more sorties you fly practicing the concepts in this document, the quicker it will become second nature to and you won't even have to think about it.

(Image: Left)

Figure 1-1 L-19/0-1

L-19/O-1 Bird Dog, used by Forward Air Controllers during the Vietnam War.

(Image: Right)

Figure 1-2 T-6

T-6 Texan, an aircraft often used by Forward Air Controllers in the Korean War.

(Image: Left)

Figure 1-3 OV-10

A USAF OV-10A firing a white phosphorus smoke rocket to mark a ground target. The "Bronco" was used by FACs in Vietnam and Operation: Desert Storm.

CHAPTER 2

FAC TACTICS & PROCEDURES

2.1. Forward

What I'm going to describe below is the 9-line process between the FAC and the CAS, and the different ways the FAC can operate. Next I will describe the all important 9-Line Briefing, which includes the authentication process. Following those sections we'll give an example of an exchange between the FAC and the CAS flight along with commentary so you have a real world example of how it all works.

2.2. FAC Tactics

The best way to describe how to be a FAC is to give you examples, so let's start with a 2-ship CAS flight that has been tasked with heading out to the airspace that the FAC controls. Once the aircraft arrives in the area of the FAC, the FAC tells the flight leader what needs to be attacked, where the friendly ground forces are located, and special information, such as enemy defenses/threats/weather in the area and perhaps a required attack heading, in which he amplifies target location data (either using coordinates or "talking the pilots on to target"). For instance:

Using Coordinates:

"Your assigned DMPI (Designated Mean Point of Impact) is at N. 35.48.123 / E. 45.32.452. It's a SCUD missile launcher on the western side of the hangar"

'Talk-On':

"Look 100 meters to the north of the destroyed building at the intersection east of the small hill in the bend of the river. It's a small grouping of LAV's west of the river. I want you to attack that grouping of vehicles in the open"

In either case shown above, this information is given during the 9-Line report (*we'll explain the 9-Line later in this document*) for it consists of nine items that must be briefed by the FAC (even if some elements are not required). Regardless of if the FAC-A is using GPS coordinates or not, the FAC-A will give target coordinates for the target area (so the CAS flight knows where to look). But in special circumstances, the FAC-A can pass additional GPS coordinates to make it easier on the CAS flight to find their assigned targets. Some of those circumstances include if the FAC is carrying a SNIPER pod, which allows the FAC to pass exact GPS coordinates of the specific target he wants each of the CAS pilots to hit (individually if needed) because the SNIPER pod can display GPS coordinates tied to the cross hairs shown in the TGT page. Using the GPS coordinates, the CAS flight can either enter a mark point to find the target, or change one of their steerpoints to the GPS coordinates, or CAS flights who also have a SNIPER pod

can turn on their GPS coordinates on their TGP MFD and move the cross hairs until their GPS coordinates match the GPS coordinates given by the FAC. If the CAS flight changes one of their steerpoints to the GPS coordinates given by the FAC, they can hit the target without even having to see the target. All they need to do is put ordnance on the steer point diamond using CCRP or CCIP, and they will get good hits. This transfer of data can even be taken a step further using the Datalink function in OF. Using the improved data modem (IDM), one F-16 pilot can send another pilot 'data-bursts' of info to help the CAS flight find their assigned target, both using symbology on the HUD and/or HSD. Using the Datalink, the FAC can send the CAS flight accurate info without using excessive verbal communications, which are easily garbled (and the enemy cannot intercept what's going on). Those without a SNIPER pod or data link can still pass GPS coordinates using the recon screen, or creating markpoints, but the SNIPER pod GPS coordinates allows the FAC pass GPS coordinates for moving targets, or targets of opportunity. I personally, have my own preferred method, but I will talk more about that later.

2.3. How to do the authentication process

In order to explain the authentication process, we need to use an example. Our example authentication code will be REAPER.

Authentication Code: **REAPER**

R – **E** – **A** – **P** – **E** – **R**

Before I run you through the 9-line and authentication process, I should explain how to do the authentication challenge. The authentication process is really easy once you understand how it works, but it can be confusing learning how to do it. Authentication challenges are in place to confirm that both the FAC and the CAS flights are who they say they are, and not the enemy calling in attacks on friendly units, or the wrong FAC or CAS flight. So here's how it works:

For the following example, I will use the authentication code REAPER. The authentication code is a pre-briefed code word that is given to the FAC and CAS flight before takeoff. Nobody else could know the authentication code except those whom it was given to, and therefore, could not fake the authentication process. How it works is the one guy will pick 3 letters in the code word, and say the first and third letters, then ask the other guy to respond with the letter between the first and third letters using the phonetic alphabet*. So for example, if I said authenticate "Romeo Papa", you would look at the authentication code REAPER, and see that the only letter between "R" and "P" is "E". So you would respond, "Echo". Once you answered the authentication challenge, you would them challenge me by picking 3 different letters, say the first and last, and I would respond with the letter in the middle (using the phonetic alphabet).

Challenge: *Authenticate echo papa (say the letter between E and P in the code REAPER)*

Answer: *CALLSIGN comes back Alpha (the letter between "E" and "P" in Reaper, is "A")*

As you can see it is pretty straight forward. The answer to the authentication code challenge "echo, papa" is "alpha" because the letter "A" is between the letters "E" and "P". It's a simple and effective process. It's important to note that you have to be careful when you pick an authentication code word for your mission. You don't want a word that would have two answers for a authentication challenge, so keep that in mind when choosing a authentication code word.

So what would be the answer to "Authenticate: Alpha Echo"? I'm not telling you the answer. Read the above paragraph again and you will get it ☺.

*Note: See Phonetic Alphabet below if you don't know how to say each letter in the alphabet.

2.4. 9-Line Briefing/Report

For the following example, I will use the following callsigns:

FAC Callsign = Knight 51

CAS 1 (Flight Lead) = Hammer 11

CAS 2 (Flight Lead's Wingman) = Hammer 12

I'm going to give a detailed description of both the authentication process and the 9-line brief. I will give an example of each step, and do my best to explain it.

2.4.1. Briefing Before the Flight/Mission Planning

Before you can go fly a real FAC/CAS mission, you have to have the CAS lead and the FAC get together to go over some information. Without this information, you cannot do the 9-line/Authentication process. The info the CAS lead and FAC have to talk about, is:

- Base: Base is a pre-determined altitude that both the FAC and the CAS flight need to know before takeoff. The reason you need to discuss this is so you don't have to say your actual altitude over the radio (We don't want a SAM operator listening to the radio to know what our altitude is). Base can be any altitude. For my example, I will say Base is 15,000ft. Whenever the FAC or the CAS flight talks about their altitude, they will use base + or – then a number. For example, if base is 15,000 feet, and I'm at 20,000ft, I would say I'm at "Base plus 5". If base is 15,000ft and I'm at 12,000ft, I would say I'm at "Base minus 3". Got it? Good.

- Abort Code: The abort code is a code word used to call off an attack so only the FAC can call off an attack. It is used so an enemy or non-FAC that could be listening in can't call off an attack by saying "ABORT". However, you don't have to use an abort code if you are not worried about the enemy listening in. Many times the abort code is determined by a second

authentication (more on that later), but in Falcon, we usually do not use an abort code because nobody else could call off the attack. If we don't use an abort code, then "abort is in the clear" is what we will say (which means we aren't using an abort code). Even though we don't use an abort code most of the time, it's worth noting because it is part of the 9-line process.

- Authentication Code: As described in the section above, the authentication code is a word (or two) that is used during the authentication process to confirm both the FAC and the CAS flight are who they say they are. The authentication code is also a pre-determined code, and hence, why we talk about it before the flight. The authentication code can pretty much be any word (or two), but there are some special circumstances that prevent certain words not to be used. See the Authentication section covered above for more details on that.

- Contact Point: The Contact Point, which is referred to as the "Charlie Papa", is a pre-briefed location that the CAS flight will fly to and contact the FAC. Remember the CAS flight shouldn't know what the target will be, or where it's located. It's recommended that the mission commander or FAC make sure the Contact Point is relatively close to the target area.

- IVC Channel (optional): If you are using IVC, you will want to make sure you talk about what channel the FAC will be on so the CAS flight knows how to contact the FAC (especially if the FAC doesn't hear the CAS flight's briefing). This is of course optional, and only available for those flying with OF.

In addition to the info described above, the FAC and CAS lead may need to talk about the TE itself if the FAC didn't make the TE. The FAC will have to talk about the ground commander's intent, and therefore, should know what's basically going on in the TE (again, more on this later). This is especially important if the FAC isn't the Mission Command (TE builder). On the other hand, to make the FAC/CAS flight more fun, there are some things the CAS lead and FAC shouldn't talk about, including the CAS flight(s) load-out and/or briefing. The FAC should switch to a different TS during the briefing so he doesn't hear what the CAS flight(s) is doing, or planning. Of course that is completely optional, but speaking from experience, it's more fun for the FAC if the CAS flight's loadout is unknown until they check-in with the FAC. Regardless of if you choose to hear the CAS flight's briefing, the FAC should switch to a different TS (or IVC) channel once in the 3D world. In real life the CAS flight(s) would have to switch to the pre-briefed channel to contact the FAC.

2.4.2. 9-Line Example

Example Authentication Code: **REAPER**

Once the CAS flight is at the pre-briefed "Charlie Papa" (Contact Point), the CAS lead in the flight will contact the FAC and inform him that they are at the "Charlie Papa". For example:

CAS 1 – *"Hammer1, Knight 51"*

FAC – *"Hammer1, Go"*

CAS 1 – *"Hammer1, at the Charlie Papa, advise when ready to authenticate"**

FAC – *"Knight, wilco, ready authentication"*

*"Charlie-Papa" = Contact Point

After the CAS flight arrives at the Contact Point, he will do a authentication challenge for the FAC, and FAC will answer the correct authentication response, and then challenge the CAS lead. For example:

CAS 1 – *"Knight 51, authenticate alpha echo"*

FAC – *"Knight comes back papa, authenticate romeo alpha"*

CAS 1 – *"Hammer comes back echo"*

FAC – *"Good authentication, go ahead with the line-up"*

As I described above in the "how-to authenticate" section of this article above, Hammer flight challenged me (the FAC) to know what letter in REAPER is between "A" and "E", which I could see in REAPER is "P". Then I asked them Hammer to tell me what letter is between "R" and "A", and Hammer correctly replied with "E". After the authentication is complete, I inform Hammer to "go ahead with the line-up". The "line-up" is an overview of the CAS flight, including the following:

The "Line-Up"

- Aircraft Type

- Number of Aircraft

- Mission Number (Package #)

- Ordnance

- Available Time On Station ("Playtime") – usually dependent on fuel

- Abort Code (usually no abort code, so "abort is in the clear")

CAS flight lead's may want to write down the information above during the map screen mission briefing since it is a lot to remember. The following is an example of a CAS flight's "line-up":

CAS 1 – "*Hammer1 is Mission number 890*

  2 F-16 Charlie, block 52 at base plus 3

  Equipped with 4-GBU-12 Bravos

  Playtime 30.

  Abort in the clear"

FAC- *"Copy abort in the clear. Knight 5-1 is over target at base plus 6, you got plus 5 and below, how copy?*

CAS 1 – *"Roger, Hammer has base plus 5 and below"*

FAC* – *"Copy, and alert when ready to copy coordinates for target area"*

Alright, so as you can see, just in that exchange above, a lot has happened. The CAS lead gave the "line-up" for his flight, and noted that the "abort is in the clear". Remember what I said above, about "abort in the clear". It means there is no abort code, and thus, to call off an attack, I would say "Abort", Abort, Abort", and not a code word. After the line-up, I (the FAC), assigned a block of altitude for the CAS flight. The reason I do that is to deconflict our two flights (avoid running into each other). I will stay at base plus 6 (21,000ft) and above, and the CAS flight will stay below base plus 5 and below (20,000ft and below). Later I may assign a hard deck for the CAS flight, and if so, they will have to stay below 20,000ft and above my hard deck. I will 'tack' on a "how copy" to anything important that I want the CAS flight to readback to me. And assigning a deconfliction altitude is one of those situations, and thus why I had them readback their assigned "block" of airspace. After the CAS lead confirms their assigned block of airspace, I tell them to "alert when ready for coordinates", which means let me know when your ready to write down coordinates and receive the 9-line brief. Once the CAS lead checks with his flight and is ready to copy the 9-line, the following exchange is what will happen:

9-Line Brief

CAS 1 –*"Hammer1, ready 9-line"*

FAC – *"Type-One Control by Knight 5-1*

  10 miles East of target (1)

  090 (2)

Track West (3)

150 (4)

Vehicles in the open (5)

Target area coordinates are: N38.35.124 E124.54.13 (6)

Phosphorus Rockets (7)

Friendlies are 10 klicks North of target (8)

Egress South (9)

How Copy?"

CAS 1 – *"Hammer reads back N38.35.124 E124.54.13, friendlies 10 klicks North of target"*

FAC – *"Good readback. Target is an airfield. Ground commander's intent is to keep ordnance off the runway. Other then that, no restrictions at this time, how copy?*

CAS 1 – *"Hammer1, keep ordnance off the runway"*

FAC – *"Affirm, when ready, approved the push into the wheel over target at your assigned block, and alert when ready for situation update."*

Ok, so a lot happened in the exchange above. The FAC gave the 9-line brief, the CAS lead read back the two important parts of the 9-line brief (target coordinates and position of friendlies), and then the FAC approved the CAS flight to fly over the target at their assigned altitude (base + 5 = 20,000ft). Let's first take a look at each of the 9 items that makes up the 9-line brief. The image below shows the (real) nine items of the 9-line:

FIGURE 1-4 ON NEXT PAGE

Figure 1-4 Real Life 9-Line Briefing Form

CAS Briefing Form (9-Line)

(Omit data not required, do not transmit line numbers. Units of measure are standard unless otherwise specified. * denotes minimum essential in limited communications environment. Bold denotes readback items when requested.)

Terminal controller: "_____, this is_____"
                   (aircraft call sign)   (terminal controller)

*1. IP/BP: "_____"

*2. Heading: "_____" (magnetic).
               (IP/BP to target)

     Offset: "_____ (left/right)"

*3. Distance: "_____"
         (IP-to-target in nautical miles/BP-to-target in meters)

*4. Target elevation: "_____" (in feet MSL)

*5. Target description: "_____"

*6.
     Target location: "_____"

          (latitude/longitude or grid coordinates or offsets or visual)

7. Type mark: "_____ " Code: "_____"
   (WP, laser, IR, beacon)   (actual code)

     Laser to target line: "_____" degrees"

*8. Location of friendlies: "_____"

     Position marked by: "_____"

9. Egress: "_____"

       In the event of a beacon bombing request, insert beacon bombing chart line numbers here. (See Figure V-3.)

       _____

Remarks (As appropriate):"_____"

   (threats, restrictions, danger close, attack clearance, SEAD, abort codes, hazards)

NOTE: For AC-130 employment, lines 5, 6, and 8 are mandatory briefing items. Remarks should also include detailed threat description, marking method of friendly locations (including magnetic bearing and distance in meters from the friendly position to the target, if available), identifiable ground features, danger close acceptance.

Time on target (TOT): "_____"

        OR

2.4.3. 9-Line Briefing Break Down:

- **IP** – The IP is the location where the CAS flight will start their attack. It's usually a place that enables the CAS flight to engage the enemy without over-flying friendly forces, and thus reduce the risk of dropping on friendly ground forces. *Note: Sometimes a FAC will say 1-3 N/A if he doesn't have a specific location he wants the CAS flight to start their attacks from (so he will skip 1-3 of the 9-line brief).*
- **Heading** – This refers to the attack heading the FAC wants the CAS flight to make their run from. Again, sometimes the FAC will not give an attack heading, and allow the CAS flight to choose their own.
- **Distance** – Distance refers to the distance from the IP to the target.
- **Target Elevation** – Target Elevation refers to the elevation of the target (duh). This is especially important for certain ordnance, such as CBU's to assign a burst altitude, or for an assigned hard deck.
- **Target Description** – This section is where the FAC gives a basic description of the target. Usually it will include something like "vehicles in the open", "infantry in the open", "armor on the move", "housed infantry", "urban insurgents", etc… The idea with the target description is to give a very basic description of the **type** of target. It doesn't matter if you say a lot because during the situation update, you will give a detailed description of the target. So when giving the target description, just make sure you mention the type (vehicles, infantry, armor, etc..).
- **Target Location** – Target location is the GPS coordinates of the target area. Again, you will have time later in the FAC/CAS lead exchange to assign exact GPS coordinates for individual targets. These coordinates are important because this is how the CAS flight knows where to look. Once the CAS flight is looking in the target area, the FAC will be able to talk the CAS flight onto their respective targets. If the situation is urgent, the FAC can give individual target coordinates in this section to speed up the process. But you have to remember that there is a reason for the 9-line process. When you are engaged in close air support, the potential to hit friendly forces is high, so you need to be thorough and can't cut corners.
- **Mark Type** – This refers to the type of ordnance the FAC has to help the CAS flight find the target (by marking it). Usually it will be rockets, but it could be any sort of mark. This isn't used as much with F-16's as it is with an attack aircraft like the A-10. Also, this doesn't have to only refer to rockets. It could be GBU-12s, or MK-82s, or another type of ordnance. "Mark" in CAS terms always refers to some visual cue, such as a bomb impact, or smoke. As you will see later in this document, the FAC will say things like "The target is 200ft from your last **mark,** how copy?" which means, the target is 200ft from your last bomb impact (or bomb crater).
- **Location of Friendlies** – This is obvious, as it refers to the location of the friendly forces (it wouldn't be called close air support without friendly forces close by!). Generally, the FAC will use "klicks" (which is 1000 meters (one kilometer, or .62 miles) to give the distance of friendly ground forces, but you

are not limited to that. If friendlies are closer you can use feet. If they are further away you can use miles. The idea here is to make sure the CAS flight knows where the friendly ground units are from the beginning of the FAC/CAS lead exchange. This like the GPS coordinates, is one of the items that the CAS lead needs to read back to the FAC (when he says "how copy"). Sometimes the friendly forces could be so far away that they are not a factor. For example, the FAC may say something like "Friendlies are 30 klicks due North, and should be no factor". In a situation like that, the CAS flight may have fewer restrictions, like not having an IP or attack heading as I mentioned above.

- **Egress** – Egress refers to the direction the FAC wants the CAS flight to fly after their attack. It is purely dependent on the FAC. The FAC may want you to head away from the target before resetting the IP ("resetting the IP" refers to heading back to the IP), or the FAC may have the CAS flight fly a 'race-track' pattern off the target. It's recommended that the FAC picks an egress direction that deconflicts any following attacks or SEAD/Escort efforts.

2.5. FAC Control

Alright, now that we covered nine items in the 9-line brief, we can come back to our example. You probably noticed at the beginning of the 9-line I said "Type-One Control by Knight 5-1". Before I explain why the FAC said type one control, let's look at each type of Terminal Attack Control.

2.5.1. Terminal Attack Control

Recent technological advances in aircraft capabilities, weapons systems and munitions have provided JTACs additional tools to maximize effects of fires while mitigating risk of fratricide when employing air power in close proximity to friendly forces. GPS-equipped aircraft and munitions, laser range finders/designators, and digital system capabilities are technologies that can be exploited in the CAS mission area. There are three types of terminal attack control (Type 1–3).

Type 1 Control is used when the JTAC must visually acquire the attacking aircraft and the target for each attack and the attacking aircraft must visually acquire the target or mark. Analysis of attacking aircraft geometry is required to reduce the risk of the attack affecting friendly forces. Language barriers when controlling coalition aircraft, lack of confidence in a particular platform, ability to operate in adverse weather, or aircrew capability are all examples where visual means of terminal attack control may be the method of choice.

Type 2 Control is used when the JTAC requires control of individual attacks and any or all of the conditions highlighted listed below exists.

1. JTAC is unable to visually acquire the attacking aircraft at weapons release.
2. JTAC is unable to visually acquire the target.
3. The attacking aircraft is unable to acquire the mark/target prior to weapons release.

Examples of when Type 2 control may be applicable are night, adverse weather, and high altitude or standoff weapons employment.

Type 3 Control is used when the JTAC requires the ability to provide clearance for multiple attacks within a single engagement subject to specific attack restrictions. Like Type 1 and 2, only a JTAC can provide Type 3 control. During Type 3 control, JTACs provide attacking aircraft targeting restrictions (e.g., time, geographic boundaries, final attack heading, specific target set, etc.) and then grant a 'blanket' weapons release clearance ('CLEARED TO ENGAGE'). Type 3 control does not require the JTAC to visually acquire the aircraft or the target; however, all targeting data must be coordinated through the supported commander's battle staff. The JTAC will monitor radio transmissions and other available digital information to maintain control of the targeting data and the target mark during Type 3 control.

Because there is no requirement for the JTAC to visually acquire the target or attack aircraft in Type 2 or 3 control, JTACs may be required to coordinate CAS attacks using targeting information from an observer. An observer may be a scout, COLT [combat observation and lasing team], FIST [fire support team], UAV [unmanned aerial vehicle], SOF [special operations force], or other asset with real-time targeting information. The JTAC maintains control of the attacks, making clearance or abort calls based on the information provided by other observers or targeting sensors. It is not unusual to have two types of control in effect at one time for different flights. For example, a JTAC may control helicopters working Type 2 control from an attack position outside the JTAC's field of view while simultaneously controlling medium or low altitude fixed-wing attacks under Type 1 or 3 controls. The JTAC maintains the flexibility to change the type of terminal attack control at any time within guidelines established by the supported commander.

The type of control a FAC(A) uses heavily depends on the situation. For example, if friendly ground units are being overrun, Type 3 Control would be best because I can quickly get air support to the guys on the ground. In that situation if I used Type 1 Control, it would take a lot longer to get bombs on target because I'm having to pass them each of their targets, whereas with Type 3 Control, I could tell them where the friendlies are, where the bad guys are, and say "Cleared to Engage" once they confirm they see the hostiles and friendlies. In the example I'm using in this guide, I'm using Type 1 Control because I'm giving them precise instructions on which targets to engage. Letting the CAS flight know what type of control we're going to use is important because if I say Type 1 Control, they know they're going to be talking to me before engaging each target. If I say Type 3 Control, they know they have a lot more flexibility. When you are

the FAC(A), you'll need to review the types of terminal attack control and make the decision which is best for you ground troops.

2.6. 9-Line Summary

After I said "Type-One control by Knight 5-1", I gave the general location of the IP, the attack heading and distance to target, and all the other 9-line items. Usually I will say "1-3 N/A" because I don't like giving an exact IP because I want the CAS flights to efficiently get bombs on target, and if they are bound by a specific heading and IP, they tend to have more dry passes and take longer to get bombs on target. It's important to mention that I said "How Copy?" at the end of the 9-line because the CAS lead has to read back the target coordinates and position of friendlies. The safety of the ground units is always the FAC's number 1 priority. Once the CAS lead read back the coordinates and position of friendlies correctly, I told them their were approved to "push the wheel (wheel = orbit over target) over target at their assigned block, and alert when ready for additional", which means leave the Contact Point ("Charlie-Papa") and head to the coordinates I passed you at your assigned altitude and orbit over the target. Then while you are looking at the target area, let me know so I can give you additional (specific detailed) information about the targets, and ground commanders specific intent. After I say that, the CAS lead will give his flight a new heading and anchor the flight over target. Depending on which version of F4 you are flying, you can enter a markpoint using the target coordinates or change a steerpoint's coordinates to the target coordinates so you know where to fly to/where to look (find the target). If the CAS flight has a SNIPER or LATIRN pod, he will most likely have the flight looking at the target through the TGT screen. But if he doesn't then he will need to put the flight close enough to the target area to see what the FAC will be talking about. It's generally a good idea for the CAS flight not to fly directly over the target at this point because they do not know the threat status in the area. While the CAS flight is ready, the FAC will give a Situation Update covering the ground commander's specific intent, threats in the area, and weather. Here is an example of that exchange:

2.6. AO/Situation Update

CAS 1 – *"Hammer1 ready AO update (AO=Area of Operations)"* or *"Hammer is ready additional"*

FAC – *"Knight 5-1 wilco. Target is an enemy column of vehicles located on and around the airfield. Ground commander's intent is to destroy a grouping of medium range ballistic missile launchers, ID'd as FROG-7s that threaten their push to take the airfield. Currently friendly forces are assembling, and preparing to take the airfield once CAS tasks it. Current threats in the area include some reports of shoulder mounted SAM's, RPG's, and small arms fire, however, the threats appear to be cold at this time. We have SEAD support available, callsign Lobo2, Knight 5-1 will have to coordinate with Lobo if the situation warrants it. To play it safe, Knight 5-1 recommends a hard deck of base minus 3 to be outside the 'manpads' range. Weather over target has broken clouds at*

10,000ft. Final control will be Knight 5-1, and Knight 5-1 is currently equipped with a SNIPER Pod, how copy?"

CAS 1 – *"Hammer copies all. FROG-7s and a hardeck of base minus 3. Hammer is over target, right orbit, base plus 3"*

FAC – *"Copy, when ready, let me know what you see at those coordinates passed"*

So as you can see, the FAC gave specific information about the target, threats in the AO, a hardeck, and weather information. During the Situation Update, the FAC will want to cover all of those, but is not limited to just the weather, threats, and so on. If the enemy target was on the move, or friendly units were closing on the target, the FAC would definitely want to include important information like that in the Situation Update. The Situation Update/Report basically gives the FAC the opportunity to speak freely about what's going on so the CAS flight has the whole picture. . If the CAS lead has any questions, this would be the time to speak up. Also, the FAC doesn't always have to assign a hard-deck. I sometimes choose to do that if there are multiple IR SAMs in the target area to place it safe, but it depends on the CAS flight's loadout because I don't want it to be difficult for the CAS flight to hit their targets. In this example, the CAS flight has laser-guided bombs, so they will have no trouble operating above 12,000ft. If they had something else, such as Mk-20D's, or the target is infantry (hard to see from higher altitudes) I may not assign a hard-deck. The FAC needs to weigh the 'risk and reward' when assigning a hard-deck.

In F4 terms and not real life, the info in the Situation Update is up to the FAC to create. Since we don't really communicate with the ground commander, the FAC can make up whatever he likes. The Situation Update is one of the sections that the FAC and Mission Commander should talk about before the flight so the FAC has a basic idea of what's happening in the TE. But it's really up to the FAC. He can be as creative as he wants. I personally think its fun to do, and it makes the CAS mission feel more realistic. So use your imagination when you are the FAC.

As shown in the last example above, after the FAC does the Situation Update, and the CAS lead reads back the important info, the FAC will tell the CAS lead to "let (him) know what (they) see at the coordinates passed". That statement means exactly what it says; go look at the target area. Once the CAS flight is looking at the target, the FAC will do a quick "talk-on" to the target. Here is how it could go.

NOTE: RED TEXT = MY COMMENTARY

CAS 1 – *"Hammer sees an airfield with a single runway running east-west next to a small town"*

FAC – *"Roger, that's the correct airfield. If you're looking directly at the coordinates passed with your SNIPER pod, you will see a hangar surrounded by some fuel tanks along a taxiway on the Northern side of the runway. If you follow the*

taxiway west, you will see the first grouping of vehicles, break?"

CAS 1 – *"Hammer tally. Hammer counts 3 vehicles in the group."*

FAC – *"Copy 1, that grouping of vehicles is your first target. The most western vehicle is the FROG-7, that will be your DMPI, how copy?"*

CAS 1 – *"Hammer wilco, the large vehicle closer to the taxiway, correct?"*

FAC – *"Affirm, Knight 5-1 wants a single GBU-12 on that vehicle, and we will make corrections if needed off your first mark, break"* ("Break" lets him know I've finished my transmission)

CAS 1 – *"Copy one-time on the FROG"* ("One-time" means one bomb)

FAC – *"And Knight 5-1 requests you start your attack from the east and run west to avoid any buildings being in the way, and egress South, how copy?*

CAS 1 – *"Track East to West, egress South"* (Attack East-to-West)

FAC – *"Copy, friendlies are north of target so no runs will begin or end north of target. When ready, cleared hot on your DMPI, and Knight 5-1 requests a 30 second to mark call for BDA, break"* ("30 seconds to mark" means letting the FAC know when you are 30 seconds from release so he can look for your bomb/mark)

CAS 1 – *"Hammer 1 wilco"*

FAC – *"Hammer 1-2, confirm you also have a tally on 1's target?*

CAS 2 – *"2 confirms tally"*

FAC – *"Roger, your DMPI will be the vehicles just south of 1's target along those trees. The FROG in that group is next to the fence running along the outside of the airfield"*

CAS 2 – *"No joy, searching"*

FAC – *"Knight copy, I can pass coordinates if needed"*

CAS 1 – *"1 is in hot from the east, one-time"*

FAC – *"Cleared hot 1"* ("Cleared Hot" means weapons release is approved)

CAS 1 – *"30 seconds"* (CAS Lead is letting the FAC know bomb release is in 30 secs)

FAC – *"Knight"* (Knight is acknowledging the 30 seconds call)

CAS 1 – *"GBU Away, lasing"*

FAC – *"Tally-Visual'* (I see you (visual) and the target (tally))

CAS 1 – *"10 seconds"*

FAC – *"Good hits, shack on target 1"* ("Shack" = dead on target)

CAS 1 – *"1 copy, off target south"*

FAC – *"2, confirm tally on your target?"*

CAS 2 – *"Negative, 2 requests coordinates"* (CAS-2 doesn't see his target and requests GPS coordinates)

FAC – *"Knight copy, 2 your target coordinates are N31.40.912 , E39.37.035, how copy"*

CAS 2 – *"Hammer 1-2 reads back N31.40.912, E39.37.035"*

FAC – *"Good readback. Again your target will be the FROG by the fence. It's south of 1's mark, break"*

CAS 2 – *"2 tally, missile launcher along the trees by the fence"*

FAC – *"Correct, Knight sees 5 vehicles around that launcher, so Knight requests a pair on your DMPI, and same track as one- East-to-West, how copy"* (Also make your attack East-to-West)

CAS 2 - *"2 copies, a pair, run East-to-West"*

FAC – *"Roger, and Knight also requests a 30 seconds to mark call."* (Tell me when you are 30 seconds from the bomb coming off the racks)

CAS 2 – *"Hammer 1-2"*

FAC – *"Hammer 1-1, say status"*

CAS 1 – *"1 is resetting the IP"* (CAS-1 is heading back to the IP)

FAC* – *"Copy, and 1 say fuel"*

CAS 1 – *"Hammer 11, fuel state 0-5-8"*

FAC – *"Knight, copy"*

CAS 2 – *"In hot from the East, one pair"*

FAC – *"Cleared hot 2"*

CAS 2 – *"30 seconds"*

FAC – *"Knight visual"*

CAS 2 – *"GBU away"*

FAC – *"Tally Visual"*

FAC – *"Miss, 3 at 1-0-0, two"* (Bomb hit at 3 o'clock of target, 100ft away – Hammer 1-2)

CAS 2 – *"2 copy, not sure what happened"*

FAC – *"Hammer 11, Knight requests an immediate re-attack on 2's target -100 ft to the south of 2's mark, and make it a pair, how copy?* (The FAC wants the CAS flight lead to engage #2's target because #2 missed. It should be easy for the CAS flight lead to do so since he can see the bomb impact/smoke from #2)

CAS 1 – *"1 copy, in hot from the East, one pair"*

FAC – *"Cleared hot 1"*

FAC – *"And 2 reset the IP and alert when ready for coordinates"*

CAS 2 – *"Hammer 1-2 copy"*

CAS 1 – *"30 seconds"*

CAS 1 – *"GBU's away"*

FAC – *"Tally Visual"*

(Pause... Waiting for Bomb Impact)

FAC – *"Good his, good hits"* (CAS-1 bombs were on target)

CAS 1 – *"1 copy, off target hot to the South"*

FAC – *"Alright we have some vehicles moving. Two (CAS-2), I want you to make a run on those vehicles heading north on the road, confirm tally?*

CAS 2 – *"2 tally, 2 counts 4 vehicles heading north"*

FAC – *"Correct. Knight requests a pair on the lead vehicle"*

CAS 2 – *"2 copy, in hot from the East, one pair"*

FAC – *"Cleared Hot Two. One (CAS-1), it appears the last vehicle in that group is a FROG, request you use your last GBU on that vehicle, how copy?*

CAS 1 – *"1 wilco, in hot on the last vehicle heading North"*

FAC – *"Cleared hot 1"*

CAS 2 – *"30 seconds"*

FAC – *"Knight"* ("Knight" is just acknowledging #2's "30 seconds" call)

CAS 2 – *"GBU's away"*

FAC – *"Tally Visual"*

CAS 1 – *"30 seconds"*

FAC – *"Shack, good hits, Two"*

CAS 2 – *"Roger, off target hot to the South"*

CAS 1 – *"GBU away"*

FAC – *"Tally Visual"*

(Pause… Waiting for Bomb Impact)

FAC – *"Good hits 1. All of the fleeing vehicles are destroyed"*

CAS 1 – *"Copy, off target hot to the South"*

FAC – *"Hammer, say fuel"*

CAS 1 – *"1 is 0-3-2, 2 is at 0-2-8"* (1 fuel is 3200lbs, and 2 fuel is 2800lbs)

FAC – *"Roger, I see a few more vehicles near airfield, but none of them appear to be FROG's. Looks like abandoned LAV's. Hammer, thanks for the work, you can*

check-out 1-8-100. BDA Successful, 6 vehicles, including all the FROGs, and some infantry" ("1-8-100" is 18:00 (6pm) and "BDA" is Bomb Damage Assessment)

CAS – *"Copy, Hammer1 checking out. 2 snap to heading 0-1-0"* (CAS-1 is giving an egress heading for CAS-2)

FAC – *"Roger, call when clear, thanks"* (Let the FAC know when you are outside his airspace)

2.7. FAC/CAS Exchange Summary

Alright, so the exchange above is the meat of the FAC/CAS process. A lot of it is pretty straightforward and I'm confident most of you already know what all the info above meant. You probably noticed I said make a "30 seconds to mark call". The reason I do this is because I want to know when to look at the target to successfully BDA the target (call good hit or miss). I should also point out that I said "break" sometimes after my transmissions. I recommend doing that so the people you are talking to know when you are finished transmitting and you don't have guys speaking over each other. Also, notice once the vehicles were moving, the pace sped up. You do not want to let the targets get away because of formalities, so you have to move quick. Many of you know how hard it can be to keep a tally a moving vehicle, so act swift. In the example above you also heard me say "3 at 1-0-0" when #2 missed his target. What that means is #2's bomb hit at 3 o'clock 100ft away from the target. It helps to say that so the pilot who missed can make a correction for his next pass, as well as the following pilot who may be engaging the same target (as was the case in the example above). You also saw that the CAS flights were saying "one-time" or "a pair" - what that refers to is the number of bombs the CAS pilot will drop. For example, if CAS pilot is told to ripple off two bombs, he would "in hot, two-times". You also heard the FAC saying "cleared hot" when the CAS pilots said they were beginning their attack. It's very important to note that **NONE** of the CAS pilots are allowed to drop or fire any ordnance without the FAC saying "clear hot". Once you check-in with the FAC, you are not allowed to do anything until you talk to the FAC about it. That's why I said "Final control will be Knight 5-1", because I (the FAC) am responsible for any engagements in my airspace. The worst mistake you can make in the CAS flight role is to drop ordnance without sufficient permission from the FAC.

Also, in the above example, the CAS flight checked out because of fuel. If needed, they could have gone and tanked and come back. But since most of the targets were destroyed and only #2 had a single GBU, I chose to let them check out. If they did go tank and come back, they would not have to go through the authentication 9-Line process again. Instead, they would get a quick situation update. Also, if there was another CAS flight, one flight could tank while the other is on station.

As you saw in the example above, we didn't use an abort code. I chose to do that because usually when I'm the FAC, I don't use an abort code. Most guys are new to the authentication/9-line process, so I like to keep it fairly simple. But for those who want to

know, the abort code is usually decided by a pre-briefed code word or a second authentication challenge by the CAS flight. For example, after the regular authentication between the FAC and the CAS lead, the CAS lead would again challenge the FAC to authenticate, and the answer would be the abort code (ie "Abort Bravo, Abort Bravo, Abort Bravo"). But we will save that for the FWS course for those interested.

One final quick tip: There's a lot of radio chatter going on between the FAC and CAS flight, so it's very important to follow brevity procedures and keep comms to a minimum, especially on UHF (broadcast). If you are not the flight lead in the CAS flight and you have a question, do not ask the FAC. Instead ask your flight lead on local (VHF), and if he doesn't know the answer, he will contact the FAC. The only exception to this is if the FAC is speaking to you directly. For example, in the exchange above once the FAC gave the CAS flight lead his target information, he addressed the CAS flight wingman and began to pass on his target information. In that case the #2 in the CAS flight can talk to and ask questions to the FAC. And last tip is to always read the numbers individually when referring to coordinates. If the coordinates are N139.56.04, don't say "North one hundred thirty nine, point, fifty six, point, four." Instead you should say "North one-three-niner, decimal, five-six, decimal, zero-four". It will make it much easier to copy the coordinates when the numbers are ready individually.

Each CAS mission will be different, but the 9-Line process standardizes how CAS is done. Without it, there would have to be a lot more comms, questions, and risk to the ground units. And I know it's a lot of information to absorb, so I suggest you write down the basic outline before your flight. But it really comes down to practice like everything else. I will upload our 9-Line template which you can use during your FAC/CAS flights.

If you have any questions or comments please feel free to email or PM me.

Happy Hunting!

Demo

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CHAPTER 3

APPENDIX / REFERENCE

3.1. NATO Phonetic Alphabet

A = Alpha
B = Bravo
C = Charlie
D = Delta
E = Echo
F = Foxtrot
G = Golf
H = Hotel
I = India
J = Juliet
K = Kilo
L = Lima
M = Mike
N = November
O = Oscar
P = Papa
Q = Quebec
R = Romeo
S = Sierra
T = Tango
U = Uniform
V = Victor
W = Whiskey
X = X-ray
Y = Yankee
Z = Zulu

3.2 FAC/CAS Transcript:

CAS 1 – *"Hammer1, Knight 51"*

FAC – *"Hammer1, Go"*

CAS 1 – *"Hammer1, at the Charlie Papa, advise when ready to authenticate"* *

FAC – *"Knight, wilco, ready authentication"*

CAS 1 – *"Knight 51, authenticate alpha echo"*

FAC – *"Knight comes back papa, authenticate romeo alpha"*

CAS 1 – *"Hammer comes back echo"*

FAC – *"Good authentication, go ahead with the line-up"*

CAS 1 – *"Hammer1 is Mission number 890*

       2 F-16 Charlie, block 52 at base plus 3

       Equipped with 4-GBU-12 Bravos

       Playtime 30.

       Abort in the clear"

FAC- *"Copy abort in the clear. Knight 5-1 is over target at base plus 6, you got plus 5 and below, how copy?*

CAS 1 – *"Roger, Hammer has base plus 5 and below"*

FAC* – *"Copy, and alert when ready to copy coordinates for target area"*

CAS 1 – *"Hammer1, ready 9-line"*

FAC – *"Type-One Control by Knight 5-1*

       10 miles East of target (1)

       090 (2)

       Track West (3)

       150 (4)

       Vehicles in the open (5)

       Target area coordinates are: N38.35.124 E124.54.13 (6)

       Phosphorus Rockets (7)

       Friendlies are 10 klicks North of target (8)

       Egress South (9)

       How Copy?"

CAS 1 – *"Hammer reads back N38.35.124 E124.54.13, friendlies 10 klicks North of target"*

FAC – *"Good readback. Target is an airfield. Ground commander's intent is to keep ordnance off the runway. Other then that, no restrictions at this time, how copy?*

CAS 1 – *"Hammer1, keep ordnance off the runway"*

FAC – *"Affirm, when ready, approved the push into the wheel over target at your assigned block, and alert when ready for situation update."*

CAS 1 – *"Hammer1 ready AO update (AO=Area of Operations)"* or *"Hammer is ready additional"*

FAC – *"Knight 5-1 wilco. Target is an enemy column of vehicles located on and around the airfield. Ground commander's intent is to destroy a grouping of medium range ballistic missile launchers, ID'd as FROG-7s that threaten their push to take the airfield. Currently friendly forces are assembling, and preparing to take the airfield once CAS tasks it. Current threats in the area include some reports of shoulder mounted SAM's, RPG's, and small arms fire, however, the threats appear to be cold at this time. We have SEAD support available, callsign Lobo2, Knight 5-1 will have to coordinate with Lobo if the situation warrants it. To play it safe, Knight 5-1 recommends a hard deck of base minus 3 to be outside the 'manpads' range. Weather over target has broken clouds at 10,000ft. Final control will be Knight 5-1, and Knight 5-1 is currently equipped with a SNIPER Pod, how copy?"*

CAS 1 – *"Hammer copies all. FROG-7s and a hardeck of base minus 3. Hammer is over target, right orbit, base plus 3"*

FAC – *"Copy, when ready, let me know what you see at those coordinates passed"*
CAS 1 – *"Hammer sees an airfield with a single runway running east-west next to a small town"*

FAC – *"Roger, that's the correct airfield. If you're looking directly at the coordinates passed with your SNIPER pod, you will see a hangar surrounded by some fuel tanks along a taxiway on the Northern side of the runway. If you follow the taxiway west, you will see the first grouping of vehicles, break?"*

CAS 1 – *"Hammer tally. Hammer counts 3 vehicles in the group."*

FAC – *"Copy 1, that grouping of vehicles is your first target. The most western vehicle is the FROG-7, that will be your DMPI, how copy?"*

CAS 1 – *"Hammer wilco, the large vehicle closer to the taxiway, correct?"*

FAC – *"Affirm, Knight 5-1 wants a single GBU-12 on that vehicle, and we will make corrections if needed off your first mark, break"*

CAS 1 – *"Copy one-time on the FROG"*

FAC – *"And Knight 5-1 requests you start your attack from the east and run west to avoid any buildings being in the way, and egress South, how copy?*

CAS 1 – *"Track East to West, egress South"*

FAC – *"Copy, friendlies are north of target so no runs will begin or end north of target. When ready, cleared hot on your DMPI, and Knight 5-1 requests a 30 second to mark call for BDA, break"*

CAS 1 – *"Hammer 1 wilco"*

FAC – *"Hammer 1-2, confirm you also have a tally on 1's target?*

CAS 2 – *"2 confirms tally"*

FAC – *"Roger, your DMPI will be the vehicles just south of 1's target along those trees. The FROG in that group is next to the fence running along the outside of the airfield"*

CAS 2 – *"No joy, searching"*

FAC – *"Knight copy, I can pass coordinates if needed"*

CAS 1 – *"1 is in hot from the east, one-time"*

FAC – *"Cleared hot 1"*

CAS 1 – *"30 seconds"*

FAC – *"Knight"*

CAS 1 – *"GBU Away, lasing"*

FAC – *"Tally-Visual'*

CAS 1 – *"10 seconds"*

FAC – *"Good hits, shack on target 1"*

CAS 1 – *"1 copy, off target south"*

FAC – *"2, confirm tally on your target?"*

CAS 2 – *"Negative, 2 requests coordinates"*

FAC – *"Knight copy, 2 your target coordinates are N31.40.912 , E39.37.035, how copy"*

CAS 2 – *"Hammer 1-2 reads back N31.40.912, E39.37.035"*

FAC – *"Good readback. Again your target will be the FROG by the fence. It's south of 1's mark, break"*

CAS 2 – *"2 tally, missile launcher along the trees by the fence"*

FAC – *"Correct, Knight sees 5 vehicles around that launcher, so Knight requests a pair on your DMPI, and same track as one- East-to-West, how copy"*

CAS 2 - *"2 copies, a pair, run East-to-West"*

FAC – *"Roger, and Knight also requests a 30 seconds to mark call."*

CAS 2 – *"Hammer 1-2"*

FAC – *"Hammer 1-1, say status"*

CAS 1 – *"1 is resetting the IP"*

FAC* – *"Copy, and 1 say fuel"*

CAS 1 – *"Hammer 11, fuel state 0-5-8"*

FAC – *"Knight, copy"*

CAS 2 – *"In hot from the East, one pair"*

FAC – *"Cleared hot 2"*

CAS 2 – *"30 seconds"*

FAC – *"Knight visual"*

CAS 2 – *"GBU away"*

FAC – *"Tally Visual"*

FAC – *"Miss, 3 at 1-0-0, two"*

CAS 2 – *"2 copy, not sure what happened"*

FAC – *"Hammer 11, Knight requests an immediate re-attack on 2's target -100 ft to the south of 2's mark, and make it a pair, how copy?*

CAS 1 – *"1 copy, in hot from the East, one pair"*

FAC – *"Cleared hot 1"*

FAC – *"And 2 reset the IP and alert when ready for coordinates"*

CAS 2 – *"Hammer 1-2 copy"*

CAS 1 – *"30 seconds"*

CAS 1 – *"GBU's away"*

FAC – *"Tally Visual"*

(Pause… Waiting for Bomb Impact)

FAC – *"Good his, good hits"*

CAS 1 – *"1 copy, off target hot to the South"*

FAC – *"Alright we have some vehicles moving. Two (CAS-2), I want you to make a run on those vehicles heading north on the road, confirm tally?"*

CAS 2 – *"2 tally, 2 counts 4 vehicles heading north"*

FAC – *"Correct. Knight requests a pair on the lead vehicle"*

CAS 2 – *"2 copy, in hot from the East, one pair"*

FAC – *"Cleared Hot Two. One (CAS-1), it appears the last vehicle in that group is a FROG, request you use your last GBU on that vehicle, how copy?"*

CAS 1 – *"1 wilco, in hot on the last vehicle heading North"*

FAC – *"Cleared hot 1"*

CAS 2 – *"30 seconds"*

FAC – *"Knight"*

CAS 2 – *"GBU's away"*

FAC – *"Tally Visual"*

CAS 1 – *"30 seconds"*

FAC – *"Shack, good hits, Two"*

CAS 2 – *"Roger, off target hot to the South"*

CAS 1 – *"GBU away"*

FAC – *"Tally Visual"*

(Pause... Waiting for Bomb Impact)

FAC – *"Good hits 1. All of the fleeing vehicles are destroyed"*

CAS 1 – *"Copy, off target hot to the South"*

FAC – *"Hammer, say fuel"*

CAS 1 – *"1 is 0-3-2, 2 is at 0-2-8"*

FAC – *"Roger, I see a few more vehicles near airfield, but none of them appear to be FROG's. Looks like abandoned LAV's. Hammer, thanks for the work, you can check-out 1-8-100. BDA Successful, 6 vehicles, including all the FROGs, and some infantry"*

CAS – *"Copy, Hammer1 checking out. 2 snap to heading 0-1-0"*

FAC – *"Roger, call when clear, thanks"*

3.3. Definitions

- Authentication Code - A briefed code word used for authenticating the CAS and FAC/JTAC flight. The FAC/JTAC and the CAS flight lead challenge each other by picking 3 letters in the authentication code, and asking the other flight to reply with the letter between two letters in the authentication code. The authentication code is used to confirm that both parties are who they say they are.
- "Charlie-Papa" - Charlie Papa refers to the Contact Point (CP), where the CAS flight contacts the FAC/JTAC.
- Close Air Support (CAS) - In military tactics, Close Air Support (CAS) is defined as air action by fixed or rotary winged aircraft against hostile targets that are in close proximity to friendly forces, and which requires detailed integration of each air mission with fire and movement of these forces.

- **Forward Air Controller FAC(A)** - A forward air controller (FAC) is an individual in a military service who directs Close Air Support (CAS). A FAC(A) is the airborne version of a FAC.
- **Joint Operational Support Teams (JOST)** - JOST are "Joint Operational Support Teams" are employed within Artillery Regiments and Infantry battalions and on ops, with the battle groups deployed (basically artillery support).
- **Joint Terminal Attack Controller (JTAC)** - A Joint terminal attack controller (JTAC) is a qualified military service member who, from a forward position, directs the action of combat aircraft engaged in close air support and other offensive air operations. There is considerable commonality between the roles of a JTAC and a Forward Air Controller and the precise definition of the roles and qualifications of these two differs between countries.
- **"Push the Wheel"** - Push(ing) the wheel refers to orbiting over target.
- **Tactical Air Control Party (TACP)** - A Tactical Air Control Party, commonly abbreviated TACP (pronounced TAC-P), is usually a team of two or more United States Air Force Tactical Air Controllers (AFSC 1C4X1), sometimes including an Air Liaison Officer (a qualified aviator), which is assigned to a United States Army combat maneuver unit, either conventional or special operational, to advise ground commanders on the best use of air power, establish and maintain command and control communications, control air traffic, act as an inter-service liaison, control naval gunfire, and provide precision terminal attack guidance of U.S. and coalition close air support and other air-to-ground aircraft. Along with being assigned to all conventional Army combat units, TACP airmen are also attached to Special Forces, Navy SEALs, and Army Rangers, as well as Joint Special Operations Command units and multi-national Special Operations task forces, primarily as communications experts and precision airstrike controllers.

3.4. NATO ACRONYMS

- AAA - Antiaircraft Artillery
- AB - Air Base
- ABCCC - Airborne Command and Control Center
- ACC - Air Combat Command
- ACTORD - Activation Order
- AEF - Air Expeditionary Force
- AEW - Airborne Early Warning
- AFB - Air Force Base
- AFSOUTH - Allied Forces Southern Europe
- AFV - Armored Fighting Vehicle
- AGM - Air-to-Ground Missile
- AMRAAM - Advanced Medium-Range Air-to-Air Missile
- AOR - Area of Responsibility
- APC - Armored Personnel Carrier
- ATACMS - Army Tactical Missile System
- ATC - Air Traffic Control
- ATO - Air Tasking Order

- AWACS - Airborne Warning and Control System
- AWOS - Air War Over Serbia
- BDA - Battle Damage Assessment
- BDI - Battle Damage Indications
- C2 - Command and Control
- CALCM - Conventional Air-Launched Cruise Missile
- CAOC - Combined Air Operations Center
- CAS - Close Air Support
- CBS - Columbia Broadcasting System
- CBU - Cluster Bomb Unit
- CIA - Central Intelligence Agency
- CINC - Commander in Chief
- CINCCENT CINC - U.S. Central Command
- CINCEUR CINC - U.S. European Command
- CINCPAC CINC - U.S. Pacific Command
- CINCSOUTH CINC - Allied Forces Southern Europe
- CNN - Cable News Network
- CNO - Chief of Naval Operations
- COMAIRCENT - Commander Allied Air Forces Central Europe
- COMAIRSOUTH - Commander Allied Air Forces Southern Europe
- COMUSAFE - Commander United States Air Forces in Europe
- CONOPLAN - Concept of Operations Plan
- CSAR - Combat Search and Rescue
- DEAD - Destruction of Enemy Air Defenses
- DMPI - Desired Mean Point of Impact
- DMSP - Defense Meteorological Support Program
- DSCS - Defense Satellite Communications System
- DSP - Defense Support Program
- ECM - Electronic Countermeasures
- ECR - Electronic Combat Role
- ELINT - Electronic Intelligence
- EO - Electro-Optical
- EW - Early Warning
- EW - Electronic Warfare
- FAC - Forward Air Controller
- FLIR - Forward-Looking Infrared
- FY - Fiscal Year
- GAT - Guidance, Apportionment, and Targeting
- GATS - GPS-Aided Targeting System
- GBU - Glide Bomb Unit
- GPS - Global Positioning System
- HARM - High-Speed Antiradiation Missile
- HMS - Her Majesty's Ship
- HTS - HARM Targeting System
- HUD - Head-Up Display
- IADS - Integrated Air Defense System

- ID - Identification
- IFF - Identification Friend or Foe
- IFOR - NATO Implementation Force in Bosnia and Herzegovina
- IMF - International Monetary Fund
- INS - Inertial Navigation System
- IR - Infrared
- ISR - Intelligence, Surveillance, and Reconnaissance
- JAC - Joint Analysis Center
- JCS - Joint Chiefs of Staff
- JDAM - Joint Direct Attack Munition
- JFACC - Joint Force Air Component Commander
- JTF - Joint Task Force
- JTIDS - Joint Tactical Information Distribution System
- JWAC - Joint Warfare Analysis Center
- KEZ - Kosovo Engagement Zone
- KFOR - Kosovo Force
- KLA - Kosovo Liberation Army
- LANTIRN - Low-Altitude Navigation and Targeting Infrared for Night
- LD/HD - Low Density/High Demand
- LGB - Laser-Guided Bomb
- LOC - Line of Communication
- MANPADS - Man-Portable Air Defense System
- MEU - Marine Expeditionary Unit
- MFD - Multifunction Display
- MLRS - Multiple-Launch Rocket System
- MSTS - Multisource Tactical System
- MTI - Moving Target Indicator
- MTW - Major Theater War
- MUP - Serbian Interior Ministry Police
- NAC - North Atlantic Council
- NATO - North Atlantic Treaty Organization
- NCA - National Command Authorities
- NIMA - National Imagery and Mapping Agency
- NPIC - National Photographic Interpretation Center
- NRO National Reconnaissance Office
- OCA - Offensive Counterair
- ORI - Operational Readiness Inspection
- OSCE - Organization for Security and Cooperation in Europe
- PACAF - Pacific Air Forces
- PGM - Precision-Guided Munition
- POL - Petroleum, Oil, and Lubricants
- POW - Prisoner of War
- RAF - Royal Air Force
- RCS - Radar Cross-Section
- RNLAF - Royal Netherlands Air Force
- ROE - Rules of Engagement

- RWR - Radar Warning Receiver
- SACEUR - Supreme Allied Commander Europe
- SAM - Surface-to-Air Missile
- SAR - Synthetic Aperture Radar
- SAS - Special Air Service
- SEAD - Suppression of Enemy Air Defenses
- SFOR NATO - Stabilization Force in Bosnia and Herzegovina
- SHAPE - Supreme Headquarters Allied Powers Europe
- SIGINT - Signals Intelligence
- STARS - Surveillance Target Attack Radar System
- TACAN - Tactical Air Navigation
- TARPS - Tactical Air Reconnaissance Pod System
- TF - Task Force
- TIP - Tactical Integrated Planning
- TLAM - Tomahawk Land-Attack Missile
- TOT - Time on Target
- UAV - Unmanned Aerial Vehicle
- UCAV - Unmanned Combat Air Vehicle
- UHF - Ultra-High Frequency
- UN - United Nations
- USA - United States Army
- USAF - United States Air Force
- USAFE - United States Air Forces in Europe
- USAFE/SA - United States Air Forces in Europe, Studies and Analysis Office
- USAREUR - United States Army in Europe
- USEUCOM - United States European Command
- USMC - United States Marine Corps
- USN - United States Navy
- USS - United States Ship
- VJ - Yugoslav Army
- VTC - Video Teleconference

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