VMFA-122

"CRUSADERS"

TACTICAL STANDARD OPERATING PROCEDRUES

CARRIER STRIKE GROUP -ONE

RECORD OF CHANGES

1. **Initial Release**
2. **Revision 1** (v1.1 published 04 December 2018)
    a. Squadron Organization
    b. Air to Air TACAN Yardstick SOP
    c. Parade and Cruise Spacing Changes
    d. Tactical Turns
    e. Air to Air Action Left/Right
    f. Air to Air Bogey Intercept
    g. Appendix A: Common Usage Operational Brevity Words
3. **Revision 2** (v1.2 published 02 March 2019)
    a. Formatting
    b. MODEX numbers updated
    c. Added Planning Considerations
4. **Revision 3** (v2.0 published 25 November 2019)
    a. Communication
    b. Knock It Off/Terminate
    c. External lighting
    d. Lead change procedures
    e. FENCE In/Out
    f. Anti-Air Warfare
    g. Offensive Air Support
    h. CAS and TPOD brevity
    i. Air to Air refueling
    j. Acronyms

Purpose:

The VMFA-122 TACSOP is designed to compile all standard information and procedures that are employed by VMFA-122 in standard operating conditions.

Table of Contents:

1. Squadron Organization

1. VMFA-122 contains 12 aircraft in each mission and are authorized up to 20 pilots. MODEX numbers **300 through 315 are aircraft assigned to primary pilots** in VMFA-122 and have priority for all flights. MODEX numbers **370-377 are aircraft assigned to prospect pilots** and may participate only when a primary pilot is absent. MODEX numbers **390-399 are reserved for reserve or LOA member**s. Reference the Squadron Training Tracker for current aircraft assignments.

2. Primary Pilots
300 – CO's Aircraft
301 – XO's Aircraft
302
303
304
305
306
307
310
311
312
314
315

3. Prospect Pilots
370
371
372
373
374
375
376
377

2. Flight Planning

1. VMFA-122 will conduct flight planning for all training and mission sorties. Flight planning is the responsibility of the flight leader and should include all aspects of the flight from pre-flight to recovery. Flight leads shall brief as many items as possible while Discord before entering server. Changes to the flight plan should be avoided in flight when possible.

Plan the flight, brief the plan, fly the brief

2. Documents and templates are available on the VMFA-122 share drive for use in developing a flight plan. Mandatory elements to the plan include:
- Flight organization (who with what roles/responsibilities)
- Important frequencies
- Loadout
- Departure location
- Takeoff Type
- Route of flight
- Anticipated formations / cruise actions
- Actions in zone/on objective
- Threat information
- Anticipated reactions to threats (immediate actions)
- Rejoin Information
- Recovery location

3. Communication

1. Clear, concise communication is essential for effective aircraft employment. Communication brevity is used to alleviate confusion and provide a common knowledge of critical information during tactical operations. Standard terminology is essential to reduce the time required to transfer information and enhances understanding without reducing the quality of information in the transmission.

2. General Radio Rules of Thumb
- Directive intra flight comm starts with the aircraft being addressed "*Lead, BREAK RIGHT*"
- Descriptive intra flight comm starts with the aircraft's own call sign *"3, DIRT 2 O'CLOCK*"
- Directive communications supersedes descriptive communication
- Think before speaking, not while speaking
- Clarity is more important than brevity
- Reduce long transmissions to short ones
- Maintain voice control but use voice inflection when required
- Give several seconds for potential responses before speaking. Two people speaking on SRS cannot hear each other

3. Intraflight Radio Rules of Thumb.
- Directive comms from lead shall begin with *"Flight…"*
- Wingmen shall respond in acknowledgement of a *"flight…"* transmission in order *"2" …"3"…"4"*
- Every call is initiated with a flight position *"2 is saddled right"*
- Long transmissions should be divided by an advisory *"break"*

4. <u>Exterior Radio Rules of Thumb</u>
- Flight lead will begin with cold calls starting with recipient followed by own callsign *"Fist 21, Nikel 31"*
- Flight lead will respond to calls with flight callsign *"Nikel 21, cleared to land 31 left"*
- Transmissions to multiple recipients should be divided by an *advisory "break-break"* - *"Fist 21, cleared to depart, break-break, Fist 11 go with JCAS check-in"*

5. <u>Consideration of Recipient</u>. Cold calls should be made before initial transmissions to other flights or controlling agencies before passing large amounts of information. This grants time to the receiving party to receive your information and prevents repeating transmissions. Contacted party may pass "standby" and you must wait until the receiving aircraft gives responds with *"Go for Nikel"* or *"Send traffic."* Exceptions to this courtesy is in Safety of Flight incidents.

6. <u>Knock-It-Off (KIO)</u>. The term "knock-it-off" may be used by any member of the formation to direct all aircraft to cease maneuvering and will be used when safety of flight is a developing factor. Once called, all flight members will stabilize in their current position, acknowledge and wait for instructions from Lead.

KIO initiator: *"Nikel flight, knock-it-off"*
KIO Acknowledged by flight lead: *"Nikel 11, knock it off"*
"Nikel 12, knock it off"
"Nikel 13, knock it off"
"Nikel 14, knock it off"

Examples of KIO criteria:
- Any unnecessary dangerous situation
- Loss of situational awareness
- Violation of briefed range or altitude boundaries
- Recognized fuel emergencies
- Interloper within the training area

7. <u>Terminate</u>. "Terminate" is used to direct a specific aircraft or flight to cease the current training regime and continue as briefed. While usually called by lead or an instructor, a wingman may "request terminate" but can be denied if not a safety of flight issue. Wingmen will acknowledge a "terminate" with the same method as KIO.

4. Pre-Flight

All VMFA-122 pilots are encouraged to create and use kneeboard documents during for all phases of flight.
- Coversheets: Entail general information for a specific flight including pilots, mission, routes, timelines, waypoints, NAVAIDs, frequencies, loadouts, launch and recovery information.
- Checklists: Itemized lists for any procedure completed within the aircraft.
- Mission specific documents: maps, v-diagrams used for altitude deconfliction, routes, target imagery, etc.

5. External Lighting

1. Daytime Lighting
- Position Lights: OFF
- Strobe Lights: ON
- Formation Lights: OFF

2. Night Lighting
- Position Lights: ON
- Strobe Lights: ON
- Formation Lights: As briefed, or required by wingman

3. FENCE'd In
- All External Lights: OFF
- Formation Lights: As Required

4. Carrier Operations
- All lights are secured while on the flight deck.
- Appropriate day/night lights: ON once attached to the shuttle, at MIL power and ***"300, CAT one, salute"***

5. Landing Light
- Landing Light: ON during takeoff and landing
- To signal intent to other pilots, utilize the taxi light when moving or intending to move on the ground, and turning it off when stopped or yielding to other airfield traffic

6. Takeoff

1. The primary and preferred takeoff method for VMFA-122 is the 10-second interval takeoff. Lead will always take the downwind half of the runway. During instrument conditions, the preferred method is the section takeoff. Procedures are listed below:

2. Interval Takeoff
- Lead briefs takeoff interval (10-second preferred)
- Aircraft taxi onto runway
- Pilots conduct aircraft and cockpit checks and transmit *"# set"* in dash order.
- Lead calls *"Run em up"*
  - All aircraft apply brakes and increase throttle to 80%
- Pilots conduct final cockpit checks and transmit *"# set"* in dash order.
- Lead releases brakes and calls **"Leads Rolling"**
- Each aircraft releases brakes in sequence at the briefed interval and calls *"Rolling"*
- Last aircraft in the flight to be airborne calls *"Flight Airborne"*

3. Section Takeoff
- Aircraft taxi onto runway
- Pilots conduct aircraft and cockpit checks
- Wingman transmits *"Two is set"*
- Lead calls *"Run em up"*
  - Both aircraft apply brakes and increase throttle to 80%
- Wingman transmits *"Two is set"*
- Lead calls *"Release in three, two, one, release"*
- All pilots release brakes and increase to full afterburner on the word *"release"*
- At takeoff speed, Lead will call *"Rotate"* before lifting the nose.
- Lead will call *"gear"* then *"flaps"* before retracting to maintain the same drag profile within the flight.

4. Division Takeoff by Section. When a division is departing together, the primary takeoff method is still an interval takeoff. The secondary method is the Division takeoff by section. This is a mixture of the section takeoff and division takeoff.
- Lead briefs takeoff interval (10-second preferred)
- Aircraft taxi onto runway
- Pilots conduct aircraft and cockpit checks and transmit *"# set"* in dash order.
- Lead calls *"Run em up"*
  - All aircraft apply brakes and increase throttle to 80%
- Pilots conduct final cockpit checks and transmit *"# set"* in dash order.
- Lead calls *"Release in three, two, one, release"*
- Lead and -2 pilots release brakes and increase to full afterburner on the word *"release"*
- After the briefed interval, -3 calls *"Release in three, two, one, release"*
- -3 and -4 pilots release brakes and increase to full afterburner on the word *"release"*
- Last aircraft in the flight to be airborne calls *"Flight Airborne"*

7. Flight Admin

1. Yardstick. When not using TACAN for navigation purposes or in a restricted emissions control condition, flights may employ air to air TACAN (yardstick) to assist in control of the flight. The following standard will be used:

Flight	Lead Sets A2A TACAN	Wingmen Set A2A TACAN
Nikel 1	22X	85X
Nikel 2	23X	86X
Nikel 3	24X	87X
Nikel 4	25X	88X
Nikel 5	26X	89X

2. Lead Changes. The flight leader is the designated formation leader responsible for organizing and controlling the flight from planning through debriefing. During the flight, however, the pilot of the aircraft that has the highest level of SA may become the tactical leader (tac lead). Tac lead can be given and taken by the designated flight leader. At this point, the tactical wingman is responsible for maintaining separation and mutual support. The designated flight lead can pass tac lead to another aircraft for a period. Tac lead is taken back by the designated section, division, or flight leader when the leader regains situational awareness (SA) and can best control the flight. Tac lead changes must be briefed in detail based upon flight member composition and experience. Passing of Tac lead must be acknowledged by both aircraft.

> e.g. Flight lead *"2, you have the lead on the right"*
> Wingman *"2 has the lead"*

3. FENCE IN/OUT. FENCE checks are a series of steps taken to prepare for combat prior to reaching the probable point of first enemy contact. Flight members will be directed to FENCE IN/OUT and shall acknowledge when complete with fuel state.

> e.g. Flight lead *"Flight FENCE out"*
> Wingman *"2, FENCE'd out, 5.7"*

- Firepower – Master Arm, AA/AG mode, Stores, Radar, TPOD, LTD
- Emissions – Lights secured for daytime, formation lights as requried during night ops.
- Navigation – on course with correct routing
- Communication – Ensure monitoring appropriate mission frequency
- Electronic Countermeasures – Mode, preset, HUD boxed as appropriate

NOTE
JHMCS is an effective tool for various mission types and
should be used during flights that may encounter enemy fighters.

8. FORMATION:

During flight, VMFA-122 will be in a non-tactical or tactical mode of travel. Each mode of travel will incur a different type of spacing.

1. <u>Non-Tactical Travel</u>. During non-tactical travel, VMFA-122 flights are **not** concerned with enemy actions and therefore the spacing and formations do not favor mutual defensive support. When in instrument conditions or when preparing to enter a recovery pattern, the flight will be in parade spacing. At all other times the flight will be in cruise spacing.

    a. <u>Parade</u>. Less than 50 feet (~16 meters) of spacing. Primary purpose of the parade spacing is to minimize the amount of space the formation takes up in the air during approach to an overhead break. Requires intense focus by wing mates and gentle maneuvers by lead.
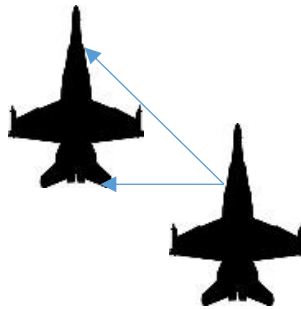
Reference line is tip of AIM9 seeker head or wingtip rail placed underneath pilot's head and wingman's cockpit in line with trailing edge of lead's stabilator.

    b. <u>Cruise</u>. 100 – 1000 feet (~33 – 330 meters) of spacing. Primary purpose is to enable wing mates to focus on aircraft and systems management as opposed to expending all focus on maintaining formation. Wingman flies further back in cruise and has freedom to maneuver to either side of lead as necessary for maneuvering.
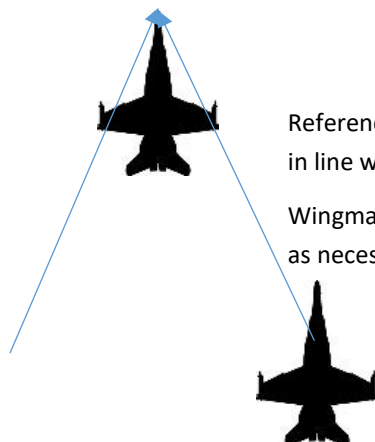
Reference line is lead's trailing edge wingtip in line with the nose of the lead's aircraft.

Wingman has freedom to flex to either side as necessary in section formations.

c. <u>Division Cruise</u>. When in cruise in a division formation, the division leader will place the second section on the left or right side of the formation where it will stay unless directed otherwise. -2 and -4 will fly cruise as if they are in a section cruise as described in the previous paragraph. This allows -2 and -4 to freely maneuver to either side of their section lead to support maneuver. The second section must provide enough spacing for -2 to freely maneuver to the left or right side of -1.
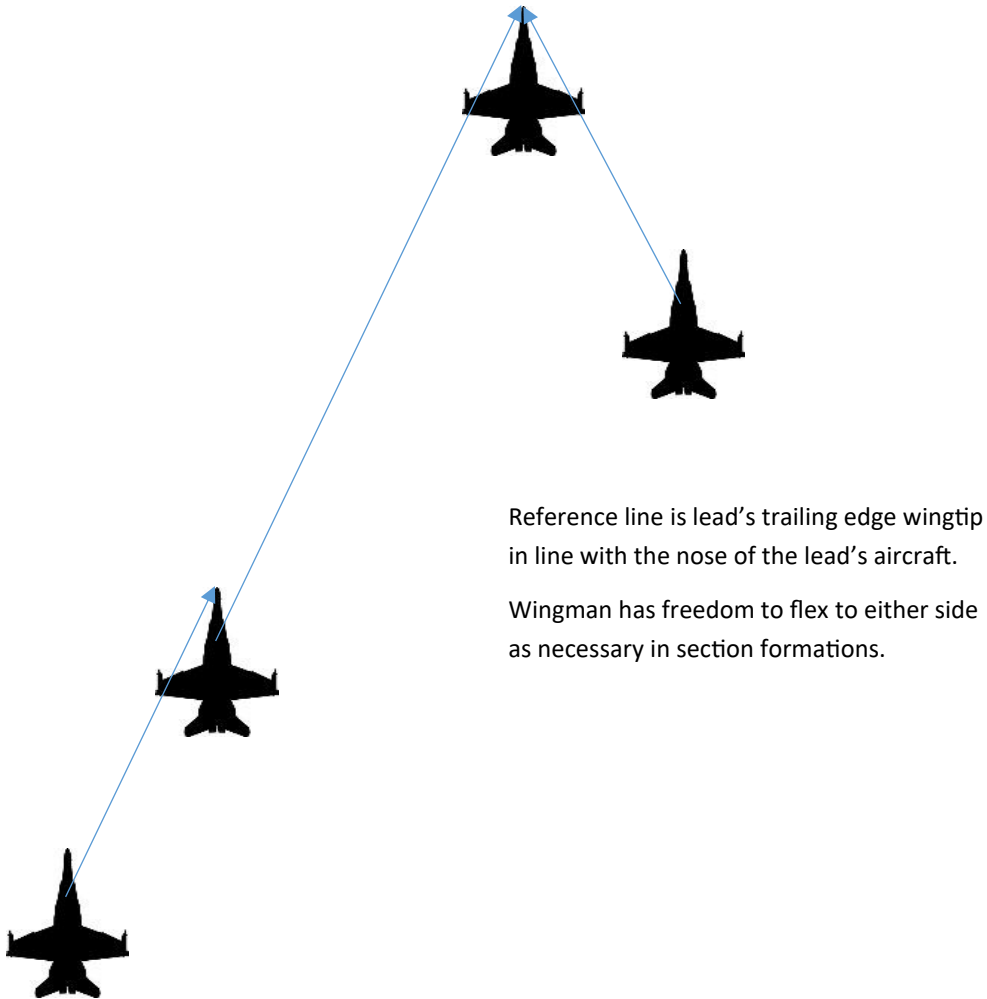
Reference line is lead's trailing edge wingtip in line with the nose of the lead's aircraft.

Wingman has freedom to flex to either side as necessary in section formations.

Non-Tactical formations include:
Finger four
(Parade Only)

Echelon

Trail

Wedge
(Parade Only)

Diamond
(Parade Only)

2. Tactical Travel. During tactical travel, VMFA-122 flights **are** concerned with enemy action interfering with the flight and therefore spacing and formations stress mutual defensive and offensive support. There are three types of tactical spacing, admin, visual or sensor spread. Flight leads shall call out their airspeed heading and altitudes to their flight and update changes to maintain fight integrity. Using an air to air TACAN or the Situational Awareness page can aid in maintaining correct spacing.
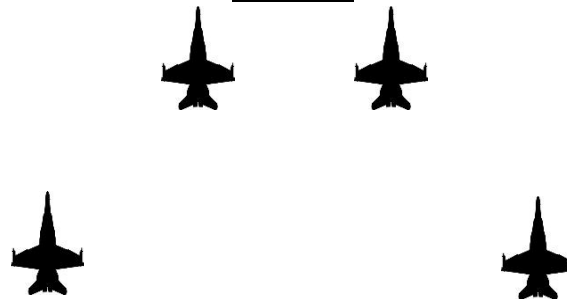
- Admin Spread: .5 to 1 nm spacing, +/- 250 ft.
- Visual Spread: 1 to 2 nm spacing, +/- 500 ft.
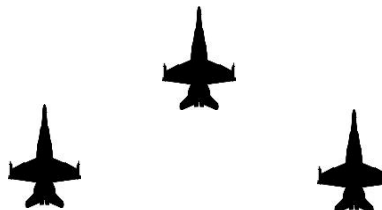- Sensor Spread: 2 to 5 nm spacing, +/- 1000 ft.
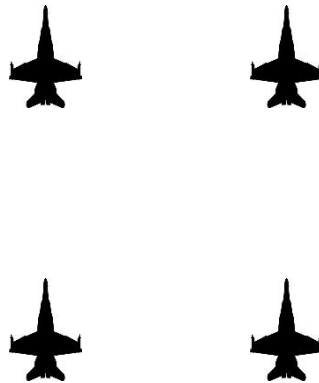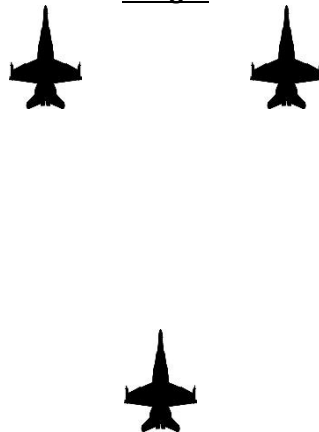
Formations include:
Finger Four
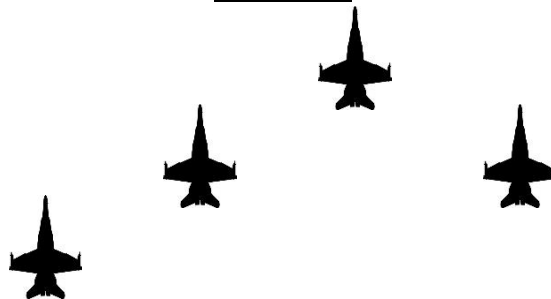
Fluid Four

Wedge

Wall

Box

Stinger

3. Tactical Turns (TAC Turns).When in tactical formations, conventional turns would put the wingmen too far out of position and would be impractical to turn more than 30 degree in heading. TAC turns enable the formation to make quick and major adjustments to the direction of flight while maintaining the formation. All turns will be made at 3G without major throttle adjustments. TAC Turns include delayed turns and in-place turns.

   a. Delayed Turns. Delayed turns enable a flight in spread to conduct course changes greater than 30 degrees but less than 120 degrees. They are initiated by lead calling *"Flight, Left/Right [Degrees]"* with degrees given as the final bearing. Each aircraft in the flight shall echo and acknowledge *"#, Left/Right [Degrees]"* in dash order.

The outside wingman will begin the turn first with a level 3G turn without any major throttle adjustments. When this aircraft crosses behind the next aircraft in line with the inboard edge of the aileron, the next aircraft in line will begin it's turn. This process continues until the entire flight is on the new course. Wingmen are responsible for making minor corrections to correct their position in the flight once the turn is complete. All delayed turns will be conducted in degree changes rounded to the nearest ten. IE: 50 degrees instead of 45 degrees.

90 right   45 left
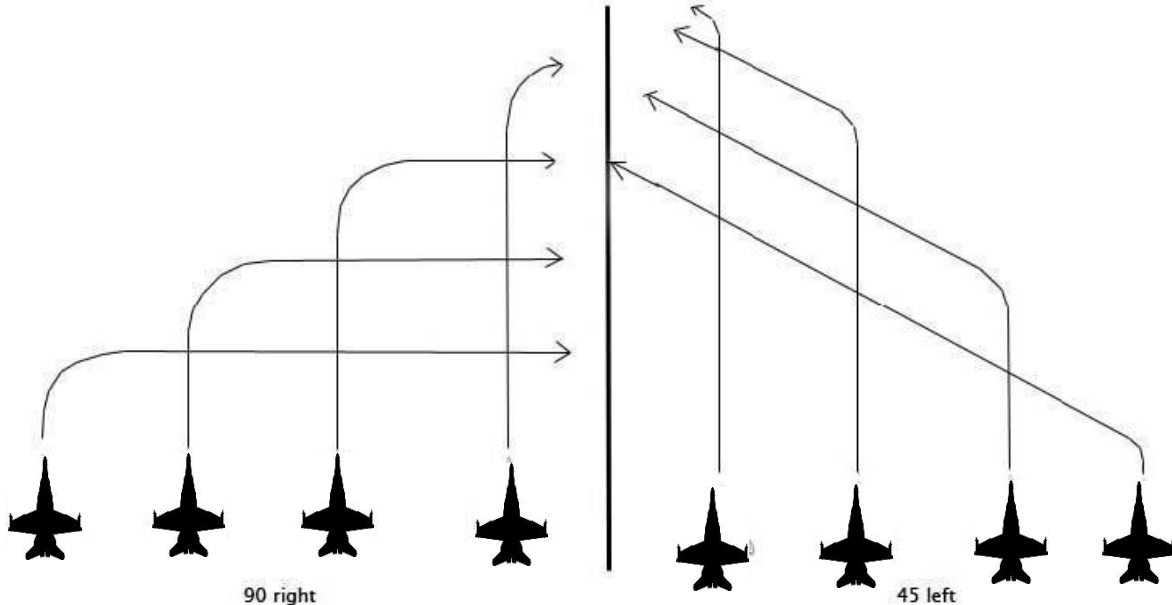
   b. In Place Turns. In place enable a flight in spread to conduct a 180 degree course change and includes cross turns, hook turns, split turns, slice backs and shackles. These turns are instantaneous and are executed immediately by all flight members unless delaying for the purposes of recovering a straggled flight formation.

      (1.) Cross Turns. In these turns the direction of the flight changes by 180 degrees. The flight lead will call *"Flight, Cross [New Heading]".* The lead will make 3G turn *into* the wingman, and the wingman will turn *into* the lead. Wingman will climb slightly to avoid lead's plane. Lead should keep a visual on the wingman as long as possible to avoid mid-air collision. In a 4-ship spread, the sections will both make their own turns. 2 will turn into flight lead, lead will turn into 2, 2nd section lead will turn into 4, 4 will turn into 2nd section lead.

      (2.) Hook Turns. In these turns the direction of the flight changes by 180 degrees. The flight lead will call "*Flight, Hook left/right [New Heading]"*. All aircraft will make 3G turn in the specified direction.

(3.) <u>Split Turns</u>. Just as in the cross turn, the direction of the flight will change by 180 degrees. The flight lead will call *"Flight, Split [New Heading]"*. The lead will make 3G turn away from the wingman, and the wingman will turn away from the lead. When engaged by close hostiles from the rear, these turns could be maximum performance turns.

(4.) <u>Slice Backs</u>. Slice back is another method for changing the flight direction in an effective way. The flight lead will call *"Flight, Slice Back [New Heading]"*. The flight will roll inverted and pull down until they get into level flight again. In common talk, this maneuver is called Split-S and can be very helpful as you not only change the direction by 180 degrees, but you also gain speed while doing it. Once the maneuver has been completed, you should climb back to your cruise altitude.

(5.) <u>Shackle</u> Turns. Shackle turns allow a flight to efficiently rotate sides on lead. *"Flight, shackle"* may be called by lead when a flight member is in wrong position in a formation or by a wingman *"Shackle"* to reduce significant power changes for aircraft inside and outside of lead's turn. During straight and level flight, aircraft in the flight will rotate sides by beginning a turn into each other. The higher –dash aircraft is tasked with deconfliction and will announce *"#, going high/low"* and be acknowledged by the opposing pilot with *"#, going high/low"* (opposite of announced deconfliction). Once crossed, they'll reverse the turn, and assume original headings. During a turn greater than 120 degrees, the inside aircraft will be allowed to drift outside leads radius of turn slightly below lead and the outside aircraft pulls inside leads turn, slightly above. Both aircraft finish the turn on the opposite side of lead. Shackle turns may also be used during escort missions to visually clear the flight's six o'clock.

9. Anti Air Warfare:

Antiair warfare's (AAW's) primary function is to gain and maintain the degree of air superiority required for CSG-1 to conduct operations. AAW prevents the enemy from restricting CSG-1 air, land, and naval operations at a given time and place.

1. Air to Air Engagements. The air to air engagements section of this SOP is designed to provide information on best practices for conducting air to air engagements. The exact tactics, techniques, and procedures for air to air engagements will vary from situation to situation and are ultimately the responsibility of the flight leader and the individual pilot.

    a. Basic Principles. Since there are few absolutes in ACM, a thorough understanding of the underlying concepts of aerial combat is essential as a foundation upon which to base split-second decisions. Once pilots can conceptualize the many factors generic to all aerial combat engagements, tactics peculiar to ACM will become evident.

        (1.) **Aggressiveness.** Aggressiveness and the will to win are essential to meet the demands of aerial combat. The pilot must possess a strong and spirited will to kill the enemy through bold and intelligent attacks. Aggressiveness is also applicable defensively. A pilot who will not accept defeat without a good fight is difficult to kill. Boldness, however, is no substitute for skill. Pilots should not unnecessarily jeopardize their survival with clumsy acts of aerial violence.

        (2.) **Airmanship.** Airmanship is the ability to coordinate aircraft controls (stick and throttle) with spatial orientation. It permits the pilot to effectively counter enemy attacks and to maneuver to a firing envelope. Airmanship results from training, experience, and familiarity with the aircraft, weapons systems, and performance. A thorough understanding of Energy-Maneuverability will greatly enhance the pilot's airmanship.

        (3.) **Situational Awareness.** A pilot must be able to fly and fight, be able to recognize and analyze tactical situations, formulate a game plan, and execute it while thinking several moves ahead.

        (4.) **Communication**. Proper use of ACM terminology during all flights will build familiarity and enhance standardization. Specific ACM communication techniques and pilot responsibilities should be briefed and utilized. Communication should be provided to increase the required situational awareness to every pilot that is essential for instantaneous decision making required to quickly seize each tactical advantage within an engagement. Directive communication must take priority over descriptive; communication brevity should be emphasized to decrease reaction times, improve risk management, and set sound habit patterns.

        (5.) **Detection.** A large percentage of air-to-air kills in World War I, World War II, the Korean War, and Vietnam War were achieved as a result of surprise. The key to survival is detecting the enemy aircraft first. Only by early threat detection can we attain the initiative and take appropriate action to enhance survival.

    b. GCI control. Flight leads will use Bullseye when establishing locations with GCI controllers and passing Bogy/Bandit/Hostile locations to other flights. Bearing Range, Altitude and Aspect information may be requested via Bogey Dope when a commit is likely. Fox calls shall be made over AWACS or GCI followed by applicable descriptive information. "*Nikel 11 Fox 3, western hostile"…"Nikel 21, Fox 3 B/E 234 for 23*"

    c. Evaluate the threat. Quickly collecting accurate enemy aircraft information is vital to winning an air to air engagement. GCI, SA page, radar and other friendly aircraft can share aircraft location, speed, bearing and altitude.

Determining a tactical course of action, delegating formation changes and disseminating information are required place a flight in an advantageous position prior to engaging an enemy flight.

    d. Bogey Intercept. When conducting a radar intercept to visual ID of a bogey with unknown intentions, the flight must position itself to rapidly engage the bogey if it demonstrates hostile intent or a hostile act. Lead will identify one aircraft or section to conduct the visual ID. The other aircraft or section should be positioned in trail with at least 15 seconds of separation. This will enable the trailing aircraft/section to engage the bogey if the visual ID aircraft is engaged, or if the visual ID identifies the aircraft as hostile.

2. Pre engagement actions. **The base fighting unit of VMFA-122 is a section (2) of aircraft.** This organization facilitates mutual support in both offensive and defensive scenarios. All reasonable attempts will be made to conduct air to air engagements as a section. When engaging an enemy aircraft, the pilot attempting to destroy the bandit quickly becomes task overloaded and must shed even rudimentary tasks to include communication, navigation, and defense.

Whenever possible, VMFA-122 pilots will attempt to engage bandits with (1) engaged element and (1) supporting element for every (1) bandit element of the same quantity. This fighting doctrine enables the engaged aircraft to focus on the destruction of the bandit while the supporting aircraft can focus on maintaining situational awareness, communication with outside flights, and the defense of the flight. Critical to this fighting doctrine is the readiness of the pilots to switch roles at a moment's notice to engaged and supporting or vice versa in order to more rapidly destroy the bandit. This fighting doctrine applies to both Beyond Visual Range (BVR) and Within Visual Range (WVR) engagements.

During division engagements, the division leader should strive to assign engagement tactics, initial targets to both sections and allow the sections to manage their own engaged and supporting concepts. Commonly, it is best for a division leader to be the supporting aircraft in a section engagement in order to allow the division leader to maintain maximum situational awareness of the entire division to facilitate follow on decisions.

There will inevitably be occasions where VMFA-122 forces are outnumbered or facing equal number of enemy aircraft resulting in an entire flight becoming an engaged fighter with no supporting fighters. When in this situation, rapid decision making will be critical on the individual pilot to choose when it is appropriate to cease an engagement and become a supporting fighter to gain an advantage on the enemy flight. In an air to air engagement of opposing flights, the first flight to lose an aircraft usually loses the fight. VMFA-122 should strive to make the first air to air victory in such engagements.

3. Tactics. Air to Air engagement tactics are divided into three categories. Launch and Leave, Launch and Decide and Immediate Engagement Required.

    a. Launch and Leave: tactic used to engage an enemy group with intent to "exit" at a distance capable of defeating an enemy missile. L&L capitalizes on space between the friendly and adversaries. It allows a smaller number of friendlies to attack flights of greater number especially when spread out.

        (1.) Grind. Launch and leave tactic of multiple sequential skate attacks on the leading edge of an enemy group of equal or greater number.

           o   Skate: Informative or directive call to execute launch and leave tactics at a pre-briefed range with intent to recommit.

        (2.) Wall: Launch and leave tactic of a wall formation attack on an enemy group of fewer numbers.

b. Launch and Decide. tactic used to engage an enemy group with intent to notch enemy radar and kinetically defeat enemy missiles. Often used when forced into a 1 v 1 engagement without nearby support or during escort of friendly aircraft in close proximity of hostiles.

- Banzai: Launch and decide tactic to press an enemy group and enter within the visual arena(WVR)

c. Immediate Engagement Required: Reactive response to hostiles detected WVR.

4. Flight maneuvers. TAC Turn maneuvers previously discussed are essential to maintaining flight integrity and mutual support. Instant implementation to called formation changes will improve the flights ability to react to an airborne threat and successfully execute Launch and Leave tactics. Other Air to Air maneuvers include the Box pump and Action Left/Right.

a. Box pump. A shuffle of a division flight in preparation to execute grind tactic. Typically executed by the leading section performing 2 consecutive in-place 180 degree turns and arriving 15-25nm in trail behind the second section. Meant to maintain greater space between a hostile group to prevent the merge and perform skate tactics.

b. Action Left/Right. A modified pincer is used as a standard head to head BVR and WVR engagement to a pop up group. The flight lead will call *"2, action left/right".* The wingman will then execute a 3G level turn to the left/right at full burner for 20 seconds to build separation from lead and turn back into the original heading. The final position will put the wingman into a trailing position with significant lateral separation. At the division level this can be done with a single wingman, or with an entire section.

5. BVR Engagement Timeline
    a. BFM should be avoided when feasible, especially when hostile fighters are only IR missile equipped
    b. A deliberate plan/timeline will be developed for the initiation of extensions and drag to defend tactics
    c. Baseline criteria to initiate extensions and drag to defend
        (1.) Semi Active Radar/Active Radar Homing Capable Fighter at 12NM
        (2.) IR Capable Fighter at 8 NM
    d. Pre-merge tactics should prioritize avoiding a merge and enabling BVR engagements with at least one aircraft in the flight at any given time.
    e. Aircraft will not place themselves in unnecessary risk just to avoid the merge.

6. Decision Making. Flight leads must quickly analyze their situation and determine the most advantageous course of action according to many factors while mitigating risk to the flight. Examples are not limited to:
- Mission
- Location of friendly aircraft support
- Location of friendly SAMs
- Quantity of weapons available
- Friendly to enemy fighter ratio
- Specific adversary weapons capabilities
- Range to adversary aircraft
- Altitude of the fight
- Disposition and positioning of the flight
- Situational awareness of lead and wingmen

7. <u>Suppression of Enemy Air Defenses.</u> SEAD is a task of Anti Air Warfare. It allows CSG-1 to conduct any mission in airspace defended by enemy air defense systems. Well executed SEAD applies the sufficient amount of force to suppress threats for the duration of the supported mission, whether it be a few minutes, hours or days. CSG-1 pilots conducting SEAD must be well educated on threat systems capabilities and the F/A-18C's weapons and countermeasures.

    a. <u>Preplanned SEAD.</u> Preplanned SEAD targets permanent and semi-permanent targets such as strategic surface to air missiles (SAMs), early warning (EW) and Command, Control and Communication (C3) nodes. These systems can be located more easily with enough time to conduct mission planning. Preplanned SEAD may also target moveable or mobile threat systems.

    b. <u>Reactive SEAD.</u> RSEAD suppresses or destroys "pop-up" surface-to-air threats. RSEAD targets typically include mobile antiaircraft artillery (AAA) and mobile or tactical SAMs. The enemy is likely to move these systems about the battlefield as a means of deception and to optimize the defense of critical sites and/ or areas. Reactive SEAD is further subdivided into three types: immediate, deliberate, and alert RSEAD.

    c. <u>SEAD Tactics.</u> Preplanned SEAD should contain detailed routing to a predetermined shot distance or location from the intended target. Defensive actions and routes should also be briefed when weapons employment is required within a threat Weapon Engagement Zone(WEZ).

    (1.) Sectored, simultaneous attacks contain multiple flights attacking one target area from multiple axis of advance. This allows one flight to penetrate the WEZ unhindered and attack with a smaller probability of advanced systems targeting SEAD aircraft and their airborne munitions.

    (2.) Offset employment of HARM or JSOW munitions along a single axis delivery increase probability of kill. JSOW and HARMs may be fired off axis, increasing lateral separation to prevent targeting radars from detecting each weapon. SEAD aircraft with lateral separation may execute a called 15 deg, 30 deg or 45 deg level turn away from target heading before employing.

10. Offensive Air Support:

1. Offensive Air Support (OAS) is vital to shape the battlespace by striking enemy ground forces behind their lines and those in contact with friendly forces. These actions against selected enemy targets, support systems and their capabilities assist CSG-1 in neutralizing or destroying the enemy's capability to wage war. OAS is divided into two categories, Close Air Support and Deep Air Support. The division of these two missions is related to the proximity of targets to friendly locations.

2. Close Air Support. CAS is air action against hostile targets that are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. This detailed integration is accomplished using positive control from a JTAC, FAC, or FAC(A).

3. Deep Air Support. DAS is air action against enemy targets at such a distance from friendly forces that detailed integration of each mission with fire and movement of friendly forces is not required. These missions are Air Interdiction, Armed Reconnaissance and Strike Coordination and Reconnaissance.

    a. Air Interdiction. AI missions seek to destroy the enemy's potential before it can be brought to bear on friendly forces. AI strike missions are preplanned targets such as command, control, and communication nodes, bridges, railways, factories and airbases.

    b. Armed Reconnaissance. AR missions are flown to locate and attack targets of opportunity (TOO) in assigned areas. AR differs from AI because AR target's locations are not known or briefed in advance. AR serves to provide an economy of force to cover and defend terrain not suited to other ground forces, destroy enemy forces before they threaten friendly forces, collect intelligence regarding enemy movement and degrades the enemy's movement.

    c. Strike Coordination and Reconnaissance. SCAR missions work closely with AR flights to acquire, report, and coordinate the destruction of targets. SCAR aircraft may discover enemy targets and provide a target mark or talk-on for other AR missions or catalogue target locations for future AI strikes.

4. Air to Surface Engagements Planning Considerations. The air to surface engagements section of this SOP is designed to provide information on best practices for conducting air to surface engagements. It is not directive in nature. The exact tactics, techniques, and procedures for air to surface engagements will vary from situation to situation and are ultimately the responsibility of the flight leader and the individual pilot.

In the same vein as air to air engagements, **the section (2) of aircraft is the base fighting unit of VMFA-122**. Air to surface tactics vary widely based on mission set and anticipated threats. The following is designed as guidance for decision making when determining what types of tactics to use.

    a. High IR Missile Threat: Engage surface targets with precision guided munitions (PGM) from outside the IR missile threat envelop. When it is necessary to enter the threat envelop, employ the engaged and supporting aircraft concept. The engaged aircraft should employ countermeasures while in the possible weapon engagement zone (WEZ) while the supporting aircraft observes for ground fire and missile fire.

    b. High Radar Missile Threat: When possible, employ PGMs from high altitude and stand-off from beyond the WEZ. When not possible to engage from outside the WEZ, employ low altitude ingress, egress, and terrain masking concepts

to prevent radar missile locks. Do not loiter in the target area while radar missiles are a threat. Maximize effects on target with a single pass employing all aircraft in the flight.

 c. <u>High Threat of Fighter Interception</u>: Employ low altitude ingress, egress, and terrain masking concepts to prevent radar acquisition and early warning to enemy fighter aircraft. Do not loiter in the target area while fighter interception is a threat. Maximize effects on target with a single pass employing all aircraft in the flight and depart the area.

5. <u>OAS Weaponeering.</u> Weapons to target match criteria.
 a. <u>Armor</u>: Due to the ability to move, optimum weapons include the AGM-65, GBU-12 and GBU-16.
 b. <u>Light Skinned</u> <u>Vehicles</u>: Due to the ability to move, optimum weapons include AGM-65, GBU-12/16 and 20mm.
 c. <u>Watercraft</u>: Stationary watercraft should be treated like armor or vehicles. Optimum weapons for vessels underway are AGM-65 and GBU-12/16/10.
 d. <u>Personnel</u>: Optimum weapons include cluster munitions, GBU-12, Mk-82/83/84 and 20mm. Depending on the circumstances, VT or instantaneous fuzing should be used.
 e. <u>Artillery / AAA</u>: Optimum weapons include GBU-38, GBU-12, GBU-32 and GBU-16.
 f. <u>Bunkers</u>: Bunkers should be weaponeered with hard penetrator GBU-31(V)3 or AGM-154C.
 g. <u>Facilities</u>: Weapon sizes should be relative to the structure. Weapon solutions are GBU-38, GBU-12, GBU-32 and GBU-16. While target designating buildings with the LITENING pod, pilots must aim for the ground at the center of the bottom floor to prevent the pod from pulling a target location from beyond the building.

11. Close Air Support and Forward Air Controller (Airborne)(FAC(A)) SOP:

By its very nature, the execution of CAS differs in every tactical situation. The following considerations and recommendations are meant to be a guide for VMFA-122 execution of CAS, so that both CAS aircrew and controllers have a standard, repeatable format to expect in the highly dynamic CAS environment. The execution template is a technique used to organize the flow of events from aircraft check in, through a CAS brief and attack, to when the aircraft checks out.

1. Routing / Safety of flight
2. CAS aircraft check-in
3. Situation update
4. Game plan
5. CAS brief
6. Remarks / Restrictions
7. Read backs
8. Correlation
9. Attack
10. Assess effects – Execute re-attacks or issue game plans / CAS briefs as necessary
11. BDA
12. Routing / Safety of flight

1. Routing / Safety of Flight

    a. Keyhole template. An efficient method for establishing aircraft in holding in absence of preplanned control points The controller determines the IP and holding instructions based on the location of an "ECHO POINT." Holding methods are associated with cardinal directions identified as Alpha (North), Bravo (East), Charlie (South) and Delta (West). Aircraft may be asked to hold between two points or at one point outside a set distance in Nm or overhead the Echo Point. This template allows for unlimited flexibility in IP selection and precludes the need to generate IP locations in the objective area.
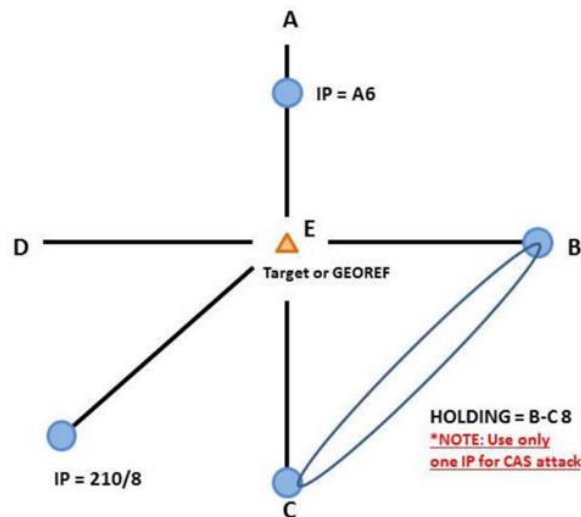
b. <u>Preplanned Initial Points Holding Method</u>. IPs are the preferred method for controlling aircraft holding patterns. IPs allow controllers to establish commonly understood IPs to all aircraft prior to flight that are conducive to the Friendly scheme of maneuver, known threats and anticipated Final Attack Headings(FAH)
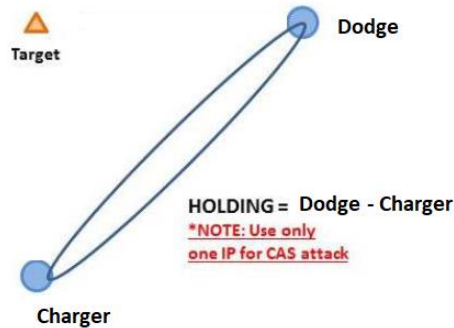
c. <u>Holding Rules of thumb.</u> Aircraft are to hold in 2k feet blocks of altitude per section during nighttime operations and as little as 1k feet of altitude per block during day time operations. Altitude selection should be chosen carefully to balance threat mitigation and aircraft employment considerations. Once established, flights should fly max conserve airspeed in holding with ATC and autopilot functions to the max extent possible. Flights may elect to deconflict themselves by altitude or laterally within their altitude blocks. Unless delegated holding legs should be no more than 8-10nm legs to maintain mutual support and simplify join ups.

Pilots will make initial aircraft check-in after entering the controller's airspace. Care must be taken not to interrupt an attack in progress with initial contact. At initial aircraft check-in, controller shall respond with, aircraft routing and holding instructions. Upon initial contact each controller shall at least give "maintain" instructions in order to establish control of aircraft:

> *CAS aircraft: "Dealer 11, this is Nikel 11, 20 miles to the south at Angels 25"*
> *FAC(A) "Nikel 11, maintain Dodge-Charger 14-15 and hold your check-in"*

Controllers shall ask for current position if not stated in initial contact.

> *"Nikel 21 say current pos and altitude"*

If using a keyhole template for holding, the JTAC must pass the center of the keyhole to the aircraft prior to passing holding instructions.

> *"Nikel 11, point echo is N 12 34 56, E 12 34 56, proceed Alpha-6, angels 15 block 16"*

Initial contact should also include other aircraft and surface to air threats.

> *Ex 1. "Nikel 31 proceed to the overhead angels 18 block 20, there is a ZSU-23-4*
> *vicinity of TRP 2, you are the only aircraft on station."*
> *Ex 2. "Nikel 31 proceed Bravo Charlie 8, angels 18 block 20, you'll have Nikel 21 below you 16 block 18 and*
> *Nikel 11 at 14 block 16.*

CAUTION
The word *"cleared"* is only used during authorization of weapons employment.
"Approved" is the preferred wording when passing Routing/Safety of Flight.

2. <u>JCAS Check-in.</u> The JCAS check-in notifies controllers all the relevant information required to effectively employ the aircraft under their control. Pilots must be prepared to give their check-in before they launch and only pass it when directed by the controller. There may be a reason to delay taking the aircraft check-in: an attack in progress, JTAC not ready
to copy, or JTAC waiting for aircraft to contact a different terminal controller prior to passing the check-in.

Ex: Controller: *"Nikel 11 send your check-in," "Nikel 11 standby for next controller" or "Nikel 11 hold your check-in, attack in progress"*

MNPOTTA – CAS aircraft should use the standard CAS check-in format. The abbreviation MNPOTTA is useful for remembering the order of this check-in.

Mission number	*"Nikel 51, Mission number SN910*
Number & type of aircraft	*2 by hornets*
Position & altitude	*holding Bravo-15, angels 14 block 16*
Ordnance	*2 by GBU-16, 1 GBU-38, 1 AGM-65E and gun each aircraft*
Time on station	*0+45 playtime remaining*
Type of sensor and capabilities	*LITENING pod each aircraft*
Abort code (if TAD net is unsecure)	*Abort code is "abort"*

3. <u>Situation Update.</u> The situation update brief will increase the pilot's situational awareness and prepare them for the tactical situation. TEFACHR is a format used to pass situation update from controller to pilots. Not every line of TEFACHR must be passed in every situation, only those lines that apply should be passed.

Threat (surface to air) - type and location
Enemy – Disposition and number
Friendly - Locations, scheme of maneuver
Artillery – Any indirect fire that may affect aircraft
Clearance Authority – Callsign of who has approval of fires
Hazards – Towers, terrain, weather etc.
Remarks & Restrictions – Controller capabilities (LASER, IR sparkle), request to call "in" with heading and intent for aircraft's tasking

"Current surface to air threat is a unlocated 2S6 in vicinity of TRP 5, Enemy situation is a light reconnaissance company on MSR Coors, break"
"Friendlies are in an armored column at phase line blue. I am in the fourth vehicle, break"
"I have brief, mark stack and control, laser designator, request in with a heading for all attacks, I plan on using you to disrupt the light armor, advise when ready for game plan"

4. Gameplan<u>.</u> Concise informative tool passed from the controller to a flight to inform all players of the flow of the following attack. TMOI is used to format the gamelplan.

- **T**ype of control – Type 1, Type 2 or Type 3
- **M**ethod of attack – Bomb On Coordinate (BOC) or Bomb On Target (BOT)
- **O**rdnance / effect requested
- **I**nterval – time between attacks of aircraft within the section

a. Type of Control
- Type 1 Control – Controller requires control of individual attacks and will visually acquire the attacking aircraft and target before approving weapons release.
- Type 2 Control – Controller requires control of individual attacks and may be unable to visually acquire the attacking aircraft or the target.
- Type 3 Control – Controller requires control of multiple attacks within a single engagement and may be unable to visually acquire the attacking aircraft or the target.

b. Method
- Bomb on Target – Requires attacking aircraft to be tally or capture the target and requires detailed correlation.
- Bomb on coordinate – Does not require attacking aircraft to be tally or capture and does not require correlation.

Correlation is the process by which the controller coordinates and confirms that the attacking aircrew has acquired the correct target. Method of attack conveys the controller's intent for the attacking aircraft; either the aircraft will be required to acquire the target (BOT) or not (BOC). Any type of control can be utilized with either method of attack and no type of control is attached to one particular method of attack.

> *"Nikel 11, type 2, Bomb On Coordinate, 1 GBU-12 from each aircraft using Dealer 11's laser, two minute interval."*

> *"Nikel 11, type 2, Bomb On Target, 1 GBU-12 from each aircraft, simultaneous release."*

5. CAS Brief. The 9-line is the standard template to receive a CAS brief for all fixed wing aircraft. It is prefaced by: *"Nikel 51 advise when ready for 9-line"*. This is to ensure the aircraft is ready to receive the brief. Methods to receive and retain the brief should be practiced and ready to avoid repeating the information and delaying ordnance employment.

Line 1   IP - known check point used for holding
Line 2   Heading - from IP to target in degrees
Line 3   Distance - from IP to target in nm
Line 4   Target elevation - Feet MSL
Line 5   Target Description – plain language
Line 6   Target Location - Lat Long, TRP, MGRS, offset from known location
Line 7   Mark – kinetic, IR sparkle, LTD or *"no mark"*
Line 8   Friendly location - distance and cardinal direction from target to nearest friendlies in hundreds of meters
Line 9   Egress – flight instructions after weapons employment

6. <u>Remarks / Restrictions.</u> Remarks and Restrictions are a separate block of information to be passed after the attack brief. Remarks are advisory items to the aircraft and restrictions are absolute requirements requested by the controller. Only those elements that are applicable should be included and include:

- Threat details – *"ZSU 23-4 400 meters north of the target"*
- Attack direction
    - General directions – passed in cardinal directions *"Make attacks East to West"*
    - Final Attack Headings (FAH) – passed in form of a degree cone *"Final Attack Heading 230-260"*
- Stay above (altitude) – *"Stay above seven thousand feet"*
- Stay away (distance) – *"Stay outside of 2 miles"*
- Time on Target (TOT) – Type 1 and 2 given at minute of the current or subsequent hour *"TOT 46," "immediate TOT"* or *"push when ready."* Under Type 3 Control, TOT is passed in a time window format to allow aircraft to run multiple attacks from one 9-Line *"TOT 45-55."* Bomb on Target attacks require thorough correlation between the controller and the attacking aircraft. This will take an unknown amount of time if no correlation has been established. Controller may pass *"Standby TOT"* or *"TOT will be passed after correlation"* until correlation is complete.

7. <u>Readbacks.</u> When asked *"go with readbacks"* the flight will pass lines 4, 6 and all restrictions. Each member of the flight must be ready to perform readbacks as required. BOT require only the lead to pass readbacks. BOC attacks require readbacks from each member of the flight. To ensure the weapon will hit the intended location, readbacks shall be given after the coordinates are entered into their aircraft and the location shall be read from their DDI.

"Nikel 31 reads back 127 feet, N 12 34 56 E 12 34 56, Final Attack Heading 080 to 110, TOT 23"
"Nikel 32 reads back 127 feet, N 12 34 56 E 12 34 56, Final Attack Heading 080 to 110, TOT 24"

8. <u>Correlation.</u> The process by which the JTAC coordinates and confirms that the attacking aircraft has acquired the correct target. Correlation is required on each and every CAS attack. Correlation is complete during a Bomb on Coordinate attack once the aircraft has read back lines 4, 6 and restrictions of the 9-line from their DDI. This is essential to ensure the desired weapons effects are achieved. During Bomb on Target correlation, JTACs should confirm that aircrew are looking at the same reference points as the JTAC by asking questions with unique and distinct answers that will indicate that correlation is on track. Once the JTAC is comfortable the aircrew have acquired the correct target, the JTAC should transmit *"The _____ is your target."* Aircrew should respond with *"tally"* or *"capture"* as appropriate

9. <u>Attack.</u> CAS aircraft should be familiar with flight patterns and weapons delivery profiles to ensure their weapons impact the target at the required TOT. Aircraft must also maintain section integrity to join prior to a simultaneous release.

a. <u>Type 1 and 2 Controls.</u> When given Type 1 and 2 Controls, aircraft will advise controller when *"IP inbound."* This advisory call notifies the controller the attacking aircraft is pushing form their holding. The controller may need to visually acquire the target and/or place themselves in position to lase the target. This also notifies other players of an impending attack. Attackers must arrive within the restrictions, call *"IN"* and receive a *"cleared Hot"* in time to

effectively release ordnance. Ensure In with the aircraft's heading is passed per the controller's request in the situation update. Controller may grant a *"…flight cleared hot"* or individual *"cleared hot"* calls.

> **CAS aircraft:** *"Nikel 31 is in 345"*
> **Controller:** *"Nikel 31 and flight cleared hot"*
> **or**
> **CAS aircraft:** *"Nikel 31 is in 345"*
> **Controller:** *"Nikel 31 cleared hot"*
> **CAS aircraft:** *"Nikel 31 is in 350"*
> **Controller:** *"Nikel 32 cleared hot"*

   b. Type 3 Controls. Attacks under Type 3 controls are time centric and begin with a *"cleared to engage"* call from the controller and may be given anytime between correlation and readbacks completion and the attack time window. The attacking aircraft respond with *"commencing engagement"* only at the onset of the attack window. Once the ground commander's intent is met or at the end of the engagement time window, attacking aircraft will announce *"engagement compete."* Attacking aircraft are free to conduct as many attacks as required to achieve the controller's intent within their TOT window. Broadcasting individual attacks on TAD is not required and "cleared hot" calls are not to be given. Calls required for coordination of a ground based laser should still be used.

> **Controller:** *"Nikel 11 Cleared to engage"*
> **CAS Aircraft (At time 45):** *"Nikel 11 commencing engagement, time 45"*
>   Once the controller's intent has been met or the end of the TOT
> **CAS aircraft:** *"Nikel 11 engagement complete, time 55"*

   c. Communication Discipline. The Tactical Air Direction (TAD) net can quickly become congested. All players on a TAD net must use "active listening" and appropriate comm. discipline and cadence. Ultimately, the TAD belongs to the controller, and they must control it. Once an aircraft calls "In" all other calls should be held until after that attack has concluded. An exception to this is that anyone can and should call an abort at any time they deem necessary.

10. Assess effects. Controllers must observe weapons effects to determine attack's effectiveness. Aircrew should be prepared to aid in gaining a Battle Damage Assessment and perform an immediate re-attack if requested. Immediate re-attacks require another "IN" call and "cleared hot." Amended attack briefs require readbacks if a new line 4 and or 6 are passed. Follow-on attacks may begin with a new gameplan and 9-line or an amended attack brief.

11. Battle Damage Assessment. A Battle Damage Assessment is vital to ground force commander's ability to track enemy capabilities during dynamic armed conflict. Controllers must ensure attacking aircraft receive accurate BDA and report assessments to higher authorities.

12. Routing and Safety of flight. Once complete controllers will give CAS aircraft safe routing out of the objective area.

13. Precision Guided Munition Employment Tactics Techniques and Procedures. Precision Guided Weapons are only as precise as the methods used to obtain their guidance.
   a. GPS guided weapons. When obtaining grids for TOO JDAM attacks, utilize higher aircraft altitudes to achieve steeper laser angles relative to terrain. More acute angles increase the weapons CEP by potentially retrieving a location beyond the target. Attempt to aim the LASER at the ground directly beneath the target.
   b. LASER Guided Bombs. Aim for center mass of the target using PTRK

14. CAS/FAC(A) TPOD considerations
   a Game Plan
      (1) When using a 3rd party contributor who is not in the attacking flight or the FAC(A), add their callsign and LASER code to the game plan.

      e.g. ***"Nikel 13 and Nikel 07, this will be Type 2, Bomb on Coordinate, 1 GBU-16 from Nikel 13, Nikel 07's LASER code 1775, advise when ready for attack brief."***

      (2) The method determines how correlation is completed.
         (a) BOC: Complete once attacking aircraft reads back lines 4 and 6 from the 9-line.
         (b) BOT: the LITENING TPOD offers multiple ways to quickly conduct correlation.
   b. Attack Brief Line 7 (mark). When using an airborne LTD or IR sparkle place the callsign and LASER code in line 7 of the attack brief.
      (1) BOT attacks
         (a) IR sparkle: ***"Nikel 11 IR sparkle"***
         (a)LASER-spot handoff to an LST: ***"Nikel 07 LASER handoff, code 1775"***
      (2) BOC attacks
         (a)When conducting a BOC attack using LGWs, the JTAC states line 7 as the callsign and LASER code of the platform / individual that will provide terminal guidance for the weapon.

        e.g. ***"Nikel 07s LASER, code 1775"***

   c. BOT Correlation
      (1) LASER Spot Handoff (LSH). Often the quickest way to cue a Laser Spot Tracker (LST)- equipped aircraft's sensors onto a target, day or night.

      Designating aircraft: ***"Fist 15 proceed inbound, call for LASER."***
      LST aircraft: ***" 10 seconds"***
      LST aircraft: ***"Nikel 11 LASER on"***
      LST aircraft: ***"spot, cease laser"***
      If LST aircraft reports ***"negative laser,"*** check switchology and laser code and reattempt LSH.
      LST aircraft: ***"Fist 15 is capture two APCs on a road"***
      Both aircraft continue correlation.

      (2) Match sparkle. Directing the aircrew to overlay their IR sparkle onto an IR sparkle that is already on the target.

      e.g. Tally aircraft: ***"Nikel 11, match sparkle"***
         Once sparkle is on target, Tally aircraft calls: ***"steady, cease sparkle"***
         LST aircraft: ***"Nikel 15 is capture multiple T-72s"***
         Both aircraft continue correlation.

      (3) Sparkle walk on. Verbally directing an aircraft's IR sparkle onto a target using cardinal directions and distance. Used only when the controlling aircraft or JTAC does not have an IR sparkle.

      e.g. Tally aircraft: ***"Nikel 11, sparkle on"***
         Tally aircraft: ***"shift north 200 meters"***

Once sparkle is on target, Tally aircraft calls: ***"steady, cease sparkle"***
LST aircraft: ***"Nikel 15 is capture personnel in the open"***
Both aircraft continue correlation.

d. <u>Attack</u>. Remote lase uses an LTD outside the attacking flight. Autonomous lasing is conducted within the flight and does not need to be the aircraft dropping the ordnance.

e.g. CAS Remote LASE
JTAC/FAC(A) correlates target with attacking aircraft
Marking aircraft: ***"Nikel 27, captured 1775, set"***
JTAC/FAC(A): Pass game plan and CAS brief
Attacking aircraft: Read back lines 4, 6, & restrictions
Attacking flight begins run-in
Attacking aircraft: ***"Fist 31, IP Inbound"***
Attacking aircraft: ***"Fist 31, In heading 090, 10 seconds"***
JTAC/FAC(A): ***"Fist 31, Cleared Hot"***
Attacking aircraft: ***"Fist 31, One away, LASER on, Time of fall 32 seconds"***
Marking aircraft: ***"Nikel 27, lasing 1775"***
Marking aircraft ***"Impact"***
Marking aircraft ***"Shift"*** or ***"Cease LASER"***

e.g. DAS autonomous lasing example
Marking aircraft correlates target with attacking aircraft
Marking aircraft(interflight): ***"Nikel 12 captured 1775, set"***
Attacking flight begins run-in
Attacking aircraft: ***"Nikel 13, In heading 090, 10 seconds"***
Attacking aircraft: ***"Nikel 13, One away, LASER on, Time of fall 32 seconds"***
Marking aircraft(interflight): ***"Nikel 12 lasing 1776"***
Marking aircraft ***"Impact"***
Marking aircraft ***"Shift"*** or ***"Cease LASER"***

15. <u>Close Air Support Planning Considerations</u>
a. Ensure weapons/target match for expected targets
b. Plan to take weapons loads to match time on station
c. Evaluate pilot and controller proficiency to determine anticipated time to conduct each attack.

e.g. 45 minutes TOS to support CAS against tanks and APCs
One section
Carry (1) AGM-65 & (2) GBU-12
Expect to get three attacks during the 45 minutes on station. One attack with (1) AGM65, two attacks with (1) GBU-12.

12. Air to Air Refueling:

1. Initial Contact. Flight leaders shall make inbound calls containing callsign, flight number, position relative to the tanker and intentions on the appropriate tanker frequency. Receivers are normally to join from below and are to maintain a minimum of 1000 ft vertical separation at night or during inclement weather until visual contact and positive identification have been made. Once the receiver(s) is visual with the tanker, receivers are clear to join and should initiate a progressive climb towards the tanker. Caution must be taken when initiating contact with a tanker outside visual range through the comm menu while other flights may be refueling.

2. Joining. The left-hand side of the tanker is allocated for joining aircraft. Receivers arrive from tanker's left side and form up in the Echelon Left position. To ensure safe operations, flight leads will direct receivers to the formation position. Receiver aircraft are to move sequentially from Echelon Left position to the astern position on command from the flight lead and each aircraft will announce their intentions over the tanker frequency.

3. Movement around the Tanker. A maximum of two receivers may be directed to move simultaneously. from the Echelon Left position to behind the hoses. Similarly, both aircraft behind the hoses may be directed to move simultaneously from this position to the Echelon Right position. Receivers are responsible for ensuring that the airspace they are moving into is clear of other aircraft. In addition, moving receivers are mutually responsible for ensuring that they do not collide with the other repositioning aircraft. The first aircraft to call the tanker must be the receiver moving to the left-hand refueling position.

3. Reforming. Once cleared from behind the hose, receivers will reform in the Echelon Right Position.

13. Approach & Recovery:

As per CSG-1 airfield procedures and CV SOP.

14. Post Flight:
All VMFA-122 flights will complete a post-flight debrief via voice or via text in discord as a secondary option. The following rules will be adhered to in post flight debriefs:
- Do not make malicious or offensive comments
- Do not be offended by comments of others (No thin skins)
- When pointing out improvements or sustains of others, use flight call sign vice name
  - i.e., "Nikel 11" vice "Terry"
- Improves should focus on personal lessons learned (from mistakes) or things others can improve on
- Sustains should focus on personal lessons learned (from successes) or things others are doing well
- The goal is to improve each other and identify weaknesses in ourselves

Appendix A: Common Usage Definitions and Brevity Words

Flight Information:

ANGELS - Altitude in thousands of feet

CHERUBS - Altitude in hundreds of feet

WEEDS - Indicates that aircraft are operating close to the surface

BENT - System indicated is inoperative

WINCHESTER - No ordnance remaining

DAKOTA – No Air to ground ordnance remaining

ARIZONA - No anti-radiation missile ordnance remaining

ROLEX [+/- minutes] - Timeline adjustment in minutes; always referenced from original preplanned mission execution time.

SADDLED - Informative call from wingman or element indicating the return to briefed formation

FEET WET/DRY - Flying over water/land

PLAYTIME - Amount of time the aircraft can remain on station

JOKER – Fuel state above BINGO at which point separation/bug out should begin. 10 mins prior to BINGO

BINGO - Fuel state only enough for immediate RTB

General Communication:

ZIPLIP - Limit transmissions to critical information only.

FRIENDLY - A positively identified friendly aircraft, ship or ground position

VISUAL - Sighting of friendly aircraft or ground position, Opposite of BLIND

BLIND - No visual contact with friendly aircraft/ground position, opposite of VISUAL

BOGEY - A radar or visual air contact whose identity is unknown

BANDIT - An aircraft identified as enemy

HOSTILE – A radar or visual contact identified as enemy and is authorized to be engaged

TALLY - Sighting of target, bandit or enemy position, Opposite of NO JOY

NO JOY - Pilot does not have visual contact with target/landmark, opposite of TALLY

CONTACT – 1. Individual radar return
           2. Acknowledges sighting of a specified reference point

TUMBLEWEED - Indicates limited SA, NO JOY and BLIND

NO FACTOR - Not a threat

ROGER - Radio transmission received; does not indicate compliance or reaction.

CONS/CONNING - Threat/bogey aircraft leaving contrails

MARKING - Friendly aircraft is leaving contrails

BULLSEYE - An established reference point from which the position of an object can be referenced

HOME PLATE - Home airfield or carrier

YARDSTICK - Use A/A tactical air navigation (TACAN) for ranging

Directives:
PUSH (channel) - Directive to switch to designated frequency; no acknowledgment required

ANCHOR - Orbit at specific point

BREAK (direction) - Directive to perform an immediate maximum performance turn

BRACKET (direction) - Directive to maneuver to opposing sides from the targets

EXTEND - Short-term maneuver to gain energy or separation with the intent of re-engaging

BUGOUT (with direction) - Separation from that particular operation, no intent to re-engage/return

COVER - Directive/informative; Assume a supporting position in the engagement

SHACKLE - One weave; a single crossing of flight paths; maneuver to adjust or regain formation parameters.

BUSTER - Fly at maximum continuous speed (mil power)

GATE - Directive/informative call to fly as quickly as possible, using after-burner/max power

FENCE IN/OUT - Set cockpit switches as appropriate prior to entering/exiting the combat area

KNOCK IT OFF - Directive call to cease all training maneuvers for that flight

TERMINATE – Directive call to cease current training maneuver

Radar Warning Receiver (RWR):
Naked - No RWR indications.

NAILS (direction) - Indication of hostile A2A radar search warning on RWR

SPIKE (type/direction) - indication of an air to air AI threat in track on RWR

DIRT - Radar warning receiver indication of surface threat in search mode.

MUD (type/direction) - Indicates a ground radar search warning on RWR

SINGER (type/direction) – Informative call of a SAM launch indication an RWR

Radar:
GIMBAL - Radar target is approaching azimuth or elevation tracking limits

RAYGUN (altitude) - Called when locking unknown target. Expect BUDDY SPIKE if friendly

BUDDY SPIKE (type of a/c and altitude) - Friendly aircraft lock-on warning on RWR

BUDDY LOCK - Locked to a known friendly aircraft. Normal response to a BUDDY SPIKE call

FADED - Radar contact is (temporally) lost

GORILLA - A large force of indeterminable numbers and formations

CONTACT - 1. Sensor contact at the stated position
                    2. Acknowledges sighting of a specified reference point

SORT – targeting assignment of responsibility within an enemy air group

Air to Air Engagement:
FOX ONE - Simulated or actual launch of a SARH missile

FOX TWO - Simulated or actual launch of an IR missile

FOX THREE - Simulated or actual launch of an ARH missile

MADDOG - Unsupported (without lock) release of an a2a missile

TRASHED - Informative call that missile has been defeated

PRESS - Directive call to continue the attack, mutual support will be maintained

COMMIT - Directive call to intercept a group of interest

NOTCH (direction) - Defensive maneuver to place the threat radar/missile near the beam (3/9 line)

CRANK (direction) - Directive/informative; maneuver in a direction to put airborne target on radar gimbals

DEFENSIVE/DEFENDING - Speaker is; under attack, maneuvering defensively, unable to ensure mutual support

ENGAGE - Directive to attack a specified target

ENGAGED - Informative that the flight/aircraft is maneuvering to kill a target

MERGE - Informative call that friendlies and targets have arrived in the same visual

PADLOCK - Indicating the pilot cannot take eyes off the target without risk of losing tally/visual

POP-UP - Informative of aircraft/unit detected within engagement range during engagement

SHOOTER - Aircraft designated to employ ordnance (opposed to COVER)

PUMP - A briefed maneuver to minimize closure on the threat with the intent to reengage

BANZAI - Execute launch and decide tactics, the intent to maneuver into the visual arena.

Air to Ground Engagement:
DEFENDING (direction) - Speaker is maneuvering defensively from a surface-to-air missile

BEAM (directions) - Target aspect is within 70 to 110 degrees

JINK – Directive call to perform an unpredictable maneuver to negate a weapon's tracking solution

CLEARED HOT - Ordnance release is authorized under Type 1 or 2 control

CLEARED TO ENGAGE – Ordnance release is authorized under Type 3 control

CONTINUE - Continue present maneuver, does not imply a clearance to engage or expend ordnance

IN(DIRECTION) - 1. Turning to engage a known threat
   2. Entering the terminal phase of the delivery and intends to release ordnance.

IN DRY - Aircraft is entering the terminal phase of the delivery but does not intend to release ordnance (i.e.-simulated ordnance)

CONTINUE DRY - Continue present maneuver, a clearance to engage or expend ordnance will not be granted

AWAY - Aircraft has completed the ordnance delivery and is indicating the number of munitions released.

ABORT - Directive to cease action, attack, event or mission

BRUISER - Friendly air-launched anti-ship missile (ASM) HARPOON

MAGNUM – Employment of friendly anti-radiation missile (ARM) HARM

PIG – Employment of friendly JSOW

RIFLE – Employment of friendly MAVERICK

Close Air Support
Correlation - The process by which the JTAC coordinates and confirms that the attacking aircraft and/or a 3rd party contributor have acquired the correct target or mark

Bomb on Target - Type of Method passed within the game plan. Attacking aircraft is required to be tally or capture the target prior to attack

Bomb on Coordinate - Type of Method passed within the game plan. Attacking aircraft is required to be tally or capture the target prior to attack

LITENING Pod:
STARE(with code) - Directive call to engage an LST(LSS Mode)

CAPTURE - Point of interest or target is within the crosshairs of the aircrews TPOD

SET - Aircraft is no longer slewing sensor, ready to employ ordnance and awaiting further updates.

10 SECONDS - Standby for LASER ON call in approximately 10 seconds.

LASER ON or LASING - Directive (or descriptive) call regarding the employment of a laser designator

SPOT – Informative call that an aircraft's weapon has acquired a laser designator

SPARKLE ON – Directive call to employ Infrared(IR) pointer

MATCH SPARKLE – Overlay IR sparkle with another IR sparkle for correlation

STEADY - Directive call to stop moving IR sparkle

CEASE - Directive call to discontinue use of IR sparkle or laser designator

DEADEYE – Laser designator is inoperable

Appendix B: Acronyms

AAA – Anti Aircraft Artillery

AAW – Anti-Air Warfare

ACM – Air Combat Maneuvering

AI – Air Interdiction

AGM – Air to Ground Missile

AR – Armed Reconnaissance

BFM – Basic Fighter Maneuvers

BOC – Bomb on Coordinate

BOT – Bomb on Target

BVR – Beyond Visual Range

C2 – Command and Control

C3 – Command and Control and Communication

CAS – Close Air Support

CEP – Circular Error Probable

DAS – Deep Air Support

FENCE – Firepower Emissions Navigation Communication Electronic Countermeasures

EW – Electronic Warfare

GBU – Guided Bomb

GCI – Ground Control Intercept

HARM - High-speed Anti-radiation Missile

HUD – Heads Up Display

IP – Initial Point

IR - Infrared

JSOW - Joint Standoff Weapon

KIO – Knock It OFF

LGB- Laser Guided Bomb

LGW – Laser Guided Weapon

LSH – Laser Spot Handoff

LST – Laser Spot Tracker

LTD – Laser Target Designator

NAVAIDS – Navigational Aids

PGM – Precision Guided Munition

RSEAD – Reactive Suppression of Enemy Air Defenses

SCAR – Strike Coordination and Reconnaissance

SEAD - Suppression of Enemy Air Defenses

SOP – Standard Operating Procedures

TACAN - Tactical Air Navigation system

TAD – Tactical Air Direction

TOO – Target of Opportunity

TOT – Time on Target

TPOD – Targeting Pod

TTP - Tactics Techniques and Procedures

WVR – Within Visual Range