



VT-6

Formation Supplement (FORMSUP)

JUNE 2022



I. BEFORE YOU BEGIN- Keys to success

Students are assigned formation partners by operations. Once assigned, the two are expected to get together and begin preparing for the flights as a team. Most important in this preparation is chair-flying the full event to include the brief, particularly all verbal and non-verbal communications. It is very obvious to instructors when students do not properly prepare for F4101.

Prior to F4101, all formation students SHALL read the Primary Formation FTI in its entirety, VT-6 FORMSUP, the expanded VT-6 NATOPS Briefing Guide and watch the example formation brief video posted on Shooters University: VT-6 Quick Links>Shooters University>Formation>Formation Brief Video.

To the max extent practicable, students shall make every attempt prior to their F4101, to observe a Form brief (ideally a F4101) with their Form partner (Operations **WILL NOT** schedule this for you). In order to be successful in the formation stage of training, both students must work as a team and ensure an equal knowledge and understanding level of all objectives.

II. BASIC FORMATION PRINCIPLES

Context:

Welcome to your first tactical phase of training. In military aviation, we fight in formation. Multiple aircraft arranged in a coherent formation or division can bring concentrated power to bear against an enemy, in a shorter time, with a higher degree of mutual support and accuracy than a series of single aircraft ever could. In formation training, the lion's share of information we give you at CNATRA comes from the fleet.

Formation flight, general: The foundation for form flying is a continuous scan of known visual check points combined with relaxed but constant control inputs and corrections.

Relaxed inputs: Any amount of muscle tension in your body does not help flying in formation. The flight control inputs you are making in a parade formation are even more fine than during instrument approaches. As such, you should attempt to be as relaxed as possible—use your fingers and toes to manipulate the controls as much as possible. Some techniques for over-controlling is to “wiggle your toes” or fly with “your fingertips.”

Constant inputs: After the concept of relaxed inputs is grasped, attempt to understand the idea of “high frequency, low amplitude” inputs. As an SNA, ride along on the controls with the IP flying a good parade position. You will notice two things: 1) the control inputs are CONSTANT and small. TQ will change by 1-5% all the time, and the stick will seem to oscillate in the IP's hands. 2) the control changes are threefold in nature. One movement to AFFECT A CHANGE in what your aircraft is doing in relation to the other (relative motion). One movement to STOP that change. One more movement to MAINTAIN the new position. This is happening in three dimensions the entire time in while in formation.

The Scan: Good formation flying is done with a quick moving, non-committal scan pattern. The best ways to establish this scan are: 1) know what you're looking for (know the check points) and move your eyes between those points (think of “hub and spoke”) 2) establish the proper ABC's in order of relevance 3) move your scan - do not commit to any specific check point or sight picture as the points are always changing. Note that good formation flying is NOT POSSIBLE if you are too far away. At a long distance, a wingman will not pick up subtle cues to lead's change in performance. Thus the concept “Small distance mean Small inputs” versus “large distance equal

large inputs.” A good formation scan is similar to a good IFR scan pattern; the scan moves and constantly addresses each element of flight BEFORE they become a problem (you get too far away, too sucked, stepped up, etc).

III. EVENT BRIEF PREPARATION

Briefing:

1. The first formation brief may be scheduled for extra time and will cover every aspect of the flight from the walk to aircraft to engine shut down.
2. Students shall arrive at each brief after F4101 with their **most recent ATF printed out if unable to be displayed on the monitor.** Each student will also have one kneeboard card **per sortie** for each IP completely filled out with tactical frequencies and with nothing written in the note-taking area/profile.
3. Students SHALL bring two airplane models to every brief and debrief. (Found at the FDO desk, upon which where they will be returned after the brief).
4. Each student SHALL conduct approximately half of the brief. This can be accomplished by splitting it down the middle, or in to smaller portions. Each student is responsible for knowing the entirety of the briefing material.

TAC Freqs:

Ensure TAC frequencies are signed out on the FDO board with current date and are properly de-conflicted with other formation flights. If unsure, check with FDO! The primary and alternate TAC frequencies will be **read directly from the kneeboard card** (not the briefing whiteboard) and verified by each member during the brief to ensure all aircrew walk to their aircraft on the same page.

Once checked in on assigned tactical frequency, neither aircraft shall switch off that frequency at any time or for any reason unless specifically directed by the Formation Leader.

IV. CONDUCT OF FLIGHT

Ground Procedures:

Formation aircrew will check parking spots in maintenance and develop a taxi plan—students will develop the taxi plan and IPs will verify or adjust as needed. Preflight and Cockpit checklists will be conducted individually. Each aircraft will set their VHF tactical frequency once turning on the battery. Flights will coordinate the closing of canopies and engine start visually by placing their hand on canopy when ready. If unable to see each other, canopies will be coordinated via the VHF tactical frequency. “Tac CS, Ready Canopy”

Radio switches/pushes/check-ins/etc., should never be conducted over ATC/Area Common/CTAF/etc., in an effort to limit communications on saturated frequencies. Lead will conduct an initial radio check-in with Wing on the briefed tactical frequency on the ground and remain up that frequency at all times unless directed otherwise by Lead. If at any time you are in doubt of the correct frequency use plain and concise language on the tactical frequency to “get well.” There are three methods you will use during your training to conduct radio changes: (1) pre-briefed Auto-Switches, (2) ATC directed radio changes, and (3) Lead directed radio changes using the pre-briefed tactical frequency.

Per the FWOP Chapter 16, the Formation communication sequence will organize abbreviations as follows:

- (1) Flight TAC C/S: Flight tactical callsign (i.e. ANGRY)
- (2) TAC C/S: Individual aircraft tactical callsign (i.e. ANGRY 1-1 or 1-2)
- (3) SQD C/S: Squadron Callsign (i.e. Red Knight, Blackbird, Shooter)
- (4) XXX: aircraft side number

For the sake of making the following radio calls easier to understand, an example of the radio calls in place of the abbreviations used in the FWOP, “1-2” will refer to the Wing position in these examples.

NOTE:

Important to note, the designated Flight Lead (or Section Leader as identified by the signed VT-6 flight schedule) will retain the callsign of “(TAC C/S) 1-1” regardless of whether they are flying Lead or Wing

position and will not change throughout the flight. The flight ATC callsign will be that of the Flight/Section Leader's side number regardless of that aircraft's position in the formation. The flight will match the ATC callsign in each aircraft's FMS Flight number (ADSB out callsign). VT-6 shall comply with all communications as directed by the FTI and FWOP.

At times, circumstances may be such that they dictate non-standard communications, profiles or airfields (weekend ops, O/I to atypical airfields, weather, etc.). During those times it may be appropriate and/or necessary to deviate from FWOP calls for a portion of the flight. When this is the case, those radio calls shall be covered to the max extent practical in the brief by the Designated Flight Lead. In the following radio examples, Lead shall reply with "(TAC C/S) 1-1" or "(TAC C/S) 1-2" as appropriate, based on whether they are the designated Flight Leader or not.

Radio coordination:

Lead (VHF): "Angry, Ready Canopy"

Wing: "Angry 1-2 (or 1-1 as appropriate)" or "standby (X) mikes, troubleshooting etc".

(If Wing is not ready he will advise Lead when ready)

Lead: "Angry, Close Canopy"

Wing: "Angry 1-2"

Both aircrew will close their respective canopies and begin engine start checklist. This coordination is used for timing as well as fuel conservation between aircraft.

Both aircrew will complete the before taxi checklist individually, setting clearance delivery in UHF without making the clearance call. Upon checklist completion, lead will conduct a check in on VHF Tac prior to making clearance and ground calls:

Lead: "Angry, Check Victor"

Wing: "(Angry 1-2), with (ATIS Code)" or "2, standby (X) mikes"

If Wing is not ready he will advise Lead when ready.

Taxi: If lead taxis on the taxi line, they want their wingman to taxi in trail. If lead taxis off the taxi line, they want their wingman to balance the flight and stagger taxi. Sections should trail taxi to the run-up, stagger taxi from the run-up to the runway with lead taking downwind side. Lead may change sides as needed without radio coordination. Return taxi from the runway to the parking line will be the reverse of this unless briefed otherwise from the Section Leader.

Integrity checks will be conducted in the run-up following individual Overspeed Governor and Before Takeoff Checklists. Per the FTI, thumbs up will be initiated by Wing once integrity checks are complete and returned by Lead. Lead will switch to base make the base call and ground "further taxi" call. A second thumbs up is not required by Wing or Lead, because Wing never switched off frequencies and remained up Ground the entire time. As such for standardization, this secondary thumbs up was removed in the new FTI, FWOP and FormSup.

Hand Signals:

1. Instructors shall mirror hand signals on F4101 ONLY. After the F4101, Instructors shall no longer mirror hand signals. This will help reinforce good habit patterns by the students and ensure they are looking at their Form Partner in the front cockpit and not the IP during the sequence.

2. Students shall verbalize the hand signal sequence over the ICS to their instructor:

"Wingman in position, area clear. Cross under signal, ready now" (hold signal for 3 seconds) "Ready look"

"Signal acknowledged".

This will minimize confusion in the cockpit concerning when a particular signal was passed.

Take Off/Departure:

Lead will leave power at max until clearing the pattern at 700-800', then set 80% and climb at 160KIAS until Wing joins up. If Lead reaches level-off altitude prior to Wing reaching parade position, Lead will leave the power at 80%, level off, and accelerate to 200KIAS until Wing is joined. If a turn is required prior to Wing joining in the parade position, no more than 30 degrees AOB unless directed otherwise. Wing will maintain no more than 40KIAS of closure until joined. While in transit to the working area, Lead should conduct **CTAC** (Wing to **Cruise** position, **Terminate** Advisories, **Area** Coordination, and **Checklists** [Operations and Pre-stalling, spinning and aerobatic]).

Ops Checks:

Students should strive to complete the operations and the pre-stalling, spinning, and aerobatics checklists prior to the initial Ops Check. The initial Ops Check should be conducted one half block prior to your working area. When Lead directs the Ops Check, both students should be ready to pass their fuel state, then G's beginning with Wing first: "Angry 1-2, XXX (fuel rounded down to the nearest tenth), Good G's." The final Ops Check should be conducted after the final lead change prior to departing the working area for Course Rules or other destination. The tactical lead should make every effort to conduct Ops checks while wing is in the cruise position.

Joker/Bingo:

The flight should depart with the briefed Joker fuel set into the EICAS. The joker is re-determined at the Initial Ops Check by taking the lowest fuel state (rounded down to nearest tenth), adding the briefed Bingo, and dividing by two. This new joker will allow each aircraft equal fuel in the wing position for maneuvers. After the first lead change, Lead should direct the flight to reset Bingo to pre-briefed Bingo fuel. When planning, bingo fuel must be determined taking flight profile, destination, and weather in to account. **It will not always be 400lbs.** Bingo should offer the flight the opportunity to meet CNAF and CNATRA fuel requirements. On the final Ops Check Lead should direct the flight to reset to "Divert Fuel", which is a fuel state to allow the flight to divert to an alternate airfield should the need arise.

Your F4104-4105 is typically done as an O/I when possible. In these circumstances, your Bingo fuel will need to be significantly higher than 400lbs in order to allow time to complete your PEL, PEL/P, and landing pattern. Typically it will be done on the F4104 after the basic form training is complete. Come with a Joker that makes sense for your profile and be able to explain how you calculated it. If your F4104/F4105 flights are done as single events, be prepared to conduct PELs, PEL/Ps and landing pattern on either or perhaps both flights. In these circumstances, typical fields utilized for this are 12J, KMVC, or 1R8. This will require two Jokers, one Bingo, and Divert fuels (the second Joker is for the transition to landing pattern and is a Joker not a Bingo because it is not your planned destination). If the flight profile plan includes landing pattern work at the destination airport (KMVC or 79J as an example), you will utilize a joker to initiate a lead change and then a bingo to proceed to the destination airport with additional fuel for the landing pattern at your destination airport as well as sufficient fuel to proceed to the divert air field as needed.

B&Rs:

1. A common technique for the breakup (as well as the Break at your final destination) is for Wing to wait approximately 3 seconds. The 3 second count is meant to allow lead to get to the 3/9 line. However, be careful with techniques and ensure you understand and comply with what the FTI says. For the breakup, Wing will break "As Lead approaches the 3/9 line abeam the leading edge of the wing." The 3/9 line will allow for sufficient separation provided each aircraft pull approximately 3-4Gs in the breakup maneuver.
2. It is important to note that the "ABC's" still apply in the rendezvous phase. Altitude control is most important and is accomplished by keeping lead on the horizon. Poor altitude control will result in poor airspeed control due to a fixed power setting and will likely result in a lack of, or an excessive closure.
3. Instructors should setup an underrun by taking the controls (IP's SHALL NOT SPLIT CONTROL STICK AND PCL BETWEEN IP/STUDENT) of the Lead aircraft and slowing the plane to 180kts after the wing flash. Once the underrun has occurred, as called by Dash 2, Lead will set power for 200kts. Lead will acknowledge the underrun call with his TAC callsign (i.e. "Angry 1-1"). Control inputs never constitute a control change and are often required by IPs during formation flying to preclude a bad situation. Whether it is the IP taking ALL of the controls to initiate an underrun for example, or if the Wing IP has to adjust the PCL if "hung up" or "stagnated" at 200kts, controls shall be not be formally split between Instructor and Student.
4. The concept of a B&R is to safely rendezvous two similarly performing aircraft (200KTS) using radius of turn principles. Power differential is not the means of rendezvous in a B&R! Therefore, students should NOT utilize power – unless directed by the IP – to manipulate closure.

Lead Changes:

1. The standard lead change can be conducted with Lead on the Left or the right and Wing utilizing the hand signals per the FTI.
2. **The instructor in the aircraft that is taking the lead, shall monitor the student in the new Wing aircraft and inform his/her instructor via TAC if they look forward after passing the lead.**
3. Use the radio for admin lead changes or to expedite lead changes due to airspace management. The admin lead change is used by the instructors to expedite the lead change for training or as the situation dictates.

“Angry 1-2, request the Lead on the left/right”

“Angry 1-2 has the lead on the left/right”.

4. When the lead change is conducted with Lead on the right, the SNA/IUT will ensure the aircraft is properly trimmed first, then hold the control stick with the left hand and use the right hand to pass the hand and arm signal. After passing the signal, they will take positive control of the control stick with their right hand and move their left hand back to the PCL. From there, lateral separation may be initiated. Due to SOF potential, at no time shall the SNA/IUT attempt any portion of the lead change maneuver with only their left hand on the control stick.

Admin lead changes shall only be conducted by instructors.

Course Rules:

While still in the working area, Lead should conduct **CCAS** (Wing to **Cruise** position, **Checklists** [Operations and Descent checklists], get **ATIS**, increase **Speed** to 240KIAS). Lead will typically direct wing to get ATIS and report back up so they can maintain SA on the common working frequency. Only pertinent ATIS information should be passed to the other aircraft. The ATIS code, winds, altimeter setting, and runway in use is the minimum information required and can be remembered using the **IWAR** acronym (**I**nformation (**C**harlie, etc) **W**inds, **A**ltimeter setting, and **R**unway). Following CCAS, Lead will clear the working block and transition to course rules. Flights shall remain on CH 12 until on course to Jay in accordance with the FWOP. Flights shall cross Easy or Waldo on course rules altitude, then slow from 240kts to 200kts, then descend also in accordance with the FWOP. The deceleration from 240 to 200KIAS will need to be conducted slowly and smoothly by lead in order to allow wing to remain in a safe parade position.

Break:

1. The flight should consider requesting south field penetration at the VFR entry point if landing on runway 14 or 23. Break in accordance with the FWOP at the upwind numbers or as directed by tower.
2. Wing will execute his break no earlier than Lead passing his 3/9 line (approximately 3 seconds) for the standard break. Wing should hold lead's aircraft on the horizon during the break and use lag pursuit as required to ensure proper pattern separation (a minimum of 1500ft nose to tail separation is required). Wing must also ensure that he rolls out of his break behind or outside of Lead's downwind. Being inside of Lead's downwind may result in an unintended reduction of separation at the 180. Lead should use idle to 10% and no speedbrake, Wing should use idle and speedbrake as required with both aircraft setting landing flaps and descending from break altitude in accordance with the FWOP.
3. After landing and below 80kts Wing is required to call “good brakes”. This call signifies that wing has the braking capability to follow lead off the runway at any taxiway lead sees fit. Do not make this call without the ability to follow lead! Lead may use brakes as required but will roll out to the end unless wing gives a “good brakes” call prior, then lead may exit the runway early IAW the FWOP.
4. Both aircraft will remain on runway centerline during rollout and not “offset” to one side of the runway unless a greater safety of flight conflict arises.

Cruise Maneuvering/Tail Chase:

Generally, cruise maneuvering and tail chase will not be introduced until F4301. However, at the Section Leader's discretion, IPs may introduce/demonstrate Cruise Maneuvering and/or Tail Chase provided both IPs are qualified and it does not detract from additional Basic Formation training if required.

1. Cruise Maneuvering is set up by lead passing the cruise signal and wing acknowledging. Both aircraft then set the appropriate torque per the FTI. Once wing is ready to commence the exercise he will state over TAC: “Angry 1-2 ready”. Lead will then maneuver in accordance with the FTI, avoiding straight and level for any extended periods of time.
2. Tail Chase is initiated by the hand signal and both aircraft setting max. At 220, lead kisses off wing and conducts a Gx. Wing follows as lead passes 3/9 line and ends up 800-1000ft in trail. Again, wing will call over TAC: “Angry 1-2 ready” and lead will commence maneuvering in accordance with the FTI, avoiding extended time spent straight and level.

V. EMERGENCY PROCEDURES

Concepts:

While “bleeder is the leader” is a simple concept to handle formation emergencies, it may not be best in all scenarios. In general, an aircraft in formation experiencing a mechanical malfunction may require reduced speeds, PEL, or forced landing- the bleeder is the slowest aircraft and with an emergency, has priority. A lost comm or avionics degraded aircraft may not be the best choice to assume the lead as it cannot navigate, respond to ATC, or clear traffic for the flight- situational awareness is degraded. Clearly, the choice to offer or assume the lead with an emergency is situation and airspace dependent.

Lost Comm Procedures:

The lost comm aircraft will get the other aircraft’s attention and pass the “can’t talk” or “can’t hear” hand signals. These signals are accomplished by patting the oxygen mask or the ear of the helmet followed by a “thumbs down” hand signal. For the purposes of the basic forms profile, four general scenarios exist for the loss of communications: departure, established in the working area, course rules outside the VFR reporting point, and inside the VFR reporting point. These scenarios are provided for a more comprehensive understanding and not necessarily required to be briefed on every single Natops brief. For briefing purposes stick to what is covered in the FTI. IPs shall be at the controls if NORDO and can conduct lead changes on either side. If the NORDO aircraft shakes off the lead, the good aircraft shall lead the formation back to base or fuel based recovery location. This does not preclude the NORDO aircraft from troubleshooting while in cruise.

1. Should NORDO occur during departure, the NORDO aircraft should stay as wing or conduct lead change (if lead) as he cannot talk to ATC or coordinate a working area. The good comms aircraft may elect to coordinate for immediate RTB or intercept course rules. If the formation is in cruise and the lead aircraft goes NORDO, they may porpoise the aircraft to clear them aboard to pass the visual signal.

2. Established in a working area (pelican or fox): The FTI says the lost comm aircraft should be offered the lead. If lead is accepted by NORDO aircraft they should briefly troubleshoot checking basics (e.g. freqs, cords, switches, etc.) and return lead to good aircraft. The lost comm aircraft maintains the option to shake off the lead and troubleshoot from the Wing position during RTB.

3. Outside VFR reporting point: The good comm aircraft will lead the flight back to KNSE via normal course rules for the break. The good aircraft will coordinate with tower for landing clearance for the flight and kiss the NORDO aircraft off at the break, if the good aircraft executes a touch and go (wheels touch down) that is the NORDO aircraft’s clearance to land. If the good comm aircraft does not land (remains in the pattern or executes a wave off), the NORDO aircraft will also execute a waveoff. The good aircraft should stay airborne until the NORDO aircraft has made a full stop landing, and land behind the NORDO aircraft. In the case of SNA solo flights, the IP form chase should stay airborne until all solo aircraft are safe on deck.

4. Inside VFR reporting point:

a. If Lead goes NORDO inside the VFR entry point (Easy or Waldo) the FTI prohibits lead changes. Lead will pass the lost comm hand signals to Wing, and Wing will assume all calls informing tower of the lost comm situation to clear all traffic and request ALDIS Lamp Signals. The flight will break with interval per local SOP and lead will land with clearance from ALDIS signals. In the event of no ALDIS signals received from tower, lead will visually clear the runway (and look for wave off lights from the RDO cart) and land with caution, or conduct a waveoff and re-enter the pattern with interval. If safety of flight precludes breaking with interval, Lead retains the prerogative to execute a discontinued entry as a formation, conduct a lead change once outside tower’s airspace, and return with the good comm aircraft in Lead for the break.

b. If Wing goes lost comm inside the VFR reporting point, they will make an attempt to pass lost comm signals to lead if able. Wing may come acute to get the attention of lead to pass the signal. Wing will break and land with lead exercising caution. If lead does not land or conducts a waveoff, wing will also conduct a waveoff.

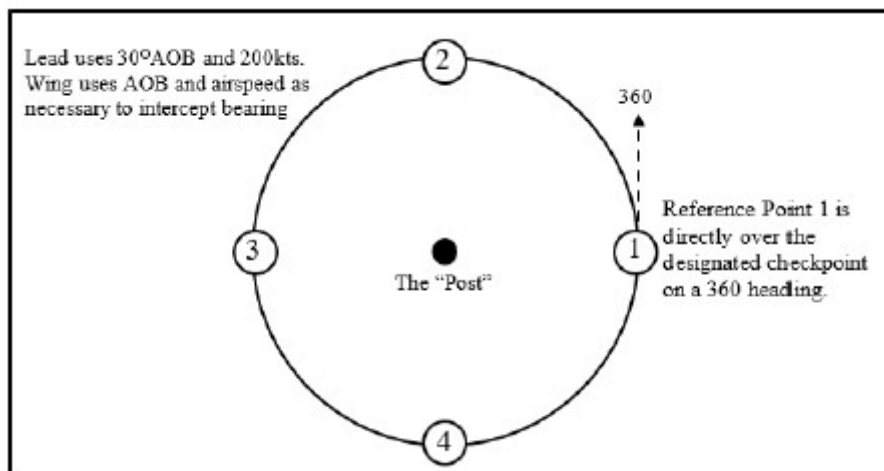
5. IFR or likely to encounter IMC conditions – The flight will make every effort to maintain VMC and land at a suitable airfield remaining VMC. Based on the emergency condition of Wing’s aircraft, he may elect to separate the flight and conduct an individual lost Comm approach while squawking 7600. If a section approach is required, the good comm aircraft will select a prebriefed airfield with the most favorable approach/weather conditions. The lost comm aircraft should plan to execute the best (lowest mins) approach available to the duty runway as wing (note: the requirement exists for 1000/3 or circling minima to conduct a section approach). Lead should avoid configuring the flight while in IMC conditions if able. Upon the flight breaking out of IMC on final, the lead aircraft should coordinate for a low approach by Lead, and a full stop by his wingman. Lead will utilize appropriate hand and arm signals to provide wing with landing clearance. Upon kissing wing off, lead should position himself at wing’s 10 or 2 O’clock position. If Wing executes a wave off, he should rejoin on Lead while matching leads configuration. Once

wing is safely on deck, lead can then coordinate with tower and turn downwind for a normal full stop or execute a missed approach as required.

Blind:

In the event wing goes blind, he will transmit over TAC: “Angry 1-2, Blind, (altitude)”. Lead will attempt to talk wing on to his position using the clock method. If wing is unable to visually acquire lead and both aircraft are blind, Lead will transmit altitude and be directive to ensure a minimum of 500’ of separation exists without crossing altitudes “I.E. Angry 1-2 blind, 4400 feet...Angry 1-1 blind, 4500 feet. Angry 1-1 is climbing to 4,700 feet, 1-2 descend 4,200 feet”. If lead is at a lower altitude than Wing, lead shall remain the low aircraft until rejoining. Lead will direct a rejoin at the pre-briefed or directed location if required, and the join-up will be conducted low to high once both aircraft are visual.

Once at the rendezvous point, the higher aircraft will establish his aircraft in a left hand turn, 30 AOB, and 200 kts. This point may be a ground checkpoint, TSD line or intersection, or a radial DME fix. Reference Point 1 is directly over the designated checkpoint on a 360 heading with sequential positions located at 90-degree intervals around the circle. Once visual, the lower aircraft, either Lead or Wing may proceed to the center of the circle known as the “Post” which serves as a control zone from which lower aircraft should be able to expeditiously maneuver and begin the lead/lag procedure for rendezvous, similar to that found on the B&R. After the lower aircraft has established themselves on approximate bearing to the higher aircraft, they shall come up on altitude then conduct the rendezvous in the same fashion as the FTI B&R join.



Lost Sight:

Lost sight can only happen under IMC. Lost sight can also only happen to wing, as lead is executing an instrument scan. Therefore, the procedures listed below all BEGIN WITH WING. Lost sight is an emergency procedure and must be understood and briefed thoroughly by all aircrew. When briefing the lost sight procedures, the first steps for wing are always:

1. Transition to an instrument scan to maintain aircraft control and determine altitude.
2. Call, “Angry 1-2, lost sight, ALT”
3. Smoothly reduce power by approximately 10%

These steps should be executed nearly simultaneously.

Because wing has only focused on lead and maintaining the parade checkpoints while in IMC, wing may not know if they are in a turn, climb, or descent until they have established their instrument scan. For this reason, **a smooth power reduction by approximately 10% once lost sight conditions are recognized is essential to reduce the likelihood of a midair collision.** The remainder of the lost sight procedure is in Chapter 6 of the FTI.

It is important to note that lead may not be aware of which side wing is on, as they are configuring for an instrument approach or otherwise executing an instrument scan. In the case of turns into, in IMC conditions, it is highly advised that during wing’s initial radio transmission, they include a command to establish separation. For example, “Angry

1-2 is lost sight, 7000 feet, lead roll out” This immediate and momentary assertiveness by wing provides the opportunity to establish swift separation by a radio call, vice relying on the SA of lead to know what to do.

VI. EVENT SPECIFICS

Standard F4101-F4103 Sequence (JPPT 166B/C):

1. Interval take off and running rendezvous
2. Parade to working area (May fly Cruise starting with 4102)
3. Parade position
4. Parade turns (4)
5. Crossunder
6. Parade turns (4)
7. Crossunder
8. B&Rs- Minimum (3 - minimum 2 full set ups)
9. Lead Change
10. Repeat 3-9
11. Cruise Form & Tail Chase (As Req)
12. CR home to NSE / VFR to O/I destination
13. Interval Break at NSE / VFR entry to O/I destination

Standard F4104-F4105 (JPPT 166B/C) sequence:

1. Interval T/O
2. Cruise to working area (Unless Parade is required)
3. Parade turns VMC(2) 30/30
4. Crossunder
5. Parade turns IMC(2) 30/30
6. Crossunder (only if needed to remediate)
7. B&Rs (2 minimum with 1 Under Run and join from the Under Run position)
8. Lead Change
9. Repeat 3-8
10. Cruise Form & Tail Chase (As Req)
11. VFR to OLF for an ELP entry (IP Brief Kiss Off/Detach/TCAS & Transponder)
12. 4 T&Gs (min)
13. IP Rendezvous (IP Brief rejoin plan)
14. CR home to NSE or VFR to approved field.

F4201 (JPPT 166B/C)(verify solo time required)

Recommended F4201 sequence:

1. Interval T/O
2. Cruise to working area
3. Parade turns (2)
4. Crossunder
5. Parade turns (2)
6. B&Rs (1) full maneuver / no “back inside” resets or forced underruns.
7. Lead Change
8. Repeat 3-7
9. CR home to NSE
10. 3 second break at NSE

F4101 (Long Brief- 1.5hrs, normally not an O/I.)

Brief: SNAs shall draw the Pelican working areas with divers, major landmarks and course rules per the FWOP.

Parade Position: The Wing instructor should demo/remediate parade position during the transit to the working area to include a demo of sucked and acute with power, sucked and acute with aileron, and stepped up and down. Once established in a working block, spend the first few minutes working on a stable parade position as required. Students need an understanding of all parade check points as well as how to incorporate the relative size of leads aircraft into his scan before progressing into turns. Corrections shall only be made in the A-B-C order per the FTI: **Altitude** (Step Down- Lead’s inboard exhaust stack fully visible and tangent to the bottom leading edge of the wing), **Bearing Line** (lower UHF antenna over the inboard aileron cutout on the opposite wing), **Closure/Separation** (on bearing line with edge of Leads prop arc on the pitot tube). Address meaningful and timely three part power corrections emphasizing that the parade position is transitory and a vigilant scan with deliberate corrections are

required to minimize deviations. After the lead change the new Wing instructor will have to cover the parade position demo and remediation before starting turn sequence.

Parade Turns: The Lead instructor will discuss roll rate into and out of turns and avoiding ratchetting turns with the student. A smooth, continuous roll rate of 3-5 seconds to reach 30 degrees AOB (or roll level out of turn) is a good benchmark. The Wing instructor should demo the first two 30 degree AOB turns (1 into / 1 away). Focus on 30 degree VMC turns into and away. Linked turns should not be conducted on this flight. Lead should allow wing time to stabilize in position before reversing turns.

Crossunder: Wing instructor should demo the first crossunder in the sequence. The student should fly the second one with instructor resets as necessary for remediation. Focus on correcting the common student errors of getting too far in trail of Lead and stopping the cross too soon. Lead should plan the maneuver with maximum forward space available to allow time for demo/remediation when necessary.

B&R: Lead IP should demo first B&R as Lead. Wing IP should demo one good B&R followed by requesting back in to demo what it looks like to be acute in close to an underrun. SNA attempts 2 Complete B&R's (one normal and one underrun). Ensure that the SNA fully reestablishes the VFR turn away position from the underrun position. Discuss techniques to avoid getting too far away from lead after safe separation is established. IP can request back in as required for further remediation.

Underrun: Once Wing reports "Angry 1-2, Underrun", Lead will accelerate to 200kts and Wing will join to the outside in the VMC turn away position. Lead will acknowledge the underrun call. Only instructors shall request back in to allow the student to complete a normal rendezvous. Ensure students are given the opportunity to join to the outside because this is what they will do on their solo if they underrun.

Lead Change: Instructors should demo the Lead Change, followed by SNA attempt(s) as time and fuel allow. Resets for multiple lead changes should be accomplished over the radio with IPs at the controls in order to expedite multiple Lead Change sequences for the SNA.

Course Rules Return: The Wing instructor should demo the cruise position during this transit to course rules. Lead should use the radio to clear wing aboard after rolling wings level inbound to Easy or Waldo. Brief SNAs to put themselves on the correct side for the upcoming break and to "request to come aboard" if lead has not cleared wing aboard by the time they are approaching the VFR entry points.

F4102

Take Off / Departure: Same as the F4101 except that the SNAs should swap roles. If you were Lead on F4101 then you will be Wing on F4102. Wing should again shake-off the initial cruise signal to remediate parade.

Parade Position: Same as the F4101. During transit to the working area it is recommended to send Wing to Cruise unless they need more time in parade. This will allow the Flight more flexibility and increase Mission Cross-check time for Wing to accomplish admin.

Parade Turns: The Student should practice both VMC and IMC turns away. Time should still be allowed between turns for Wing to stabilize position.

Crossunder: Students will fly both with remediation as required.

B&R: Students should see 3 complete B&Rs on this flight with one as an underrun. If fuel becomes an issue the flight can modify the sequence and fly two complete B&Rs with one ending in an underrun and request back in for additional remediation as required.

Lead Change: Students perform lead changes. If remediation is required the IPs shall take controls and coordinate an admin lead change via the radio.

Use of Speed Brake: Although no longer an SSR, IPs should demo this during the transit from the area back to home field. Lead will either pass the speed brake signal or use the radio to extend and retract the speed brake. A

good time to do this is during the descent out of the working area. The 166C syllabus does not have the Speed Brake SSR and is only a discuss item for F4102. It is highly encouraged to give the SNAs a speed brake demo if possible.

F4103

Overall conduct of the flight will follow the same sequence as the F4101/F4102. Fly normal parade sequence but **turns can be linked.**

F4104

- Students **SHOULD** plan to accomplish an ELP and 5 landings to MIF if not already accomplished previously in the block. For planning purposes, the SNA should plan for a suitable bingo to the airfield to include fuel to conduct the landing pattern and proceed to a divert airfield if needed. A good rule of thumb is to plan 25 lbs per pattern bounce. To the max extent practical, IPs should ensure that SNA's do not go into their Safe for Solo without getting a look at PELs, PEL/Ps, and Landing Pattern.

- Departing the working area for a civilian airport will require switching the TAC frequency from UHF to VHF. The frequencies should be switched such that the flight will always be up a TAC frequency:

Lead (on VHF TAC): "Angry, push UHF TAC"

Lead (on UHF TAC): "Angry"

Wing (on UHF TAC): "Angry 1-2" (or Angry 1-1 as appropriate)

After establishing UHF TAC flight will then push to appropriate CTAF on the VHF radio.

Lead (on UHF TAC): "Angry, push VHF (122.8/123.0)"

Per the FTI there will be no check-in on VHF as it is the new working frequency. This entire process takes a fair amount of time and should be started immediately after leaving the Fox or Pelican unless there is another factor which would dictate remaining up the prior frequencies.

-Students will come up with an appropriate fuel plan that affords time to accomplish required JPPT low work at a suitable OLF or civilian field. This fuel plan will vary depending on whether the event is scheduled as a single or O/I.

F4105 (Safe for Solo)

- Clean up required items from F4104.

- SNAs **SHOULD** accomplish an ELP and 5 landings to MIF on F4105 if not already accomplished. If previously accomplished in block, this is not a JPPT requirement and will be conducted at the discretion of the Formation Lead. Considerations that should be taken into account are weather, fuel, time since conducting the last PEL/pattern work, and student low work performance on previous event.

-However, in that it is not a standalone block event (i.e. XX90), this is not a JPPT requirement and should not preclude event completion should weather, fuel, or other factors dictate otherwise.

F4201 (Solo)

The formation solo flight may consist of either two solos with a third aircraft flown by a qualified Division Leader as the chase/safety observer, or one student flying as a section with a qualified IP platform. As this is a *Formation* Solo and not a sight-seeing solo, students will come with a plan to conduct formation flying. Recommended sequence can be found under *Paragraph VI. Event Specifics* in this document. However, at the discretion of the Division/Section Leader or at the recommendation of the Form X IP that completed the student's F4105, deviations may be made from the recommended sequence where appropriate.

Division Solo: The composition of the flight will be two student solo aircraft and an instructor chase aircraft (solo or dual) flown by a qualified T-6B division leader. The purpose of the chase aircraft is to ensure adherence to safety procedures, course rules, and proper conduct of the mission. The chase aircraft shall maneuver throughout the flight to keep both aircraft in sight at all times and ensure safe de-confliction between the solo aircraft. An interval take-off shall be used for the division solo with the chase plane usually centered on the runway behind the solo aircraft. Emphasis will be placed on the differences of flying with a chase plane during the formation brief.

- Student solos generally should not be concerned with the chase planes position, but will include the IP in all communications. However, if any unpredictable maneuvers outside the normal formation flow are made by either student solo they shall clear their flight path and ensure that the IP chase aircraft is not in conflict.
- As a technique, the Form Chase IP can keep his transponder in ALT and TCAS on for the entire duration of the flight, with the solo students keeping their transponder and TCAS off.
- If a student has all required solo time but the weather is not above solo mins JPPT allows the F4201 to be trunked by a (preferably formation qualified) IP.
- Brief/debrief will be conducted by the Form Chase IP.
- The Form Chase IP will ensure all **SNA EFLIRS** and **ATFs** are completed.

Section Solo: The composition of the flight will be a student solo and an IP platform flown by a designated T-6B section leader. The SNA should lead the flight out and back.

Standard F4301-04 (JPPT 166C) Sequence:

1. Section T/O
2. Cruise to working area (Unless Parade is required)
3. Parade turns VMC(2) 30/30
4. Cross-under
5. Parade turns IMC(2) 30/30
6. Cross-under (only if needed to remediate)
7. B&Rs (2 minimum with 1 Under Run and join from the Under Run position)
8. Cruise Maneuvering
9. Tail-Chase
10. Lead Change
11. Repeat 3-10
12. Section approach (As required)
13. Course Rules to NSE or full-stop at approved field on O/I.
 - SNAs will fly one formation approach as Lead **OR** Wing in the block (they do not need one from both positions).
 - SNAs SHALL accomplish AT LEAST one section takeoff as Lead or Wing.
 - Tail chase maneuvers shall be pre-briefed to the max extent possible.

The purpose of this block of training is to expose the SNA to section takeoffs, section approaches, and formation flying in a dynamic environment. Students are still required to complete parade maneuvers, B&R's, and underruns in this block but ELP and pattern work are not necessary. This should allow for enough fuel to accomplish tail-chase and cruise maneuvering. Use these flights to continue to refine the Students skills in parade and admin tasks as well as introduce them to the new maneuvers.