TW-1 Stan Notes / FTI Supplement
Formation Stages (FRM/ DIV/ NFR)

1. OVERVIEW

a. This TW-1 document is provided as a local supplement only where procedures differ or are not included to sufficient depth in the Flight Training Instruction (FTI). The procedures and techniques learned in this stage should be used throughout the MPTS (.167) syllabus.

2. ADMIN

a. The Brief.

i) For section flights, the IP in the student's back seat will brief technique and procedures. For division flights, the flight lead will brief procedures and techniques to all students. In both cases, the flight lead will brief overall Admin, Conduct, and Emergencies no later than 45 min prior to scheduled takeoff time.

ii) SNAs should fill out the flight card info for the lead as well as their own IP. (2-plane events should have 3 cards, 4 plane events should have at least 4 cards and as many as 8). Include LCLS points for the flight lead as well as back seat IP.

iii) LCLS: Weather dependent or as briefed by lead, left turns outbound at 250 KIAS until reaching Joker, then RTB. At night, lead has the top of the altitude block and wing has the bottom.

1. MER1W MOA (Areas A, B, C, 2, 3). Day: "A" - NMM 305/20; "B" - NMM 305/40; "C" - 285/40; "2" - 285/60; "3" - 305/60. Night: 290/30 (Philadelphia).

2. MER1W MOA (Area 4). Day: "FOZZIE" - NMM 350/15, "LUKE" - 350/40, "WILBUR" - 330/45, "CURLY" - 350/30.). Night: 350/25

3. Pine Hills MOA. EWA 120/30 or 150/30.

4. Birmingham MOA. WEST 085/50, EAST 085/65.

iv) Students should coordinate TAC freq and A/A TACAN on the ODO board in accordance with the current comm card. Lead always gets the low TACAN channel.

3. FLIGHT CONDUCT

a. Start/Marshal/Taxi.

i) TAC Freq should be selected on AUX immediately after getting ATIS after start up. Monitor PRI for clearance. T/R&G should be set in one of the radios. Lead will call the flight out of chocks. A/C should arrive in marshal with squadron base freq in PRI and Tac Freq selected in AUX.

ii) The first aircraft to marshal will select a marshal spot with sufficient room for remaining flight members to park. Subsequent aircraft will take appropriate side with regards to tailpipe courtesy, three longitudinal cracks distance from the previous aircraft to marshal, aligning helmets in order to align the flight.

iii) With a thumbs-up from Dash-2, lead will check the flight in on AUX per the TW-1/2 TAC ADMIN OPERATING PROCEDURES.

iv) When taxiing, strive to match lead's positioning with respect to the taxi line. Pay particular attention to the position of his nose wheel. At NMM, in the vicinity of the marshal area, 1 ½ cracks from centerline should be used to ensure there is no wingtip overlap. Dash-3 should match lead's positioning and gauge separation from Dash-2 (in other words, Dash-2 sets the interval – ideally 150 feet). Dash-4 should match Dash-2's nose wheel positioning, and maintain the same separation from Dash-3 that Dash-2 has on lead.

v) If lead has briefed it and a delay taking the runway is expected, Dash-2 should snuggle up to a 30° (parade) bearing line. For divisions, Dash-3 (if in line with lead) will maintain 300 feet from lead, Dash-4 will snuggle up to Dash-3 on parade bearing. When resuming taxi, normal interval is taken on lead and Dash-3. Lead and Dash-3 can taxi at the same time while Dash-2 and Dash-4 take 150-foot interval on their respective lead. Maintain tailpipe courtesy.

vi) Night Formation flights require individual clearances. Aircraft will each separately call ground, but strive to taxi together, 300 feet on centerline.

vii) Dividing the runway evenly for a section or division:

1. Section. Each aircraft centered on their half of the runway.

2. Three Plane. Lead and Dash-3 centered on their half of the runway while Dash-2 takes centerline.

3. Four Plane. Lead and Dash-4 line up two cracks from edge while Dash-2 and Dash-3 line up two cracks from centerline. Lead and Dash-4 will seem excessively close to the edge of the runway because of where the edge stripe is painted.

a. Takeoff and Rendezvous.

i) After takeoff, all wingmen will move to the side of the expected turn direction and accelerate for the appropriate rendezvous, as briefed by lead. Typically, this will start as a running rendezvous and turn into a CV. When the lead turns, it is now a CV rendezvous. Once lead rolls out, it is a running rendezvous again. If Dash-2 joins before lead rolls out, he should cross under to the outside of the turn. If Dash-3 joins before lead rolls out, he should also cross under to the outside of the turn. If Dash-3 has crossed under, Dash-4 should plan on crossing under as well. Dash-4 will always go where Dash-3 goes. Lead may then balance the flight (fingertip), if desired.

c. Enroute.

i) Frequency changes and Area check-in shall be performed in accordance with the TACSOP. Lead aircraft do not need to 'push' aircraft to ATC frequencies, or check them in. Hand signals, a thumbs up, or a head nod from the wingman when lead looks at him will suffice. After the check-in on the working frequency, lead will perform his area de-confliction.

ii) Night

1. Lead passes flight's altitude block on the Tac Freq before dash 2 enters the area.

2. NFORM Area 1 check-in and area management at night should go as follows: All aircraft shall perform their maneuvering north of the 275 radial and south of the 310 radial off of 19L. The first lead aircraft into the area will take the 10-11k block, the second will take the 12-13k block, etc. Check-in on area common (BTN 6) will go as follows –

a. Eagle 11 - "99 Area 1, first half of Eagle flight checking in from the East, who's working?"
b. Hammer 11 - "You have a two-ship working 10-11, you are cleared to climb south of the 275."
c. Viper 11 - "You have a two-ship working 12-13, you are cleared to climb south of the 275."
d. Eagle 11 - "Copy, Eagle 11 will take the 14-15 block."
e. Eagle 11 - "Eagle 11 established in the 14-15 block."
f. Anyone - "Loud and clear."
g. Eagle 12 - "99 Area 1, second half of Eagle flight checking in from the East, who's working?"
h. Hammer 11 - "You have a two-ship working 10-11, you are cleared to climb south of the 275."
i. Viper 11 - "You have a two-ship working 12-13, you are cleared to climb south of the 275."

j. Eagle 11 - "Eagle 12, your lead is established at 15k, you are cleared to climb south of the 275 to 14.5"
k. Eagle 12 - "Eagle 12 cleared to climb south of 275 to 14.5."
l. Eagle 12 - "Eagle 12 established south of 275 at 14.5"
m. Eagle 11 – "Loud and clear"

3. NFORM Area 4 check-in and area management at night should go as follows: All aircraft shall perform their maneuvering west of the 007 radial and north of the 325 radial off of 19L. The first lead aircraft into the area will take the 10-11k block, the second will take the 12-13k block, etc. Check-in on area common (BTN 8) will go as follows:

a. Tiger 11 - "99 Area 4, first half of Tiger flight checking in from the south, who's working?"
b. Hammer 11 - "You have a two-ship working 10-11, you are cleared to climb east of the 007."
c. Rage 11 - "You have a two-ship working 12-13, you are cleared to climb east of the 007."
d. Tiger 11 - "Copy, Tiger 11 will take the 14-15 block."
e. Tiger 11 - "Tiger 11 established in the 14-15 block."
f. Anyone - "Loud and clear."
g. Tiger 12 - "99 Area 4, second half of Tiger flight checking in from the south, who's working?"
h. Hammer 11 - "You have a two-ship working 10-11, you are cleared to climb east of the 007."
i. Rage 11 - "You have a two-ship working 12-13, you are cleared to climb east of the 007."
j. Tiger 11 - "Tiger 12, your lead is established at 15k, you are cleared to climb east of the 007 to 14.5"
k. Tiger 12 - "Tiger 12 cleared to climb east of 007 to 14.5."
l. Tiger 12 - "Tiger 12 established east of 007 at 14.5"
m. Tiger 11 – "Loud and clear"

d. <u>Comms and Callsigns.</u>

i) During B&Rs, when lead informs the flight of his airspeed, altitude, and direction on the radio, silence is consent from wingmen. If any wingmen show significant differences (i.e. > 5 degrees of heading, > 10 knots of airspeed, or > 200 feet of altitude), they should immediately reply with "Hammer One Three showing ___." At this time, lead can check with any other aircraft to determine which system is more accurate.

ii) On the RTB, when lead informs the flight that he will be off the AUX for ATIS, wingmen shall reply with their callsigns in order. If he does not hear this, lead will repeat that he is off AUX for ATIS until he does hear the

callsigns. When lead returns from being off frequency, all wingmen shall reply with their callsigns in order.

iii) Each aircraft is given a callsign in the brief, i.e. Hammer 11, 12, 13, 14. These callsigns are maintained throughout the flight regardless of what position in the flight that particular aircraft now occupies. For example, if Hammer 12 is currently flying as Dash-4, he can be referred to as 'Four', or 'Hammer 12'. His callsign does not change to Hammer 14. **For safety-of-flight during Division sequences, leads shall use position calls vice the 12, 13, 14 callsigns.**

iv) All aircraft will climb to their appropriate block south of the 275 radial in Area 1 and will climb east of the 007 radial in Area 4.

e. Maneuver Notes.

i) TACAN Rendezvous

1. When performing a TACAN Rendezvous from within the area, Dash-2 is cleared to 500 feet below lead's altitude, and shall maintain 500 feet below lead until cleared to join and with fuselage alignment. When performing a TACAN Rendezvous from takeoff for weather or during a NFORM, Dash-2 should climb in the corridor to 500 feet below lead's altitude and maintain that altitude until cleared to join by lead and with relative fuselage alignment. Once on lead's altitude, the AOB limit for the wingman during any rendezvous at night is 45 degrees. At night, Dash-2 will secure strobes and IFF when calling "visual".

ii) Crossunders during three-plane flights

1. When flying as a light division (three plane), wingman crossunders will be completed using standard signals with the exception of the section crossunder. Dash-2 & 3 will be crossed under together (as a section) per the FTI by calling "2 and 3, crossunder as a section" over the radio. This should be done as the last crossunder prior to B&Rs to avoid confusion on subsequent crossunders. Note that this sequence differs slightly from the FTI.

iii) Division Breakup and Rendezvous

1. This portion of the flight can be potentially hazardous. It is important for all aircraft not to exceed their AOB limitations. In addition, they should not exceed 260 KIAS during the maneuver. The rendezvous flow should proceed in such a way as to prevent no more than two wingmen on bearing line at any one time. Division leads shall be vigilant to ensure that

wingmen with excessive or stagnating closure rates are immediately corrected, regardless of the presence of IPs in those aircraft.

iv) Cruise

1. Section over-the-top maneuvering should be initiated into the wingman to avoid spitting him out over-the-top.

2. Following the division cruise signal, Dash-2 will auto-balance as soon as there is safe separation. During cruise maneuvering, Dash-2 auto balances when lead levels his wings for greater than three seconds.

v) Night Running Rendezvous

1. During the break-up portion of the running rendezvous, wing shall take lateral separation immediately out of the turn. Do not roll out directly behind lead.

f. RTB

i) VFR parade to area. IFR parade on RTB (2- plane only).

ii) Leads should avoid flying a division through clouds.

iii) Speed brakes switch will be held until full out. Speed brakes should not be used in division.

iv) Lead should complete the final shuffle in the area and then place the division into fingertip before leaving the area. Lead will place the flight in echelon prior to the break.

v) NFORM Area 1 check-out should go as follows:

1. All aircraft will descend from their block north of the 310 radial with clearance from all flights remaining in blocks below them. If no aircraft remain below the aircraft checking out, lead does not need to drive north of the 310 radial before checking out.
2. Hammer 11 - "Hammer flight departing the area north of the 310 from the 10-11 block, switching"
3. Anyone - "Loud and clear"

vi) NFORM Area 4 check-out should go as follows:

1. All aircraft will descend from their block south of the 325 radial with clearance from all flights remaining in blocks below them. If no aircraft

remain below the aircraft checking out, lead does not need to drive south of the 325 radial before checking out.
2. Tiger 11 - "Tiger flight departing the area south of the 325 from the 10-11 block, switching"
3. Anyone - "Loud and clear"

vi) Night break - 300 KIAS max.

g. RTB to Section Approach.

i) Day and night procedures are the same except that lead uses hand signals during the day and the radio at night. For night procedures, lead's taxi light remains off, while wing's will be on.

ii) Section Dirty-Up. After passing the execution signal (hand or voice), the lead will lower the gear handle, set flaps to ½, retract the speed brakes (if extended) and adjust the power to intercept a minimum of 150 KIAS. (approx. 2000 PPH).

iii) Section Approach. Leads shall not turn into the wingman below 500'AGL. The lead should not descend below 500' AGL when executing the approach to the off-duty runway without authorization to overfly the runway. If the lead descends to DA they will most likely not have sufficient time to climb above 500' AGL without over flying the runway.

iv) Touch-and-go rejoin. Lead will detach the flight and take a small cut away to offset from the runway and remain at 500' AGL and 150 KIAS with the speed brakes retracted. The wingman should climb at 155-160 KIAS after the touch and go. Since the landing will occur at ½ flaps, care should be given to monitor VSI on touchdown (no greater than 600 fpm).

v) Wing must pass landing gear status to lead after both dirty up and clean up.

h. Full Stop/Clearing Runway/Taxi

i) If the flight full stops together, lead lands on the downwind side of the runway (crosswinds permitting) while the rest of the flight alternates sides.

ii) Once lead has cleared the runway (and the flight has landed together), he initiates the call for the flight to check in when they themselves are clear of the runway:

1. Hammer 11 - "Once clear, check in with status."
2. Hammer 12 - "Hammer 12 up"
3. Hammer 13 - "Hammer 13 down for OBOGS"
4. Hammer 14 - "Hammer 14 up"

5. Hammer 11 - "Copy, flight go button 2 and 27"
6. Hammer 11 - "Ground, Carp/Sting 124, flight of four taxi to our line"
7. Ground - "Copy, Carp/Sting 124, taxi to your line"
8. Hammer 11 - "Maintenance, 124, 135, and 111 safe on deck, up. 189 on deck, down for OBOGS"
9. Maintenance - "Copy, park on Alpha row."
10. Hammer 11 - "Alpha"
11. Hammer 11 - "Flight go base"
12. Hammer 11 - "Base, 124, 135, 189, and 111 safe on deck"

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