Changes in the Sporting Code because of the new F3C Final Schedule.

Some amendments base on already updated descriptions. This means some descriptions were already changed due to former decisions of the Subcommittee and will now be updated a second time because of the new F3C Final Schedule.

04.11.2024

5.4.14. Manoeuvre Schedules

FLIGHT PROGRAM

The flight program consists of manoeuvre schedules P**, SF** and ~~SF~~/F for the years 2024**6** - 202~~5~~**7**. The P schedule consists of nine (9) manoeuvres and the SF **and** /F schedule consists of eight (8) manoeuvres (see ANNEX 5D - F3C MANOEUVRE DESCRIPTIONS).

PERFORMANCE OF THE SCHEDULES

The competitor must stand in the 2m circle (labelled P in Figure 5.4.A - F3C Contest Area Layout) located 6m in front of the centre judge. Before the start of the first manoeuvre the pilot may fly or carry the model to the helipad. If the model is flown to the helipad, then it must be flown at a height of 2 m (for safety reasons.) Alternatively, the helper may carry the model aircraft to the helipad.

The model aircraft may face left or right but must be parallel with the judges' line.

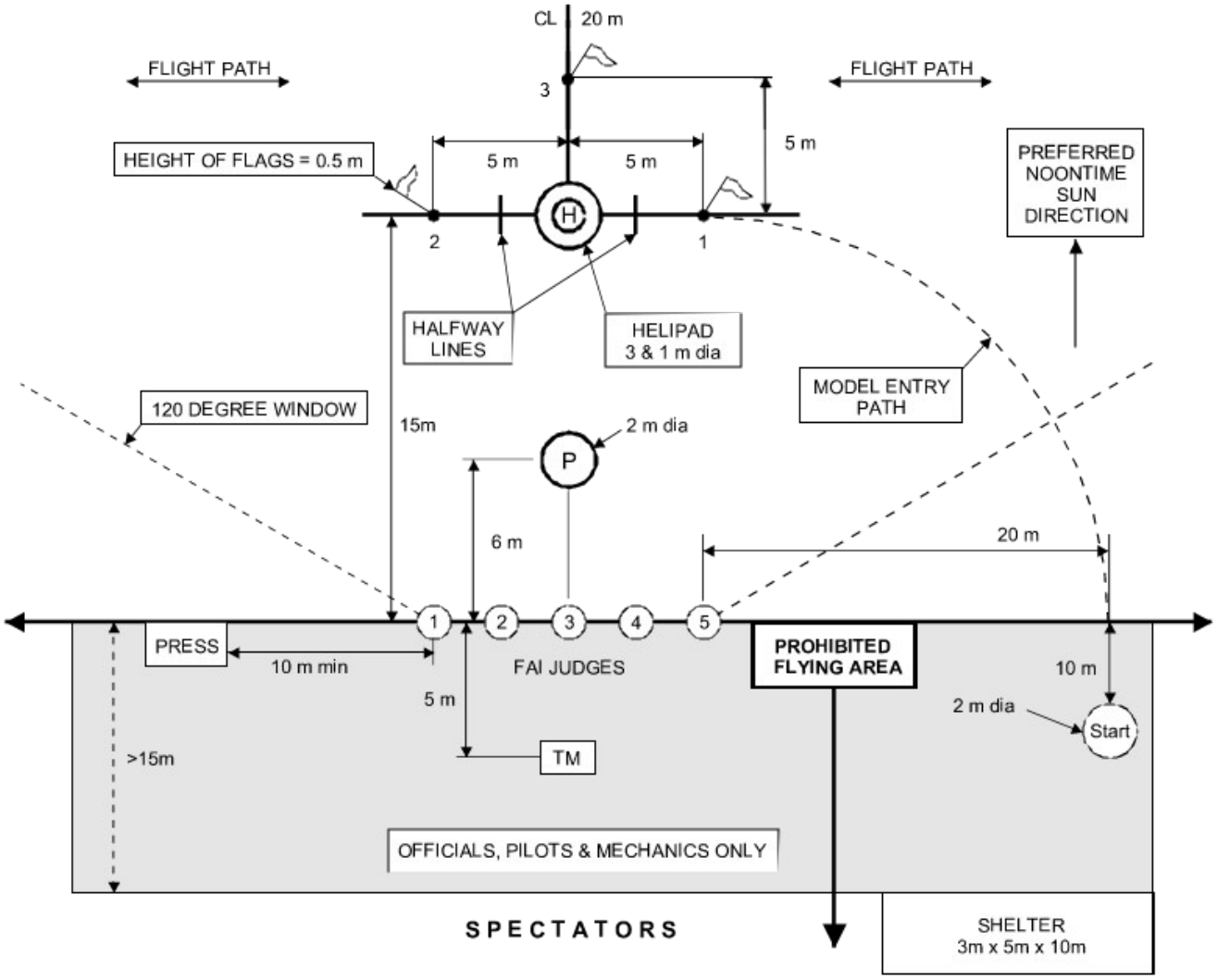
Each hovering manoeuvre ends with a landing on the helipad and after each landing the model aircraft may be repositioned (but maintains same direction) prior to the next takeoff. After completing the hovering manoeuvres the competitor is allowed one free pass to set up for the flying sequence.

All aerobatics manoeuvres must be performed in an airspace that will allow them to be clearly seen by the judges. This airspace is defined by a field of view up to 60º above the horizon and between lines 60º to the right and left of judges 1 and 5. The non-observance of this rule will be penalised by a loss of points.

The aerobatics manoeuvres must be performed in a smooth flowing sequence, with a manoeuvre performed on each pass before the judges. There are no restrictions on turnaround manoeuvres.

The competitor must perform each listed manoeuvre only once during a flight. The competitor or his caller must announce the name (number) and start and finish of each manoeuvre. A manoeuvre performed out of sequence will result in a zero score for that manoeuvre only. Before the autorotation manoeuvre the competitor is allowed another free pass to accommodate a possible change in wind direction.

FIGURE 5.4.A - F3C CONTEST AREA LAYOUT



ANNEX 5D

F3C MANOEUVRE DESCRIPTIONS AND DIAGRAMS

The manoeuvre schedules are listed below with the starting and ending direction (UU = Upwind - Upwind; DD = Downwind - Downwind; DU = Downwind - Upwind; UD = Upwind - Downwind) of each manoeuvre, relative to the wind, as indicated. The competitor has 9 minutes to complete the P schedule and 8**:30** minutes to complete the SF and the F schedule. Schedule P will be flown for the preliminary rounds 1 through 4. Schedule SF~~/F~~ will be flown for the semi final ~~and final~~ rounds **1 and 2**. **Schedule F will be flown for the final rounds 1 and 2**.

SCHEDULE P

P1. PIE……..…….... (UU)
P2. DOUBLE SWALLOW TAIL…… (UU)
(FLY BY)
P3. DOUBLE CANDLE WITH DESCENDING FLIP ……..…..…... (DD)
P4. LOOP WITH 540° TAIL TURNS ……..…….…… (UU)
P5. UX WITH PUSHED FLIPS……..… (DD)
P6. TWO LOOPS……..…….. (UU)
P7. OPPOSITE HALF AND FULL INVERTED ROLL ……..…..… (DD)
P8. INVERTED UMBRELLA……..……..…… (UU)
(FLY BY)
P9. 180° AUTOROTATION …… (DU)

SCHEDULE SF~~/F~~

SF1. TULIP WITH ½ PIROUETTES.....…….....… (UU)
SF2. LAID EIGHT WITH PIROUETTES..... (UU)
(FLY BY)
SF3. CANDLE WITH 360° TAIL TURN AND 180° PUSHED FLIP… (UU)
SF4. INVERTED CUBAN EIGHT WITH HALF ROLLS……. (DD)
SF5. STANDING TRIANGLE..……..……..…… (UU)
SF6. THREE OPPOSITE ROLLS.....…….. (DD)
SF7. INVERTED UMBRELLA WITH HALF ROLLS ……... (UU)
(FLY BY)
SF8. AUTOROTATION WITH FLIP AND TWO 90° TURNS …… (DU)

SCHEDULE F

F1. TULIP WITH ½ PIROUETTES.....…….....… (UU)
F2. 3D TRIANGLE WITH PIROUETTES..... (UU)
(FLY BY)
F3. M WITH 360° PIROUETTES……..…(UU)
F4. INVERTED CUBAN EIGHT WITH HALF ROLLS……. (DD)
F5. DOUBLE CANDLE WITH FLIPS AND ROLLS……..…… (UU)
F6. THREE OPPOSITE ROLLS.....…….. (DD)
F7. INVERTED UMBRELLA WITH HALF ROLLS ……... (UU)

(FLY BY)

F8. AUTOROTATION WITH FLIP AND TWO 90° TURNS …… (DU)

5D.1 General

The manoeuvres are displayed in pictorial form in Figures 5D-P~~,~~ ~~and~~ 5D-SF~~/F~~ **and 5D-F** for the case where the wind direction is left to right. The following descriptions apply to all manoeuvres and if not performed properly must result in downgrades. Points will also be subtracted if a manoeuvre is not performed as described. The starting/ending altitude for the hovering manoeuvres is 2m above the helipad. If a manoeuvre is unrecognisable it must be severely downgraded. If pirouettes are performed in the wrong direction, the score shall be zero (0) points. Ascents from, and descents to, the helipad must be vertical. Landings must be smooth and centred on the helipad. During the hovering manoeuvres all stops must be of 2 seconds minimum duration (unless specified otherwise). Circular and linear hovering segments must be performed at a constant speed. Every pirouette must be performed at a constant turning rate. The hovering manoeuvres must be started with the nose of the model aircraft (MA) facing left or right and must be flown as a unit (the starting heading must be same for each hovering manoeuvre). The competitor must stand in the 2m diameter circle marked "P" in Figure 5.4.A during all manoeuvres. All aerobatic manoeuvres must start and end in the direction indicated with a straight and level flight line of 10m minimum length. Entry and exit must be at the same altitude and heading. Loops or parts of a loop must be round and have the same diameter. Consecutive loops must be in the same location and plane. Rolls must be performed at a constant roll rate. Consecutive rolls must have the same roll rate and must be at the same altitude and heading. During all aerobatics manoeuvres the competitor must maintain his MA above a minimum altitude of 10 m. Aerobatic manoeuvres must be centred within the 120º horizontal field of view and must be symmetrical about the centre line. Aerobatic manoeuvres flown at a distance greater than 100m from the judges' line will be downgraded. In case of a dispute the manoeuvre text takes precedence over Figures 5D-P~~,~~ ~~and~~ 5D-SF~~/F~~ **and 5D-F**.

Note: When the word "centred" is used, it means that the MA crosses an imaginary plane that extends from a line drawn vertically upward, from the centre judge out through the helipad. This refers to ~~both~~ **all** Schedules P~~,~~ ~~and~~ SF~~/~~ **and** F.

Scoring criteria for landing; See ANNEX 5E paragraph 5E.6.11.

5D.3 SCHEDULE SF~~/F~~

SF1: Tulip with 1/2 Pirouettes (UU) K=1.5

MA climbs vertically 2 m from the helipad and hovers for at least two seconds, ascends backwards in a downward curved quarter circle with a radius of 5 m while simultaneously performing a 180° nose-to-pilot pirouette until it reaches the flag 1 (2) at a height of 7 m then hovers for at least 2 seconds. MA descends backwards in a downward arcing semi-circle of 2.5m radius while simultaneously performing a 180° nose-to-pilot pirouette until it reaches the centreline at a height of 7 m then hovers for at least 2 seconds. MA then descends forward in a downward arcing semi-circle of 2.5 m radius while simultaneously performing a 180° nose-to-pilot pirouette until it reaches the flag 2 (1) at a height of 7 m then hovers for at least 2 seconds. MA then descends forward in a downward curved quarter circle with a radius of 5 m while simultaneously performing a 180° nose-to-pilot pirouette then stops over the helipad at 2 m for 2 seconds, descends and lands into the helipad.

SF2: Laid Eight with Pirouettes (UU) K=1.5

MA takes off vertically from the helipad and ascends to 4.5 m while performing simultaneously a 360° pirouette in any direction, then hovers there for at least two seconds. MA flies backwards and descends describing a vertical circle with a radius of 2.5 m while simultaneously performing a 360° pirouette in any direction.

MA flies forward and descends describing a vertical circle with a radius of 2.5 m while simultaneously performing a 360° pirouette in the opposite direction, stops and hovers for at least two seconds over

the helipad. MA descends and lands into the helipad while simultaneously performing a 360° pirouette in any direction.
Note: The change of direction of the pirouettes must occur smoothly on the center line.

SF3: Candle with 360° Tail Turn and 180° pushed Flip (UU) K=1.0

MA flies straight and level for a minimum of 10 m and pulls up into vertical ascent on center line by doing a quarter loop. MA then performs a 360° tail turn, descends minimum 2 m vertically backwards and performs a 180° pushed flip while descending vertically. MA descends minimum 2 m vertically forward, pulls with a quarter loop into horizontal straight and level flight for a minimum of 10 m at the same altitude as when entering the figure.
Note 1: The quarter loops at the entrance and the exit of the figure must have the same radius.
Note 2: The vertical lines before and after the 180° flip must be of equal length.

SF4: Inverted Cuban Eight with half Rolls (DD) K=1.0

MA flies straight and level for at least 10 m then executes a half roll in any direction at least 10 m before entering a 5/8 outside loop. When MA is descending at 45° and upright it executes a half roll in any direction at the centreline into inverted flight followed by a 3/4 outside loop. When MA is again descending at 45° and upright it executes another half roll in any direction at the centreline into inverted flight, continuing through the first partial loop in this attitude. MA then flies a minimum of 10 m straight and level, executes a half roll in either direction back to upward flight continuing straight and level for at least 10 m.

SF5: Standing Triangle (UU) K=1.0

MA flies straight and level for at least 10 m then executes a half roll in any direction followed by an inverted flight of a minimum of 10 m then ascends at the centreline by completing a 1/8 pushed loop to an angle of 45°. MA continues with a straight line followed by a pushed 3/8 loop to upright level flight. After a short straight flight a level centred full horizontal roll in any direction should be completed followed by another short straight flight, another pushed 3/8 loop into a straight line descent at an angle of 45°, then completes a 1/8 pushed loop finishing on the centreline.
MA continues inverted flight for a minimum of 10 m followed by a half roll in any direction finishing upright into straight and level flight of at least 10 m at the same altitude as manoeuvre entry.

Note 1: Before and after the centred roll the MA fly a straight line, these lines must be of equal length.
Note 2: The 1/8 loops must be executed such that the 45° ascend as well as the 45° descend starts and ends exactly on the centreline.

SF6: Three opposite Rolls (DD) K=1.0

MA flies straight and level for a minimum of 10 m, performs a roll in any direction followed by a roll in opposite direction followed by a roll in the same direction as the first roll. MA flies straight and level for a minimum of 10 m.
Note 1: During the second roll the MA must be in inverted flight when it crosses the center line.
Note 2: The rolls must be executed one immediately after the other, straight flights between the rolls will be downgraded by one to two points.
Note 3: The elapsed time from the beginning of the first to the end of the third roll must be at least 4 seconds.

SF7: Inverted Umbrella with half Rolls (UU) K=1.0

MA flies straight and level for a minimum of 10 m and pulls up into a vertical ascent on center line. After a nose up stop MA performs immediately in a backward vertically flight a half roll in any direction followed by a half backward loop. After MA stops it performs a centered ‘U’. After a nose up stop MA performs a half backward loop followed by a backwards vertically ascent. After a nose down stop MA performs immediately in a forward vertically flight a half roll in any direction followed by a

vertical descent. MA pulls with a quarter looping into horizontal straight and level flight for a minimum of 10 m at the same altitude as when entering the figure.

Note 1: The quarter loops at the entrance and the exit of the figure and the half loop of the centered 'U' must have the same radius.
Note 2: The two half backward loops must be of equal size and must have half radius than the half loop of the centered 'U'.
Note 3: The bottom of the 'U' must be at the same altitude as when entering the figure.
Note 4: The two rolls must be performed at the same altitude.
Note 5: The 2 half rolls must be higher than the 2 outer stall positions.

SF8: Autorotation with Flip and two 90° Turns (DU) K=1.0

MA flies straight and level flight for a minimum of 10 m performs a pulled 360° flip in horizontal movement, flies horizontal straight and level for a maximum of 10 m and turns off the engine (or at idle) during this straight flight period, just before reaching the center line. MA executes 3 constantly descending sides with two 90° turns in the direction of the pilot and lands against the wind into the helipad.
Note 1: The descent rate must be constant to a point just before touchdown on the helipad.
Note 2: Parts of the second side, the second 90° turn and the beginning of the third side may be flown out of the 60° flight window.

Scoring criteria for landing: See ANNEX 5E Paragraph 5E.6.11.

5D.4 SCHEDULE F

F1: Tulip with 1/2 Pirouettes (UU) K=1.5

MA climbs vertically 2 m from the helipad and hovers for at least two seconds, ascends backwards in a downward curved quarter circle with a radius of 5 m while simultaneously performing a 180° nose-to-pilot pirouette until it reaches the flag 1 (2) at a height of 7 m then hovers for at least 2 seconds. MA descends backwards in a downward arcing semi-circle of 2.5m radius while simultaneously performing a 180° nose-to-pilot pirouette until it reaches the centreline at a height of 7 m then hovers for at least 2 seconds. MA then descends forward in a downward arcing semi-circle of 2.5 m radius while simultaneously performing a 180° nose-to-pilot pirouette until it reaches the flag 2 (1) at a height of 7 m then hovers for at least 2 seconds. MA then descends forward in a downward curved quarter circle with a radius of 5 m while simultaneously performing a 180° nose-to-pilot pirouette then stops over the helipad at 2 m for 2 seconds, descends and lands into the helipad.

F2: 3D Triangle with Pirouettes (UU) K=1.5

MA takes off vertically from the helipad and ascends to 2m while doing a 90° nose-in pirouette and hovers for 2 seconds. MA flies backwards in a straight line to flag 3 and hovers for 2 seconds. MA does a 90° nose-in circle in any direction with a radius of 5m and stops for 2 seconds over the flag 1 (2). MA climbs on a 45° line to 4.5m while doing a 90° nose-in pirouette and stops for 2 seconds. MA goes on climbing sidewards on a 45° line to 7m and stops for 2 seconds over the helipad. MA performs a 360° pirouette in any direction of at least 3 seconds and stops for 2 seconds. MA descends sidewards on a 45° line to 4.5m and stops for 2 seconds. MA goes on descending on a 45° line to 2m while doing a 90° pirouette in a way that the nose points to the helipad and stops for 2 seconds over the flag 2 (1). MA performs a 90° nose-in circle with a radius of 5m and stops for 2 seconds over flag 3. MA flies forward in a straight line to the center of the helipad and hovers for 2 seconds. MA descends while doing a 90° pirouette and lands into the helipad with nose pointing in the same direction as at the beginning of the manoeuvre.

F3: M with 360° Pirouettes (UU) K=1.0

MA flies straight and level for 10 m minimum and then enters a quarter loop leading to a straight vertical line. At the end of the ascent MA performs a 90° pushed flip to a recognizable stationary hover. MA performs a 360° pirouette in either direction of at least 3 seconds followed by a recognizable stationary hover. MA performs a pushed 90° flip into a straight vertical line. After at least 5m in a straight line MA performs a half roll in either direction followed by another straight line of a least 5m. MA performs a half centered outside loop and flies up in vertical line. At the end of the ascent MA performs a 90° pulled flip to a recognizable, stationary inverted hover at the same height as before. MA then executes another 360° pirouette in either direction of at least 3 seconds followed by a recognizable stationary hover. This is followed by a pulled 90° flip into vertical straight descent of at least 5m. Then MA performs a half roll in either direction followed by a straight line of a least 5m. MA performs a quarter loop to the same altitude and heading as the at start. Manoeuvre is completed by flying straight and level for 10 m minimum.

F4: Inverted Cuban Eight with half Rolls (DD) K=1.0

MA flies straight and level for at least 10 m then executes a half roll in any direction at least 10 m before entering a 5/8 outside loop. When MA is descending at 45° and upright it executes a half roll in any direction at the centreline into inverted flight followed by a 3/4 outside loop. When MA is again descending at 45° and upright it executes another half roll in any direction at the centreline into inverted flight, continuing through the first partial loop in this attitude. MA then flies a minimum of 10 m straight and level, executes a half roll in either direction back to upward flight continuing straight and level for at least 10 m.

F5: Double Candle with Flips and Rolls (UU) K=1.0

MA flies straight and level for 10 m minimum and performs a pulled 1/4 loop at the centerline, flies vertically upwards and performs a 180° travelling pushed flip and climbs backwards a little further until MA comes to a standstill. MA flies vertically downwards and performs a full roll in any direction followed by a half centered outside loop, flies vertically upwards and performs a 180° travelling pushed flip and climbs backwards a little further until MA comes to a standstill. MA flies vertically downwards performs a full roll in any direction followed by a quarter loop and flies horizontally straight ahead from the centerline at least 10 meters.

Note 1: Entry and exit must be flown at the same height.
Note 2: The flips must be flown at the same height.
Note 3: The vertical straight sections before and after the flips must be of the same length.

F6: Three opposite Rolls (DD) K=1.0

MA flies straight and level for a minimum of 10 m, performs a roll in any direction followed by a roll in opposite direction followed by a roll in the same direction as the first roll. MA flies straight and level for a minimum of 10 m.
Note 1: During the second roll the MA must be in inverted flight when it crosses the center line.
Note 2: The rolls must be executed one immediately after the other, straight flights between the rolls will be downgraded by one to two points.
Note 3: The elapsed time from the beginning of the first to the end of the third roll must be at least 4 seconds.

F7: Inverted Umbrella with half Rolls (UU) K=1.0

MA flies straight and level for a minimum of 10 m and pulls up into a vertical ascent on center line. After a nose up stop MA performs immediately in a backward vertically flight a half roll in any direction followed by a half backward loop. After MA stops it performs a centered 'U'. After a nose up stop MA performs a half backward loop followed by a backwards vertically ascent. After a nose down stop MA performs immediately in a forward vertically flight a half roll in any direction followed by a vertical descent. MA pulls with a quarter looping into

horizontal straight and level flight for a minimum of 10 m at the same altitude as when entering the figure.

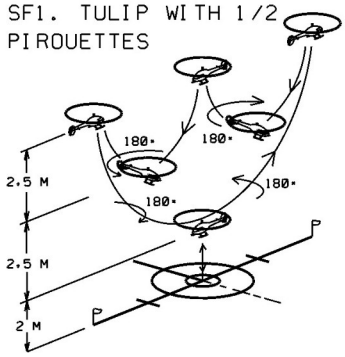
Note 1: The quarter loops at the entrance and the exit of the figure and the half loop of the centered 'U' must have the same radius.
Note 2: The two half backward loops must be of equal size and must have half radius than the half loop of the centered 'U'.
Note 3: The bottom of the 'U' must be at the same altitude as when entering the figure.
Note 4: The two rolls must be performed at the same altitude.
Note 5: The 2 half rolls must be higher than the 2 outer stall positions.

F8: Autorotation with Flip and two 90° Turns (DU) K=1.0
MA flies straight and level flight for a minimum of 10 m performs a pulled 360° flip in horizontal movement, flies horizontal straight and level for a maximum of 10 m and turns off the engine (or at idle) during this straight flight period, just before reaching the center line. MA executes 3 constantly descending sides with two 90° turns in the direction of the pilot and lands against the wind into the helipad.
Note 1: The descent rate must be constant to a point just before touchdown on the helipad.
Note 2: Parts of the second side, the second 90° turn and the beginning of the third side may be flown out of the 60° flight window.

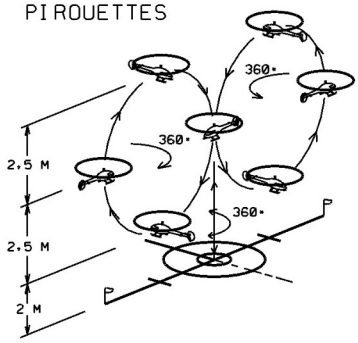
Scoring criteria for landing: See ANNEX 5E Paragraph 5E.6.11.

FIGURE 5D-SF/~~F~~: F3C MANOEUVRE SCHEDULE SF/~~F~~

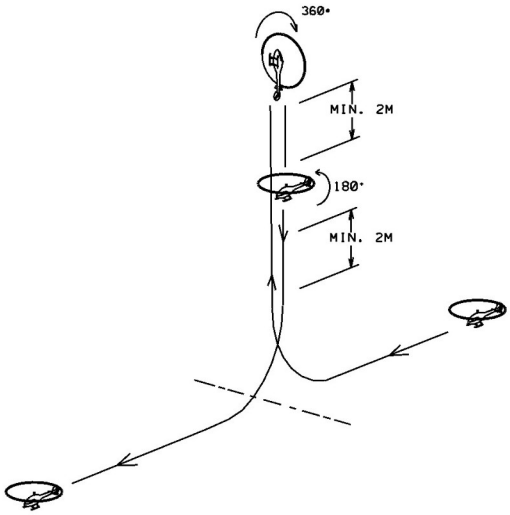
SF1. TULIP WITH 1/2 PIROUETTES



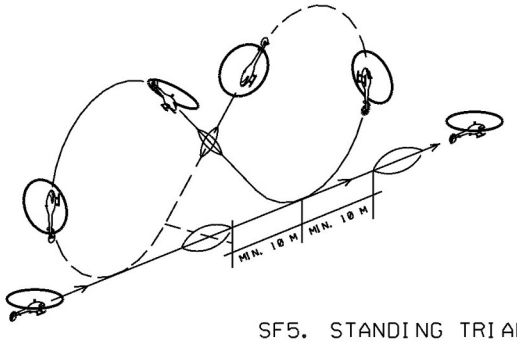
SF2. LAID EIGHT WITH PIROUETTES



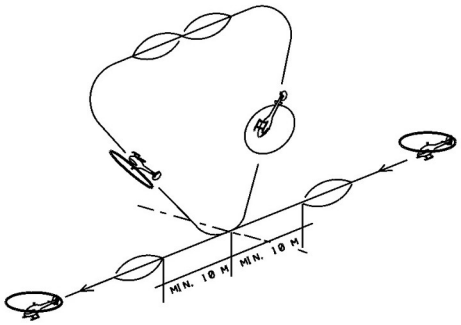
SF3. CANDLE WITH 360° TAIL TURN AND 180° PUSHED FLIP



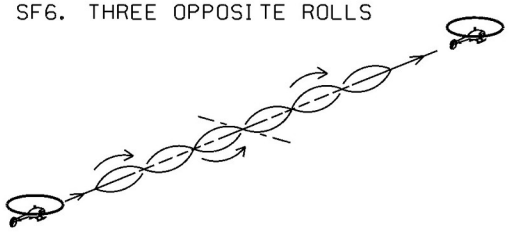
SF4. INVERTED CUBAN EIGHT WITH HALF ROLLS



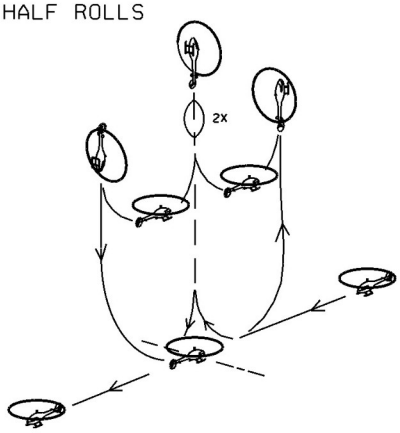
SF5. STANDING TRIANGLE



SF6. THREE OPPOSITE ROLLS



SF7. INVERTED UMBRELLA WITH HALF ROLLS



SF8. AUTOROTATION WITH FLIP AND TWO 90° TURNS

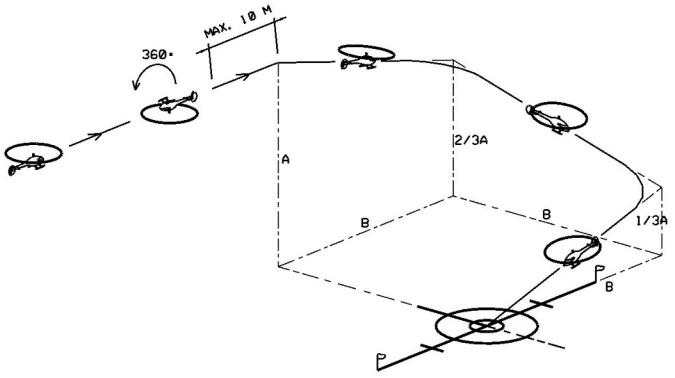
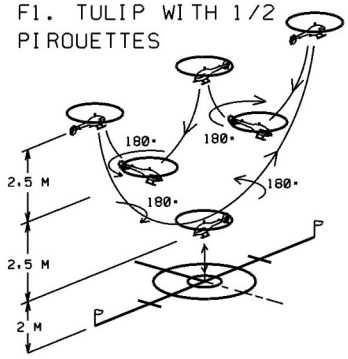
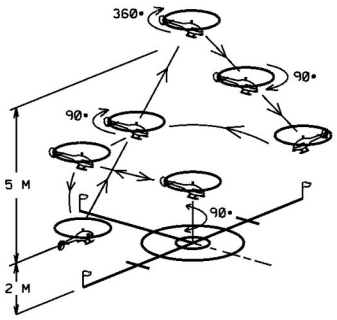


FIGURE 5D-F: F3C MANOEUVRE SCHEDULE F

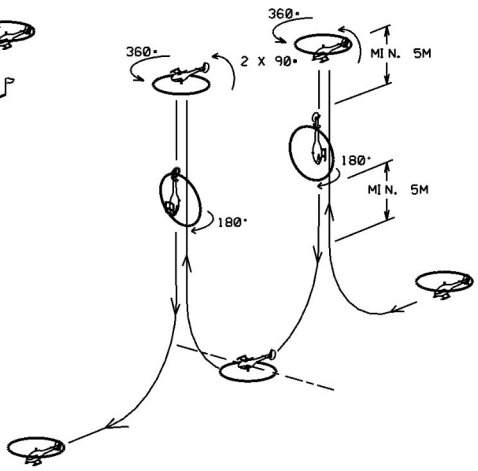
F1. TULIP WITH 1/2 PIROUETTES



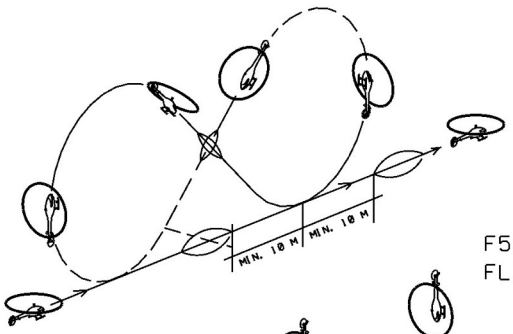
F2. 3D TRIANGLE WITH PIROUETTES



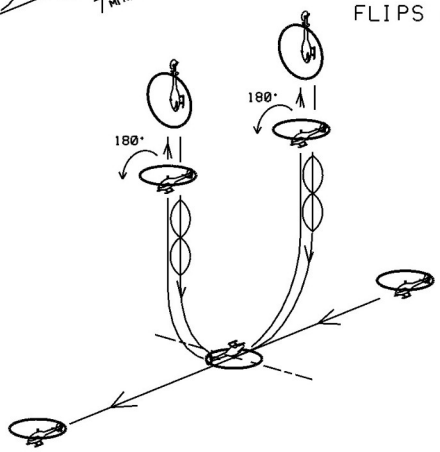
F3. M WITH 360° PIROUETTES



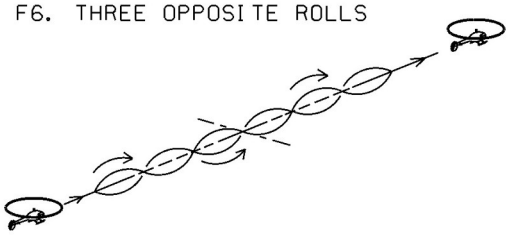
F4. INVERTED CUBAN EIGHT WITH HALF ROLLS



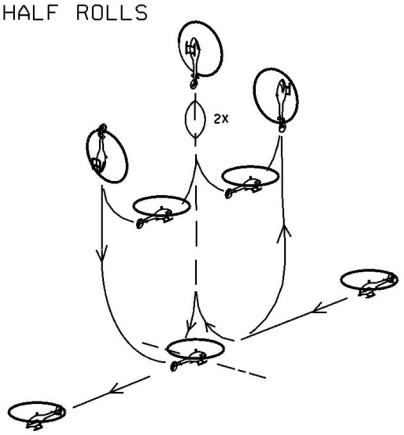
F5. DOUBLE CANDLE WITH FLIPS AND ROLLS



F6. THREE OPPOSITE ROLLS



F7. INVERTED UMBRELLA WITH HALF ROLLS



F8. AUTOROTATION WITH FLIP AND TWO 90° TURNS