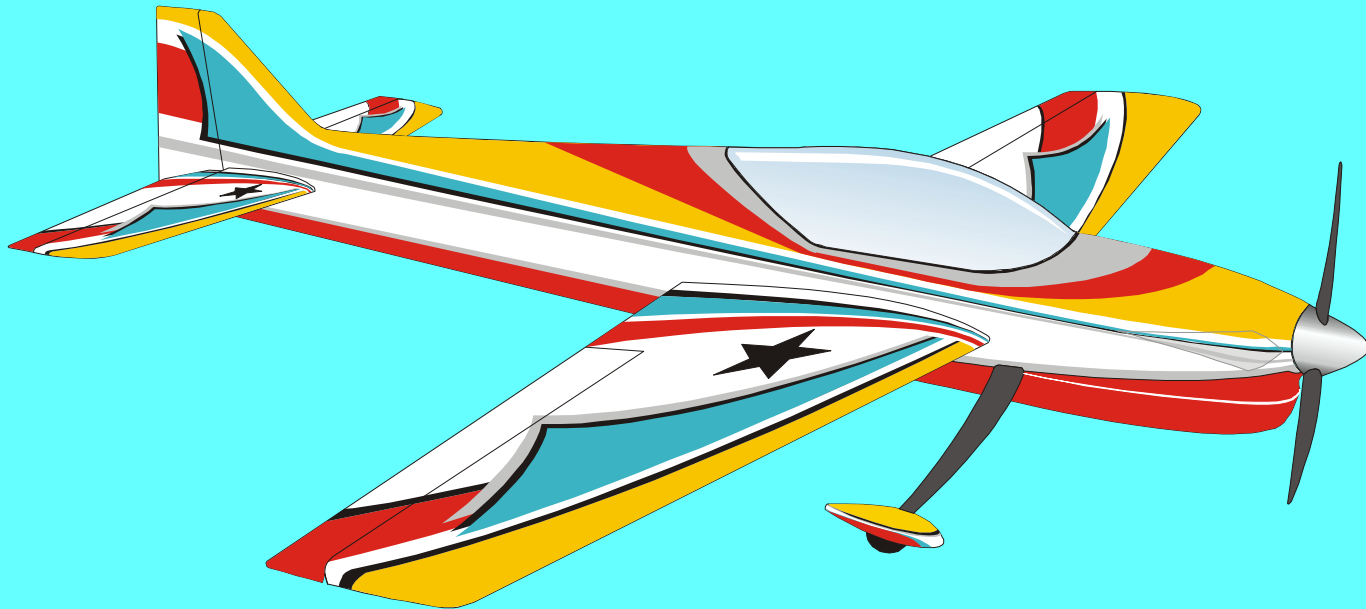


Flying and Judging F3A



SCHEMATIC MANOEUVRE ILLUSTRATIONS
SCHEDULE F-19

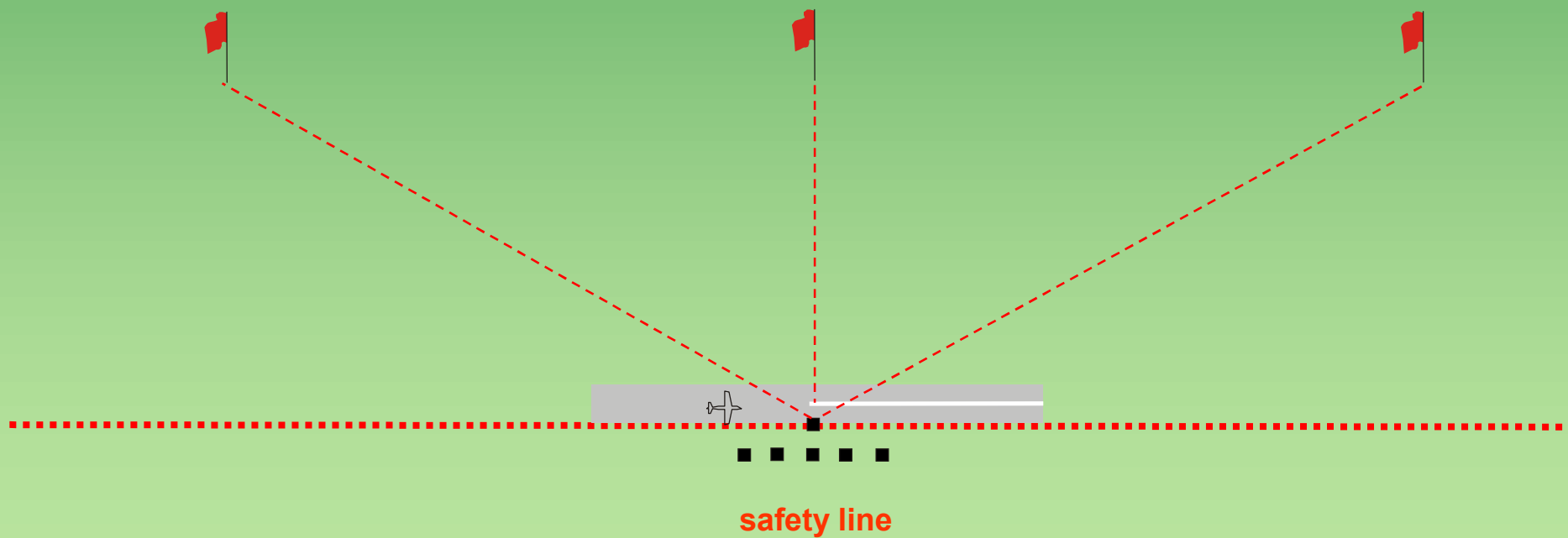
Drawings by Kent Hirose
July 2016

Drawings by Ken Hirose
July 2016



Take-off procedure (not judged, not scored)

 wind





F-19.01 Square Loop with $\frac{1}{2}$ roll integrated, $\frac{1}{2}$ roll integrated, $\frac{1}{2}$ roll integrated, $\frac{1}{2}$ roll integrated

$\frac{1}{2}$ roll integrated

$\frac{1}{2}$ roll integrated

$\frac{1}{2}$ roll integrated

$\frac{1}{2}$ roll integrated

From upright, perform a square loop while performing a $\frac{1}{2}$ roll integrated in each corner, exit upright.

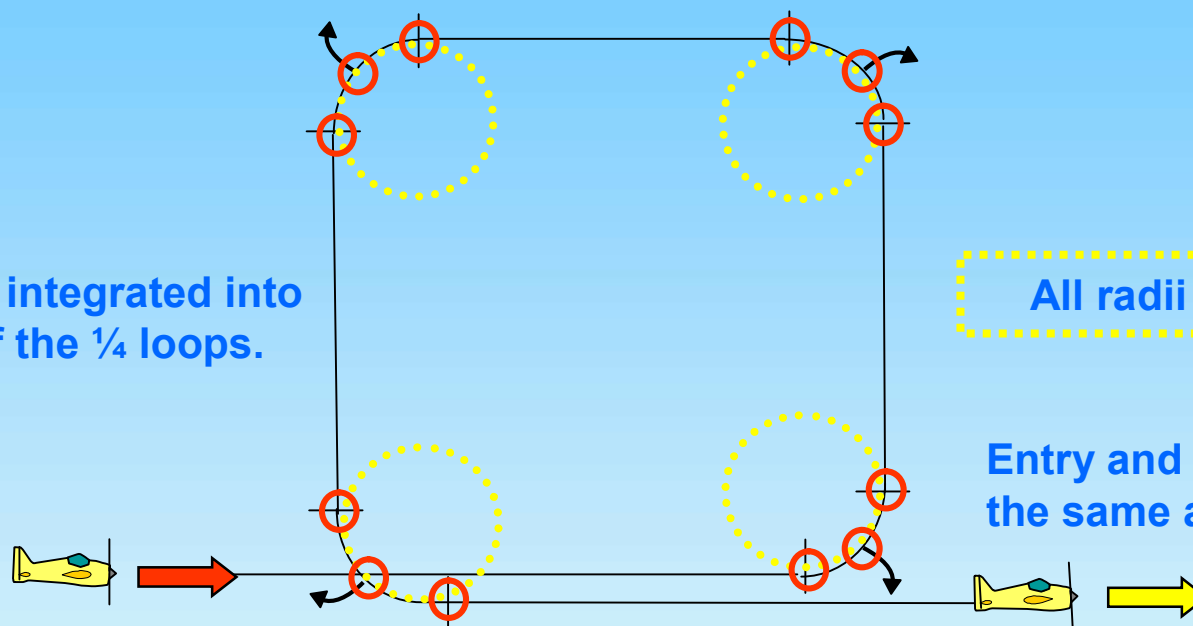


F-19.01 Square Loop with $\frac{1}{2}$ roll integrated, $\frac{1}{2}$ roll integrated, $\frac{1}{2}$ roll integrated, $\frac{1}{2}$ roll integrated

$\frac{1}{2}$ rolls must be integrated into the flightpath of the $\frac{1}{4}$ loops.

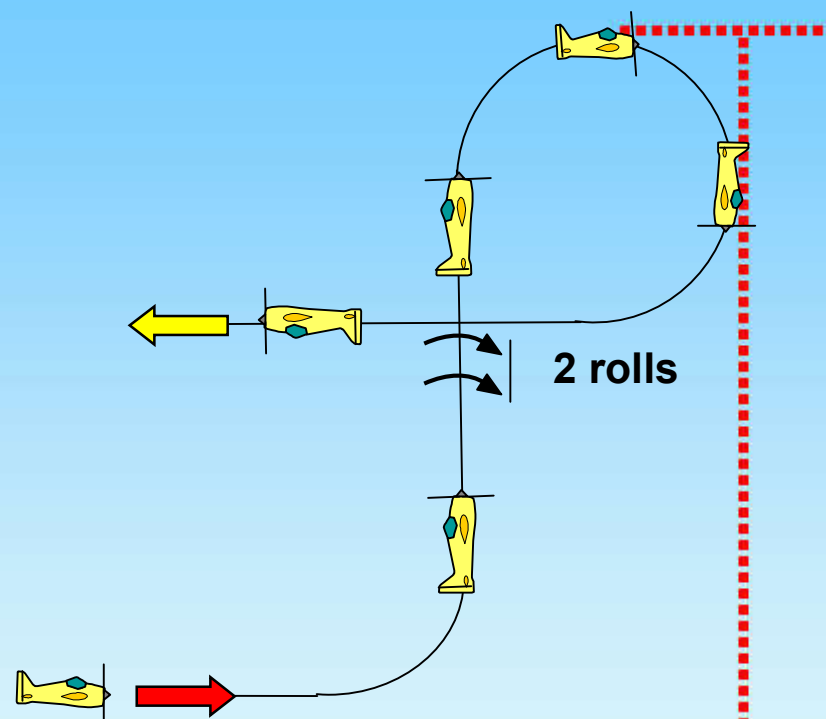
All radii are equal.

Entry and exit must be at the same altitude.





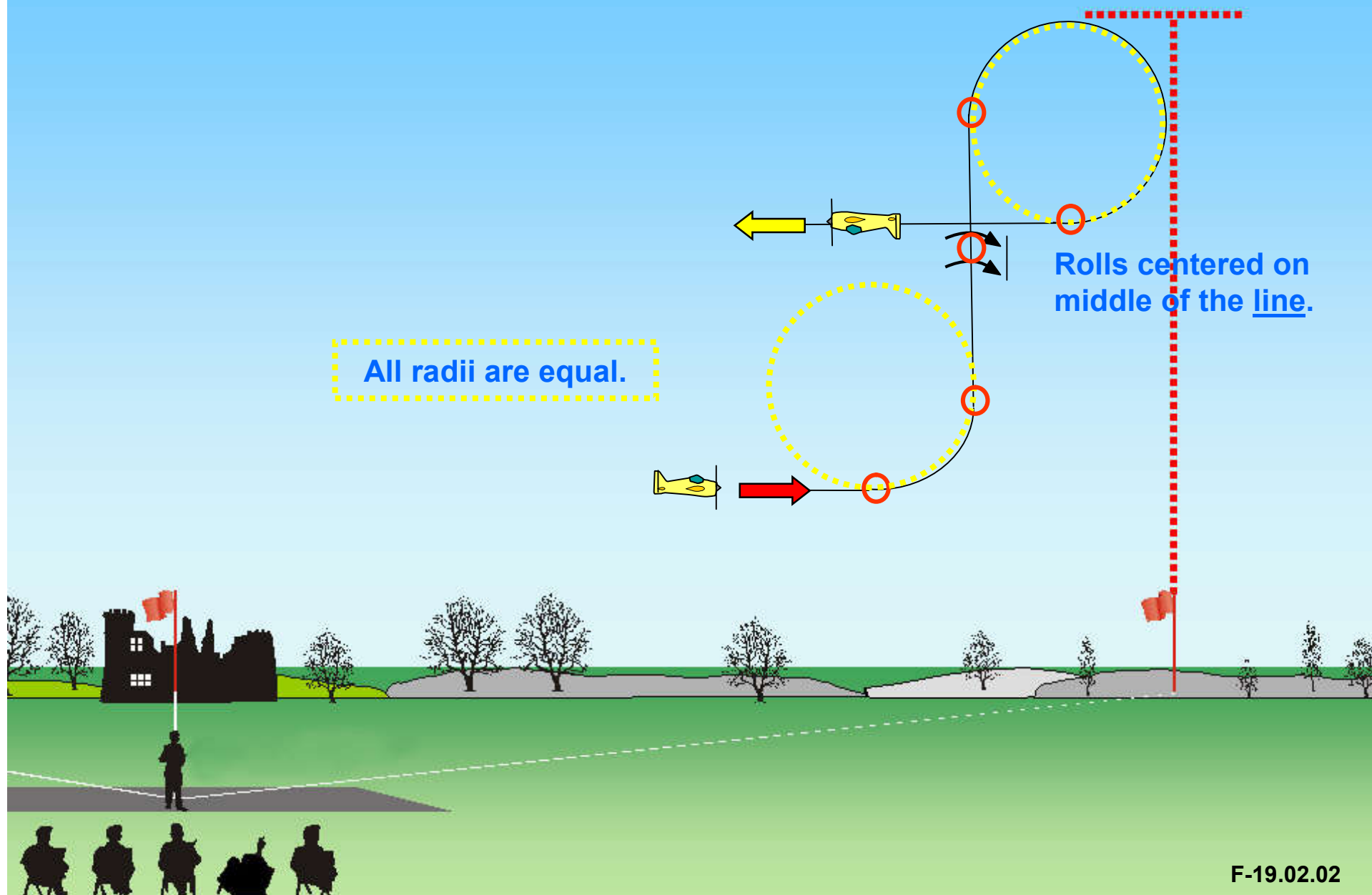
F-19.02 Figure 9 with two rolls



From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, perform two continuous rolls, push through a $\frac{3}{4}$ loop, exit inverted.

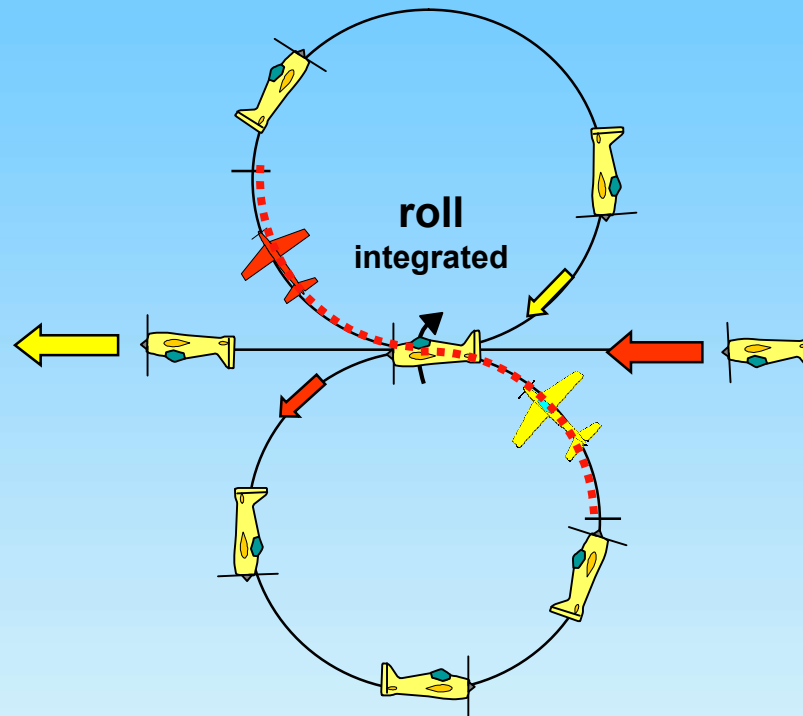


F-19.02 Figure 9 with two rolls





F-19.03 Vertical 8 with roll integrated

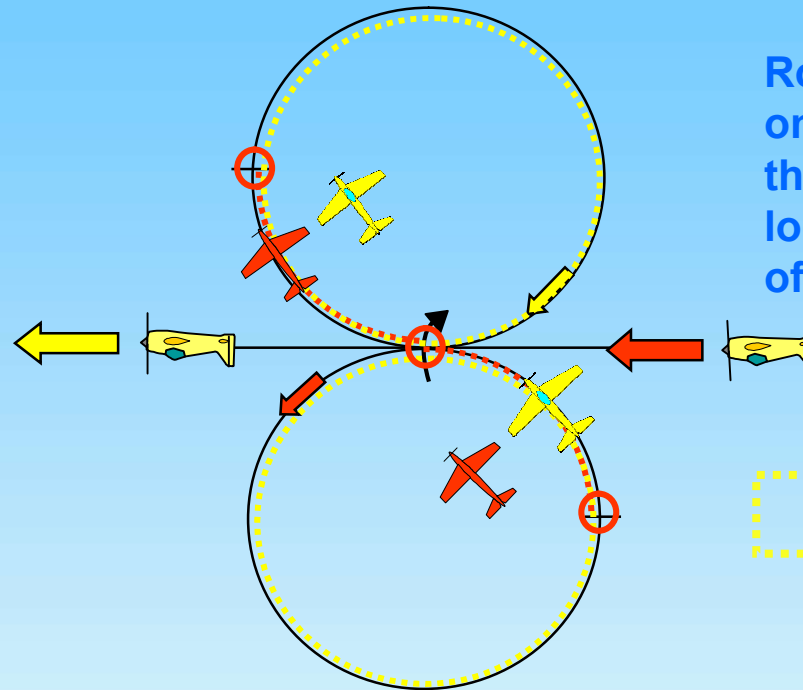


From inverted, pull through a loop, pull through another loop while performing a roll integrated in the last 90° of the first loop and in the first 90° of the second loop, exit inverted.



F-19.03 Vertical 8 with roll integrated

Loops must be round



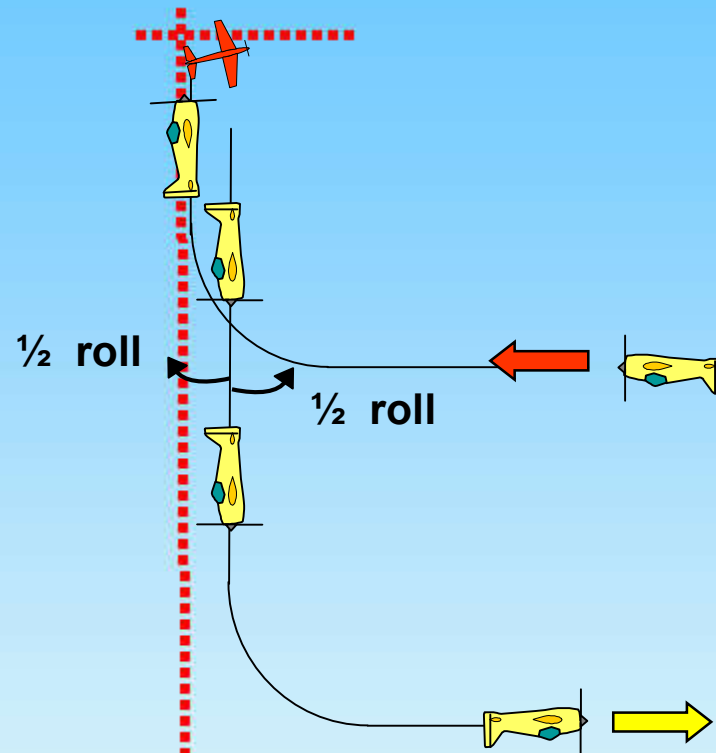
Roll must be integrated on circular flightpath in the last 90° of the first loop and in the first 90° of the second loop.

All radii are equal.





F-19.04 Stall Turn with consecutive $\frac{1}{2}$ rolls in opposite directions

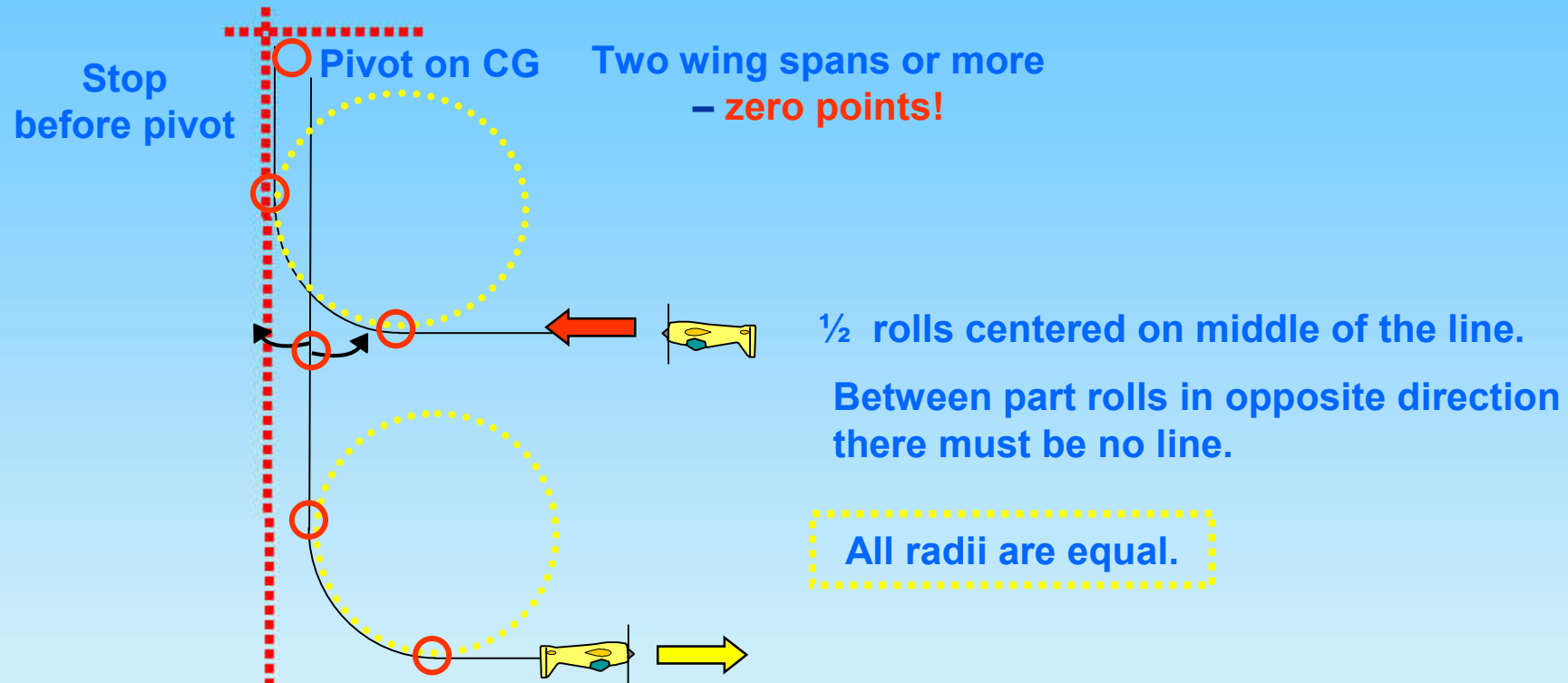


From inverted, push through a $\frac{1}{4}$ loop into a vertical upline, perform a stall turn in a vertical downline, perform consecutively two $\frac{1}{2}$ rolls in opposite directions, push through a $\frac{1}{4}$ loop, exit inverted.



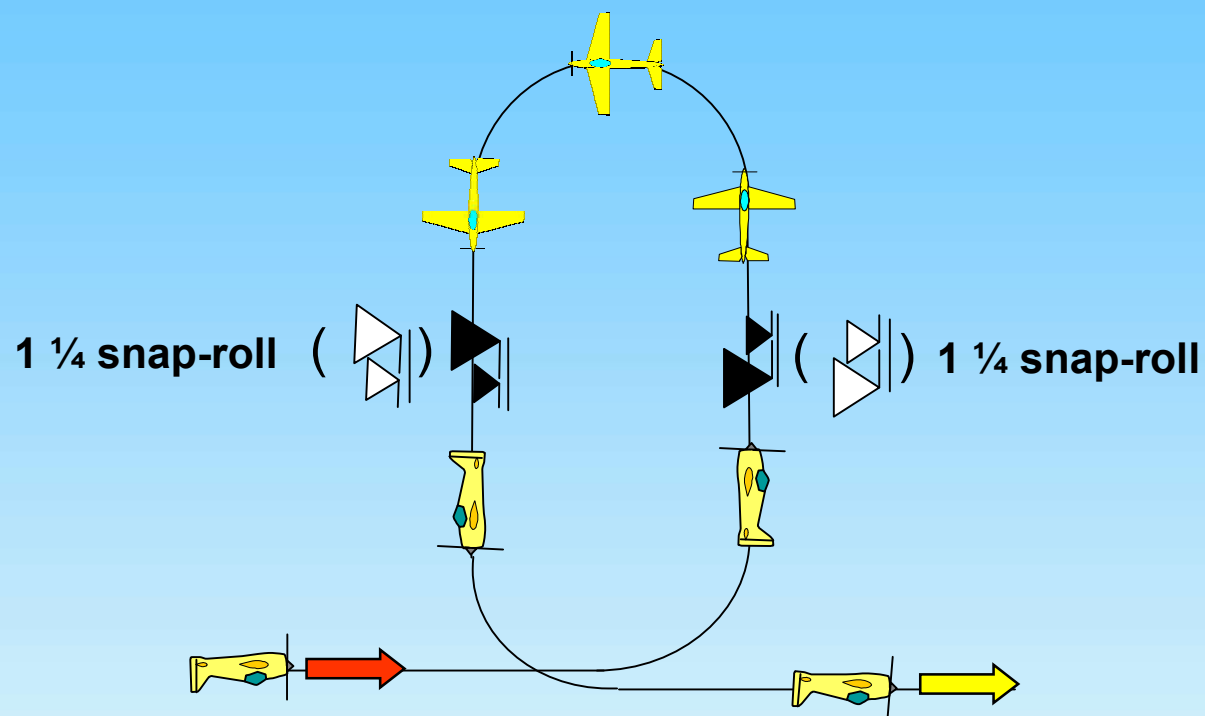


F-19.04 Stall Turn with consecutive $\frac{1}{2}$ rolls in opposite directions





F-19.05 Push-Knife-Edge-Push Humpty-Bump with 1 ¼ snap-roll, 1 ¼ snap-roll



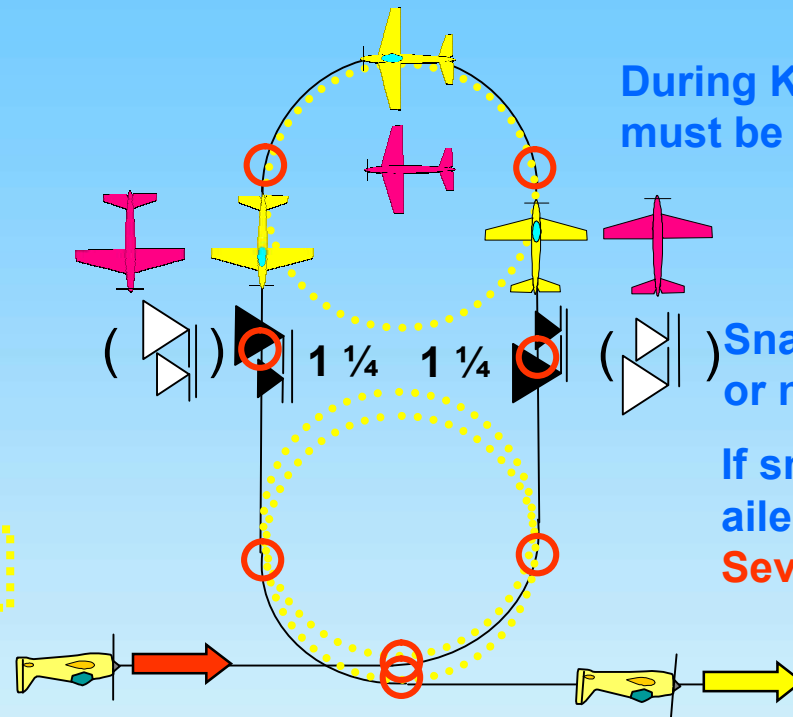
From inverted, push through a ¼ loop into a vertical upline, perform a 1 ¼ snap-roll, perform a ½ knife-edgeloop into a vertical downline, perform a 1 ¼ snap-roll, push through a ¼ loop, exit inverted.



F-19.05 Push-Knife-Edge-Push Humpty-Bump with 1 ¼ snap-roll, 1 ¼ snap-roll

1 ¼ snap-rolls on middle of the lines.

All radii are equal.



During Knife Edge the wing must be in the vertical plane.

Snap rolls may be positive or negative.

If snap roll = barrel roll or aileron roll:

Severe downgrade > 5 pts.

Entry and exit must be at the same altitude.

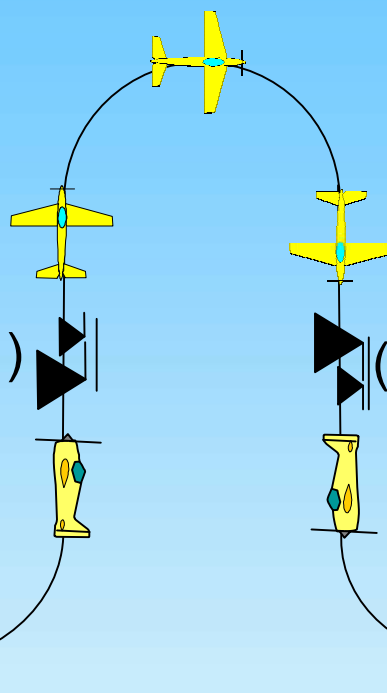




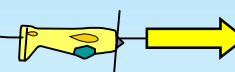
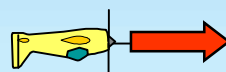
F-19.05 Push-Knife-Edge-Push Humpty-Bump with 1 ¼ snap-roll, 1 ¼ snap-roll

or

1 ¼ snap-roll



1 ¼ snap-roll





F-19.05 Push-Knife-Edge-Push Humpty-Bump with 1 ¼ snap-roll, 1 ¼ snap-roll

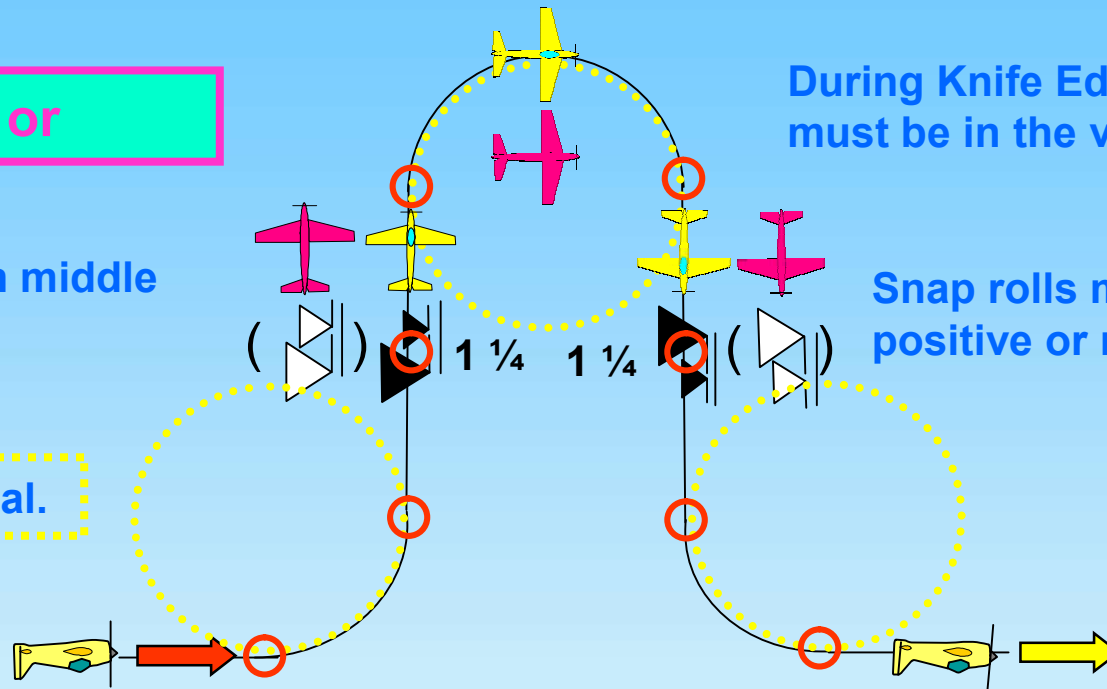
or

1 ¼ snap-rolls on middle of the lines.

All radii are equal.

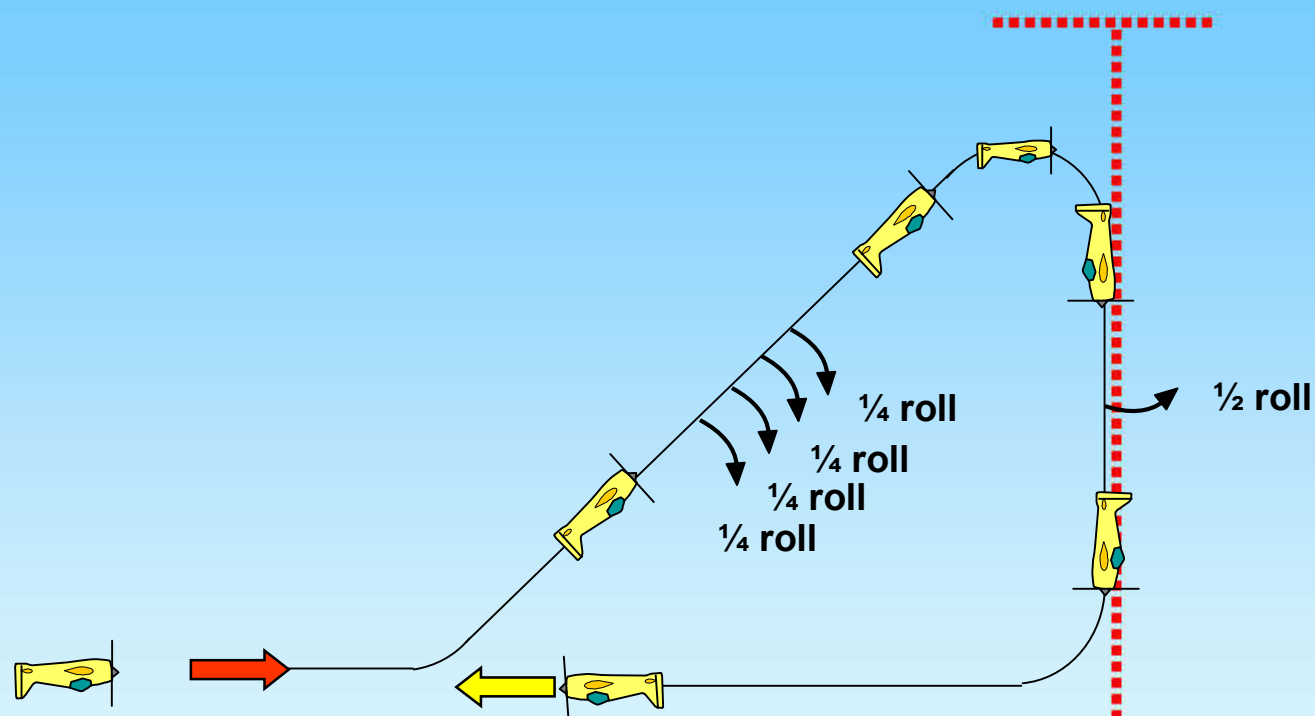
During Knife Edge the wing must be in the vertical plane.

Snap rolls may be positive or negative.





F-19.06 Shark Fin with four consecutive $\frac{1}{4}$ rolls, $\frac{1}{2}$ roll



From inverted, push through a $\frac{1}{8}$ loop into a 45° upline, perform consecutively four $\frac{1}{4}$ rolls, pull through a $\frac{3}{8}$ loop into a vertical downline, perform a $\frac{1}{2}$ roll, push through a $\frac{1}{4}$ loop, exit inverted.

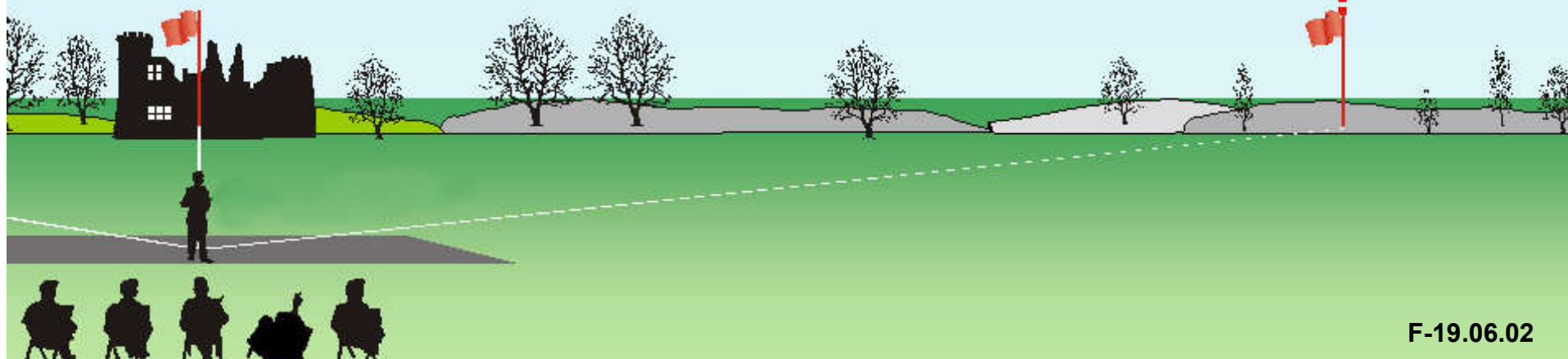
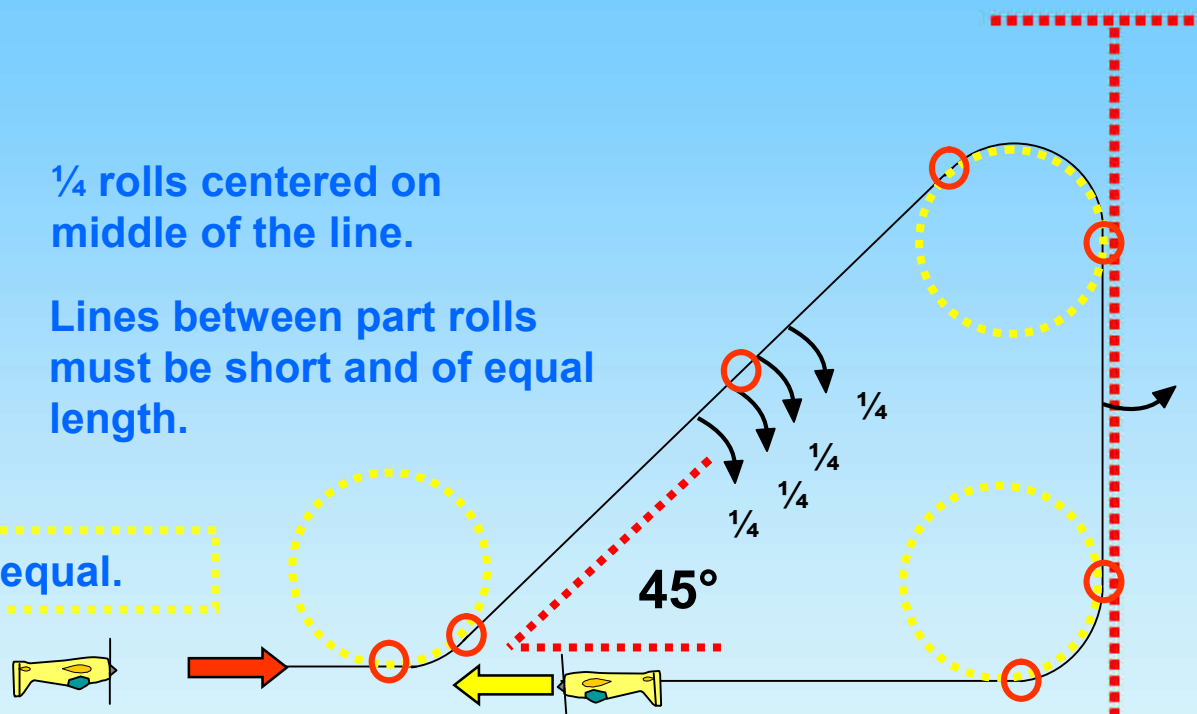


F-19.06 Shark Fin with four consecutive $\frac{1}{4}$ rolls, $\frac{1}{2}$ roll

$\frac{1}{4}$ rolls centered on
middle of the line.

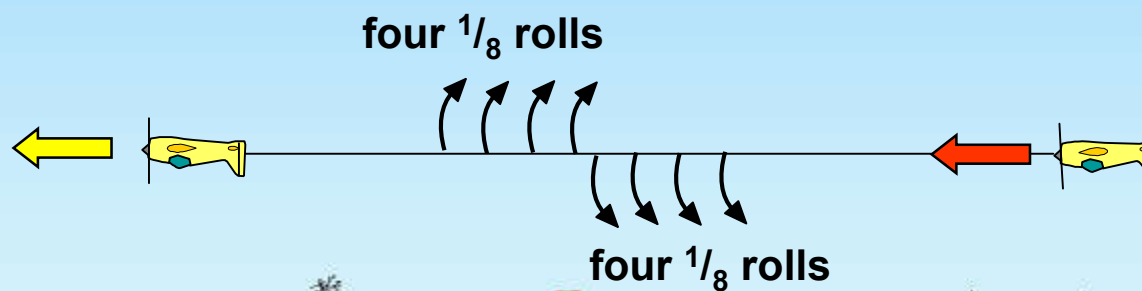
Lines between part rolls
must be short and of equal
length.

All radii are equal.





F-19.07 Roll Combination with four $\frac{1}{8}$ rolls, four $\frac{1}{8}$ rolls in opposite direction



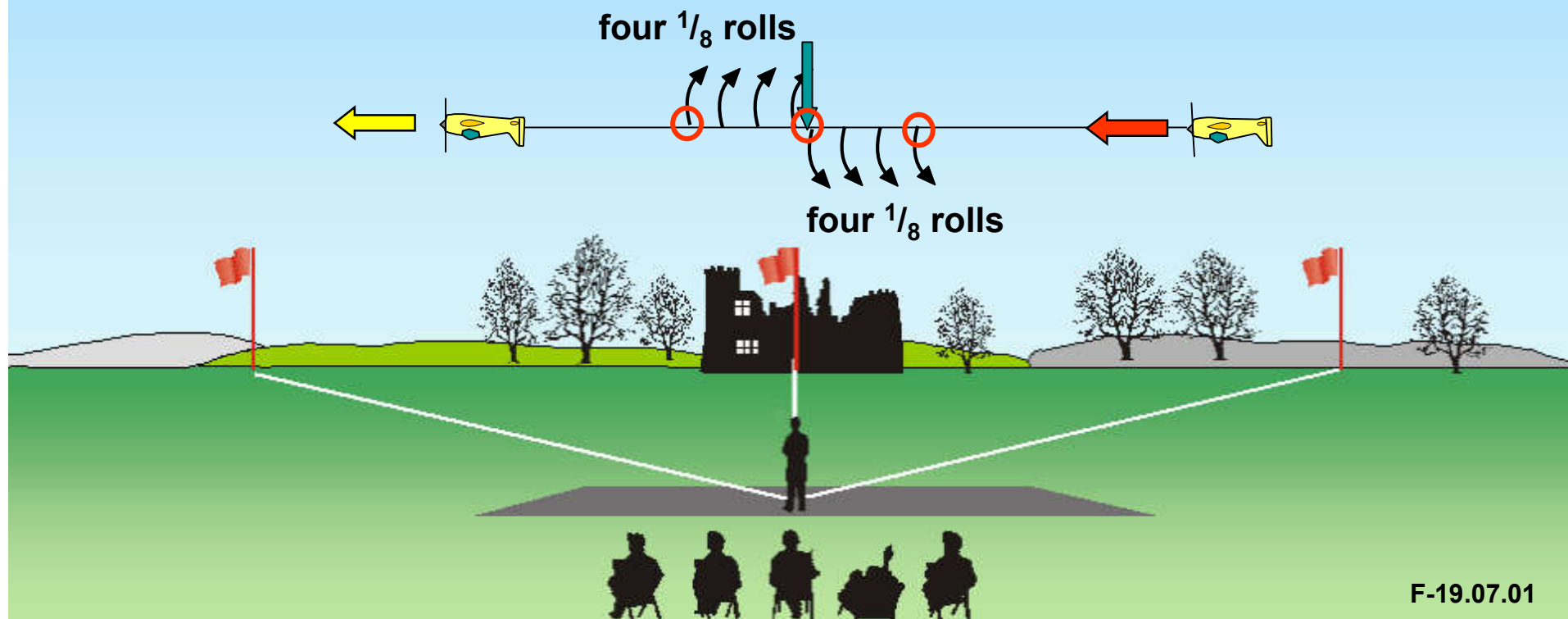
From inverted, perform consecutively four $\frac{1}{8}$ rolls and four $\frac{1}{8}$ rolls in opposite direction, exit inverted.



F-19.07 Roll Combination with four 1/8 rolls, four 1/8 rolls in opposite direction

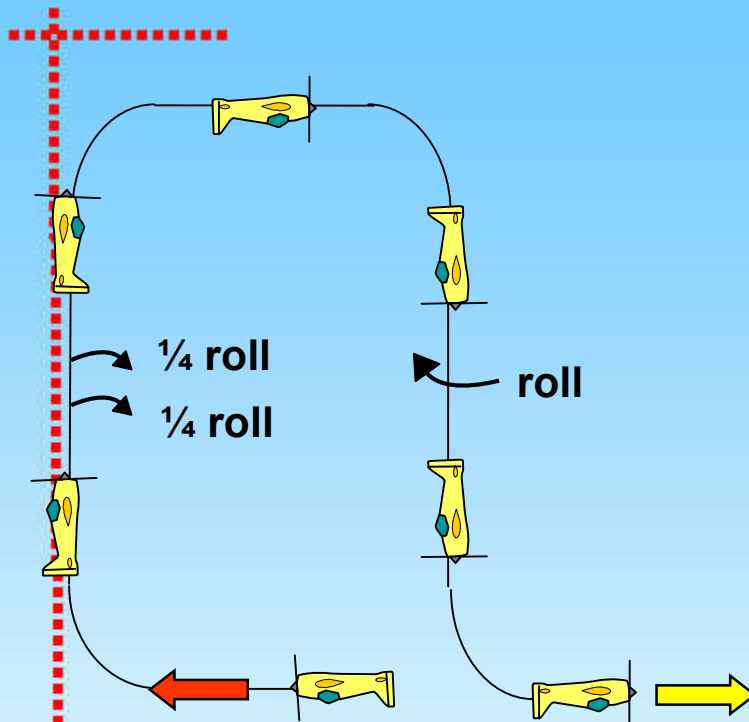
Lines between part rolls must be short and of equal length.

Between part rolls in opposite direction there must be no line.





F-19.08 Top Hat with two consecutive $\frac{1}{4}$ rolls, roll

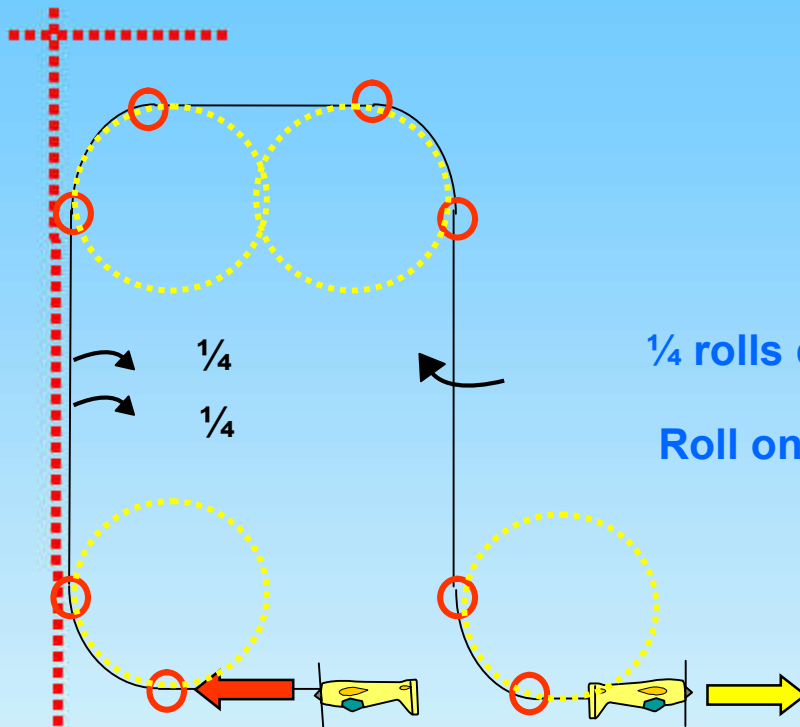


From inverted, push through a $\frac{1}{4}$ loop into a vertical upline, perform consecutively two $\frac{1}{4}$ rolls, pull through a $\frac{1}{4}$ loop into inverted flight, pull through a $\frac{1}{4}$ loop into a vertical downline, perform a roll, push through a $\frac{1}{4}$ loop, exit inverted.





F-19.08 Top Hat with two consecutive $\frac{1}{4}$ rolls, roll



Lines between part rolls
must be short and of
recognizable length.

$\frac{1}{4}$ rolls centered on middle of the line.

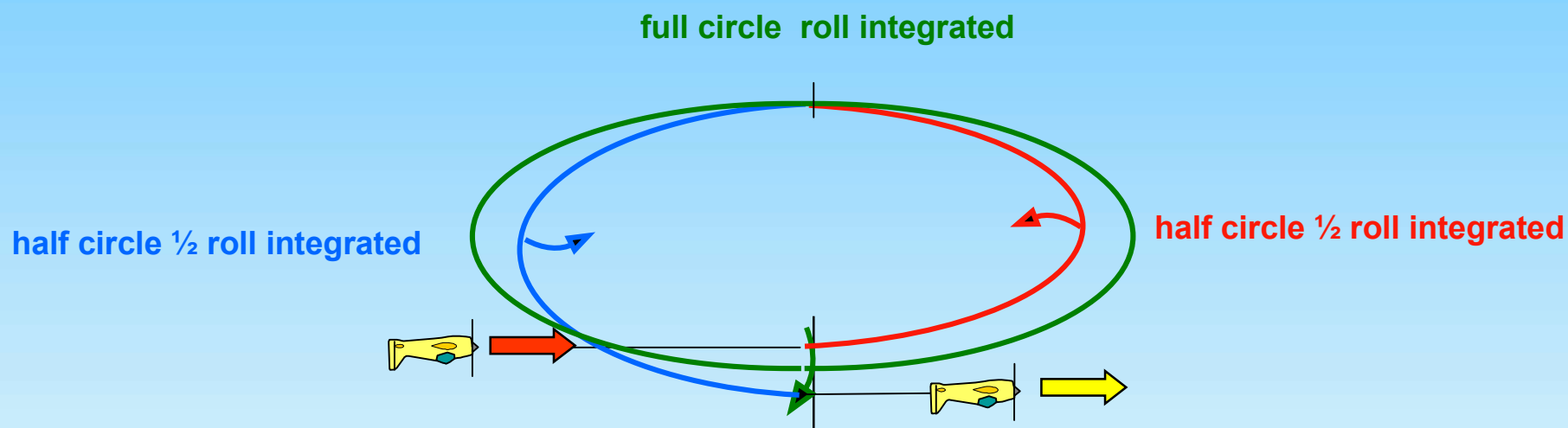
Roll on middle of the line.

All radii are equal.





F-19.09 Two Horizontal Circles with $\frac{1}{2}$ roll to the inside integrated, roll integrated in opposite direction, $\frac{1}{2}$ roll integrated in opposite direction



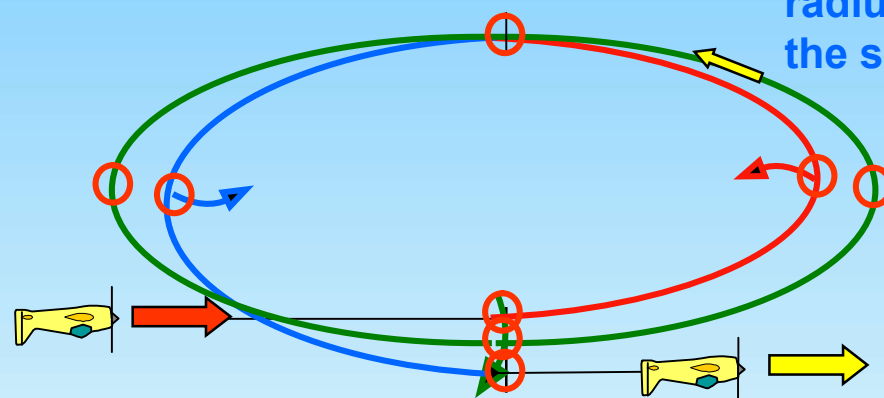
From Inverted, perform two horizontal circles with a $\frac{1}{2}$ roll to the inside integrated in the first 180° , a roll integrated in the following 360° in opposite direction, a $\frac{1}{2}$ roll integrated in the final 180° in opposite direction, exit inverted.



F-19.09 Two Horizontal Circles with $\frac{1}{2}$ roll to the inside integrated, roll integrated in opposite direction, $\frac{1}{2}$ roll integrated in opposite direction

Roll rates must be constant.

Circles must be of constant radius and must be flown at the same altitude.



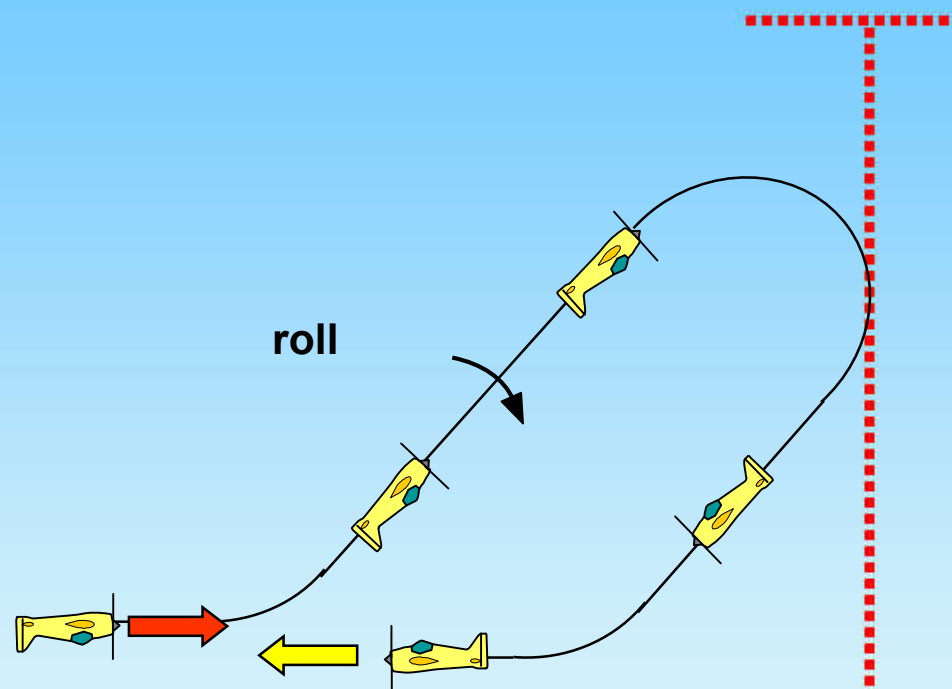
Roll reversal must be immediate.

All rolls must be integrated on circular flightpath.





F-19.10 Trombone with roll



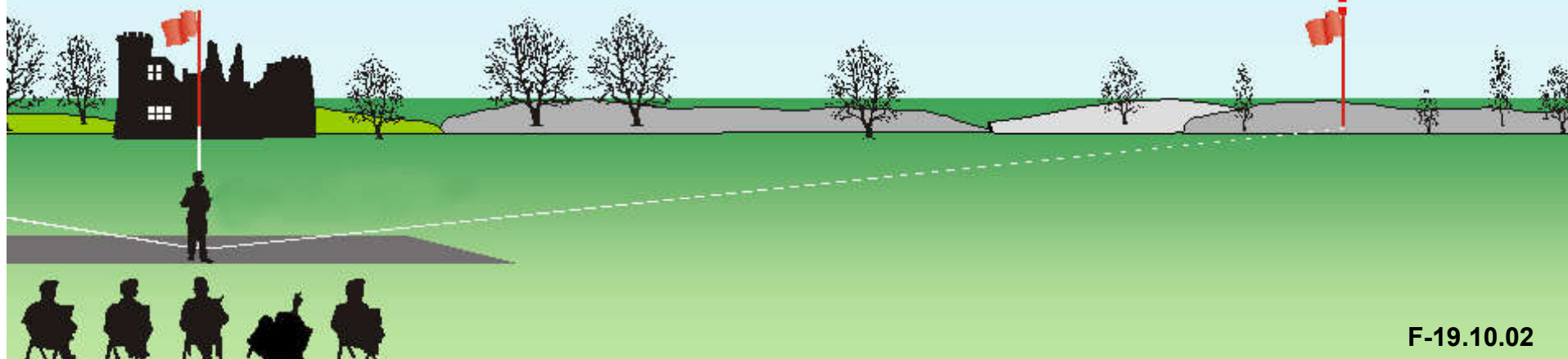
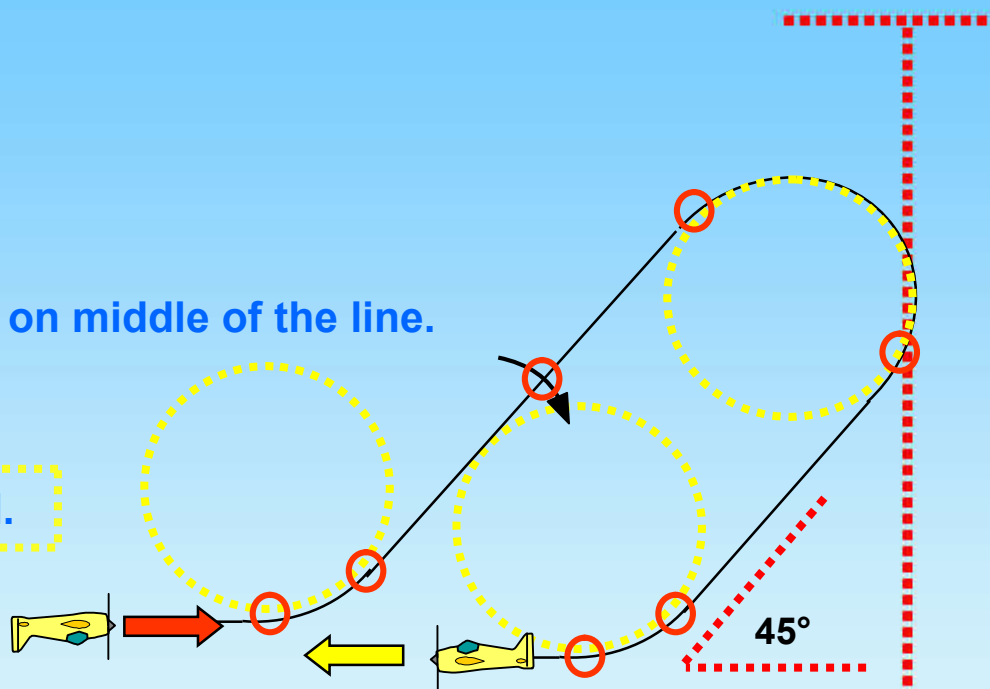
From inverted, push through a $\frac{1}{8}$ loop into a 45° upline, perform a roll, **pull** or push through a $\frac{1}{2}$ loop into a 45° downline, pull through a $\frac{1}{8}$ loop, exit upright.



F-19.10 Trombone with roll

Roll on middle of the line.

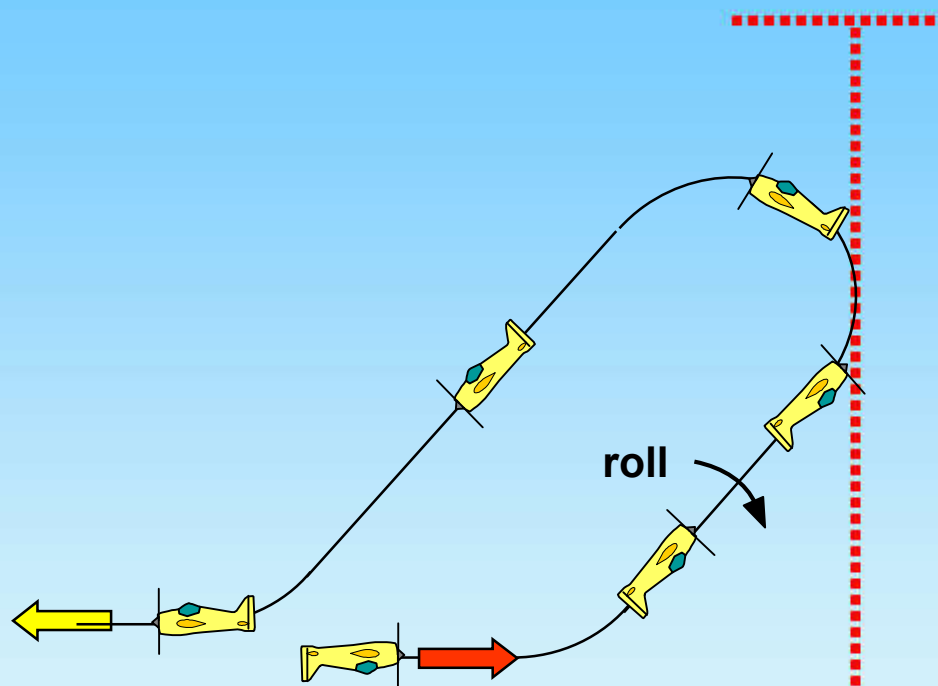
All radii are equal.





F-19.10 Trombone with roll

or



From inverted, push through a $\frac{1}{8}$ loop into a 45° upline, perform a roll, pull or **push** through a $\frac{1}{2}$ loop into a 45° downline, pull through a $\frac{1}{8}$ loop, exit upright.



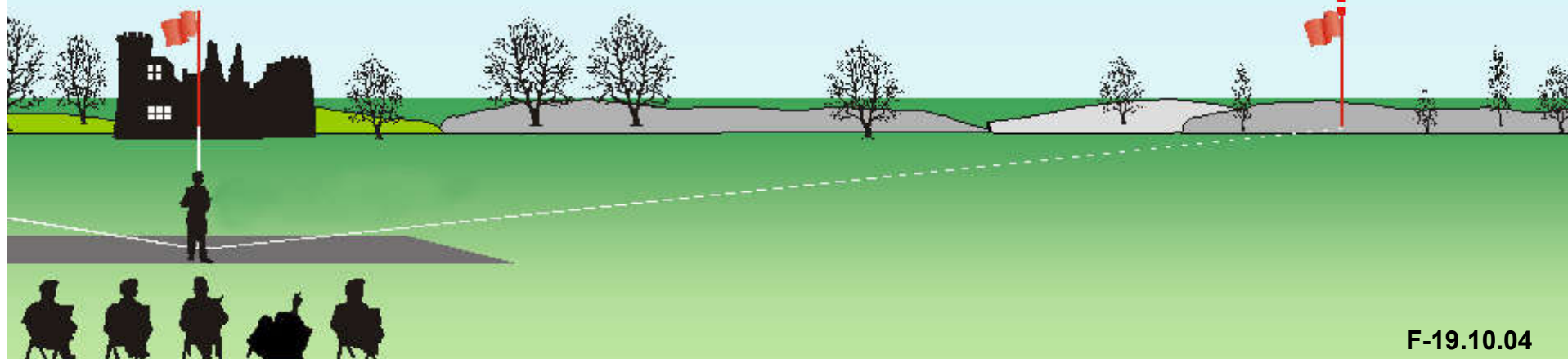
F-19.10 Trombone with roll

or

All radii are equal.

Roll on middle
of the line.

45°

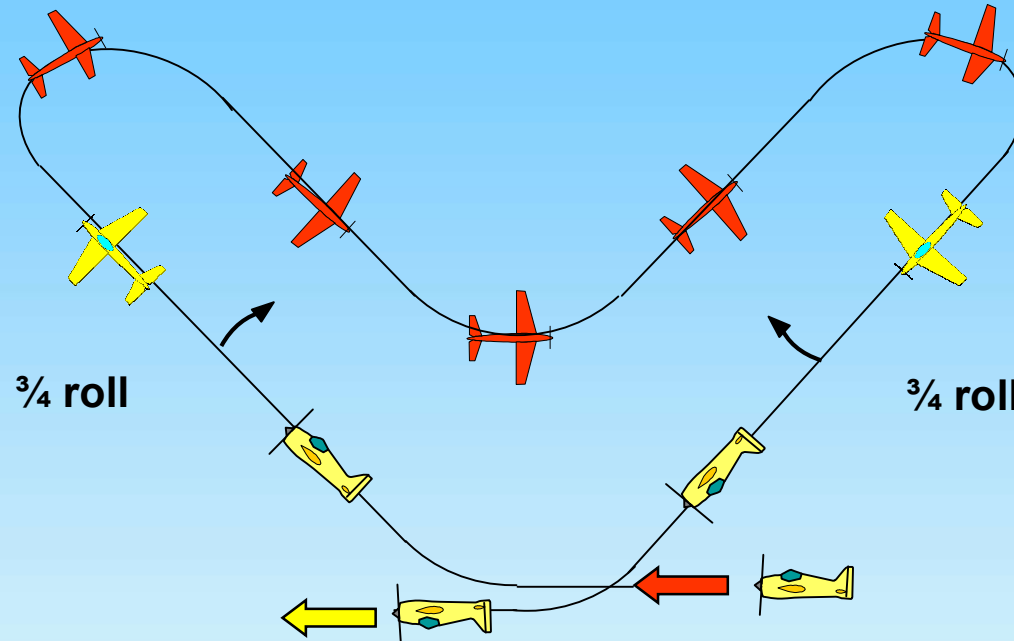




F.19.11 Double Fighter Turn with $\frac{3}{4}$ roll, $\frac{3}{4}$ roll

pushed half circle

pushed half circle

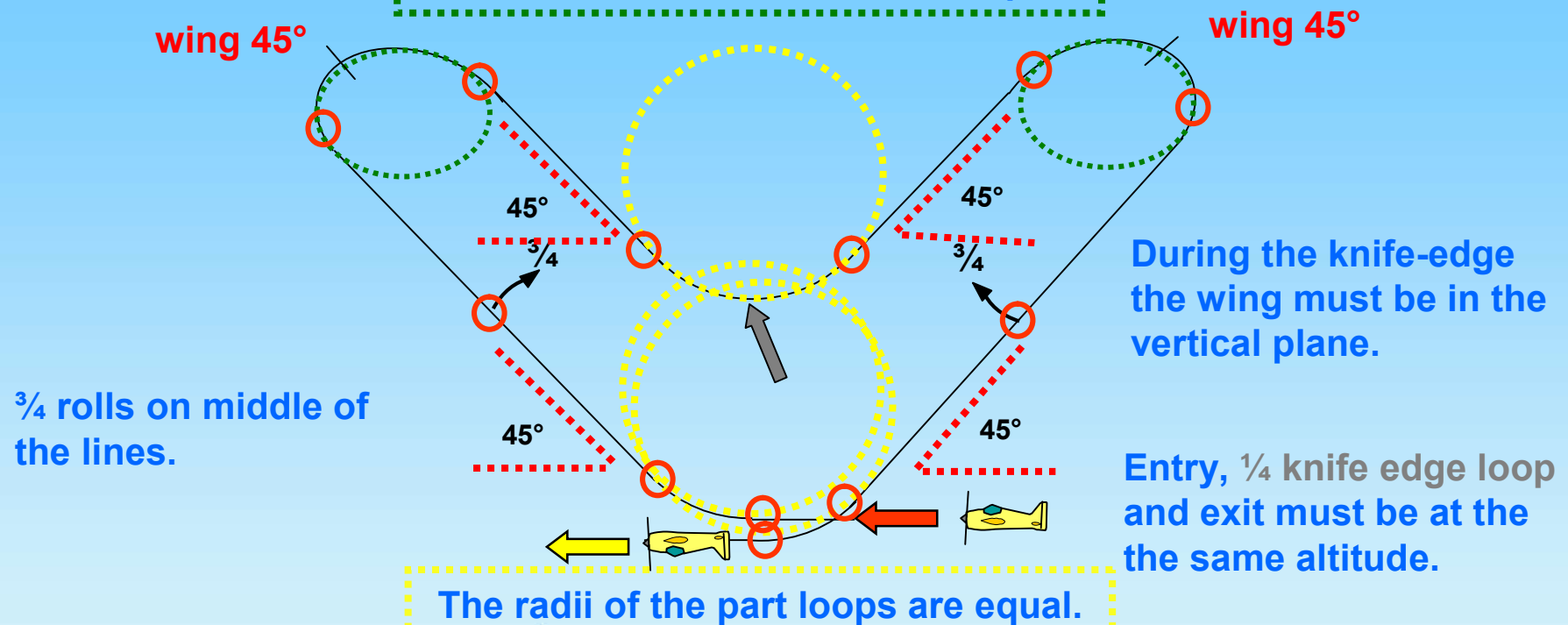


From upright, pull through a $\frac{1}{8}$ loop into a 45° upline, perform a $\frac{3}{4}$ roll, push through a $\frac{1}{2}$ knife-edge circle into a 45° downline, perform a $\frac{1}{4}$ knife-edge loop into a 45° upline, push through a $\frac{1}{2}$ knife-edge circle into a 45° downline, perform a $\frac{3}{4}$ roll, push through a $\frac{1}{8}$ loop, exit inverted.



F.19.11 Double Fighter Turn with $\frac{3}{4}$ roll, $\frac{3}{4}$ roll

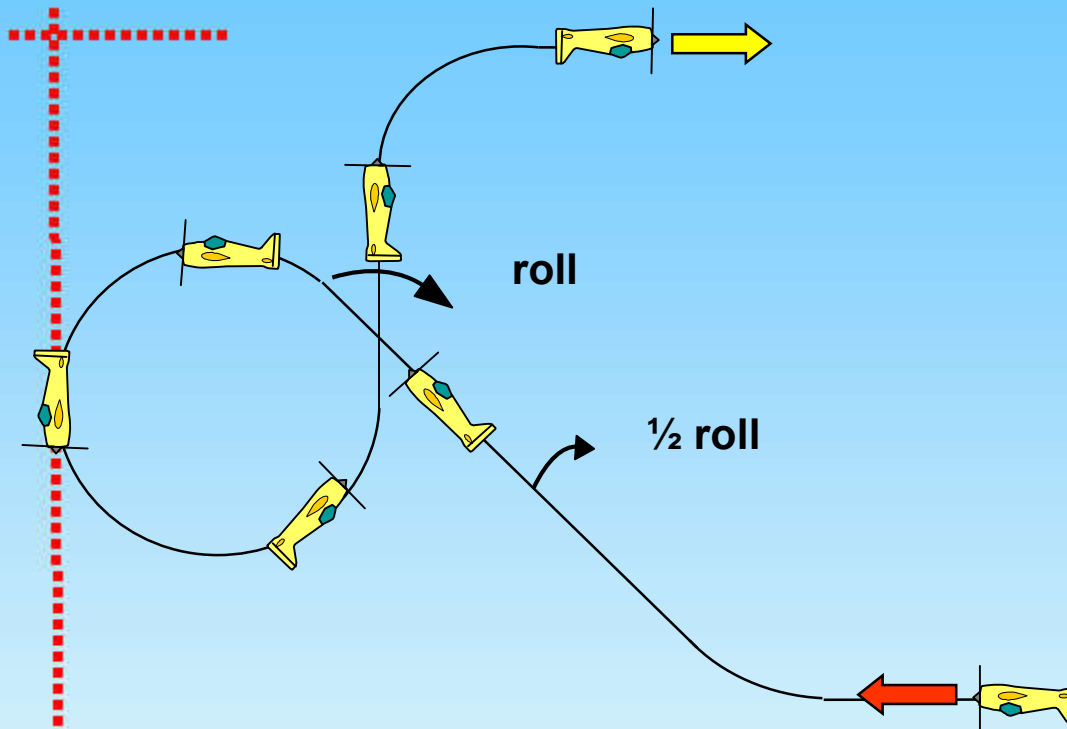
The radii of the half circles are equal.



The radii of the part loops are equal.



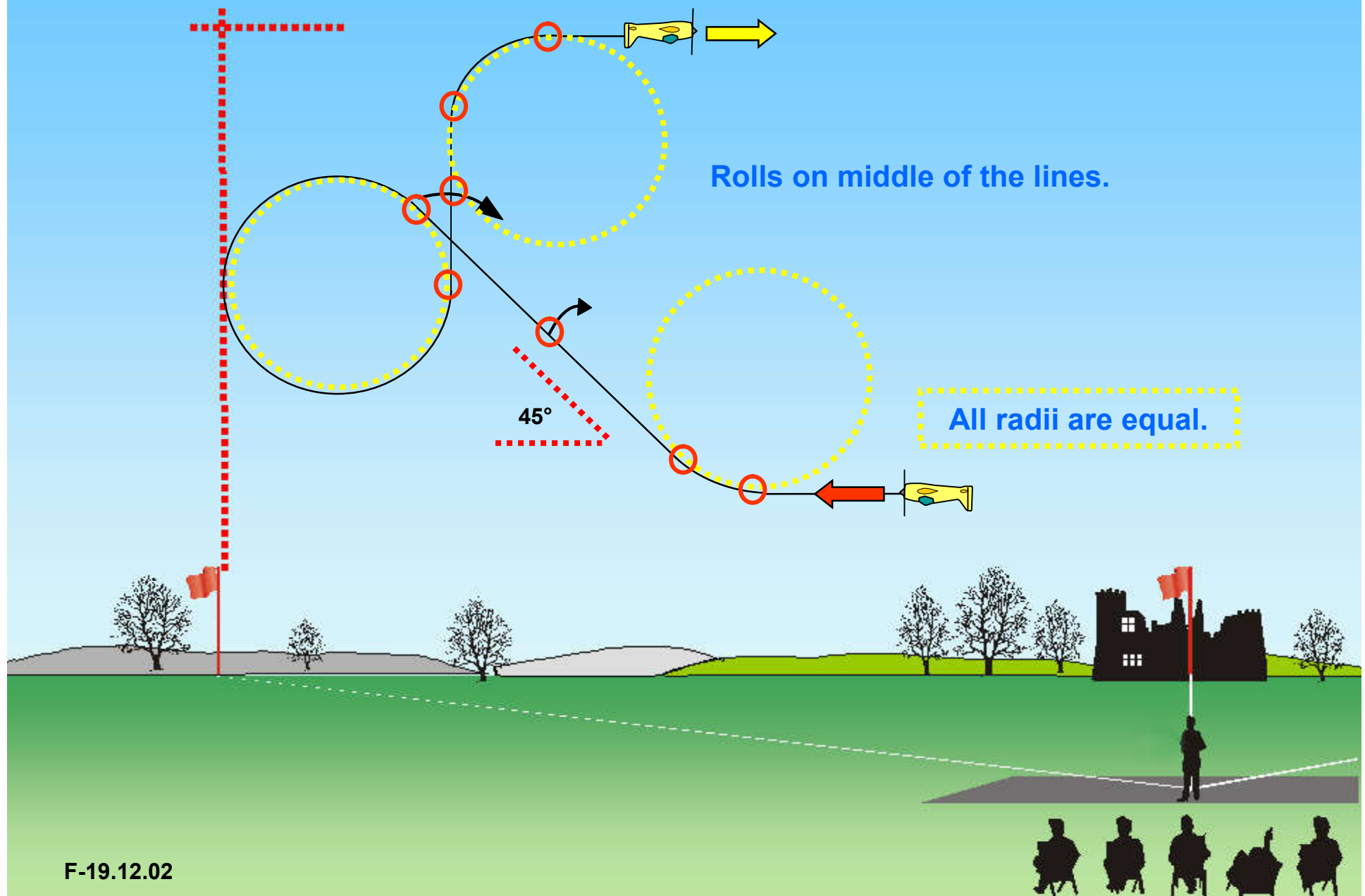
F-19.12 Inverted Figure Et with $\frac{1}{2}$ roll, roll



From inverted, push through a $\frac{1}{8}$ loop into a 45° upline, perform a $\frac{1}{2}$ roll, push through a $\frac{7}{8}$ loop into a vertical upline, perform a roll, pull through a $\frac{1}{4}$ loop, exit inverted.

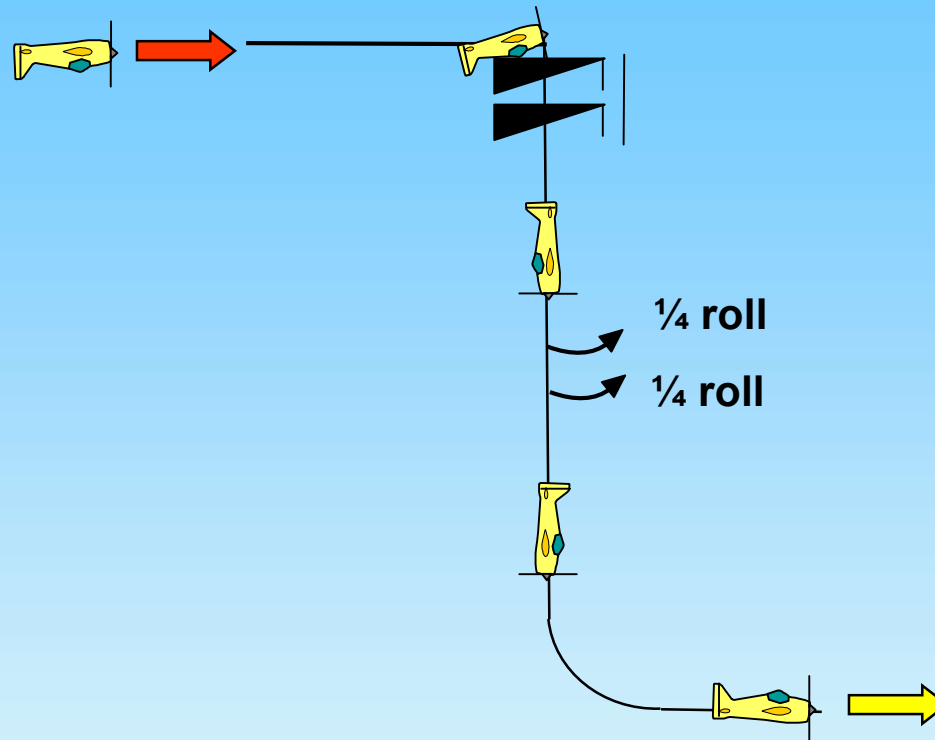


F-19.12 Inverted Figure Et with $\frac{1}{2}$ roll, roll





F-19.13 Inverted Spin with two turns, two consecutive $\frac{1}{4}$ rolls



From inverted, perform an inverted spin with two turns, perform a vertical downline, perform consecutively two $\frac{1}{4}$ rolls, pull through a $\frac{1}{4}$ loop, exit upright.



F-19.13 Inverted Spin with two turns, two consecutive $\frac{1}{4}$ rolls



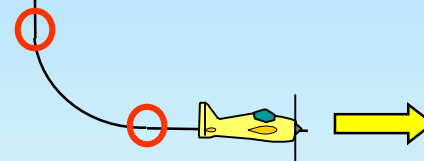
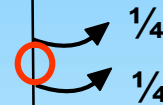
Snap entry - **zero points!**

Spiral dive - **zero points!**

Forced entry - **downgrade.**

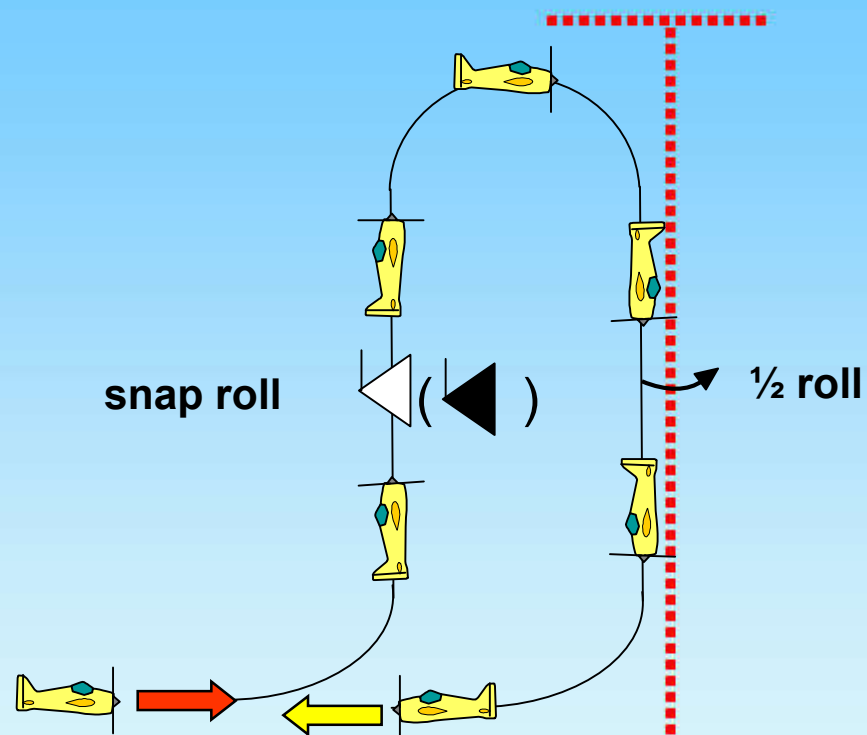
$\frac{1}{4}$ rolls centered on middle of the line.

Lines between part rolls must be short and of recognizable length.





F-19.14 Pull-Push-Pull Humpty-Bump with snap-roll, $\frac{1}{2}$ roll (Option: with $1\frac{1}{4}$ snap-roll, $\frac{3}{4}$ roll)



From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, perform a snap-roll, push through a $\frac{1}{2}$ loop into a vertical downline, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{4}$ loop, exit upright.



F-19.14 Pull-Push-Pull Humpty-Bump with snap-roll, $\frac{1}{2}$ roll (Option: with $1\frac{1}{4}$ snap-roll, $\frac{3}{4}$ roll)

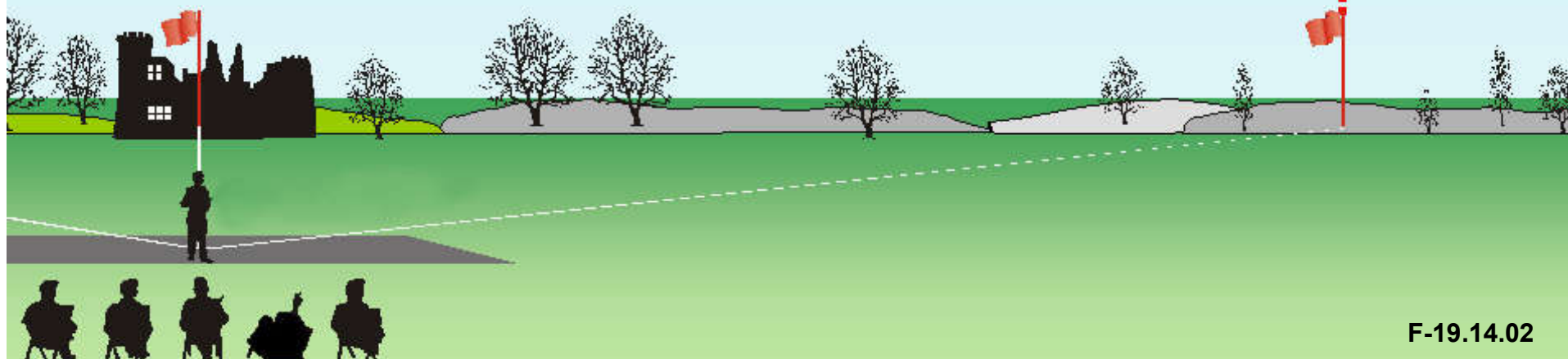
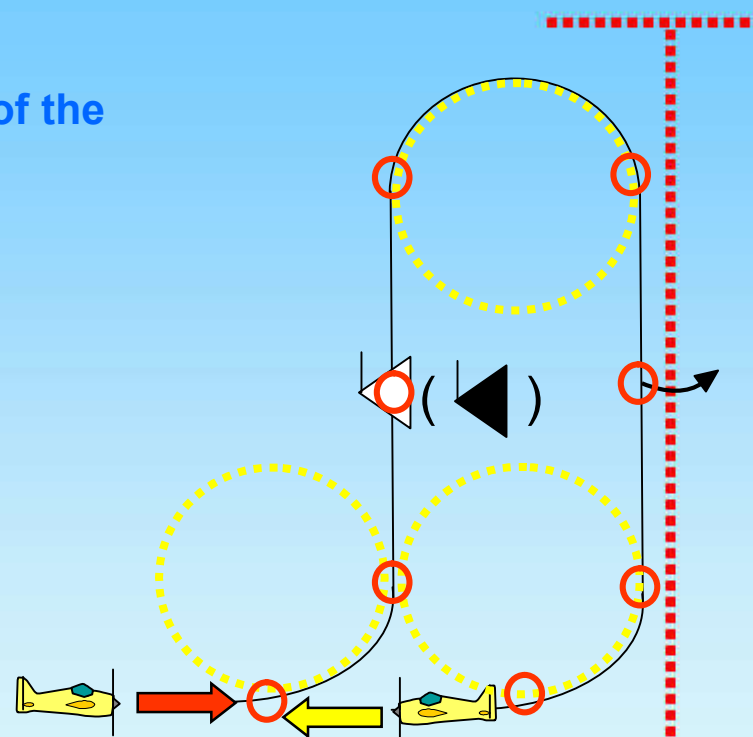
Snap roll and $\frac{1}{2}$ roll on middle of the lines.

Snap rolls may be positive or negative.

If snap roll = barrel roll or aileron roll:

Severe downgrade > 5 pts.

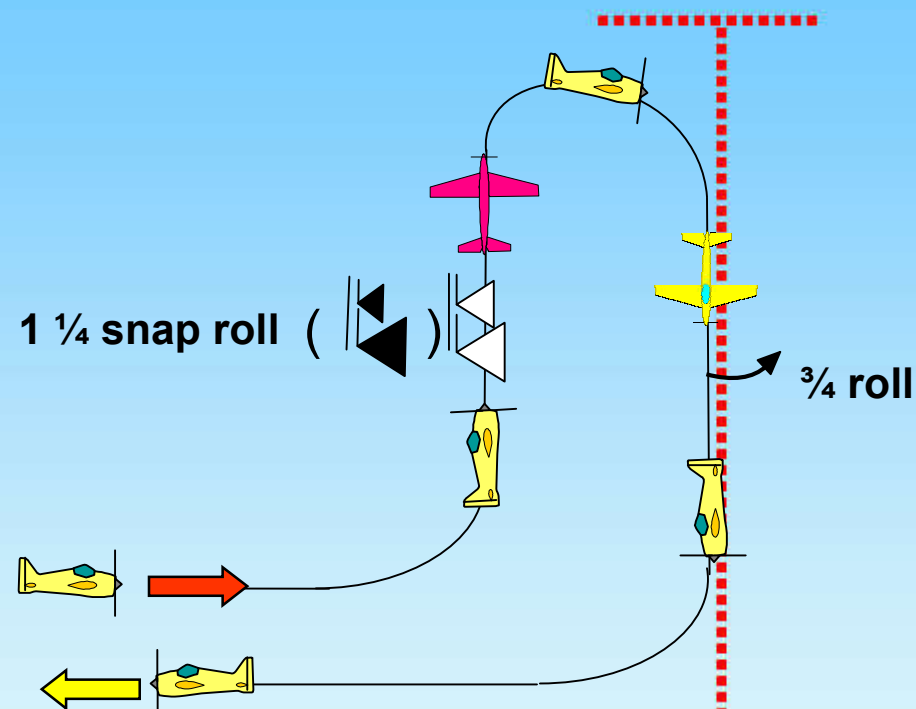
All radii are equal.





F-19.14 Pull-Push-Pull Humpty-Bump with snap-roll, $\frac{1}{2}$ roll (Option: with $1\frac{1}{4}$ snap-roll, $\frac{3}{4}$ roll)

Option



Option: From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, perform a $1\frac{1}{4}$ snap-roll, push through a $\frac{1}{2}$ loop into a vertical downline, perform a $\frac{3}{4}$ roll, pull through a $\frac{1}{4}$ loop, exit upright.



F-19.14 Pull-Push-Pull Humpty-Bump with snap-roll, $\frac{1}{2}$ roll (Option: with $1\frac{1}{4}$ snap-roll, $\frac{3}{4}$ roll)

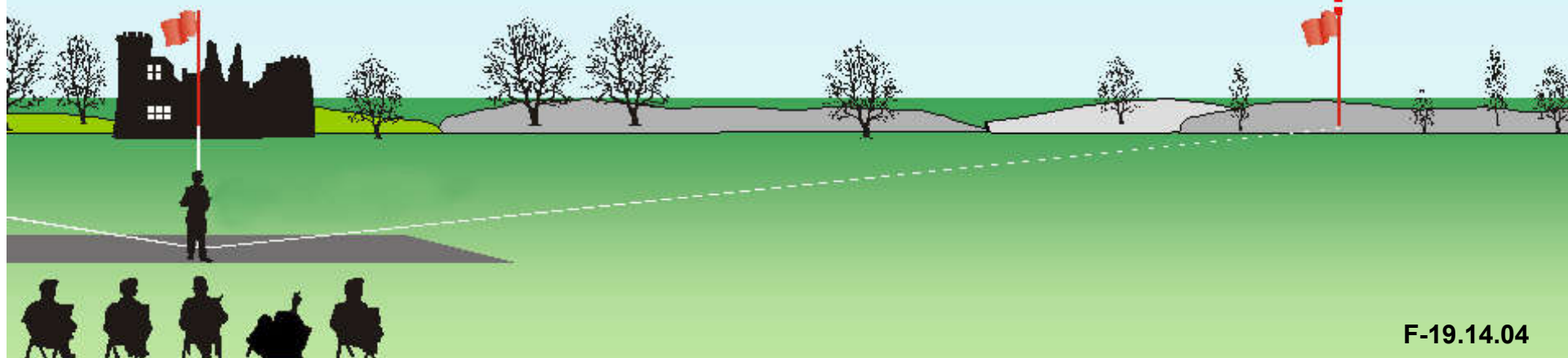
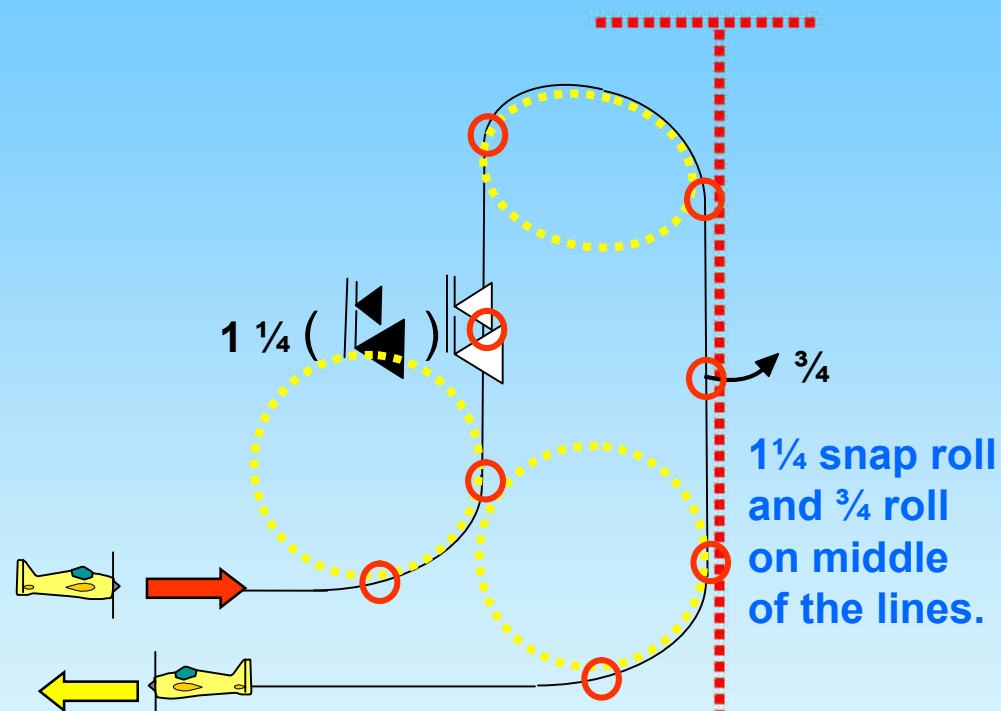
Option

Snap rolls may be positive or negative.

If snap roll = barrel roll or aileron roll:

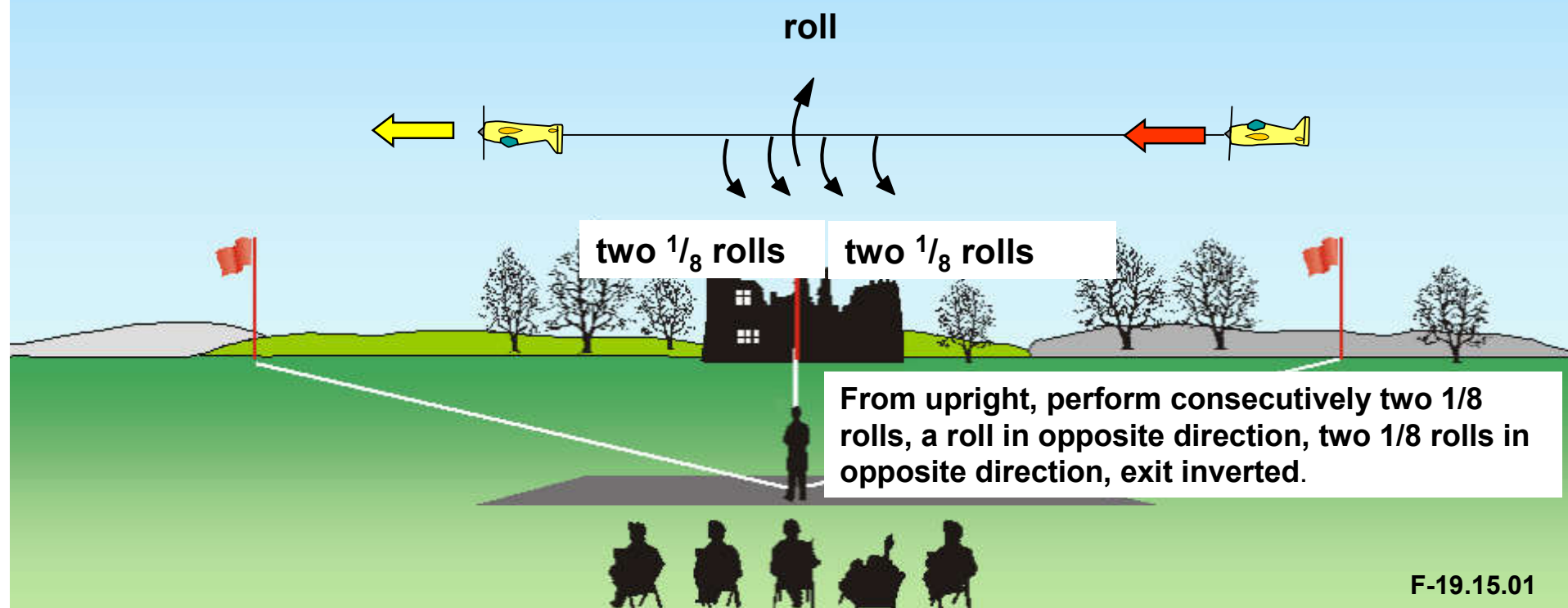
Severe downgrade > 5 pts.

All radii are equal.





F-19.15 Roll Combination with consecutive two $\frac{1}{8}$ rolls, roll in opposite direction, consecutive two $\frac{1}{8}$ rolls in opposite direction

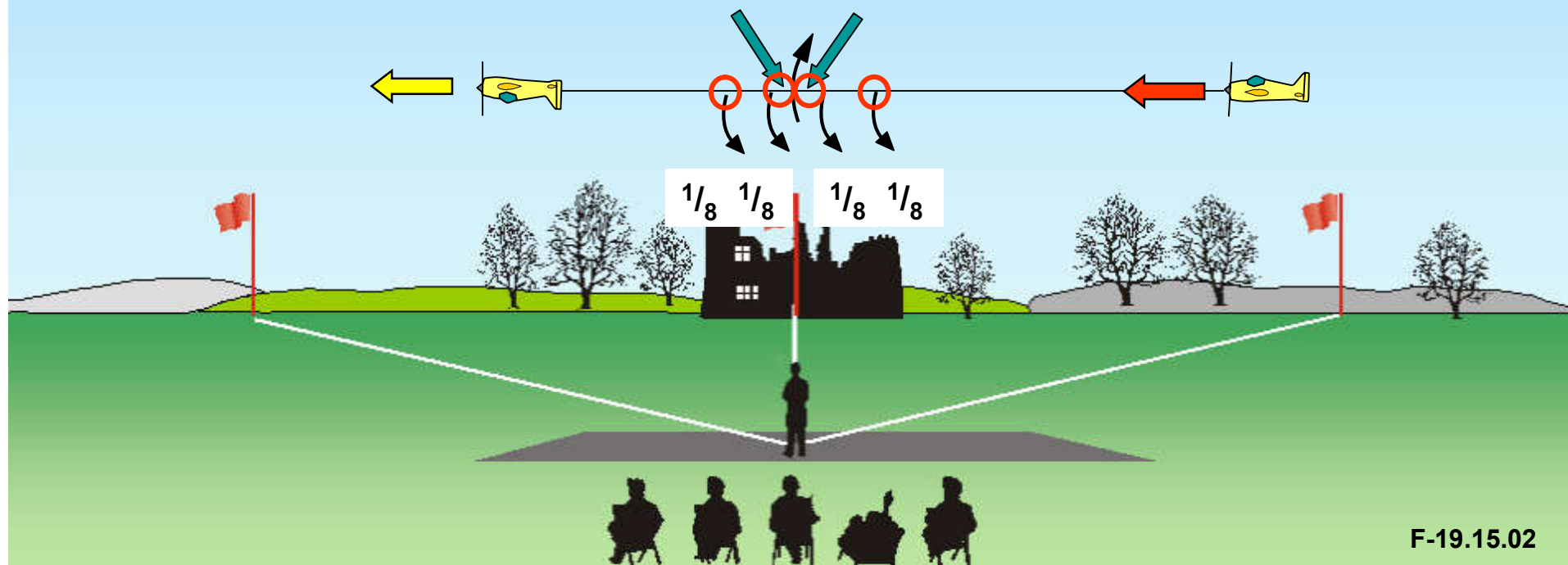




F-19.15 Roll Combination with consecutive two $\frac{1}{8}$ rolls, roll in opposite direction, consecutive two $\frac{1}{8}$ rolls in opposite direction

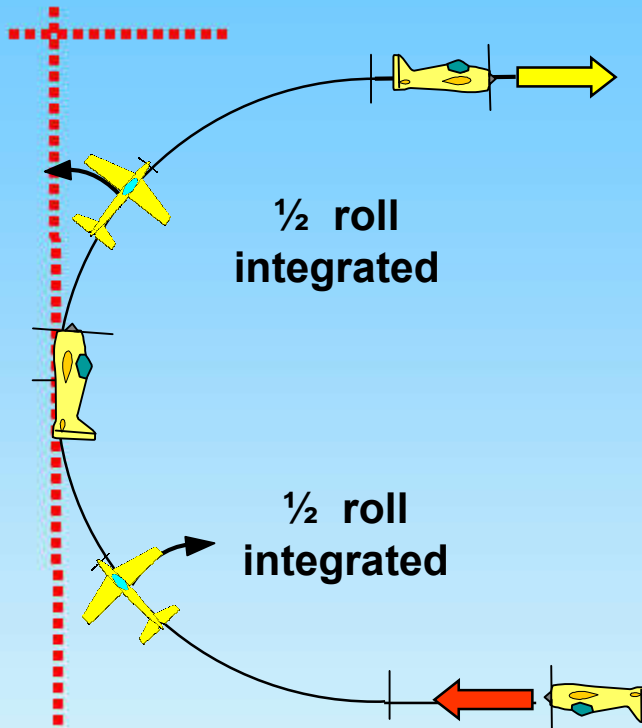
Lines between part rolls must be short and of equal length.

Between rolls in opposite direction there must be no line.





F-19.16 Half Loop with two $\frac{1}{2}$ rolls in opposite directions integrated

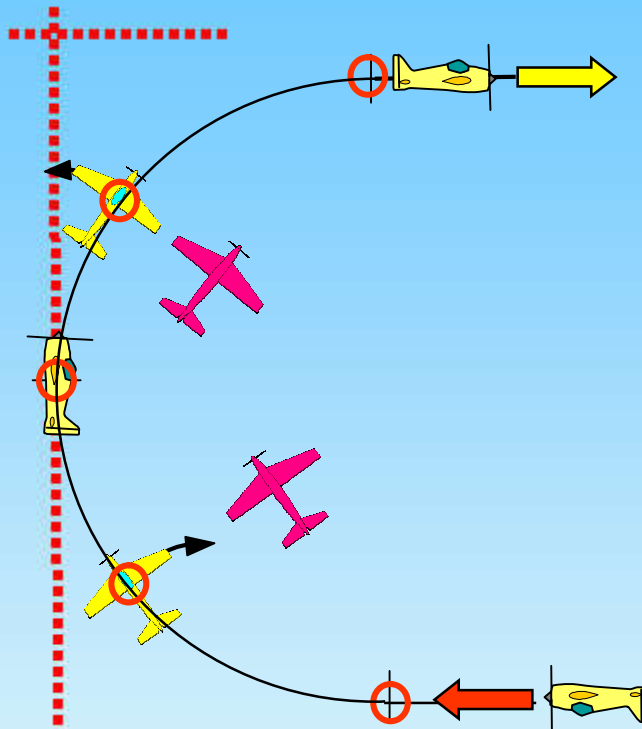


From inverted, push through a $\frac{1}{2}$ loop while performing a $\frac{1}{2}$ roll integrated in the first 90° and a $\frac{1}{2}$ roll in opposite direction integrated in the second 90° , exit upright





F-19.16 Half Loop with two $\frac{1}{2}$ rolls in opposite directions integrated



Roll rates must be constant.

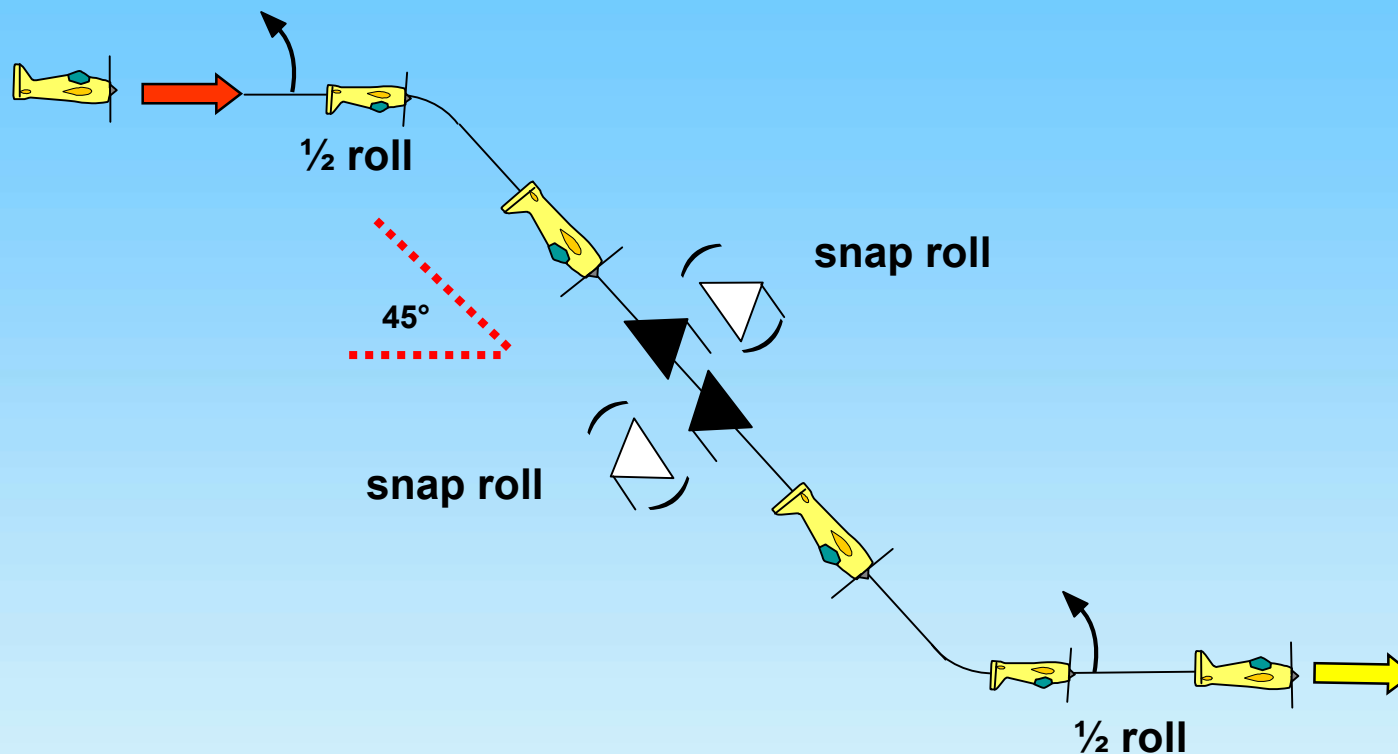
Roll reversal must be immediate.

$\frac{1}{2}$ rolls must be integrated on circular flightpath of the $\frac{1}{4}$ loops.





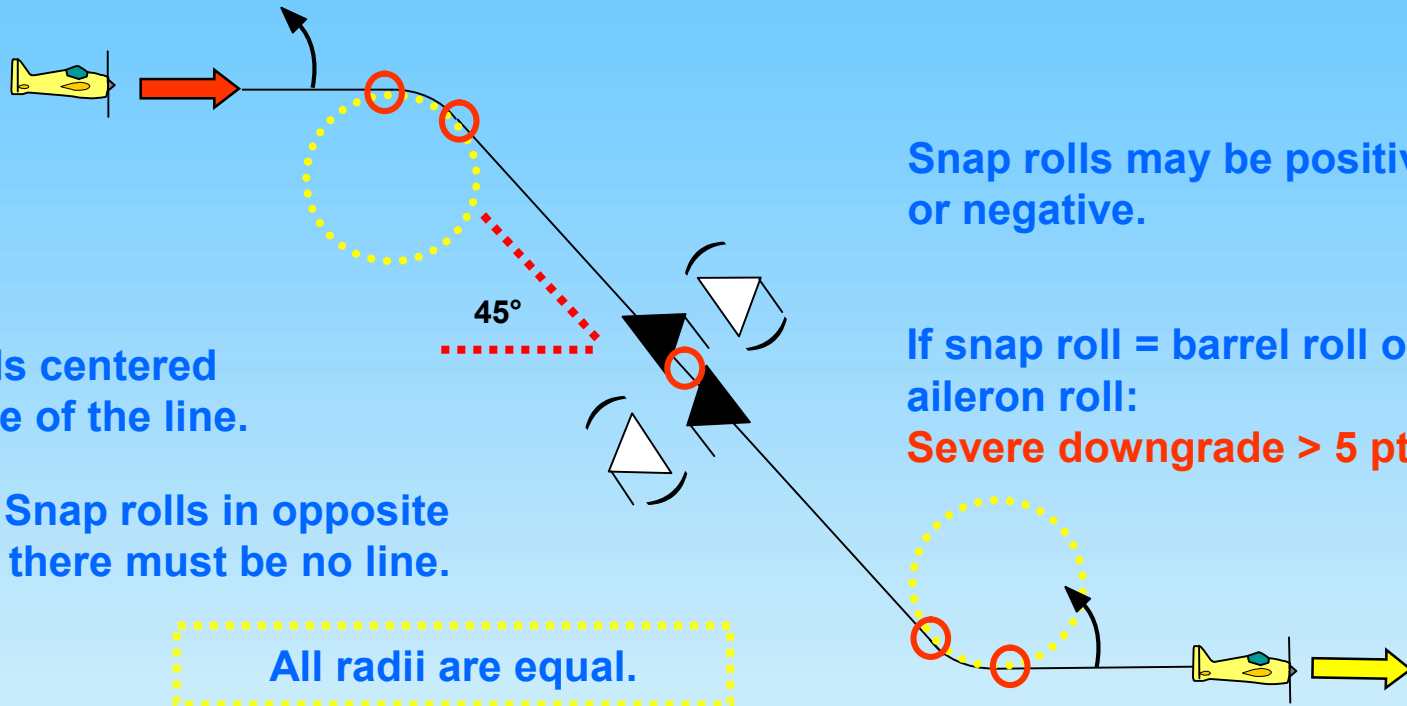
F-19.17 45° Downline with consecutive $\frac{1}{2}$ roll, two snap-rolls in opposite directions, $\frac{1}{2}$ roll



From upright, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{8}$ loop into a 45° downline, perform consecutively two snaprolls in opposite directions, push through a $\frac{1}{8}$ loop, perform a $\frac{1}{2}$ roll, exit upright.



F-19.17 45° Downline with consecutive $\frac{1}{2}$ roll, two snap-rolls in opposite directions, $\frac{1}{2}$ roll



Snap rolls centered on middle of the line.

Between Snap rolls in opposite direction there must be no line.

Snap rolls may be positive or negative.

If snap roll = barrel roll or aileron roll:
Severe downgrade > 5 pts.

All radii are equal.

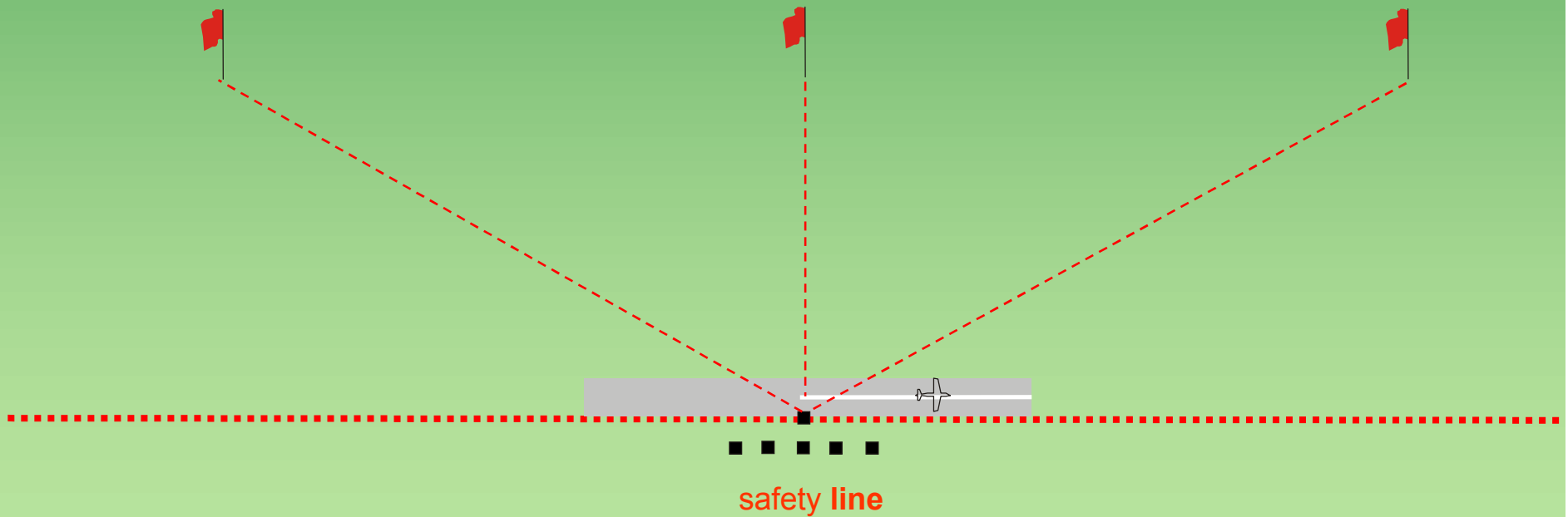




Landing procedure (not judged, not scored)

The direction of the landing may be different to the take off.

 **wind**



Forget **WHO** is flying

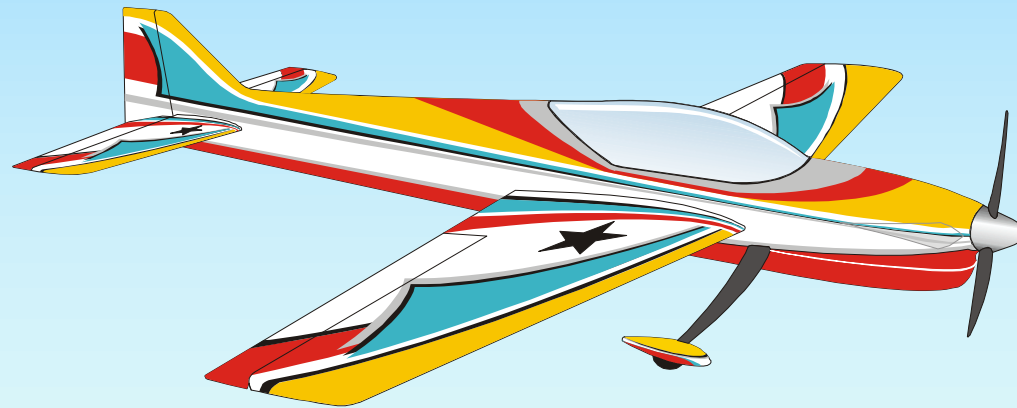
(friend, rival, countryman, flier from other nation)

Forget **WHAT** is flying

(2-stroke, 4-stroke, electric)

**LOOK ONLY AT LINES DESCRIBED IN
THE SKY!**

(and the precision, smoothness, positioning, and size)



Thank you!

© Peter Uhlig, November 2016