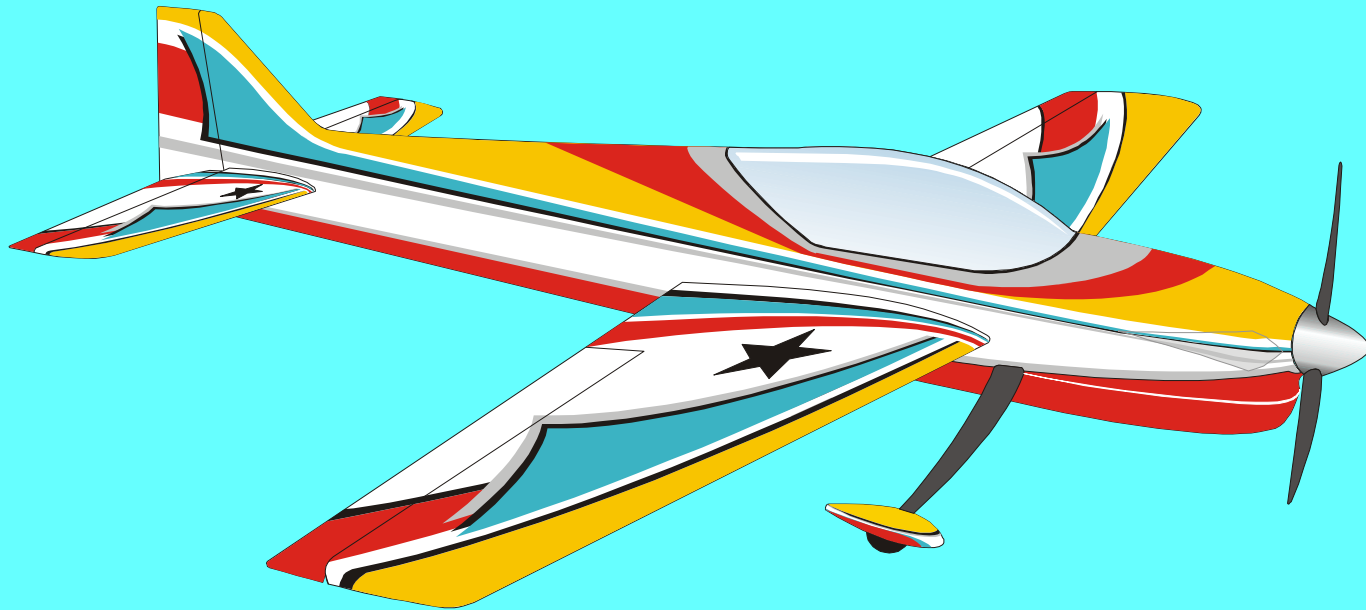
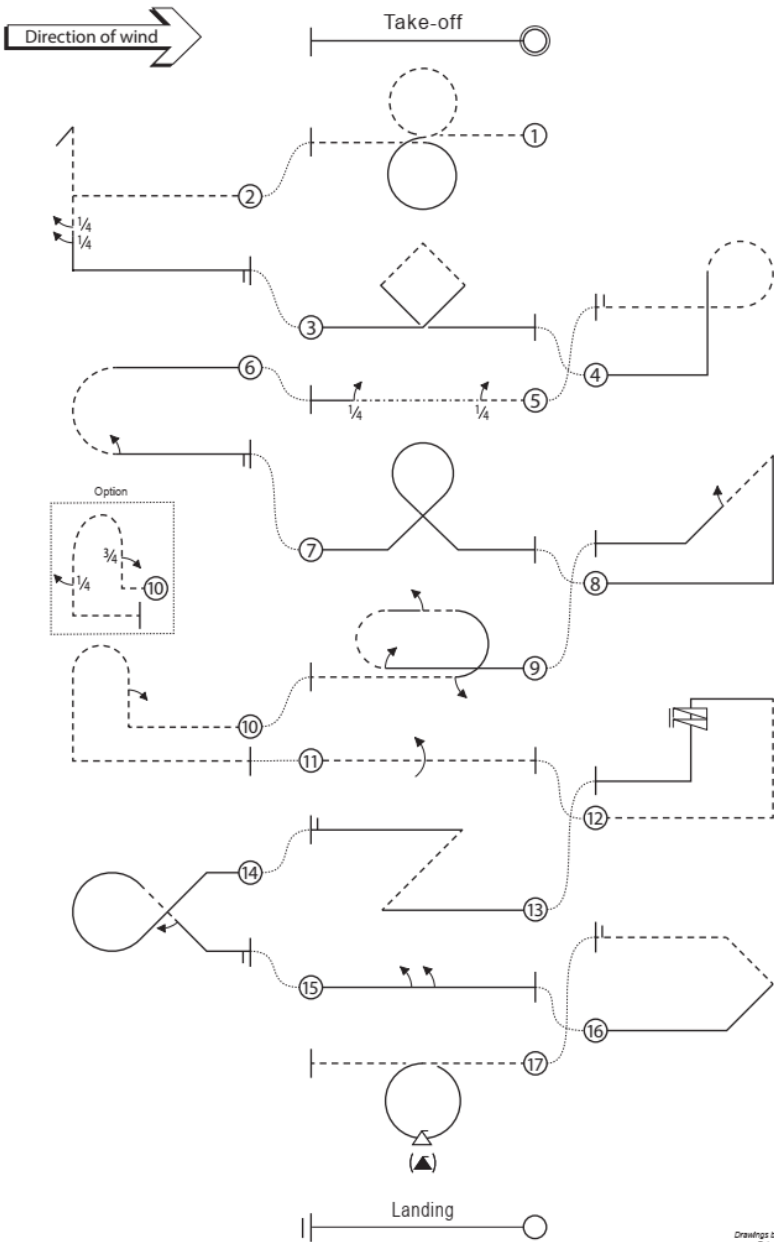


Flying and Judging F3A



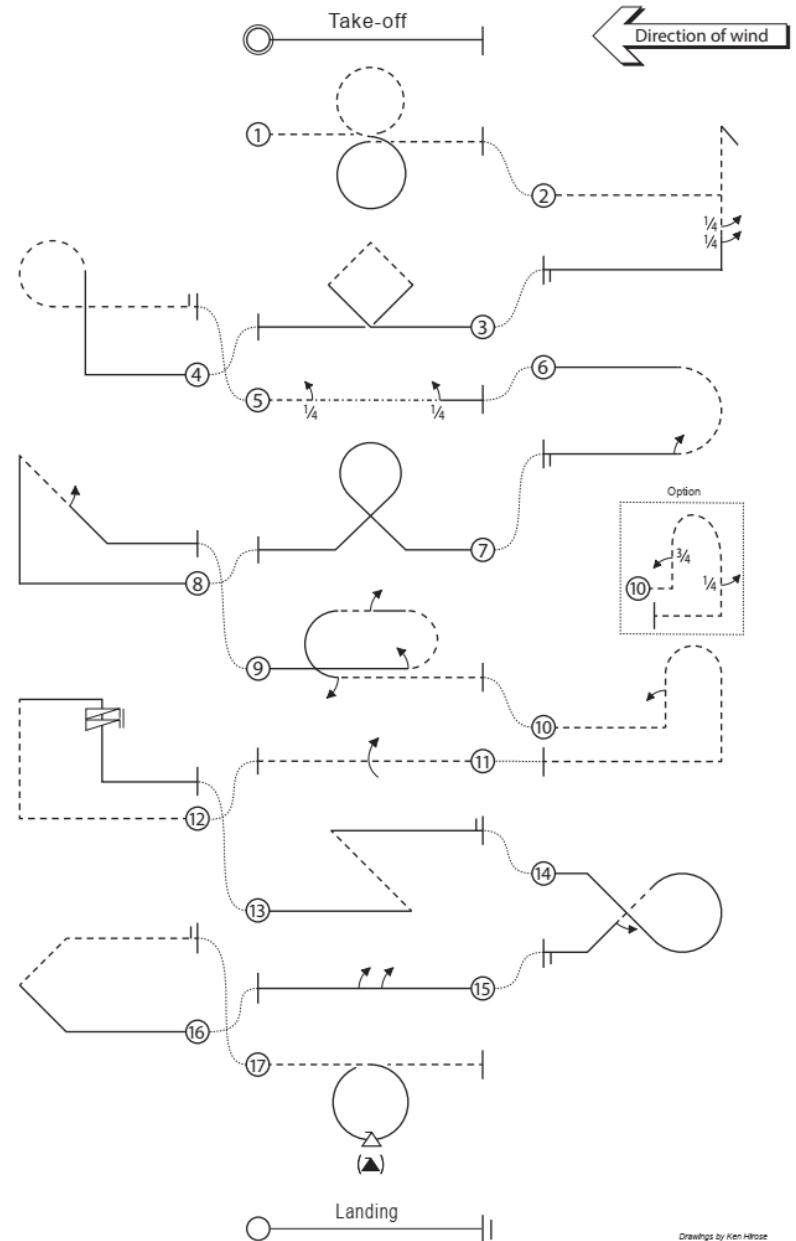
SCHEMATIC MANOEUVRE ILLUSTRATIONS
SCHEDULE A-20

ADVANCED SCHEDULE A-20 (2019-2020)



Drawings by Ken Hirose
Feb. 2017

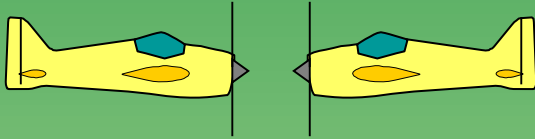
ADVANCED SCHEDULE A-20 (2019-2020)



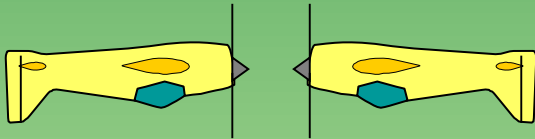
Drawings by Ken Hirose
Feb. 2017



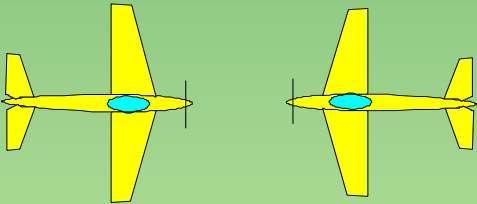
Explanations:



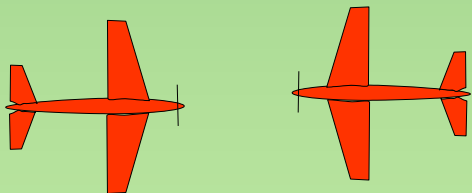
Aircraft upright



Aircraft inverted



**Aircraft in Knife-Edge
View from Top**

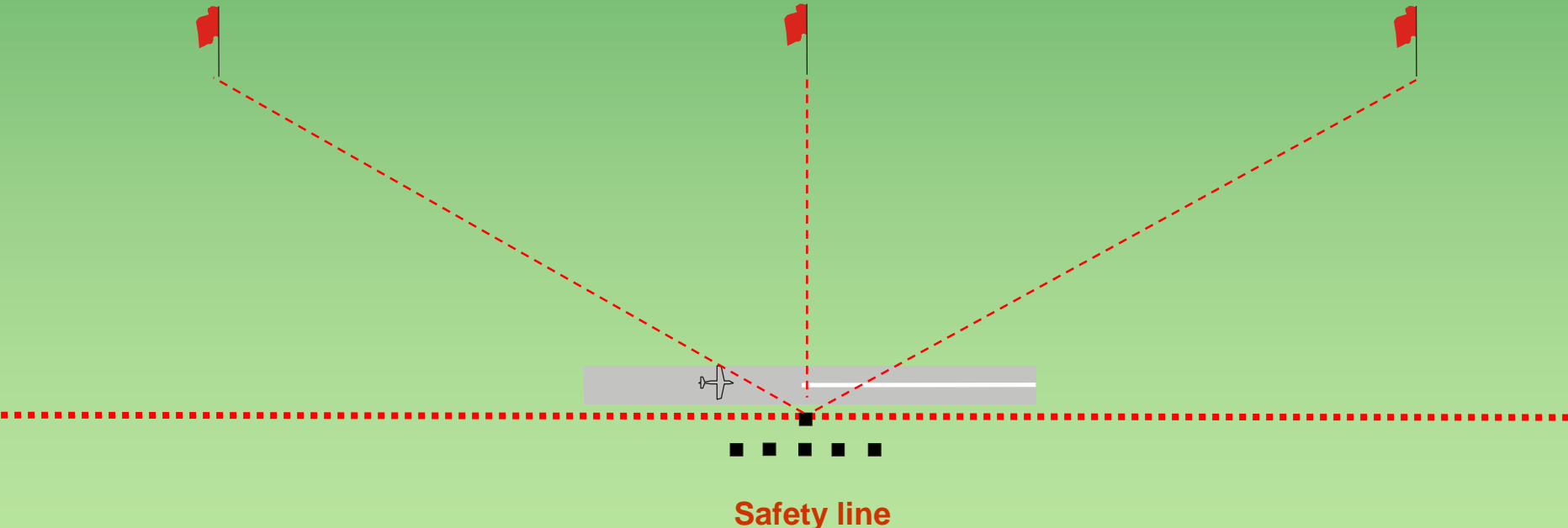


**Aircraft in Knife-Edge
View from Below**



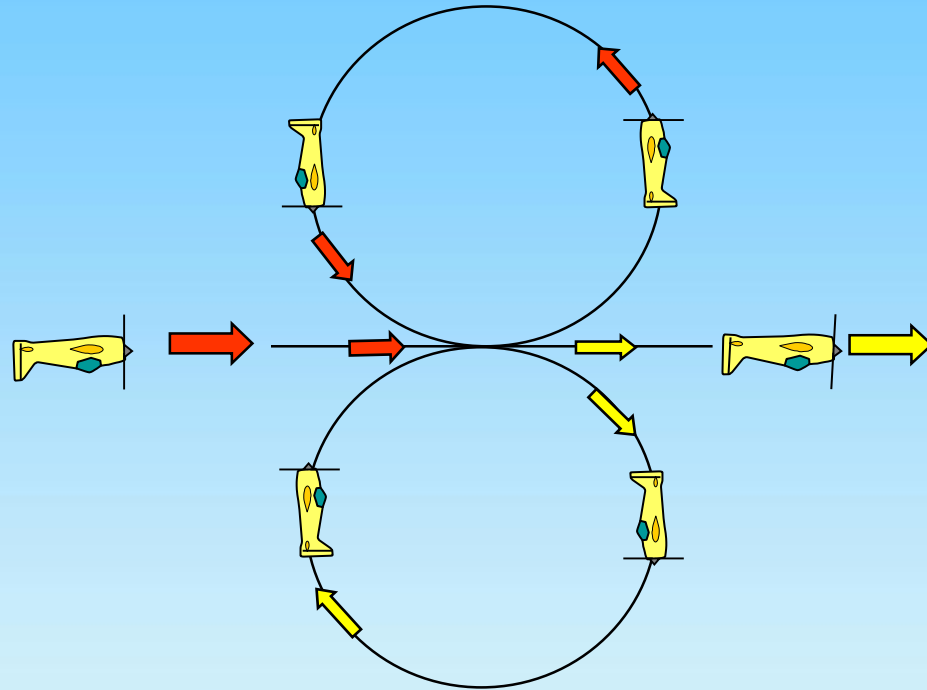
Take-off procedure (not judged, not scored)

 wind





A-20.01 Vertical 8



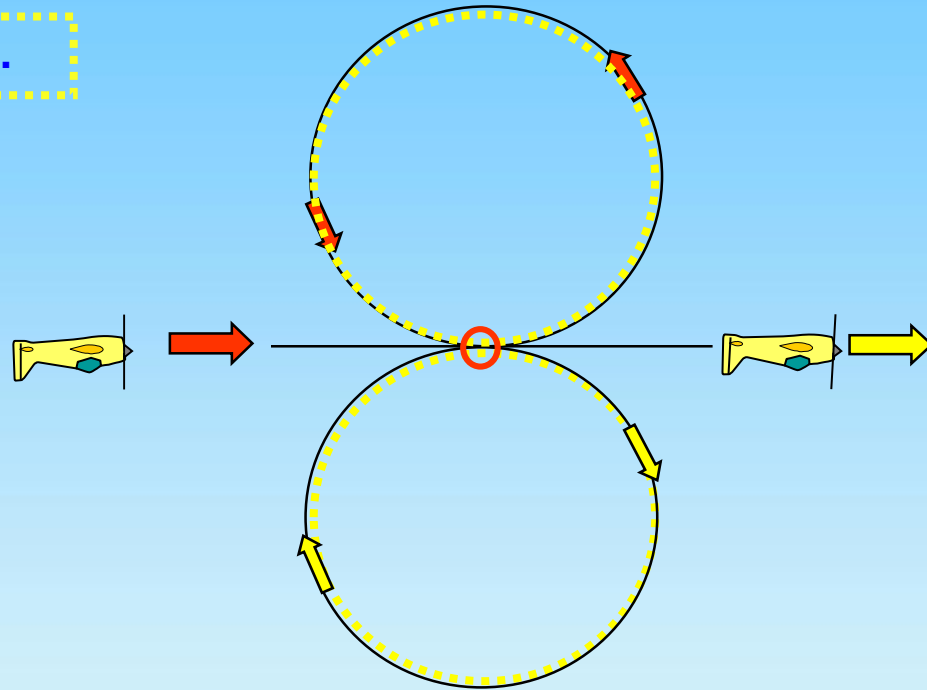
From inverted, push through a loop, pull through a loop, exit inverted.





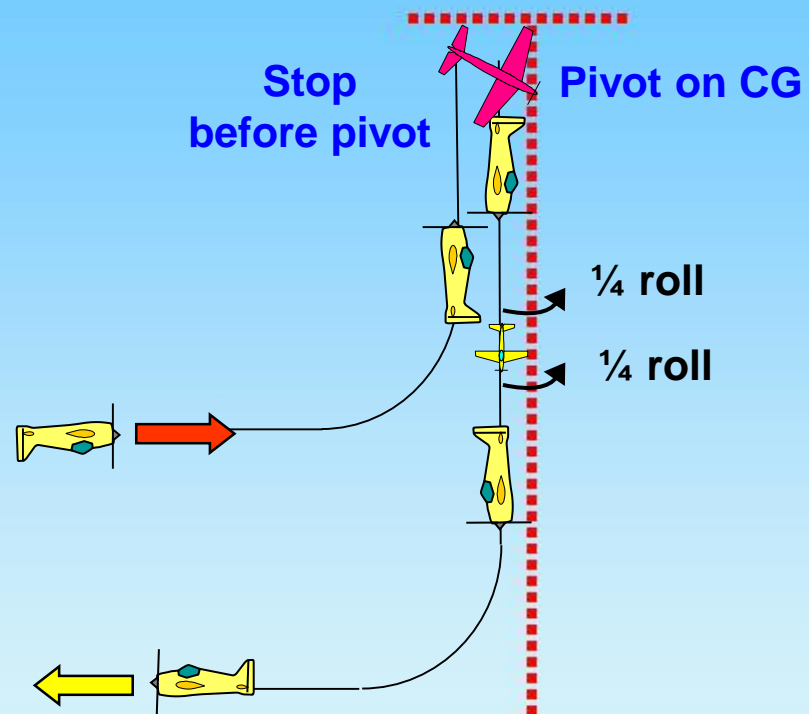
A-20.01 Vertical 8

All radii are equal.





A-20.02 Stall Turn with consecutive two $\frac{1}{4}$ rolls



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



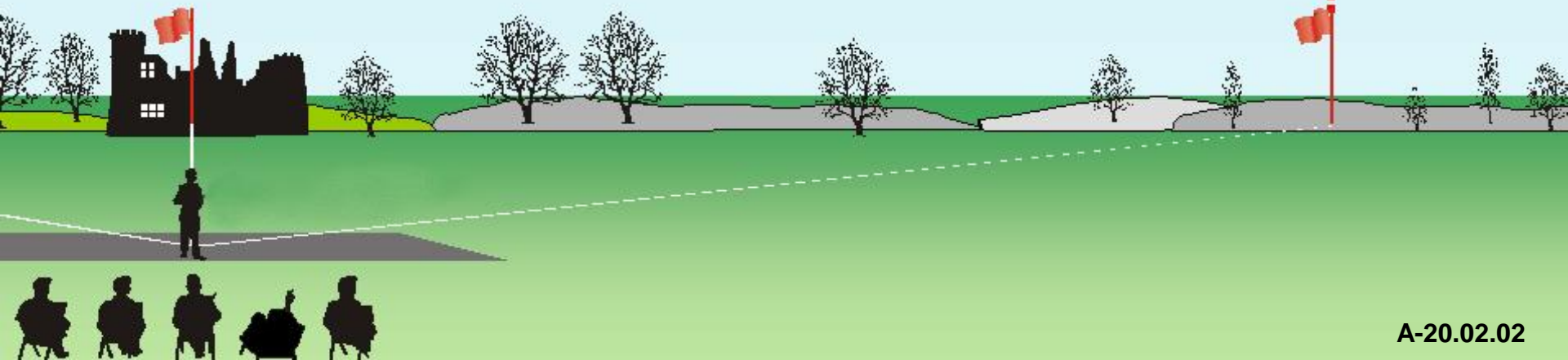
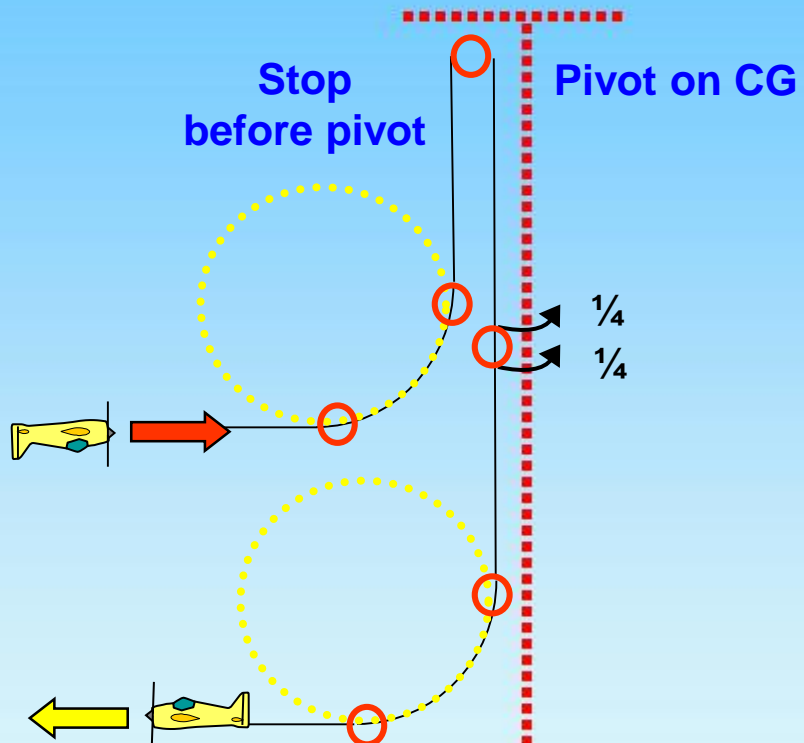
A-20.02 Stall Turn with consecutive two $\frac{1}{4}$ rolls

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

Two wing spans or more
– zero points!

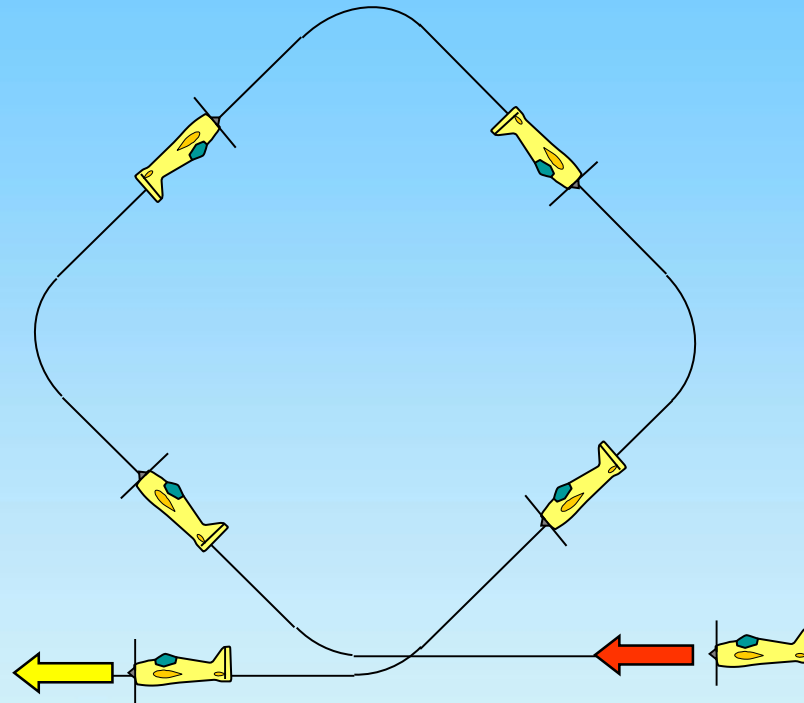
Lines between part rolls must be short
and of recognizable length.

All radii are equal.





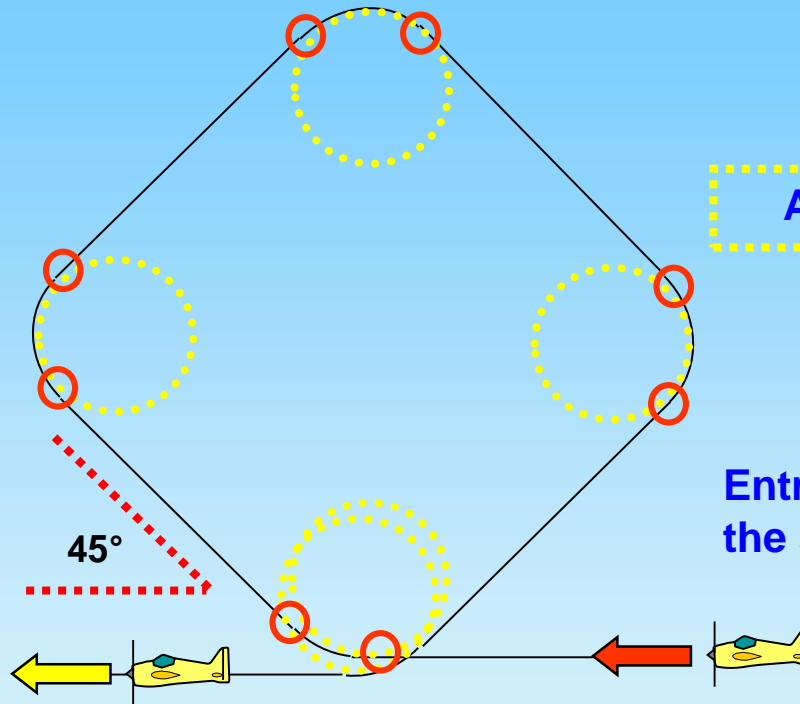
A-20.03 Square Loop on Corner



From upright, pull through a $\frac{1}{8}$ loop into a 45° upline, pull through a $\frac{1}{4}$ loop into a 45° upline, pull through a $\frac{1}{4}$ loop into a 45° downline, pull through a $\frac{1}{4}$ loop into a 45° downline, pull through a $\frac{1}{8}$ loop, exit upright.



A-20.03 Square Loop on Corner

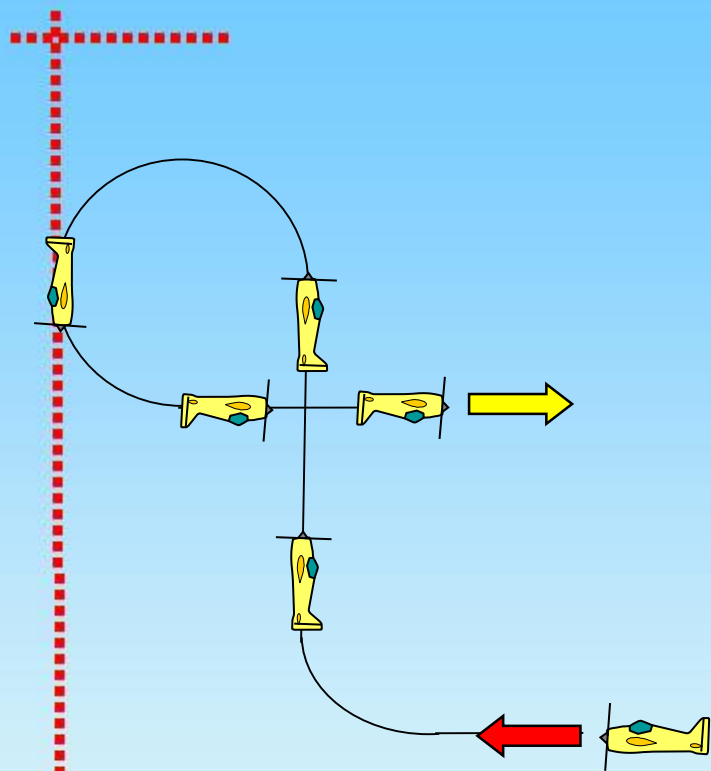


All radii are equal.

Entry and exit must be at the same altitude.



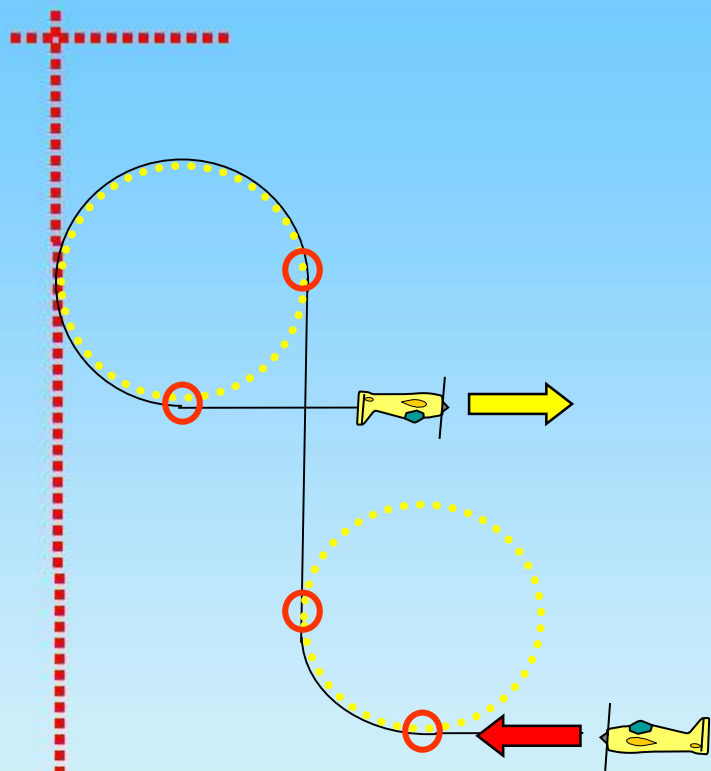
A-20.04 Figure 9



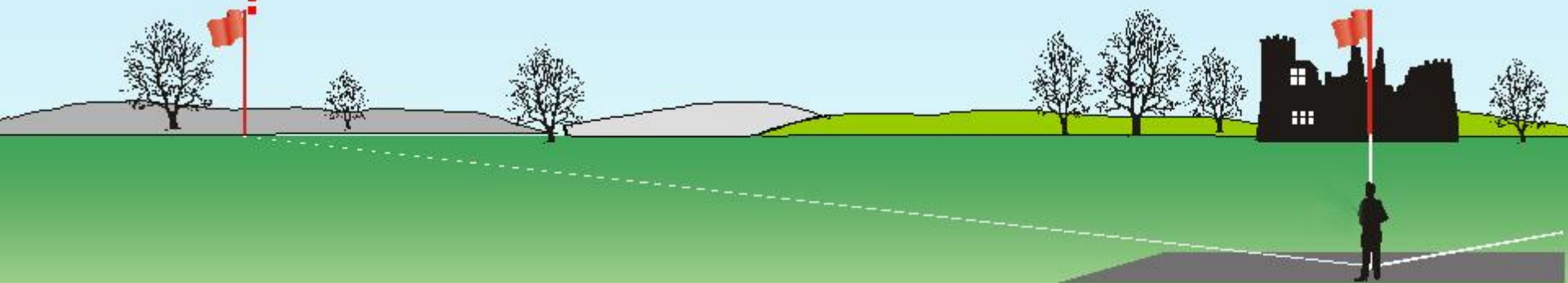
From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, push through a $\frac{3}{4}$ loop, exit inverted.



A-20.04 Figure 9

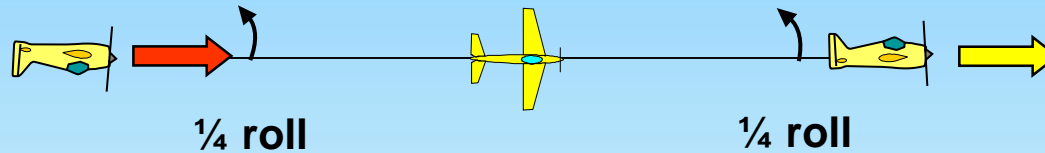


All radii are equal.





A-20.05 Knife-Edge flight with $\frac{1}{4}$ roll, $\frac{1}{4}$ roll

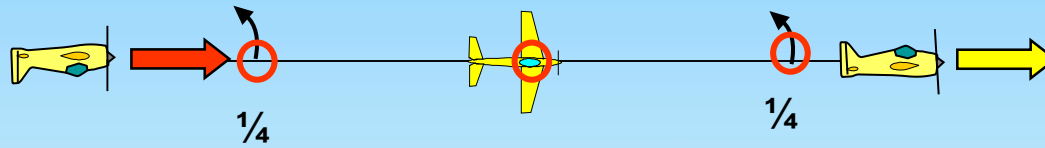


From inverted, perform a $\frac{1}{4}$ roll, perform a knife-edge flight, perform a $\frac{1}{4}$ roll, exit upright.



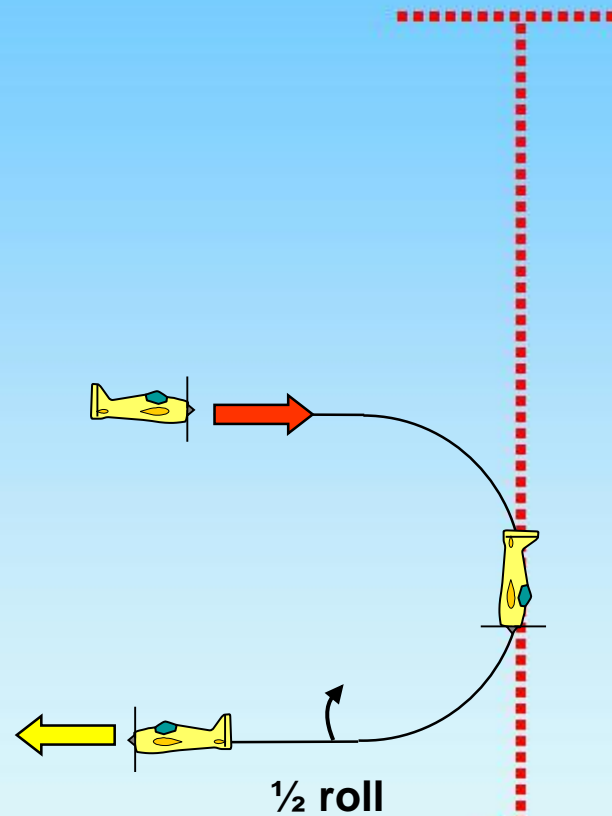
A-20.05 Knife-Edge flight with $\frac{1}{4}$ roll, $\frac{1}{4}$ roll

During the knife edge
the wing must be in
the vertical plane.





A-20.06 Inverted Split S with $\frac{1}{2}$ roll

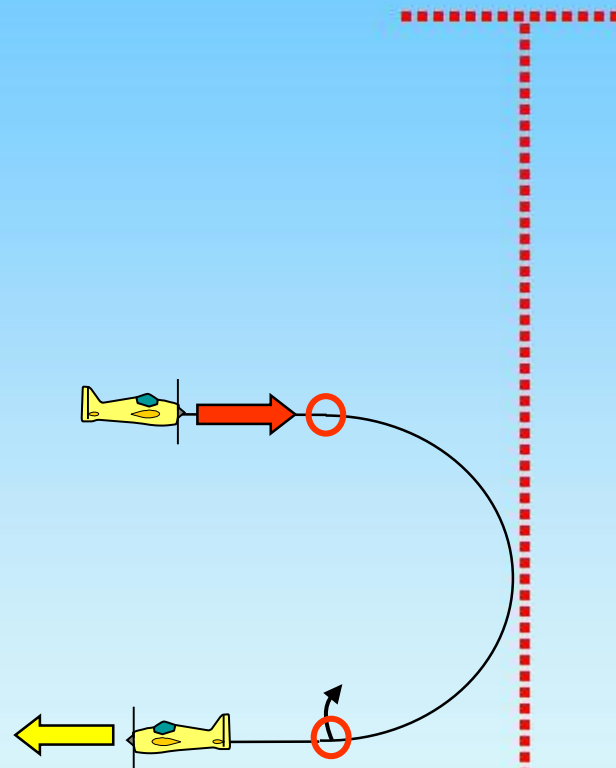


From upright, push through a $\frac{1}{2}$ loop, perform a $\frac{1}{2}$ roll, exit upright.

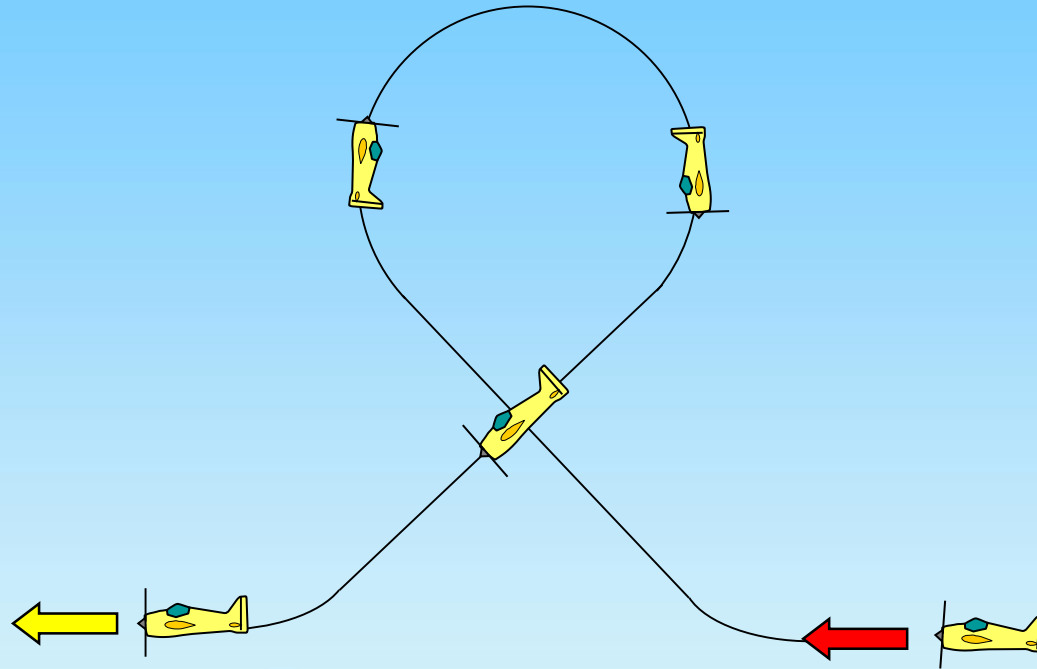


A-20.06 Inverted Split S with ½ roll

There must be no line between the half loop and the ½ roll.



A-20.07 Golf Ball



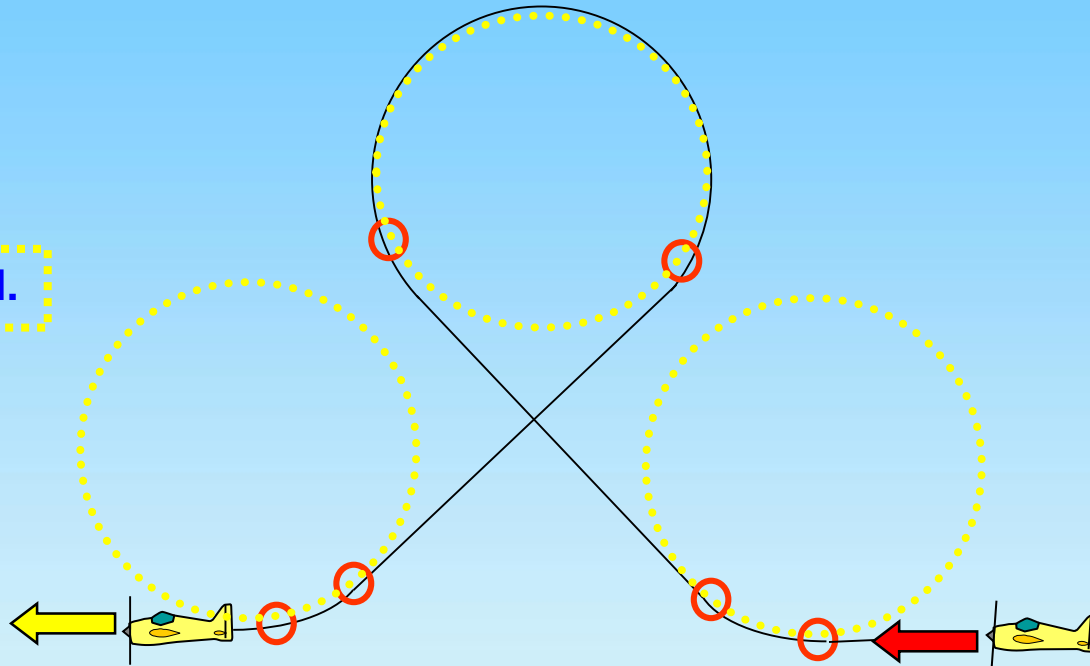
From upright pull through a 1/8 loop into a 45° upline, pull through a 3/4 loop into a 45° downline, pull through a 1/8 loop, exit upright.



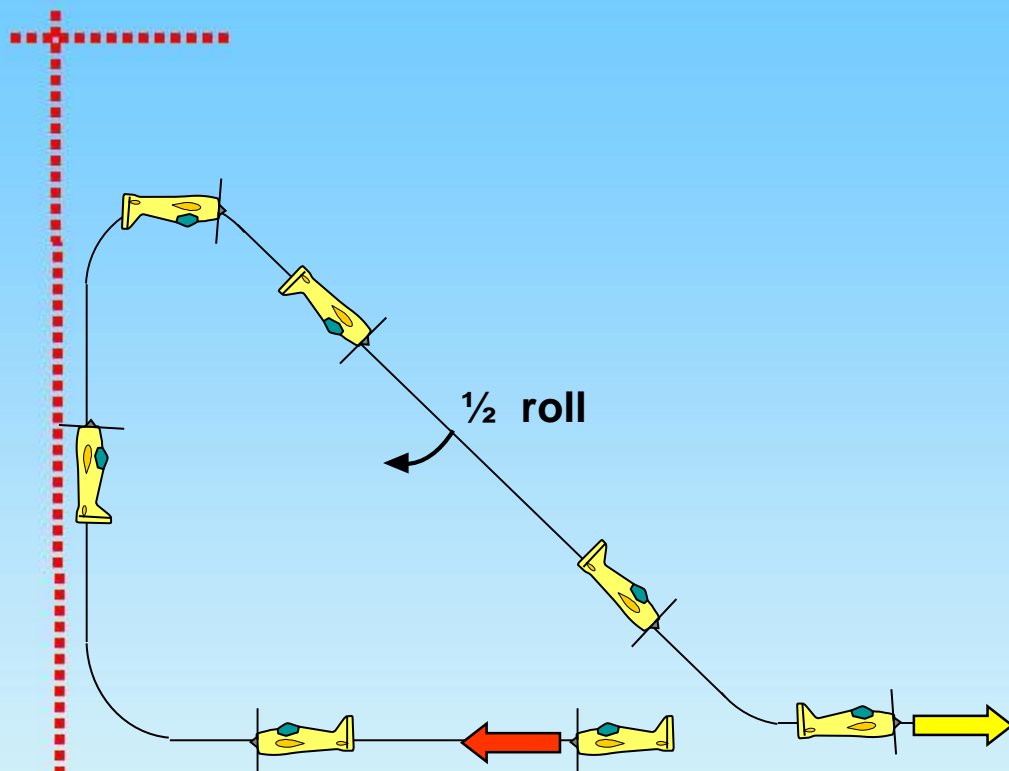
A-20.07 Golf Ball



All radii are equal.



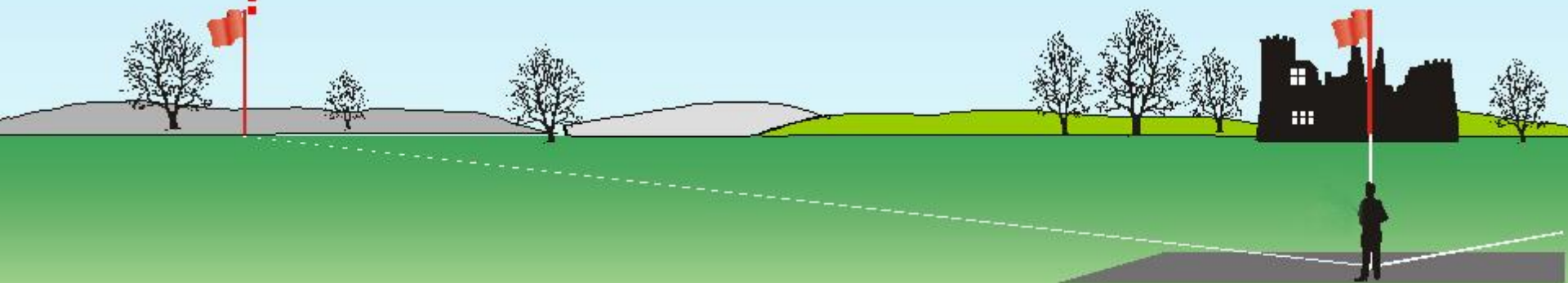
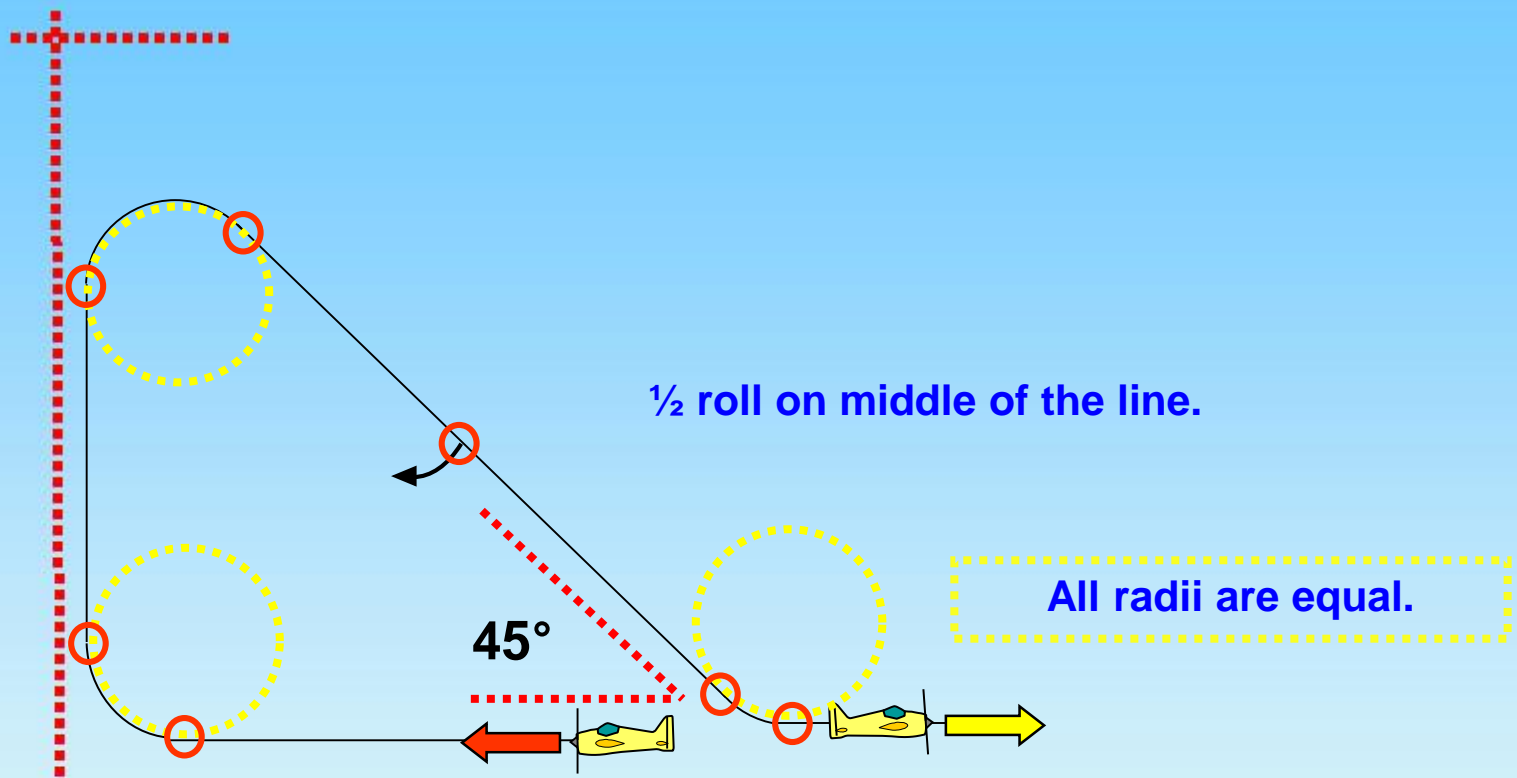
A-20.08 Shark Fin with 1/2 roll



From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, pull through a $\frac{3}{8}$ loop into a 45° downline, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{8}$ loop, exit upright

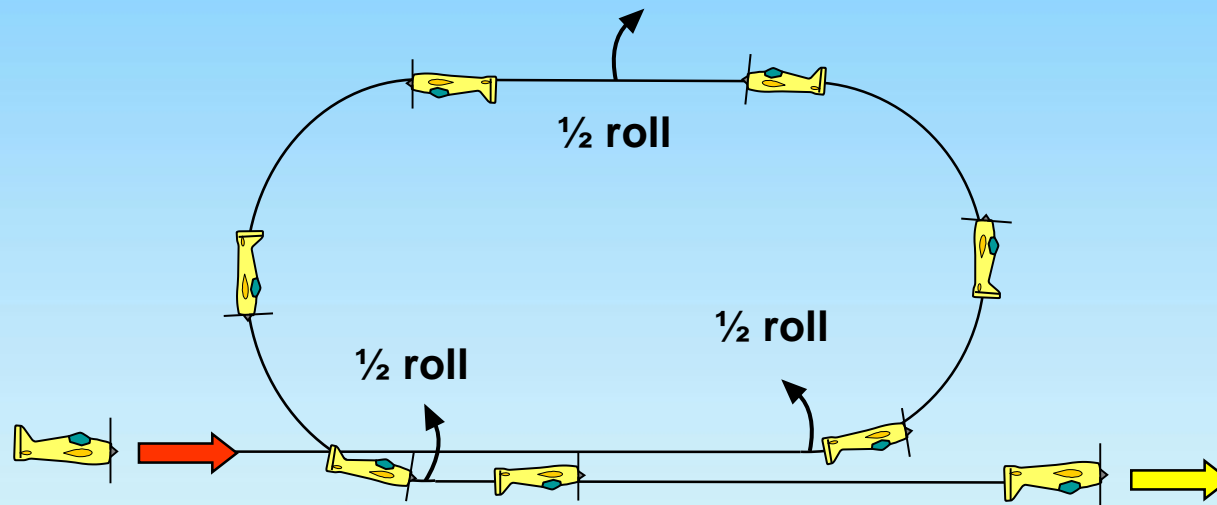


A-20.08 Shark Fin with 1/2 roll





A-20.09 Double Immelman with $\frac{1}{2}$ roll, $\frac{1}{2}$ roll, $\frac{1}{2}$ roll



From upright perform a $\frac{1}{2}$ roll, push through a $\frac{1}{2}$ loop, perform a $\frac{1}{2}$ roll in the centre, pull through a $\frac{1}{2}$ loop, perform a $\frac{1}{2}$ roll, exit inverted.



A-20.09 Double Immelman with 1/2 roll, 1/2 roll, 1/2 roll



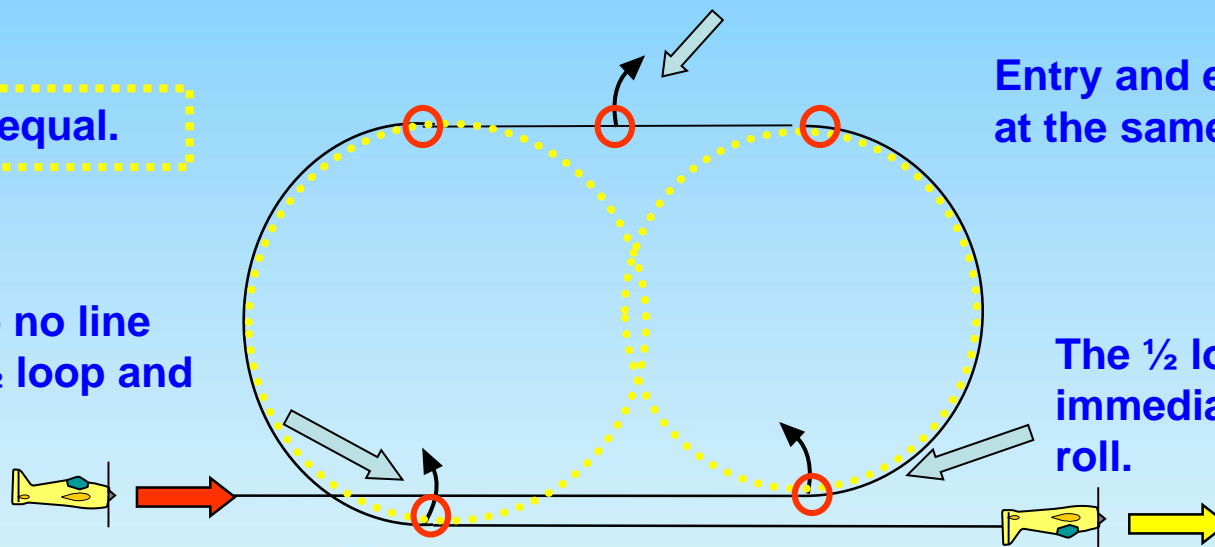
1/2 roll on middle of the line.

All radii are equal.

Entry and exit must be at the same altitude.

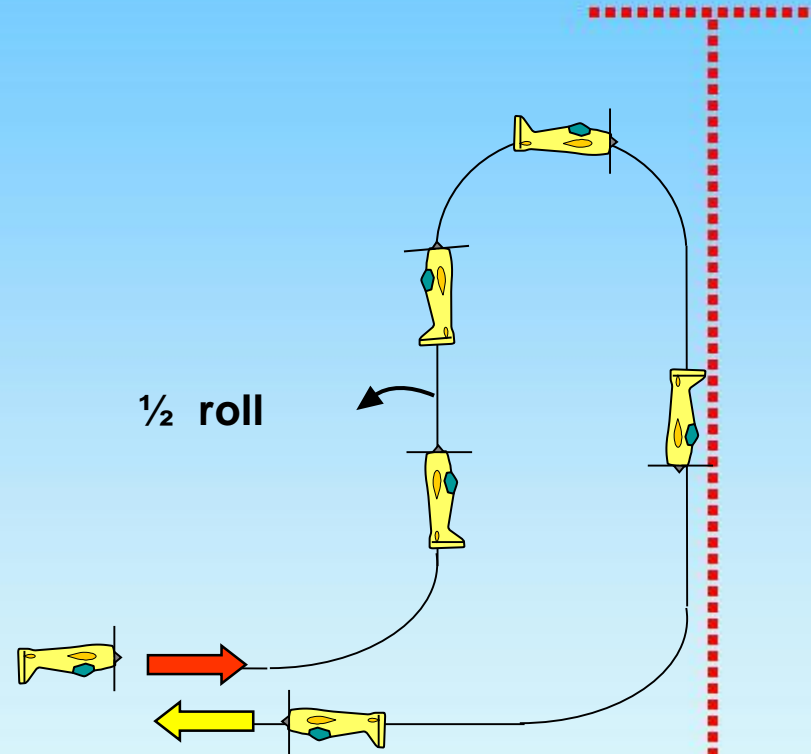
There must be no line between the 1/2 loop and the 1/2 roll.

The 1/2 loop must follow immediately after the 1/2 roll.





A-20.10 Push-Push-Push Humpty-Bump with $\frac{1}{2}$ roll (Option: with $\frac{3}{4}$ roll, $\frac{1}{4}$ roll)



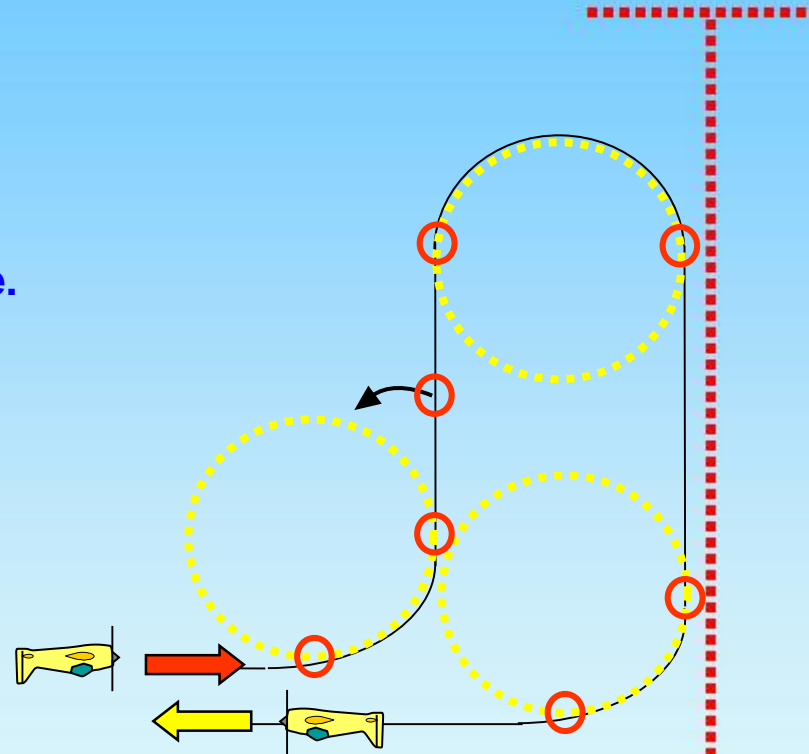
From inverted, push through a $\frac{1}{4}$ loop into a vertical upline, perform a $\frac{1}{2}$ roll, push through a $\frac{1}{2}$ loop into a vertical downline, push through a $\frac{1}{4}$ loop, exit inverted.



A-20.10 Push-Push-Push Humpty-Bump with $\frac{1}{2}$ roll (Option: with $\frac{3}{4}$ roll, $\frac{1}{4}$ roll)

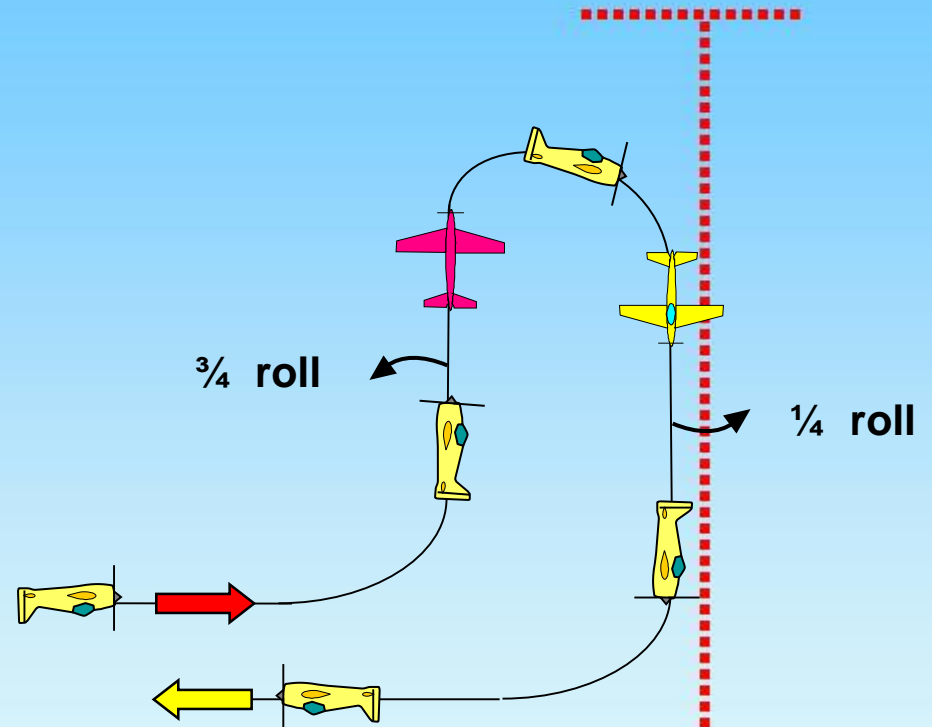
$\frac{1}{2}$ roll on middle of the line.

All radii are equal.



A-20.10 Push-Push-Push Humpty-Bump with $\frac{1}{2}$ roll (Option: with $\frac{3}{4}$ roll, $\frac{1}{4}$ roll)

Option



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

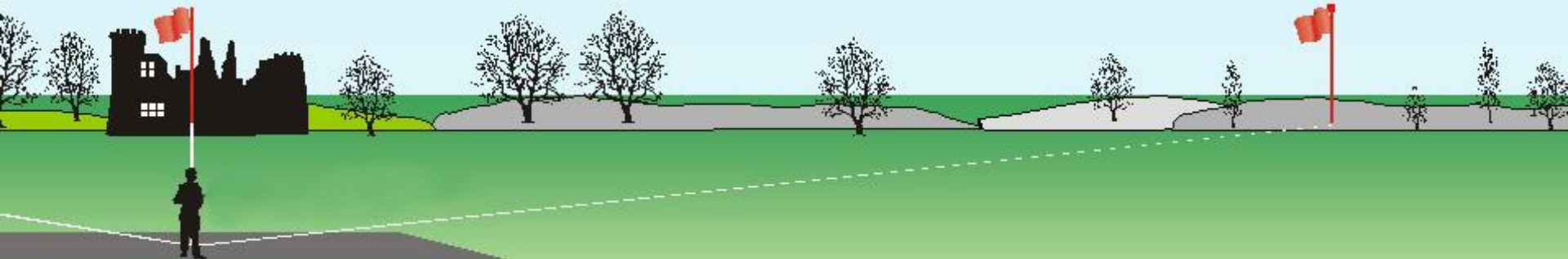
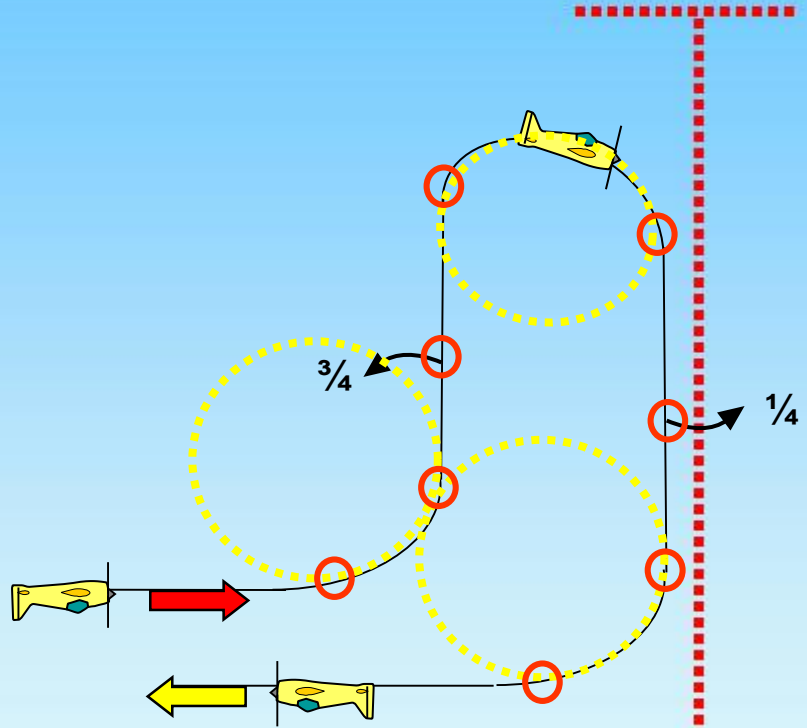
A-20.10 Push-Push-Push Humpty-Bump with $\frac{1}{2}$ roll (Option: with $\frac{3}{4}$ roll, $\frac{1}{4}$ roll)



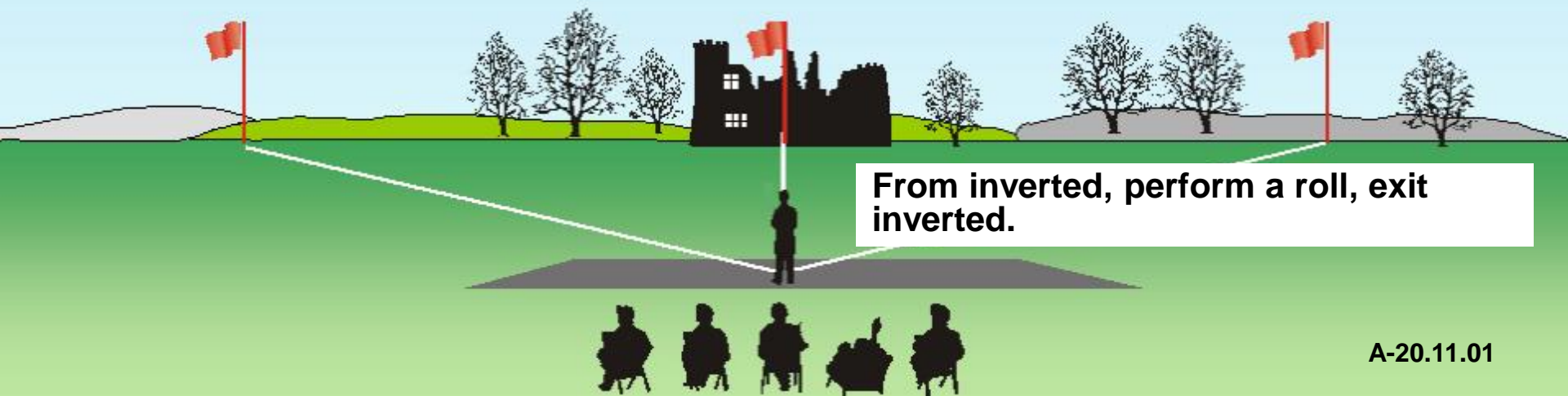
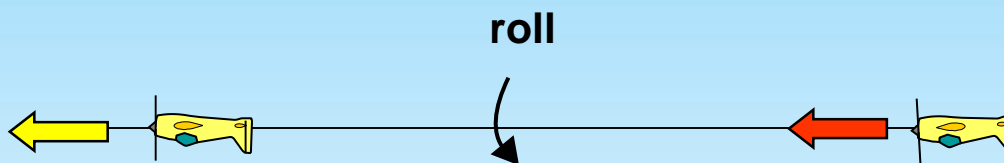
Option

Rolls on middle of the line.

All radii are equal.

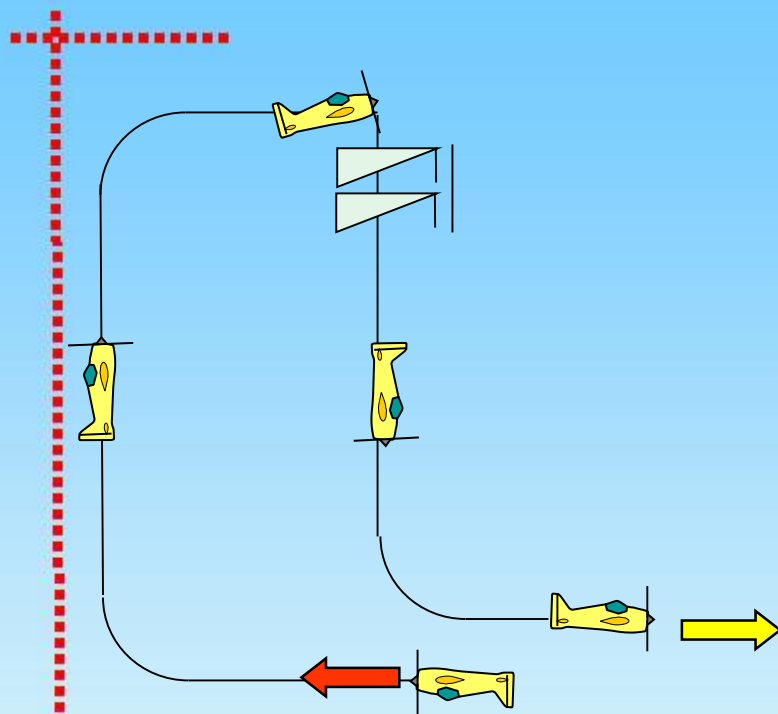


A-20.11 Roll



From inverted, perform a roll, exit inverted.

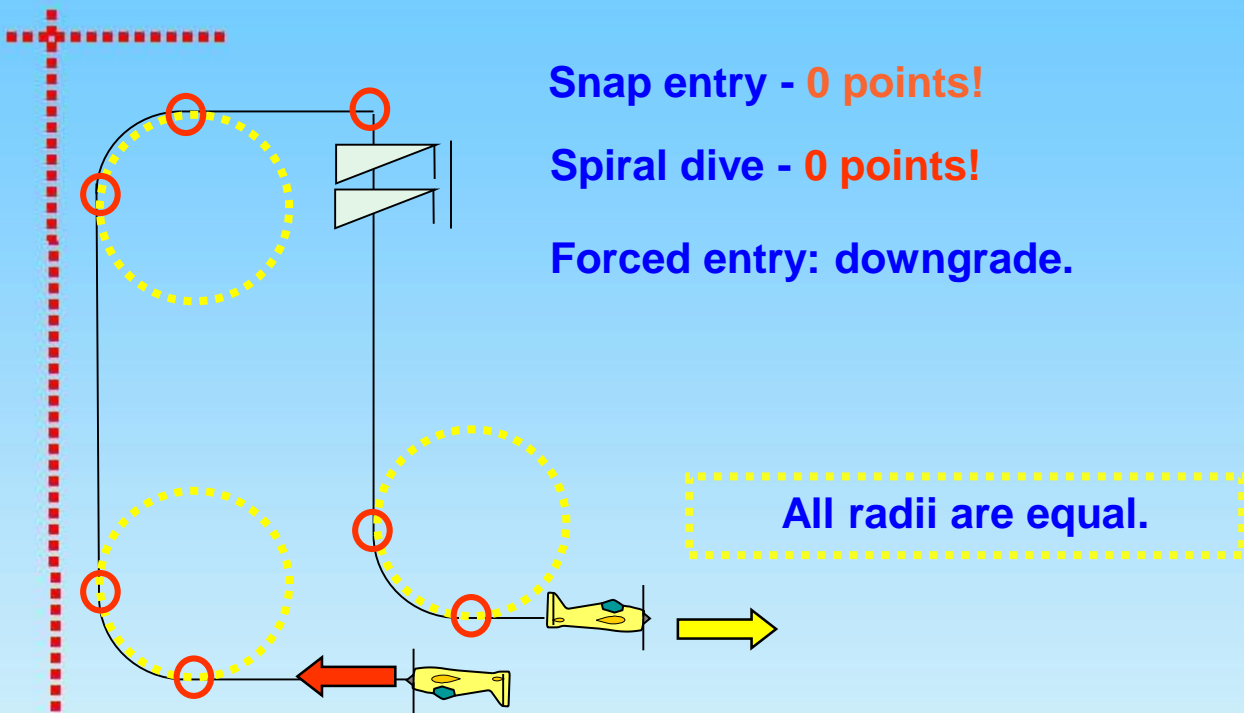
A-20.12 Top Hat with spin



From inverted, push through a $\frac{1}{4}$ loop into a vertical upline, push through a $\frac{1}{4}$ loop into a horizontal line, perform a spin with 2 turns into a vertical downline, pull through a $\frac{1}{4}$ loop, exit upright.



A-20.12 Top Hat with spin

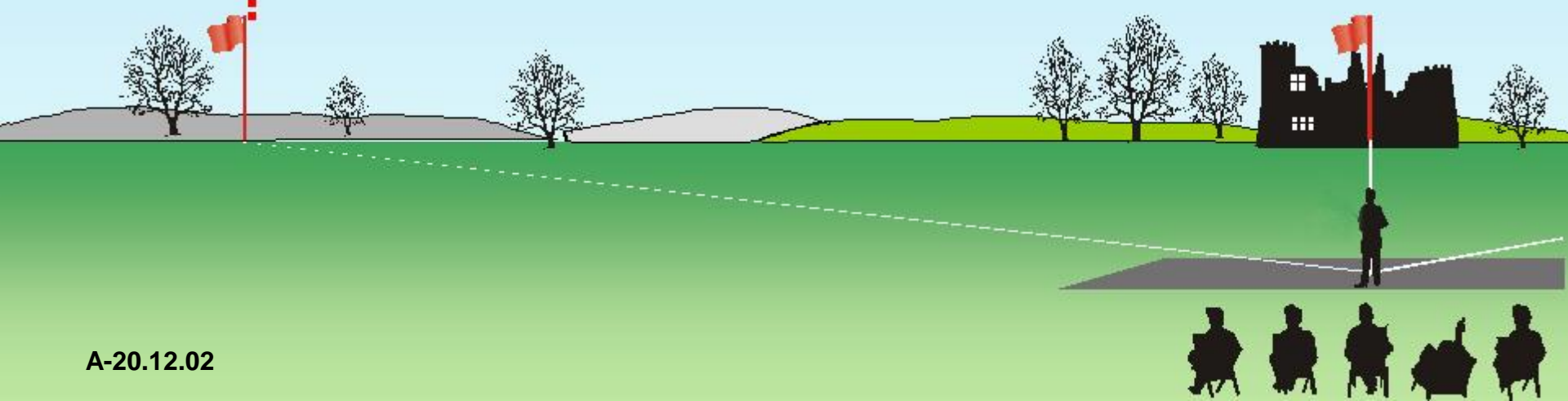


Snap entry - 0 points!

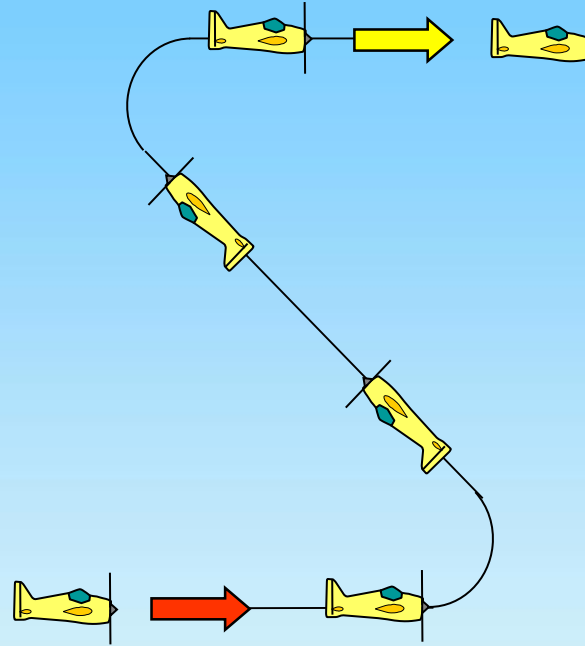
Spiral dive - 0 points!

Forced entry: downgrade.

All radii are equal.



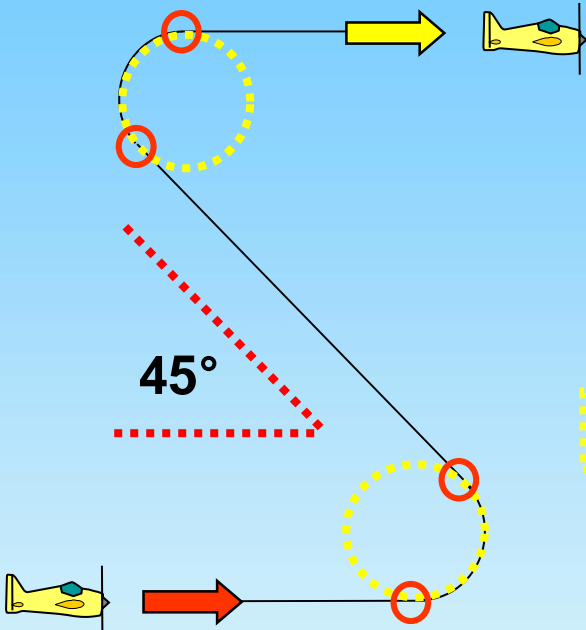
A-20.13 Figure Z



From upright, pull through a 3/8 loop into a 45° upline, push through a 3/8 loop, exit upright.

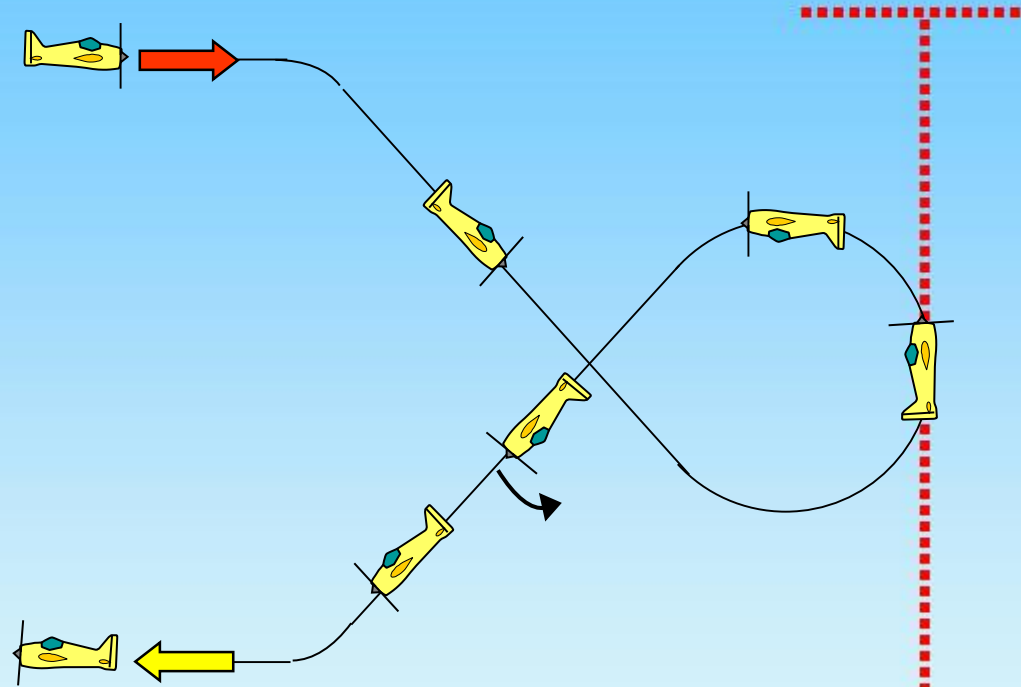


A-20.13 Figure Z





A-20.14 Comet with $\frac{1}{2}$ roll



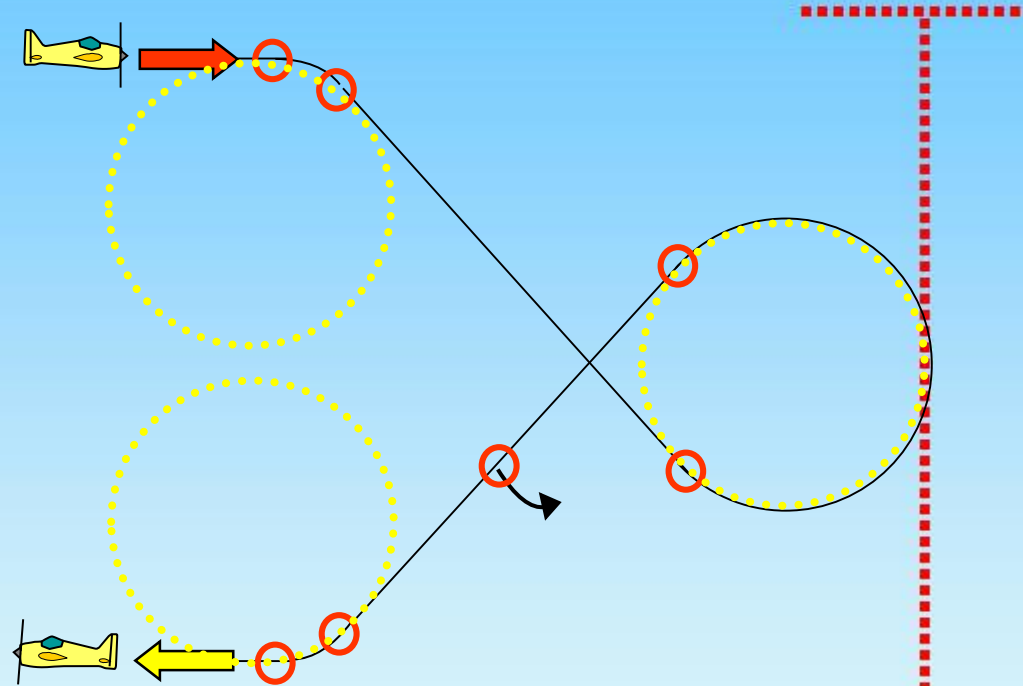
From upright, push through a $\frac{1}{8}$ loop into a 45° downline, pull through a $\frac{3}{4}$ loop into a 45° downline, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{8}$ loop, exit upright.



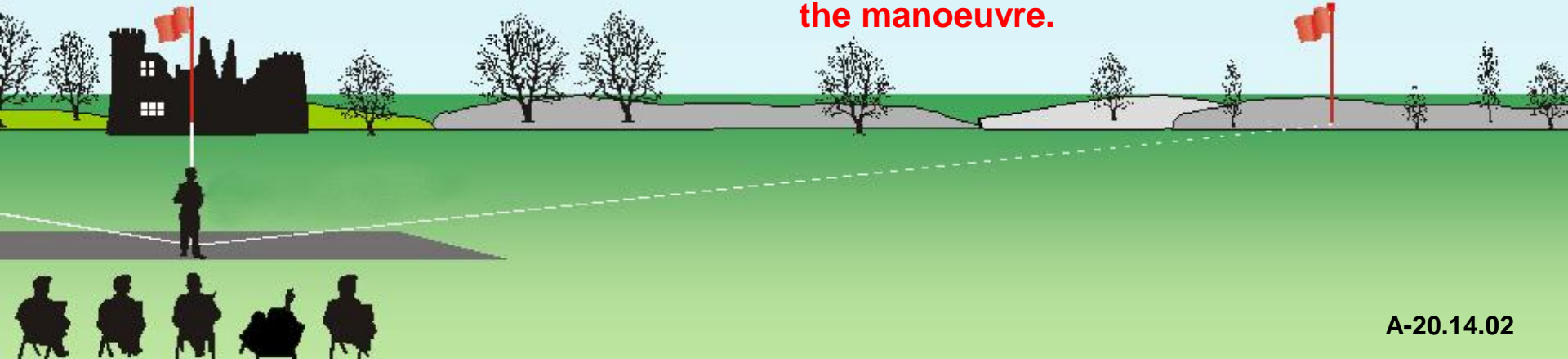
A-20.14 Comet with 1/2 roll

1/2 roll on middle of the line.

All radii are equal.

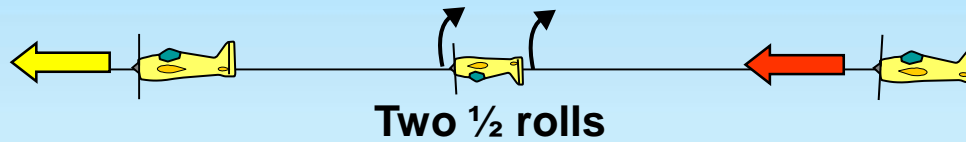


Roll on middle of the lines, but not necessarily in the center of the manoeuvre.





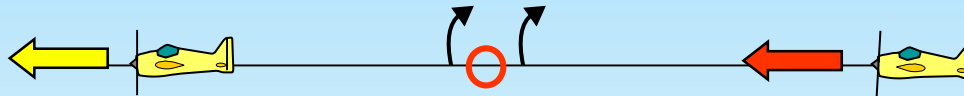
A-20.15 Roll Combination with consecutive two $\frac{1}{2}$ rolls



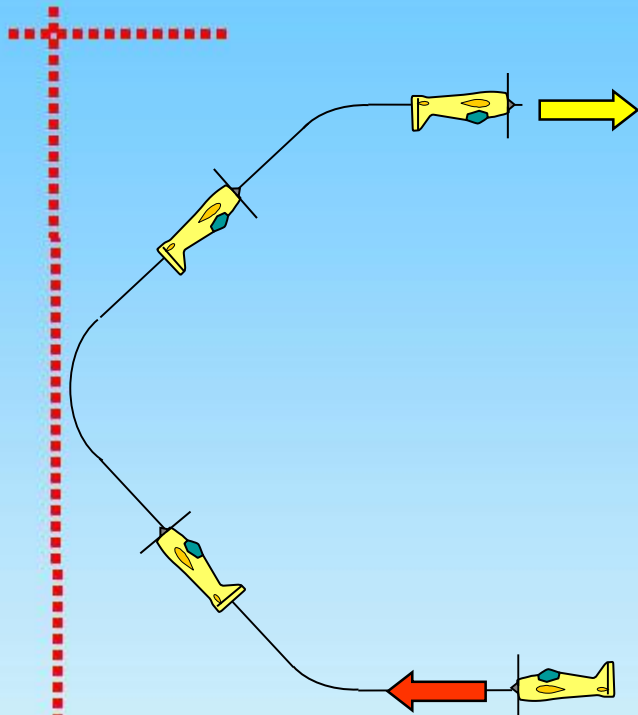


A-20.15 Roll Combination with consecutive two ½ rolls

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



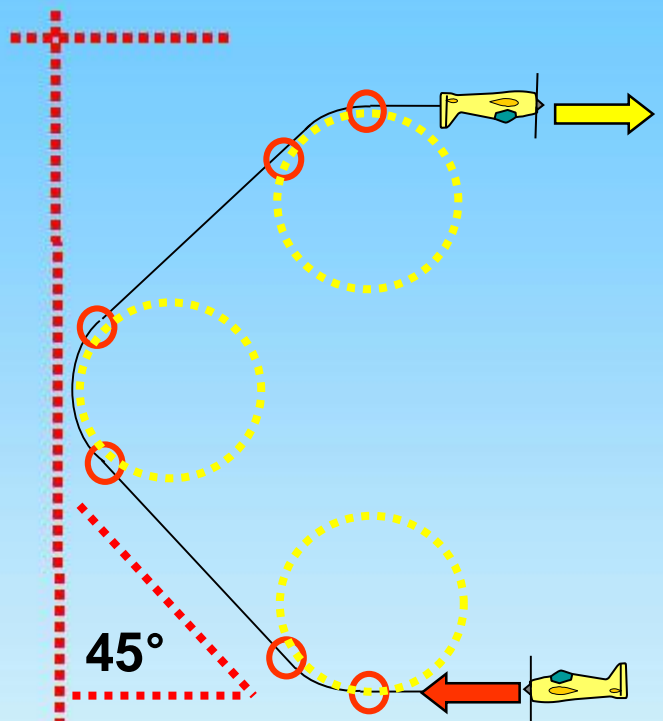
A-20.16 Half Square Loop on Corner



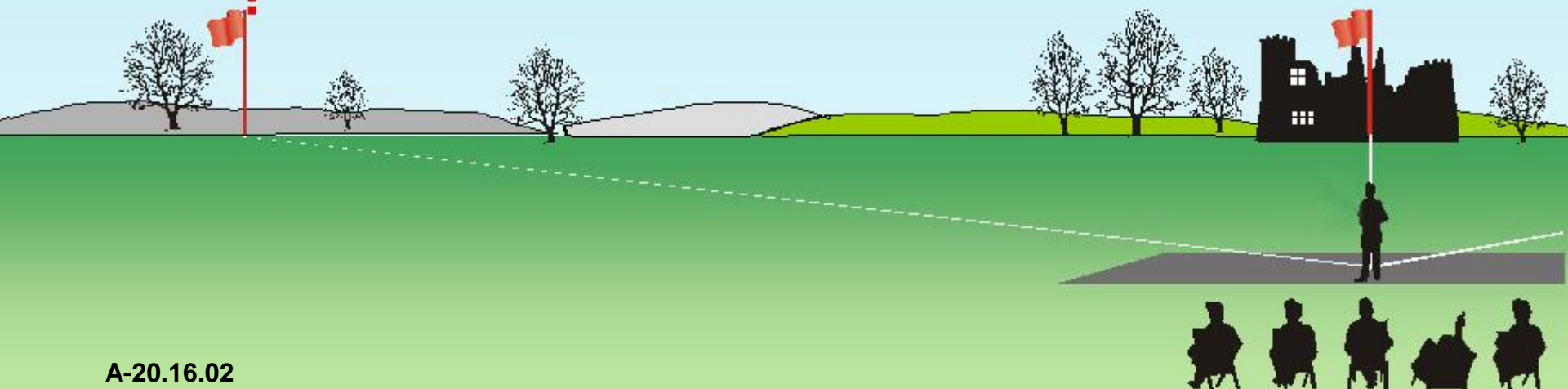
From upright, pull through a $1/8$ loop into a 45° upline, pull through a $1/4$ loop into a 45° upline, pull through a $1/8$ loop, exit inverted.



A-20.16 Half Square Loop on Corner

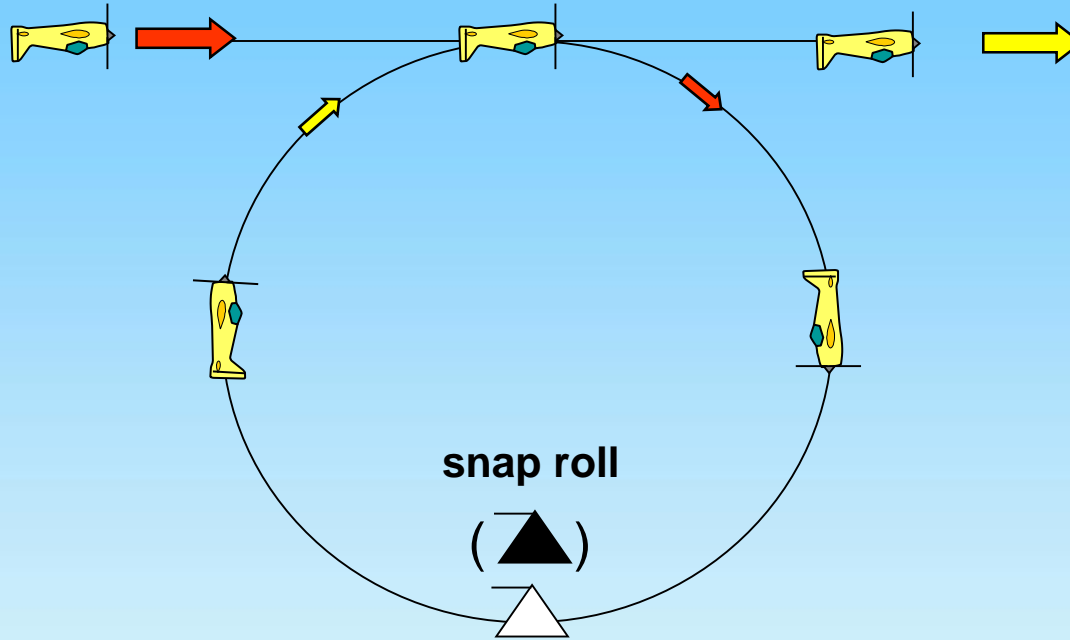


All radii are equal.





A-20.17 Avalanche

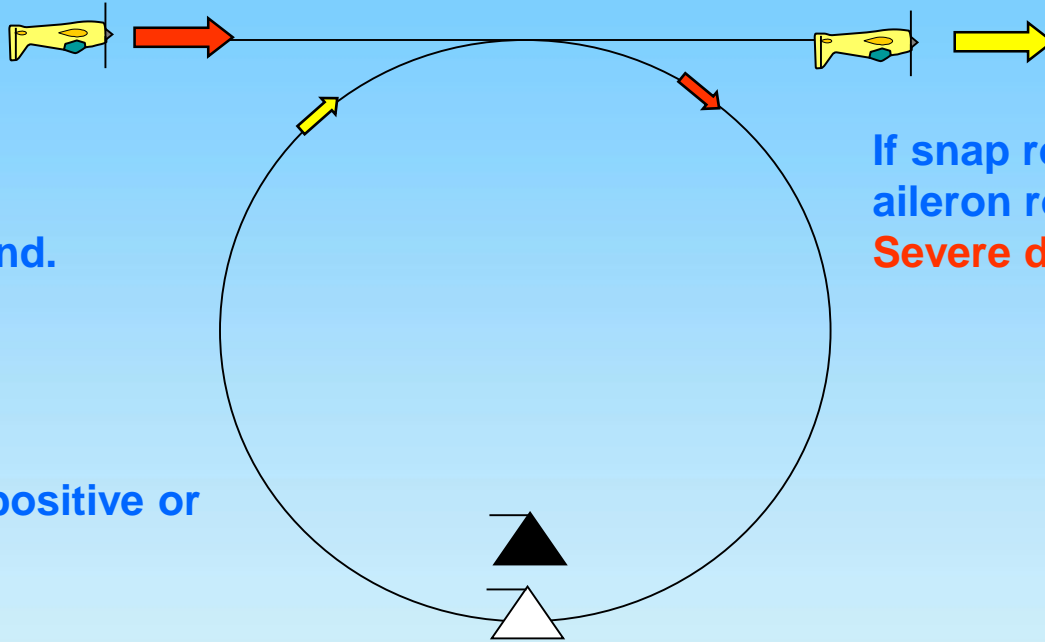


From inverted pull through a loop while performing a snap roll in the low centre, exit inverted.





A-20.17 Avalanche



Loop must be round.

Snap roll may be positive or negative.

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

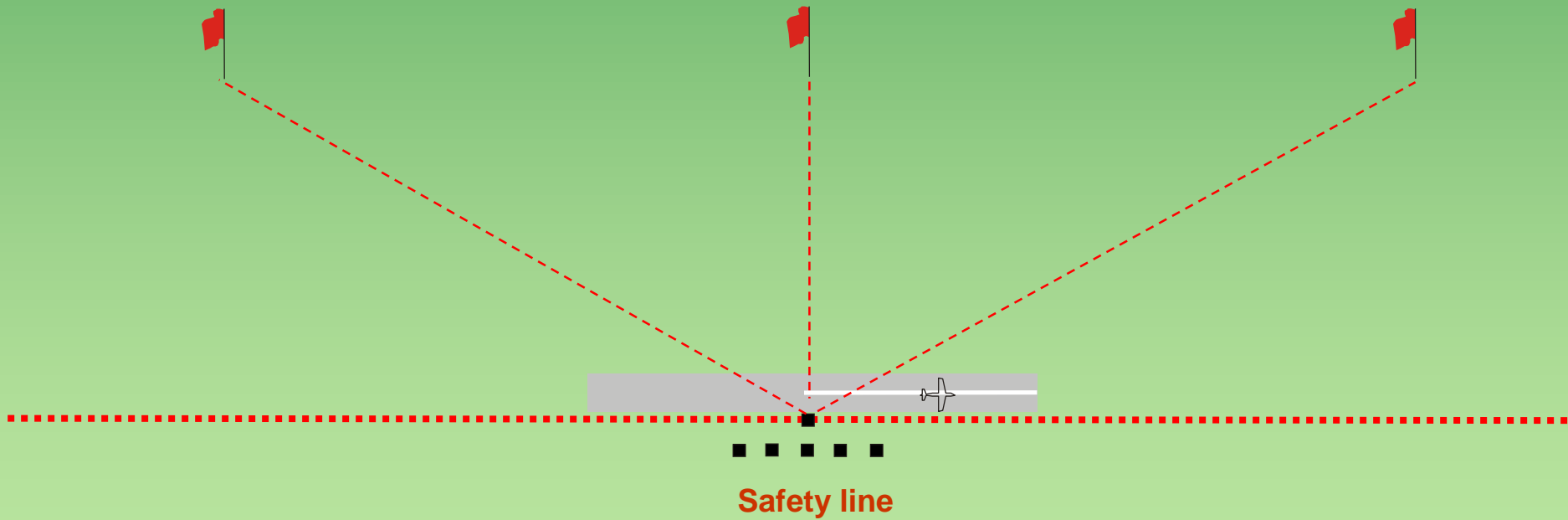




Landing procedure (not judged, not scored)

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

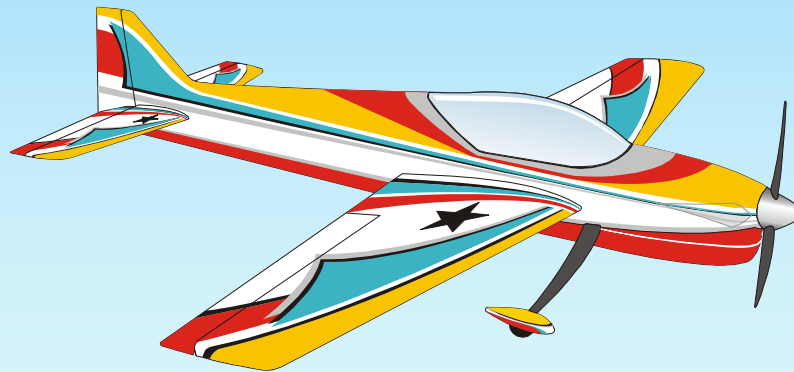
 **wind**



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 2018