

## 172 RG COMMERCIAL MANEUVER SUMMARY

### V-SPEEDS (NORMAL OPERATIONS)

<b>V<sub>SO</sub></b>	<b>42</b>	<b>Stall (Full Flaps) – Level</b>
	<b>50</b>	<b>Stall (Full Flaps) – 45° bank</b>
	<b>59</b>	<b>Stall (Full Flaps) – 60° bank</b>
<b>V<sub>S1</sub></b>	<b>50</b>	<b>Stall (No Flaps) – Level</b>
	<b>59</b>	<b>Stall (No Flaps) – 45° bank</b>
	<b>71</b>	<b>Stall (No Flaps) – 60° bank</b>

**Note: Stall warning 5-10 kts above stall**

#### **Takeoff:**

<b>V<sub>R</sub></b>	<b>55</b>	<b>Takeoff Rotation</b>
	<b>63</b>	<b>Short Field, Flaps 0° Speed at 50 ft AGL</b>
<b>V<sub>X</sub></b>	<b>67</b>	<b>Best Angle, Sea Level</b>
	<b>68</b>	<b>Best Angle, 10,000 MSL</b>
<b>V<sub>Y</sub></b>	<b>84</b>	<b>Best Rate, Sea Level</b>
	<b>77</b>	<b>Best Rate, 10,000 MSL</b>
	<b>85-95</b>	<b>Enroute Climb, Flaps 0°, Gear Up</b>
<b>V<sub>LO</sub></b>	<b>140</b>	<b>Maximum Landing Gear Operating</b>
<b>V<sub>LE</sub></b>	<b>164</b>	<b>Maximum Landing Gear Extended</b>
<b>V<sub>FE</sub></b>	<b>130</b>	<b>Flap Extension 10°</b>
	<b>100</b>	<b>Flap Extension 10° - 30°</b>

#### **Landing Approach:**

<b>70-80</b>	<b>Normal Approach, Flaps 0°</b>
<b>60-70</b>	<b>Normal Approach, Flaps 30°</b>
<b>63</b>	<b>Short Field Approach, Flaps 30°</b>

#### **Balked Landing:**

	<b>55</b>	<b>Maximum Power, Flaps 20°</b>
<b>V<sub>NE</sub></b>	<b>164</b>	<b>Never Exceed</b>
	<b>164</b>	<b>Maximum Window Open</b>

## 172 RG COMMERCIAL MANEUVER SUMMARY

### V-SPEEDS (EMERGENCY OPERATIONS)

#### Engine Failure after Takeoff:

70	Flaps Up
65	Flaps Down

$V_A$		Maneuvering Speed
	106	At 2650 lbs Gross Weight
	98	At 2250 lbs Gross Weight
	89	At 1850 lbs Gross Weight

$V_{BG}$		Best Glide
	73	2650 lbs
	67	2250 lbs
	61	1850 lbs

Precautionary Landing with Engine Power:  
65

Landing without Engine Power:

75	Flaps Up
65	Flaps Down

$V_{NO}$	145	Maximum Structural Cruising
	62 <sup>1</sup>	Minimum Sink Rate

Note 1: Estimated as mid-point between  $V_{S1}$  and Best Glide. Results in lowest sink rate, or maximum time in the air in an engine out situation.

Empty Weight:	1711	9 qts oil / 4 gal unusable fuel
Max TOW:	2650	
Max Ramp Weight:	2658	
Useful Load:	939	

## **172 RG COMMERCIAL MANEUVER SUMMARY**

### **STEEP TURN**

**GEAR UP; NO FLAPS; 17 in / 2500 RPM; LEVEL FLIGHT**

**V<sub>A</sub> OR LESS; 1500 AGL MINIMUM**

**CLEAR AREA**

**20 in / 2500 RPM ENTERING FIRST TURN**

**360° TURN WITH 50° BANK**

**WINGS LEVEL; REDUCE POWER**

**REPEAT WITH OPPOSITE DIRECTION TURN**

**+/-100 FT; +/- 10 KTS; +/- 5° BANK; +/- 10° HEADING**

### **SLOW FLIGHT**

**CLEAR AREA**

**SLOW DOWN TO GEAR AND FLAP SPEED**

**FULL FLAPS AND GEAR DOWN**

**55-60 KTS SPEED**

**USE POWER FOR ALTITUDE AND PITCH FOR AIRSPEED**

**APPROXIMATELY 18 in / 2500 RPM**

**MAINTAIN COORDINATED FLIGHT AND SHALLOW TURNS**

### **RECOVERY**

**FULL POWER**

**FORWARD PRESSURE TO KEEP FROM GAINING ALTITUDE**

**FLAP, GEAR, FLAP, FLAP AS AIRSPEED INCREASES**

**CRUISE POWER SETTING AFTER RECOVERY**

## **172 RG COMMERCIAL MANEUVER SUMMARY**

### **POWER OFF STALL**

CLEAR AREA

CARB HEAT ON; POWER IDLE

ONCE IN GEAR EXTENSION AND FLAP SPEED, LOWER  
GEAR AND FLAPS INCREMENTALLY

ESTABLISH A 500 FPM DESCENT

SIMULATE FLARE

RECOVER AT FIRST INDICATION OF STALL

### **RECOVERY**

FULL POWER

ESTABLISH A SHALLOW CLIMB

RAISE FLAP, GEAR, FLAP, FLAP

GAIN AIRSPEED

SET CRUISE ALTITUDE AND POWER SETTING ONCE

AIRSPEED HAS BEEN ACHIEVED

### **POWER ON STALL**

CLEAR AREA

SLOW DOWN TO APPROXIMATELY 70 KTS

SMOOTHLY INCREASE POWER TO 25" MP AND 2500 RPM  
AND SLOWLY PITCH UP TO APPROXIMATELY 15 DEGREES

USE RUDDER AS NECESSARY TO KEEP COORDINATED

CONTINUE UNTIL NOSE DROPS OR FIRST INDICATION OF  
STALL

### **RECOVERY**

NOSE DOWN TO GAIN AIRSPEED

AFTER SUFFICIENT AIRSPEED HAS BEEN ACHIEVED, NOSE  
UP TO STOP DESCENT

RETURN TO NORMAL POWER SETTING

### **SECONDARY STALL**

THIS IS PERFORMED DIRECTLY AFTER A POWER ON OR  
OFF STALL

AFTER THE FIRST STALL HAS OCCURRED, RAISE THE NOSE  
AGAIN TO GET A SECONDARY STALL WARNING

AFTER SECOND WARNING HAS BEEN ACHIEVED,  
RECOVERY AS NORMAL

## 172 RG COMMERCIAL MANEUVER SUMMARY

### ACCELERATED STALL

CLEAR AREA

SLOW TO  $V_A$  (17" MP AND 2500 RPM)

ROLL INTO A 45 DEGREE BANK

SWIFTLY AND ABRUPTLY INCREASE BACK PRESSURE

UNTIL INDICATION OR FULL STALL OCCURS

MAINTAIN COORDINATED FLIGHT

RELEASE BACK PRESSURE AND ALLOW THE AIRCRAFT TO

RETURN TO NORMAL FLIGHT

### CROSS CONTROLLED STALL

CLEAR AREA

LOWER GEAR ONLY

REDUCE POWER TO IDLE TO SIMULATE A DECENT

ESTABLISH A GLIDE OF APPROXIMATELY 70 KTS

ENTER A 20-30 DEGREE BANKED TURN

APPLY INSIDE RUDDER AND OPPOSITE AILERON TO

MAINTAIN BANK

APPLY BACKPRESSURE UNTIL IMMINENT STALL OCCURS

### RECOVERY

RELEASE BACK PRESSURE

MAINTAIN COORDINATED FLIGHT

SMOOTHLY ADD FULL POWER

MINIMIZE ALTITUDE LOSS

ACCELERATE BACK TO CRUISE SETTING

## 172 RG COMMERCIAL MANEUVER SUMMARY

### ELEVATOR TRIM STALL

CLEAR AREA

REDUCE POWER

MAINTAIN ALTITUDE WITH THE USE OF BACK PRESSURE  
AND TRIM AS AIRSPEED DECREASES

GEAR AND FLAPS DOWN

ESTABLISH A GLIDE OF 65 KNOTS WITH THE USE OF TRIM  
APPLY FULL NOSE UP TRIM

APPLY FULL POWER AND ALLOW THE PITCH TO INCREASE  
UNTIL STALL OCCURS

### RECOVERY

EXERT FORWARD PRESSURE TO BREAK THE STALL AND  
ESTABLISH A CLIMB AT  $V_Y$  (84 KTS)

RAISE FIRST NOTCH OF FLAPS

ONCE CLIMB IS ESTABLISHED, RAISE THE GEAR AND  
FLAPS INCREMENTALLY

LEVEL OFF AND ESTABLISH NORMAL POWER SETTING

### CHANDELLE

GEAR UP; NO FLAPS; 17 in / 2500 RPM; LEVEL FLIGHT  
 $V_A$ ; 1500 AGL MINIMUM

KEEP CONSISTENT ENTRY SPEED FOR MAX GW  $V_A$

CLEAR AREA

30° BANK FIRST, THEN

CLIMB POWER ( $25^2$ ) AND SMOOTH PITCH INCREASE

90° POINT; 30° BANK; MAX PITCH UP

TARGET AIRSPEED AT THIS POINT: 75 - 80 KTS

MAINTAIN PITCH AND CONSTANT RATE ROLLOUT TO  
LEVEL AT 180° POINT

AIRSPEED DECREASING TO JUST ABOVE STALL

TARGET 5 KTS OVER THE STALL SPEED – 55 KTS

ADJUST ROLLOUT TIME TO ACHIEVE STALL SPEED

180° POINT; HOLD AIRSPEED MOMENTARILY AVOID STALL  
GENTLY REDUCE PITCH TO STRAIGHT & LEVEL

RETURN TO LEVEL WITH MIN LOSS OF ALTITUDE

+/- 10° HEADING

## 172 RG COMMERCIAL MANEUVER SUMMARY

### STEEP SPIRAL (NOT ENDING IN LANDING)

INITIATE WITH ENGINE OUT TRIM TO BEST GLIDE  
ENTER ON DOWNWIND LEG – SETS STEEPEST BANK

THEN TRANSITION TO LANDING SPIRAL

GEAR UP; NO FLAPS; 17 in / 2500 RPM; LEVEL FLIGHT  
AT LEAST 3 – 360° TURNS

DO NOT EXCEED 60° OF BANK

70-80 KTS AT MIN 4500 AGL TO END AT 1500 AGL

BEST GLIDE NOT NEEDED – AT POINT OF LANDING

NEED MARGIN ABOVE STALL FOR STEEP TURN

LOSE ABOUT 1000 FT PER 360° TURN

FLY AS GROUND REFERENCE MANEUVER (i.e. TURNS ABOUT  
A POINT)

REDUCE PITCH AS BANK INCREASES

+/- 10 KTS; +/- 10° HEADING

CLEAR ENGINE AS NEEDED

ACTUAL EMERGENCY – FOLLOW WITH 180 TO LANDING

### LAZY EIGHT:

GEAR UP; NO FLAPS; 17 in / 2500 RPM

110 KTS ENTRY SPEED

CLEAR AREA

ENTER LEADING WITH PITCH

VERY SLOW ROLL RATE

“PITCH, PITCH, BANK”

\*45° POINT – 15° BANK – MAX PITCH UP (70-75 KTS)

TAKE YOUR TIME FOR FIRST 45° - MATCHES LAST 45°

NOSE SHOULD BE FALLING INTO THE TURN

90° POINT – 30° BANK – LEVEL PITCH MOMENTARILY

MAX ALTITUDE TARGET

\*135° POINT – 15° BANK – MAX PITCH DOWN

180° POINT – LEVEL FLIGHT

USE AS MUCH TIME AS NEEDED IN ROLL OUT

TO WINGS LEVEL TO ACHIEVE

ENTRY AIRSPEED AND ALTITUDE

IMMEDIATELY ROLL INTO OPPOSITE DIRECTION

+/-100 FT; +/- 10 KTS; +/- 10° HEADING FROM ENTRY

## 172 RG COMMERCIAL MANEUVER SUMMARY

### EIGHTS ON PYLONS

LINE BETWEEN PYLONS IS CROSSWIND

PIVOTAL ALTITUDES

GS	AGL	GS	AGL	GS	AGL	GS	AGL
80	566	93	765	105	975	117	1211
83	609	95	798	107	1013	120	1274
85	639	97	833	110	1070	123	1338
87	669	100	885	113	1130	125	1382
90	717	103	938	115	1170	127	1427

GEAR UP; NO FLAPS

CRUISE POWER (20 in / 2500 RPM); LEVEL FLIGHT

V<sub>A</sub> OR LESS; OR POH RECOMMENDED

CLEAR AREA

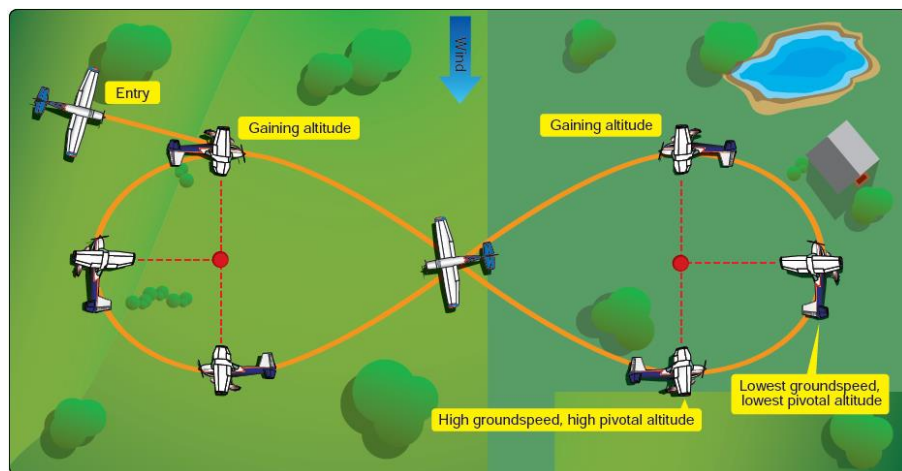
ENTER DOWNWIND FROM 1<sup>ST</sup> PYLON TO UPWIND ON 2<sup>ND</sup>

IF MOVING AHEAD OF PYLON – PITCH UP (PULL BACK)

IF DROPPING BEHIND PYLON – PITCH DOWN (PUSH FORWARD)

UPWIND – DESCEND; DOWNWIND – CLIMB

40° OF BANK MAX



1 MI BETWEEN PYLONS

ENTRY IS DIAGONAL TO WIND, ADD 5 KTS TO GS FOR 10 KTS WIND



## 172 RG COMMERCIAL MANEUVER SUMMARY

### 180 POWER OFF LANDING

PRE-LANDING CHECKLIST

1000 FT AGL MAX

ABEAM TOUCHDOWN POINT – THROTTLE CLOSED

LANDING CHECKLIST

HOLD ALTITUDE UNTIL:

75 KTS – NO FLAPS

65 KTS – FULL FLAPS

FLAPS ONCE RUNWAY IS ASSURED

SLIP ONLY WITH ONE OR TWO NOTCHES OF FLAPS

NOTE AIRSPEED CHANGE UPON ENTERING SLIP

OFF FIELD LANDING CHECKLIST

WITHIN 200 FT OF TARGET TOUCHDOWN POINT

EXECUTE AS A SMOOTH 180 DEGREE TURN

### POWER NUMBERS

17 in / 2400 RPM / 0° - 100 KTS

16 in / 2400 RPM / 10° - Approach Configuration –

19 in / 2400 RPM / 10° - Gear Down – 100 KTS, level flight

## 172 RG COMMERCIAL MANEUVER SUMMARY

Steep Spiral

<https://www.youtube.com/watch?v=kqLh8TMNtEM>

Steep Turn

<https://www.youtube.com/watch?v=24LySNN3SCE>

Eights on Pylons

<https://www.youtube.com/watch?v=dx3WOSqGGTY>

Lazy Eights

<https://www.youtube.com/watch?v=yJb2dYtxfpE>

<https://youtu.be/6oQOUiHhjaY>

Chandelles

<https://www.youtube.com/watch?v=M18YI7oj2Q8>