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PRE-MANEUVER CHECKLIST (CHAAAPS)	SLOW FLIGHT
1. Clearing Turns 2. Heading & Reference Set 3. Altitude Appropriate 4. Airspeed Appropriate 5. Announce Position 6. Proper Configuration 7. Safe Space to Land	**Entry** 1. Pre-Maneuver Checklist 2. Carburetor Heat ON 3. Throttle Reduce to 1500-1700 RPM 4. Below 85 KIAS Flaps 10° 5. Full Flaps Incrementally 6. Maintain Altitude with Power (Above 2000 RPMs Carb Heat OFF) 7. Maintain Airspeed 60 KIAS with Pitch (without stalling)
V Speeds Vso: 41 KIAS Vs: 47 KIAS Vr: 55 KIAS Vx: 59 KIAS Vy: 73 KIAS Vg: 65 KIAS Vfe: 85 KIAS Va: 97 KIAS @ 2300 lbs 89 KIAS @ 1950 lbs 80 KIAS @ 1600 lbs Vno: 128 KIAS Vne: 160 KIAS	**Recovery** 1. Throttle FULL and Carb Heat OFF 2. Pitch to Gain Airspeed (Reduce Angle of Attack) 3. Flaps 20° 4. Climb at Vy 73 KIAS 5. Flaps 10° then Flaps Up 6. Cruise at Selected Altitude 7. Cruise Checklist
Maximum Demonstrated Crosswind Velocity: 15 Knots	**ACS Standards** - Private: No lower than 1500’ AGL; altitude ±100 feet; specified heading ±10°; airspeed +10/-0 knots; specified angle of bank, ±10° - Commercial: No lower than 1500’ AGL; altitude ±50 feet; specified heading ±10°; airspeed +5/-0 knots; specified angle of bank, ±5°

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POWER OFF STALL	POWER ON STALL
Entry 1. Pre-Maneuver Checklist (Landing Config.) 2. Carb Heat ON 3. Throttle Reduce to 1600 RPM 4. Maintain Altitude as Airspeed Decreases 5. Below 85 KIAS Flaps 30° Incrementally 6. Establish Stable Descent at 65 KIAS 7. Throttle IDLE 8. Increase Back Pressure Until First Indication or Full Stall Occurs 9. Acknowledge Stall Indications	**Entry** 1. Pre-Maneuver Checklist (Takeoff Config.) 2. Carb Heat ON 3. Throttle Reduce to 1600 RPM 4. Maintain Altitude as Airspeed Decreases 5. At 65 KIAS, Throttle FULL & Carb Heat OFF 6. Establish a Gradual Climb Attitude Until First Indication or Full Stall 7. Acknowledge Stall Indications
Recovery 1. Release Back Pressure 2. Throttle FULL & Wings Level 3. Carb Heat OFF 4. Flaps 20° 5. Pitch for Vx 6. Flaps 10° 7. Pitch for Vy 8. Flaps Up 9. Cruise at Selected Altitude & Cruise Checklist	**Recovery** 1. Release Back Pressure 2. Throttle FULL & Wings Level 3. Carb Heat OFF 4. Pitch for Vx or Vy While Climbing 5. Cruise at Selected Altitude & Cruise Checklist
ACS Standards - Private: No lower than 1500’ AGL; specified heading ±10° in straight flight; specified bank angle not to exceed 20° and ±10° if in turning flight - Commercial: No lower than 1500’ AGL; specified heading ±10° in straight flight; specified bank angle not to exceed 20° and ±5° if in turning flight	**ACS Standards** - Private: No lower than 1500’ AGL; specified heading ±10° in straight flight; specified bank angle not to exceed 20° and ±10° if in turning flight - Commercial: No lower than 1500’ AGL; specified heading ±10° in straight flight; specified bank angle not to exceed 20° and ±10° if in turning flight

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ACCELERATED STALL (Commercial Only)	STEEP TURNS
Entry 1. Pre-Maneuver Checklist 2. Carb Heat ON 3. Throttle Reduce to 2000 RPM 4. Reduce Speed to 75 KIAS 5. Bank 45° & Increase Back Pressure Until First Stall Indication 6. Acknowledge Stall Indications	**Entry** 1. Pre-Maneuver Checklist 2. Slow & Maintain to 95 KIAS 3. Establish Bank Angle (45° pvt., 50° comm.) 4. Adjust Throttle & Trim to Maintain Altitude & Airspeed 5. Complete 360° Turn to the Left 6. Roll Out of Turn 20° - 25° Before Heading 7. Start Right Turn After Wings Level 8. Roll Out of Turn 20° - 25° Before Heading
Recovery 1. Release Back Pressure 2. Throttle FULL & Carb Heat OFF 3. Level Wings 4. Pitch for Vx or Vy 5. Cruise at Selected Altitude & Cruise Checklist	**Recovery** 1. Back to Reference Heading 2. Adjust Throttle and Trim for Cruise 3. Cruise at Selected Altitude & Cruise Checklist
ACS Standards - Commercial: No lower than 3000’ AGL; Configure to not exceed Va; Acknowledge the cues at the first indication of a stall	**ACS Standards** - Private: Altitude ±100 feet, Airspeed ±10 knots; Bank 45°, ±5°; Roll Out Heading ±10° - Commercial: Altitude ±100 feet, Airspeed ±10 knots; Bank 50°, ±5°; Roll Out Heading ±10°

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TURNS AROUND A POINT (Private Only)	S - TURNS (Private Only)
Entry 1. Pre-Maneuver Checklist 2. Select Point 3. Maintain Entry Altitude 600’ - 1000’ AGL 4. Enter Downwind at 95 KIAS 5. First 90° Turn: Steepest Bank 6. Second 90° Turn: Steeper Bank 7. Third 90° Turn: Shallowest Bank 8. Fourth 90° Turn: Moderate to Steepest Bank 9. Two 360° Around the Point	**Entry** 1. Pre-Maneuver Checklist 2. Select Road Perpendicular to Wind 3. Maintain Entry Altitude 600’ - 1000’ AGL 4. Enter Downwind at 95 KIAS 5. Over the Road, Roll to Steepest Left Bank 6. Maintain Constant Radius Around Reference Varying Bank 7. After 90°, Roll to Steeper Left Bank 8. Cross the Road Wings Level and Perpendicular 9. Over the Road, Roll to Shallowest Left Bank 10. Maintain Constant Radius Around Reference Varying Bank 11. After 90°, Roll to Steeper Bank 12. Cross the Road Wings Level and Perpendicular
Recovery 1. After Two 360° Around the Point 2. Exit on the Downwind on Entry Heading	**Recovery** 1. Exit on Downwind on Entry Heading
ACS Standards - Private: 600’ - 1000’ AGL; Altitude ±100 feet; Airspeed ±10 knots; Constant Radius Around Point *Steepest > Steeper > Moderate > Shallowest	**ACS Standards** - Private: 600’ - 1000’ AGL; Altitude ±100 feet; Airspeed ±10 knots *Steepest > Steeper > Moderate > Shallowest

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RECTANGULAR COURSE (Private Only)	EIGHTS ON PYLONS (Commercial Only)
Entry 1. Pre-Maneuver Checklist 2. Select Reference Area: Square/ Rectangle with Straight Lines & Longest Line Perpendicular to Wind 3. Maintain Entry Altitude 600’ - 1000’ AGL 4. Enter 45° From the Downwind at 95 KIAS 5. Maintain an Equal Ground Track to the Reference 6. Fly a Pattern Crabbing as Necessary Maintaining a Constant Ground Track Around Reference	**Entry** 1. Pre-Maneuver Checklist 2. Select 2 Points that are in a Line Perpendicular to Wind 3. Enter the Maneuver at Pivotal Altitude 4. Cross Between the Pylons 45° of the Downwind at 95 KIAS 5. Establish Bank 6. Pitch to Maintain the Line-of-Sight Reference Line on the First Pylon 7. Stay Coordinated 8. Cross the Pylons Straight and Level 9. Pitch to Maintain the Line-of-Sight Reference Line on the Second Pylon 10. Stay Coordinated 11. Cross the Pylons Straight and Level
Recovery 1. Exit on the Downwind	**Recovery** 1. Exit 45° of the Downwind
ACS Standards - Private: 600’ - 1000’ AGL; Altitude ±100 feet; Airspeed ±10 knots; Constant Ground Track Around Reference	**ACS Standards** - Commercial: Bank angle not to exceed 40°; Maintain pylon position using appropriate pivotal altitude, avoiding slips and skids.

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STEEP SPIRAL (Commercial Only)	CHANDELLES (Commercial Only)
Entry 1. Pre-Maneuver Checklist 2. Select Altitude Which Permits at Least 3, 360° Turns (Ideally 4000’ AGL) 3. Select Reference Point 4. Carb Heat ON 5. Throttle IDLE 6. Establish Best Glide Airspeed 65 KIAS 7. Maintain Constant Radius Around Reference Point Changing Bank (Wind Drift) 8. Steepest Bank Downwind, Shallower Bank Upwind 9. Throttle FULL for 4 Seconds Every 360°	**Entry** 1. Pre-Maneuver Checklist (T/O Config.) 2. Airspeed 105 KIAS 3. First 90° Turn: a. Maintain 30° Bank b. Throttle FULL c. Increasing Pitch (Just Above Stall Speed) 4. On the 90° Point: a. Maintain Pitch & Hold Airspeed Just Above stall speed b. Decreasing Bank Gradually 5. At 180° Point: a. Wings Level b. Airspeed Hold Momentarily at Vs
Recovery 1. Exit Maneuver Against the Wind After 3, 360° Turns 2. Cruise at Exit Altitude & Cruise Checklist	**Recovery** 1. Gradually Decrease Pitch to Straight & Level (Minimal Loss of Altitude) 2. Cruise Checklist
ACS Standards - Commercial: Bank Not To Exceed 60°; Airspeed ±10 knots; Roll Out Toward An Object Or Heading, ±10°; Conclude Maneuver No Lower Than 1500’ AGL	**ACS Standards** - Commercial: No Lower Than 1500’ AGL; Complete Rollout at the 180° Point, ±10° Just Above Stall Airspeed, Momentarily Avoiding a Stall; Minimum Loss of Altitude

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LAZY EIGHTS (Commercial Only)	EMERGENCY DESCENT

Entry
1. Pre-Maneuver Checklist
2. Select 45°, 90°, and 135° Reference Points
3. Airspeed 105 KIAS
4. 0° to 45° Turn:
  a. Bank 5°
  b. Gradually Pitch Up to Hit Maximum Pitch Up at the 45° Point
  c. As Pitch Goes up, Let the Bank Increase to 15°
5. 45° to 90° Turn:
  a. Gradually Decrease the Pitch Angle to Slice the Horizon at the 90° Point
  b. Gradual Bank to 30°
6. 90° to 135° Turn:
  a. Let the Airspeed Increase with Pitch to Max Pitch Down
  b. Gradual Bank to 15°
7. 135° to 180° Turn:
  a. Pitch Smoothly Back to Entry Altitude and Entry Airspeed
  b. Gradual Bank To Wings Level
8. Repeat Steps 4 - 7 Opposite Side
	Entry
	1. Pre-Maneuver Checklist
	2. Emergency Checklist as Appropriate
	3. Throttle IDLE
	4. Carb Heat ON
	5. Pitch and Bank Simultaneously for:
	  a. >100 KIAS
	  b. 30° - 45° Bank
	6. Start Wings Level & Level Off 200’ Before Selected Altitude
	7. Continue to Power Off Landing or Cruise as Appropriate

Recovery 1. Cruise at Selected Altitude & Cruise Checklist	**Recovery** 1. Cruise at Selected Altitude & Cruise Checklist
ACS Standards - Commercial: No Lower Than 1500’ AGL; Approximately 30° Bank at Steepest Point; Constant Change of Pitch and Roll Rate & Airspeed; Altitude at 180° Point, ±10 knots from entry airspeed; Heading at the 180° Point, ±10°	**ACS Standards** - Private: Bank Angle Between: 30° - 45°; Airspeed +0/-10 knots; Level Off at Specified Altitude ±100 feet - Commercial: Bank Angle Between: 30° - 45°; Airspeed +0/-10 knots; Level Off at Specified Altitude ±100’

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EMERGENCY APPROACH & LANDING	POWER OFF 180 (Commercial Only)
Entry 1. Pre-Maneuver Checklist 2. Throttle IDLE 3. Carb Heat ON 4. Airspeed Best Glide 65 KIAS 5. Best Place To Land Selection 6. Checklists a. If Altitude Permits: Restart b. If not: Shutdown 7. Declare the Emergency	**Entry** 1. Pre-Landing Checklist 2. Select Touchdown Point 3. Position Plane Downwind 4. Abeam the Numbers Throttle IDLE 5. Airspeed as Necessary/Best Glide 65 KIAS 6. Turn as Necessary 7. Extend Flaps as Necessary When Landing Assured 8. Touchdown at Selected Point
Recovery 1. Throttle FULL & Climb to Selected Altitude 2. Cruise Checklist	**Completion** 1. Apply Brakes Smoothly 2. Maintain Centerline 3. Taxi as Appropriate 4. Complete Checklists 5. Radio Calls as Appropriate
ACS Standards - Private: Airspeed Best Glide ±10 knots; Consider Wind, Terrain, Obstructions & Available Glide - Commercial: Airspeed Best Glide ±10 knots; Consider Wind, Terrain, Obstructions & Available Glide	**ACS Standards** - Commercial: Touchdown at Proper Pitch Attitude, Within 200’ Beyond or on Specified Point; No Side Drift, Aligned with Centerline on Touchdown

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NORMAL TAKEOFF	CROSSWIND TAKEOFF
Entry 1. Pre-Takeoff Checklist & Briefing 2. Flaps 0° 3. Carb Heat COLD 4. Radio Calls as Appropriate 5. Clear Traffic on Base/Final & Runway 6. Verify Runway 7. Throttle FULL 8. BREACT a. Breaks - Out b. RPMs - Correct c. Engine Instruments - Green d. Airspeed - Alive e. Center Line - Maintained f. Takeoff Abort Point - On Sight 9. Rotate - Vr 55 KIAS 10. Climb - Vy 73 KIAS 11. Climb Checklist @ 1000’ AGL	**Entry** 1. Pre-Takeoff Checklist & Briefing 2. Flaps 0° 3. Apply Full Aileron Crosswind Correction 4. Carb Heat COLD 5. Radio Calls as Appropriate 6. Clear Traffic on Base/Final & Runway 7. Verify Runway 8. Throttle FULL 9. BREACT a. Breaks - Out b. RPMs - Correct c. Engine Instruments - Green d. Airspeed - Alive e. Center Line - Maintained f. Takeoff Abort Point - On Sight 10. Aileron Crosswind Correction Decreasing as Airspeed Increases 11. Rotate - Vr 55 KIAS 12. Let Airplane Crab Into The Wind 13. Climb - Vy 73 KIAS 14. Climb Checklist @ 1000’ AGL
ACS Standards - Private: Rotate & Lift Off at Recommended Airspeed; Apply Climb Vy +10/-5 knots; Comply With Noise Abatement Procedures - Commercial: Rotate & Lift Off at Recommended Airspeed; Climb Vy ,±5 knots; Comply With Noise Abatement Procedures	**ACS Standards** - Private: Rotate & Lift Off at Recommended Airspeed; Apply Wind Correction; Climb Vy +10/-5 knots; Comply With Noise Abatement Procedures - Commercial: Rotate & Lift Off at Recommended Airspeed; Apply Wind Correction; Climb Vy ,±5 knots; Comply With Noise Abatement Procedures

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SHORT FIELD TAKEOFF	SOFT FIELD TAKEOFF
1. Pre-Takeoff Checklist & Briefing 2. Flaps 10° 3. Carb Heat COLD 4. Radio Calls as Appropriate 5. Clear Traffic on Base/Final & Runway 6. Verify Runway 7. Use All Runway Available 8. Apply Full Brakes 9. Throttle FULL 10. Check Full Power Is Set 11. Brakes Release 12. BREACT a. Breaks - Out b. RPMs - Correct c. Engine Instruments - Green d. Airspeed - Alive e. Center Line - Maintained f. Takeoff Abort Point - On Sight 13. Rotate - Vr 55 KIAS 14. Climb - 59 KIAS 15. Climb - 73 KIAS @ Clear of Obstacle 16. Flaps Up @ Safe Altitude 17. Climb Checklist @ 1000’ AGL	1. Pre-Takeoff Checklist & Briefing 2. Flaps 10° 3. Full Elevator Up 4. Carb Heat COLD 5. Radio Calls as Appropriate 6. Clear Traffic on Base/Final & Runway 7. Verify Runway 8. Throttle FULL 9. Gradually Decrease Pitch Up To Maintain Nose Wheel With Minimum To No Friction 10. BREACT a. Breaks - Out b. RPMs - Correct c. Engine Instruments - Green d. Airspeed - Alive e. Center Line - Maintained f. Takeoff Abort Point - On Sight 11. Rotate - Earliest Possible 12. Maintain Ground Effect Until Vy 13. Climb - Vy 73 KIAS 14. Flaps Up @ Safe Altitude 15. Climb Checklist @ 1000’ AGL
ACS Standards - Private: Rotate & Lift Off at Recommended Airspeed; Apply Wind Correction; Climb Vy +10/-5 knots; Comply With Noise Abatement Procedures - Commercial: Rotate & Lift Off at Recommended Airspeed; Apply Wind Correction; Climb Vy ,±5 knots; Comply With Noise Abatement Procedure	**ACS Standards** - Private: Rotate & Lift Off at Recommended Airspeed; Apply Wind Correction; Climb Vy +10/-5 knots; Comply With Noise Abatement Procedures - Commercial: Rotate & Lift Off at Recommended Airspeed; Apply Wind Correction; Climb Vy ,±5 knots; Comply With Noise Abatement Procedures

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NORMAL LANDING	CROSSWIND LANDING
1. Pre-Landing Checklist 2. Radio Calls as Appropriate 3. Select Touchdown point 4. Establish in the Pattern 5. Downwind: a. Throttle 1800 RPMs b. Flaps 10° c. Airspeed 85 KIAS 6. Base: a. Throttle as Needed b. Flaps 20° c. Airspeed 75 KIAS 7. Final: a. Throttle as Needed b. Flaps FULL c. Airspeed 65 KIAS 8. Normal Flare With Power Out 9. Touchdown With Main Wheels First 10. Apply Minimum Brakes	1. Pre-Landing Checklist 2. Radio Calls as Appropriate 3. Select Touchdown point 4. Establish in the Pattern 5. Downwind: a. Throttle 1800 RPMs b. Flaps 10° c. Airspeed 85 KIAS d. Crab as Needed 6. Base: a. Throttle as Needed b. Flaps 20° c. Airspeed 75 KIAS d. Crab as Needed 7. Final: a. Throttle as Needed b. Flaps FULL c. Airspeed 65 KIAS d. Apply Sideslip 8. Normal Flare With Power Out 9. Touchdown With Upwind Wheel First 10. Apply Crosswind Correction 11. Apply Minimum Brakes

ACS Standards

- Private: Maintain manufacturer's published approach airspeed +10/-5 knots with gust factor applied; Touchdown at proper pitch attitude within 400' beyond specified point; No side drift and aligned with centerline

- Commercial: Maintain manufacturer's published approach airspeed knots with gust factor applied ±5 knots; Touchdown at proper pitch attitude within 200' beyond specified point; No side drift and aligned with centerline

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SHORT FIELD LANDING	SOFT FIELD LANDING
1. Pre-Landing Checklist 2. Radio Calls as Appropriate 3. Select Touchdown point 4. Establish in the Pattern Apply Wind Correction 5. Downwind: a. Throttle1800 RPMs b. Flaps 10° c. Airspeed 85 KIAS 6. Base: a. Throttle as Needed b. Flaps 20° c. Airspeed 75 KIAS 7. Final: a. Throttle as Needed b. Flaps FULL c. Airspeed 60 KIAS 8. Normal Flare With Power Out 9. Touchdown With Main Wheels First 10. Flaps UP 11. Apply Maximum Brakes 12. Hold Elevator Back Pressure	1. Pre-Landing Checklist 2. Radio Calls as Appropriate 3. Select Touchdown point 4. Establish in the Pattern Apply Wind Correction 5. Downwind: a. Throttle1800 RPMs b. Flaps 10° c. Airspeed 85 KIAS 6. Base: a. Throttle as Needed b. Flaps 20° c. Airspeed 75 KIAS 7. Final: a. Throttle as Needed b. Flaps FULL c. Airspeed 65 KIAS 8. Normal Flare With Power Out 9. Touchdown With Main Wheels First 10. Keep the Nose Wheel Off the Surface 11. Apply Minimum Brakes 12. Hold Elevator Back Pressure Taxiing Off Rwy
ACS Standards - Private: Maintain manufacturer's published approach airspeed +10/-5 knots with gust factor applied; Touchdown at proper pitch attitude within 200' beyond specified point; No side drift and aligned with centerline - Commercial: Maintain manufacturer's published approach airspeed knots with gust factor applied ±5 knots; Touchdown at proper pitch attitude within 100' beyond specified point; No side drift and aligned with centerline	**ACS Standards** - Private: Maintain manufacturer's published approach airspeed +10/-5 knots with gust factor applied; Touchdown at proper pitch attitude; No side drift, minimum sink rate and aligned with centerline - Commercial: Maintain manufacturer's published approach airspeed knots with gust factor applied ±5 knots; Touchdown at proper pitch attitude; No side drift, minimum sink rate, and aligned with centerline

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FORWARD SLIP TO LANDING (Private Only)	GO AROUND
1. Pre-Landing Checklist 2. Radio Calls as Appropriate 3. Establish in the Pattern Apply Wind Correction 4. Downwind Abeam The Numbers a. Throttle 1900 RPMs b. Flaps 10° c. Pitch 80 KIAS 5. Base a. Throttle 1900 RPMs b. Flaps 20° c. Pitch 75 KIAS 6. Final a. Throttle IDLE b. Ailerons Into The Wind c. Rudder Opposite Rudder d. Pitch 70 KIAS e. 50’ AGL, Back To Normal Attitude f. Flaps FULL 7. Normal Flare With Power Out 8. Touchdown With Main Wheels First 9. Apply Minimum Brakes	1. Throttle FULL 2. Carb Heat COLD 3. Pitch Vx 4. Flaps 20° 5. Pitch Vy 6. Flaps 10° 7. Side Step As Necessary 8. At Safe Altitude Flaps 0° 9. Radio Calls As Appropriate
ACS Standards - Private: As necessary, correlate crosswind with direction of forward slip and transition to side slip before touchdown; Touch down at a proper pitch attitude, within 400 feet beyond or on the specified point, with no side drift, and with the airplane’s longitudinal axis aligned with and over the runway center/landing path; Maintain a ground track aligned with the runway center/landing path.	**ACS Standards** - Private: Make timely decision to discontinue approach to landing; Apply T/O power immediately; Transition to climb pitch attitude for Vx or Vy +10/-5 knots; Configure airplane after positive rate of climb; Maintain Vy +10/-5 knots to safe maneuvering altitude - Commercial: Make timely decision to discontinue approach to landing; Apply T/O power immediately; Transition to climb pitch attitude for Vx or Vy ±5 knots; Configure airplane after positive rate of climb; Maintain Vy ±5 knots to safe maneuvering altitude

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