



PRP Training – SR-20 Maneuvers

Steep Turns:

1. Pre-maneuver checklist complete (Fullest tank, boost on, mixture rich, lights, gauges green, ESP)
2. Clearing Turns
3. Set airspeed to 120 KIAS (approximately 60% power and 21" MP)
4. Roll into a coordinated 360 degree (45-degree bank for private/55-degree bank for commercial)
5. Maintain altitude, airspeed, and bank angle through the turn.
6. Roll out on desired heading

Steep Spirals:

1. Pre-maneuver checklist complete (Fullest tank, boost on, mixture rich, lights, gauges green, ESP)
2. Clearing turns
3. Select reference point or heading
4. Reduce throttle to idle
5. Adjust aircraft pitch to maintain altitude until glide airspeed is reached
6. Lower nose to maintain glide airspeed over the selected reference point
7. Adjust bank angle as necessary to fly a constant radius over selected reference point (clear the engine every 1,000 feet when headed upwind)
8. Complete a minimum of three 360 degree turns
9. Minimum recovery altitude of 1500 feet AGL (unless over a landing surface and intend to continue to landing)
10. Limit bank angle to less than 60 degree
11. *Technique:* turn towards the side you're sitting to see the target, use ½ mile spacing to keep the turn fairly tight = less altitude loss per turn.

Chandelle:

1. Pre-maneuver checklist complete (Fullest tank, boost on, mixture rich, lights, gauges green, ESP)
2. Clearing turns
3. Maintain and note heading – Sync the heading bug
4. Establish level flight at 120 KIAS (approx. 60% power and 21" MP)
5. Roll into a coordinated 30-degree level turn
6. Increase pitch at a constant rate to achieve max pitch halfway through the 180-degree turn while simultaneously adding full power
7. At the 90-degree point in the turn, maintain maximum pitch attitude while decreasing angle of bank at a constant rate to roll out wings level 180-degree from starting heading
8. Hold the maximum pitch attitude momentarily at the 180-degree point, then reduce pitch to maintain level flight
9. *Recovery:* Reduce power to normal cruise power setting once aircraft has accelerated as desired
10. *Technique:* at 3000', use appx 15-17 deg nose high, at 4500' use 13-15 deg nose high.

Lazy Eights:

1. Pre-maneuver checklist complete (Fullest tank, boost on, mixture rich, lights, gauges green, ESP)
2. Clearing turns
3. Establish level flight at 120 KIAS (approx. 60% power and 21" MP)
4. Control the aircraft to achieve the following throughout the maneuver

PRP Training

- a. At the 45-degree reference, maximum pitch up and approx. 15-degrees of bank
- b. At the 90-degree reference, maximum bank of 30-degrees with level pitch
- c. At the 135-degree reference, maximum pitch down and approx. 15-degree bank
- d. At the 180-degree point, momentary level pitch and bank as the turn direction is changed
5. *Recovery*: Smoothly apply power as necessary to resume normal flight
6. *Technique*: one click of up trim and one click of L/R trim, let the airplane fly the lazy eight, apply enough back stick pressure just to control the airspeed on the last 90 deg of each leg

Slow Flight:

1. Pre-maneuver checklist complete (Fullest tank, boost on, mixture rich, lights, gauges green, ESP)
2. Clearing turns
3. Reduce power to approx. 25% / 12" MP
4. Flaps full
5. Bank angle as necessary (no more than 20-degrees)
6. Maintain an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power would result in an immediate stall
7. Power as required for level flight or desired climb or descent rate
8. *Recovery: Treat like a go around procedure – TOGA, Power, Pitch, Flaps... Flaps.*
 - a. TOGA button
 - b. Power - Smoothly apply full power
 - c. Pitch to increase airspeed - Reduce angle of attack and level wings in slight climb
 - d. Flaps 50%
 - e. Accelerate to V_Y
 - f. Flaps up after establishing a positive rate of climb and reaching a minimum of 85 knots

Power-Off Stalls:

1. Pre-maneuver checklist complete (Fullest tank, boost on, mixture rich, lights, gauges green, ESP)
2. Clearing turns
3. Configure the aircraft for a normal approach to land
4. Power to approx. 25% / 12" MP
5. Pitch down to a normal approach attitude – trimmed to 80 KIAS
6. Power Idle, then Smoothly raise the nose to induce a stall – slightly nose high like a flare
7. *Recovery*:
 - a. Reduce angle of attack and level wings
 - b. Smoothly apply full power and right rudder
 - c. Select Flaps 50%
 - d. Recover to two positive climb indications (Altitude increasing and Vertical speed positive)
 - e. 85 knots, flaps up
 - f. Return to a specified altitude, heading, and airspeed

Power-On Stalls:

1. Pre-maneuver checklist complete (Fullest tank, boost on, mixture rich, lights, gauges green, ESP)
2. Clearing turns
3. Power to approx. 25% / 12" MP
4. Flaps: 50% below 150 knots
5. Slow to approximately lift-off speed (71-75 knots)
6. At lift-off speed, smoothly increase power to no less than 65% while starting a climb

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7. Transition smoothly to a pitch attitude that will induce a stall – airspeed slowly decreasing
8. *Recovery:*
 - a. Reduce angle of attack and level wings
 - b. Smoothly apply full power and right rudder
 - c. Recover to two positive climb indications (altitude increasing + vertical speed positive)
 - d. 85 knots, Flaps up
 - e. Return to a specified attitude, heading, and airspeed

Instrument Approaches: (See PRP Instrument Procedures Document)

1. Load and activate approach in FMS
2. Bring up approach chart on MFD
3. Brief Approach
4. Speed 120 knots in Radar downwind and final, 100 kts at final approach fix
5. Prelanding Checklist (Fuel Fullest Tank, Mixture set, boost pump on, Lights on, Landing Gear down, verify three green) – Accomplish at first level off at or below 3000 feet AGL
6. Flaps 50% and speed 100 knots established prior to Final Approach Fix (FAF)
7. Speed 90-100 knots until missed approach decision point

Landings:

1. Descent Checklist
2. Prelanding Checklist (Fuel Fullest Tank, Mixture set, boost pump on, Lights on, Landing Gear down, verify three green, Brake Pressure good)
3. Seat Belts and Shoulder Harnesses – Advise passengers and crew per 91.107
4. Downwind: Power: approx. 20" (50%) Speed: 100-110 KIAS Flaps: 50% midfield, trim for 100 KIAS
5. Abeam Touchdown Point – Power back slightly, trim for 100 KIAS
6. Base Leg - Power: As necessary; Speed: 90 KIAS; Flaps: 100%
7. Final: Power: as necessary Speed: 80 KIAS
8. Speed over Threshold: 78 KIAS
9. Touchdown: Speed: Just above stall

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Airspeeds for Normal Operation

Unless otherwise noted, the following speeds are based on a maximum weight of 3150 lb. and may be used for any lesser weight. However, to achieve the performance specified in Section 5 for takeoff and landing distance, the speed appropriate to the particular weight must be used.

Takeoff:

- Normal, Flaps 50% 71-75 KIAS
- Short Field, Flaps 50% 71 KIAS
- Obstacle Clearance, Flaps 50% 81 KIAS

Enroute Climb, Flaps Up:

- Normal, SL 96 KIAS
- Normal, 10,000' 92 KIAS
- Best Rate of Climb, SL 96 KIAS
- Best Rate of Climb, 10,000' 92 KIAS

Landing Approach:

- Normal Approach, Flaps Up 89 KIAS
- Normal Approach, Flaps 50% 84 KIAS
- Normal Approach, Flaps 100% 78 KIAS
- Short Field, Flaps 100% 78 KIAS

Go-Around, Flaps 50%:

- Full Power 81 KIAS

Maximum Recommended Turbulent Air Penetration:

- 3150 Lb 133 KIAS
- 2700 Lb 123 KIAS
- 2300 Lb 114 KIAS

Maximum Demonstrated Crosswind Velocity:

- Takeoff or Landing 20 Knots

Airspeed Limitations

The indicated airspeeds in the following table are based on Section 5, *Airspeed Calibration - Normal Static Source* Table. When using the alternate static source, allow for the airspeed calibration variations between the normal and alternate static sources.

Speed	KIAS	KCAS	Remarks
V _{NE}	201	204	Never Exceed Speed is the speed limit that may not be exceeded at any time.
V _{NO}	164	166	Maximum Structural Cruising Speed is the speed that should not be exceeded except in smooth air, and then only with caution.
V _C 3150 Lb	133	135	Operating Maneuvering Speed is the maximum speed at which full control travel may be used. Below this speed the airplane stalls before limit loads are reached. Above this speed, full control movements can damage the airplane.
V _{FE} 50% Flaps 100% Flaps	150 110	152 111	Maximum Flap Extended Speed is the highest speed permissible with wing flaps extended.
V _{FD}	133	135	Maximum Demonstrated Parachute Deployment Speed is the maximum speed at which parachute deployment has been demonstrated.

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SR-20 Notes

Takeoff			
Rotate	71 kts		
Flaps up	85 kts		
Landing			
Downwind	100 kts- 20" MP		
Base	90 kts		
Final	Flaps- 100	78 kts	
	Flaps- 50	83 kts	
	Flaps- 0	88 kts	
Glide Speed			
Best Glide Speed	95		
Clearing Turns		Steep Turns	
Min Alt:	Target Alt: 4500	Min Alt: 1500' AGL	Target Alt: 4500
Power	22" MP	Power	22" MP
Speed	120 KIAS	Speed	120 KIAS
Bank Angle	30 degree	Bank Angle	45 degree
Notes: Perform 1 to the left and one to the right		Notes: Apply small power increase, keep back pressure on side stick, trim if needed	
Slow Flight		Altitude Conversions	
Min Alt:	1500' AGL Target Alt: 3500	TRUE	MSL corrected for Non-Standard Temp or Pres
Power	12" MP	PRESSURE	Height above standard datum plane
Flaps	100	DENSITY	Alt Aircraft thinks its at
Max Bank	20 degree	AGL	Above Ground Level
Recovery: Full Power, Reduce AOA, flaps 50%, Accel to Vy, flaps up @ 85 KIAS		MSL	Mean Sea Level
Power-Off Stall (Landing Config)		Power- On Stall (Takeoff Config)	
Min Alt:	1500' AGL Target Alt: 3500	Min Alt:	1500' AGL Target Alt: 3500
Clear Area:	Scan Area for other traffic	Clear Area:	Scan Area for other traffic
Power:	12" MP (80-85 KIAS)	Flaps:	50%
Flaps:	100%	Set Power	65%
Pitch Down:	Norm Approach	Slow Down:	12" MP, Slow to 77-80 KIAS
Pitch Up:	Smooth, 5-7.5 degree, Bank- 20 deg	Pitch Up:	Smooth, 30 degree MAX, Bank- 20 deg
Recovery: Reduce AOA, Apply Power, Right Rudder, Flap 50%, Flap 0%, Return- altitude, heading, airspeed.		Recovery: Reduce AOA, Apply Power, Right Rudder, Flap 50%, Flap 0% @ 85 KIAS, Return- altitude, heading, airspeed.	
S Turns Around a Road		Turns Around a Point	
Altitude:	1000' AGL Max Bank: 45 degree	Altitude:	1000' AGL Max Bank: 45 degree
Clear Area:	Scan Area Distance: 1/2 mile	Clear Area:	Scan Area Distance: 1/2 mile
Airspeed:	100 KIAS	Airspeed:	100 KIAS
Enter:	Downwind	Enter:	Downwind
Short Field		Soft Field	
Take-Off	Landing	Take-Off	Landing
Airspeed 71	Airspeed 78	Climb- Std 105-115	Airspeed 78
Flaps 50%	Flaps 100%	Climb- Ob 81	Flaps 100%
Brakes HOLD	Brakes MAX	Elevator Full Aft	Elevator Full Aft
		Flaps 50%	

PRP Training

SR-22 Notes

Clearing Turns		Steep Turns	
Min Alt:	Target Alt: 4500	Min Alt: 1500' AGL	Target Alt: 4500
Power	19* MP	Power	19* MP
Speed	120 KIAS	Speed	120 KIAS
Bank Angle	30 degree	Bank Angle	45 degree
Notes: Perform 1 to the left and one to the right		Notes: Apply small power increase, keep back pressure on side stick, trim if needed	
Slow Flight			
Min Alt:	Target Alt: 3500		
Power	12* MP		
Flaps	100		
Max Bank	20 degree		
Recovery: Full Power, Reduce AOA, flaps 50%, Accel to Vy, flaps up @ 90 KIAS			
Power-Off Stall (Landing Config)		Power- On Stall (Takeoff Config)	
Min Alt:	Target Alt: 3500	Min Alt: 1500' AGL	Target Alt: 3500
Clear Area:	Scan Area for other traffic	Clear Area:	Scan Area for other traffic
Power:	12* MP (80-85 KIAS)	Flaps:	50%
Flaps:	100%	Slow Down:	12* MP, Slow to 77-80 KIAS
Pitch Down:	Norm Approach	Set Power	65%
Pitch Up:	Smooth, 5-7.5 degree, Bank- 20 deg	Pitch Up:	Smooth, 30 degree MAX, Bank- 20 deg
Recovery: Reduce AOA, Apply Power, Right Rudder, Flap 50%, Flap 0%, Return- altitude, heading, airspeed.		Recovery: Reduce AOA, Apply Power, Right Rudder, Flap 50%, Flap 0% @ 90 KIAS, Return- altitude, heading, airspeed.	
S Turns Around a Road		Turns Around a Point	
Altitude:	Max Bank: 45 degree	Altitude:	Max Bank: 45 degree
Clear Area:	Distance: 1/2 mile	Clear Area:	Distance: 1/2 mile
Airspeed:	100 KIAS	Airspeed:	100 KIAS
Enter:	Downwind	Enter:	Downwind
Short Field		Soft Field	
Take-Off		Take-Off	
Airspeed	74	Climb- Std	120 KTS
Flaps	50%	Climb- Ob	Vx
Brakes	HOLD	Elevator	Full Aft
		Flaps	50%
Landing		Landing	
Airspeed	79	Airspeed	80-85
Flaps	100%	Flaps	100%
Brakes	MAX	Elevator	Full Aft