## In The Biginning

- Check how many hours remains for next 100h inspection and check squawk before take airplane.
- Perform pre-flight inspection using check list. Report to the front desk if you need fuel, oil or found something need to be checked by mechanic.
- If the hobbs meter doesn't much with the one in the tach sheet, report to front desk or instructor before start the engine.
- Pull out the airplane with tow bar before start the engine. Use tow bar by one hand and pull the airplane by other hand. After pull out, make sure tow bar is stored in the baggage compartment.
- Do not grab the dash board or post to adjust the seat position. Grab the bottom of instrument panel or window frame.
- Grab the window frame to close the door. Do not use the black strap to close the door.
- Use both hand to open the door. Sometimes the wind blow out the door.
- Do not put anything on the dash board. It will make scratch on the window shield and affect magnetic compass deviation.
- After secure the seat belt and shoulder harness, put the remaining belt in between the legs.
- The toes must be kept at the bottom of the rudder pedal unless it is necessary to use the brake. Try to minimize the use of the brake during taxi.
- Taxi up to the yellow box before contact ground. If you see other airplanes come back and waiting for you to come out, you can taxi out of parking row but do not enter movement area without contacting ground.
- Make tear drop entry and take #1 spot in run up area if possible to maximize the run up area.
- Before landing, make sure toes don't touch the brakes.
- After landing, perform after landing check list.
- After come back to the parking, keep airplane parallel to the center line. DO NOT TURN in the parking row.
- Use tow bar to park the airplane. NEVER push the tail and move the airplane. Instructor must help the student to park the airplane.
- Use securing check list.
- If the hobbs meter stop in the middle of two numbers, take higher number.
- If you find any deficiency, make entry in the squawk sheet and report to the front desk.

## Before Maneuver Check

1. Seat belt, harness-Fasten.
2. Fuel shut off valve-On..
3. Mixture-Rich.
4. Carburetor heat-Off
5. Ignition switch-Both
6. Master switch-On
7. Primer-Lock

### Clearing turn

Complete 90 degrees turn to the left, and 90 degrees turn to the right. Depend on the airspace and terrain, right turn may be the first. Watch the blind spot on the left, right, behind and below. Bank should be 15 to 20 degrees.

# Slow Flight

**Entry**

1. Carburetor heat-On.
2. Throttle-1500 RPM, maintain altitude.
   As you reduce power, you should anticipate pitch down and yaw to the right Don't watch tachometer needle to move from cruise to 1500RPM. Look at the horizon and cowling as you use peripheral vision. Adjust control pressure to avoid nose from dropping and adjust rudder to keep the heading constant.
3. Airspeed 80kt-Flap 10
   70kt-Flap 20
   60kt-Flap 30
   The extension of flap cause nose to move up. If you allow it, you will gain altitude and airspeed decreases too quick. Anticipate this and you need to add slight forward pressure on the control wheel to avoid this. Watch horizon and cowling. Don't fix your eyes on the airspeed indicator and the flap switch. After you set full flap, you need to apply back pressure to keep the altitude constant.
4. Airspeed 40kt-2000 RPM
   Add right rudder as you add power to compensate the left turning tendency. PTS require you to maintain minimum controllable airspeed which is almost 35kt for C152.However, you need to be able to fly at any speed. Use trim. After this point, generally, pitch controls airspeed and power controls altitude. Remember the pitch attitude which gives you 35 kt.

**Climb**

Apply full power. Adjust pitch to maintain the airspeed. Add right rudder to maintain the heading. For level off, reduce power necessary to maintain the altitude. Adjust pitch to maintain the airspeed.

**Descent**

Reduce power as necessary. Adjust pitch to maintain the airspeed. Reduce right rudder to maintain the heading. For level off, add power necessary to maintain the altitude. Adjust pitch to maintain the airspeed. Add right rudder to compensate the left turning tendency.

**Turn**

Use 10 degrees bank. For the right turn, you need to use more right rudder because of the left turning tendency. On the other hand, the left turn dose not require much left rudder. Just reduce right rudder a little bit.

**Recovery**

1. Throttle-Full, maintain the altitude.
   Add right rudder to compensate the left turning tendency. Adjust pitch "gradually" to maintain the altitude. Don't push nose down quickly. Pitch should be changed slowly from slow flight attitude(high) to cruise attitude(level). Look at the horizon and cowling as you scan the altimeter.
2. Carburetor heat-Off, Flap-20
3. Airspeed 60kt-Flap 10
4. Airspeed 70kt-Flap Up
   The flap retraction cause the nose to move down. You need to anticipate and add back pressure as necessaryto maintain the altitude. As airspeed increases, you don't need much right rudder anymore. Reduce right rudder as needed.
5. Airspeed 80kt-Throttle CruiseReturn to cruise flight. Use trim.

# Power Off Stall

**Entry**

1. Carb heat-On
2. Throttle-1500 RPM
   Maintain altitude
3. Airspeed 80kt-Flap 10
   70kt-Flap 20
   60kt-Flap 30
   1 through 3 are same as slow flight.
4. Start descend at 60 kt
5. Throttle-Idle Increase back pressure to keep altitude to reach stall.
   If you do this too gentle, it will not stall because the airflow over the elevator is too slow to create enough tail down force to cause stall.

**Recovery**

1. Release back pressure.
   You don't need to push nose down too steep.
2. Throttle-Full, Maintain level flight attitude.
   Don't look inside the cockpit. Your right hand is already on the throttle. Just move it forward. Look horizon and cowling. Adjust control pressure to establish level flight attitude.
3. Carb heat-Off, Flap-20
   After retract the flap to 20, return your right hand on the throttle. Wait for the airspeed to increase as you maintain level flight attitude.
4. Airspeed 55kt(Vx), Climb attitude
   Look at horizon and the cowling to establish normal climb attitude. And wait.
5. Positive climb-Flap 10
   Avoid pitch change caused by flap retraction.
6. Airspeed 67kt(Vy)-Flap Up
7. Level off, Airspeed 80kt-Throttle Cruise

## Power On Stall

**Entry**

1. Carb heat-On
2. Throttle-1500 RPM
   Maintain altitude
3. Airspeed 55kt-Thrttle Full, Carburetor heat-Off, Climb attitude (slightly higher than normal climb attitude)
   No need to pull nose up very high. If the nose is too high, it will drop a lot and lose excessive altitude after stall. To avoid this, maintain the pitch slightly higher than normal climb attitude at which airspeed is decreasing gradually(about 15 degrees up). Add back pressure to keep this pitch attitude constant as airspeed decrease. Look at the horizon on the both side of the cowling to judge your attitude. Also, add right rudder as airspeed goes down to keep coordinate.

**Recovery**

1. Release back pressure
2. Maintain level flight attitude.
   Release back pressure gently to return to the level pitch. Wait for the airspeed to increase.
3. Airspeed 55kt(Vx), Climb attitude
4. Positive climb-Airspeed 67kt(Vy)-Level off.
   Since the power on stall is the simulation of the departure stall, the altitude you begin this maneuver is the airport elevation. During recovery, you shouldn't go below the original altitude. If you do so, that mean you crash on the ground. You should finish this maneuver at higher altitude than you begin.
5. Airspeed 80kt-Throttle Cruise

## Power On Stall (Turning)

**Entry**

1. Carb heat-On
2. Throttle-1500 RPM
   Maintain altitude
3. Airspeed 55kt-Thrttle Full, Carb heat-Off, Climb attitude with 20 degrees bank into desired direction(slightly higher than normal climb attitude)

**Recovery**

1. Maintain level flight attitude
2. Airspeed 55kt(Vx), Climb attitude
3. Positive climb-
4. Airspeed 67kt(Vy)-Level off
5. Airspeed 80kt-Throttle Cruise

## Accelerated Stall (Commercial pilot)

**Entry**

1. Carb-heat, On
2. Throttle-1,500 RPM
   Maintain altitude
3. 45 degrees bank coordinated turn
4. Increase back pressure to reach stall

**Recovery at Buffet**

1. Release back pressure
2. Increase power to cruise, carb heat-off
3. Bank-Zero.
4. Return to level flight

## Secondly Stall (demonstrated-CFI only)

**Entry**

1. Carb heat-On
2. Throttle-1500RPM
   Maintain altitudeAirspeed
   80kt-Flap 10
   70kt-Flap 20
   60kt-Flap 30
3. Start descend at 60kt
4. Throttle-idle. Increase back pressure to keep altitude to reach stall.
5. Stall indication, release back pressure.
6. Increase back pressure abruptly.

**Recovery**

1. Release back pressure.
   You don't need to push nose down too steep.
2. Throttle-Full, Maintain level flight attitude.
   Don't look inside the cockpit. Your right hand is already on the throttle. Just move it forward. Look horizon and cowling. Adjust control pressure to establish level flight attitude.
3. Carb heat-Off, Flap-20
   After retract the flap to 20, return your right hand on the throttle. Wait for the airspeed to increase as you maintain level flight attitude.
4. Airspeed 55kt (Vx), Climb attitude
   Look at horizon and the cowling to establish normal climb attitude. And wait.
5. Positive climb-Landing gear-Up, Flap 10
   Avoid pitch change caused by flap retraction.
6. Airspeed 67kt (Vy)-Flap Up
7. Level off, Airspeed 80kt-Throttle- Cruise,

## Elevator Trim Stall (demonstrated-CFI only)

**Entry**

1. Carb heat-On
2. Throttle-1500RPM
   Maintain altitudeAirspeed
   80kt-Flap 10
   70kt-Flap 20
   60kt-Flap 30
3. Start descend at 60kt
4. Set trim for pitch up
5. Throttle-Full, simulating go-around.

**Recovery**

1. Apply forward pressure for level pitch attitude.
   You don't need to push nose down too steep.
2. Carb heat-Off, Flap-20
   After retract the flap to 20, return your right hand on the throttle. Wait for the airspeed to increase as you maintain level flight attitude.
3. Airspeed 55kt (Vx), Climb attitude
   Look at horizon and the cowling to establish normal climb attitude. And wait.
4. Positive climb-Landing gear-Up, Flap 10
   Avoid pitch change caused by flap retraction.
5. Airspeed 67kt (Vy)-Flap Up
6. Level off, Airspeed 80kt-Throttle- Cruise,

## Crossed Control Stall (demonstrated- CFI only)

**Entry**

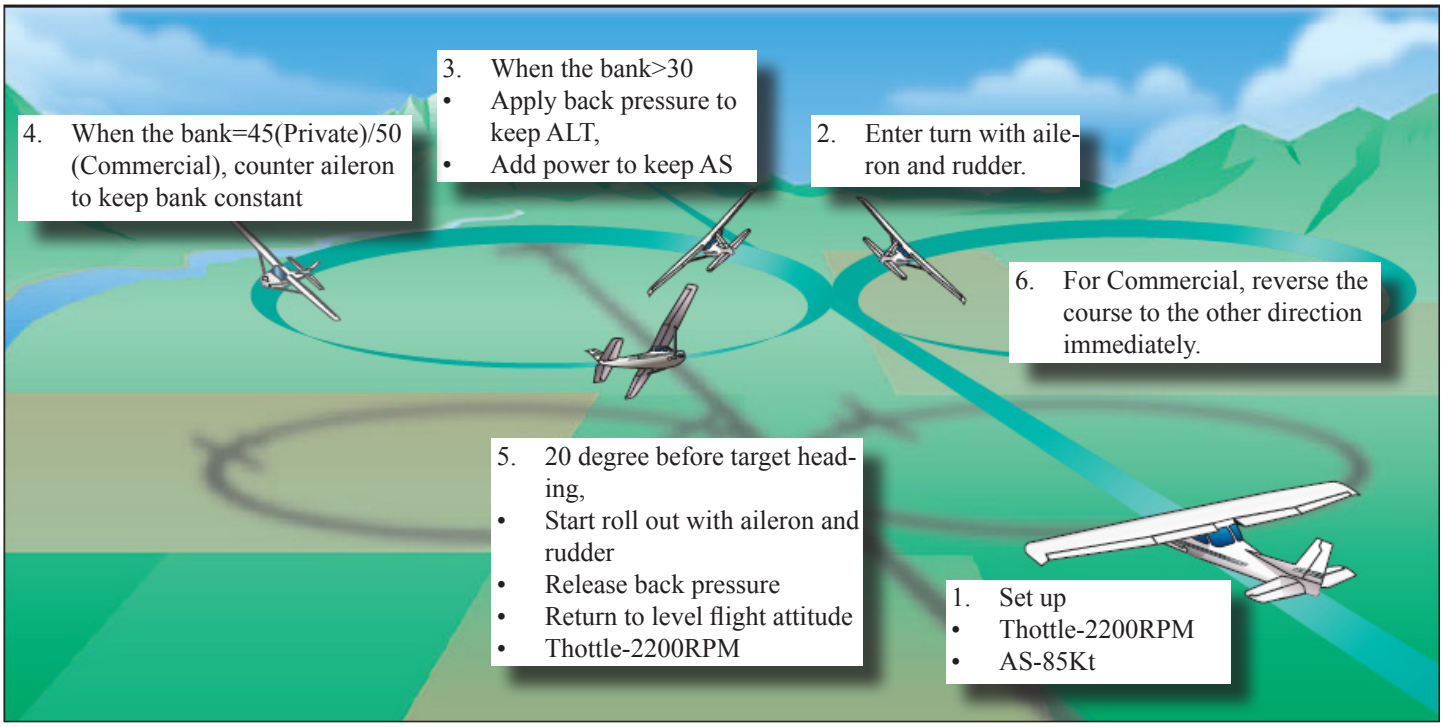
1. Carb heat-On
2. Throttle-Idle
   Maintain altitude
3. Start descend at 70kt
4. Enter turn..
   - Increase rudder input in the direction of turn.
   - Use opposite aileron to decrease bank.
   - Increase back pressure to keep altitude to reach stall.

**Recovery**

1. Release back pressure.
   You don't need to push nose down too steep.
2. Throttle-Full, Maintain level flight attitude.
   Don't look inside the cockpit. Your right hand is already on the throttle. Just move it forward. Look horizon and cowling. Adjust control pressure to establish level flight attitude.
3. Carb heat-Off
4. Airspeed 55kt (Vx), Climb attitude
   Look at horizon and the cowling to establish normal climb attitude. And wait.
5. Positive climb
6. Climb at 67kt (Vy)
7. Level off, Airspeed 80kt, Throttle-Cruise,

## Steep Turn

1. Set up
   - Thottle-2200RPM”
   - AS-85Kt
2. Enter turn with aileron and rudder.
3. When the bank>30
   - Apply back pressure to keep ALT,
   - Add power to keep AS
4. When the bank=45(Private)/50(Commercial), counter aileron to keep bank constant
5. 20 degree before target heading,
   - Start roll out with aileron and rudder
   - Release back pressure
   - Return to level flight attitude
   - Thottle-2200RPM”
6. For Commercial, reverse the course to the other direction immediately.

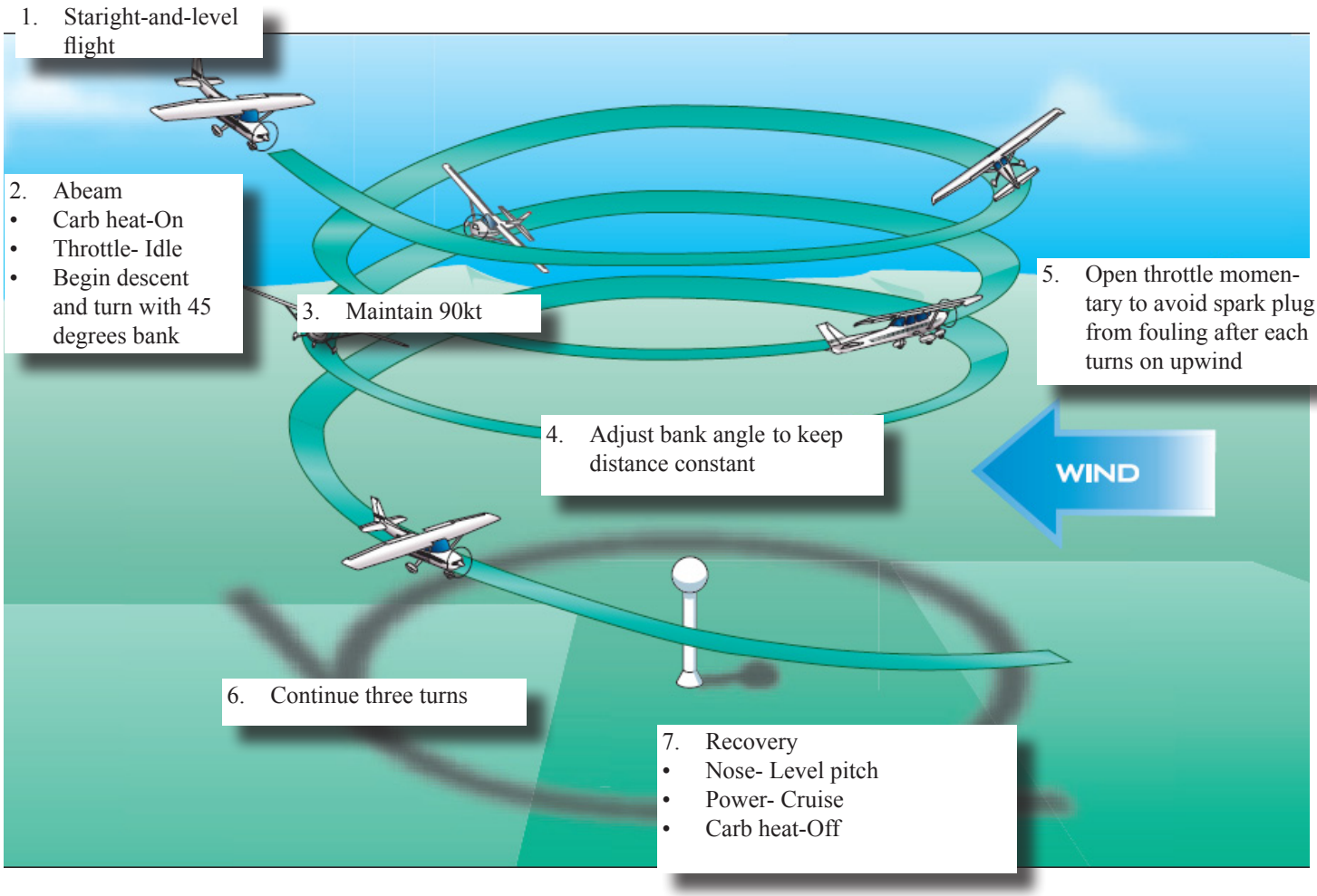


**Steep Spiral (commercial pilot)**

Climb high enough to complete three turns above 1000 ft AGL. Select reference point close to you.

Entry
1. Straight-and-level.
2. Abeam, Carb heat-On
3. Throttle- Idle
4. Begin descent and turn with 45 degrees bank
5. Maintain 90kt
6. Adjust bank angle to keep distance constant
7. Open throttle momentary to avoid spark plug from fouling after each turns on upwind
8. Continue three turns

Recovery
1. Nose- Level pitch
2. Power- Cruise, Carb heat-off



## Chandelle (commercial pilot)

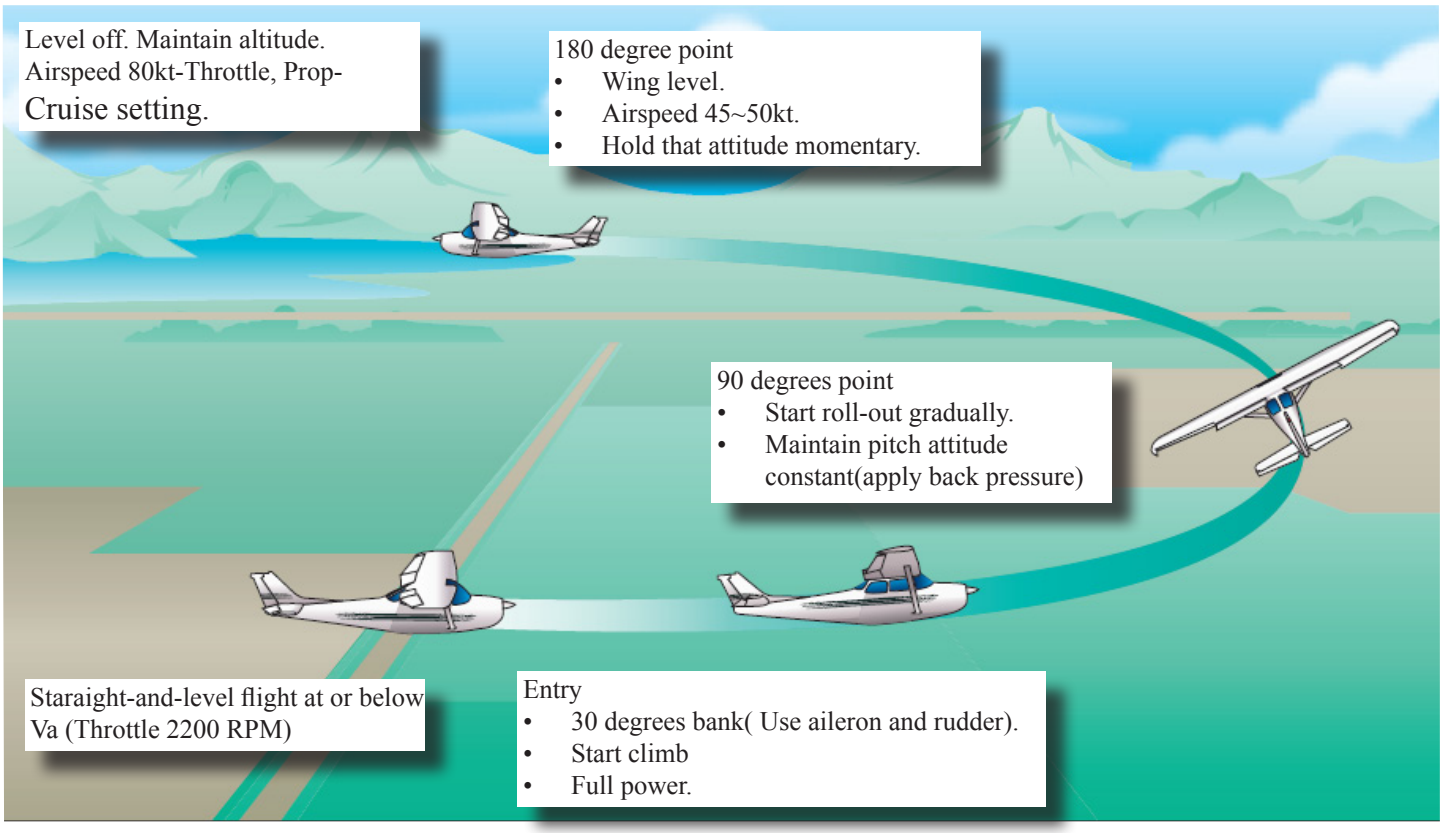
Staraight-and-level flight at or below Va (Throttle 2200 RPM)

Entry
- 30 degrees bank( Use aileron and rudder).
- Start climb
- Full power.

90 degrees point
- Start roll-out gradually.
- Maintain pitch attitude constant(apply back pressure)

180 degree point
- Wing level.
- Airspeed 45~50kt.
- Hold that attitude momentary.

Level off. Maintain altitude.
Airspeed 80kt-Throttle,-Cruise setting.



## Lazy Eights (commercial pilot)

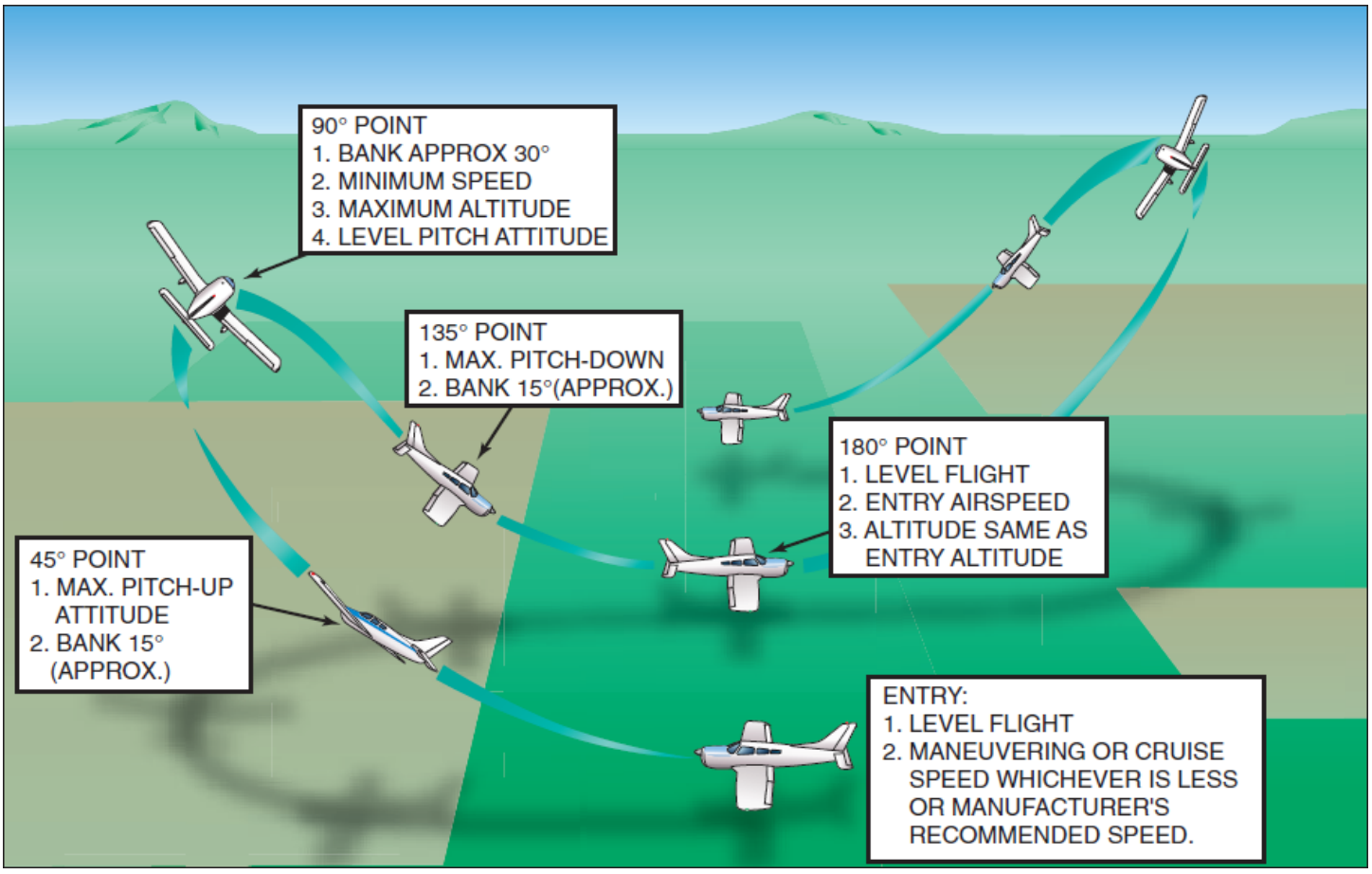
Entry:
1. Level flight
2. Throttle 2300 RPM (Maneuvering or cruise speed whichever is less or manufacturer's recommended speed).

45° Point
1. Max. Pitch-up attitude
2. Bank 15° (approx.)

90° Point
1. Bank approx 30°
2. Minimum speed
3. Maximum altitude
4. Level pitch attitude

135° Point
1. Max. Pitch-down
2. Bank 15°(approx.)

180° Point
1. Level flight
2. Entry airspeed
3. Altitude same as Entry altitude



**Eights On Pylon (commercial pilot)**

Entry

- Straight-and-level flight at or below Va (Trottle 2200 RPM).
- Altitude: About pivotal altitude, $=(GS)^2/11.3$
- Tail wind. 45 degree to midpoint of the pylons.

Abeam the pylon

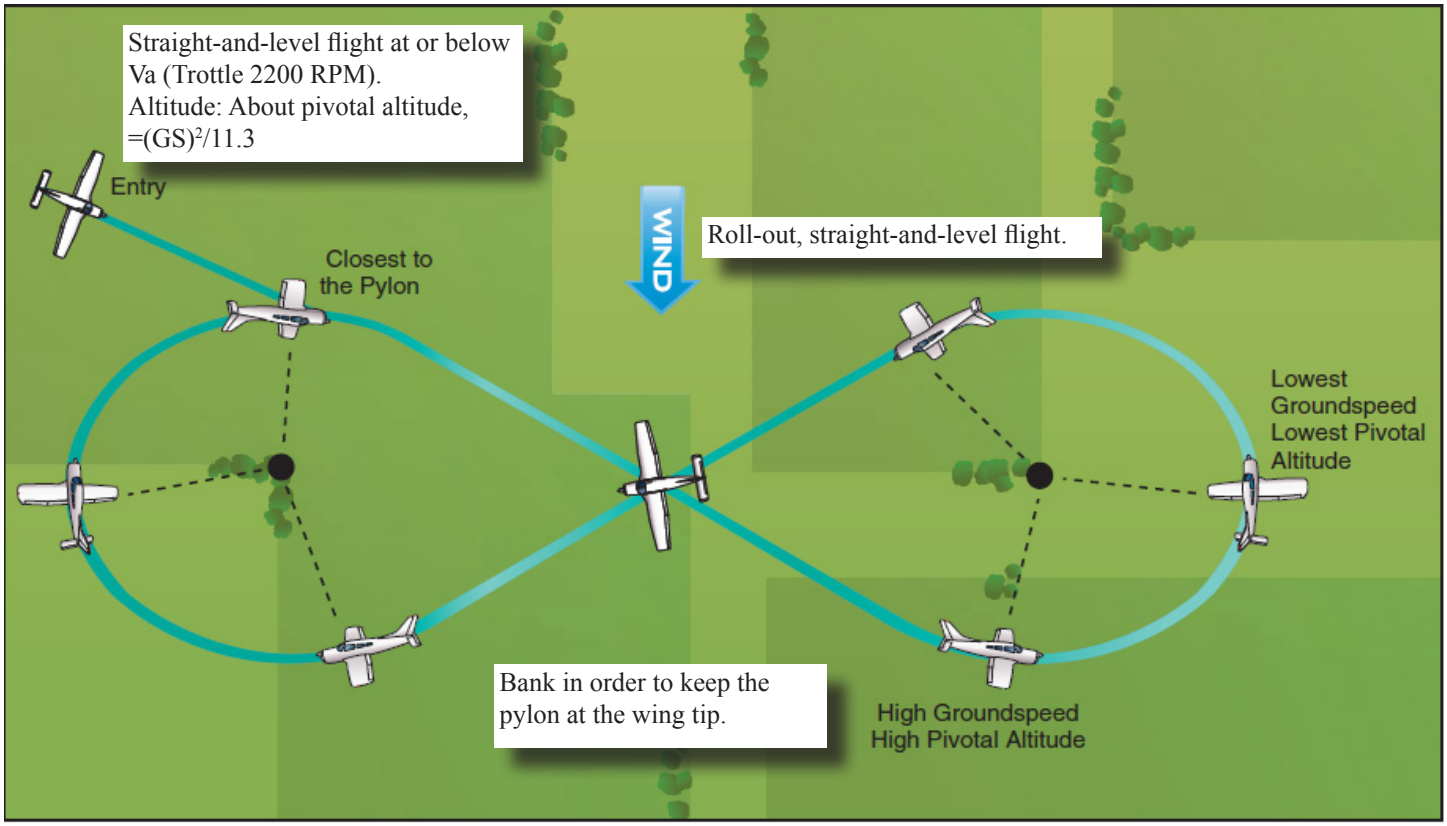
- Bank in order to keep the pylon at the wing tip.
- Adjust pitch to maintain line-of-sight. If the pylon moves forward, descend. If the pylon moves back, climb.

45 degrees before direct downwind
- Roll-out, straight-and-level flight.

Abeam second pylon

- Bank in order to keep the pylon at the wing tip.
- Adjust pitch to maintain line-of-sight. If the pylon moves forward, descend. If the pylon moves back, climb.

45 degrees before direct downwind
- Roll-out, straight-and-level flight.



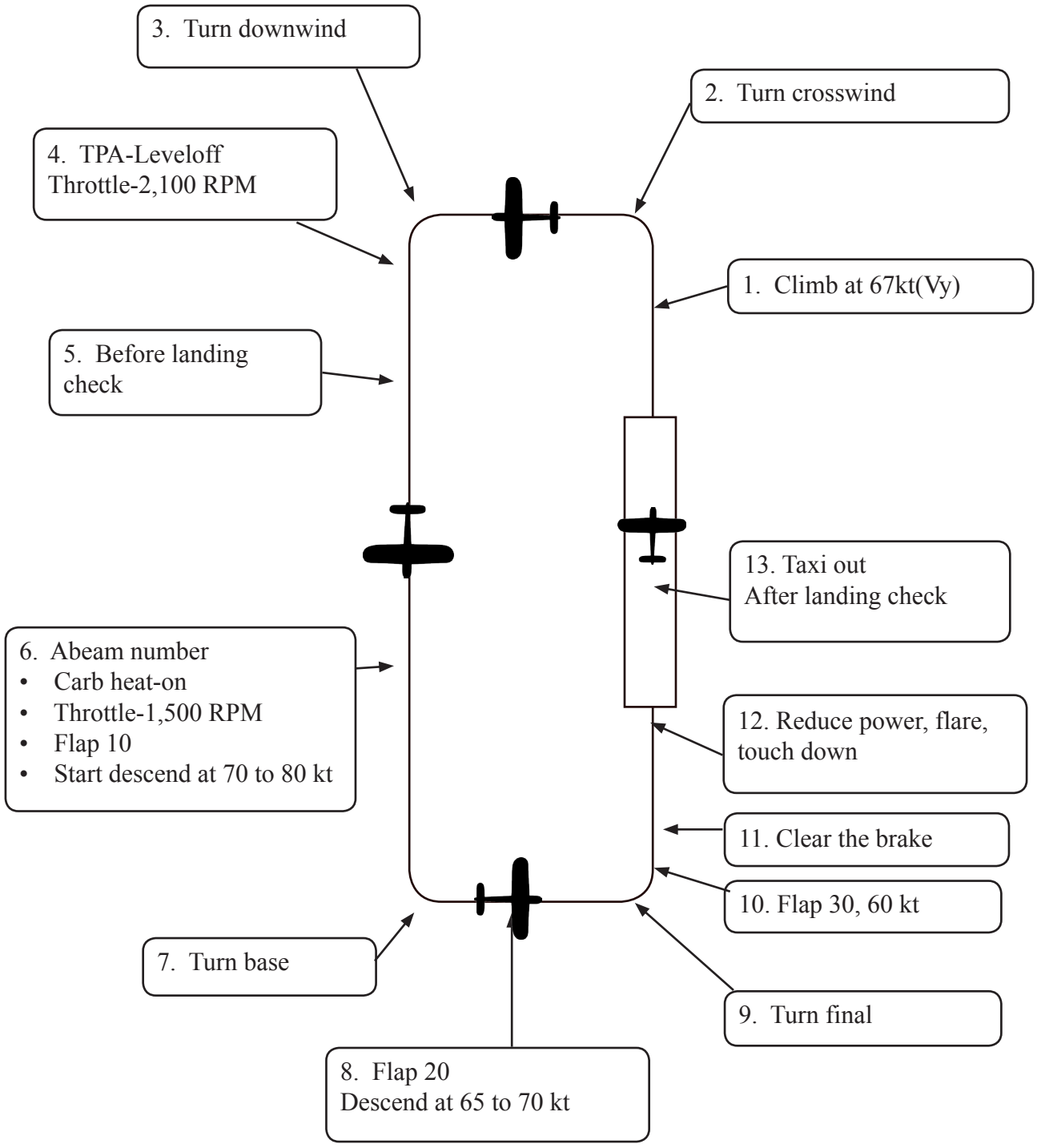
## Emergency Descent

Entry
1. Throttle- Idle, begin descent
2. Maintain 100kts with bank as needed.

Recovery
3. Target altitude+200ft, Nose- Level pitch
4. Power- Cruise, carb-heat, off

## Traffic Pattern Operation

1. Climb on upwind at 67kt(Vy)
2. Comply with the procedure specified to the airport. Otherwise turn crosswind within 300 ft of TPA.
3. Fly rectangular course. Apply wind correction.
4. Turn to downwind.
5. Level off at TPA. Set throttle 2100 RPM. Trim it.
6. Before landing check.
7. Abeam number, carburetor heat on, throttle 1500RPM, check airspeed, flap 10 degrees. Start descend
   Power reduction causes nose to drop. Try to maintain TPA until you set 10 flap. Then set descend attitude. Your aiming point is runway number.
8. Turn base. Flap 20 degrees.
9. Turn final. Flap 30 degrees. Adjust power and pitch to slow down to 60kt.
10. Clear the brake
    Make sure that your toes doesn't touch the brake. Your toe must be on the lower part of the pedal to avoid locking the tire.
11. Close throttle, flare, touch down
12. Lower the nose, maintain directional control, brake
13. Taxi out, clear the runway, stop, after landing check.



## Short Field Takeoff

1. Set flap 10 degrees.
2. Taxi to the very beginning of the runway.
   Depend on the traffic situation, you don't need to taxi all the way to the beginning of the runway. You can taxi into position as normal takeoff.
3. Set brake. Full power. Check engine gauges.
   Pump brake a couple of time before apply full power to prevent the airplane from moving.
4. Release brake.
5. 50kt, rotate. Set pitch up for 54kt.
   Try not to chase the airspeed indicator needle. Remember, airspeed indicator has lag. If you chase, airspeed may be too slow or too fast.
6. At 50ft AGL, lower the nose slightly.
   Again, don't chase the needle of airspeed indicator. Look at the pitch attitude. Make small change in the pitch. You still want to climb. Don't descend.
7. 60kt, flap up.
   Check "positive rate of climb" before retract. Once you retract the flap, pitch will change. Be prepare for that.
8. Climb at 67 kt (Vy). Resume normal climb.

## Soft Field Takeoff

1. Set 10 degrees flap.
2. Elevator full up
3. Taxi into the runway with minimum brake.
   No need to stop on the runway unless advised by the tower.
4. Join the centerline. Apply full power. Check engine gauges.
5. Release elevator back pressure as airspeed increases to attach the engine cowling to the end of the runway
   If the other end of the runway is covered by the cowling, your nose is too high. You don't need to keep nose very high. The purpose is to reduce the weight on the nose gear.
6. After lift off itself, release back pressure to stay in the ground effect.
   Don't push nose down. You will descend very quick. Look at the horizon and the cowling like you recover from slow flight. Pitch motion should be very slow.
7. 67kt, Climb attitude.
8. Positive climb, flap up.
   Flap retraction causes the nose to drop. Anticipate this and adjust control pressure to avoid this.
9. Climb at 67(Vy). Resume normal climb.

## Short Field Landing

1. Approach as normal.
2. Select the top of the first centerline as the touch down point.
   You need to touch down +200/-0ftfrom that point. In this way, you can keep the runway number as the aiming point same as for normal landing.
3. Maintain 54kt at least last 1/4 mile on final.
   You don't need to make steep or shallow approach. Just maintain normal approach path all the way to the runway number. PTS allows you to fly +10,-5kt of recommended airspeed. That allows you to maintain 60kt on final as normal landing.
4. Clear the brake
   Make sure that your toes doesn't touch the brake. Your toe must be on the lower part of the pedal to avoid locking the tire.
5. Reduce power, flare touchdown.
   Do as you do for normal landing. If your approach was correct, it will touch down the point. If your approach was wrong, there is no way to correct at this point. Do no try to touch down on the point by lowering the nose or by releasing back pressure. You will land flat and damage the airplane. If you think you will over shoot, commence go around and make the better approach next time.
6. After touch down, as you maintain directional control, retract the wing flap and use NOMAL BRAKE.
   In real short field situation, you may need to use full brake. However, during training, we want to avid locking the brake, making flat spot on the tires caused by improper use of " full brake". You call out "Full brake" and use normal brake instead of full.

## Soft Field Landing

1. Approach as normal(60kt on final with full flap).
2. Clear the brake
   Make sure that your toes doesn't touch the brake. Your toe must be on the lower part of the pedal to avoid locking the tire.
3. Reduce power for flare.
4. Just before touch down(after the pitch attitude is higher the horizon), add a little bit of power(100 to 200RPM).
5. After touch down, hold back pressure to keep nose off. Then reduce power to idle.

## No Flap Landing

Select the arrow marking before the threshold as the aiming point(at RHV).

1. Before landing check.
2. Set throttle 1400RPM, check airspeed, pitch for 65kt, Start descend.
3. Turn base. Maintain 65kt. Fly normal glide path.
   Turn final. Maintain 65kt. Fly normal glide path.1. thorough 5. Since your aiming point is before threshold, VASI will be red over pink on final though you are making normal descent. But you don't want to be too low. Check altitude when you turn base, final to verify your descent path. Adjust power and pitch as necessary to maintain the path.
4. Adjust power to maintain normal path.
   When there is strong head wind, you can maintain correct flight path by adjusting power. When there is no head wind, for example in the morning, you will be too high even though your power is idle. Don't push nose down too much. Otherwise you can't keep 65kt. Pitch attitude for 65kt without flap is higher than the attitude for normal landing with flap. So, keep nose high enough to maintain 65kt, check airspeed frequently, adjust power.
5. Use forward slip as necessary.
   If the path is too shallow with power idle, use forward slip before it's too late.
6. Clear the brake.
7. Close throttle, flare, touch down.
8. Lower the nose, maintain directional control, brake.
   Use caution for the brake. Since the airspeed is faster than normal, it requires more distance to stop. Don't lock the tire.
9. Taxi out, clear the runway, stop, after landing check.

## Forward Slip

You can use forward slip with and without flap to lose excessive altitude or to lose airspeed.

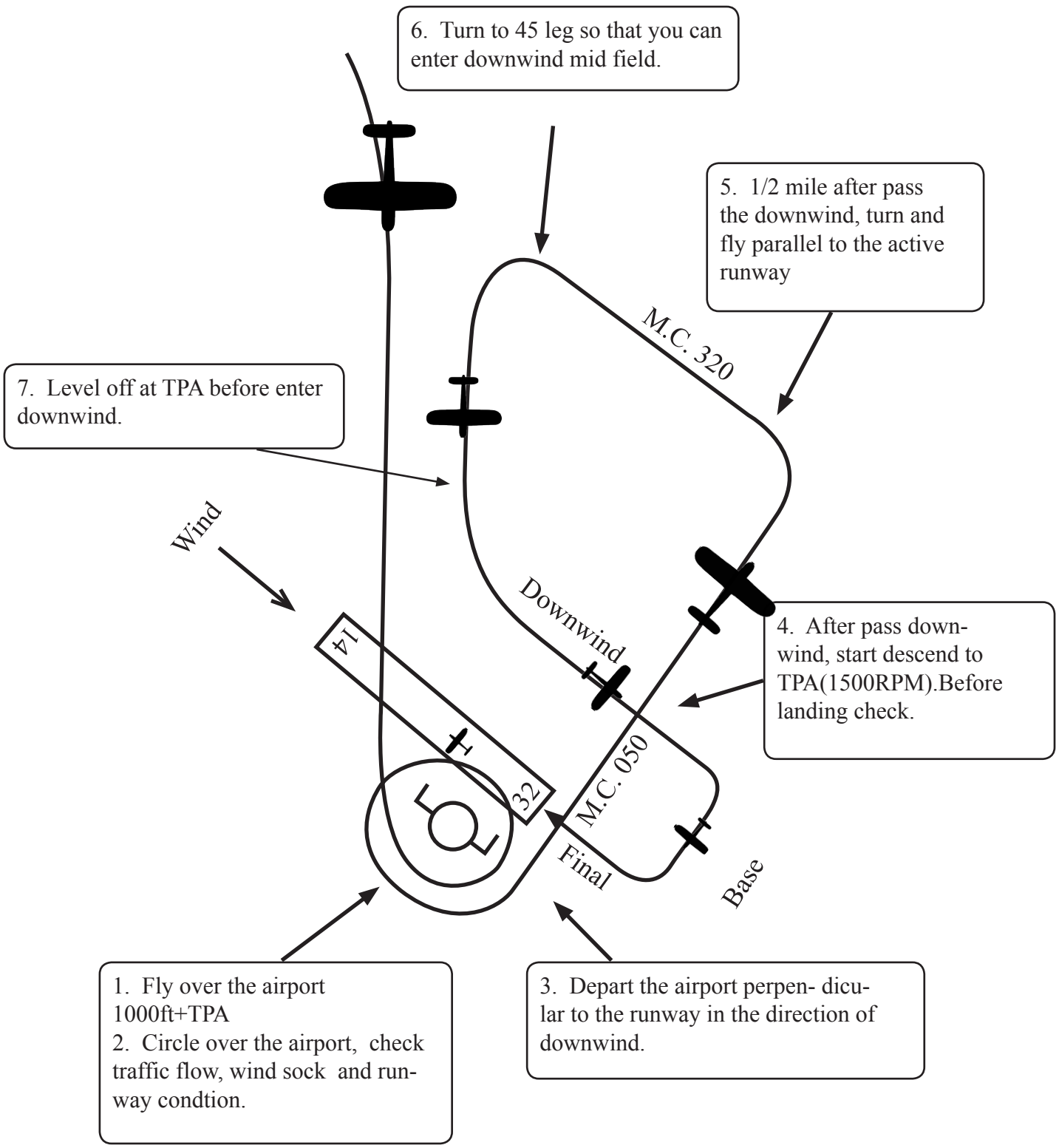
1. Align with center line. Set up the airspeed (65kt no flap, 60kt with flap).
2. Reduce power to idle.
3. Use rudder opposite to the wind, aileron into wind, , lower the nose to keep airspeed.
   Make sure the nose points downwind side. The airspeed indication for the right slip and left slip is deferent because of the position of the static port. Slip to the left, static port receive dynamic air. It indicates lower than actual. Slip to the right, static port receive negative pressure. It indicates higher than actual. Adjust aileron and rudder pressure to keep extended centerline.
4. Recover at proper altitude.

## Uncontrolled Airport Operation

1. Fly over the airport 1000ft above TPA.
2. Circle over the airport, Check wind, traffic flow. Traffic pattern
3. Depart airport perpendicular to the runway in the direction of downwind.
4. After pass downwind, start descend to TPA(1500RPM). Before landing check.
5. 1/2 mile after pass the downwind, turn and fly parallel to the active runway.
6. Turn to 45 leg so that you can enter downwind midfield.
7. Level off at TPA before enter downwind(2100RPM).
8. Enter downwind. Resume normal traffic pattern operation.

**Example of CTAF**

| | |
|---|---|
| 10 miles out | South county Unicom, Cessna 5151B, 10 miles northwest, request airport advisory, South county. |
| 5 miles out | South county traffic, Cessna 5151B, 5 miles northwest, inbound for landing, South county |
| 3 miles out | South county traffic, Cessna 5151B,3 miles northwest, inbound for landing, South county. |
| Over the airport | South county traffic, Cessna 5151B, over the airport at 2,300, landing runway 32, South county. |
| 45 leg | South county traffic, Cessna 5151B, on right 45, runway 32, South county. |
| Downwind leg | South county traffic, Cessna 5151B, on right downwind, runway 32, South county. |
| Base leg | South county traffic, Cessna 5151B, on right base, runway 32, South county. |
| Final leg | South county traffic, Cessna 5151B, on final, runway 32, South county. |
| Out of runway | South county traffic, Cessna 5151B, clear of the active, runway 32, South county. |



## Engine Failure

1. Best Glide speed 60kt, trim it.
   Establish pitch attitude which gives you 60kt.
2. Look for landing spot, turn toward it.
3. Trouble shoot-Use check list, Or Flow checkSeat belt-lock
   Fuel valve-on
   Mixture-rich
   Carburetor heat-on
   Ignition switch-both
   Master switch-both
   Primer-lock
4. Declare emergency
   Transponder-7700
   Radio-121.5 or current ATC
   "Mayday Mayday Mayday, Cessna 5151B, ENGINE FAILURE, (position), Making forced landing into (landing spot), 2 persons on board."
5. Secure Engine
   Mixture-Idle cut-off
   Fuel valve-off
   Ignition switch-off
   After using flap, master switch-off
   Door-open
6. Touch down
   Stop the airplane
   Inspect your body condition
   Get out of airplane
   Make sure no fire
   Call Nice Air, (408)729-3383, police, 911