

MANEUVERS CHECK LISTS – A152

Basic Rules:

- Sufficient altitude – min 3,500 AGL
- Clearance turns – S-turns to clear 360 degrees
- Cockpit check

Maneuver Stages:

- Set-up
- Entry
- Recovery

Pre-Maneuver Standard Cockpit Check: (Flow from floor to engine controls to gauges, to switches):

1. Fuel selector: - ON
2. Mixture: - RICH (or as required)
3. Carb heat ON/OFF as required. (ON for low power maneuver).
4. Engine gauges: - GREEN (Pressure and temp)
5. Vacuum: - GREEN
6. Landing light: - ON
7. Mags: - BOTH
8. Masters: - BOTH
9. Primer: - IN & LOCKED
10. Dir. Ind: - SET TO COMPASS

11. “Pre-maneuver checks complete”

Post-Maneuver Checklist:

1. Power and trim: - SET
2. Carb heat: - OFF
3. Mixture: - LEANED
- 4. “Post-maneuver checks complete”**

BF-GUMPS Check list (Do it all – even in a 152)

B – Boost – aux fuel pump (Not fitted in A152)

F – Flaps (as required), Feet off brakes

G – Gas on

U – Undercarriage down

M – Mixture, Mags, Masters

P – Prop set

S – Seat belts and security – doors. windows

Slow Flight

If not told otherwise, assume slow flight in the landing configuration at $V_{SO} = 35\text{Kts}$ with 30° flaps.

Rules for slow flight:

Power for altitude

Pitch for airspeed

Coordinate: Increasing right rudder needed as AoA increases

Entry:

- 1. Pre-maneuver cockpit check: With Carb Heat ON**
- 2. Safe altitude**
- 3. Clearance turns – two S or reverse-S, looking ahead and to the sides.**
4. Power to 1,500RPM – carb heat on.
5. Flaps to 10, 20, 30 in increments, with stabilizing time in between.
6. Pitch for airspeed – nose up to hold speed – 40Kts.
7. Adjust power to maintain altitude – carb heat off.
8. Coordinate with rudder (right).
9. Trim/power to hold speed and altitude.
10. Turns: Slow and steady. Lead with rudder. No more than 10°

Recovery:

1. Power: - FULL
2. Pitch: - FORWARD FOR LEVEL
3. Carb Heat: - OFF (COLD)
4. Retract flaps: - TAKE 10° OFF
5. Positive rate of climb.
6. Retract flaps: - SLOWLY (increments).
7. Pitch: - FOR LEVEL & TRIM
- 8. Post-maneuver checklist**

Steep Turns

Rules for Steep Turns (Maintain Level Flight):

Pitch: More back pressure needed as bank goes beyond 30°

Bank: Over banking tendency beyond 30°

Trim: Add 2 pulls of “nose up” trim into turn to help hold pitch

Power: Add 100RPM to help control airspeed and altitude

Loading: $LF = 1/(\cos(\text{bank})) = 1.4 \text{ at } 45^\circ ; 2.0 \text{ at } 60^\circ$

Stall speed = $V_s * \text{SQRT}(LF) = V_s * 1.2 \text{ at } 45^\circ ; 1.4 \text{ at } 60^\circ$

Watch for over-banking tendency.

Stay coordinated – no slips or skids.

Entry:

1. **Pre-maneuver cockpit check:** With Carb Heat OFF
2. **Safe altitude**
3. **Clearance turns – two S or reverse-S, looking ahead and to the sides.**
4. **Power:** - 2,300 RPM
5. **Airspeed:** - 90 Kts.
6. **Bank:** - Smoothly roll into 45° bank.
7. **Trim:** - Two pulls of “nose up” trim
8. **Power:** - Add 100RPM to help control airspeed
9. **Pitch:** - Smoothly increase yoke back pressure
10. **Trim:** - Adjust
11. **Coordination:** - Rudder.
12. **If descending – reduce bank slightly, then more back pressure.**

Recovery:

1. **Bank:** - Anticipate roll-out by 20°
2. **On roll-out:** - Smoothly decrease back pressure and reduce power to control airspeed and altitude. Roll out on desired heading at desired altitude.
3. **Pitch:** - Forward for level, then trim.
4. **Post-maneuver checklist**

Track and Side Slip Along a Line

Rules for track along a road:

Determine wind direction

Road: Locate a road close to 90° to wind.

Initially try to fly “straight” down the road.

Then add crab into wind to actually track the road.

Note heading (WCA) into the wind.

Rules for side slip along a road:

Determine wind direction

Road: Locate a road close to 90° to wind.

Initially try to fly “straight” down the road.

Then enough bank into wind to stop drift.

Add opposite rudder to keep nose-tail tracking the road.

Check upwind wing is lower than downwind wing (horizon)

Entry:

1. **Pre-maneuver cockpit check:** With Carb Heat OFF
2. **Safe altitude**
3. **Clearance turns – two S or reverse-S, looking ahead and to the sides.**
4. **Altitude:** - 1000' AGL
5. **Power:** - 2300 RPM
6. **Airspeed:** - 90 Kts.
7. **Add correction – crab or slip as above**

Recovery:

1. **Next maneuver or...**
2. **Full power climb at V_y**
3. **Post-maneuver checklist**

Rectangular Course:

Rules for Rectangular Course:

Course: Approx. 2 miles by 1 mile, one long edge down wind.

Locate field and easy to see boundaries.

Select emergency landing field.

Maintain altitude during maneuver.

Use crab on cross wind legs – into wind.

Control bank in proportion to groundspeed.

Assume left turns on the course. Enter ready to go – power, speed, altitude and trim, and on the 45° to downwind.

Entry:

1. **Pre-maneuver cockpit check: With Carb Heat OFF**
2. **Safe altitude**
3. **Clearance turns – two S or reverse-S, looking ahead and to the sides.**
4. **Below assumes wind from left on downwind leg**
5. Power: - 2300 RPM
6. Airspeed: - 90 Kts.
7. Altitude: - 1000' AGL
8. Enter: - On 45° to downwind leg.
9. Fly: - Join downwind leg ½ mile from boundary.
10. Turn: - Crosswind. Turn > 90° Crab into wind.
11. Bank angle ~ GS. Back pressure for altitude.
12. Turn: - Upwind. <90° turn. No crab.
13. Turn: - Crosswind. <90° turn. Crab into wind.
14. Turn: - Downwind. >90° turn. Increase bank as GS increases. Back pressure for altitude.
15. Coordination: - Rudder.
16. Power: - Add to control altitude and speed.

Recovery:

1. Depart on one leg.
2. Initiate powered climb at Vy
3. **Post-maneuver checklist.**

S-Turns around a Road

Rules for s-turns:

Road: Locate a road close to 90° to wind.

Maintain altitude during maneuver.

Select emergency landing field.

Bank will continuously vary, depending on wind direction and GS

Control bank proportional to groundspeed.

Enter ready to go – power, speed, altitude, trim and downwind.

Clue-1: Parallel with line when crossing it with wings level – control bank for this to be so. Do not reverse bank until parallel, even if past line.

Clue-2: Locate points 0.5 mile from the line, at the apex of each turn. Adjust bank to cross this on every turn.

Entry:

1. **Pre-maneuver cockpit check: With Carb Heat OFF**
2. **Safe altitude**
3. **Clearance turns – two S or reverse-S, looking ahead and to the sides.**
4. Power: - 2300 RPM
5. Airspeed: - 90 Kts.
6. Altitude: - 1000' AGL
7. Enter: - On downwind. Start maneuver past line.
8. Turn: - Immediate bank on crossing line. Steepest bank due to highest GS.
9. Turn: - Reduce bank as start turning to headwind.
10. Altitude: - Back pressure for altitude.
11. Coordination: - Rudder.
12. Power: - Add to control altitude and speed.

Recovery:

1. Roll level for next maneuver or...
2. Full power climb at Vy
3. **Post-maneuver checklist**

Turns Around a Point:

Rules for turns around a point:

Point: Easy to see.

Locate points at ½ mile radius to help stay on boundary.

Maintain altitude during maneuver.

Select emergency landing field.

Bank will continuously vary, depending on wind direction and GS

Control bank proportional to groundspeed.

Assume left turns around the point.

Enter ready to go – power, speed, altitude and trim.

Enter on downwind, so steepest bank initially.

Entry:

- 1. Pre-maneuver cockpit check: With Carb Heat OFF**
- 2. Safe altitude**
- 3. Clearance turns – two S or reverse-S, looking ahead and to the sides.**
- Power: - 2300 RPM
- Airspeed: - 90 Kts.
- Altitude: - 1000' AGL
- Enter: - On downwind. Start maneuver past point.
- Turn: - Stay ½ mile. Increase bank as more d/w.
- Altitude: - Back pressure for altitude.
- Coordination: - Rudder.
- Power: - Add to control altitude and speed.

Recovery:

- Roll level and depart.
- Initiate powered climb.
- 3. Post-maneuver checklist.**

POWER ON STALL (Departure Stall – Clean Config)

Situation:

Departure, clean, lack of attention, slow, high AoA

Entry:

- 1. Pre-maneuver checklist**
- Power: - 2300 RPM
- Airspeed: - 90 MPH
- At least 3,500' AGL
- Select ref point straight ahead
- Slow the airplane: 1,500RPM - carb heat on.
- Maintain altitude – bleed off airspeed
- Approach clean stall (40Kts), add full power – carb heat off.
- Pitch back to induce stall - stay coordinated
- Call out three indications:
 - Warning horn
 - Buffet
 - Nose drops

Recovery:

- Relax back pressure to lower AoA
- Pitch for airspeed.
- Initiate powered climb at Vy
- 4. Post-maneuver checklist**

POWER OFF STALL (Landing Configuration)

Situation:

Landing short, stretching emergency landing

Entry:

1. Pre-maneuver checklist

2. Power: - 2300 RPM
3. Airspeed: - 90 MPH
4. At least 3,500 AGL
5. Select ref point straight ahead
6. Slow the airplane: 1,500RPM - carb heat on.
7. Maintain altitude – bleed off airspeed
8. Add flaps incrementally
9. As speed approaches V_{so} (35Kts), power to idle
10. Pitch back to induce stall
11. Call out indications:
 - a. Warning horn
 - b. Buffet
 - c. Nose drops

Recovery:

1. Relax back pressure for lower AoA and increase airspeed
2. Add full power – carb heat off
3. Retract one notch of flaps
4. Initiate powered climb at V_y
5. Incremental flaps once positive rate of climb.
6. **Post-maneuver checklist**

EMERGENCY DESCENT

Situation: De-compression, illness, engine fire, etc.

Entry:

1. Pre-maneuver checklist

2. Power: - 2300 RPM
3. Airspeed: - 90 MPH
4. At least 3,500 AGL
5. Power to idle
6. Pitch for best glide = 60Kts
7. Bank to about 45-degrees
8. Descend at 60Kts
9. Can extend flaps for max drag configuration

SIMULATED ENGINE FAILURE

Entry:

1. Pre-maneuver checklist

2. Power: - 2300 RPM
3. Airspeed: - 90 MPH
4. At least 3,500 AGL
5. Power to idle
6. Pitch for best glide = 60MPH
7. Locate suitable field and move towards it
8. Mental checklist – BF-GUMPS
9. If time, actual checklist
10. Transponder 7700
11. Communicate – MAYDAY x3, who, where, what.

PATTERN

CONSIDER WIND AND CORRECTION REQUIRED

1. Downwind: 2,100RPM – 80MPH
2. Midfield: BF-GUMPS
3. Abeam touchdown: 1st Flap, power to 1,700RPM
4. 45-degree point: 2nd Flap
5. Judge wind and correction
6. Final: If high, full flaps and slip as needed.
7. Final: 60 MPH approach. Power as needed.