



Lock-On Modern Air Combat Check-lists

Su-25 Frogfoot Volume Russian tank killer.

**Not suited for Real Operations
For Lomac use only.**

Each lomac aircraft will have its checklists volume.
Use the checklists as an in flight aide for aircraft handling and
procedures, systems managment and weapons delivery
techniques.

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This volume is to be used with the Russian aircraft
annexes volume
Where specific russian systems are developed.

See also additional volumes

- Su27 main checklists
- Mig29 main checklists
- Su33 main checklists
- Russian aircraft annexes
- A10 main checklists
- F15 main checklist
- Nato aircraft annexes
- Navigation in Crimea (Map and airbase charts)

PRE FLIGHT

Note:

The Su-25 is a great aircraft to fly but is more demanding than any other modern jet because because of the absence of a modern avionic suite.

Pilots willing to fly the Su-25 should spend more time in flight planning and arming so they will be able to stay on top of things once in the cockpit. Two aspects are particularly important:

1. Flightplan

Use a minimum of waypoints for the flight plan so you are able to easily know which waypoint your HSI points to.

Max three is advised.

- First waypoint is the departure waypoint
- Second waypoint for IP
- Third waypoint for target or attack point.

If more than three are required - don't leave the briefing room before you are able to follow the route with closed eyes.

To return to base, use the BO3B (RETURN) NAV submode pointing to the IAF. This mode is the second NAV submodes. Selecting AA or AG then back to NAV modes default to HAB submode, so to select BO3B sumode, press 1 again.

2. Stores

Study your loadout plan and be sure to know what weapon is loaded on each pylon. In cockpit your only information about the selected weapon is the armament panel that give you the station selected for release. Knowing where any specific weapon is loaded is paramount. You can also visualize the type of weapon loaded with the cyrillic indication right of the weapon panel:

HPC: rockets
 6: bombs
 YP: missile
 BNY: gun

ENGINE START

1. Cockpit lights	As required	I
2. Canopy	Close	CTL c
3. Navigation lights	Turn ON	CTL I
4. Throttles	Idle	
5. Right engine (#2)	Start	SHF PgUp
5a. RPM	Check increasing to 65%	
5b. EGT	Check increasing to 320° when 40% RPM	
6. Left engine (#1)	Start	ALT PgUp
6a. RPM	Check increasing to 65%	
6b. EGT	Check increasing to 320° when 40% RPM	
7. Engines gauges	Check within limits	
8. Flaps	Down one notch	f
9. Trim	Reset	CTL t
10. Hud	Set colours	CTL h

TAXI-OUT

1. Landing / Taxi lights	ON (once for taxi light - twice for Idg light)	ALT I
2. Radio Tower	Request Taxi clearance	radio/F6/F1
3. Trim	Take-Off settings	
4. Wheelbrakes	Test - Throttle 70% - 80% - aircraft static	
5. Airbrake	Check Closed	
6. Runway	Take position	
7. Tower	Request Take-Off clearance	radio/F6/F2

NORMAL TAKE-OFF

1. Runway	Align on centerline for solo take-off Align on briefed side for formation take-off	
2. Wheelbrakes	Engage and maintain.	w
3. Power	90% RPM	
4. Engine gauges	Check in the green	
5. Wheelbrakes	Release (Call release for wingman)	
6. Power	Full military power	
7. Speed	Increasing to 260 km/h rotate 10°	
8. Radio	Call Airborne	

AIRBORNE

1. Landing Light	Turn OFF	ALT I
2. Gear	Up at positive climb	g
3. Flight attitude	15° Climb	
4. Flaps	Up at 100m	CTL f
5. Thrust	As required for 450km/h	
6. Engine gauges	Check in the green	
7. Secondary flight ctls	Check lights OFF (gear & flaps)	
8. NAV	Check route on HSI and verify correct way-point selected	

ABORTED TAKE-OFF

1. Throttle	Idle	
2. Speedbrake	Extend	SHF b
3. Brake Chute	Deploy	p
3. Wheelbrakes	Apply	w
4. Runway	Vacate	
5. Aircraft	Stop	
6. Gauges	Check and abandon aircraft if required	

Note:

Past V1, continue the take-off run and deal with the problem once airborne. If less than 500m of runway is available at the time of the emergency, eject.

FENCE IN

1. Navigation Lights	Turn OFF	CTL I
2. AWACS	Check if airborne as briefed	
3. Engines Gauges	In the green	
4. Fuel Checks	Check remaining quantities and estimate time to Bingo. Perform wingman check.	
5. Master mode	Set ZEMLYA (AG)	
6. Laser Ranging	Set ON	o
7. Formation	Set for Wingman	
8. ECM	As required (if carried)	j

SU-25 WEAPON TABLE

Weapon	Type	Rel. Speed (km/h)	Min. Release Alt (Radar)	Opt. Dive Angle
FAB-100	Blast	600 - 700	50	5 to 15°
SAB-100	Candle	550-650	High	N.A.
FAB-250 (&P)	Blast	600 - 700	200	10 to 15°
FAB-500	Blast	700 - 800	300	10 to 30°
PB-250	retarded blast	600 - 700	100	CCRP level
RBK-250 (&ShOAB)	Cluster	600 - 700	200	10 to 15°
RBK-500AO	Cluster	700 - 800	200	10 to 30°
BetAB-250	Penetration	600 - 700	100	10 to 15°
BetAB-500 (&SHP)	Penetration	700 - 800	500	10 to 30°
ODAB-500PM	Fuel-air	700 - 800	500	10 to 30°
ZAB-500	Incendiary	700 - 800	500	10 to 30°
ZB-500Sh	Fire-bomb	700 - 800	500	10 to 30°
KMGU-2f (&2B)	Cluster	600 - 700	150	5 to 15°
Rockets				
UB-32 (S-5)	57mm rocket	550-650	N.A.	10 to 30°
B-8 (S-8)	80mm rocket	550-650	N.A.	10 to 30°
B-8CM	Marking	550-650	N.A.	10 to 30°
B-13 (S-13)	122mm rocket	550-650	N.A.	10 to 30°
S-24	240mm rocket	550-650	N.A.	10 to 30°
S-25	340mm rocket	550-650	N.A.	10 to 30°
Missile				Rng (km)
KH-25ML	Laser	Cursor adjustment		10
KH-25MP	Anti-Radar	Lock and shoot		40
KH-29L	Laser	Cursor adjustment		8 - 10
R-60	AA - IR	Lock and shoot		10

SU-25 BOMB RELEASE MODE

1. CCIP

Zemlya mode with laser ranger finder ON

30° Dive at 700km/h (800km/h for 500kg bombs) - place the piper on target - when red light comes ON, release wpn.

2. BLIND

Zemlya or Cetka (Grid) mode laser ranger finder OFF

3. AERONAUTICAL (CCRP)

Zemlya mode with laser ranger finder ON - Pipper docked to HUD

Place the docked pipper on the target and hold the release btn - Continue flying level. In the final moments before release, an audible warning sound. The bombs are released when the sound stops.

Note:

The Su-25 requires constant trimming in flight

FENCE OUT

- | | | |
|----------------------|--------------------------------|-------|
| 1. Threat for egress | Assume (RWS and Awacs) | |
| 2. Master Mode | HAB (Nav) / MAPW(enroute) mode | |
| 3. Navigation Lights | Turn ON or as required | CTL I |
| 4. Laser ranging | Turn OFF or as required | |
| 5. ECM | Check OFF (SPS-141) | e |

SINGLE ENGINE FAILURE / DAMAGE

- | | | |
|-------------------------|--|-----------------|
| 1. Throttle dead engine | Stop | |
| 2. Caution Panel | Check for engine fire | |
| 3. Fire Detected | Shut down engine | SHF or ALT PgDn |
| | If fire is out of control EJECT | |
| 4. Engine Gauges | Check and assess (EGT) | |
| 5. Rudder Trim | Balance assymetric thrust | |
| 6. Stores | Consider Jettisoning | CTL w |
| 7. Fuel | Consider Dumping fuel | CTL r |
| 8. Engine relight | If engine relight is possible, follow inflight engine restart checks | |
| 9. Mission | Abort and land as soon as possible. | |

INFLIGHT ENGINE RESTART

Note:

The following conditions must be met before attempting an air relight:
-AIRSPEED above 400 km/h below 7000m.
There is sufficient oxygen in the aircraft for 5 relight attempts.

- | | | |
|----------------------------|--|-----------------|
| 1. Throttle of dead engine | Stop | |
| 2. Dead Engine switch | ON | SHF or ALT PgUp |
| 3. Dead engineThrottle | Idle | |
| 4. Engines Gauges | Check for relight
RPM increasing
EGT Check | |

SPIN RECOVERY

- | | | |
|------------------|---|-------|
| 1. Trim settings | reset | CTL t |
| 2. Throttle | Idle | |
| 3. Flight Stick | Neutralize | |
| | Push slightly forward | |
| 4. Rudder | Apply rudder opposite the spin rotation | |
| | Step on the ball - check on the ADI | |
| 5. Recovery | Apply full throttle | |
| 6. Attitude | Dive for increased speed (if possible) | |
| | Level off by pulling slowly the stick. | |

Warning:

1. If Spin is not recovered at 1000m, Eject.
2. At recovery speed is near stall speed, make sure you increase speed before levelling off or another spin might occur.

INVERTED SPIN RECOVERY

Note:

An inverted spin is when the aircraft is upside down. It is much tricky to get out of an inverted spin because you need to react the opposite way from a normal spin.

Use your ADI for spin direction.

Warning

Eject at 1000m
or use ALT p for automatic spin recovery

- | | | |
|------------------|--|-------|
| 1. Trim settings | reset | CTL t |
| 2. Throttle | Idle | |
| 3. Flight Stick | Neutralize | |
| | pull slightly backward | |
| 4. Rudder | Apply rudder opposite the spin rotation | |
| | Step opposite of the ball on the ADI | |
| 5. Recovery | Apply full throttle | |
| 6. Attitude | Dive for increased speed | |
| | Pull back on the stick for dive. | |
| | Perform half roll when speed is sufficient | |
| | Level off | |

APPROACH

- | | | |
|-----------------|--------------------------------------|-------------|
| 1. Nav submode | Select BO3B and fly to the IAF | 1 |
| 2. Radio Tower | Call inbound | radio/F6/F3 |
| 3. Attitude | Attain IAF altitude displayed in HUD | |
| 4. Speed | Slow to 320 km/h | |
| 5. Flaps | Extend one notch at 300 km/h | f |
| 6. Gross weight | Dump fuel if required | CTL r |

BEFORE LANDING (ILS)

- | | | |
|--------------------------|--|-------|
| 1. At IAF | Check ILS mode engaged | |
| | Confirm ILS bars in the HSI | |
| 2. On glideslope | Gear Down | |
| 3. Landing lights | ON (once for taxi light - twice for ldg light) | Alt l |
| 4. Engine settings | 85% RPM | |
| 5. Speed | 280 - 300 km/h | |
| 6. Flaps | Fully down | SHF f |
| 7. Secondary Flight ctls | Check lights (gear & flaps) | |
| 8. Airbrake | As required | |
| 9. Vertical speed | 5 m/s descent rate - ILS needles centred | |

VISUAL LANDING

1. Distance from Runway : 10 km:

Altitude	According to MSA
Speed	500 km/h
Fly runway heading to overfly at 300m	
2. End of runway:

Execute 180° break turn 60° bank angle to kill speed.
3. Downwind:

Speed	280 - 320 km/h	
Flaps	Deploy full (2 notches)	SHF f
Gear	Down and locked	g
Speedbrake	As required.	
4. Base Leg:

Start the turn when the runway is on your wingtip

Adjust bank angle to level out aligned with centerline.
5. Final approach checks.

FINAL APPROACH

- | | |
|---------------------|---|
| 1. Speed | 250km/h |
| 2. Runway threshold | Flare-retard throttles to idle-speed 240km/h |
| 3. Vertical speed | Maximum 5m/s on touchdown - (3.5m/s) |
| 4. Landing Roll | Deploy braking chute p |
| 5. Wheelbrakes | Engage as required |

SINGLE ENGINE LANDING

Warning:

Landing on one engine is a dangerous task. Be sure to rudder trim the aircraft correctly to counter yaw. Stay a little high on the glidepath and increase your reference speeds by 10-20%.

If you drop below glidepath or run out of airspeed - EJECT.

Remember a good landing is a good approach.

Perform straight in approaches only.

- | | |
|--------------------|---|
| 1. Gross weight | Lighten aircraft. Jettison stores and fuel. |
| 2. At IAF | Check $\Pi \bigcirc \bigcirc$ mode engaged
Confirm ILS bars in the HSI |
| 3. Speed | 350km/h |
| 4. Altitude | 1000m |
| 5. ILS | Remain slightly above glidepath |
| 6. Gear | Drop at last moment |
| 7. Landing lights | Turn ON Alt I |
| 8. Flaps | as required (usually clean) |
| 9. Runway | Speed 280 km/h |
| 10. Vertical speed | 5 m/s descent rate maximum |
| 11. Touchdown | Extend airbrake
Deploy braking chute
Maintain aerodynamic braking
Engage wheelbrakes |

MISSED APPROACH

- | | | |
|-------------------|--|-------|
| 1. Throttles | Full military power | |
| 2. Airbrake | Check Closed | |
| 3. Attitude | Pitch Up 10 - 15° | |
| 4. Landing light | Turn OFF | |
| 5. Positive climb | Gear up | g |
| 6. Flaps | Retract at 100m | CTL f |
| 7. Nav | Climb to 1000m and fly to IAF or alternate | |

AFTER LANDING

- | | | |
|-----------------------|---------------------------------|----------|
| 1. Runway | Vacate as soon as possible | |
| 2. Aircraft | Stop | |
| 3. Flaps | Retract | CTL f |
| 4. Airbrake | Check closed | CTL b |
| 5. Taxi | To the briefed parking position | |
| 6. Landing lights | Turn OFF | ALT I |
| 7. Throttles | Stops | |
| 8. Left engine (#1) | Shutdown | ALT PgDn |
| 8a. EGT | Check decreasing | |
| 8b. RPM | Check decreasing | |
| 9. Right engine (#2) | Shutdown | SHF PgDn |
| 9a. EGT | Check decreasing | |
| 9b. RPM | Check decreasing | |
| 10. Canopy | Open | CTL c |
| 11. Cockpit lights | Turn OFF | I |
| 12. Navigation lights | Turn OFF | CTL I |
| 13. Ground refuel | If required | CTL r |