Lock-On Modern Air Combat
Check-lists

Su-33 Flanker Volume
Multi-Role carrierborne fighter-bomber.

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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Check-lists

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

See also additional volumes

- Su27 main checklists
- Mig29 main checklists
- Su25 main checklists
- Russian aircraft annexes
- A10 main checklists
- F15 main checklist
- Nato aircraft annexes
- Navigation in Crimea (Map and airbase charts)

ENGINE START

1. Cockpit lights	As required	l
2. Canopy	Close	CTL c
3. Navigation lights	Turn ON	CTL l
4. Throttles	Idle	
5. Right engine (#2)	Start	SHF PgUp
5a. RPM	Check increasing to 65%	
5b. EGT	Check increasing to 300° when 40% RPM	
6. Left engine (#1)	Start	ALT PgUp
6a. RPM	Check increasing to 65%	
6b. EGT	Check increasing to 300° when 40% RPM	
7. Engines gauges	Check within limits	
8. Flaps	Keep up when wings folded	f
9. Trim	Reset	CTL t
10.Hud	Set colours	CTL h
11.Hook	Check up	CTL g
12.Wings position	Set as required	CTL p

Note:
On the carrier, keep the wings folded until ready for launch. Deck operations must be performed with the wings folded.

TAXI-OUT

1. Landing / Taxi lights	ON (once for taxi light - twice for ldg light)	ALT l
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. Ac launching station	Take position	u for launch
	Check wheels chokes and blast shield up	
7. Tower (for rnw ops)	Request Take-Off clearance	radio/F6/F2

Note:
Use Caution when moving the AC on the carrier deck !

CARRIER LAUNCH

1. Catapult	Take position	u
2. Wings	Deploy and lock	CTL p
3. Flaps	Check Down (one notch)	f
4. Throttles	100% RPM	
5. Engine gauges	Check in the green	
5. Reheat	Engage when ready for launch	
6. Radio	Call Airborne	

Note:
Beware of high AOA after leaving the deck. Stall speed is near launch speed and with a heavily laden aircraft ditching might occur. Retract gear immediately and perform a gentle clearing turn 15° pitch up maximum. Accelerate in level flight then start a gentle climb. Retract flaps when sufficient speed is reached.

RUNWAY 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. Reheat	As required	
7. Speed	Increasing to 260 km/h rotate 10°	
8. Radio	Call Airborne	

AIRBORNE

1. Landing Light	Turn OFF	ALT l
2. Gear	Up at positive climb	g
3. Flight attitude	15° Climb	
4. Flaps	Up at 100m	CTL f
5. Thrust	As required for 600km/h	
6. Engine gauges	Check in the green	
7. Secondary flight ctls	Check lights OFF (gear & flaps)	
8. NAV	Set МАРШ mode (enroute)	1

ABORTED TAKE-OFF

1. Throttle	Idle	
2. Speedbrake	Extend	SHF b
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.
Note2:
In case of launch abort from a carrier: EJECT

AERIAL REFUELING

1. Call Awacs	Ask vector to Tanker	radio/F5/F3
2. Tanker	Acquire visually (use radar if required)	
3. Radar	Shut down at least 2km before rejoin.	
4. Refueling probe	extend	r
5. Nav modea	Select Hab mode	1
6. 1.2 km from Tanker	Check T in lower left HUD Tanker will extend its baskets	
7. Basket	Select 1, 2 or 3 (confirm in hud)	Tilde
8. Altitude	Match tanker altitude	h
9. Speed	Match tanker speed + 2.5km/h	j
10.Attitude	Center the aircraft datum in the steering circle - monitor tanker speed & altitude.	
11. Refueling probe	Connect to selected basket	
12. Refueling	Autopilot takes over - check flow.	
13. To disconnect	Throttle to idle - retract probe	r
14. Autopilot	Disconnect autothrottle & alt stab	j&h
15. Attitude	Clear away from the tanker	

Note:
Basket #1 is on the left wing, Basket #2 is on the tail, Basket #3 is on the right wing

FENCE IN

1. Navigation Lights	Turn OFF	CTL l
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. Radar	As required	
6. EOS	As required (ON)	
7. Master mode	Set ДВБ (BVR) or ДРЛО (Dlink) if awacs is available.	
8. Formation	Set for Wingman	

Note:
The Su-33 requires constant trimming in flight

FENCE OUT

1. Threat for egress	Assume (RWS and Awacs)	
2. Master Mode	HAB (Nav) or МАРШ (enroute) mode	
3. Navigation Lights	Turn ON or as required	CTL l
4. Sensors	Turn OFF or as required	
5. ECM	Check OFF (Sorbtsiya-S)	e

SINGLE ENGINE FAILURE / DAMAGE

1. Throttle dead engine	Stop	
2. Caution Panel	Check for engine fire	
3. Fire Detected	Shut down engine If fire is out of control EJECT	SHF or ALT PgDn
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
7. Engine relight	If engine relight is possible, follow inflight engine restart checks	
7. Mission	Abort and land as soon as possible.	

SPIN RECOVERY

1. Trim settings	reset	CTL t
2. Throttle	Idle	
3. Flight Stick	Neutralize	
	Push slighly 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 recovey 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 slighly 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	

INFLIGHT ENGINE RESTART

Note:
The following conditions must be met before attempting an air relight:
-AIRSPEED between 400 and 1000 km/h below 12000m.
-AIRSPEED between 550km/h and Mach1.8 between 12000 and 17000m.
There is sufficient oxygen in the aircraft for 5 relight attemps.

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	

APPROACH (Carrier & Runway)

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 400 km/h	
5. Flaps	Extend one notch at 400 km/h	f
6. Hook	Down for carrier landing	CTL g
7. Gross weight	Dump fuel if required	CTL r
8. Sensors	Check all OFF	

BEFORE ILS LANDING (Carrier & Runway)

1. At IAF	Check ПОС mode engaged	
	Confirm ILS bars in the HUD	
2. On glideslope	Gear Down	
3. Landing lights	ON (once for taxi light - twice for ldg light)	Alt l
4. Secondary Flight ctls	Check lights (gear & flaps)	
5. Engine settings	85% RPM	
6. Speed	330 - 350 km/h	
7. Flaps	Fully down	SHF f
7. Airbrake	As required	
8. Vertical speed	5 m/s descent rate - ILS needles centred	

VISUAL LANDING (Carrier & Runway)

1. Distance from Runway or Carrier : 10 km:

Altitude	500m	
Speed	500 - 600 km/h	

Fly runway/carrier heading to overfly at 300m

2. End of runway/carrier:

Execute left 180° break turn 60° bank angle to kill speed.

3. Downwind:

Speed	400 - 300 km/h	
Flaps	Deploy full (2 notches)	SHF f
Gear	Down and locked	g
Hook	Down	CTL g
Speedbrake	As required.	

4. Base Leg:

Start the turn when the runway/carrier is on your wingtip
Adjust bank angle to level out aligned with centerline.

5. Final approach checks.

CARRIER FINAL APPROACH

1. Speed	On speed AoA - 280km/h	
2. Meatball	Lights in visual - align for green light	
2. Short final on the deck	Do not flare	
3. Vertical speed	Maximum 6m/s on touchdown	
4. Thrust	Full military thrust in case of bolter	
5. Hook engaged	Cut power	
6. Flaps	Up	CTL f
7. Hook	Up	CTL g
8. Wings	Fold	CTL p
9. Deck	Taxi to parking.	

CARRIER BOLTER

1. Thrust	Reheat	
2. Airbrake	Check Closed	
3. Gear - Flaps	Up - Flaps up one notch	g & f
4. Attitude	10 - 15° pitch up - perform left clearing turn	
5. AOA	Keep within limits	
6. Climb	To 1000m and fly to IAF at 400km/h	

FINAL APPROACH FOR RUNWAY

1. Speed	280km/h
2. Runway threshold	Flare-retard throttles to idle-speed 250km/h
3. Vertical speed	Maximum 5m/s on touchdown - (3.5m/s)
4. Wheelbrakes	Engage

SINGLE ENGINE LANDING

Warning:

Landing on one engine is a dangerous task, especially on a carrier. 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 ПОС mode engaged
	Confirm ILS bars in the HUD
	Hook down for carrier landing
2. Speed	450km/h
3. Altitude	1000m
4. ILS	Remain slighly above glidepath
5. Gear	Drop at last moment
6. Landing lights	Turn ON Alt l
7. Flaps	as required (down for carrier-clean for rnw)
8. Runway/deck	Speed 310 km/h
9. Vertical speed	5 m/s descent rate maximum
10. Touchdown rnw	Extend airbrake
	Maintain aerodynamic braking
	Engage wheelbrakes
11. Touchdown carrier	Max thrust on good engine - no reheat.
	Keep trimming

MISSED APPROACH (RUNWAY)

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

AFTER LANDING (Carrier & Runway)

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