

NORMAL STEP	FULL PROCEDURE STEP	CONDITIONAL STEP	NON-FUNCTIONAL STEP
MIG-15BIS CHECKLIST	FULL PROCEDURE SUB-STEP	CONDITIONAL SUB-STEP	NON-FUNCTIONAL SUB-STEP

Engine Start Checklist

1. APU GROUND POWER <i>REQUEST</i>	CONNECTED
2. BATTERY SWITCH	OFF (AFT)
3. GENERATOR SWITCH	ON (FORWARD)
4. RIGHT CIRCUIT BREAKER SWITCH PANEL TRIM ELECTRICAL POWER ALTITUDE INDICATOR POWER RSI-6K RADIO POWER BOMBS POWER SWITCH DROP ORDNANCE SWITCH ARC-5 RADIO NAV POWER RADIO ALTIMETER POWER 23MM CANNONS POWER 37MM CANNONS POWER ASP-3H GUNSIGHT POWER	CHECK - On / Forward - On / Forward - On / Forward - On / Forward - On / Forward - On / Forward - On / Forward - On / Forward - On / Forward - On / Forward
5. LEFT CIRCUIT BREAKER SWITCH PANEL FUEL BOOSTER PUMP IGNITION SWITCH INSTRUMENTS & LIGHTS SWITCH FUEL TRANSFER PUMP	CHECK - On / Forward - On / Forward - On / Forward - On / Forward -
6. ENGINE FIRE TEST	CHECK
7. LANDING GEAR INDICATOR CHECK	THREE GREEN
8. FUEL QUANTITY CHECK	AS FLIGHT PLAN
9. ENGINE START - THROTTLE TO IDLE - FUEL SHUTOFF - STARTER COVER - STARTER BUTTON - MONITOR ENGINE RPM - MONITOR ENGINE EGT - FUEL SHUTOFF VALVE TO 50% ENGINE RPM 600 - FUEL SHUTOFF VALVE TO 100% ENGINE RPM 900-1200 / 300 EGT - ENGINE CHECK OIL PRESSURE / OIL TEMPERATURE Engine RPM should be within 2400-2600, Exhaust Gas temperature should not exceed 510°C, Oil Pressure should not be less than 0.2 kg/cm ² , and Fuel Pressure should stay within 7-12 kg/cm ² .	CHECK - Off / Full Aft - Off / Full Up - Open - Press - Check - Check - Adjust - Open / Full Down - Check
10. HYDRAULIC BOOSTER <i>LEVER</i>	FULL
11. INCREASE ENGINE POWER TO 5000 RPM <i>THROTTLE</i>	ADJUST
12. GENERATOR LIGHT EXTINGUISHED <i>LIGHT</i>	CHECK
13. APU DISCONNECTED <i>REQUEST</i>	CHECK
14. BATTERY SWITCH	ON (FWD)
END	

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Before Taxi Checklist

1. CANOPY <i>HANDLE</i>	CLOSE
2. EXTERNAL LIGHTS <i>SWITCH</i>	AS REQUIRED
3. GEAR HANDLE SAFETY <i>LEVER</i>	UNLOCKED
4. COCKPIT PRESSURISATION <i>HANDLE</i>	SET BLUE / YELLOW / RED
5. OXYGEN <i>HANDLE</i>	ON (CLOCKWISE)
6. PILOT HEAT <i>SWITCH</i>	ON
7. 23mm & 37mm CANNON ARM <i>BUTTON</i>	PRESS
8. HYDRAULIC PRESSURE TEST <i>GAUGE</i>	CHECK 80-140 kg/cm ²
9. FLAPS <i>LEVER / VISUAL CHECK WING INDICATOR</i>	CYCLE 20 / 55 / UP <small>Reset 20 For Short Runway Take Off</small>
10. SPEED BRAKE <i>LEVER</i>	CHECK CLOSED (AFT/ LIGHT OFF)
11. GYRO COMPASS SLAVE <i>BUTTON</i>	PRESS
12. ATTITUDE GYRO ERECTED <i>GAUGE</i>	CHECK
13. COMM RADIO SET & ATC TAXI CLEARANCE <i>REQUEST</i>	SET / OBTAINED
14. BRAKE & STEERING TEST <i>LEVER / PEDALS</i>	CHECK
15. ENGINE OPERATION CHECK Set the engine RPM to 6500-7500 and check operation of the isolating valve The green signal lamp connected to the isolating valve should illuminate, engine revolutions can drop by 250 (RPM increase is not limited), exhaust gas temperature can change by 10-15°. Constant RPM and their reduction of more than 250 indicates fuel automatic malfunction Turn off the isolating valve. Engine RPM should return to initial value.	CHECK
END	

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Runway Line Up / Take Off

1. CONTROLS CHECK	CHECK / FREE
2. ATC TAKE OFF CLEARANCE <i>REQUEST</i>	OBTAINED
3. NOSE LIGHTS <i>SWITCH</i>	ON
4. WHEEL BRAKES <i>LEVER</i>	HOLD / TEST
5. ENGINE RPM <i>THROTTLE</i>	ADVANCE 8000 RPM STEADY BRAKE RELEASE
6. ENGINE THROTTLE TAKE-OFF POWER <i>THROTTLE</i>	ADVANCE / SET 11,200 RPM / EGT 600
7. ROLLOUT & TAKE-OFF <ul style="list-style-type: none"> - RUDDER AUTHORITY 80km/h - AFT STICK PRESSURE 180-190km/h - ROTATE 220-230km/h - GEAR UP - FLAPS UP BELOW 290km/h - ACCELERATE BEFORE TURN OUT 370km/h - ENGINE RPM 10,500 - CLIMB SPEED TARGET 425km/h - NOSE LIGHT 	CHECK / SET <ul style="list-style-type: none"> - Active - Apply - 5 Degree Attitude Pitch Maintain - Selected Up / Neutral - Selected Up / Neutral - Maintained - Set - Maintained - As Required
END	

Climb / Cruise

<div>1. MAX CLIMB POWER</div> <div>Time of climb altitude up to 5000 m (at 11.560 rpm and 680-560 km/h TAS)</div> <div>2 Minutes</div>	11,560RPM												
<div>2. CRUISE</div> <table><tr><td>(6) Cruise speed (at 10.000 m, weight within 4.600-4.900 kg)</td><td>indicated airspeed (IAS) kts / km/h</td><td>243-254 / 450-470</td></tr><tr><td>(7) Fuel consumption rate (air patrol at 10.000 m, 350 km/h IAS, weight within 4.600-4.900 kg, fuel density 0.83 kg/l)</td><td>lbs/h // kg/h</td><td>1464 // 664</td></tr><tr><td>(8) Maximum speed at sea level, true airspeed (TAS)</td><td>kts / km/h</td><td>581 / 1076</td></tr><tr><td>(9) Maximum speed at 10.000 m (33.000 feet), true airspeed (TAS)</td><td>kts / km/h</td><td>535 / 990</td></tr></table>	(6) Cruise speed (at 10.000 m, weight within 4.600-4.900 kg)	indicated airspeed (IAS) kts / km/h	243-254 / 450-470	(7) Fuel consumption rate (air patrol at 10.000 m, 350 km/h IAS, weight within 4.600-4.900 kg, fuel density 0.83 kg/l)	lbs/h // kg/h	1464 // 664	(8) Maximum speed at sea level, true airspeed (TAS)	kts / km/h	581 / 1076	(9) Maximum speed at 10.000 m (33.000 feet), true airspeed (TAS)	kts / km/h	535 / 990	NAVIGATION CHECK SPEED CHECK FUEL CHECK TIME ALOFT NOTE
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Approach / Landing

1. EXTERNAL LIGHTS <i>SWITCH</i>	ON
2. NOSE LIGHTS <i>SWITCH</i>	ON
3. ATC CLEARANCE <i>REQUEST</i>	OBTAINED
4. LINE UP WITH RUNWAY	CHECK
5. AIR BRAKES EXTEND <i>SWITCH</i>	On (FWD)
6. GEAR EXTENDED BELOW 450km/h <i>LEVER / LIGHT</i>	CHECKED THREE GREEN
7. FLAPS EXTENDED 20 BELOW 350km/h <i>LEVER</i>	CHECKED / LOCKED
8. FLAPS EXTENDED 55 BELOW 320km/h <i>LEVER</i>	CHECKED / LOCKED
9. ENGINE POWER 7000-9000 RPM <i>THROTTLE</i>	CHECK
10. FINAL APPROACH 250-270km/h	CHECK
11. TOUCHDOWN 180-200km/h Landing ground run distance (flaps extended to 55°) – 670 m.	CHECK
12. THROTTLE IDLE <i>THROTTLE</i>	OFF (Aft)
13. FLAPS & AIRBRAKES RETRACED <i>LEVER / SWITCH</i>	CHECK
14. ATC TAXI PARKING CLEARANCE	OBTAINED
END	

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Engagement / Combat Weapons Check

AIR TO AIR / AIR TO GROUND CANNON	
1. GUNSIGHT POWER SWITCH <i>SWITCH</i>	ON (FWD)
2. 23mm & 37mm CANNON ARM LOADED LIGHT <i>LIGHT</i>	ON
3. GUN SAFETY <i>COVER</i>	AS REQ
4. SET TARGET WINGSPAN <i>DIAL</i>	SET
5. TARGET IN SIGHT / GUNSIGHT GYRO <i>VISUAL</i> Aiming distance, m 180 - 800 Target lead angle 0-8° Target wingspan, set with corresponding knob, m 7-45 Mechanical gunsight circle size, mils 17,5 When shooting at ground targets with sizes of more than 14 m, it is necessary to set the target base, corresponding to the target dimensions, and before diving set the gunsight to the minimum distance. After the turn towards the target with the minimum distance set in the gunsight, the pilot has to put the reticle over the target and keeping it in this position, continue diving for 1-2 seconds. Set the maximum distance by rotating the handle and shoot a short burst when the target is framed by the diamond circle. Immediately after that, start exiting from dive and set the minimum distance on the gunsight. When shooting at ground targets with sizes of more than 18 m at higher speeds or with drop tanks (non-empty) from approximately 1000 m distance, it is recommended to set a target base which is 20% less than the true size of the target. Start shooting when the target is framed accurately. When shooting at ground targets with sizes less than 14 m, set 14 m target base on the gunsight. Rangefinder operation is similar to the one described above.	CAGE LEVER UP
NR23-EFFECTIVE RANGE ARMOUR	200m
N37-CANNON EFFECTIVE RANGE ARMOUR	400m
AIR TO GROUND BOMBING	
1. TACTICAL RELEASE SWITCH <i>SWITCH</i>	ON (UP) LIGHTS RED / GREEN x2
2. ALTITUDE CHECK <i>GAUGE</i>	2000m MINIMUM
3. GROUND / AIR THREATS <i>VISUAL</i>	IDENTIFIED
4. SPEED <i>GAUGE</i>	CHECK MAX 500km/h IF REQ SPEED BRAKES
5. DIVE 40 DEGREES <i>GAUGE</i>	COMMENCE
6. ENGINE RPM 6000 <i>THROTTLE</i>	MINIMUM CHECK
7. TARGET LINE UP WITH NOSE BUBBLE & GUNSIGHT BASE <i>VISUAL</i>	ACQUIRE
8. BOMB RELEASE 800-1200m <i>BUTTON</i> Increased speed while releasing bombs leads to increased bomb overfly (projection of the trajectory of the falling bomb on the horizontal surface); Reduction of dive angle leads to bomb overfly; Increasing of bomb release altitude with the same diving angle leads to bomb underfly.	PRESS & HOLD
END	

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Operational Characteristics

OPERATIONAL DATA		
MAX ALLOWABLE GROSS	lbs / kg	13459 / 6105
BASIC WEIGHT	lbs / kg	7892 / 3580
USEFUL LOAD (WITH PILOT 100KG)	lbs / kg	2983 / 1353
WEIGHT WITH PAYLOAD FOR NORMAL MISSION	lbs / kg	11120 / 5044
FUEL USABLE CAPACITY INTERNAL (0.83 KG/L)	lbs/gal // kg/l	2584/373 // 1172 / 1412
NORMAL CRUISE SPEED (FOR MAX RANGE AT 10.000M, GROSS WEIGHT 4.600-4.900KG)	indicated air speed (IAS) kts / kmh	243-254 / 450-470
FUEL CONSUMPTION RATE (FOR LOITER AT 10.000M, 350 KMH IAS, GROSS WEIGHT 4.600-4.900KG, FUEL DENSITY 0.83 KG/L)	lbs/h // kg/h	1464 // 664
MAXIMUM SPEED AT SEA LEVEL, TRUE AIR SPEED (TAS)	kts / kmh	581 / 1076
MAXIMUM SPEED AT 10.000M (33.000 FEET)	TAS kts / kmh	535 / 990
SERVICE CEILING (FOR TAKE-OFF WEIGHT 5044KG)	ft / m	51016 / 15550
TIME OF CLIMB ALTITUDE UP TO 5000M (AT 11.560RPM AND 680-560 KMH TAS)	m/min	around 2min
MAXIMUM RATE-OF-CLIMB (AT 11.560RPM): AT 1000M ALTITUDE AT 5000M ALTITUDE	m/min // maximum lift- to-drag ratio airspeed, TAS kmh	2790 // 710 2100 // 710
MAXIMUM RANGE (W/O DROP TANK), ALTITUDE 10.000M, 450-470 KMH IAS	nm / km	648 / 1200
MAXIMUM RANGE (WITH DROP TANK 300L), ALTITUDE 10.000M, 460-480 KMH IAS	nm / km	944 / 1749
MAXIMUM RANGE (WITH DROP TANK 600L), ALTITUDE 10.000M, 440-460 KMH IAS	nm / km	1199 / 2220
MAXIMUM ENDURANCE (W/O DROP TANK): ALTITUDE 10.000M, 330-350 KMH IAS ALTITUDE 5.000M, 330-350 KMH IAS	hour.min	2.05 1.45
MAXIMUM MANEUVERING LOAD FACTOR	G	8
ULTIMATE LOAD FACTOR	G	12
END		

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Emergency Procedures

ENGINE FAILURE IN FLIGHT	
1. CONFIRM ENGINE FAILURE INDICATIONS	RPM DECREASE FUEL PRESSURE DECREASE EGT DECREASE AIRSPEED DECREASE
2. REDUCE ALTITUDE	BELOW 11,000m
3. ABOVE 2000m	ATTEMPT ENGINE RE-START LESS THAN 6,000m SPEED 300-320km/h
4. ENGINE AIR START ENGINE AIR START SWITCH (10-15 SECONDS) OPEN SHUT-OFF VALVE NON START (40-45) NON START IF START	PROCEDURE ON (FWD) OPEN (DOWN) THROTTLE ADVANCE (15s) THROTTLE IDLE ATTEMPT AT LOWER ALT THROTTLE IDLE / MONITOR RPM / EGT
5. BELOW 2000m	LAND / EJECT
6. ENGINE SHUT OFF VALVE	CLOSE (UP)
7. THROTTLE CLOSE	IDLE DETENT (AFT)
8. CIRCUIT BREAKERS	ALL OFF EXCEPT RIGHT PANEL BATTERY GENERATOR RADIO IFF TRANSPONDER LEFT PANEL BOOSTER PUMP ACTIVATION PANEL IGNITION PRIMER PUMP ENGINE INSTRUMENTS
9. LAND / EJECT	Желаю удачи!

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FUEL PRESSURE DROP	
1. PRIMING PUMP PRESSURE LIGHT	ON
2. CIRCUIT BREAKER	CHECK
3. PRIMING PUMP	ON LOWER THAN 9,000m OR ENGINE RPM 10,000
4. LOW PRESSURE LIGHT REMAINS	FLY BELOW 9,000m
ENGINE RPM DROP	
1. IF TAKEOFF	ABORT
2. LESS THAN 3,000m	SET THROTTLE TO IDLE SWTICH ON ISOLATING VALVE SMOOTH THROTTLE MOVEMENTS ABORT MISSION
3. ABORT MISSION	дерьмо!
ENGINE STALL	
1. SET THROTTLE TO IDLE UNTIL EGT AND RPM VALUES REACHED	THROTTLE AFT
ENGINE FIRE	
1. FIRE WARNING LIGHT	ON
2. VISABLE SMOKE	CHECK
3. THROTTLE TO IDLE	THROTTLE AFT
4. CLOSE SHUT OFF VALVE AND SWITCH OFF BOOSTER AND TRANSFER PUMPS	CHECK
5. FIRE BUTTON	PRESS
6. AIRSPEED 300-350km/h	REDUCE
7. COCKPIT SMOKE CONTAMINATION	DESCEND TO 7000m DE-PRESSURISE / VENT
8. LAND OR BAIL OUT	Желаю удачи!
OXYGEN FAILURE / DECOMPRESSION	
1. REDUCE ALTITUDE	2,400m MAX
2. ABORT MISSION	дерьмо!
ELECTRICAL CONTROL SURFACES FAILURE	
1. AILERON POWER UNIT	SWTICH OFF
2. AIRSPEED	REDUCE
3. ABORT / LAND	дерьмо!
GENERATOR FAILURE	
1. AMMETER	DISCHARGING
2. REDUCE ELECTRICAL LOAD	LEAVE ON RADIO, COMPASS, HORIZON INDICATOR, ENGINE INSTRUMENTS, PITOT HEAT & LIGHTING
3. ESTIMATED SAFE FLYING TIME (REDUCED POWER LOAD)	DAY 24-26 MINUTES NIGHT 20-23 MINUTES
LANDING GEAR	
1. EMERGENCY EXTENTION HANDLE	PULL

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2. VERIFY GEAR LEGS LOCKED	LIGHT CHECK
3. SET LANDING GEAR LEVEL TO RELEASED	CHECK
4. FAILURE (FORCED LANDING) 100m	BATTERY OFF CANOPY OPEN APPROACH SPEED 260-270km/h ENGINE SHUTDOWN WHEN LANDING ASSURED
END	

