| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|
| | FULL PROCEDURE SUB-STEP | CONDITIONAL SUB-STEP | NON-FUNCTIONAL SUB-STEP |

# FRONT SEAT INTERIOR INSPECTION/RESET CHECKLIST

| | | |
|---|---|---|
| Front Left-side Panel (FLP) | **1. КРАН НАПОЛНЕНИЯ** *VALVE* (Pneumatics Master Valve) | **FULLY CW** |
| | **2. CIRCUIT BREAKER SWITCHBOARD**<br>- УКВ / VHF<br>- СПУ / INTERCOM.<br>- ПАГ-1 / PAG-1F CONV<br>- СИГН. ШАССИ / LAND GEAR *(Undercarriage indicator)*<br>- ПТ-200 / PT-200 CONV.<br>- ПРИБ. ДВИГ. / ENGINE INSTR.<br>- АРК / RADIO COMP.<br>- ГМК / GYRO COMP. | **CHECK**<br>Off / Down<br>Off / Down<br>Off / Down<br>Off / Down<br>Off / Down<br>Off / Down<br>Off / Down<br>Off / Down |
| | **3. ЩИТКИ / FLAPS** *LEVER* | **УБР. / UP** (Forward) |
| | **4. ТРИММЕР В.** *WHEEL* (Elevator trim) | **НЕЙТР. / NEUTRAL** |
| | **5. ШАГ ВИНТА / PROP PITCH** *LEVER* | **FULLY AFT** |
| | **6. НОРМАЛЬНЫЙ ГАЗ / THROTTLE** *LEVER* | **FULLY AFT** |
| | **7. СТОПОРЕНИЕ / FRICTION** *LEVER* | **FULLY AFT** |
| | **8. ПК ЗАКРЫТ / FUEL VALVE** *LEVER* | **OFF / FULLY AFT** |
| Front Dashboard (FD) | **1. КОНТР. ЛАМП / LAMPS CHECK** *BUTTON* | **CHECK** |
| | **2. ПМ-1** *SELECTOR* (Magnetos) | **0** |
| | **3. ЗАПУСК / START UP** *BUTTON* | **COVERED** |
| | **4. ВЫПУЩ. / GEAR DOWN** *LIGHTS* | **OUT** |
| | **5. ШАССИ / GEAR** *LEVER* | **НЕЙТР. / NEUTRAL and LOCKED** |
| | **6. ЩИТКИ / FLAPS** *LIGHTS*<br>- Убр / UP<br>- Вып. / DOWN | **OUT** |
| | **7. УБРАНО / GEAR UP** *LIGHTS* | **OUT** |
| | **8. ВОЗДУХ** *GAUGE* (Compressed air pressure)<br>- Сеть *(Main tank)*<br>- Авар *(Emergency tank)* | **CHECK**<br>50 $kg_F/cm^2$<br>50 $kg_F/cm^2$ |
| | **9. КОНТР. СРЫВА / STALL WARN CHECK** *BUTTON* | **CHECK** |
| | **10. УСКОРЕНИЕ** *GAUGE* (G-meter) | **1 G** |
| | **11. ADVISORY LIGHT PANEL**<br>- СРИВ / STALL<br>- ОПАСНАЯ СКОРОСТЬ / DANGER SPEED<br>- СТРУЖЛА В МАСЛЕ / METAL CHIPS *(FOD in oil warning)*<br>- ОТКАЗ ГЕНЕР / GENER FAULT<br>- ПРЕДЕЛЬН ПЕРЕГР / MAX G<br>- ГМК НЕ ПОЛЬЗ / GYRO WARN *(Do not use gyromagnetic compass warning)*<br>- ОБОГРЕВ ДС / STALL HEAT *(Stall sensor warmup)*<br>- ОБОГРЕВ ПВД / PITOT HEAT *(Pitot heat active)* | **CHECK**<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out |
| | **12. BACKUP COMPASS** | **CHECK** |
| | **13. LANDING GEAR INDICATOR PIN** | **FULLY EXTENDED** |

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

# FRONT SEAT INTERIOR INSPECTION/RESET CHECKLIST

| | | |
|---|---|---|
| Front Dashboard (FD) | **14. ПРИВОДНАЯ** *SWITCH* (Marker beacon *selector*) | **Д / LEFT** (Outer) |
| | **15. ОБОРОТЫ** *GAUGE* (Propeller RPM) | **0 %** |
| | **16. НАД ДУБ** *GAUGE* (Manifold pressure) | **730 mmHg** |
| | **17. СКОРОСТЬ** *GAUGE* (Indicated airspeed) | **0 km/h** |
| | **18. ВЫСОТА** *GAUGE* (Barometric altimeter)<br>- QFE setting | **0 m**<br>Per prevailing conditions |
| | **19. CLOCK** | **CHECK** |
| | **20. ARTIFICIAL HORIZON** | **LEVEL** |
| | **21. GYROMAGNETIC COMPASS** | **CHECK** |
| | **22. MIXTURE TEMPERATURE** *GAUGE* | **-60°C** |
| | **23. RATE-OF-CLIMB, TURN and SLIP INDICATOR** *GAUGE* | **0 m/s and LEVEL** |
| | **24. ENGINE** *GAUGE*<br>- Oil temperature<br>- Gasoline pressure<br>- Oil pressure | **CHECK**<br>0°C<br>0.0 $kg_F/cm^2$<br>0 $kg_F/cm^2$ |
| | **25. CYLINDER HEAD TEMPERATURE** *GAUGE* | **PER OUTSIDE TEMP.** |
| | **26. VOLT/AMPERE-METER** | **0 A** |
| | **27. FUEL INDICATOR** *LIGHTS* | **OUT** |
| | **28. ЗАЛИВКА МОТОРА** *HANDLE* (Priming pump) | **CENTRED** |
| | **29. INTERCOM RECEIVER PANEL**<br>- PE3 switch *(Standby)*<br>- PK switch *(ADF)* | **CHECK**<br>Off / Down<br>Off / Down |
| | **30. VHF RADIO PANEL**<br>- ПШ switch *(Squelch)* | **CHECK**<br>On / Up |
| | **31. AUTOMATIC CIRCUIT BREAKER SWITCHBOARD**<br>- Аккум / BATTERY<br>- Генер. / GENER.<br>- Зажигание / IGNIT.<br>- Обогрев ПВД, часы / PITOT-TUBE CLOCK HEATING | **CHECK**<br>Откл / Off *(Centred)*<br>Откл / Off *(Down)*<br>Откл / Off *(Down)*<br>Откл / Off *(Down)* |
| Front Right-side Panel (FRP) | **1. РАЗЖ МАСЛА** *SWITCH* (Oil dilution tumbler) | **OFF / DOWN** |
| | **2. ОБОГРЕВ ДС** *SWITCH* (Failure sensor warm-up) | **OFF / DOWN** |
| | **3. СРЫВ / STALL** *SWITCH* (Stall sensor activator) | **OFF / DOWN** |
| | **4. ЖАЛЮЗИ / SHUTTERS** *LEVER* (Cooling louvre shutter) | **ЗАКР. / CLOSED** (Fully Aft) |
| | **5. МАСЛОРАДИАТОР / OIL COOLER** *LEVER* | **ЗАКР. / CLOSED** (Fully Aft) |
| | **6. СТОПОРЕНИЕ / FRICTION** *LEVER* | **FULLY AFT** |
| | **7. ПОДОГРЕВ СМЕСИ / CARB HEAT** *LEVER* (Carburettor heating) | **ВКЛ. / ON** (Fully Aft) |
| | **8. АВАРИИНЫИ ВЫПУСК ШАССИ** *VALVE*<br>(Undercarriage emergency release) | **FULLY CW** |

# FRONT SEAT INTERIOR INSPECTION/RESET CHECKLIST

Front Right-side Panel (FRP)

| | |
|---|---|
| **9.** ВЕНТИЛЯЦ.–ОТОПЛЕН. / VENTILATION–HEATING *LEVER* | FULLY FORWARD |
| **10. RADIO COMPASS CONTROL PANEL**<br>- КАНАЛЫ АРК dial *(ARK-15M receiver channel)*<br>- ТЛФ-ТЛГ switch *(Signal filter mode)*<br>- КОМП-АНТ switch *(Compass/antenna receiver)*<br>- УПРАВ. АРК light and button *(ADF power)* | **CHECK**<br>1<br>ТЛГ<br>КОМП<br>Out |
| **11. GYRO COMPASS CONTROL PANEL**<br>- СЕВ-ЮЖН switch *(North/South hemisphere selector)*<br>- КОНТР. switch *(Compass check)*<br>- ШИРОТА dial *(Latitude)*<br>- МК-ГМК switch *(Magnetic/Gyro mode)*<br>- ЗК switch *(Gyro compass course)* | **CHECK**<br>Per current location<br>Centred<br>Per current location<br>МК<br>Centred |

**END**

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|
| | FULL PROCEDURE SUB-STEP | CONDITIONAL SUB-STEP | NON-FUNCTIONAL SUB-STEP |

# REAR SEAT INTERIOR INSPECTION/RESET CHECKLIST

| | | |
|---|---|---|
| Rear Left-side Panel (RLP) | **1. ЩИТКИ / FLAPS** *LEVER* | **УБР. / UP** (Forward) |
| | **2. ТРИММЕР В.** *WHEEL* (Elevator trim) | **НЕЙТР. / NEUTRAL** |
| | **3. РАСТОРМАЖИДАНИЕ / BRAKE OFF** *SWITCH* | **OFF / DOWN** |
| | **4. ШАГ ВИНТА / PROP PITCH** *LEVER* | **FULLY AFT** |
| | **5. НОРМАЛЬНЫЙ ГАЗ / THROTTLE** *LEVER* | **FULLY AFT** |
| | **6. СТОПОРЕНИЕ / FRICTION** *LEVER* | **FULLY AFT** |
| | **7. ПК ЗАКРЫТ / FUEL VALVE** *LEVER* | **OFF / FULLY AFT** |
| Rear Dashboard (RD) | **1. КОНТР. ЛАМП / LAMPS CHECK** *BUTTON* | **CHECK** |
| | **2. ПМ-1** *SELECTOR* (Magnetos) | **1+2** |
| | **3. ЗАПУСК / START UP** *BUTTON* | **COVERED** |
| | **4. ВЫПУЩ. / GEAR DOWN** *LIGHTS* (Landing gear down) | **OUT** |
| | **5. ШАССИ / GEAR** *LEVER* | **НЕЙТР. / NEUTRAL and LOCKED** |
| | **6. ЩИТКИ / FLAPS** *LIGHTS*<br>- Убр / UP<br>- Вып. / DOWN | **OUT** |
| | **7. ЗАЖИГАНИЕ / IGNITION** *SWITCH* | **1 КАБИНА / FIRST CABIN** |
| | **8. УБРАНО / GEAR UP** *LIGHTS* | **OUT** |
| | **9. ВОЗДУХ** *GAUGE* (Compressed air pressure)<br>- Сеть *(Main tank)*<br>- Авар *(Emergency tank)* | **CHECK**<br>50 $kg_F/cm^2$<br>50 $kg_F/cm^2$ |
| | **10. УСКОРЕНИЕ** *GAUGE* (G-meter) | **1 G** |
| | **11. ADVISORY LIGHT PANEL**<br>- ПРЕДЕЛЬН ПЕРЕГР / MAX G<br>- СРИВ / STALL<br>- ОПАСНАЯ СКОРОСТЬ / DANGER SPEED<br>- ОТКАЗ ГЕНЕР / GENER FAULT<br>- ГОРЮЧ 12л ЛЕВ / FUEL 12 LTR *(Left tank 12 litres remaining)*<br>- ГОРЮЧ 12л ПРАВ / FUEL 12 LTR *(Right tank 12 litres remaining)*<br>- АККУМ ВКЛ / BATTERY ON<br>- ГМК НЕ ПОЛЬЗ / GYRO WARN *(Do not use gyromagnetic compass warning)*<br>- СТРУЖЛА В МАСЛЕ / METAL CHIPS *(FOD in oil warning)*<br>- ОБОГРЕВ ПВД / PITOT HEAT *(Pitot heat active)*<br>- ОБОГРЕВ ДС / STALL HEAT *(Stall sensor warmup)* | **CHECK**<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out<br>Out |
| | **12. BACKUP COMPASS** | **CHECK** |
| | **13. ПРИВОДНАЯ** *SWITCH* (Marker beacon *selector*) | **Д / LEFT (OUTER)** |
| | **14. ОБОРОТЫ** *GAUGE* (Propeller RPM) | **0 %** |
| | **15. СКОРОСТЬ** *GAUGE* (Indicated airspeed) | **0 km/h** |
| | **16. ВЫСОТА** *GAUGE* (Barometric altimeter)<br>- QFE setting | **0 m**<br>Per prevailing conditions |

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

# REAR SEAT INTERIOR INSPECTION/RESET CHECKLIST

| | | |
|---|---|---|
| Rear Dashboard (RD) | **17. ARTIFICIAL HORIZON** | **LEVEL** |
| | **18. GYROMAGNETIC COMPASS** | **CHECK** |
| | **19. RATE-OF-CLIMB, TURN and SLIP INDICATOR** *GAUGE* | **0 m/s and LEVEL** |
| | **20. ENGINE** *GAUGE*<br>- Oil temperature<br>- Gasoline pressure<br>- Oil pressure | **CHECK**<br>0°C<br>0.0 $kg_F/cm^2$<br>0 $kg_F/cm^2$ |
| | **21. CLOCK** | **CHECK** |
| | **22. CYLINDER HEAD TEMPERATURE** *GAUGE* | **PER OUTSIDE TEMP.** |
| | **23. INTERCOM RECEIVER PANEL**<br>- PE3 switch *(Standby)*<br>- PK switch *(ADF)* | **CHECK**<br>Off / Down<br>Off / Down |
| | **24. ИМИТАЦИЯ ОТКАЗОВ ПРИБОРОВ / INSTRUMENT FAILURE SIMULATION**<br>- ПИТАН. / ON *(Simulation power)*<br>- УС-450 / AIRSPEED IND.<br>- АГИ-1 / ATTITUDE IND.<br>- ДА-30И, ВД-10 / RATE OF CLIMB SLIP TURN IND. | **CHECK**<br><br>Off / Down<br>Off / Down<br>Off / Down<br>Off / Down |
| Rear Right-side Panel (RRP) | **1. АВАРИИНЫИ ВЫПУСК ШАССИ** *VALVE*<br>(Undercarriage emergency release) | **FULLY CW** |
| | **2. RADIO COMPASS CONTROL PANEL**<br>- КАНАЛЫ АРК dial *(ARK-15M receiver channel)*<br>- ТЛФ-ТЛГ switch *(Signal filter mode)*<br>- КОМП-АНТ switch *(Compass/antenna receiver)*<br>- УПРАВ. АРК light and button *(ADF power)* | **CHECK**<br>1<br>ТЛГ<br>КОМП<br>Out |
| | **END** | |

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

## BEFORE ENGINE START CHECKLIST, REAR CABIN

| | |
|---|---|
| **3. ЗАЖИГАНИЕ / IGNITION** *SWITCH* (RD7) | **1 КАБИНА / FIRST CABIN** |
| **4. ПМ-1** *SELECTOR* (RD2) | **1+2** |
| **5. ШАССИ / GEAR** *LEVER* (RD5) | **НЕЙТР. / NEUTRAL and LOCKED** |
| **6. РАСТОРМАЖИДАНИЕ / BRAKE OFF** *SWITCH* (RLP3) | **OFF / DOWN** |
| **7. ЩИТКИ / FLAPS** *LEVER* (RLP1) | **NEUTRAL / CENTRED** |
| **8. ИМИТАЦИЯ ОТКАЗОВ ПРИБОРОВ / INSTRUMENT FAILURE SIMULATION** *SWITCHES* (RD24) | **ALL OFF / DOWN** |

**END**

## BEFORE ENGINE START CHECKLIST, FRONT CABIN

| | |
|---|---|
| **1. CIRCUIT BREAKER SWITCHBOARD** (FLP2) | **ALL OFF / DOWN** |
| **2. ЩИТКИ / FLAPS** *LEVER* (FLP3) | **NEUTRAL / CENTRED** |
| **3. ПМ-1** *SELECTOR* (FD2) | **0** |
| **4. ШАССИ / GEAR** *LEVER* (FD5) | **DOWN and LOCKED** |
| **5. AUTOMATED CIRCUIT BREAKER SWITCHBOARD** (FLP31) | **ALL OFF** |
| **6. BRAKE LEVER** (Stick) | **PULLED and LOCKED** |
| **7. CANOPY SLIDING ACTION** (Canopy frame) | **CHECK** |
| **8. CONTROL SURFACES** (Stick and rudder) | **CHECK** |
| **9. TRIMMER DEFLECTION** (FLP4) | **CHECK** |
| **10. BACKUP COMPASS** (FD13) | **CHECK** |
| **11. УСКОРЕНИЕ / G-METER** *GAUGE* (FD10) | **RESET** |
| **12. ВЫСОТА / ALTITUDE** *GAUGE* (FD18) | **SET TO 0 m** |
| **13. CLOCK** (FD19) | **CHECK and SET** |
| **14. VHF RADIO** (FD29)<br>- Volume<br>- ПШ | **SET**<br>Maximum<br>Off |
| **15. КРАН НАПОЛНЕНИЯ / PNEUMATICS** *VALVE* (FLP1) | **FULLY CCW** |
| **16. ВОЗДУХ / AIR PRESSURE** *GAUGE* (FD8) | **BOTH AT >50 $kg_F/cm^2$** |
| **17. ENGINE LEVERS ACTION** | **CHECK** |
| **18. FUEL SHUTOFF LEVER ACTION** | **CHECK** |
| **19. COOLING and CARBURETTOR LEVER ACTION** | **CHECK** |
| **20. WHEEL CHOCKS** | **REQUESTED** |

**END**

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP CONDITIONAL SUB-STEP NON-FUNCTIONAL SUB-STEP

# INSTRUMENT OPERATION CHECKLIST

| | | |
|---|---|---|
| Front Cabin | **1. АККУМ / BATTERY** *SWITCH* (FD30)<br>- ОТКАЗ ГЕНЕР / GENER FAULT and ГМК НЕ ПОЛЬЗ / GYRO WARN adivsory lights *(FD11)*<br>- ОКТАЗ ГЕНЕР / GENER FAULT, АККУМ ВКЛ / BATTERY ON and ГМК НЕ ПОЛЬЗ / GYRO WARN *(RD11)*<br>- Fuel lights *(FD26)* | **ON / UP**<br><br>Illuminate<br><br>Illuminate<br>12 +12 illuminate |
| | **2. ARTIFICIAL HORIZON** (FD20)<br>- НАЖАТЬ ПЕРЕД ПУСКОМ / PRESS BEFORE START-UP button | **RESET**<br>Press |
| | **3. ПТ-200 / PT-200** *SWITCH* (FLP2) | **ON / UP** |
| | **4. ГМК / GYRO** *SWITCH* (FLP2) | **ON / UP** |
| | **5. V НАЖАТЬ** *BUTTON* (FD25)<br>- Volt/ampere-meter | **PRESS**<br>No less than 24V |
| | **6. АККУМ** *SWITCH* (FD30) | **АЭР. ПИТ / DOWN** |
| | **7. V НАЖАТЬ** *BUTTON* (FD25)<br>- Volt/ampere-meter | **PRESS**<br>No less than 27V |
| | **8. CIRCUIT BREAKER SWITCHBOARD**<br>- ВЫПУЩ / GEAR DOWN and ЩИТКИ УБР / FLAPS UP lights *(FD/RD4 and 6)*<br>- Fuel lights *(FD26)* | **ALL ON / UP**<br>Illuminate<br>Illuminate per volume carried |
| | **9. КОНТР. ЛАМП / LAMPS CHECK** *BUTTON* (FD1)<br>- УБРАНО / GEAR UP *(FD7)* and ЩИТКИ ВЫП / FLAPS DOWN. lights *(FD6)*<br>- СРИВ / STALL, ОПАСНАЯ СКОРОСТЬ / DANGER SPEED, СТРУЖКА В МАСЛЕ / METAL CHIP, ПРЕДЕЛЬН ПЕРЕГР / MAX G, ОБОГРЕВ ДС / STALL HEAT, and ОБОГРЕВ ПВД / PITOT HEAT lights *(FD11)* | **PRESS**<br>Illuminate<br><br><br>Illuminate |
| Rear Cabin | **10. КОНТР. ЛАМП / LAMPS CHECK** *BUTTON* (RD1)<br>- УБРАНО / GEAR UP *(RD8)* and ЩИТКИ ВЫП / FLAPS DOWN. lights *(RD6)*<br>- ПРЕДЕЛЬН ПЕРЕГР / MAX G, СРИВ / STALL, ОПАСНАЯ СКОРОСТЬ / DANGER SPEED, ГОРЮЧ 12л ЛЕВ / FUEL 12 LTR, ГОРЮЧ 12л ПРАВ / FUEL 12 LTR, СТРУЖЛА В МАСЛЕ / METAL CHIPS, ОБОГРЕВ ПВД / PITOT HEAT, ОБОГРЕВ ДС / STALL HEAT lights *(RD11)* | **PRESS**<br>Illuminate<br><br><br>Illuminate |
| Front Cabin | **11. FUEL INDICATOR** (FD26)<br>- Amount indicated<br>- K button<br>- Amount indicated | **CHECK**<br>Verify against volume carried<br>Press and hold<br>25 + 25 litres |
| | **12. CIRCUIT BREAKER SWITCHBOARD**<br>- ВЫПУЩ / GEAR DOWN and ЩИТКИ УБР / FLAPS UP lights *(FD/RD4 and 6)*<br>- Fuel lights *(FD26)* | **ALL OFF / DOWN**<br>Out<br>12 + 12 illuminate |
| | **13. АККУМ** *SWITCH* (FD30)<br>- All lights | **OFF / CENTRED**<br>Out |

**END**

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP — CONDITIONAL SUB-STEP — NON-FUNCTIONAL SUB-STEP

# ENGINE START CHECKLIST

| | | |
|---|---|---|
| Front Left Panel | **1. НОРМАЛЬНЫЙ ГАЗ / THROTTLE** (FLP6) | **1/3 FULL** |
| | **2. ШАГ ВИНТА / PROP PITCH** (FLP5) | **МЕНЬШЕ / FINE PITCH**<br>(Fully forward) |
| | **3. ПК ЗАКРЫТ / FUEL VALVE** (FPL8) | **FULLY FORWARD** |
| Front Dash | **4. ПМ-1** *SELECTOR* (FD2) | **CHECK 0** |
| | **5. AUTOMATED CIRCUIT BREAKER SWITCHBOARD** (FD31) | **ALL OFF** |
| FRP | **6. ПОДОГРЕВ СМЕСИ / CARB HEAT** *LEVER* (FRP7) | **ВКЛ. / ON** (Aft)<br>If air temperature <0°C |

**NOTE**

Establish the current outside air temperature by looking at the CYLINDER HEAD TEMPERATURE GAUGE (FD25) and note the number of lines on the gauge between the current indicated temperature and the gauge's 10-reading. This number offers a good approximation of how many pumps are needed to prime the engine given the current outside temperature.

| | | |
|---|---|---|
| Front Dashboard | **7. ENGINE FUEL**<br>- Ground crew<br>- ЗАЛИВКА МОТОРА handle *(FD28)*<br>- ЗАЛИВКА МОТОРА handle *(FD28)* | **PRIMED**<br>Request propeller crank<br>В ЦИЛИНДР *(Right)*<br>Pump per the number noted |

**⚠ WARNING**

Propeller cranking is necessary when the engine is running cold, but forbidden when running hot.
Refrain from injecting more fuel than the specified amount, as this can lead to hydraulic shock.

| | | |
|---|---|---|
| FLP | **8. UNDERCARRIAGE and ENGINE INSTRUMENTS**<br>- СИГН. ШАССИ / LAND GEAR circuit breaker *(FLP2)*<br>- ПРИБ. ДВИГ. / ENGINE INSTR. circuit breaker *(FLP2)* | **ON**<br>Up<br>Up |
| Front Dashboard | **9. AUTOMATED CIRCUIT BREAKER SWITCHBOARD** (FD31) | **ALL ON / UP** |
| | **10. FUEL PIPELINE**<br>- ЗАЛИВКА МОТОРА handle *(FD28)*<br>- Gasoline Pressure *(FD24)* | **FILLED**<br>В МАГИСТРАЛЬ *(Left)*<br>Pump to 0.2–0.5 $kg_F/cm^2$ |
| | **11. ЗАПУСК / START UP** *BUTTON* (FD3) | **UNCOVER**<br>**PRESS and HOLD**<br>for 3-5 seconds |
| | **12. ПМ-1** *SELECTOR* (FD2) | **1+2**<br>after 3-5 rotations |

**NOTE**

The Запуск / Start Up button should be held as the magneto selector is turned over until engine start is confirmed.
In practical terms for the simulation, the button can be pressed first to ensure propeller rotation; the selector can be rotated to the 1+2 position without the propeller turning; and the starter button can then be held until engine ignites and the propeller catches.

| | |
|---|---|
| **13. НОРМАЛЬНЫЙ ГАЗ / THROTTLE** (FLP6) | **SET 38–41 % RPM** |
| **14. OIL PRESSURE** (FD24) | **>1 $kg_F/cm^2$** |

**⊘ CAUTION**

Oil pressure should momentarily rise above 10 $kg_F/cm^2$ and then come down and settle at 4–6 $kg_F/cm^2$.
If it fails to reach 1 $kg_F/cm^2$ within 15–20 seconds after start, immediately shut down the engine and determine the cause.

| | |
|---|---|
| **15. ЗАЛИВКА МОТОРА** *HANDLE* (FD28) | **CENTRED** |

**END**

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

# ENGINE WARM-UP CHECKLIST

**NOTE**
It is recommended to warm up the engine after EVERY cold start, especially during the colder seasons.

| | |
|---|---|
| **1. CONTROL STICK and RUDDER** | **CENTRED** |
| **2. BRAKE LEVER** | **PULLED and LOCKED** |
| **3. ЖАЛЮЗИ / SHUTTERS** *LEVER* (FRP4) | **ЗАКР. / CLOSED** (Fully Aft) |
| **4. МАСЛОРАДИАТОР / OIL COOLER** *LEVER* (FRP5) | **ЗАКР. / CLOSED** (Fully Aft) |
| **5. НОРМАЛЬНЫЙ ГАЗ / THROTTLE** (FLP6) | **SET 41–44 % RPM** |
| **6. OIL INLET TEMPERATURE** *GAUGE* (FD24) | **MONITOR** |
| **7. CYLINDER HEAD TEMPERATURE** *GAUGE* (FD25) | **MONITOR** |

**NOTE**
Warm the engine at a low RPM until the oil temperature starts to rise.
Keeping the cooling levers in the closed position will speed up the process..

| | |
|---|---|
| **8. НОРМАЛЬНЫЙ ГАЗ / THROTTLE** (FLP6)<br>- In the summer.<br>- In the winter. | **SET WARM-UP RPM**<br>44–48 %<br>48–51 % |
| **9. OIL INLET TEMPERATURE** *GAUGE* (FD24) | **REACH >40°C** |
| **10. CYLINDER HEAD TEMPERATURE** *GAUGE* (FD25) | **REACH >120°C** |

**⊘ CAUTION**
Open cooling levers as needed when the desired engine temperatures are reached so as to not overheat and damage the engine.

**END**

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP — CONDITIONAL SUB-STEP — NON-FUNCTIONAL SUB-STEP

# SYSTEMS ACTIVATION CHECKLIST

| | | |
|---|---|---|
| AGI-1 | **1. ГМК / GYRO COMP. CB** (FLP2) | **ON / UP** |
| | Monitor the readings of the Artificial Horizon gauge (FD20).<br>After about 1 minute after activation, the HSI should show the position of the aircraft relative to the horizon. | |
| Radio | **1. УКВ / VHF CB** (FLP2) | **ON / UP** |
| | **2. СПУ / INTERCOM. CB** (FLP2) | **ON / UP** |
| | The radio is ready for operation 2 minutes after switching on. | |
| | **3. VHF RADIO** | **TUNE and CHECK** |
| | Double-check the list of required communication channels on the radio station control panel by establishing a connection with the ground radio station, or, in the absence of the ground station, by using the radio's interior noise and sidetone during transmission operations. | |
| ARK-15M ADF | **1. ПТ-200 / PT-200 CONV. CB** (FLP2) | **ON / UP** |
| | **2. АРК / RADIO COMP. CB** (FLP2) | **ON / UP** |
| | **3. УПРАВ. АРК** *BUTTON* (FRP10)<br>- УПРАВ. АРК light *(FRP10)* | **PRESS**<br>Illuminates |
| | **4. ТЛФ-ТЛГ** *SWITCH* (FRP10) | **ТЛФ / UP** |
| | TLF mode should produce a noise through the telephone speaker, and small fluctuations in the Gyromagnetic Compass (FD21) indicator arrow.<br>Full operation of the radio compass should begin 1–2 minutes after its activation | |
| | **5. ПРИВОДНАЯ** *SWITCH* (FD14) | **Д / LEFT** (Outer) |
| | **6. КАНАЛЫ АРК** *KNOB* (FRP10) | **AS REQUIRED** |
| | **7. КОМП-АНТ** *SWITCH* (FRP10) | **АНТ / DOWN** |
| | The callsign of the long-distance radio station should be heard in the phones. The signal level should change on turning the volume regulator. | |
| | **8. ТЛФ-ТЛГ** *SWITCH* (FRP10) | **ТЛГ / DOWN** |
| | **9. КОМП-АНТ** *SWITCH* (FRP10) | **КОМП / UP** |
| | The pointer bar must point to the long-distance radio station with an accuracy of ±5° | |
| | **10. ПРИВОДНАЯ** *SWITCH* (FD14) | **Б / RIGHT** (Inner) |
| | **11. РАМКА** *BUTTON* (FRP10) | **PRESS** |
| | Pressing the "Frame" button should move the Gyromagnetic Compass (FD21) indicator arrow to 160°. When the button is released, the indicator arrow should return to its previous position at a speed of at least 30°/s. | |
| | **12. РК** *SWITCH* (FD29) | **OFF / DOWN** |
| Heating | **NOTE**<br>In sub-zero temperatures, ensure that system heating switches are on before taxiing. | |
| | **1. ОБОГРЕВ ДС** *SWITCH* (FRP2)<br>- ОБОГРЕВ ДС / STALL HEAT light *(FD11)* | **ON / UP**<br>Illuminates |
| | **2. ОБОГРЕВ ПВД, ЧАСЫ / PITOT-TUBE CLOCK HEATING** (FD31)<br>- ОБОГРЕВ ПВД / PITOT HEAT light *(FD11)* | **ON / UP**<br>Illuminates |
| | **3. СРЫВ / STALL** *SWITCH* (FRP2) | **ON / UP** |
| | **4. ЖАЛЮЗИ / SHUTTERS** *LEVER* (FRP4) | **AS DESIRED** |
| | **5. МАСЛОРАДИАТОР / OIL COOLER** *LEVER* (FRP5) | **AS DESIRED** |
| | **6. ПОДОГРЕВ СМЕСИ / CARB HEAT** *LEVER* (FRP7) | **AS DESIRED** |

**END**

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP | CONDITIONAL SUB-STEP | NON-FUNCTIONAL SUB-STEP

# TAXIING CHECKLIST

| | |
|---|---|
| **1. LEFT REAR**<br>Are there any obstacles at the tail of the aircraft? | **CHECK** |
| **2. LEFT**<br>Are there any other aircraft in the process of taxiing? | **CHECK** |
| **3. LEFT AHEAD**<br>Are there any obstacles and/or personnel in front of the aircraft? | **CHECK** |
| **4. REPEAT FOR RIGHT SIDE** | **CHECK** |
| **5. PERMISSION TO TAXI** | **REQUESTED** |
| **6. THROTTLE** | **TO MINIMUM** |
| **7. WHEEL CHOCKS** | **REQUEST REMOVED** |
| **8. BRAKE** *LEVER* | **PULL TO UNLOCK, THEN RELEASE** |
| **9. THROTTLE** | **INCREASE**<br>Until aircraft starts moving |

**⦸ CAUTION**
Your taxiing speed should not exceed the pace of a fast-moving person.

While taxiing, keep the control stick fixed to neutral and use the brakes smoothly, pressing the brake control lever with short impulses when the rudder pedals are at neutral. When taxiing, the aircraft has a slight tendency to turn right, which is easily controlled by depressing the left pedal and applying brake pressure. In the case of a strong lateral wind (8–10 m/s), during taxiing, the control stick should be pushed down: this puts a greater load on the front wheel, causing the aircraft to steer more steadily.

When performing long taxiing at low engine speeds, watch the onboard electrical consumers (ADF, compass, HSI). When the taxi is expected to be short, the engine RPM must ensure normal operation of the generator.

**END**

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP — CONDITIONAL SUB-STEP — NON-FUNCTIONAL SUB-STEP

# TAKE-OFF CHECKLIST

## Line-up

Taxi to the pre-start line, mark a takeoff reference point, look at the left and right sides (check if other aircraft are also taxiing to the pre-start line).

Having routed to the runway, taxi on along the runway about 10–15 m in order to align the front wheel to the takeoff line. Then reduce the engine speed to minimum and bring the aircraft to a complete stop.

Switch on the GDI on the compass control panel and set the takeoff course according to the UGR-4UK indicator.

| | |
|---|---|
| 1. **BRAKE** *LEVER* | **HOLD** |
| 2. **MAGNETIC COMPASS** | **CROSS-REFERENCE**<br>Against UGR-4UK |
| 3. **ARTIFICIAL HORIZON** | **CHECK LEVEL** |
| 4. **PROPELLER PITCH** | **MOVE BACK and FORTH**<br>Check ease of movement and warm up propeller cylinders |
| 5. **ELEVATOR TRIM** | **NEUTRAL** |
| 6. **FLAPS** | **UP** |
| 7. **ENGINE INSTRUMENT READINGS**<br>- Cylinder head temperature<br>- Oil pressure<br>- Oil temperature<br>- Gasoline pressure | **CHECK**<br>120–220°C<br>4–6 $kg_F/cm^2$<br>40–75°C<br>0.2–0.5 $kg_F/cm^2$ |

**⚠ WARNING**
If the instrument readings exceed the specified limits, takeoff is strictly prohibited.

## Roll-out

| | |
|---|---|
| 1. **RUNWAY** | **CHECK CLEAR** |
| 2. **TAKE OFF CLEARANCE** | **REQUESTED** |
| 3. **FLIGHT TIME CLOCK** (FD19) | **START** |
| 4. **PROPELLER PITCH** *LEVER* | **FINE / FULLY FORWARD** |
| 5. **THROTTLE** *LEVER* | **FULLY FORWARD** |
| 6. **BRAKE** *LEVER* | **RELEASE** |
| 7. **CONTROL STICK** | **NEUTRAL** |
| 8. **RUDDER PEDALS** | **LEFT**<br>To counter yaw |

## Take-off

| | |
|---|---|
| 1. **INDICATED AIR SPEED** | **MONITOR** |
| 2. **ROTATION SPEED** | **90 km/h** |

After reaching a speed of 90 km/h, smoothly pull up on the stick, raising the front wheel to the takeoff position.

| | |
|---|---|
| 3. **LIFT-OFF SPEED** | **120 km/h** |

On liftoff, shift your view to the ground left of the aircraft's longitudinal axis by 25–30° and forward by 25–30m, monitoring the aircraft's altitude and direction. Take care not to lose direction, and avoid banking the aircraft

| | |
|---|---|
| 4. **CLIMB SPEED** | **160 km/h** |

Hold the aircraft above ground up until reaching 160 km/h. Upon reaching 160 km/h, smoothly transfer the aircraft into a climb.

**END**

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

# AFTER TAKE-OFF CHECKLIST

On liftoff, shift your view to the ground left of the aircraft's longitudinal axis by 25–30° and forward by 25–30m, monitoring the aircraft's altitude and direction. Take care not to lose direction, and avoid banking the aircraft

Hold the aircraft above ground up until reaching 160 km/h. Upon reaching 160 km/h, smoothly transfer the aircraft into a climb.

| | |
|---|---|
| **1. ALTITUDE and RATE OF CLIMB** | **MONITOR** |
| **2. LANDING GEAR** *LEVER* | **UP, THEN NEUTRAL and LOCKED** |

**⊘ CAUTION**
Retract the undercarriage at an altitude of no less than 20m.
Watch the undercarriage status when retracting using the dashboard warning lights and mechanical indicators.

| | |
|---|---|
| **3. THROTTLE** *LEVER* | **-25–30 mmHg**<br>Manifold pressure reduction |
| **4. PROPELLER PITCH** *LEVER* | **82 % RPM** |

**NOTE**
When climbing at a speed of 170 km/h, the horizon should pass around the base of the front cockpit windshield. Watch your speed!

| | |
|---|---|
| **5. ELEVATOR TRIM** | **SET** |
| **6. ENGINE INSTRUMENT READINGS**<br>- Cylinder head temperature<br>- Oil pressure<br>- Oil temperature<br>- Gasoline pressure | **CHECK**<br>140–190°C<br>4–6 $kg_F/cm^2$<br>50–65°C<br>0.2–0.5 $kg_F/cm^2$ |
| **7. INDICATED AIR SPEED** | **MAINTAIN 170 km/h**<br>While climbing |
| **8. AHEAD LEFT**<br>Determine whether there are aircraft in the surrounding airspace and whether they risk interfering with the with your flight plan, whether your current heading is safe; quickly identify the location of potential landing areas in case of forced landing. | **CHECK** |
| **9. HARD LEFT, DOWN and UP**<br>Check to see if there are other aircraft nearby. | **CHECK** |
| **10. REPEAT FOR RIGHT SIDE** | **CHECK** |
| **11. ENGINE CRUISE PARAMETERS** | **SET** |

| Mode | Engine RPM % | Pressurization: Manifold mmHG | Pressurization: Fuel $kg_F/cm^2$ | Pressurization: Oil $kg_F/cm^2$ | Temperature (°C): Cylinder heads | Temperature (°C): Air at carb. inlet | Temperature (°C): Oil at engine inlet | Specific fuel consumption g /Hp × hr |
|---|---|---|---|---|---|---|---|---|
| Takeoff | 99±1 | +125±15 | 0.2–0.5 | 4–6 | 120–220 | +10–+45 | 40–75 | 285–315 |
| 1. Continuous maximum | 82±1 | +95±15 | | | | | | 280–310 |
| 2. Continuous maximum | 70±1 | +75±15 | | | | | | 265–300 |
| 1. Cruising | 64±1 | +735±15 | | | | | | 215–235 |
| 2. Cruising | 59±1 | +670±15 | | | | | | 210–230 |
| Idle | <26 | QFE | >0.15 | >1.0 | — | OAT | — | — |

**END**

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP CONDITIONAL SUB-STEP NON-FUNCTIONAL SUB-STEP

# APPROACH CHECKLIST

## Crosswind Leg

| | |
|---|---|
| **1. ALTITUDE** | **130–150 m** |
| **2. AHEAD LEFT**<br>Are there any aircraft preventing your turn? Choose an emergency landing site. | **CHECK** |
| **3. REAR LEFT, HARD LEFT, AHEAD LEFT** | **CHECK** |

Cross-reference the position of the nose relative to the horizon, your current direction, and roll angle. Do the same for the right side. After your look-around, make a mental mark on a point at an angle of 90° relative to your direction of flight for the crosswind rollout turn.

| | |
|---|---|
| **4. INDICATED AIRSPEED** | **170 km/h** |
| **5. TURN**<br>- Nose<br>- Angle of roll and pitch<br>- Speed<br>- Slip indicator | **AT 30° BANK**<br>Maintain on horizon<br>Monitor<br>Maintain 170 km/h<br>Keep ball centred |

Exit from the turn starts at 20 - 25 ° to the previously noted landmark at a speed of 170 km/h. To maintain speed when pulling out of the turn, slightly push on the throttle.

Set nose position relative to horizon as in during a climb. Check the speed, which should still be 170 km/h, and look around. Once more identify landing spots in case of an emergency landing.

## Downwind Leg

| | |
|---|---|
| **1. DOWNWIND LEG**<br>- Final Heading | **TURN**<br>Perpendicular to selected RWY |

This turn begins at the moment when the angle between the longitudinal axis of the aircraft and the line of sight to the air-tee is 45°.

| | |
|---|---|
| **2. CLIMB**<br>- Maintain speed in climb | **TO 300 m**<br>170 km/h |
| **3. LEVEL OUT**<br>- Level flight speed<br>- Manifold pressure<br>- RPM | **AT 300 m**<br>180 km/h<br>470–490 mmHg<br>70% |

## Base Leg

| | |
|---|---|
| **1. BASE LEG**<br>- Final Heading | **TURN**<br>Reciprocal to selected RWY |

The exit from the downwind leg turn and transition flight to the base leg turn must be parallel to the line of landing marks.

| | |
|---|---|
| **2. LEVEL FLIGHT**<br>- Airspeed<br>- Manifold pressure<br>- RPM | **AT 300 m**<br>180 km/h<br>470–490 mmHg<br>70% |

When transitioning between these two turns, control the width of the route and the parallelism of the flight path with respect to the landing marks. If the route is correctly constructed, the wing panel must pass along the line of the landing signs without obscuring them.

When examining the air space, remember that the nose should never obscure any aircraft flying ahead of you. It should always be in the field of view of the pilot: in a left-turn circuit, keep it on the left, and vice versa.

| | |
|---|---|
| **3. LANDING GEAR**<br>- Airspeed<br>- Manifold pressure | **DOWN and LOCKED**<br>180 km/h<br>Increase to maintain speed |
| **4. TRIM** | **NEUTRAL** |
| **5. PERMISSION TO LAND** | **REQUESTED** |

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP — CONDITIONAL SUB-STEP — NON-FUNCTIONAL SUB-STEP

# APPROACH CHECKLIST

## Base Leg Turn

The third turn phase begins when the angle between the longitudinal axis of the aircraft and the line of sight to the air-tee is 45°. After exiting the turn, the longitudinal axis of the aircraft should be directed at an angle of 70–80° to the line of landing marks.

After exiting the third turn and while keeping the speed at 180 km/h, observe the surrounding airspace and account for all aircraft flying directly ahead, and do not lose sight of them until they land and clear the tarmac. Also be sure to watch the temperature of the engine. As you approach the landing signs, determine the moment of transition to your landing glide.

| | |
|---|---|
| **1. PROPELLER PITCH** | **FINE / FULLY FORWARD** |
| **2. THROTTLE**<br>When the landing signs project at an angle of 30–35°<br>- Airspeed | **DECREASE**<br><br>170 km/h |

From the moment of transition to gliding to the beginning of your turn to final, your loss in altitude should be in between 50–100 m with a rate of descent within 4–5 m / s. Maintain this stable speed and glide angle.

## Turn to Final

The turn to final begins when the distance from the leading edge of the wing to the line of landing marks is approximately 0.5 m, and the angle between the line of landing marks and the pilot's line of sight is 15–18°. The altitude of entry is 200–250 m.

| | |
|---|---|
| **1. FINAL**<br>- Entry altitude<br>- Airspeed<br>- Roll angle<br>- Exit altitude | **TURN**<br>200–250 m<br>170 km/h<br>30°<br>>150 m |
| **2. FINAL GLIDE PREPARATIONS**<br>- Airspeed<br>- Cylinder temperature<br>- Heading<br>- Landing gear<br>- Runway<br>- Other airplanes | **CHECK**<br>Maintain 160 km/h<br>Maintain >150°C<br>Confirm per selected RWY<br>Confirm down and locked<br>Confirm clear of obstructions<br>Confirm no interference |
| **3. LANDING FLAPS** | **DEPLOYED** |

**⃠ CAUTION**

Deploying flaps will induce a natural upwards pitch along with increased drag, which in combination can generate stall conditions. Quickly but smoothly apply forward stick along with increased throttle to maintain pitch, speed, and glide path.

| | |
|---|---|
| **4. THROTTLE** | **INCREASE**<br>To counteract increased drag |
| **5. AIRSPEED** | **MAINTAIN 160 km/h** |
| **6. TRIM** | **NOSE DOWN**<br>To relieve stick pressure |

**⚠ WARNING**

If, during gliding, the "hazardous speed" or "stall" warning lights activate, with the accompanying audio warnings in your headset, immediately check your glide speed" if it is less than 160 km/h at an altitude of less than 50 m, decrease the aircraft's angle of attack by pushing down on the stick, increase engine speed, and set the required speed.

**END**

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP | CONDITIONAL SUB-STEP | NON-FUNCTIONAL SUB-STEP

# LANDING CHECKLIST

Pre-landing

**NOTE**

If the aircraft is installed with a ski undercarriage, the pilot must press the brake handle 3–5 times during the glide phase (at an altitude of no less than 50 m) directly before landing.

Calculate your approach. With the correct calculation and a headwind of 4–5 m / s, the landing "T" should be projected in the middle of the windshield on the left side, and your glide path should be directed to the alignment point (100–120 m to the landing T).

**NOTE**

The sideslip method is used to correct the aircraft heading during landing. Before entry, first turn the nose of the aircraft 10–15° from the glide course to the side opposite of the slip and create a roll in the direction of the slip (but not more than 30°). The airspeed should be 160 km/h and exit should be made at an altitude of not less than 50 m. At this altitude, the aircraft must again be in the glide. After ending the slip, immediately eliminate the drift with a short roll (5–10°) in the direction opposite to the slip. On slip, the aircraft acquires descent inertia, and exiting the slip at an altitude of less than 50 m can lead to the aircraft making contact with the ground surface before even reaching the landing strip.

**⚠ WARNING**

If the pilot is unable to make the necessary corrections before hitting 50 m altitude, a go-around is necessary.

The go-around/waving off procedure ideally should be performed at an altitude no lower than 50 m.

If the need arises, the pilot can wave off from any altitude. Gradually increase the engine RPM to full, and gently push the stick down to combat the aircraft's tendency to nose up. When the speed reaches 160 km/h, go into a climb. Retract the undercarriage, then the flaps, at an altitude of 70–80 m. Increase the speed to 170 km/h. Note that with an increase in engine speed, the airplane will turn to the right. Combat this with left rudder.

**NOTE**

The pre-landing checklist should be completed before reaching 30m.

| | |
|---|---|
| **1. LANDING CALCULATION CORRECTNESS** | **CHECK** |
| **2. AIRSPEED** | **160 km/h** |
| **3. ROLL ANGLE** | **0°** |
| **4. ACCURATE APPROACH TO LANDING T** | **CHECK** |
| **5. ABSENCE OF RUNWAY OBSTACLES** | **CHECK** |
| **6. ABSENCE OF AIRCRAFT IN THE FLIGHT PATH** | **CHECK** |

Landing and Roll-out

| | |
|---|---|
| **1. FLARE OUT**<br>- Observe ground<br>- Control stick<br>- Rate of descent<br>- Throttle<br>- Final altitude<br>- Final throttle | **AT 30 m**<br>20–25° left; 25–30m ahead<br>Pull back at 5–6 m<br>Reduce to 0 m/s<br>Reduce during flare<br>0.75–1 m<br>Fully back |
| **2. FLARE UP**<br>- Final altitude<br>- Control stick | **PERFORM IF NEEDED**<br>Determine if too high<br>Pull slightly back to bleed speed |

As the airplane descends to the ground from an altitude of 0.75–1 m, maneuver the aircraft into the landing position with smooth and proportionate movements of the stick, in such a way that touchdown occurs at an altitude of 0.15–0.25 m, without roll, on the two main undercarriage wheels. The landing speed with flaps released should be 115–120 km/h.

After landing, when the aircraft lowers the nose wheel and begins to roll steadily, you can begin applying brake pressure. Maintain the roll heading using the markers on the tarmac.

**END**

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP | CONDITIONAL SUB-STEP | NON-FUNCTIONAL SUB-STEP

## RUNWAY VACATED CHECKLIST

| | |
|---|---|
| 1. **ЩИТКИ / FLAPS** *LEVER* (FLP3) | **УБР. / UP** (Forward) |
| 2. **FLIGHT TIME CLOCK** (FD19) | **STOP** |
| 3. **ОБОГРЕВ ПВД, ЧАСЫ / PITOT-TUBE CLOCK HEATING** (FD31) | **ОТКЛ / OFF** (Down) |
| 4. **ОБОГРЕВ ДС** *SWITCH* (FRP2) | **OFF / DOWN** |
| 5. **СРЫВ / STALL** *SWITCH* (FRP2) | **OFF / DOWN** |
| 6. **ПТ-200 / PT-200 CONV. CB** (FLP2) | **OFF / DOWN** |
| 7. **АРК / RADIO COMP. CB** (FLP2) | **OFF / DOWN** |
| 8. **УПРАВ. АРК** *BUTTON* (FRP10)<br>- УПРАВ. АРК light *(FRP10)* | **PRESS**<br>Out |

**⦸ CAUTION**
Your taxiing speed should not exceed the pace of a fast-moving person.

**END**

## ENGINE SHUT-DOWN CHECKLIST

| | |
|---|---|
| 1. **WHEEL CHOCKS** | **REQUESTED** |
| 2. **УКВ / VHF CB** (FLP2) | **OFF / DOWN** |
| 3. **СПУ / INTERCOM. CB** (FLP2) | **OFF / DOWN** |
| 4. **ГМК / GYRO COMP. CB** (FLP2) | **OFF / DOWN** |

**NOTE**
Let the engine cool before shutting down if it is running hot from the landing and taxiing.

| | |
|---|---|
| 5. **ЖАЛЮЗИ / SHUTTERS** *LEVER* (FRP4) | **FULLY FORWARD** |
| 6. **МАСЛОРАДИАТОР / OIL COOLER** *LEVER* (FRP5) | **FULLY FORWARD** |
| 7. **ПОДОГРЕВ СМЕСИ / CARB HEAT** *LEVER* (FRP7) | **FULLY FORWARD** |
| 8. **THROTTLE UP** | **65–68% RPM**<br>For 20–30 seconds |
| 9. **THROTTLE DOWN** | **28–34% RPM** |
| 10. **ПМ-1** *SELECTOR* (FD2) | **0** |
| 11. **НОРМАЛЬНЫЙ ГАЗ / THROTTLE** *LEVER* (FLP6) | **FULLY FORWARD** |
| 12. **НОРМАЛЬНЫЙ ГАЗ / THROTTLE** *LEVER* (FLP6) | **FULLY BACK**<br>When engine stopped |
| 13. **ШАГ ВИНТА / PROP PITCH** *LEVER* (FLP5) | **FULLY BACK** |
| 14. **ПК ЗАКРЫТ / FUEL VALVE** *LEVER* (FLP8) | **FULLY BACK** |
| 15. **ALL REMAINING CIRCUIT BRAKERS and SWITCHES** | **OFF** |

**END**

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|
| | FULL PROCEDURE SUB-STEP | CONDITIONAL SUB-STEP | NON-FUNCTIONAL SUB-STEP |

# ENGINE FAILURE CHECKLIST

## Engine Failure During Takeoff

**NOTE:**
If the engine fails during takeoff, perform the following during the climb to the first turn:

| | |
|---|---|
| **1. MANOEUVRE AIRCRAFT** | **TO GLIDE** |
| **2. LANDING GEAR** | **RETRACT** |
| **3. FUEL VALVE** | **CLOSE / FULLY BACK** |
| **4. MAGNETOS** | **0** |
| **5. BATTERY and IGNITION** | **OFF** |

Continue moving directly ahead and land without changing course. If such a course of action threatens the life of the pilot (i.e. due to obstacles preventing a safe landing), the pilot must then change their landing direction.

## Engine Failure in Inverted Flight

**NOTE:**
If the engine fails during inverted flight, perform the following:

| | |
|---|---|
| **1. ROLL** | **180° TO LEVEL FLIGHT** |
| **2. GLIDE SPEED** | **170–180 km/h** |
| **3. THROTTLE** | **⅓ OF FULL RANGE** |
| **4. PROPELLER PITCH** | **FINE** |
| **5. FUEL PIPELINE**<br>- ЗАЛИВКА МОТОРА handle *(FD28)*<br>- Gasoline Pressure *(FD24)* | **FILL MANUALLY**<br>В МАГИСТРАЛЬ *(Left)*<br>Pump to 0.2–0.5 $kg_F/cm^2$ |

**NOTE**
To facilitate engine startup, it is recommended to inject fuel into the engine cylinders.

| | |
|---|---|
| **6. THROTTLE** | **FULLY FORWARD**<br>Once engine restarted |
| **7. THROTTLE and PROPELLER PITCH** | **RESET FOR NORMAL FLIGHT** |

**⚠ WARNING**
A loss in altitude of 300–350 m will occur during the above procedure (from engine failure up until engine restart.)

## Drop in Fuel Pressure

**NOTE:**
The following may be signs of a drop in the aircraft's fuel pressure.
• Disruptions in the engine operation, accompanied by a drop in the engine's crankshaft speed, a drop in boost, and engine shaking.
• The fuel pressure shown on the instruments drops below the permissible value.
If a drop in the aircraft's fuel pressure occurs, the pilot must perform the following:

| | |
|---|---|
| **1. FUEL PIPELINE**<br>- ЗАЛИВКА МОТОРА handle *(FD28)*<br>- Gasoline Pressure *(FD24)*<br>- Handle position | **FILL MANUALLY**<br>В МАГИСТРАЛЬ *(Left)*<br>Pump to 0.2–0.5 $kg_F/cm^2$<br>Retain until landed |
| **2. FUEL PRESSURE** | **MONITOR** |
| **3. FLIGHT** | **ABORT and LAND** |

During the remainder of the flight, monitor fuel pressure and use the manual handle to compensate for any observed shortfall.

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|
| | FULL PROCEDURE SUB-STEP | CONDITIONAL SUB-STEP | NON-FUNCTIONAL SUB-STEP |

# ENGINE FAILURE CHECKLIST

## Engine Shaking

**NOTE:**
If engine shaking occurs, the pilot must perform the following:

| | |
|---|---|
| **1. THROTTLE** | **FULLY BACK** |
| **2. CONTROL STICK** | **PULL BACK**<br>To establish a level glide |
| If steps 1–2 eliminate the shaking: | |
| **3. THROTTLE** | **GENTLY FORWARD**<br>To re-establish flight parameters |
| If steps 1–2 fail to eliminate the shaking: | |
| **4. INCREASE THROTTLE** | **SET 70% RPM** |
| **5. ENGINE START** *BUTTON* | **PRESS** |
| If steps 4–5 still fail to eliminate the shaking: | |
| **6. THROTTLE and PROPELLER PITCH** | **SET TO MINIMISE SHAKING** |
| **7. FLIGHT** | **ABORT and LAND** |

## Propeller Overspeed

**NOTE:**
Signs of propeller overspeeding:
- Mild engine shaking.
- Increase in engine crankshaft speed.
- A sharp change in the sound of the operational engine.

| | |
|---|---|
| If propeller overspeed occurs during takeoff roll, perform the following: | |
| **1. TAKEOFF** | **ABORT** |
| **2. TAXI** | **TO PARKING AREA**<br>If able |
| If propeller overspeed occurs after lift-off, perform the following: | |
| **3. PROPELLER PITCH** | **INCREASE**<br>In small increments |
| **4. LANDING GEAR** | **RETRACT**<br>At 20–30m |
| **5. CIRCULAR LANDING PATTERN** | **PERFORM**<br>To return to airport and land |
| If propeller overspeed occurs during a glide, perform the following: | |
| **6. THROTTLE** | **FULLY BACK** |
| **7. PROPELLER PITCH** | **FULLY FORWARD** |

**END**

FLP = Front Left-side Panel — FD = Front Dashboard — FRP = Front Right-side Panel
RLP = Rear Left-side Panel — RD = Rear Dashboard — RRP = Rear Right-side Panel

# IN-FLIGHT FIRE CHECKLIST

**NOTE**
If a fire breaks out onboard the aircraft while the aircraft is in flight, the pilot must perform the following:

| | |
|---|---|
| **1. FUEL SHUT-OFF VALVE** | **FULLY BACK** |
| **2. MAGNETOS** | **0** |
| **3. IGNITION** | **OFF** |
| **4. GENERATOR** | **OFF** |
| **5. MANOEUVRE AIRCRAFT** | **TO GLIDE** |
| **6. SIDE SLIP** | **APPLY AS NECESSARY**<br>To break up flames |
| **7. LANDING SITE** | **SELECT**<br>Outside airport if necessary |
| **8. EMERGENCY LANDING** | **PERFORM** |

**⚠ WARNING**
Off-field landings must be performed only with a retracted undercarriage.

**⦸ CAUTION**
If attempts to extinguish the fire fail, and there are no viable sites for an off-field landing, the pilots must abandon the aircraft by a parachute landing.

**END**

| NORMAL STEP | FULL PROCEDURE STEP | CONDITIONAL STEP | NON-FUNCTIONAL STEP |
|---|---|---|---|

FULL PROCEDURE SUB-STEP | CONDITIONAL SUB-STEP | NON-FUNCTIONAL SUB-STEP

# DEAD-ENGINE LANDING CHECKLIST

## NOTE

In case of engine failure, the pilot must immediately perform an emergency landing at the airfield or at an off-field site.

The available gliding range in case of engine failure is determined by the aerodynamic efficiency of the aircraft and its altitude reserve. It is recommended to perform the gliding approach with retracted undercarriage and landing flaps at a speed of 160 km/h. The aerodynamic efficiency and the estimated gliding range respectively are:

**L = K × H**
Where **H is altitude in metres**; K is aerodynamic efficiency.
**K=7** in a cruise configuration.
**K=5.5** with landing gear and flaps deployed.

When calculating the available gliding range and assessing the feasibility of landing at the airfield, consideration should be given to the reductions in range caused by the execution of turns and manoeuvres that are necessary prior to landing.
When performing **a 180 ° turn with a roll of 45 °, the range is reduced by about 1 km**.

When approaching with a headwind, the available gliding range is reduced.
**5 m / s of wind speed corresponding to a 10% reduction in range**.

When performing an emergency landing with a failed engine, the pilot must perform the following:

| | |
|---|---|
| 1. TURN TOWARDS AIRFIELD | 45° ROLL |
| 2. SET GLIDE SPEED | 160 km/h |
| 3. PERMISSION TO LAND | REQUESTED |
| 4. WEATHER DATA | REQUESTED |
| 5. FUEL SHUTOFF VALVE | FULLY BACK |
| 6. MAGNETOS | 0 |
| 7. BATTERY | OFF |
| 8. IGNITION | OFF |
| 9. CURRENT ALTITUDE | IDENTIFY |
| 10. VIABILITY OF LANDING | ASSESS |

### ⚠ WARNING

If the altitude reserve is insufficient for a landing at the airfield, the emergency landing should be performed at a selected site outside of the airfield, either with pre-landing manoeuvres or while flying in a straight line.

With the expected exit to the center of the runway is at an altitude of less than 400 m, landing is possible only from straight flight. In this case, the pilot must perform a "snake" maneuver and slip in such a way as to ensure that the direction of the glide path ends at the center of the runway.

When entering the runway center at an altitude of 400-600 m, perform a pre-landing maneuver de- pending on the course of the runway exit. When entering the runway at an altitude of more than 600 m, perform a spiral in the center of the runway with a landing course.

After entering the landing line (when landing from a straight line at a distance of 1 km from the center of the runway), deploy the undercarriage and make sure that the aircraft's descent will end at the start point for the flare-out, located at the beginning of the runway (or off-field landing site).

At a height of at least 50 m, switch off the battery, and open the cockpit canopy. At an altitude of 10-15 m, with smooth movements on the control stick, begin aligning yourself so as to finish the flare at an altitude of 0.5 - 1 m. The landing speed will then be 125-130 km/h.

When performing an emergency landing with a failed engine at an airfield equipped with a Short-Range NDB/inner marker (given the standard distance of the inner marker of 1000 m from the end of the runway), it is recommended to use the automatic radiocompass readings for entering the airfield and for planning your pre-landing maneuvers. The pre-landing maneuvers in this case are carried out with respect to the inner marker.

The minimum exit altitude to the inner marker should be no less than 550 m and the reference altitude. When exiting to the inner marker at an altitude of 800 m, perform a spiral in such a way that you will exit the maneuver above the short-range NDB with the landing course and at an altitude of 500 - 700 m. The minimum altitude for passing by the inner marker during windless conditions is 200 m. This allows the pilot to land the aircraft on the runway at a distance of 100-200 m from the end.

**END**

# INSTRUMENTATION FAILURE CHECKLIST

## ARK-15M Radiocompass Failure

**NOTE**

In-flight failure of the radiocompass can be determined by one of the following signs:
• The arrow of the radio compass indicator remains stationary even when there is a change in flight heading.
• No responses from the radio callsigns to which the radio compass is tuned.
• Large swings or continuous rotation of the pointer of the radio compass.
In case of radiocompass failure:

| | |
|---|---|
| **1. CIRCUIT BREAKER POSITIONS** (FLP2)<br>- СПУ / INTERCOM.<br>- ПТ-200 / PT-200 CONV.<br>- АРК / RADIO COMP. | **VERIFY**<br>On / Up<br>On / Up<br>On / Up |
| **2. SWITCH POSITIONS**<br>- КОМП-АНТ switch *(FRP10)*<br>- ПРИВОДНАЯ switch *(FD14)* | **VERIFY**<br>КОМП<br>As required |
| **3. RADIO COMPASS SETTINGS** (FD21 & FRP10) | **CHECK** |
| **4. AIRFIELD BEARING** | **REQUESTED** |

Periodically monitor the correctness of your current course by using the gyromagnetic compass and the bearing information received from the ATC.

## Generator Failure

**NOTE**

Failure of the generator in flight is signalled by the illumination of the ОТКАЗ ГЕНЕР / GENER FAULT signal light and the deviation of the voltamperemeter arrow to the right from zero.
In case of generator failure:

| | |
|---|---|
| **1. GENERATOR** | **OFF** |
| **2. RADIO TRANSMITTER** | **ONLY AS NEEDED** |
| **3. FLIGHT** | **ABORT and LAND** |

**NOTE**

If the battery switches off as a result of exceeding the charge current by more than 30 A, after the ОТКАЗ ГЕНЕР / GENER FAULT indicator light switches on, it is necessary to turn on the battery, and proceed as described above.
The rechargeable battery can provide power to all onboard consumers for a period of no longer than 30 minutes.

Switching off unnecessary consumers will lead to an increase in the remaining battery time for the rest of the active consumers.

## Airspeed Indicator Failure

**NOTE**

Airspeed indicator failures may happen over time (and not instantly.) Thus, before taking any measures, the pilot needs to make sure whether a failure has indeed occurred. For this, without changing the engine's mode of operation, smoothly transfer the aircraft to a dive or climb using the artificial horizon and altimeter.
If the speed readings do not correspond to the current mode of flight, while the remaining devices operate normally, the pilot can be sure that an airspeed indicator failure has occurred.
In this case, perform the following:

| | |
|---|---|
| **1. FLIGHT** | **ABORT and LAND** |
| **2. AIRSPEED** | **MONITOR INDIRECTLY**<br>Using artificial horizon, altimeter, RPM and manifold *gauges*. |

| Flight mode | IAS km/h | Vertical speed m/s | RPM % | Manifold pressure mmHG |
|---|---|---|---|---|
| Climb | 160 | 5 | 70 | +700 |
| Level flight | 170 | 0 | 64 | +500 |
| Turn in level flight | 170 | 0 | 64 | +600 |
| Gliding | 160 | 5 | 41 | +300 |

**END**

# UNDERCARRIAGE FAILURE CHECKLIST

**NOTE**

If the undercarriage becomes impossible to deploy normally, the pilot must perform an emer- gency undercarriage deployment. To do this:

| | |
|---|---|
| 1. **ВОЗДУХ АВАР** *GAUGE* (FD8) | **40–50 $kg_F/cm^2$** |
| 2. **КРАН НАПОЛНЕНИЯ** *VALVE* (FLP1) | **FULLY CW / CLOSED** |
| 3. **FRONT ШАССИ / GEAR** *LEVER* (FLP5) | **NEUTRAL** |
| 4. **REAR ШАССИ / GEAR** *LEVER* (RLP5) | **NEUTRAL** |
| 5. **АВАРИИНЫИ ВЫПУСК ШАССИ** *VALVE* (FRP8 or RRP1) | **FULLY CCW / OPEN** |
| 6. **ВЫПУЩ. / GEAR DOWN** *LIGHTS* (FD4) | **BLINKING** |
| 7. **FRONT ШАССИ / GEAR** *LEVER* (FLP5) | **DOWN and LOCKED** |
| 8. **REAR ШАССИ / GEAR** *LEVER* (RLP5) | **DOWN and LOCKED** |

**⚠ WARNING**

Retracting the undercarriage after a successful emergency deployment is strictly prohibited.

| | |
|---|---|
| 9. **АВАРИИНЫИ ВЫПУСК ШАССИ** *VALVE* (FRP8 or RRP1) | **FULLY CW / CLOSED**<br>Once flight is over and engine off |

**NOTE**

The aircraft's glide speed after the fourth turn up until the flare-out altitude should be 160 - 170 km/h.
Performing a landing with retracted landing flaps is no different from landings with the flaps deployed.
In this case, the pilot must keep in mind that the gliding range, flare-out time and landing speed will be somewhat greater than when landing with the flaps released.

**END**