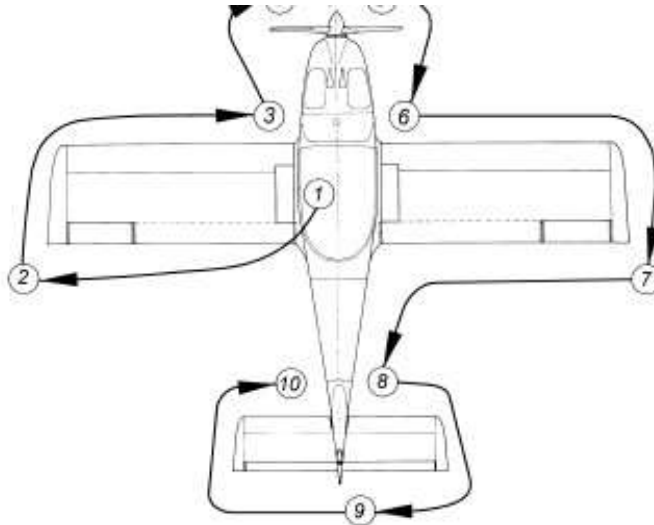


## 1. Preflight Check

Walk around the Airplane according to the drawing below:



In the cockpit:

- Check the A/C **documentation**.
- Verify that the start key is not inserted to the starter slot, it shall be placed onto the top of dashboard
- Verify the **open** position of the **fuel valve**
- Switch on the battery and check the fuel quantity and compare it with the planned fuel amount. Then switch off the main battery switch.
- **Extend the FLAP to 40°** (in order to check outside),
- Check the controls free movements

Left wing:

- Check the flaps and ailerons movements and hinges
- Wingtip and position lights conditions,
- Pitot and static port openings, remove their cover,
- Operation of the stall warning (under electrical power)
- Check the leading edge cleanliness and condition,
- Left gear tyre condition and approximate pressure and the possible leakage of the brake system

The engine nacelle, canopy and nose gear:

- Check the cleanliness of the canopy (clean with liquid and smooth clothe only to avoid scratches!),
- **Measure the fuel quantity** with the measuring rod and compare it with the fuel gauge reading. **Check the closing of the fuel cup!**
- Take fuel sample at the bottom of the fuselage and check its cleanliness. Only fist flight of the day and after each refueling.
- Open the left engine nacelle door and check the level of the coolant and brake fluid to be within the markings. Check the engine area for any possible leakage.
- Check the propeller and the cone condition. Open the right engine nacelle door and open the oil cup. Check the engine area for any possible

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leakage. Turn the propeller (appr 10 times with open oil tank cover) until the oil is pumped up the to the oil tank. Until the pumped oil will give bubbling sound. check the level of the engine oil to be within the markings. (min oil 2,5 l, max 3,5 l)

- Close the oil cup and the left and right nacelle door
- Check the exhaust fixed status
- Check the nose gear and suspension status
- Remove the towing fork

Right wing :

- Right gear tyre condition and approximate pressure and the possible leakage of the brake system
- Check the leading edge cleanliness and condition,
  - Wingtip and position lights conditions,
  - Check the flaps and ailerons movements and hinges

Tail section right side:

- Check the surfaces cleanliness and condition,
- Check the conditions of the antennas

Stabilizer surfaces:

- Check the balance stabilizer free movements and no play
- Check the rudder surface free movement and no play
- Condition of the tail skid and bottom surface condition
- Beacon condition

Tail section left side:

- Check the push rods through the maintenance door than close the opening.
- Check the surfaces cleanliness and condition,

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### 2.1. Before engine start

- Record the time
- Canopy closed and locked
- Baggage secured
- **Seat belts** – fastened
- **Instruments** - checked
- Battery, generator, alternator - OFF
- **All electrical equipment** – OFF
- Circuit breakers - checked
- ELT - ARMED
- CO detektor – no color change
- trimm – T/O band
- **Fuel shut off valve** – open

### 2.2. Engine Start up

- **Battery ON , Generator ON**
- Fuel quantity check for the task
- „Generator failure” illuminates
- Check the bacon light on the tail
- Fuel pump – ON (wait 30sec until eng start at cold engine)
- **Choke** – PULL (only at cold engine)
- **Carburetor heating** - OFF (pushed)
- Throttle - IDLE
- Pedal brake - **pressed**
- Propeller Area - CLEAR, Announce loud „**Clear Prop?!!**”
- Ignition 1+2, Start

### 2.3. After Engine Start

- Set engine RPM: **2500 RPM**
- **Verify OIL press** (if does not rise within 5-6 sec stop the engine)
- „Generator failure” & „Starter engaged” dark
- alternator - ON
- Choke – keep on until the engine runs smooth than push in
- Fuel pump - OFF
- Radio, Giro instruments – ON
- **Warm up** - 2500 RPM
- Oil heating - ON. (keep on if OAT<10°C during flight)
- Transponder – STBY,

### 2.4. Before taxi

- Set the altimeter acc to **QNH**
- Check the canopy closed position both side
- Check the controls free and logical movements
- Set the flap to T/O position
- Verify the trim setting to T/O

## 2.5. Taxi out

- Taxi the A/C with the **control stick fully pulled**, slow. Use idle pwr in straight lines, apply more power for initiating taxi and for the turns only
- The Nose wheel is free so use the rudder and differential brake for steering. Do not ride the brakes!

## 2.6. Engine runup

**Perform the runup only after min 4 hrs ground time! Practically it is done only once a day.**

- Magneto check: engine warm, parameters in green, set RPM 4000 the drop shall not be higher than 300 PRM / side and the difference between the two side shall be less than 120 RPM. The engine shall run smooth with either side.
- Carburetor heating check – set RPM to 4000, the RPM shall drop and the carb temp shall rise.
- Full RWR – check appr 5400 RPM
- Idle – check appr 1400-1600 RPM

## 2.7. Before T/O at the holding point

- Verify warm engine and the oil pressure
- Check the altimeter setting to QNH (threshold elevation)
- Align the directional giro with the magnetic compass
- Check the flap T/O position
- Check **Choke OFF**
- Check the rwy for any departing traffic or crossing vehicle or people
- Report T/ O briefing – ready for departure

## 2.8. When the RWY is clear or T/O cleared

- Fuel pump - ON
- **LDG Light - ON**
- XPDR – A,C,
- Line up the plane

## 2.9. Take off

Release the brake. Slightly pull the control stick to ease up the nose gear. Increase the PWR to appr. 4000RPM simultaneously apply RHS rudder input. As the A/C accelerates through 40 KIAS and directional control can be maintained with the RHS rudder apply full PWR (~5600 RPM). Rotate the A/C smoothly at around 50.KIAS. Start accelerating in a shallow climb and maintain 60 KIAS.

## 2.10. Climbing:

Maintain 60 KIAS with pitch attitude.  
Fuel pump, LDG light – OFF at 200AGL  
Retract LDG flap to 0° degrees  
Reduce the PWR to 5000RPM

Trim the A/C for climb

### **2.11. Turning to crosswind leg**

At reaching 500ft AAL turn to the crosswind leg. The speed in the turn shall be 65 KIAS so lower the nose to reach and maintain 65 KIAS during the turn fly the attitude accordingly until the nose point to the new direction. When the turn is completed raise the nose again for the 60 KIAS equal attitude. This turn normally less than 90° because of the wind correction!

### **2.12. Turning to downwind leg**

This turn shall be initiated when the wings position is 45° from the landing threshold. Take care of the wind correction on the downwind leg if there is crosswind so that the A/C flies parallel to the RWY centerline.

### **2.13. Transition to level flight**

Shortly before reaching 1000ft AAL lower the nose so that to maintain the circuit height (altitude). Let the A/C to accelerate through 75 KIAS and than set 4400 RPM and trim the plane for level flight.

### **2.14. Downwind leg**

Fly the A/C parallel to the RWY centerline mind the crosswind and make directional correction when necessary. When passing the abeam of threshold and before the base turn indicate intention on the radio.

### **2.15. Turning to base leg**

The place for the base turn is when the wing angle is 35° from the landing threshold. This turn is a level turn and normally **more than 90°** due to the wind correction on the base leg! After the turn pull the carburetor heating, reduce the PWR to 3000 RPM and maintain level flight until 60 KIAS is reached than lower the nose for the descent attitude. Than switch on the fuel pump, and extend the landing flap to 15° and maintain 60 KIAS. (make sure that the speed is less than 85 KIAS at the flap extension!)

### **2.16. Final turn**

The place for the final turn is when the landing threshold is **10° in front of the wing**. The speed for this turn shall be 65 KIAS so before the turn lower the nose for the 65 KIAS attitude and fly until the new desired direction. Arrange the turn to roll out **by 500' AAL latest**. Increase the PWR slightly if necessary in order to reduce the descent rate. Raise the nose again for the 60 KIAS attitude and maintain on the final.

### **2.17. Positioning the A/C for landing**

The landing flap shall be extended to 40°(FULL) **earlier or later as the wind strength** requires it. As the flap extended to full lower the nose to **maintain 60 KIAS**, trim the plane as necessary.

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Normally the right hand shall be handling the control stick and the left hand controls the PWR!

Adjust the PWR in order to point the nose to the aiming point approximately 30 m in front of the threshold mark that is appr. 50 m in front of the touch down zone. Increasing PWR raise the nose and when reducing the PWR lower the nose so that the speed remains 60 KIAS!

Reaching 3-5 m height reduce the PWR to idle and brake the angle of the approach. Start the flare at 30-50 cm from the ground.

In case of crosswind align the A/C axes with the rudder to fly parallel with the RWY and bank into the wind so that the plane will not move sideways from the landing axes. Land on one wheel in crosswind than lower the other wheel and control the roll out with the rudder and neutral the aileron as the speed drops.

### 2.18. Go around

In case the **landing can't be completed safely**. (*due to other traffic, car or personnel on the RWY or the A/C is too high or low for the safe landing or the weather is not suitable for the landing wind, RWY is not visible*). **Go around must be flown.**

Apply **full PWR** maintain RWY track, turn off the carburetor heating. At the same time stop the descent **pitch up for climb attitude** (appr. 8° up) when the A/C starts to climb retract the **flap slowly to 15°** maintain 65 Knots than continue the circuit as described.

### 2.19. Touch and Go

After touch down **maintain the RWY direction** with the rudder and fly the nose gear down gently. Than change the hand to keep the stick in the left hand and retract the **flap to 15° T/O position**. Change the control handling back to the right hand than apply **full PWR smoothly** and continue the take off.

### 2.20. Full stop landing

In case of full stop landing let the A/C decelerate. On grass RWYs keep the nose gear eased up in the air (pulled), on concrete RWY let the nose gear down gently and control the RWY direction with the rudder. When the speed is under control and the speed is low apply pedal braking. Then vacate the RWY to the appropriate direction and report it.

### 2.21. Taxi in

If the RWY is vacated (mind the minimum RWY occupancy) during taxi retract the landing flaps, turn fuel pump and the landing light off, XPDR to STBY and preset 7000.

### 2.22. Before engine shut down

On hot days run the engine for 1-2 min at idle to cool it down. Turn off the radio, artificial attitude, gyro instruments and equipment and the alternator.

### 2.23. Shut down

Turn the ignition key to OFF than turn off the accumulator, generator. Record the shut down time. In case the A/C does not continue the flight shortly install the pitot cover and insert the control lock and put chocks to block the wheels. The park brake may also be used.

#### 4. Normal checklist

##### BEFORE START

BATTERY ..... ON  
GENERATOR ..... ON  
FUEL PUMP ..... ON  
THROTTLE ..... 15%  
CHOKE (COLD ENGINE) ..... PULL  
PROPELLER AREA ..... FREE  
IGNITION KEY ..... START

##### AFTER ENGINE START

RPM ..... 2500  
CHOKE ..... PUSH  
ALTERNATOR ..... ON  
FUEL PUMP ..... OFF  
ELECTRICAL EQUIPMENTS ..... ON

##### ENGINE TEST RUN

ENGINE PARAMETERS ..... IN GREEN  
BRAKE PEDALS ..... PRESS  
CONTROL STICK ..... PULL  
RPM ..... 4000  
IGNITERS 1, 2 ON 4000 RPM CHECK  
RPM MAX ~5200 - 5500 RPM CHECK  
CARB HEATING ..... CHECK  
ENGINE IDLE ..... ~1600RPM

##### BEFORE TAKE OFF

FUEL PUMP ..... ON  
FLAPS ..... 15°  
CONTROLS ..... FREE

##### AFTER TAKE OFF

FUEL PUMP ..... OFF  
FLAPS ..... 0°

##### BEFORE LANDING

FUEL PUMP ..... ON  
FLAPS ..... 15° OR 40°  
CARB HEATING ..... AS REQUIRED

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### 5. Aero AT-3 R100 Aircraft data, limitations

DESCRIPTION	KIAS – Indicated Air Speed
Nose gear rotation speed – V <sub>r</sub> , (Rotate)	45
Take off speed Normal climb Short field, 15° flap, speed until 50 feet AGL	60 54
Normal climb speed Flap CLOSED position	60
Best Angle of Climb Speed– V <sub>x</sub> . 15° flap	54
Best Rate of Climb Speed – V <sub>y</sub>	65
Best Glide Speed (Full Gross Weight)	60
Stalling Speed - most forward center of gravity Idle PWR, Flap CLOSED - (Vs1) Idle PWR, Flap FULL - (Vso)	52 44
Approach Speed Normal approach, flap CLOSED Normal approach, flap FULL Short field approach, flap FULL	65 60 55
Maximum Flaps Extended Speed - V <sub>fe</sub>	85
Maneuvering Speed – V <sub>a</sub>	112
Maximum Structural Speed – V <sub>no</sub> .	112
Never Exceed Speed – V <sub>ne</sub>	127
Maximum cross-wind	12 kts



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DESCRIPTION	WEIGHT – KGS
Maximum Takeoff/Landing Weight	<i>582 kgs</i>
Standard empty weight	<i>350 kgs</i>
Max Useful Load	<i>230 kgs</i>
Maximális baggage compartment load (total) 1. <i>Left side (large)</i> 2. <i>Right side (small)</i>	<i>30 kgs 20 kgs 10 kgs</i>
Center of Gravity limits (from the wing leading edge)  409 - 480 kgs  480 - 582 kgs	<i>0,203-0,394m  0,267-0,394m</i>
Load limits in flight Flap Closed Flap FULL 40°	<i>+3,8 g, - 1,5 g + 2 g - 0g</i>
Oil capacity  Full load  Oil temperature Normal range Max  Oil pressure Min press Normal range Max	<i>3,5 l  90 – 110 °C 130 °C  0,8 bar 2 – 5 bar 7 bar</i>
Fuel  Maximum load Usable	<i>RON 95  73,5 l 70 l</i>
Maximum engine PWR (HP)	<i>98,5 HP</i>
RPM Max RPM Take off Max continuos Idle	<i>5800 RPM 5500 RPM 1400-1600 RPM</i>

## 6. Aero AT-3 R100 emergency procedures:

### 6.1. Engine fire on ground

In case of engine fire on ground take the following steps below:

- Fuel valve - SHUT
- Throttle - FULL OPEN
- Ignition switch - OFF
- Electrical equipment - OFF
- Battery and generator – OFF
- Fire extinguisher - TO BE USED

### 6.2. Engine Fire in flight

In case of engine fire in flight

- Maintain airspeed - IAS = 120 km/h / 75 mph / 65 kts
- Fuel valve - PULL SHUT
- Throttle - FULL OPEN
- Ignition switch - OFF
- Battery and generator - OFF
- Cabin canopy vents - SHUT
- A side-slip – opposite to the fire, to blow it out - PERFORM
- When the engine stops - PERFORM EMERGENCY LANDING

### CAUTION.

**AFTER AN ENGINE FIRE DO NOT TRY TO RE-START THE ENGINE**

In case of fire in the electrical system

- Maintain airspeed - 120 km/h / 75 mph / 65 kts
- Electrical equipment - OFF
- Fire extinguisher (if fire is in the cabin) - TO BE USED
- Cabin canopy vents - KEEP OPEN
- If the fire persists, decide upon a place for landing.

### 6.3. Engine failure during takeoff

- Maintain airspeed
- Fuel pump.
- Fuel valve
- Throttle IAS = 112 km/h / 70 mph / 60 kts OFF SHUT IDLE OFF OFF
- Ignition switch
- Battery and generator
- Landing: ahead avoiding obstacles, if any

### 6.4. Engine failure during flight

Fuel pressure drop, engine power drop

- Fuel pump - ON
- Fuel Valve – Check open
- Fuel quantity - To be checked

Excessive engine vibration

- Carburetor heating – Pull ON
- Fuel Pump – ON

Exceeding the cylinder head temperature

Temperature of the exhaust gases for comparison – to be checked

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- Over-speeding the engine - reduce the RPM
- Exceeding the maximum oil temperature - oil leaking, low oil QTY
- The oil pressure drops below the permissible minimum

**CAUTION!**

**IN ALL OF THE ABOVE CASES, REDUCE THE POWER TO THE MINIMUM POSSIBLE, FLY TO THE NEAREST AIRFIELD, AND – BE PREPARED FOR PRECAUTIONARY LANDING**

### **6.5. Emergency Landing**

Gliding°

- Flap – Closed
- Speed – 65 KIAS
- Throttle – IDLE
- Gliding ratio (no PWR) – 8

Precautionary landing

- Landing place - IDENTIFY
- Flap - FULL
- Speed - 55 KIAS
- Seat belts – Firmly Fasten
- Electrical equipment – OFF
- Canopy – Unlock
- Shortly before touch down – Fuel valve closed
- Accu and Generator – OFF
- Ignition - OFF
- The flare shall be done on top of the vegetation and pull the stick at touch down.

### **6.6. Engine restarting in flight**

- Speed – 65 KIAS
- Fuel QTY – check
- Fuel valve – open
- Electrical fuel pump – ON
- Throttle – Idle or 10 %
- Choke – cold engine – open
- Windmilling propeller – ignition 1+2
- Stopped propeller – starter operate

### **6.7. Recovering from unintentional spin**

- Throttle - IDLE
- Rudder – opposite to aeroplane rotation - APPLY
- Control stick - Neutral
- Ailerons - Neutral
- Wing flaps - retract

When the aeroplane stops to rotate

- Rudder - Neutral
- Control stick – gentle proceed to level flight
- Throttle – set for level flight

**WARNING!**

**INTENTIONAL SPINNING IS PROHIBITED**