

Pathfinder Flying Club

SLINGSBY FIREFLY T67B - G-BLPI

CHECKLIST (Dec 16)

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1. INITIAL CHECKS

On approaching the aircraft check:

General position	Safe location to taxi
Ground fire extinguisher Available	
Airframe	Free from ice, contamination

Before commencing the external checks carry out the following in the cockpit:

Rudder pedals	Adjust
Parking brake	On
Fire extinguisher	Check, secure
First aid kit	Secure
Headsets	Available
Documents	Stowed
Baggage area	Loose articles secured
Flaps	Select landing
Magneto's	Off, key out
Master Switch	On
Alternator Warning	Cancel flasher
Structural Temperature	Press – check below 50°C
Pitot heater	On/check/off
Landing light	On/check/off
Navigation lights	On/check/off
Strobe lights	On/check/off
Fuel contents gauge	Check quantity
Master switch	Off
Fuel Cock	On, locate fuel tester and dipstick

2. EXTERNAL CHECKS

Start at left wing inboard edge.

Left Wing

Flap	Condition, play, stiff nut
Undercarriage	Tyre, torque link, brake leaks
Aileron	Condition, play, stiff nut, drains
Wing	Condition, drains
Wingtip	Nav light
Leading Edge	Condition
Inspection Cover	Security
Pitot Head	Remove cover/hole clear
Undercarriage	Condition, extension, tyre condition/creep, inflation. Brakes – damage and leaks
Flap Underside	Condition, drains clear

Forward Fuselage

Fresh Air Intake	Clear
Cowling Port Side	Security, 7 fasteners, 2 pins, oil leaks
Landing Light	Undamaged
Propeller	Condition, spinner
Nosewheel	Condition, extension, tyre-cuts/creep/inflation
Ram Air Inlet	Check foam filter is clean
Cowling Starboard Side	Security, 6 fasteners, 2 pins
Oil	Contents-minimum 4.5 US quarts, panel secure (do not over tighten dipstick)
Fuel drain	Check for water contamination
Fresh Air Intake	Clear, temperature probe
Fuel Cap	Correctly fitted and locked

Right Wing

Leading Edge	Condition
Undercarriage	Condition, extension, tyre condition/creep, inflation. Brakes – damage and leaks
Flap Underside	Condition
Wing surfaces	Condition, drains
Inspection Cover	Security
Wingtip	Nav light
Aileron	Condition, play, stiff nut, drains
Wing	Drains
Undercarriage	Tyre, torque link, brake leaks
Flap	Condition, play, stiff nut

Rear Fuselage

Canopy Starboard Side	Cracks, clean
Static Vent Starboard Side	Plug out, clear
Fin fairing	Secure
Elevator	Secure
Inspection Cover	Secure
Strobe Light	Condition
Rudder	DO NOT MOVE. Condition, stiff nut, nav lights.
Trim Tab	Position, stiff nut, security, play
Tail Bumper	Unmarked
Static Vent Port	Plug out, clear
Canopy Port Side	Cracks, clean

3. PRESTART CHECKS

Passenger Briefing	Stated
Harness	Secure (5 straps) Solo, secure RH harness
Headset	Plugged in, don
Tacho Time (RPM gauge)	Note reading
Master Switch	On, intercom check
Alternator Warning	Cancel if flashing
Pitot Heat	Off
Flight Instruments	Check Condition
Accelerometer	Condition, reset 1g
External Lights	Off (except nav lights night flying)
Instrument Lights	Off (except night flying)
Radio	Off
Nav Equipment	Off
Transponder	Off
Circuit Breakers	All made
CO Monitor	Checked - Normal
Throttle	Full movement and Closed
Carburetor Heat	Full movement and Cold
Mixture	Full movement and Idle Cut Off (ICO)
Fuel Cock	On Check contents
Fuel Pump	Off
Alternator	Off
Parking Brake	On
Flap	Up
Trim	Full free movement and set Neutral
Controls	Full free movement – correct sense
Canopy	Closed and locked

4. START CHECKS

Strobe Light	On
Fuel Pump	On - check fuel pressure rises
Mixture	Full rich
Key In	Mags off
Throttle	Prime as required, set 1/4" open
Magneto	Left
Intercom	Off
Propeller	Clear both sides-call "Clear Prop"
Intercom	On
Starter	Press, release when engine fires
Starter Engaged Light	Out
Magneto	Both
Throttle	Set 1200 rpm
Oil Pressure	Risen within 30 seconds
Alternator	on

5. AFTER START CHECKS

Fuel Pump	Off
Alternator	positive charge
Magneto	Check live/dead mag i.e. "Drop no stop"
Suction	Indicating
Horizon	Erecting, adjust datum
DI	Synchronise
Radio	On, frequency set
Nav Equipment	On, frequency set
Transponder	Standby, 7000 set
Radio	RT check & taxi clearance
Landing Light	On (night flying only)

6. TAXY CHECKS

Brakes	Check immediately (dual, both sides)
Flight Instruments	Check turn co-ordinator, slip ball, compass, DI, AI Right turn: needle right, ball left, numbers increasing, AI steady Left turn: needle left, ball right, numbers decreasing, AI steady
Rudder	Check full and free movement

7. RUN UP/POWER CHECKS

Park aircraft into wind with the nosewheel straight	
Parking Brake	On
Safety	Canopy locked, controls central, clear behind
Engine Temps & Pressures	Check
Throttle	Set 1800 rpm - check brakes holding
Suction	Indicating
Oil Pressure	Green
Ammeter	Positive charge indicating
Carburetor Heat	Hot – RPM drop – Cold – RPM restored
Magnetos	Max drop 175 rpm, max 50 rpm difference
Throttle	Close check smooth idle (500-800) - reset 1200 rpm

8. PRE TAKE-OFF CHECKS (VITAL ACTIONS)

Throttle Friction	As required
Pitot Heater	As required
Suction	Check
Flight Instruments	Check – AI, DI, TC
Engine Ts and Ps	Check
Transponder	Test (check light on) set to ALT
Carburetor Heat	Cold
Mixture	Full rich
Magnetos	Both
Fuel Cock	On, check contents
Fuel Pump	On, check pressure
Flaps	Up or Take-off - check lift off speed Flap take-off - 51 KIAS Flap up - 53 KIAS
Trim	Set at Neutral
Harness	Tight and secure
Controls (Aileron/Elevator)	Full & free movement
Canopy	Closed & locked
Take - off Brief	State
Radio	Call ready for departure

Take-off Brief:

The following points must be briefed:

- i. Operating pilot for the departure
- ii. State of the grass (long/wet)
- iii. Runway length, surface and crosswind
- iv. Action in the event of an engine failure on the ground
- v. Action in the event of an engine failure after take-off – identify potential landing area
- v. Action of non-operating pilot/passenger

9. **RUNWAY CHECKS**

p	
Take-off Time	Note
Approach & Departure lanes	Clear
Compass/DI/Rwy Heading	Aligned

10. **CHECKS DURING TAKE-OFF**

Throttle	Full power, minimum 2200 rpm
Engine Temps & Pressures	Check
ASI	Increasing
	Lift-off a) 51 kias - take-off flap
	b) 53 kias - flaps up
Crosswind take-off	Delay lifting nosewheel & rotate at 60 kts

11. **AFTER TAKE-OFF CHECKS**

Engine Temps & pressures	Check
Flaps	Raise

12. **AIRFIELD DEPARTURE CHECKS**

Fuel Pump	Off
Landing Light	Off
Radio/Nav Equipment	Set
Altimeter	Set (Note airfield QNH/QFE if returning)

13. **CRUISE & DESCENT (REJOIN) CHECKS**

Fuel	Fuel pumps as required Fuel cock on Throttle set as required Mixture set as required Contents & pressure checked
Radios/Nav aids	Set as required Transponder to ALT Ammeter charging Circuit breakers in
Engine	Ts & Ps checked Carb ice check CO Monitor - Normal
Direction Indicator	Align with compass Check suction
Altimeter	Set as required

14. **STALLING/AEROBATIC/SPINNING CHECKS**

Height Sufficient to recover by briefed height

Airframe Flaps up for spinning and aerobatics
Structure temperature below 50 C
No mist/ice on canopy

Security Harness secure
Canopy locked
Loose articles stowed

Engine Fuel pump on
Fuel cock on
Mixture rich
Fuel contents & pressure checked
Ts & Ps checked
Carb ice check

Location Clear of:
Active airfields
Built up areas
Controlled airspace & cloud
Danger areas/airspace restrictions
Not above monochromatic surface/sea
(Spinning)
Good horizon

Lookout Clear above and below
Min 180 deg before first stall, then
90 deg
Minimum 360 deg before spinning

Pre spinning Carb air hot
Mixture lean

15. **ERECT SPIN RECOVERY**

Throttle Closed
Flaps Up
Turn Co-ordinator Check direction of spin
Ailerons Central
Rudder Apply full rudder opposing direction of spin
Elevators Centrally forward (ailerons neutral) until spin stops
Rudder Centralise when spin stops
Ailerons Level wings and recover from dive

16. **CIRCUIT JOINING CHECKS: FRED A**

17. **CIRCUIT SPEEDS**

	Normal		Flapless
	Flap Position	Speed (Knots)	Speed (Knots)
Downwind	Up	80	80
Base turn	T/O	65	70
Finals	Land	60	68
Threshold	Land	60	65

18. **PRE-LANDING CHECKS**

Brakes Off.
Undercarriage Down & Locked.
Mixture Rich.
Fuel On & Sufficient, fuel pump on.
Indicators Ts & Ps.
Carb. Heat Check.
Hatches Secure.
Harnesses Secure.

SLINGSBY FIREFLY T67B – BASIC DATA

19. FINALS CHECKS

Carburetor Heat	Cold
Brakes	Toes Clear
Clearance	Obtained

20. AFTER LANDING CHECKS

Landing time	Note
Pitot Heat	Off
External Lights	As required (leave strobe light on)
Nav Equipment	Off
Transponder	Off
Carb Heat	Cold
Fuel pump	Off
Flaps	Up
Trim	Set neutral

21. SHUTDOWN CHECKS

Parking Brake	On
Throttle	Set 1200 rpm
Radios	Off
Alternator	Off – check failure warning light operates
Magnetos	Check live/dead mag i.e. “Drop no stop”

Set 1800rpm for 15 seconds, reduce to 1200 rpm, then **SLOWLY** pull out the Mixture knob until the engine shuts down.

When propeller has stopped

Magnetos	Off, key out
Fuel Cock	Off
External Lights	Off
Master Switch	Off
Flaps	Down
Accelerometer	Check for stress
Tacho Time (RPM GAUGE)	Note reading
Headsets	Remove to baggage area
Harness	Release, loosen straps
Aircraft	Vacate - remove personal belongings

Aircraft Carry out 4-point check (wing tips, prop and tail bumper)

1. GENERAL CONSTRUCTION

The Slingsby T67-B Firefly is a twin seat, single engine, low-wing monoplane of composite material construction.

2. REGISTRATION CATEGORY & PERFORMANCE GROUP

Aircraft classified as	-	Aeroplane (Landplane)
Aircraft classified in	-	Performance Group ‘E’
Aircraft certificated in	-	Public Transport Category

3. FLIGHT CONDITION LIMITATIONS

Flight in known or forecast icing conditions	-	Not cleared
Flight at night	-	Cleared*
Flight in instrument Meteorological Conditions	-	Cleared*

* Flight permitted subject to carriage of appropriate equipment

4. DIMENSIONS

Length	:	7.32 m
Wingspan	:	10.60 m
Height	:	2.36 m

5. LOAD FACTOR LIMITATIONS

‘G’ Limitations – Structural Temperature below 50°C

Flaps up	+ 6.0 g to	- 3.0g
Flaps down	+ 2.0 g to	- 1.0g

‘G’ Limitations – Structural Temperature above 50°C

Flaps up	+ 4.4 g to	- 2.0 g
Flaps down	+ 2.0 g to	- 1.0 g

6. ENGINE

Engine type	:Avco Lycoming O-235-N2A, 4 cylinder, 4 stroke
Engine rating	:110 HP at 2600 RPM
Max permitted RPM	:2800
Cylinder head temp range	:0° to 230° (Green arc)
Propeller type	:Sensenich 72CK-0-56
Propeller diameter	:1.83 m
Propeller pitch	:Fixed

Associated Engine controls / indicators:

RPM gauge, throttle, magneto switch, starter button, starter engaged light, oil pressure gauge, oil temperature gauge, cylinder head temperature gauge.

7. ENGINE LUBRICATION

Oil type (all temps)	:	SAE 15W-50 or 20W-50
Oil capacity (max/min)	:	6 / 2 US qts (club min = 4)
Oil capacity (normal range)	:	4.5 – 5.0 US qts
Oil consumption (cruise power)	:	Approx 4 hrs per US qt
Oil circulation	:	Wetsump,Engine-driven pump
Oil temperature (normal range)	:	40° – 118° C (green arc)
Oil pressure (normal range)	:	4.1 – 6.2 bar (green arc)

Oil pressure must be in green arc within 30 seconds of engine start.

8. FUEL SYSTEM

Fuel type	:	AVGAS 100 LL
Fuel pump	:	Engine driven + electric booster
Fuel capacity (total)	:	25.8 Imp Gals (117.4 Litres)
Fuel capacity (usable)	:	24.7 Imp Gals (112.4 Litres)
Fuel pressure – normal range	:	35 to 550 mbar (Green arc)
Fuel consumption	:	Approx 6 Imp Gal/Hr @ 2300 RPM
Fuel drain position	:	Rear L.H.S of lower cowling
Carburettor type	:	Marvel-Schebler MA3A / MA-3PA

Associated controls / indicators :

Fuel cock, mixture control, throttle, fuel contents gauge, fuel pressure gauge, carburettor heat control.

9. ELECTRICAL SYSTEM

Battery voltage/current	:	12 Volts DC / 25 Ampere hours
Battery position	:	Forward side of firewall, left hand side of engine
Alternator	:	12 Volt / 60 Ampere

Associated controls / indicators:

Ammeter, circuit breakers, battery master switch, alternator switch, alternator warning light.

10. ELECTRICALLY DRIVEN INSTRUMENTS & SYSTEMS

Turn coordinator
Stall warning light and alarm
Pitot head heater
Clock
Outside air temperature gauge
Structural temperature gauge
Radios
Navigation aids
Internal and external lighting & strobe
Fuel booster pump and contents gauge
Starter motor and warning light
Engine instruments
Alternator and warning light

11. IGNITION SYSTEM

Number / type of magnetos	-	Two x Bendix
Magneto switch settings	-	Off – R – L – Both
Impulse & spark retard device (for engine starting)	-	Left Magneto
Dead cut check performed at	-	1200 RPM
Magneto drop check performed at	-	1800 RPM
Acceptable magneto drop @ 1800 RPM	-	175 RPM
Acceptable difference @ 1800 RPM	-	50 RPM

NB 1. Magnetos are ground to earth when switched off.

2. Ignition key should only be removable with magnetos switched off.

12. VACUUM SYSTEM

Vacuum pump	:	Engine driven
Vacuum pressure (normal range)	:	Green arc
Minimum RPM for green arc	:	1500 RPM
Vacuum driven gyro instruments:	:	AI & DI
Time to reach operating speed	:	2 minutes
Reliable time after vacuum failure	:	1 minute
Failure indication on AH and DI	:	Nil

13. PITOT & STATIC PRESSURE SYSTEMS

Pitot tube location	:	Under leading edge port wing
Pitot heating	:	Electrical
Instrument supplied	:	Airspeed indicator
Static source location(s)	:	Each side of rear fuselage
Instruments supplied	:	Airspeed indicator, vertical speed indicator & altimeter

14. UNDERCARRIAGE

Type	:	Fixed, tricycle with shock absorbers and pneumatic tyres and steerable nosewheel.
Tyres	:	With inner tubes
Pressure - nosewheel	:	50PSI (Grass 45 PSI)
Pressure - mainwheels	:	35 PSI (Grass 25 PSI)
Oleo extension :		
nosewheel strut	:	Approx > 3 inches
mainwheel struts	:	Approx > 2 inches
Nose wheel steering	:	By rudder pedals
Wheel brakes	:	Hydraulic disc brakes
Braking methods	:	Toe brakes and parking brake

15. CRITICAL SPEEDS

V _{ne}	Velocity never exceed	165	Kn
V _{no}	Velocity normal operations	130	Kn
V _a	Velocity manoeuvring	130	Kn
V _{fe}	Velocity flaps extended	88	Kn
	Lift-off speed (take-off flap)	51	Kn
	Lift-off speed (no flap)	53	Kn
	Climb speed (take-off flap)	65	Kn
	Climb speed (no flap)	70	Kn
	Powered approach (take off flap)	70	Kn
	Best glide speed (range approx 2nm per 1000 feet)	65	Kn
	Best endurance speed	70	Kn
	Threshold speed (flaps extended)	60	Kn
	Threshold speed (no flap)	65	Kn
V _{so}	Velocity stall (take off flap : 18°)	52	Kn
V _{so}	Velocity stall (full flap : 40°)	47	Kn
V _{s1}	Velocity stall (no flap)	55	Kn
	Max cross-wind for take-off & landing	22	Kn

16. CRITICAL WEIGHTS

Maximum all up weight for take off and landing	862	Kg
Basic empty weight (inc engine oil)	610	Kg
Maximum luggage compartment weight	18	Kg
Weight of full fuel load (117.4 litres)	84	Kg
Max crew weight with full fuel and baggage	151	Kg

EMERGENCY DRILLS

1. ENGINE FIRE IN THE AIR
2. ENGINE FIRE ON THE GROUND
3. ELECTRICAL FIRE
4. COCKPIT FIRE
5. FUMES IN THE COCKPIT
6. OIL PRESSURE FAILURE
7. ENGINE MECHANICAL FAILURE
8. ENGINE FAILURE - PROPELLER STOPPED
9. ENGINE FAILURE - PROPELLER TURNING
10. ROUGH RUNNING ENGINE
11. ENGINE RESTART PROCEDURE
12. AIR START
13. FORCED LANDING CHECKS
14. DITCHING
15. ALTERNATOR FAILURE
16. COMMUNICATIONS/RADIO FAILURE

1. ENGINE FIRE IN THE AIR

Carry out **Engine Mechanical Failure** and **Forced Landing** checks

2. ENGINE FIRE ON THE GROUND

Carry out **Engine Mechanical Failure** checks

Vacate aircraft ASAP

3. ELECTRICAL FIRE

Master Switch	Off
Alternator	Off
Circuit Breakers	Trip All
Cockpit Fire Drill	Action if necessary

Land as soon as possible

4. COCKPIT FIRE

Fire Extinguisher	As required
Fresh Air Vents	Open
Radio	Emergency call Squawk 7700

5. FUMES IN THE COCKPIT

Cockpit Hot Air	Off
Fresh Air Vents	Open
Engine Instruments	Check for sign of malfunction

If smell is electrical, carry out **Electrical Fire** checks

If smell is petrol, do not make electrical selection

Land as soon as possible

6. OIL PRESSURE FAILURE

Throttle	Use minimum practicable power Monitor Oil temperature
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Assume engine failure is imminent

Land as soon as possible via precautionary forced landing pattern

If engine seizes carry out **Engine Mechanical Failure** and **Forced Landing** checks

7. **ENGINE MECHANICAL FAILURE**

Fuel Throttle closed
Mixture ICO
Fuel cock off
Fuel pump off

Ignition Magnetos Off

Radio Emergency call
Squawk 7700

Electrics Master off
Alternator off

DO NOT ATTEMPT RESTART

8. **ENGINE FAILURE-PROPELLER STOPPED**

Warning: If the engine failed with unusual mechanical noise do not attempt restart.

Carburetor Heat Change setting
Engine Restart Procedure Complete

9. **ENGINE FAILURE-PROPELLER TURNING**

If there is no Oil Pressure or an unusual mechanical noise carry out **Engine Mechanical Failure** drill, otherwise attempt restart procedure

10. **ROUGH RUNNING ENGINE**

If engine not stopped, try alternative carburetor heat setting then:

Fuel Fuel pump ON
Fuel cock ON
Throttle 1/4 open
Mixture full rich
Fuel Pressure indicating
Fuel contents sufficient

Ignition Select best of L-R-BOTH

Electrics Master ON
Alternator OFF

If engine fails to start, carry out **Engine Mechanical Failure** and **Forced Landing** checks.

11. **ENGINE RESTART PROCEDURE**

Fuel Fuel pump ON
Fuel cock ON
Throttle 1/4 open
Mixture full rich
Pressure checked
Contents checked

Ignition Both

Electrics Alternator OFF
Master ON

Either operate starter or carry out Air Start. Once the engine is running:

Throttle Advance slowly-allow engine to warm

Alternator On

12. **AIRSTART (USES 600 - 800 FEET)**

(If propeller stops during aerobatics, engine may be restarted immediately using starter). Ensure Rough Running checks complete if appropriate

Airspeed Dive to start propeller turning
(115 KIAS)

Do not exceed aircraft g limits during pull out

13. **FORCED LANDING CHECKS**

- Glide at:
- (a) **65** kias - clean (still air glide range about 2nm/1000')
 - (b) **60** kias - flap take-off/land

Select suitable landing area
Plan engine out approach

If appropriate and time permitting, carry out:

- (1) **Engine Restart Drill**
- (2) **Engine Mechanical Failure Drill**

Harness Secure
Passengers Brief

14. **DITCHING**

Warning: Ditching is best carried out whilst engine power is still available to control the rate of descent.

Flaps Landing
Speed **55** kias
Rate of descent **300** fpm

Do not round out - continue descent into water

In strong wind, land into wind; otherwise land parallel to the swell

15. **ALTERNATOR FAILURE**

Electrical Equipment	All off
Alternator	Off
Excitation CB	Set
Alternator CB	Set
Alternator	On

If alternator output restored, re-establish only essential electrical loads, land as soon as practicable

If alternator output not restored, use minimum electrical services and attain VMC. Battery duration approx 30 minutes.

16. **COMMUNICATIONS/RADIO FAILURE**

Radio/Intercom Switches	Check
Circuit Breakers	Check
Radio	Change frequency
Headset	Check connections Change headsets
Radio	Switch Off/On
Transponder	Squawk 7600

LOST PROCEDURE

With radio/navigation aids serviceable

- a. Climb to improve view if certain of no airspace conflicts.
- b. Check DI synchronised
- c. If fix not immediately available, go to 121.5 MHz and make a PAN call or request a TRAINING FIX
- d. Do not delay. Make use of the emergency services as soon as possible

With no radio/navigation aids.

- a. If certain of no airspace conflicts, climb to improve view.
- b. Complete communications failure drill. Continue to transmit.
- c. Squawk 7600.
- d. Aircraft safety - check safety altitude and fuel remaining.
- e. Check why lost:
 - Check correct heading flown and DI synchronised.
 - Check correct speed being flown.
 - Time; check ETA
 - Check any previous calculations
 - Wind - check smoke etc to assess accuracy of planned wind
- f. If feasible return to last fix
- g. Revert to GROUND – CLOCK – MAP scan i.e. find large features on ground, check elapsed time and search the map for this feature around the timing mark
- h. Fly to a major line feature, e.g. coastline, and re-establish position.
- i. Take account of any potentially adjacent controlled airspace.
- j. When position re-established decide on sensible course of action. (Divert or RTB)

WEIGHT AND BALANCE

Maximum Take-off Weight Authorised (Normal and Aerobatic use)

Centre of Gravity Limits (i) Forward 810mm (ii) Aft 979mm

C of G datum is forward face of fireproof bulkhead

LOADING

ITEM	WEIGHT (kg)	ARM (m)	MOMENT (kgm)
Basic Aircraft		0.88	
Pilot /Passenger		1.21	
Fuel (Den 0.71)		0.21	
Baggage < 18kg		1.85	
Total Weight:		Total Moment:	
Centre of Gravity Position = Total Moment/Total Weight			