

SECTION 3 NORMAL PROCEDURES

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3.1 BEFORE STARTING THE ENGINE

3.1.1 Initial Check

Check loading and C of G (Section 7.1.1)

Approaching the Aircraft

Observe the general appearance of the aircraft: Chocks, towing arm, fire axe, fire extinguisher stowed, pitot cover, snow/ice/hoar frost, obstructions, aircraft attitude, obvious leaks.

Cockpit

Control lock	Remove from aircraft
Parking brake	On (Pump brakes)
Magnetos	Off, key out
Master switch	On
Alternator warning	Cancel flasher
Pitot heater	On for 20 secs
Strobe light	On - check - off
Trim	Note position
Stall warning	Check light/horn
Pitot head	Check heat
Pitot heater	Off
(Night flying)	(Nav lights on - check landing lights - on - check both - off - check strobe position lights)
(Structural temperature	(Press test switch - check in hot conditions) structural temperature - on OAT gauge below 50°C)
Master switch	Off

CAUTION

STROBE POSITION LIGHT NOT TO BE USED IN CLOUD,
MIST OR ON THE GROUND.

3.1.2 External Check (ref. illustration 8.3 Principal Features)

Start at left wing inboard leading edge.

Forward fuselage

- Fresh air intake Clear
- Cowling Pt side Security, 7 fasteners, 2 pins, oil leaks
- Landing lights Undamaged
- Propeller Condition
- Spinner Condition, security
- Nosewheel Condition, extension
- Nosewheel tyre Condition, creep, inflation
- Ram air inlet Check foam filter is clean
- Cowling Stbd side Security, 6 fasteners, 2 pins
- Oil Contents, panel secure
- Fresh air intake Clear. Temp. probe

Right Wing

- Leading edge Condition
- Fuel cap Correctly fitted and locked
- Fuel drain Check for water contamination
- Undercarriage Condition, extension.
- Brake Damage, leaks, disc condition
- Tyre Condition, creep, inflation
- Wing surfaces Condition
- Access panel Secure, aligned
- Nav light Condition, security
- Aileron Condition, movement, play, stiff nut, drains clear

3.1.2 External Check (continued)

Right wing (continued)

Flap Condition, play, stiff nut,
operating arm, drains clear

Nav aerials Condition, security

Rear fuselage

Canopy stbd side Condition, clean

Static vent starboard Plug out, clear

VHF aerial Secure/undamaged

Fin fairing Secure

Tailplane starboard Condition

Elevator starboard Condition, movement, play, drains
clear

Access panel Secure, aligned

Strobe light Condition

Fin Condition

Rudder DO NOT MOVE
Condition. Alignment (check with
nosewheel), Cable, clevis pin

Trim tab Condition, position, security,
play, clevis pin, locking nuts

Tail bumper Condition

Elevator port Condition, movement, play, drains
clear

Tailplane port Condition

Static vent port Plug out, clear

> Ground power socket door ... Closed and secure (if fitted)

Canopy port side Condition, clean

Left Wing

Flap Condition, play, stiff nut,
operating arm, drains clear

Aileron Condition, movement, play, stiff
nut, drains clear

3.1.2 External Check (continued)

Left Wing (continued)

- Nav light Condition, security
- Leading edge Condition
- Fuel cap Correctly fitted, locked
- Fuel drain Check for water contamination
- Access panel Secure, aligned
- Wing surfaces Condition
- Pitot head Hole clear, condition
- Undercarriage Condition/extension.
- Brake Damage, leaks, disc condition
- Tyre Condition, creep, inflation



PILOTS NOTES
FIREFLY T67C3

3.2 STARTING THE ENGINE

3.2.1 Pre-start Cockpit Checks

>	Cockpit	Check for loose articles <u>If solo secure RH harness</u>	<
	First aid kit	Stowed	
	Escape axe	Stowed	
	Fire extinguisher	Stowed	
	Baggage	Secure	
	Rudder pedals	Adjust for leg length Ensuring locating pin fully engaged	
	Harness	Strap in (5 straps)	
	Helmet/headset	Plugged in	
	Flying controls	Elevator/Aileron, full and free movement	
	ELT	Check On and Armed (fitted only in countries whose authorities approve of this installation)	
	Lights	All off	
	Radios	Off	
	ADF/VOR/Transponder/DME	Off	
>	Electric Fuel pump	Off	<
	Alternator	Off	
	Master switch	On	
	Intercomm	On	
	Alternator warn	Cancel flasher	
	Pitot heat	Off	
	Accelerometer	Reset	
	Clock	Correct	
	ASI	Zero	
	VSI	±100ft/min	

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3.2.1 Pre-start Cockpit Checks (Continued)

Carburettor heat control	Cold
Circuit breakers	All in
Throttle	Check full movement, leave closed
Mixture	Check full movement, leave at cut-off
Fuel contents	Check (both gauges)
Fuel cock	On (Select tank with lowest quantity)
> Parking brake	On (pump brakes) <
Flap	Full check - leave up
Trim	Check full range (on electric trim if fitted Mod 443) set leave neutral

NOTE

When operating in pilot training role with electric trim fitted:

1. Run trim from left hand stick control switch.
2. Whilst trim is still running operate, in opposite sense, from the right hand stick control switch.
3. Check that trim runs in sense commanded by the right hand control.
4. Release right hand stick control switch.
5. Check that trim runs as commanded by the left hand control.

Canopy

Secure

Propeller

Clear

3.2.2 Starting the Engine and After Start Checks

Engine hot or cold

> Electric fuel pump

On <

Fuel pressure

Check

Mixture

Full rich



PILOTS NOTES
FIREFLY T67C3

Throttle	If engine cold, give \	
	throttle up to 15 full	
	strokes, depending on	
	temperature. If engine hot,	
	2 or 3 strokes is sufficient.	
	Leave quarter to half inch open	
> Electric fuel pump	Off	<
Magneto	Left	
Starter	Press; (check starter	
	warning light on during	
	start); release when engine	
	fires	
Magneto	Both	
Starter warning	Check out	
RPM	Set 1200	
> Oil pressure	Risen within 30 secs, if not,	<
	shut down	
Alternator	On	
Radios }	As required	
Nav aids }		
Suction	Indicating	
> Horizon	Erecting - adjust datum	<
	(Operate quick erect knob on	
	electric artificial horizon	
	Mod 312)	
DI	Synchronise with compass	
Radio	Check on 2 freqs if possible	
	Obtain taxi clearance	
Altimeter	Check setting/indications	
Ammeter	Shows positive charge	
Alternator failure warning	Check light out	
Canopy	Closed and <u>locked</u>	

CAUTION

SHOULD STARTER WARNING LIGHT FAIL TO EXTINGUISH
AFTER STARTER BUTTON IS RELEASED SHUT DOWN ENGINE
AND ESTABLISH CAUSE

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> 3.3 TAXYING

- Brakes Checked (Both sides if manned)
- Rudder..... Check full travel available
- Instruments Check compass, DI, horizon, turn co-ordinator and ADF for correct response.

3.4 TESTING THE ENGINE

- > Parking brake On (Pump brakes)
- Safety Clear behind - Canopy locked
- Fuel cock Check on (Change tanks)
- Fuel pressure Green (0.5 to 8 psi)
- Oil temp Green (40°C to 118°C)
- > Cylinder head temp Green (100°C to 230°C)
- RPM Set 1800 RPM
- Suction Green (4.5 to 5.5 in Hg)
- > Oil pressure Green (4.2 to 6.2 bar)
- Magneto drop Max 175 RPM, no more than 50 RPM difference between L and R
- Carburettor heat control Minimum drop 75 RPM
- Idling Check idling between 600-800 RPM

SEE TAL 6

3.4 TESTING THE ENGINE

CAUTION

WHEN CLOSING THE CANOPY PRIOR TO FLIGHT, CHECK ALIGNMENT OF WITNESS LINE ON CANOPY OPEN/CLOSE PLACARD AND BOTTOM OF RELEASE HANDLE, TO ENSURE THAT THE LATCH MECHANISM IS IN THE FULLY LOCKED POSITION

Canopy	Closed and locked
Parking brake	On (Pump brakes)
Safety	Clear behind
Fuel cock	Check on (Change tanks)
Fuel pressure	0.5 to 8 psi
Oil pressure	Green 4.2 to 6.2 bar
Oil temp	Green 40°C to 118°C
Cylinder head temp	Green 100°C to 230°C
RPM	Set 1800 RPM
Suction	Green (4.5 to 5.5 in Hg)
Magneto drop	Max 175 RPM, no more than 50 RPM difference between L and R
Carburettor heat control	Minimum drop 75 RPM
Idling	Check idling between 600 and 800 RPM



3.5 PRE-TAKEOFF VITAL ACTIONS

Throttle friction	Stiff	
Suction	Green (4.5 to 5.5 in Hg)	
Oil temp/press	Green	
Fuel press	Green	
Pitot heater	On (if conditions require)	
Horizon	Erect	
DI	Synchronised - note wander	
Strobe light	On	
Magnetos	Both On	
Carburettor heat control	Cold	
> Electric fuel pump	On	<
Fuel contents	Check (Both gauges)	
Fuel cock	Check on (Left or Right)	
> Flaps	Up or takeoff Check liftoff speed 53 kts takeoff flap (18°) 58 kts no flaps (Pre Mod 495) 59 kts no flaps (Post Mod 495)	<
Trim	Set at N	
Harness	Tight and secure (Inertia reel types <u>locked</u>)	
Controls elev/ail	Full and free movement	
Canopy	Closed and <u>locked</u>	

PRE-TAKEOFF EMERGENCY BRIEF

The following points must be briefed:

1. Engine failure on the ground.
2. Engine failure below 300 ft.
3. Engine failure above 300 ft.

The following points must be considered:

1. Runway surface type and condition.
2. Runway length.
3. Surface wind.
4. Availability of emergency landing areas round airfield.

3.6 TAKEOFF AND CLIMB

Takeoff

Throttle Full throttle
Oil pressure Green
Oil temp Not red
Cylinder head temp Below max
ASI Increasing
Raise nosewheel at 40 kts IAS
Takeoff - Liftoff speed 53 kts takeoff flap
 58 kts no flaps (Pre Mod 495)
 59 kts no flaps (Post Mod 495)
Climb 70 kts takeoff flap (18°)
 77 kts no flap

WARNINGS

1. IN STRONG CROSSWIND CONDITIONS LEAVE NOSEWHEEL ON THE GROUND UNTIL TAKEOFF SPEED THEN ROTATE TO LIFT-OFF ATTITUDE
2. IF CANOPY WAS NOT LOCKED BEFORE TAKEOFF MAKE NO ATTEMPT TO LOCK IT IN FLIGHT - KEEP SPEED TO SAFE MINIMUM AND LAND AS SOON AS POSSIBLE.
3. SHOULD AEROBATIC FLIGHT OR SPINNING BE INTENDED CHECK THAT HARNESS IS TIGHT AND SECURE AND IN THE CASE OF INERTIA REEL TYPES - LOCKED.

After Takeoff Checks

Brakes On/off
Flaps Raise at 75 kts
Temps & press Green
Electric fuel pump Off (at a safe height)
Fuel pressure Green

Departure Checks

Altimeter Set as required
Temps & press Green

Oil Temperatures

Average Ambient Air	Desired Oil Temp	Maximum Oil Temp
Above 26.67°C	82°C	118°C
Above 15.55°C	82°C	118°C
-1.11°C to 32.22°C	82°C	118°C
-17.77°C to 21.11°C	77°C	107°C
Below -12.22°	71°C	99°C

3.7 ERECT SPIN RECOVERY

3.7.1 Standard Recovery Technique

- a) Close the throttle.
- b) Raise the flaps, if lowered.
- c) Check direction of spin on the turn co-ordinator.
- d) Apply full rudder to oppose the indicated direction of turn.
- e) Hold ailerons firmly neutral.
- f) Move control column progressively forward until spin stops.
- g) Centralise rudder.
- h) Level the wings with aileron.
- i) Recover from the dive.

WARNING

WITH C OF G AT REARWARD LIMIT THE PILOT MUST BE PREPARED TO MOVE CONTROL COLUMN FULLY FORWARD TO RECOVER FROM SPIN

3.7.2 Incorrect Recovery

> A high rotation rate spin may occur if the correct recovery procedure is not followed, particularly if the control column is moved forward, partially or fully, BEFORE the application of full anti-spin rudder. Such out-of-sequence control actions will delay recovery and increase the height loss. If the aircraft has not recovered within 2 complete rotations after application of full anti-spin rudder and fully forward control column, the following procedure may be used to expedite recovery.

- a. Check that FULL anti-spin rudder is applied.
- b. Move the control column FULLY AFT - then SLOWLY FORWARD until the spin stops.
- c. Centralise the controls and recover to level flight (observing the "g" limitations).

3.7.3 Aerobatics or Spinning - Gyro Instruments

Aerobatics or spinning may cause the artificial horizon or directional gyro to topple. Up to 10 minutes may be required for a gyro instrument to resume normal operation.

3.8 PRACTICE FORCED LANDINGS

Mixture rich.

Descend at 78 kts.

Warm engine and clear plugs as required.

3.9 REJOIN CHECKS

Fuel contents	Check (both gauges)
Fuel cock	Check on (Select tank with highest quantity)
Engine	Check gauges green. Mixture rich
DI	Synchronise with compass
Radio	Select and check comms and navigation aids. Make joining call
Altimeter	Set correct millibar setting

3.10 LANDING CHECKS AND SPEEDS

3.10.1 Downwind Checks

Brakes	Off - parking brake off
Engine	Temps and press green. Mixture rich and locked.
Fuel cock	Check on. (Left or Right Tank)
Fuel contents	Check (for tank selected)
Electric fuel pump	On
Fuel pressure	Green
Flaps	As required
Altimeter	OFE set
Harness	Tight and locked (inertia reel type - locked)



3.10.2 Circuit Speeds

	Normal		Flapless	
	Flap Position	Speed (Kts)	Flap Position	Speed (Kts)
Down Wind	Up	85	Up	85
Final Turn	Takeoff	70	Up	78
Finals	Landing	66	Up	76
Threshold	Landing	66	Up	76

3.10.3 Final Checks

Carburettor heat control Hot (if any risk of icing)
Flap Set as required
Altimeter Correct QFE set
Landing Clearance received

3.11 AFTER LANDING

3.11.1 Checks After Landing

Landing light Off
Strobe light Off
Pitot heat Off
Flaps Up
Carburettor heat control Cold (if necessary)
Electric fuel pump Off

3.11.2 Stopping the Engine

Parking brake On (Pump Brakes)

Run at 1000 RPM for 1 minute

ELT	OFF (fitted only in countries whose authorities approve on this installation).
Radios	Off
Navigation Aids	Off
Nav lights	Off
Alternator	Off (Check alternator fail warning operates)
Magnetos	Check for dead cut
Throttle	Closed
Mixture	Cutoff
Magnetos	When engine stops, Off
Master switch	Off
Fuel cock	Off
Flaps	Down
Parking brake	Leave on if aircraft not chocked

3.11.3 Fitting flying control locks (Mods 316 and 435)

Flaps	Select up
Control lock	Fit to control sticks and flaps, (carefully move assembly into forward stick position)