CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO:BM 5 ISSUE: 6

TYPE: Panther XL-S

(1) MANUFACTURER: Solar Wings Ltd, Now supported by P & M Aviation Ltd, Unit B, Crawford St, Rochdale, Lancashire OL16 5NU

(2) UK IMPORTER: N/A

(3) CERTIFICATION: BCAR SECTION S - Advance Issue March 1983
List of Section S Blue Papers and Additional CAA Requirements: N/A.

(4) DEFINITION OF BASIC STANDARD: Panther XL-S Drawing Schedule issue 1
Dated: 16.4.85

(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

(a)	MTOW	350 kg
(b)	No. Seats	2
(c)	Maximum Wing Loading	20 kg/sq m
(d)	Vso	31mph CAS
(e)	Permitted range of pilot weights	55 – 95 kg per seat.
(f)	Typical Empty Weight (ZFW)	155 kg
(g)	ZFW + 172 kg crew + 1 hr fuel (17litres /12 kg)	339 kg
(h)	ZFW + 86 kg pilot + full fuel (22.5 litres / 16kg)	257 kg
(i)	Max ZFW at initial permit issue	159kg

(6) POWER PLANTS

Designation	Panther XL-S	Panther XL-S
Engine Type	Fuji Robin EC44PM Inverted	Fuji Robin EC44-2PM Inverted
Reduction Gear	2.63:1	2.63:1
Exhaust System	Nicklow	Nicklow
Intake System	Filters only	Filters only
Propeller Type	Newton	Newton
Propeller Dia x Pitch	60" x 32"	60" x 32"
Noise Type Cert No.	7M	7M
AAN approving configuration	18479P	18479P

(7) MANDATORY LIMITATIONS:

(A) Max Take-Off Weight 350kg

(B) CG Limits *N/A*
(C) CG datum N/A
(D) Cockpit Loadings

	Front	Rear	Total
Min	55Kg	-	55kg
Max	95kg	95kg	190kg

(E) Never Exceed Speed 67mph
(F) Manoeuvring Speed 67mph
(G) Permitted Manoeuvres 30° Nose up / 30° nose down
Non Aerobatic
Normal acceleration flight limits, +4 / -0g

(H) Fuel Contents (Max Useable) 22.5 litres

(I) Power Plant See Table

Engine	Fuji Robin EC44PM	Fuji Robin EC442PM		
Max RPM	7200 Cont 6800	7200 Cont 6800		
MAX CHT	230°C	230°C		
MAX EGT	N/K	N/K		
Fuel Spec	83 MON or 90 RON minimum unleaded to BS(EN)228 or 97+ octane 4-star /MOGAS leaded fuel to BS 4040, or AVGAS 100LL.			
Engine Oil Spec	Non-Deterg 2 Stroke Self Mix	Non-Deterg 2 Stroke Self Mix		
Gearbox oil spec	N/A	N/A		
Fuel/Oil Mix	Normal 40:1 Running in 32:1	Normal 40:1 Running in 32:1		
Coolant Temperature	N/A	N/A		
Oil Pressure	N/A	N/A		
Oil Temperature	N/A	N/A		
Fuel Pressure	0.2 – 0.4 bar	0.2 – 0.4 bar		

(8) INSTRUMENTS REQUIRED:

ASI	Altimeter	RPM	CHT / EGT	Compass	Coolant temp	Fuel Pressure	VSI	Slip ball
Required (to 90 mph min.)	Required May be wrist type	Optional	Optional	Optional	Optional	Optional	Optional	N/A

(9) CONTROL DEFLECTIONS:

N/A Weightshift Flexwing, control deflections limited by structure.

(10) PILOT'S NOTES, MAINTENANCE MANUALS REFERENCES:

10.1 Manuals approved for use with this aircraft**.**

(a) Operators Manual Reference SW-406-1 (Fuji Robin engine)
(b) Fuji Robin EC44PM operator's manual.

10.2 The following placards are to be fitted:-

(a) Flight Limitations Placard (to be visible to pilot)
See Annex D.

(b) Engine Limitations Placard (to be located near to engine instruments)
See Annex D.

(c) Fuel Limitations Placard (to be located near to filler cap)

A placard is to be fitted showing fuel capacity (litres), fuel type(s), fuel:oil ratio (if relevant) and if MTOW can be exceeded with full fuel and maximum cockpit weight, the fuel loads at MTOW for fuel capacity in increments of 10 litres intervals down to the maximum fuel load. An example is shown at Annex D.

(d) Switches
See Annex D.

(10) MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC:

Service Bulletin	Description	Notes	Issued
0001	Keel tube oversleeve replacement	MANDATORY	15/2/88
0003	Wiring of CHT/RPM/CHT	Advisory	26/2/87
0004	Throttle Stop	Advisory	29/4/87
0005	Front axle bolt	Advisory	29/4/87
0006	Front Forks	Advisory	29/4/87
0008	Plug caps	Advisory	26/2/87
0016	Keel chafing	Serial no's prefixed "WA" only	22/12/87
0029	Tyre pressure 22psi	Advisory	20/1/91
0087	Leading Edge Bolts	MANDATORY	13/5/97
109	Component life extension	Advisory	21/3/02

See Annex A for required modifications.

Annual Bettsometer test is to be carried out to 1060 grammes with wing sails fitted and tensioned to flight. Test must be to both upper and lower surfaces.

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb: 385 fpm at 40 IAS

Stall or Minimum Flying Speed: 31mph IAS at MTOW / idle.

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

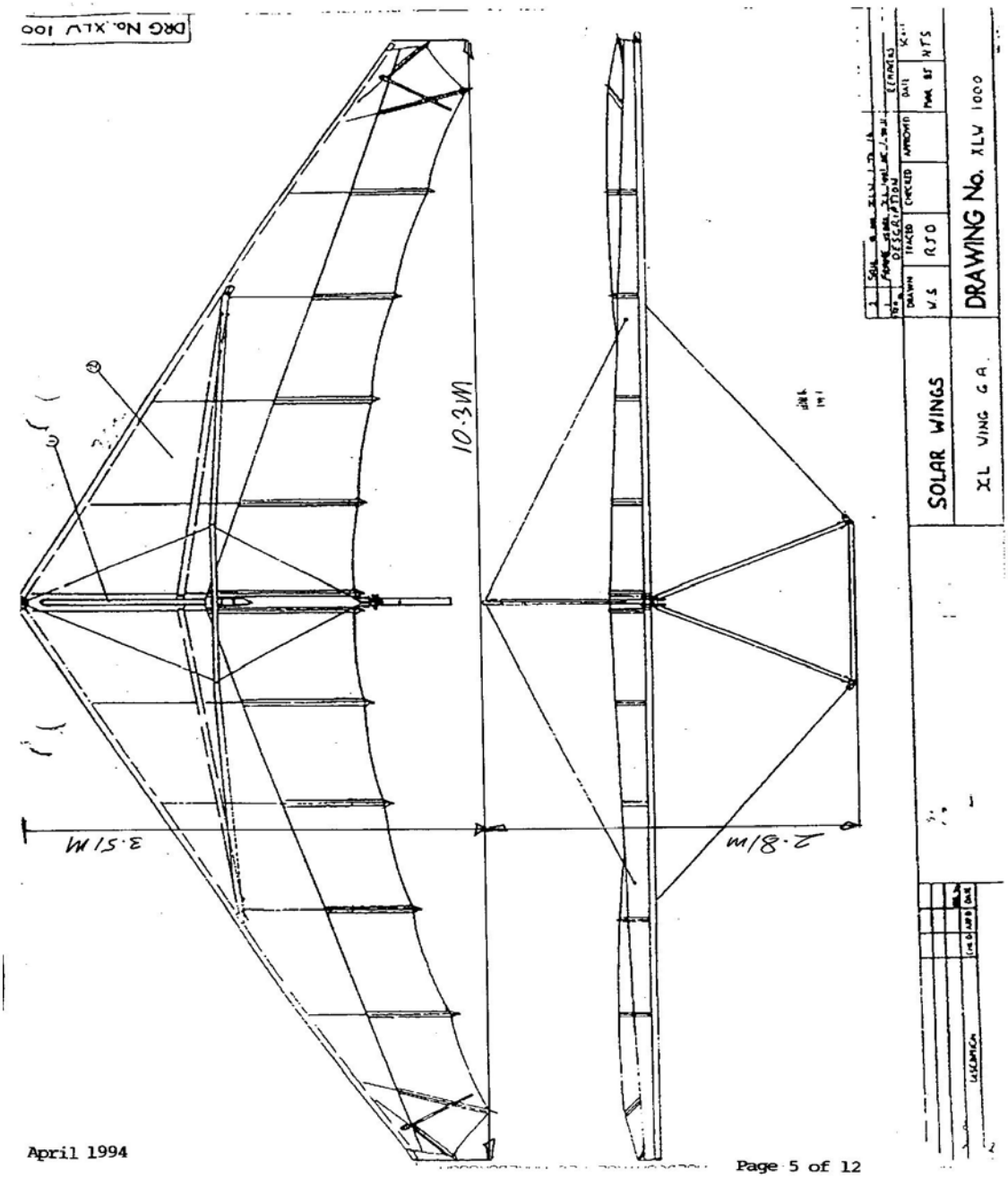
MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

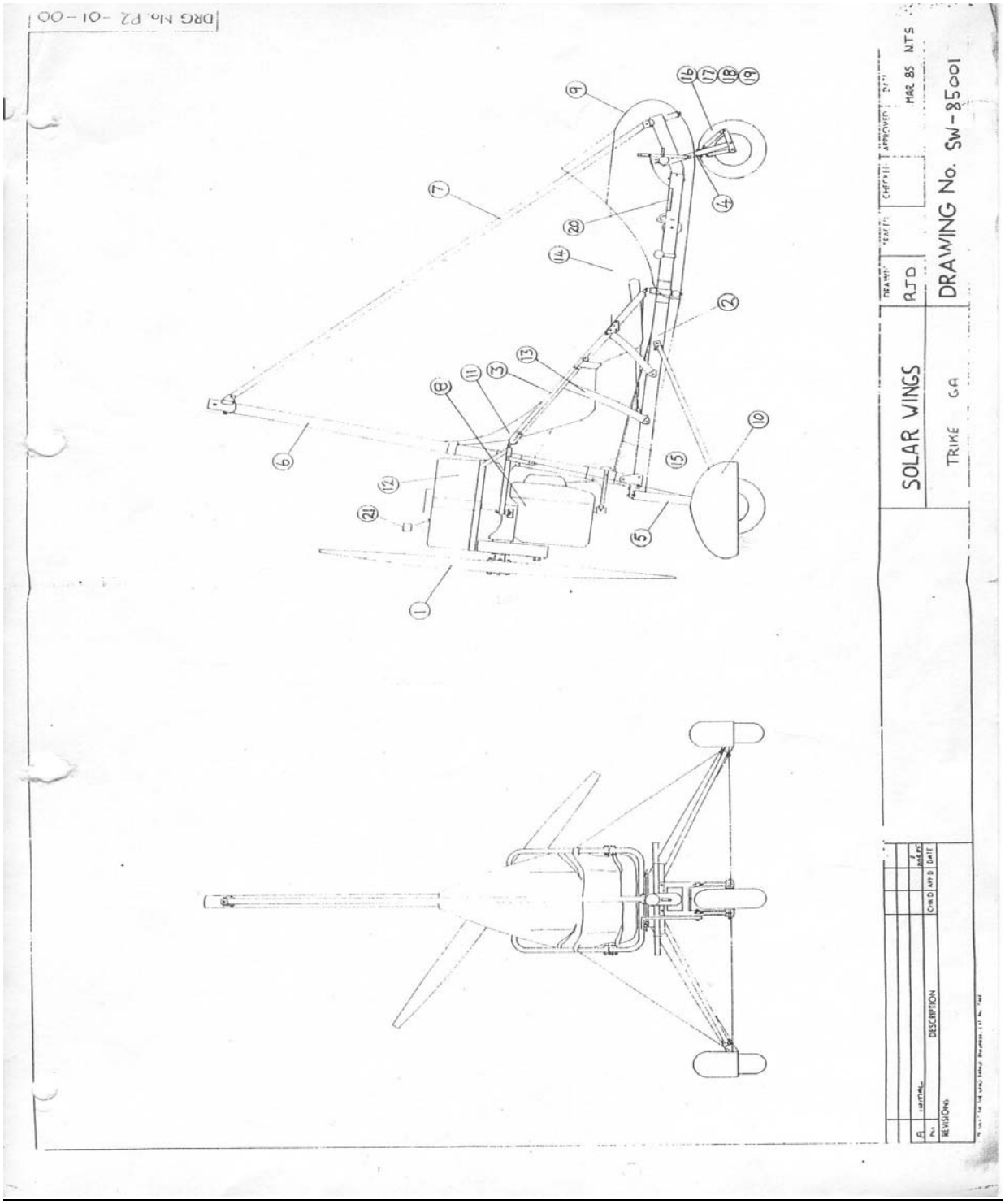
NO:BM 5 ISSUE: 6

Issue History

Issue No.	Date	Reason and signatory
1	1/5/1985	WA Bevan
2	28/10/1986	WA Bevan
3	22/4/1992	KD Russell
4	2/4/2003	New format J BARRATT
5	06/07/05	New company name J BARRATT
6	17/10/05	To correct the aircraft designation J BARRATT

General arrangement drawings.




DRG No. P2 -01-00
SOLAR WINGS
TRIKE GA
DRAWING No. SW-85001
MAR 85 NTS
DESCRIPTION
REVISIONS

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO:BM 5 ISSUE: 6

ANNEX A – MANDATORY MODIFICATIONS

Mod ref	Description	Notes	Introduced
PG123	Leading Edge Bolts	Increase to 10mm	22/5/97

ANNEX B - APPROVED OPTIONAL MODIFICATIONS

The installation of all optional modifications is to be inspected by a BMAA inspector and an entry made in the appropriate logbook(s). Note that other approved modifications may exist which are not listed here.

Mod ref	Description	Notes	Introduced
SW 0016,0017	Front brake fitting		1/11/88
SW0020	Protection sleeve on keel		30/3/89
SW0026	Paraplegic controls mod.		17/3/89
SW0030	Sail patch detail changes	From TB1466 on	30/3/89
SW0031	Oversleeve on basetube	From TB 1378 on	30/3/98
SW0038	Instructor bars		13/9/89
SW0045	Front brake reinforcement		14/2/90
SW0053	T/E grommets	From WA1449	11/12/90
SW0060, 0071	New hand throttle, choke and ign switch		17/4/91
SW0072	Trike side cable shackes removed		17/4/91
SW0073	New Pitot Mount		17/4/91
SW0078	L/E channels standardised Q wing & XL		5/9/91
SW0083	Ballast container		10/11/93
Mod ref	Description	Notes	Introduced
SW0100	Q type luffline pulley		10/11/93
SW0105	Strengthened Nylite Wheel		10/11/93
PG257,PG258, PG261, PG262	Stainless steel cables introduced		10/3/99

ANNEX C

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO:BM 5 ISSUE: 6

WEIGHING INFORMATION

The XL wing weighs 52 kg and is not subject to more than +-1kg variation.

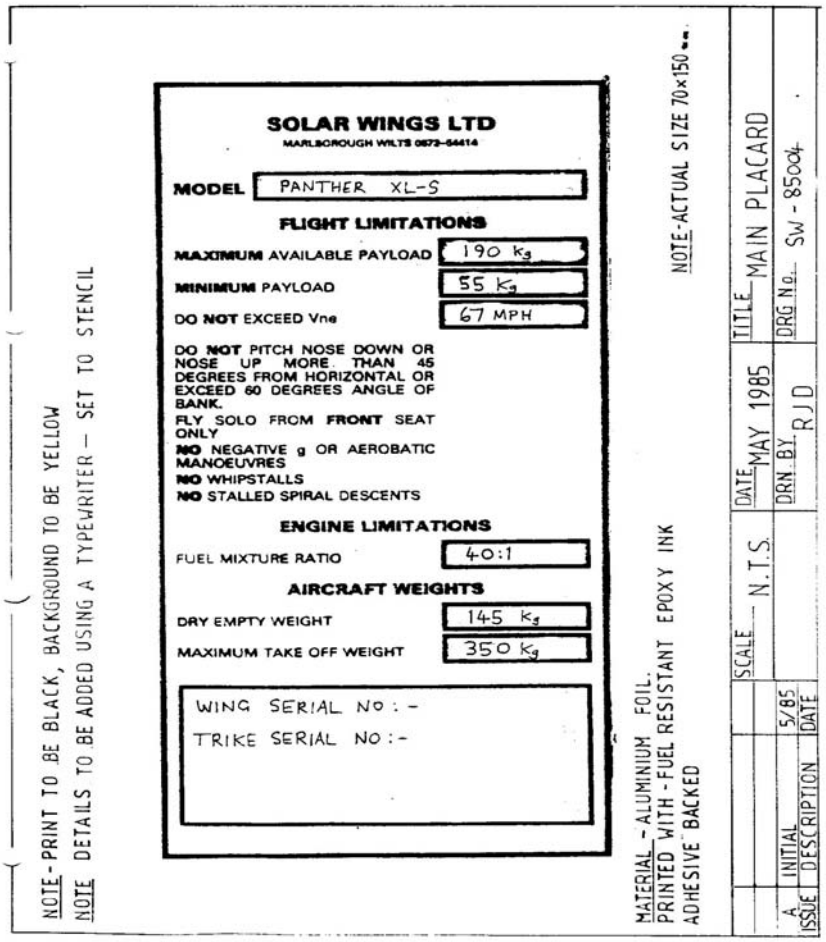
The best way of weighing the trike is by suspension from the hangpoint, using a tension balance.

The CG position of the trike is not critical as it only has a small effect on the speed range, not the trim speed.

ANNEX D

EXAMPLE PLACARDS

(a) Flight Limitations Placard (to be visible to pilot).



(b) Engine Limitations Placard (to be located near to engine instruments)

A placard showing the limitations for all indicated engine parameters is to be mounted close to the engine instruments. This requirement need not be complied with for limitations shown as coloured markers (red for danger, amber for caution) on the instrument displays.

(c)Fuel Limitations Vs Max Cockpit Load Placard (to be visible to the pilot)

Only required if max cockpit load, full fuel and ZFW can exceed Max AUW

Empty Wt **Kg**
Date

Fuel Load (litres)	**Max Cockpit Wt (kg)**
65	
55	
45	
35	
25	
15	
5	

(d) Fuel Limitations Placard (to be located near to filler cap)

The original specified 4 star fuel is no longer available, current alternatives below:

FUEL
Capacity 22.5 Litres Usable
(40:1 2 Stroke oil)
83 MON or 90 RON minimum unleaded to
BS(EN)228 or 97+ octane 4-star / MOGAS leaded
fuel to BS 4040, or AVGAS 100LL

In addition the fuel tap must be placarded with ON and OFF positions.

(e) Switches

All switches are to be marked with function and sense (up=on, down=off).