CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO. BM 25 ISSUE: 6

TYPE: Pegasus XL-Q

(1)	MANUFACTURER:	Originally 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 – Advanced issue March 1983 as amended October 1988
(4)	DEFINITION OF BASIC STANDARD:	Solar wings type Approval Submission – Document Ref. No. Sw-405-20, Section 3 Type Identification Statement – dated 14.08.87

(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

(a) MTOW	365kg
(b) No. Seats	2
(c) Maximum Wing Loading	23.95kg/m^2
(d) Vso	30mph CAS
(e) Permitted range of pilot weights	55–90kg per seat.
(f) Typical Empty Weight (ZFW)	155 kg
(g) ZFW + 172 kg crew + 1 hr fuel (17 litres /12 kg)	339 kg
(h) ZFW + 86 kg pilot + full fuel (46.5litres /33 kg)	274 kg
(i) Max ZFW at initial permit issue	181 kg

(6) POWER PLANTS

Designation	*Pegasus XL-Q*	*Pegasus XL-Q*	*Pegasus XL-Q*	
Engine Type	*Rotax 447 Upright*	*Rotax 462 Upright Liquid Cooled high power*	*Rotax 462 Upright Liquid Cooled high power*	
Reduction Gear	*Rotax Gearbox 2.58:1*	*Rotax Gearbox 2.58:1*	*Rotax Gearbox 2.58:1*	
Exhaust System	*Rotax Side Mounted*	*Rotax Side Mounted*	*Rotax Side Mounted*	
Intake System	*K&N intake muffler*	*K&N intake muffler*	*K&N intake muffler*	
Propeller Type	*Newton*	*Newton 26R*	*Arplast type 162*	
Propeller Dia x Pitch	*62" Dia 38" Pitch*	*62"Dia 44" Pitch*	*162cm Dia 16° Pitch at 53.8 cm*	
Noise Type Cert No.	*58M Issue1*	*58M Issue2*	*58M Issue3*	
AAN approving configuration	***20203P Issue 2***	***20741(p)***	***Modification 0077***	

(7) MANDATORY LIMITATIONS:

(A) Max Take-Off Weight 365kg

(B) CG Limits *N/A*

(C) CG datum Front Wheel Axle

(D) Cockpit Loadings

	Port	Starboard	Total
Min	55kg	-	55kg
Max	90kg	90kg	180kg

(E) Never Exceed Speed 78.3 kts (90 MPH)
(F) Manoeuvring Speed 52 kts (59.8 MPH)
(G) Permitted Manoeuvres 30° Nose up / 30° nose down
Non Aerobatic, Max Bank 60°
Normal acceleration limits, +4 / -2g
(H) Fuel Contents (Max Useable) 46.5litres

(I) Power Plant See Table

Engine	*Rotax 447*	*Rotax462*		
Max RPM	6800 Cont. 6500	6800 Cont. 6500		
MAX CHT	235°C	185°C (at plug)		
MAX EGT	650°C	650°C		
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-Mixing	Non Deterg. 2 Stroke Self-Mixing		
Gearbox oil spec				
Fuel/Oil Mix	50:1	50:1		
Coolant Temperature	N/A	80°C		
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 100 mph min.)	Required	Optional	Optional	Optional				

(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) Document Ref. SW-406-9 (including appendix for the operation of the Arplast type 162 propeller – as required)

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)
See Annex D.

A placard is to be fitted showing fuel capacity (47litres), fuel type(s), fuel:oil ratio (if relevant). An example is shown at Annex D. If MTOW can be exceeded with full fuel and maximum cockpit weight, the fuel loads at MTOW for cockpit weights. An example is shown at Annex D.

(d) Switches
See Annex D.

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

Service Bulletin	Description	Notes	Issued
0020	Issue B tip camber to damp yaw	SW-WQ-0002 to 00035, **MANDATORY**	29/4/88
0022	Rotax 462 impellers	Anti-cavitation hole, compulsory	20/7/88
0023	462 expansion bottle fitting	Advisory	16/11/88
0024	Prop bolt torque	Advisory	7/6/89
0029	Tyre pressure 22psi	Handbook change, Compulsory	20/01/91
0032	TE root inspection	**MANDATORY**	22/8/91
0033	Arplast 162d propeller fitting	Optional	29/8/87
0034	Fitting plastic fuel tank	Optional	14/11/91

Service Bulletin	Description	Notes	Issued
0035	Fatigue life	Advisory	17/3/95
0086	Top rigging swaging	Compulsory	16/6/97
0090	CG roll bearing bolt	Advisory	15/9/97
0091	Roll bearing cracks	Advisory	26/3/98
0109	Component life extension	Advisory	21/3/02

See Annex A for required modifications.

Annual Bettsometer test is to be carried out to 1360 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: 508 fpm at 45mph IAS.

Stall or Minimum Flying Speed: 30mph IAS at MTOW / idle.

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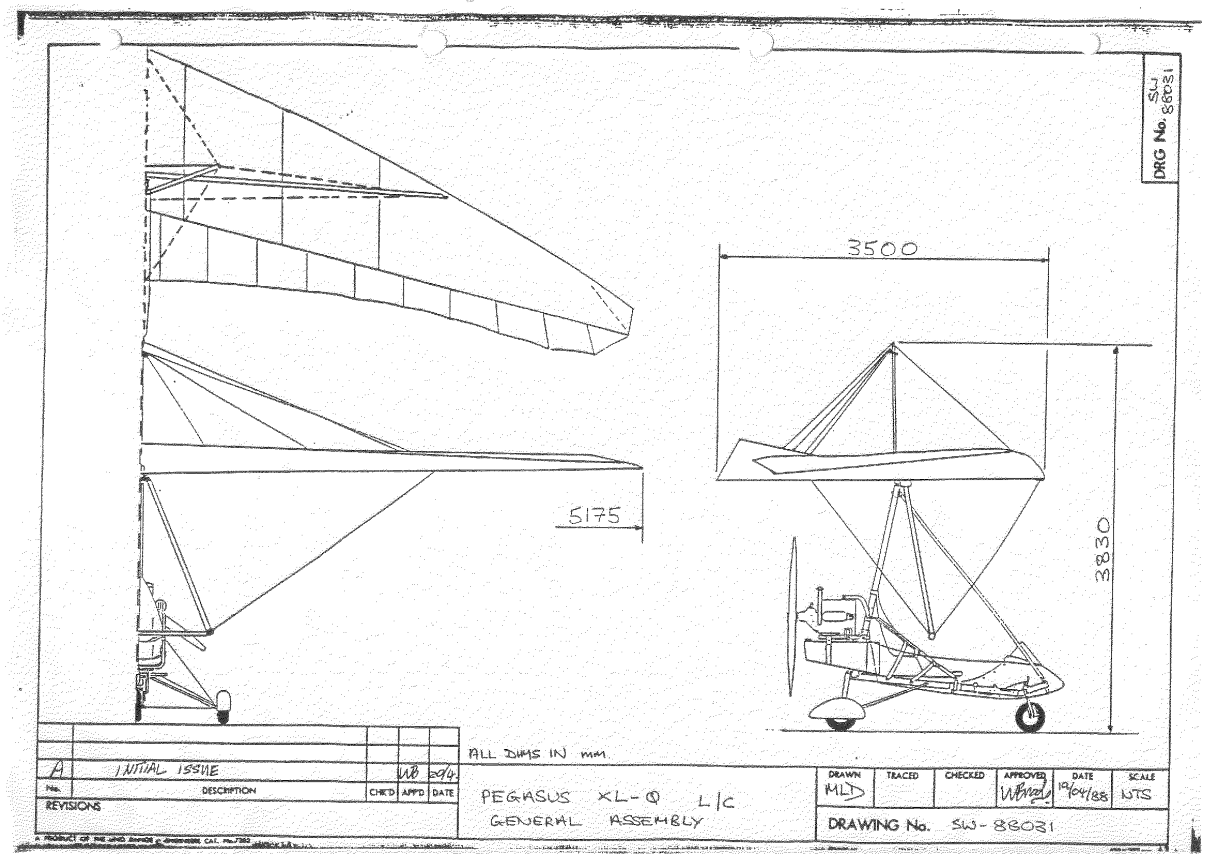
Issue History

	Issue No.	Reason and signatory
1	20/11/87	J D WATKINS
2	13/05/88	J D WATKINS
3	10/09/91	Introduces the ARPLAST 162 propeller (Reference Service Bulletin No. 33) K D RUSSELL
4	05/03/92	Updates basis of certification and introduce Appendix No. 1 which reflects approval of Mod 0026 on the Pegasus XL-Q K D RUSSELL
5	31/03/03	New format J BARRATT
6	06/07/05	New company name J Barratt

Illustration of Aircraft - 3 View



ANNEX A – MANDATORY MODIFICATIONS

Mod ref	Description	Notes	Introduced
SW0022	Tip camber to issue B	AAN 20957p refers	13/8/88
SW0082	Sail T/E patch		05/09/91
SW0084	Sail anti abrasion patch		05/09/91

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
SW0014	Fitting of 462LC engine	AAN 20471p refers	13/8/88
SW0023	Instructor Bars	AAN 21094p refers	11/11/88
SW0027	Carb Heat option		30/3/89
SW0029	Prop bolt torque 10ftlb		30/3/89
SW0036	Exh guard on seatframe		13/9/89
SW0043	Plastic Fuel Tank		12/12/91
SW0045	Brake reinforcement strap		14/2/90
SW0060 SW0071	New throttle/choke/ign switch design		17/4/91
SW0077	Arplast 162D propeller		15/7/92
SW0085	Spat fins for yaw stability		10/11/93
SW0087	Large radiators on 462		15/7/92
SW0089	Electric carb heat		10/11/93
SW0101	Carb heat pipe gusset		10/11/93
SW0105	Nylite wheel strengthen		10/11/93
PG52	Split pin size on LE bolts		16/11/95
PG53	Bolt attaching fin tube	Was riveted	16/11/95
PG124	10mm LE bolts		22/5/97
PG257,PG258, PG261, PG262	Stainless steel cables introduced		10/3/99
PG287	Use Q2 crossboom		28/4/99
PG353	Nose sail screw webbing	Now similar to Q2	10/7/91

ANNEX C

WEIGHING INFORMATION

The Pegasus Q1 wing weighs 49.5 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.

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

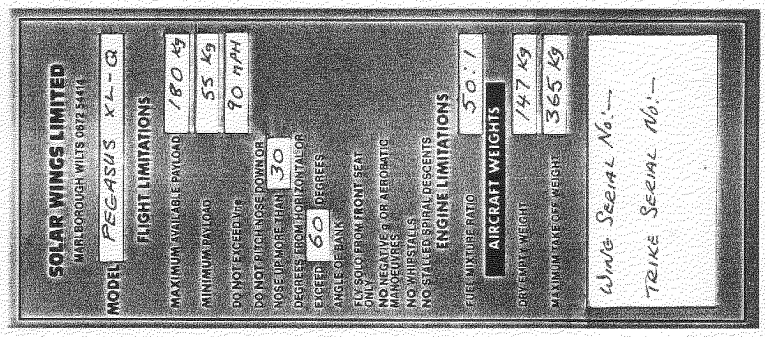
(a)

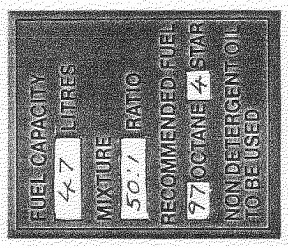
2.4. RUNNING GEAR:

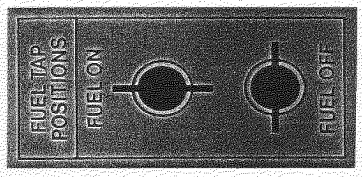
Tyre Pressures. 22 psi

2.5. PLACARDS AND LOCATIONS:

PLACARD.	LOCATION.
Flight Limitations.	Upperside of base tube in front of Front Pilots seat.
Engine Limitations.	Upper side of base tube in front of Front Pilots seat.
Aircraft Weights.	Upper side of base tube in front of Front Pilots seat.
Fuel Type and Mix Ratio.	Adjacent to Fuel filler cap.
Fuel Capacity.	Adjacent to Fuel level indicator.
Fuel Cock On/Off Positions.	On Fuel Cock mounting plate.
Ignition Switch On/Off Positions.	On Ignition Switch.







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(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 46.5 Litres Usable
(50:1 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

(e) Switches

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