COMMONWEALTH OF AUSTRALIA

CIVIL AVIATION
SAFETY AUTHORITY
AUSTRALIA

CERTIFICATE OF TYPE APPROVAL

Number: 233-1

Manufacturer/Holder: Howard Hughes Engineering Pty Ltd

Address: P.O. Box 89
Ballina 2478 N.S.W.
Australia

Pursuant to Regulation 22 of the Civil Aviation Regulations this certifies that approval is granted for the models GR-912 and GR-912T aeroplanes.

This certificate is valid until suspended or cancelled by the Civil Aviation Safety Authority. The basis of certification is as prescribed in Certificate of Type Approval Data Sheet Number 233-1 issued by this Authority.

CIVIL AVIATION AUSTRALIA SAFETY AUTHORITY

N. J. Probert
Delegate of the Authority
Date of Issue: 25 September 1998

COMMONWEALTH OF AUSTRALIA

CTA No. 233-1
Revision: O
Hughes Lightwing
GR-912
GR-912-T
Date: 25 September 1998

CERTIFICATE OF TYPE APPROVAL DATA SHEET

This data sheet, which is part of the Certificate of Type Approval No. 233-1 lists the conditions and limitations under which the aircraft for which the Certificate of Type Approval was issued meets the airworthiness requirements of the Civil Aviation Safety Authority.

Certificate of Approval Holder: Howard Hughes Engineering Pty Ltd
P.O. Box 89
BALLINA 2478 N.S.W.
AUSTRALIA

1. **Model GR-912** (See Operational basis)
Approved 25 September 1998

Engine:	Rotax 912A or UL (See Operational basis for engine type dependent operating limitations)
Engine limits:	Take-off (5 minute limit) 5,800 r.p.m. (80 HP) Maximum continuous 5,500 r.p.m. (77.8 HP)
Gearbox Ratio:	Gear reduction 2.27:1
Fuel:	Unleaded automotive gasoline, minimum RON 90, to AS 1876, or AVGAS 100LL.
Oil:	Motor grade oil SAE 20W-50. For operating temperatures below 7°C SAE 15W-50.
Oil Capacity:	3 litres, (2 litres minimum)
Coolant:	100% Glycol

Propeller: Allsize wooden fixed pitch Model CHP1-1.
Diameter 1727 mm (68 inches) , pitch 1219 mm (48 inches)

Airspeed Limitations:

Never exceed	102 KIAS
Manoeuvring	75 KIAS

Centre of Gravity Limits:

Forward Limit: 259.5mm (17.3% MAC) aft of datum at 400 kg or less.
267.5mm (17.8% MAC) aft of datum at 471 kg.
283.5mm (18.9% MAC) aft of datum at 480 kg.
Variation is linear between 400kg, 471kg and 480kg.

Aft Limit: 288.8mm (19.2% MAC) aft of datum at all weights.

Datum: Wing leading edge.

Mean Aerodynamic Chord (MAC): 1500mm

Levelling means: Longitudinal: Plumb line upper aft edge pilots door.

Maximum Weight: 480 kg (take-off and landing)

Number of seats: Two at 307.5 mm aft of datum.

Maximum Baggage: 6 kg on rear shelf.

Fuel capacity: 60 litres total
57 litres usable (180 mm aft of datum)

Control Surface Deflections: Aileron, up 130mm, down 90mm, +15, -0mm
Elevator, up 130 mm, down 170mm +/-10mm
Elevator trim tab, up 60mm, down 60mm, +/-2mm
Rudder, left & right 170mm +/- 10mm
All deflections measured at trailing edge.

Crosswind Component: Maximum demonstrated cross wind component for take-off and landing 15 knots.

Serial Numbers Eligible: S/no. GR912136 and onwards. The S/no. will also have an A or U suffix depending on whether the aircraft is fitted ex factory with a Rotax 912A or 912UL engine respectively. S/nos 087, 116, 127, 128 and 130 will be acceptable on the basis of demonstrated compliance with Master drawing index issue 7/09/98 and replacement of the data plate in accordance with approved data.

2. **Model GR-912-T** (See operating basis)
Approved 25 September 1998

Engine: Rotax 912A or UL
(See Operational basis for engine type dependent operating limitations)

Engine limits: Take-off (5 minute limit)
5,800 r.p.m. (80 HP)

Maximum continuous
5,500 r.p.m. (77.8 HP)

Gearbox Ratio: Gear reduction 2.27:1

Fuel: Unleaded automotive gasoline, minimum RON 90, to AS 1876 or AVGAS 100LL.

Oil: Motor grade oil SAE 20W-50. For operating temperatures below 7°C SAE 15W-50.

Oil Capacity: 3 litres, (2 litres minimum)

Coolant: 100% Glycol

Propeller: Allsize wooden fixed pitch Model CHP1-1.
Diameter 1727 mm (68 inches) , pitch 1219 mm (48 inches)

Airspeed Limitations:		
	Never exceed Vne	104 KIAS
	Manoeuvring Va	75 KIAS
	Flap Extension Vfe	70 KIAS

Centre of Gravity Limits:

Forward Limit: 250mm aft of datum at all weights.

Aft Limit: 290mm aft of datum at all weights.

Datum: Wing leading edge.

Mean Aerodynamic Chord (MAC): 1500mm

Levelling means: Longitudinal: Plumb line upper aft edge pilots door.

Maximum Weight: 480 kg (take-off and landing)

Number of seats: Two at 307.5 mm aft of datum.

Maximum Baggage: 6 kg on rear shelf.

Fuel capacity: 60 litres total
57 litres usable (180 mm aft of datum)

Control Surface Deflections: Aileron, up 125mm, down 90mm, both +/-10mm
Elevator, up 190 mm, down 170mm +/-10mm
Elevator trim tab, up 60mm, down 60mm, +/-2mm
Rudder, left & right 170mm +/- 5mm
Flap up 0°, first stage 12°, landing 25°, +/- 1°
All deflections measured at trailing edge.

Crosswind Component: Maximum demonstrated cross wind component for take-off and landing 15 knots.

Serial Numbers Eligible: S/no. GR912T136 and onwards. The S/no. will also have an A or U suffix depending on whether the aircraft is fitted ex factory with a Rotax 912A or 912UL engine respectively. S/nos 124 and 129 will be acceptable on the basis of demonstrated compliance with Master drawing index issue 7/09/98 and replacement of the data plate in accordance with approved data.

Data Pertinent To All Models:

Certification basis:

CAO 101.55 Issue 1 including Amendment No 99, 15 Dec 1993 except the following paragraphs shall not apply: 4.3(d) and 4.3(e)

British Civil Airworthiness Requirements Section S [BCAR(S)]

Subpart A - General	Paragraphs S3, S4
Subpart B - Flight	All paragraphs except S25, and S45 through S75 inclusive.
Subpart C - Structure	Paragraph S303
Subpart D - Design	All paragraphs
Subpart E - Powerplant	All paragraphs
Subpart F - Equipment	All paragraphs
Subpart G - Operating Limitations	All paragraphs except S1529 and S1581.

Certification basis continued on page 5.

Certification basis (continued):

TP 10141 E
Chapter A General:
For GR-912, paragraph 5 is included.
For GR-912-T, paragraph 5 is replaced by FAR 23.25(a)(2). CASA letter F97/145 dated 23 July 1998 refers.
Chapter C Structure: all paragraphs except 303.

Following initial setting of the design standard as above the requirement of BCAR S 655(a) is deleted. See CASA letter F97/9458 dated 16 September 1998.

Equivalent safety findings have been made against BCAR S 975(c) and BCAR S 951(b) . CASA letter 97/9458 dated 9 September 1998 refers.

Production basis: CASA Certificate of Approval (Manufacture) No. C2427.

Operational basis: Aircraft of this type may be registered with the Australian Ultralight Federation (AUF).

Alternatively aircraft of this type may be issued with a Certificate of Airworthiness in the Special Category. However aircraft fitted with the Rotax 912UL engine (non type certificated) are restricted to private operations and the following operational limitations:

(i) Operation in visual meteorological conditions only.
(ii) Operation in daylight only.
(iii) Aircraft must not be operated over any city or town unless the aeroplane can glide clear of all dwellings, buildings and people within the city or town.

END