

Mr Anthony Carter  
Special Counsel  
Litigation, Investigation and Enforcement  
Civil Aviation Safety Authority

5 March 2021

Your File Ref: D20/283047

**BRM Aero submission supporting the removal of the Safety Notice and the Operating Limitations imposed on Bristell Light Sport Aircraft (BSLA) by CASA on 28 July 2020.**

Dear Sir,

This submission is made on behalf of BRM Aero to address issues raised by CASA and used to justify the imposition of the Safety Notice and the Operating Limitations imposed on Bristell Light Sport Aircraft operating in Australia.

In addition to data previously supplied to CASA by BRM Aero, additional evidence is now provided in this submission. **BRM Aero maintains that the previously supplied information, together with the additional information and evidence provided herein fully supports the case that all Bristell Light Sport Aircraft meet the requirements of ASTM F2245, para 4.5.9.**

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I refer to Item 89 in 'Notice of decision to impose operating limitations upon BRM Aero Light Sport Aircraft (BLSA) under regulation 262APA of the Civil Aviation Regulations 1988'. In this item CASA state, and I quote: "***there is no conclusive basis to presently find that BLSA do not comply with the spin recovery requirements specified in paragraph 4.5.9 of ATSM standard F2245***".

## **CURRENT SITUATION**

On the basis of the above CASA statement it is clear that CASA has no justifiable basis for imposing the safety notice and operating limitations. The Bristell LSA aircraft are self certified under the LSA system. BRM Aero has carried out sufficient spin testing and aerodynamic analyses to satisfy themselves that the NG 5 Bristell aircraft do comply with the requirements of ASTM 2245, para 4.5.9. If CASA do not agree, our opinion is that *the onus is on CASA to prove that the aircraft does not comply*, not the other way around.

CASA has clearly stated that there is ***no conclusive basis to presently find that BLSA do not comply***. BRM Aero agrees.

## LATEST EVIDENCE OF COMPLIANCE

Although being absolutely satisfied that the NG 5 Bristell LSA aircraft comply with the requirements of ASTM 2245, para 4.5.9, and always has done, BRM Aero have recently sought additional independent professional advice and verification of that fact.

1. BRM Aero engaged the services of Aircraft Design Certification GmbH (ADxC) to assess the existing BRM Aero spin test report 'Report on the Spin Testing Bristell LSA Aircraft Completed' dated 22 February 2020. ADxC is an independent **EASA certified aircraft design organisation** EASA Terms of Approval No 21J.411. A copy of their approval certificate is attached as ANNEX A.

BRM Aero provided ADxC with a copy of the BRM Aero spin test report dated 22 February 2020 together with the digital data and video footage as provided to CASA on 26 February 2020.

The BRM Aero spin test report dated 22 February 2020 covered the following NG 5 variants:

- Long wing tricycle undercarriage
- Short wing tricycle undercarriage
- Short wing retractable undercarriage (RG *not LSA*)
- Short wing tailwheel undercarriage (TDO)

ADxC have now provided a letter certifying that in their professional opinion ***all tested variants are compliant with the requirements of ASTM F2245, para 4.5.9***. A copy of the ADxC letter attesting to this is provided as ANNEX B.

2. The **only** LSA variant not specifically covered by the BRM Aero spin test report dated 22 February 2020 is the long wing TDO. Although BRM Aero had previously carried out its own aerodynamic analysis, BRM Aero has recently engaged the services of an independent aerodynamics consulting company, AIRMOBIS s.r.o. This company provides specialist consulting services to the aviation industry throughout Europe and abroad.

Full company capabilities can be found on the Airmobis web site: [www.airmobis.com](http://www.airmobis.com).

Airmobis has now carried out an independent detailed analytical spin evaluation of the Bristell range of aircraft using industry standard methodology (NACA TN D 6575).

Mr Etienne Vandame, Chief Aerodynamicist of Airmobis has authored Report No BRM NG5 006 (attached as ANNEX C) and concludes "***it is my opinion that all versions of the NG-5 Bristell meet the requirements of ASTM F2245 para 4.5.9***".

## THE FAA

1. Mr Brian Cable, Manager Airworthiness Certification Section of the FAA emailed the USA Bristell distributor Mr John Rathmell confirming that the FAA are satisfied that the Bristell meets ASTM LSA spin requirements. A copy of this email is attached as ANNEX D.
2. Additionally Mr Erik Anderson, Manager, Farmingdale Flight Standards District Office of the FAA has authored a letter advising that the FAA had no intention of imposing any

restrictions or operating limitations on BLSA and that they were happy to allow continued operation of the aircraft in flying school operations.

A copy of the letter to one flying school, Mid Island Air Services Inc. is attached as ANNEX E.

## DECLARATIONS BY THE TEST PILOT

Whilst the above statements from ADxC, Airmobis, and the FAA are definitive in their proof of compliance, it should also be understood that the test pilot who carried out ALL of the spin testing that has been detailed in the 22 February 2020 spin test report was Mr Yury Vashchuk. Mr Vashchuk is a full time professional test and airshow demonstration pilot, and has been since he graduated from test pilot school in 1993. Mr Vashchuk provided signed declarations that the Bristell aircraft are compliant with the requirements of ASTM 2245, para 4.5.9.

For some reason, to date CASA has been unable to accept the validity of these declarations even though they have been made by an extremely experienced test pilot.

Although previously supplied to CASA, additional copies of these declarations are attached as ANNEXs I & J for completeness of this submission.

## OTHER EVIDENCE IN SUPPORT OF BRM AERO

1. BRM Aero is fully approved to 'produce, repair, test and import' sport aircraft equipment and parts by the Light Aircraft Association Czech Republic (LAA CR). The LAA CR oversees and audits the manufacture of LSA aircraft in the Czech Republic.

In 2010 the LAA CZ issued BRM Aero an 'Authorisation to produce, repair, test and import Sport Flying Equipment and its parts' (№ 03/2010) and subsequently reissued it three times, namely:

- 2010 2013 Initial issue
- 2013 2016
- 2016 2019
- 2019 2022

A copy of the BRM Aero 'Authorisation to produce, repair, test and import Sport Flying Equipment and its parts' (№ 03/2010) is attached as ANNEX H.

2. During the 3 April 2020 Mr Stanton stated that in his opinion BRM Aero was "*willing but not capable*". Such an allegation clearly solicits a response. It is acknowledged that the following has got nothing to do directly with the NG 5 Bristell, but it does demonstrate that Mr Stanton's allegation is **absolutely false** BRM Aero are not only "willing" but have clearly demonstrated that they are also "capable".

In 2017 BRM Aero made their initial application for an EASA Type Certificate for their B23 model, a slightly bigger and heavier version of the NG 5. The EASA Type Certificate № EASA.A.642 for the B23 model was issued on 7 October 2020, the aircraft being certified to the EASA design standard CS 23. A copy of this Type Certificate is attached as ANNEX K.

In the intervening period BRM Aero did all the design work, structural testing, drafting, report writing, and setting up for series production. The flight testing was sub contracted to ADxC in Germany.

Developing, certifying and manufacturing a new aircraft that is certified to the CS 23 design standard is a huge task and demonstrates conclusively that BRM Aero are not only "willing" but are also "capable".

An EASA Production Certificate (№ CZ.21G.0063) was issued to BRM Aero on 18/11/2020 allowing full production of the B23 model. A copy of this production certificate is attached as ANNEX L. BRM Aero have produced a full suite of quality and procedures manuals in support of their production certificate and of course they will be subject to EASA audits as are all manufacturers of CS 23 certified aircraft.

The B23 model is now in series production and is being delivered to customers around Europe and abroad.

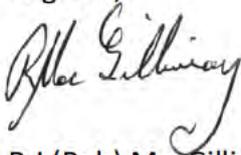
**In summary - BRM Aero has demonstrated that it is not only very willing but it is also VERY capable!**

3. Contrary to the CASA statement in item 92 of their notice, some 20% of all BLSA aircraft in the USA are currently used for full time flight training in the USA. This has been confirmed by Mr John Rathmell, the National Sales Manager/Import Partner of Bristell Aircraft USA in his letter dated 9 February 2021 and attached as ANNEX G.

The FAA do not have any issue with the Bristell aircraft being used in flight training in the USA as is evidenced in Mr Erik Anderson's, FAA letter advising that the FAA had no intention of imposing any restrictions or operating limitations on BLSA and that they were happy to allow continued operation of the aircraft in flying school operations.

**On the basis that CASA have acknowledged that there is no conclusive basis to presently find that BLSA do not comply with the spin recovery requirements specified in paragraph 4.5.9 of ATSM standard F2245, the previously supplied evidence, and the additional evidence supplied in this submission, BRM Aero respectfully requests that CASA remove the safety notice and the operating limitations on the Bristell NG 5 LSA aircraft forthwith.**

Regards,



R.J (Bob) MacGillivray

BRM Aero Technical Representative for Australia

## Documents in Support of Submission to CASA

### 5 March 2021

Annex No	Date	Details
<b>A</b>	21/02/2019	Aircraft Design Certification GmbH EASA Design Organisation Approval Certificate No EASA.21J.411.
<b>B</b>	10/02/2021	Aircraft Design Certification GmbH Letter from Mr Boris Kolmel, Head of Airworthiness EASA.21J.411, certifying that the Bristell NG5 aircraft as tested are compliant with ASTM F2245 para 4.5.9.
<b>C</b>	19/02/2021	Airmobis s.r.o. Report No BRM NG5 006, 'NG5 spin characteristics' authored and certified by Mr Etienne Vandame, Chief Aerodynamics.
<b>D</b>	9/04/2020	FAA email to USA Bristell distributor Mr John Rathmell Mr Brian Cable, Manager Airworthiness Certification Section. FAA confirms that they are satisfied that the Bristell meets ASTM LSA spin requirements.
<b>E</b>	6/08/2020	FAA Letter to the Chief Flying Instructor, Mid Island Air Service Inc. This letter is confirmation that the FAA does not agree with CASA and at no time will they prohibit nor prevent operation of Bristell aircraft by Mid Island Air Service.
<b>F</b>	5/02/2021	Statement by the owner of the Bristell aircraft registered [REDACTED] that was flown by the 'test pilot' at Latrobe Regional Airport on 11 December 2011. These flight tests formed the basis of CASA's subsequent request for certification data.
<b>G</b>	9/02/2021	Letter from USA Bristell Distributor Mr John Rathmell stating that contrary to CASA's statement, approximately 20% of the Bristell fleet in the US are currently used for full time flight training.
<b>H</b>	26/04/2019	Light Aircraft Association of the Czech Republic Authorisation to produce, repair, test and import Sport Flying Equipment and its parts.
<b>I</b>	28/06/2019	Declaration by test pilot Mr Yury Vashchuk that the Bristell aircraft is compliant with the requirements of ASTM F2245, para 4.5.9, in particular 4.5.9.1 & 4.5.9.2.
<b>J</b>	5/09/2019	Declaration by test pilot Mr Yury Vashchuk that during the test flying of the Bristell aircraft full control deflections were used and full 360° spins rotations were carried out during the spin test flights.
<b>K</b>	7/10/2020	EASA Type Certificate No EASA.A.642 for the Bristell B23 model. The B23 is fully certified to EASA CS 23, Normal category.
<b>L</b>	18/11/2020	EASA Production Organisation Approval Certificate No CZ.21G.0063 issued by the Director of Technical Division, CM CZ. This certificate authorises production of the EASA certified Bristell B23 model.
<b>M</b>	5/03/2021	BRM Aero detailed response to CASA's 'Notice of decision to impose operating limitations upon BRM Aero Light Sport Aircraft (BLSA) under regulation 262APA of the Civil Aviation Regulations 1988' dated 28 July 2020.

# ANNEX A

Aircraft Design Certification GmbH Terms of Approval  
Design Organisation Approval Certificate № EASA.21J.411.

# Terms of Approval

## Design Organisation Approval Certificate

### EASA.21J.411

#### 1 Scope of work

The holder of the Design Organisation Approval is entitled to design in accordance with the applicable type-certification basis, operational suitability data certification basis and environmental protection requirements as defined in Annex A.

#### 2 Privileges

- a) The holder of this design organisation approval shall be entitled to perform design activities under Part 21 and within its scope of approval.
- b) Subject to 21.A.257(b), the Agency shall accept without further verification compliance documents submitted by the holder of this design organisation approval for the purpose of obtaining, as per 21.A.263(b):
  1. [not applicable]
  2. a type-certificate or approval of a major change to a type-certificate
  3. a supplemental type-certificate
  4. [not applicable]
  5. a major repair design approval
- c) The holder of this design organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system, as per 21.A.263(c):
  1. to classify changes to type-certificate and repairs as "major" or "minor"
  2. to approve minor changes to type-certificate and minor repairs
  3. to issue information or instructions containing the following statement: "The technical content of this document is approved under the authority of DOA ref. EASA.21J.411"
  4. to approve minor revisions to the aircraft flight manual and supplements, and issue such revisions containing the following statement: "Revision No [YY] to AFM (or supplement) ref. [ZZ] is approved under the authority of DOA ref. EASA.21J.411."
  5. [not applicable]
  6. [not applicable]
  7. [not applicable]

#### 3 Obligations

The holder of the Design Organisation Approval shall, as per 21.A.265:

- a) maintain the handbook in conformity with the design assurance system;
- b) ensure that this handbook is used as a basic working document within the organisation;
- c) determine that changes and repairs comply with applicable requirements and have no unsafe feature;

Terms of Approval 21J.411  
Issue 8, 21/02/2019

Aircraft Design Certification GmbH

- d) except for minor changes or repairs approved under the privilege of paragraph 2(c), provide to the Agency statements and associated documentation confirming compliance with paragraph 3(c);
- e) provide to the Agency information or instructions related to required actions under Part 21 point 21.A.3B;
- f) [not applicable]
- g) [not applicable]

Date of issue: 21/02/2019



Robert Boersma  
Senior DOA Team Leader

## Annex A

### Scope of work

	TC	STC	major changes	minor changes	major repairs	minor repairs	flight conditions	permit to fly
<b>(Powered) sailplane</b>								
Avionics (non-TCH activity)								
All areas		■	■	■	■	■		
Cabin (non-TCH activity)								
All areas		■	■	■	■	■		
Electrical Systems (non-TCH activity)								
All areas		■	■	■	■	■		
Flight (non-TCH activity)								
Flight characteristics		■	■	■	■	■		
Hydro-Mechanical Systems (non-TCH activity)								
All areas		■	■	■	■	■		
Powerplant and Fuel Systems (non-TCH activity)								
All areas		■	■	■	■	■		
Structures (non-TCH activity)								
All areas		■	■	■	■	■		
<b>Propeller</b>								
All scope (TCH)								
All areas	■		■	■	■	■		
Propulsion (non-TCH activity)								
Propulsion		■	■	■	■	■		

	TC	STC	major changes	minor changes	major repairs	minor repairs	flight conditions	permit to fly
<b>Small aeroplane</b>								
<b>Flight</b>								
Flight characteristics		■		■	■	■		
<b>Hydro-Mechanical Systems</b>								
Flight controls		■		■	■	■		
Fuselage doors		■		■	■	■		
Hydraulics/Pneumatics systems		■		■	■	■		
Landing gear systems		■		■	■	■		
<b>Structures</b>								
Control surfaces / Moveables		■		■	■	■		
Empennage		■		■	■	■		
Engine mounts		■		■	■	■		
Fuselage		■		■	■	■		
Landing gears		■		■	■	■		
Support for external equipment		■		■	■	■		
Wings		■		■	■	■		

	TC	STC	major changes	minor changes	major repairs	minor repairs	flight conditions	permit to fly
<b>VLA / LSA</b>								
All scope (TCH)								
All areas	■		■	■	■	■		
Avionics (non-TCH activity)								
All areas		■		■	■	■		
Cabin (non-TCH activity)								
All areas		■		■	■	■		
Electrical Systems (non-TCH activity)								
All areas		■		■	■	■		
Flight (non-TCH activity)								
Flight characteristics		■		■	■	■		
Hydro-Mechanical Systems (non-TCH activity)								
All areas		■		■	■	■		
Powerplant and Fuel Systems (non-TCH activity)								
All areas		■		■	■	■		
Structures (non-TCH activity)								
All areas		■		■	■	■		

**Legend:**

■	Title for product
■	Title for scope
■	Within scope
□	Outside scope

### List of products

Product	Design Activity	Types
Propeller	TC	TCDS EASA.P.018 WD4-51 series propellers
VLA / LSA	TC	TCDS EASA.A.019 D4 Fascination  The DOA is undertaking the actions and obligations under 21.A.2 on behalf of Light Wing GA as TC holder for:  TCDS EASA.A.588 LIGHTWING AC4

### Limitations

Product	Limitations particular to each product
Propeller	For non-TCH activity: Propeller changes and repairs only for CS22 Subpart J certified propellers

## **ANNEX B**

Aircraft Design Certification GmbH Letter from Mr Boris Kolmel, Head of Airworthiness EASA.21J.411, certifying that the Bristell NG5 aircraft as tested are compliant with ASTM F2245 para 4.5.9.

**BRM AERO s.r.o.**  
Milan Bříšťela  
Letecká 255  
686 04 Kunovice

Tschechische Republik

email  
bk@aircraftdc.de

your number, your message from	our number, our message from	phone, name	date
-	BRM NG5 Spin Test	+49 179 601 9548 Herr Kölmel	10.02.2021

Dear Mr. Bříšťela,

We have reviewed the provided data (report and ref. videos) and conclude:  
For the LSA-class of aircraft the flight test method, data and reporting according REPORT ON THE SPIIN TESTIING OF BRIISTELL LSA AIIRCRAFT COMPLETED, dated 22<sup>nd</sup> Feb. 2020 is sufficient to be used for compliance demonstration to par. 4.5.9 "no intentional spins" of ASTM F2245 for the tested configuration.

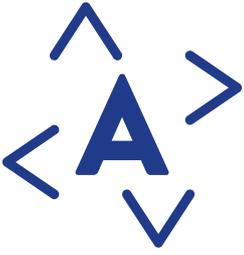
We remain at your disposal.

Yours sincerely,

Boris Kölmel  
Managing Director,  
Head of Airworthiness EASA.21J.411

# ANNEX C

Airmobis s.r.o. Report № BRM NG5 006, 'NG5 spin characteristics' authored and certified by Mr Etienne Vandame, Chief Aerodynamics.



## NG5 spin characteristics

Report Number: BRM-NG5-006

Authors: Mr. Etienne Vandame

Revision: -IR

Position: Chief Aerodynamics

Date of Issue: 19/02/2021

Original Issue: 19/02/2021

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## 1 LOG

Revision	Date of issue	Author(s)	Log
R0	19/02/2021	E. Vandame G. Bianchi	Original issue

## 2 REFERENCES

- [1] Report on the spin testing of Bristell LSA aircraft completed, upgraded 20/02/2020
- [2] NACA report TN D-6575, Summary of Spin Technology as related to Light General-Aviation Airplanes, Bowman, 1971

## 3 TERMINOLOGY

### 3.1 shortcuts

$S_{REF}$	[m <sup>2</sup> ]	reference area
MAC	[m]	Mean aerodynamic chord
b	[m]	wing span
AR	[1]	wing aspect ratio
$Y_{MAC}$	[m]	Y ordinate of the MAC
$XLE_{MAC}$	[m]	X ordinate of the MAC leading-edge
$\rho$	[kg.m-3]	Air density
$V_{TAS}$	[m/s]	True Air Speed
MTOW	[kg]	Maximum Take-Off Weight
W/S	[kg/m <sup>2</sup> ]	Wing loading at MTOW

## 3.2 Formulas

$Q_{DYN}$  [Pa] Dynamic Pressure  $Q_{DYN} = 0.5 \cdot \rho \cdot V_{TAS}^2$

## 3.3 Abbreviation

LG Landing Gear

# 4 SUMMARY

Based on the demonstrated compliance for the both the long and short wing NG-5 (nosewheel) variants detailed in the February 2020 spin test report, and on the opinion of ADxC in their letter dated 10.02.2021, and based on my own analysis detailed below, it is my opinion that all versions of the NG-5 Bristell meet the requirements of ASTM F2245 para 4.5.9.

# 5 NASA ANALYTICAL METHOD

## 5.1 Methodology

The Tail Damping Power Factor method is detailed in **REF [2]**. It summarizes several prior technical evaluations of spinning aircraft and extends them to include light, general aviation aircraft. The method characterizes aircraft by two parameters that describe the mass distribution of the airplane and the power available from the rudder to counteract a spin. The mass distribution is evaluated in terms of the Inertial Yawing Moment Parameter.

$$IYMP = \frac{I_x - I_y}{mb^2}$$

The Tail Damping Power Factor is evaluated by investigating the geometry of the vertical stabilizer and rudder. The methodology identifies the part of the aircraft rudder area that is outside of the wake of the horizontal stabilizer and its moment arm as being the most important and effective spin recovery parameters. This is described by the Unbalanced Rudder Volume Coefficient parameter (URVC).

$$URVC = \frac{S_{R1}L_1 + S_{R2}L_2}{S(b/2)}$$

A second parameter is the side area of the fuselage underneath the horizontal stabilizer (and therefore outside its wake) and its moment arm. This is described by the Tail Damping Ratio (TDR).

$$TDR = \frac{S_F L^2}{S(b/2)^2}$$

The spin angle of attack is assumed to be 45 degrees for configurations with  $TDR < 0.019$  and 30 degrees for configurations with  $TDR > 0.019$ . The parameters  $S_{R1}$ ,  $S_{R2}$ ,  $S_F$ ,  $L$ ,  $L_1$ ,  $L_2$  are computed as shown in Figure 1.

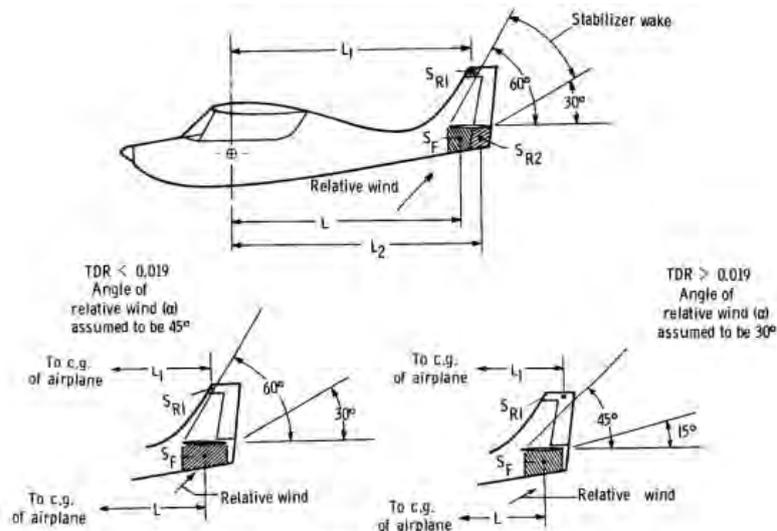


Figure 1: Stabilizer parameters (from /1/)

The resulting TDPF is plotted against the IYMP and compared with statistical results derived from aircraft having a similar Relative Density ( $\mu$ ) where  $\mu = m/\rho S b$  for aircraft of various relative densities and suggests statistically-derived boundaries for aircraft having acceptable and unacceptable spin recovery characteristics

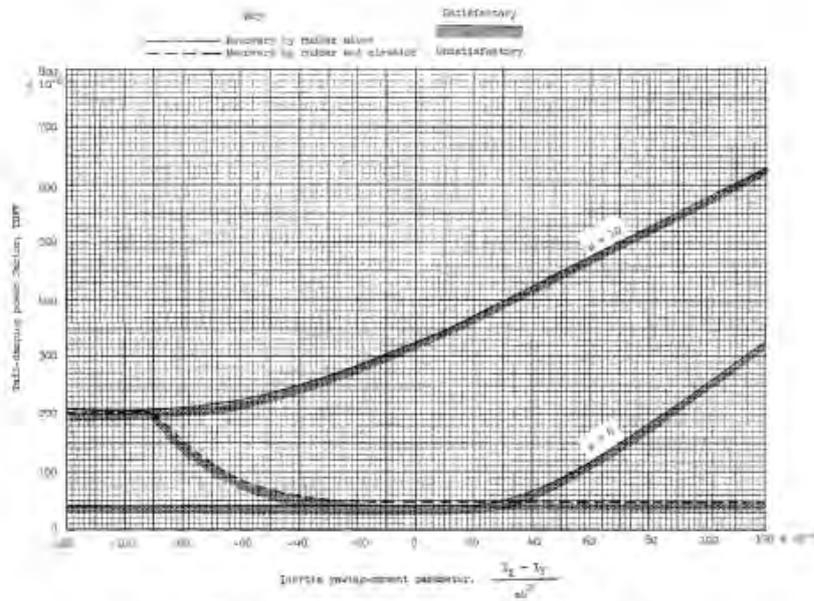


Figure 2: NACA criteria for light aircraft

## 5.2 Cases

All relevant aircraft arrangements were analyzed:

- long wing – tricycle LG
- long wing – classic LG
- long wing – retractable LG
- short wing – tricycle LG
- short wing – classic LG
- short wing – retractable LG

Then, for each arrangement, three load cases were used to cover the boundaries of the flight envelope:

- WC1: Minimum flying weight
- WC2: Maximum take-of weight, forward Center-of-Gravity
- WC3: Maximum take-of weight, rearward Center-of-Gravity

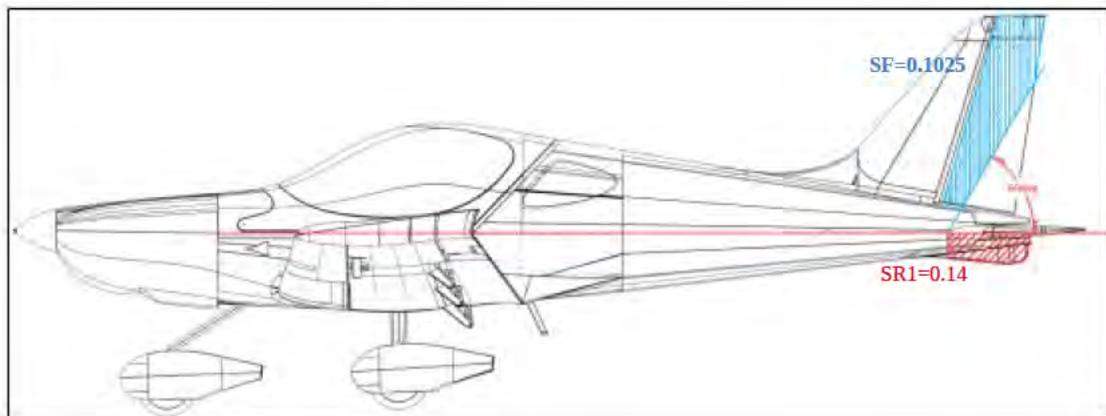
## 5.3 Results

The weight-CG conditions for combinations of aircraft arrangements and load cases are listed in the two tables below.

Long Wing										
		Tricycle			Classic			Retractable		
		WC1	WC2	WC3	WC1	WC2	WC3	WC1	WC2	WC3
<b>m</b>	[kg]	378	600	600	373	595	595	378	600	600
<b>Xcg</b>	[m]	1.788	1.832	1.899	1.788	1.832	1.899	1.788	1.832	1.899
<b>Ycg</b>	[m]	-0.061	-0.001	0.028	-0.061	-0.001	0.028	-0.061	-0.001	0.028
<b>Zcg</b>	[m]	-0.146	-0.114	-0.098	-0.146	-0.114	-0.098	-0.146	-0.114	-0.098
<b>Ixx</b>	[kg.m <sup>2</sup> ]	593	668	627	591	667	625	581	656	614
<b>Iyy</b>	[kg.m <sup>2</sup> ]	515	536	559	515	536	559	512	532	555
<b>Izz</b>	[kg.m <sup>2</sup> ]	1040	1136	1114	1039	1135	1112	1024	1120	1097

Short Wing										
		Tricycle			Classic			Retractable		
		WC1	WC2	WC3	WC1	WC2	WC3	WC1	WC2	WC3
<b>m</b>	[kg]	374	600	600	369.2	600	600	374	600	600
<b>Xcg</b>	[m]	1.786	1.830	1.896	1.786	1.830	1.896	1.786	1.830	1.896
<b>Ycg</b>	[m]	-0.061	-0.001	0.028	-0.061	-0.001	0.028	-0.061	-0.001	0.028
<b>Zcg</b>	[m]	-0.143	-0.112	-0.096	-0.143	-0.112	-0.096	-0.143	-0.112	-0.096
<b>Ixx</b>	[kg.m <sup>2</sup> ]	536	615	573	534	613	572	523	603	561
<b>Iyy</b>	[kg.m <sup>2</sup> ]	515	536	559	515	536	559	511	532	555
<b>Izz</b>	[kg.m <sup>2</sup> ]	983	1084	1061	982	1082	1059	967	1068	1045

The Figure below shows the areas used for the computation of URVC and TDR.



**Figure 3: Rudder and Tail areas, Sr1 & Sf**

The table below shows the numerical results for the long wing tricycle configuration of the NG5.

long wing - tricycle				
WC	TDPF*10 <sup>6</sup>	Inertia-yaw*10 <sup>4</sup>	$\mu_{SL}$	$\mu_{MAIt}$
1	58.25	26.54	2.984	4.591
2	56.29	28.58	4.737	7.287
3	53.37	14.61	4.737	7.287

The table below shows the numerical results for the long wing classical LG configuration of the NG5.

long wing - classic				
WC	TDPF*10 <sup>6</sup>	Inertia-yaw*10 <sup>4</sup>	$\mu_{SL}$	$\mu_{MAIt}$
1	58.26	26.26	2.946	4.533
2	56.29	28.42	4.699	7.229
3	53.37	14.34	4.699	7.229

The table below shows the numerical results for the long wing retractable LG configuration of the NG5.

long wing - retractable				
WC	TDPF*10 <sup>6</sup>	Inertia-yaw*10 <sup>4</sup>	$\mu_{SL}$	$\mu_{MAIt}$
1	58.26	23.55	2.984	4.591
2	56.29	26.70	4.737	7.287
3	53.37	12.73	4.737	7.287

The table below shows the numerical results for the short wing tricycle configuration of the NG5.

short wing - tricycle				
WC	TDPF*10 <sup>6</sup>	Inertia-yaw*10 <sup>4</sup>	$\mu_{SL}$	$\mu_{MAIt}$
1	102.16	9.19	3.677	5.657
2	98.71	21.83	5.901	9.078
3	93.68	3.94	5.901	9.078

The table below shows the numerical results for the short wing classic LG configuration of the NG5.

short wing - classic				
WC	TDPF*10 <sup>6</sup>	Inertia-yaw*10 <sup>4</sup>	$\mu_{SL}$	$\mu_{MAIt}$
1	102.16	8.51	3.630	5.585
2	98.71	21.51	5.854	9.006
3	93.68	3.48	5.854	9.006

The table below shows the numerical results for the short wing retractable LG configuration of the NG5.

short wing - retractable				
WC	TDPF*10 <sup>6</sup>	Inertia-yaw*10 <sup>4</sup>	$\mu_{SL}$	$\mu_{MAIt}$
1	102.16	5.34	3.677	5.657
2	98.71	19.44	5.901	9.078
3	93.68	1.55	5.901	9.078

Figure 4 and Figure 5 plot all LG arrangements results against the pass/fail criteria, respectively for the long and the short wing configurations. Data shows the spin characteristics of the NG-5 to be above the minimum threshold for aircraft of bigger size ( $\mu=6$ ). The true threshold for both NG-5 configurations which corresponds averagely to  $\mu=4.5$  is lower giving therefore an even bigger margin relative to the pass criteria.

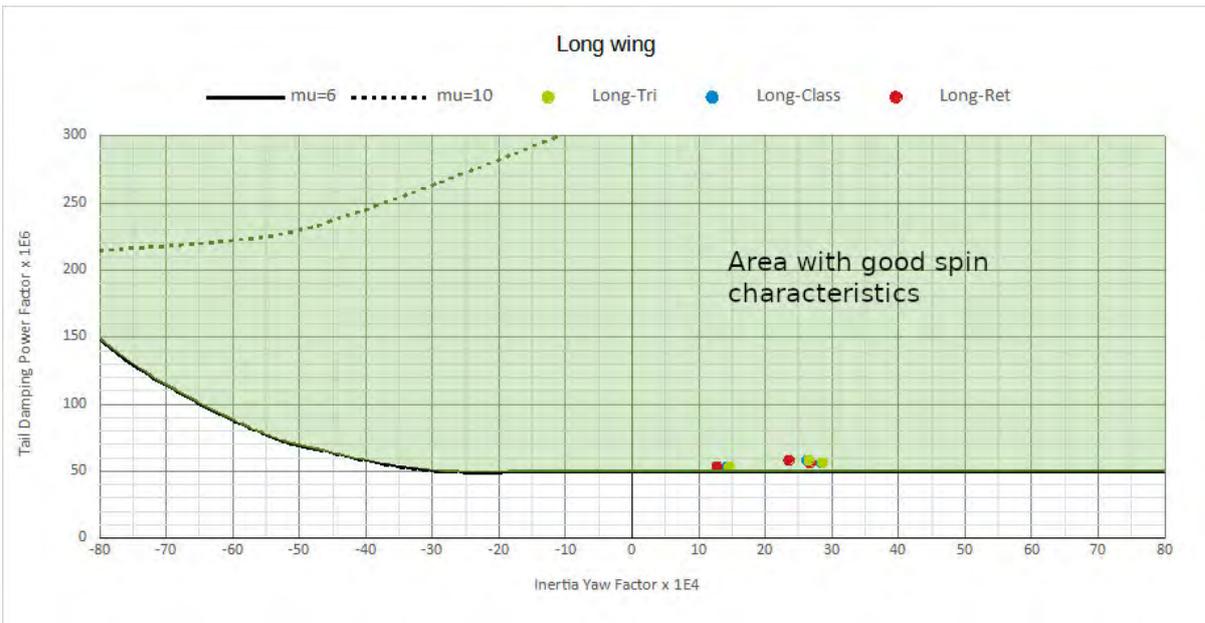


Figure 4: Long wing TDPF method results

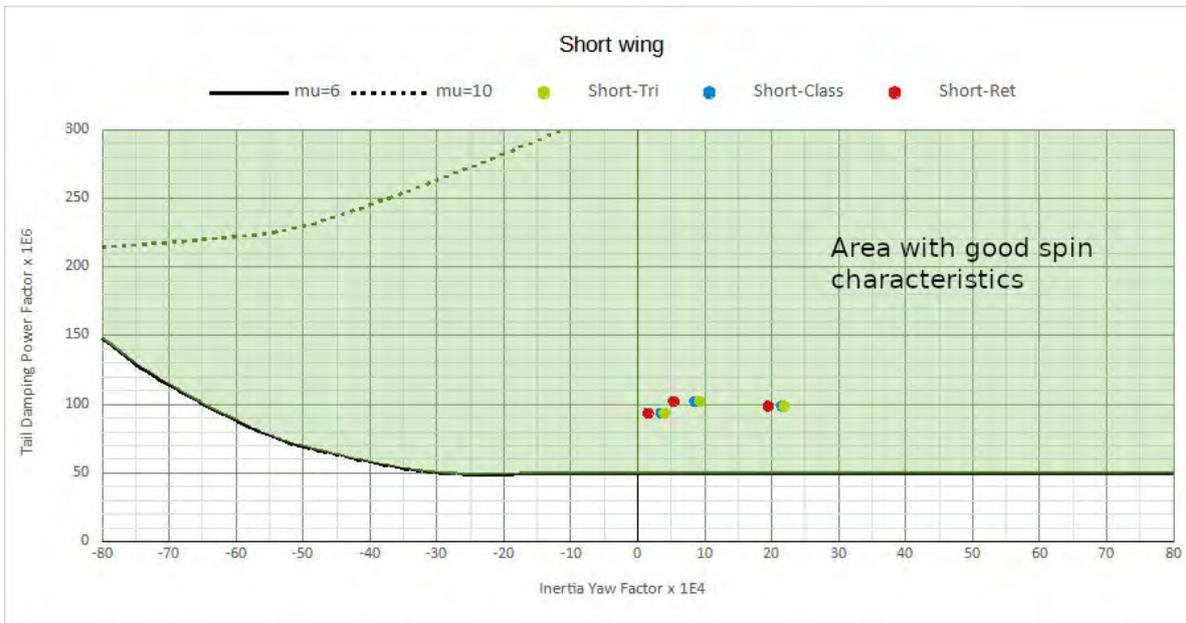


Figure : Short wing TDPF method results

## 5.4 Conclusion - NASA

According to NASA methodology, all arrangements of NG-5 (wing size and landing-gear types) are able to meet the spin requirements of ASTM F2245 para 4.5.9.

## **ANNEX D**

FAA email to USA Bristell distributor Mr John Rathmell Mr Brian Cable, Manager Airworthiness Certification Section. FAA confirms that they are satisfied that the Bristell meets ASTM LSA spin requirements.

## Fwd: Bristell LSA

---

From: John Rathmell (funtofly1@gmail.com)

To: edgeaviation@yahoo.com

Date: Thursday, September 10, 2020, 01:22 AM GMT+10

---

FYI for Friday.

Warmest Regards;

John Rathmell

Bristell Aircraft  
Partner and Sales Manager  
Bristellaircraft.com  
717-371-8677 (c)  
[funtofly1@gmail.com](mailto:funtofly1@gmail.com)

----- Forwarded message -----

From: **Cable, Brian (FAA)** <[brian.cable@faa.gov](mailto:brian.cable@faa.gov)>

Date: Thu, Apr 9, 2020 at 9:59 AM

Subject: Bristell LSA

To: [funtofly1@gmail.com](mailto:funtofly1@gmail.com) <[funtofly1@gmail.com](mailto:funtofly1@gmail.com)>

Cc: Gentile, Fred (FAA) <[Fred.Gentile@faa.gov](mailto:Fred.Gentile@faa.gov)>, Chasteen, Terry (FAA) <[terry.chasteen@faa.gov](mailto:terry.chasteen@faa.gov)>

Hello,

Thank you for your call yesterday. As discussed, my office very recently received documents concerning the Bristell LSA addressing our concerns meeting ASTM LSA spin requirements. They show that the manufacturer recently conducted the required testing. These documents satisfy that they have now successfully conducted the required spin testing. After review of the information, Terry Chasteen and myself do not feel additional actions are required at this time. As part of the review, we have also verified that the aircraft is placarded prohibiting purposely entering stall/spins and annotated in the POH. Also, we are continuing our communications with CASA. Please let me know if you have any additional questions.

Brian

Brian Cable

Manager, Airworthiness Certification Section

Aircraft Certification Service

Federal Aviation Administration

(202) 267-1579

## **ANNEX E**

FAA Letter to the Chief Flying Instructor, Mid Island Air Service Inc. This letter is confirmation that the FAA does not agree with CASA and at no time will they prohibit nor prevent operation of Bristell aircraft by Mid Island Air Service.



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Aviation Safety

Farmingdale Flight Standards District Office  
7150 Republic Airport  
Administration Building, Suite 235  
Farmingdale, NY 11735  
T - 631.755.1300  
F - 631.694.5516

August 6, 2020

DELIVERED VIA ELECTRONIC MAIL

Mr. Evan S. Damadeo  
Chief Flight Instructor  
Mid Island Air Service, Inc.  
139 Dawn Drive  
Shirley, NY 11967

Dear Mr. Damadeo:

This is an update to our letter of March 5, 2020 where our office notified you of a safety concern regarding BRM Bristell aircraft. In that letter, we informed you about an Australian Civil Aviation Safety Authority (CASA) investigation and related Australian Safety Notice dated February 19, 2020, which states:

“Pilots and operators of Bristell light sport aircraft (LSA) are strongly advised to avoid conducting any maneuver that may lead to an aerodynamic stall of the aircraft either intentionally or unintentionally. This includes any flight training for stalls.”

Our March 5, 2020 letter was notification of a valid safety concern that may occur with Bristell aircraft entering an unrecoverable spin after either an intentional or unintentional stall maneuver.

The Federal Aviation Administration (FAA) Aircraft Certification Section has reviewed information provided by both Australian CASA and BRM Aero, the aircraft manufacturer. The FAA Aircraft Certification Section has stated that based on BRM Aero’s responses we will not be taking any action on the findings raised by CASA, although CASA still has concerns and will continue to communicate with FAA and BRM Aero.

To clarify, the position of this office is, at no time did we nor will we prohibit nor prevent operation of Bristell aircraft by Mid Island Air Service under Title 14, Code of Federal Regulation Part 61 or Part 141. Any operations must be conducted in accordance with the BRM Aero Bristell aircraft operations manual and be within your approved training manuals or syllabus for Part 141 operations. As stated, the FAA Aircraft Certification Section will not be taking any actions regarding operations of the Bristell at this time. The current BRM Aero Bristell Aircraft Operations Manual Section 2.9 does allow for stall maneuvers to be conducted with the aircraft.

Sincerely,

Erik F. Anderson  
Manager, Farmingdale Flight Standards District Office

## ANNEX F

Statement by the owner of the Bristell aircraft registered [REDACTED] that was flown by the 'test pilot' at Latrobe Regional Airport on 11 December 2011. These flight tests formed the basis of CASA's subsequent request for certification data.

*BRM Aero maintains that these flights were very unprofessional, [REDACTED], in that this statement confirms that the aircraft was flown beyond manufacturers limits as published in the Aircraft Operating Instructions.*

## STALL TEST OF BRISTELL AIRCRAFT [REDACTED]

On 11<sup>th</sup> December 2017, RA-Aus CFI [REDACTED] test flew my Bristell aircraft Registration number [REDACTED] at Latrobe Airport (YLTV) solo, in order, as I was told by [REDACTED], to provide data to assist the Coroner with investigations relating to an accident and fatality that occurred on the 3 August 2017 at Clyde, Victoria.

Having owned the aircraft for just over a year and logged 95 hours flight time, during which no fewer than twenty stalls from straight and level flight were executed without incident, I was enthusiastic to do what I could to demonstrate to the authorities what a safe and stable aircraft the Bristell really is. [REDACTED] taught me to fly 3 axis aircraft 9 years ago and as my RA-Aus instructor I hold [REDACTED] in high regard as both [REDACTED]

[REDACTED] flew with me for an hour of coaching days after I purchased the Bristell during which we included a stall among the other training manoeuvres. I considered him well qualified to comment on the stall characteristics of the aircraft, and confirm, what I already knew, which was that the Bristell was a very comfortable, well built, stable and safe aircraft.

I was told, officials from the Coroner's office would be in attendance, however on my arrival at the Latrobe Valley Aeroclub clubrooms, I was informed the Coroner was attending other business, and that Mr. Darren Barnfield, Technical Manager of RA-Aus, would oversee the testing.

It occurred to me, despite my confidence in [REDACTED], that this type of scrutiny would be even better served were the testing done in co-operation with [REDACTED] who had used Bristell aircraft as his Ab Initio trainer for several years around the [REDACTED], and with whom I had completed my Bristell type conversion. No one has more experience with these aircraft being used in the training environment in Australia than [REDACTED] and his instructors, however, I was informed by Mr Barnfield, after I made this suggestion, that they preferred a more independent tester with no risk of a conflict interest in the Bristell aircraft.

Mr Barnfield was present and busy preparing documentation for the testing on my arrival with the aircraft.

After checking the aircraft Maintenance Logbook, and using the POH to calculate W&B, [REDACTED] donned a slim form parachute, before exiting the clubrooms and climbing aboard the aircraft. Some 40 minutes later the aircraft returned, the testing completed, and after re-entering the Clubrooms, [REDACTED] remarked that nothing untoward had taken place.

He then sat with Mr Barnfield to discuss his findings. I was distracted talking with another pilot for some minutes before returning to the briefing table and discussion. Upon asking how it went, [REDACTED] suggested we fly together straight away, so he could demonstrate for me what he did

during his test flight, in order that I could experience how the aircraft performed at slow flight before entering a stall and observe any tendencies that may result in a spin beginning to develop.

We departed and climbed to an altitude of approximately 4,000 ft AGL, 5 miles to the south of the Airport. With zero flap applied, [REDACTED] proceeded to cut power and increase the angle of attack to slow airspeed to the stall. A moderate right hand wing drop accompanied the stall, which was recovered by lowering the nose and applying opposite rudder, without any spin developing, the exact experience I was familiar with from my own numerous induced stalls.

After climbing back to 4,000 ft the second stall was executed this time applying 2 stages of flap. Stall was accompanied by the same moderate right-hand wing drop. Recovery was delayed a couple of seconds during which the aircraft rotated approximately 180 degrees after which standard recovery to straight and level flight was achieved.

With 2 stages of flap still extended [REDACTED] then demonstrated the effect of commencing a slow pull back of the stick, which was released as the nose rose. The stick continued to move backward by itself until stall occurred, after which the nose dipped accompanied by slight right-hand wing drop, followed by a second rise of the nose. It was necessary to firmly ease the stick forward to unload from the stall to regain straight and level flight.

After landing and returning to the clubrooms I briefly spoke with Mr. Barnfield where he told me the Bristell is a nice High Performance Light Sport Aircraft, but in his opinion not really suitable for Ab Initio Training.

[REDACTED] commented about how comfortable the Bristell was to fly in, and that it would make an excellent Cross Country Trainer but would not be his choice for an Ab Initio Trainer.

[REDACTED]  
[REDACTED]  
[REDACTED]

5th February 2021

## **ANNEX G**

Letter from USA Bristell Distributor Mr John Rathmell stating that contrary to CASA's statement, approximately 20% of the Bristell fleet in the US are currently used for full time flight training.



TO: Edge Aviation  
PO Box 1219  
Sale, Victoria  
Australia 3850  
edgeaviation@yahoo.com

9<sup>th</sup> February 2021

Attn: Lorraine MacGillivray

Dear Lorraine

**RE: BRISTELL AIRCRAFT & FLIGHT TRAINING IN THE UNITED STATES**

In reference to our conversation regarding the number of Bristell aircraft engaged in flight training the United States I wish to confirm the following:

Over the past 6 years, or so, the number of Bristell Light Sport Aircraft operated in certified Flight Training facilities are:

- For past 3 years, approximately, 20% of the Bristell fleet in the U.S are currently engaged in full time training use.
- In the preceding 3 years, 10-15% of BRM Aero aircraft in the U.S. were engaged in full time training use.
- Some planes are owned by private owners were purchased specifically to acquire a pilot certificate and are not included in the figures above.

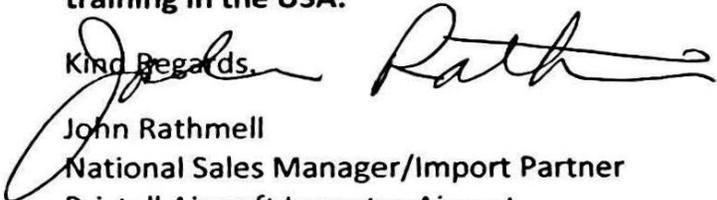
If it were stipulated by CASA, that "All the Bristell aircraft in the United States are engaged in only private operations." that assertion or statement by the Australian Civil Aviation Safety Authority (CASA) is: **FALSE**. That stipulation is not correct, and any public comment re: same should be rescinded and correctly revised (see above).

Re two complete airframe loss accidents:

- There was a non-training accident at Oshkosh where the cause was pilot error and considered an operational issue. The Bristell was not at fault. By mutual agreement between the FAA and the pilot, the pilot received FAA recommended remedial training and the pilot was returned to flying status with no suspension of privileges or fines (that I am aware of).
- There was another total loss accident where a Bristell owner who was an accomplished race car driver unexplainably crashed while in the pattern. He was solo at the time. He had completed several patterns normally. He had a known medical condition (a possible heart condition per my 1<sup>st</sup> hand conversation with him 1 yr. prior to the accident). An abrupt and unexpected pull up occurred, opposite the tower assigned pattern direction, which resulted in a complete airframe loss. Witnesses said there was no apparent attempt to recover from the abrupt pull up. The aircraft was deemed to be not at fault and in good operating condition.

**To my knowledge, there have been no fatalities or serious injuries, or accidents related to flight training in the USA.**

Kind regards,

  
John Rathmell  
National Sales Manager/Import Partner  
Bristell Aircraft Lancaster Airport  
500 Airport Rd. Suite D  
Lititz, PA 17602

+1-717-371-8677 (c)

# ANNEX H

Light Aircraft Association of the Czech Republic Authorisation to produce, repair, test and import Sport Flying Equipment and its parts.



*Letecká amatérská asociace ČR – Light Aircraft Association of the Czech Republic*

**Authorisation to produce, repair,  
test and import Sport  
Flying Equipment and its parts**

Issued by the Light Aircraft Association of the Czech Republic, authorized by the Czech Ministry of Transport to perform state administration regarding sport flying equipment in accordance with § 82 sect. 1 of the Law no. 49/1997 Collection of Laws, On Civil Aviation and on a change and amendment of the Law no. 455/1991 Collection of Laws, On Trade Business (Trade law), and subsequent amendments.

**Registration Number:**

**03 / 2010**

**Approval holder:**

**BRM AERO, s.r.o.**

**Address: Letecká 255, 686 04 Kunovice (change since 26.4.2019)**

**Company ID number / date of birth: 29190924**

**Responsible person:**

**Ing. Milan Bříšťela**

**Address: Václava Kulíška 1224, 686 05 Uherské Hradiště**

**Date of birth: 04. 11. 1958**

**Approval scope:**

**Development, production, inspections and repairs of Sport Flying Equipment**

**LAA supervisor:**

**Ing. Jiří Vychopeň**

The Holder of the Approval is obliged to proceed in accordance with appropriate articles of LA 1 regulation and applicable articles of other regulations.

**Date of issue: 01. 05. 2010 Extended on 19.4.2013 till 1.5.2016**

**Valid till: 01.05.2013 Extended on 19.4.2016 till 1.5.2016**

**Extended on 26.4.2019 till 1.5.2022**

**Ing. Václav Chvála**

**The Chief Technical inspector  
of LAA CR**

# ANNEX I

Declaration by test pilot Mr Yury Vashchuk that the Bristell aircraft is compliant with the requirements of ASTM F2245, para 4.5.9, in particular 4.5.9.1 & 4.5.9.2.

**CIVIL AVIATION SAFETY AUTHORITY OF  
AUSTRALIA**

**Mr. Anthony STANTON**

***Branch Manager***

**General, Recreational and Sport Aviation Branch**

In Voronezh 28<sup>th</sup> Juni 2019

## **DECLARATION**

I hereby declare, that BRISTELL aircraft is in compliance with the requirements of ASTM F2245, 4.5.9 Spinning, items 4.5.9.1 and 4.5.9.3.

My Declaration is based on the extensive flight testing of spin characteristics, which I have performed on BRISTELL aircraft in VORONEZH in June, 2019.

I hereby confirms, that it is possible to recover Bristell aircraft from one-turn spin in no more than one additional turn, with controls normally used for recovery. There are not exceeded airspeed limits or limit load factors.

There are no excessive control forces during spin or recovery.



.....  
**Yury VASHCHUK**  
**Test - pilot, Moscow, RUSSIA**

## **ANNEX J**

Declaration by test pilot Mr Yury Vashchuk that during the test flying of the Bristell aircraft full control deflections were used and full 360° spins rotations were carried out during the spin test flights.

**CIVIL AVIATION SAFETY AUTHORITY OF  
AUSTRALIA**

**Mr. Anthony STANTON**

***Branch Manager***

**General, Recreational and Sport Aviation Branch**

In Voronezh 5<sup>th</sup> September 2019

## **DECLARATION**

I, Yury Vashchuk, the test- pilot which has performed the flight tests of spin characteristics of Bristell aircraft in Voronezh in June, 2019, hereby confirms that:

- I performed spin tests with normal use of the controls (ailerons neutralised) on 2.6.2019
- I performed spin tests with abnormal use of the controls (pro-spin, anti-spin ailerons on 16.6.2019
- Full deflections of the ailerons were applied on 16.6 during spins no. 4 to 10
- I had the control stick fully pulled during spin first turn,  
I had the control stick fully pulled and fully deflected aside in case of anti-spin ailerons spins
- All performed spins took one complete 360 deg turn
- I have performed first control input to recover a spin after 360° turn

This Declaration is issued on the basis of CASA complaints, presented on CASA meeting held on Aug, 27th, and which were listed in BRM Action Plan post 27 Aug 2019 CASA Meeting.

  
.....  
**Yury VASHCHUK**  
**Test - pilot, Moscow, RUSSIA**

# ANNEX K

EASA Type Certificate № EASA.A.642 for the Bristell B23 model.  
The B23 is fully certified to EASA CS 23, Normal category.

## TYPE CERTIFICATE

**EASA.A.642**

This certificate is issued by the European Union Aviation Safety Agency (EASA) in accordance with Regulation (EU) 2018/1139, in particular Article 77 (1) (e) thereof and Commission Regulation (EU) No. 748/2012 to

**BRM AERO, S.R.O.**

**LETECKA C.EV. 255  
686 04 KUNOVICE  
CZECH REPUBLIC**

and certifies that the product type design listed below complies with the applicable Type Certification Basis and, if applicable, environmental protection requirements when operated within the conditions and limitations specified on the associated Type Certificate Data Sheet Number: **EASA.A.642**

**Type Design: Bristell B23**

<b>Model</b>	<b>Initial Certification Date*</b>
Bristell B23	07 October 2020

\*Note: With regard to a product for which a type certificate was issued before 28 September 2003 by an EASA Member State, the Initial Certification Date refers to the date of issuance of the initial type certificate of this product by the competent authority of that State.

**For the European Union Aviation Safety Agency  
Cologne, Germany, 07 October 2020**

*P.O. Dominik Rofner*



**Rachel DAESCHLER  
Certification Director**



# **ANNEX L**

EASA Production Organisation Approval Certificate № CZ.21G.0063 issued by the Director of Technical Division, CM CZ.

This certificate authorises production of the EASA certified Bristell B23 model.

**PRODUCTION ORGANISATION APPROVAL CERTIFICATE**  
**OSVĚDČENÍ O OPRAVNĚNÍ ORGANIZACE K VÝROBĚ**

REFERENCE:  
ČÍSLO OPRAVNĚNÍ: **CZ.21G.0063**

Pursuant to regulation (EC) No 216/2008 of the European Parliament and of the Council and to Commission Regulation (EU) No 748/2012 for the time being in force and subject to the conditions specified below, the Civil Aviation Authority of the Czech Republic hereby certifies:

Na základě platného nařízení Evropského parlamentu a Rady (ES) č. 216/2008 a nařízení Komise (EU) č. 748/2012 a s výhradou podmínek uvedených níže Úřad pro civilní letectví České republiky tímto osvědčuje:

**BRM AERO, s.r.o.**

**Letecká č. ev. 255, 686 04 Kunovice**

as a production organization in compliance with the Annex (Part 21), Section A, Subpart G of Regulation (EU) No 748/2012, approved to produce products, parts and appliances listed in the attached approval schedule and issue related certificates using the above references.

v souladu s oddílem A hlavou G přílohy (část 21) nařízení (EU) č. 748/2012, oprávněnou k výrobě výrobků, letadlových částí a zařízení uvedených na seznamu v přiloženém rozsahu oprávnění a k vydávání osvědčení s použitím výše uvedených odkazů.

**CONDITIONS / PODMÍNKY:**

1. This approval is limited to that specified in the enclosed terms of approval; and  
Toto oprávnění je omezeno rozsahem stanoveným v přiložených Podmínkách oprávnění; a
2. This approval requires compliance with the procedures specified in the approved production organisation exposition; and  
Toto oprávnění vyžaduje vyhovění postupům stanoveným ve schváleném Výkladu organizace výroby; a
3. This approval is valid whilst the approved production organisation remains in compliance with the Annex (Part 21) of Regulation (EU) No 748/2012.  
Toto oprávnění zůstává platné, dokud organizace oprávněná k výrobě vyhovuje příloze (část 21) nařízení (EU) č. 748/2012.
4. Subject to compliance with the foregoing conditions, this approval shall remain valid for an unlimited duration unless the approval has previously been surrendered, superseded, suspended or revoked.  
S výhradou splnění výše uvedených podmínek není platnost tohoto oprávnění časově omezená, pokud se jej dříve držitel nevzdá, není nahrazeno, pozastaveno nebo zrušeno.

Date of original issue (dd/mm/yyyy): Datum původního vydání (dd/mm/yyyy):	18/11/2020	Signed: Podpis:	 Ing. Vít Zářybnický Director of Technical Division, CAA CZ Ředitel Sekce technické, ÚCL
Date of this revision (dd/mm/yyyy): Datum této revize (dd/mm/yyyy):	-		
Revision No: Revize č.:	-		

<p align="center"><b>CZECH REPUBLIC</b> A Member of the European Union <b>ČESKÁ REPUBLIKA</b> Člen Evropské unie</p>	<p align="center"><b>Terms of Approval</b> <b>Podmínky oprávnění</b></p>	<p align="center"><b>TA: CZ.21G.0063</b></p>		
<p>This document is part of Production Organisation Approval Number CZ.21G.0063 issued to Tento dokument je součástí Oprávnění organizace k výrobě číslo CZ.21G.0063, vydaného pro</p> <p><b>BRM AERO, s.r.o.</b></p> <p>Section 1. <b>SCOPE OF WORK:</b> Oddíl 1. <b>ROZSAH PRÁCE:</b></p> <table border="0" data-bbox="236 640 1066 831"> <tr> <td style="vertical-align: top;"> <p><b>PRODUCTION OF</b> <b>VÝROBA</b></p> <p>Very light airplanes : Bristell B23 <b>A11</b> Velmi lehké letouny: Bristell B23 Maintenance A 11 <b>D1</b> Údržba A11</p> </td> <td style="vertical-align: top; padding-left: 20px;"> <p><b>PRODUCTS/CATEGORIES</b> <b>VÝROBKY/KATEGORIE</b></p> </td> </tr> </table> <p>For details and limitations refer to the Production Organisation Exposition, Section 8 Podrobnosti a omezení naleznete ve Výkladu organizace výroby, oddílu 8</p> <p>Section 2. <b>LOCATIONS:</b> Oddíl 2. <b>MÍSTA: Letecká č. ev. 255, 686 04 Kunovice</b></p> <p>Section 3. <b>PRIVILEGES:</b> Oddíl 3. <b>PRÁVA:</b></p> <p>The Production Organisation is entitled to exercise, within its Terms of Approval and in accordance with the procedures of its Production Organisation Exposition, the privileges set forth in 21A.163. Subject to the following: Výrobní organizace je oprávněna v rámci svých Podmínek oprávnění a v souladu s postupy svého Výkladu organizace výroby využívat práv stanovených v bodě 21A.163, a to za následujících podmínek:</p> <p>Prior to approval of the design of the product an EASA Form 1 may be issued only for conformity purposes. Před schválením návrhu výrobku smí být Formulář 1 EASA vydán pouze pro účely shody.</p> <p>A statement of Conformity may not be issued for a non approved aircraft. Prohlášení o shodě nesmí být vydáno pro neschválené letadlo.</p> <p>Maintenance may be performed, until compliance with maintenance regulations is required, in accordance with the Production Organisation Exposition Section 8. Údržba smí být prováděna v souladu s Výkladem organizace výroby, oddílem 8, do doby, než je požadováno vyhovění nařízením pro údržbu.</p>			<p><b>PRODUCTION OF</b> <b>VÝROBA</b></p> <p>Very light airplanes : Bristell B23 <b>A11</b> Velmi lehké letouny: Bristell B23 Maintenance A 11 <b>D1</b> Údržba A11</p>	<p><b>PRODUCTS/CATEGORIES</b> <b>VÝROBKY/KATEGORIE</b></p>
<p><b>PRODUCTION OF</b> <b>VÝROBA</b></p> <p>Very light airplanes : Bristell B23 <b>A11</b> Velmi lehké letouny: Bristell B23 Maintenance A 11 <b>D1</b> Údržba A11</p>	<p><b>PRODUCTS/CATEGORIES</b> <b>VÝROBKY/KATEGORIE</b></p>			
<p>Date of original issue (dd/mm/yyyy): Datum původního vydání (dd/mm/yyyy):</p>	<p>Signed: Podpis:</p>			
<p>Date of this revision (dd/mm/yyyy): Datum této revize (dd/mm/yyyy):</p>	<p align="center"> Ing. Vít Zárybnický</p>			
<p>Revision No: Revize č.:</p>	<p align="center">Director of Technical Division, CAA CZ Ředitel Sekce technické, ÚCL</p>			

# **ANNEX M**

BRM Aero detailed response to CASA's  
'Notice of decision to impose operating limitations upon BRM Aero Light Sport Aircraft (BLSA) under  
regulation 262APA of the Civil Aviation Regulations 1988' dated 28 July 2020.

## BRM AERO RESPONSE TO CASA 'REASONS' FOR IMPOSING OPERATING LIMITATIONS

No	CASA Procedural Background	BRM Aero Response
1	<p>CASA has written to BRM, its local agent(s), or legal representative, on several occasions seeking the provision of certain specified evidence of aircraft certification, including, but not only, on 10 May 2018, 1 November 2018, 24 December 2018 and 7 February 2019. In particular, the correspondence of 24 December 2018 placed BRM on notice that CASA had a safety concern regarding BLSA and that despite a series of requests, BRM had consistently failed to provide any information in relation to the testing of BLSA against the spin performance requirements set out in the ASTM standards. The 24 December 2018 correspondence provided BRM with formal notice CASA was considering applying operational limitations if it again failed to provide the requested information.</p>	<p>It is agreed that CASA wrote to BRM Aero on multiple occasions and BRM Aero responded. As has been explained to CASA multiple times in the past the manufacturer's employees normally communicate in their native language, Czech. English is very much a second language to them and consequently a lot of misunderstanding occurs in communication, particularly with native English speaking people. The BRM Aero response to Item 5 below is a clear indication of the problem.</p> <p>It should be noted that on several notable occasions CASA has failed to respond to BRM Aero correspondence. The Anderson Aviation letter to Mick Poole dated 23 June 2018 remained unanswered until after the matter was raised during the 3 April 2020 teleconference. The BRM Aero letter to CASA dated 6 October 2019 that explains most of the issues previously raised by CASA remains unanswered to this day.</p> <p>In February 2020, Mr Bob MacGillivray, Edge Aviation, a CASR Part 21.M instrument holder, was engaged by BRM Aero to act as the BRM Aero technical representative in all technical matters dealing with CASA. This was done in order to overcome the language barriers that had plagued BRM Aero / CASA communication to that time, and in particular to ensure that the intent of communication statements was sorted before it became an issue. Reference to Item 5 below, and the BRM Aero response to it shows the damage that misunderstanding of meaning causes.</p>

2	<p>By letter dated 20 February 2020 to BRM, CASA notified BRM that on 19 February 2020, it had decided to issue a Safety Notice (Safety Notice) relating to the operation of BLSA. CASA's letter of 20 February 2020 enclosed a copy of the Safety Notice and explained the reasons why CASA had considered it necessary to issue the Safety Notice. A copy of the Safety Notice was also provided to all of the 48 known registered operators of BLSA in Australia.</p>	<p>During the two hour 18 February 2020 teleconference CASA advised that they were preparing a 'Safety Notice' to alert all Bristell owners about their perceived dangers of stalling Bristell aircraft. We argued that such a notice was unwarranted. They agreed to give us 24 hours to provide them with a written submission as to why the notice should not be issued and that the aircraft was compliant with the ASTM standard. We further argued that 24 hours was insufficient time as we were dealing with the Czech Republic and the time difference. Reluctantly CASA said that we could have 48 hours if their 'director' agreed. We did not hear back.</p> <p>The following morning, less than even the agreed 24 hour deadline, and without further notice, CASA issued the Safety Notice. BRM Aero considered that this premature action was a breach of trust by CASA.</p> <p>This teleconference was recorded by us to ensure accuracy or otherwise of claims made by CASA.</p>
3	<p>Following the issue of the Safety Notice on 19 February 2020, CASA received three email communications from persons in Australia with experience in operation of BLSA. Each of these emails supported CASA's action in issuing the Safety Notice and provided details as to their own safety related experiences, including a claimed propensity of the BLSA to either "violently enter the stall" or to "tumble". Notably, CASA did not receive any communications opposing the issuing of the Safety Notice other than from BRM and its representatives in Australia.</p>	<p>BRM Aero has heard no such assertions about the adverse stall characteristics as described here by CASA. To the contrary, all owners and operators that the issue has been discussed with are perfectly happy and praise the aircraft. Furthermore, formal flight testing of the aircraft, and the continued operation of over 500 Bristell aircraft worldwide has not identified such flight characteristics. It can only be concluded that someone with a grudge or with an ulterior motive made these ridiculous statements.</p>

4	<p>In its letter of 20 February 2020, CASA again placed BRM on notice of CASA's intention to take formal safety action unless the company provided to CASA by 9am AEST on 24 February 2020 specified evidence as to compliance with section 4.5.9 of the ASTM standard F2245 relating to spinning performance requirements and the ability to recover from a spin. Importantly, the documentation requested was of a nature that it ought to have been readily available as it was documentation that was required to be held in order to ensure compliance with the ASTM standards.</p>	<p>The original spin test report dated 26 August 2011 had previously been supplied to CASA but CASA was not satisfied with that. Although extensive spin testing on different variants had been carried out subsequent to that, and data supplied to CASA, it had not all been compiled into a consolidated report at that time.</p> <p>Following receipt of the CASA letter dated 20 February 2020 all of the preceding data was quickly collated and corrected where errors were identified. The updated report dated 22 February 2020 was written jointly by R. MacGillivray in Australia and BRM Aero in the Czech Republic.</p> <p>Whilst accurate in content, the presentation and completeness of the final 22 February 2020 report reflected the compressed time frame allowed by CASA. Refer to the response to Item 6 below. However this is not a reason for CASA to claim the Bristell is non compliant.</p>
5	<p>Amongst other things, CASA's 20 February 2020 letter made reference to a BRM document addressed to "whom it may concern" titled 'statement of Bristell aeroplane spin characteristics' signed and dated 6 March 2017, that had recently been identified by CASA which stated "the spin testing of Bristell aeroplane has not been performed from the above explained reasons" (sic).</p>	<p>This CASA criticism has been comprehensively explained in the BRM Aero response to the CASA Powerpoint presentation, Item 7. In essence the sentence quoted was intended to relate only to the BCAR S certification of the Bristell RG variant where an alternative means of compliance was successfully negotiated with the Israelian authority during certification of the Bristell RG. The Bristell RG is not eligible for certification under ASTM F2245 as it has retractable undercarriage and the ASTM F2245 standard does not allow that.</p> <p><b>The sentence in question was never intended to imply that the fixed undercarriage LSA NG-5 variants certified to ASTM F2245 had not been spin tested.</b></p>

6	<p>On 21 February 2020, CASA was contacted by Mr John Maitland of Maitland Lawyers confirming that he was instructed to represent the Australian importer and distributor of BLSA for BRM and seeking an extension to respond to the CASA letter of 20 February 2020 until close of business on 26 February 2020 or 0900 ESST 27 February 2020.</p>	<p>Agreed The CASA letter was issued on Thursday 20 Feb 2020 with a deadline of 'not later than Monday 24 February 2020 at 9am' (includes the weekend) <b>this was 2 working days!</b> Clearly this time frame was totally unrealistic and reflected a clear lack of understanding of the difficulties in dealing with a company located in a different time zone (10 hours behind Eastern Australia) where the principal personnel speak Czech, English being one of the secondary languages spoken. As stated this was subsequently extended to COB 26 Feb 2020, still only giving us an extra two days, <i>4 working days in total.</i></p>
7	<p>By return email of 21 February an extension was granted until close of business on 26 February 2020. CASA also sought confirmation as to whether Mr Maitland was instructed on behalf of BRM in relation to the issues raised.</p>	<p>Agreed. This is administrative. This has nothing to do with compliance.</p>
8	<p>By email of 24 February 2020, Maitland Lawyers confirmed they were instructed on behalf of BRM also.</p>	<p>Agreed. This is administrative. This has nothing to do with compliance.</p>
9	<p>On 26 February 2020, BRM uploaded to a CASA Sharefile link a report titled "REPORT ON THE SPIN TESTING OF BRISTELL LSA AIRCRAFT COMPLETED" dated 22 February 2020 (spin report) together with a cover letter dated 22 February 2020 (cover letter) and other documentation in relation to spin testing of a short wing design variant conducted in 2019.</p>	<p>Agreed. This is administrative.</p>

10	<p>Following receipt of the material provided by BRM on 26 February 2020, CASA was still not satisfied as to compliance by BLSA with the requirements of section 4.5.9 of the ASTM standard for each of the design variants and also BRM's general capability to make accurate self declarations for certification of LSA. Accordingly, on 11 March 2020, CASA issued the notice of intention to impose operational limitations on BLSA, the terms of which were set out in that notice.</p>	<p>CASA have not been able to precisely state why the spin test report supplied to CASA on 26 Feb 2020 did not satisfy them. To this date CASA have only stated that they are <i>“not satisfied”</i>. Whilst CASA may not be <i>“satisfied”</i>, other regulatory authorities around the world are, particularly the FAA.</p> <p>Attached as <b>ANNEX D</b> is an email from Mr Brian Cable, Manager Airworthiness Certification Section FAA who states that <i>“after review of the information, Terry Chasteen and myself do not feel additional actions are required”</i>.</p> <p>Additionally, Mr Erik Anderson, Manager, Farmingdale Flight Standards District Office, FAA has authored a letter advising that the FAA had no intention of imposing any restrictions or operating limitations on BLSA and that they were happy to allow continued operation of the aircraft in flying school operations. A copy of the letter to one flying school is attached as <b>ANNEX E</b>. Refer also to the response to item 89.</p>
11	<p>Subsequently, a conference was arranged between CASA officers and representatives of BRM, to discuss in greater detail, the concerns outlined in the notice of intention. This conference took place on 3 April 2020. In order to assist BRM's representatives to better understand CASA's concerns, CASA officers spoke to the CASA PowerPoint at that conference, and, following conclusion of the conference, the CASA PowerPoint was made available to BRM's lawyers.</p>	<p>Agreed, the 3 hour teleconference was held on 3 April 2020. On 29 April 2020 BRM Aero provided a detailed response to all of the points raised in the CASA PowerPoint presentation. This meeting was recorded by us to ensure accuracy or otherwise of CASA claims.</p> <p>Other than the 28 July 2020 CASA ‘Notice of Decision’ letter CASA made no attempt to comment, clarify, or dispute any of the BRM Aero response items in their response to the CASA Powerpoint presentation of 3 April 2020. On face value this would appear to any reasonable person that CASA had accepted the BRM Aero response and were satisfied with it.</p> <p>It would be expected that if there was any dispute or disagreement, CASA would respond to BRM Aero in an attempt to clarify the issues before proceeding down the path of imposing limitations they did not!</p>

12	On 29 April 2020, by email, CASA received the BRM response, setting out BRM's position on the matters raised in the notice of intention and in the CASA PowerPoint.	Agreed. This is administrative and nothing to do with compliance.
13	CASA also received five responses to the notice of intention from registered operators of BLSA and one other interested party.	Agreed Details of these responses are provided in Items 95 through 98. Interestingly all responses detailed indicate support for the BLSA and argue against CASA imposing restrictions or limitations.
<b><i>CASA letter dated 20 February 2020</i></b>		
14	The CASA letter of 20 February 2020 sought provision of evidence of compliance to paragraph 4.5.9 of ATSM standard F2245 for each of the known design variants of the BLSA operated in Australia being the NG 4, NG 5 Long Wing, NG 5 Short Wing and TOO Long Wing.	The evidence was provided by way of the BRM Aero spin test report submitted to CASA on 26 February 2020. This report did not cover the NG4 type as was explained in Item 1 to the BRM Aero response to the CASA Powerpoint presentation provided to CASA on 29 April 2020.  Refer also to Item 100 in this response.
15	CASA subsequently reviewed the spin report and cover letter provided by BRM on 26 February 2020 and remained concerned that the specific information sought under the letter of 20 February 2020 had not been provided. Further details as to those concerns are set out below.	Refer to Item 100 in this response.
16	The letter of 20 February 2020 required evidence in respect of the four known design variants of BLSA currently operated in Australia. In particular, CASA sought evidence of flight testing for four specified registered aircraft (which were selected on the basis that they were the first representative of each of the known design variants operating in Australia) against the requirements of paragraph 4.5.9 of ATSM standard F2245 and that the testing successfully demonstrated that each nominated aircraft met the requirements at the time each statement of compliance (CASA Form 681) for the aircraft was signed by BRM.	As explained to CASA multiple times, the NG4 and all of it's type data went to Roko Aero. Refer again to Item 1 to the BRM Aero response to the CASA Powerpoint presentation provided to CASA on 29 April 2020.  The long wing TDO variant was not specifically flight tested but compliance with ASTM F2245 para 4.5.9 was established by analytical comparison with other variants. This approach has now been verified by a further independent aerodynamic analysis by an independant aerodynamics consulting organisation, Airmobis. Refer response to Item 100.

17	BRM was also required to provide evidence for each design variant to show that it is "impossible to obtain uncontrollable spins with any use of the controls" <sup>2</sup> this being the terminology used in the ATSM standard.	<p>This evidence was provided by way of the BRM Aero spin test report dated 22 February 2020 and submitted to CASA on 26 February 2020. This report <b>included</b> two signed declarations by the test pilot Mr Yury Vashchuk. The first declaration was dated 28 June 2019, and the second declaration dated 5 September 2019 <b>and made it absolutely clear</b> that full control deflections were used as required by the ASTM standard.</p> <p>Copies of both of these declarations are attached as <b>ANNEXs I &amp; J</b> to this response.</p>																									
18	<p>Details of the four specified aircraft referenced in the letter of 20 February 2020 were as follows:</p> <table border="1" data-bbox="155 597 1131 824"> <thead> <tr> <th>Variant</th> <th>Serial No</th> <th>Registration</th> <th>Form 681 Declaration</th> <th>Design Standard</th> </tr> </thead> <tbody> <tr> <td>NG4</td> <td>001/2010</td> <td>24-7727</td> <td>15 Nov 2010</td> <td>F2245-10C</td> </tr> <tr> <td>NG5 - Long Wing</td> <td>003/2011</td> <td>24-7916</td> <td>09 Sept 2011</td> <td>F2245-11</td> </tr> <tr> <td>NG5 - Short Wing</td> <td>042/2012</td> <td>24-8183</td> <td>15Nov2012</td> <td>F2245-10C</td> </tr> <tr> <td>TDO - Long Wing</td> <td>174/2016</td> <td>24-8698</td> <td>18 Jan 2016</td> <td>F2245-14</td> </tr> </tbody> </table>	Variant	Serial No	Registration	Form 681 Declaration	Design Standard	NG4	001/2010	24-7727	15 Nov 2010	F2245-10C	NG5 - Long Wing	003/2011	24-7916	09 Sept 2011	F2245-11	NG5 - Short Wing	042/2012	24-8183	15Nov2012	F2245-10C	TDO - Long Wing	174/2016	24-8698	18 Jan 2016	F2245-14	<p>NG4 001/2010 Refer response to para 19 &amp; 20.  NG 5 LW 003/2011 Refer response to paras 21 through 28.  NG5 SW 042/2012 Refer response to paras 21 through 28.  TDO LW 174/2016 Refer response to paras 29 through 34.</p>
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<b>NG4 Design Variant</b>																											
19	The cover letter from BRM dated 22 February 2020 advised that no documentation could be provided for the NG 4 design variant. This was said to be on the basis that BRM no longer has access to documents from a related company, ROKO AERO. BRM stated that when making the Statement of Compliance declaration to CASA for these design variants, they did not have access to relevant technical documentation, production documentation or test reports. BRM has stated supporting documentation for these variants is unlikely to exist, although the ASTM standards require the person making the declaration (BRM) to retain such documentation for as long as an Airworthiness Certificate remains in effect for the particular aircraft. BRM have not done so.	<p>The situation regarding this aircraft was completely explained in the response to the CASA Powerpoint presentation ITEM 1. No further justification is considered necessary.</p> <p>To reiterate BRM Aero <b>no longer</b> has involvement with the NG4 or Roko and does not have access to any associated IP.</p> <p>It is standard practice in the aviation industry that when an aircraft design is sold to, or acquired by a different company that the IP related to that design goes to the new company. That is what happened to the NG 4 and all of the IP associated with it. This has nothing to do with the compliance of the NG5.</p>																									

20	<p>CASA is aware that there are two NG 4 variants presently registered with Recreational Aviation Australia Ltd (RAAus) in Australia which have been issued with Special Certificates of Airworthiness based upon a Statement of Compliance signed by BRM. Yet, based on the latest response from BRM, no test data can be produced to evidence the basis for the Form 681 compliance notice provided to CASA dated 15 November 2010. Furthermore, no evidence has been provided of any NG 4 variant undergoing specific spin testing prior to the Form 681 declaration being provided to CASA or subsequently. Indeed, on the basis of BRM's responses, I consider that there are grounds for significant doubt that BRM was in fact the qualified manufacturer of the NG 4 design variant as that term is defined under Part 21 of the Civil Aviation Safety Regulations 1998 (CASR), and therefore, entitled to make these declarations.</p>	<p>As stated previously any test data for the NG4 was part of the IP that went to Roko in support of the NG 4.</p> <p>To reiterate BRM Aero no longer has involvement with the NG4 or Roko and does not have access to any associated IP.</p>
<p><b><i>NG 5 short and long wing design variants</i></b></p>		
21	<p>In relation to the NG 5 short wing (8.1 m) and long wing (9.1 m) design variants, the spin report includes details of purported spin testing of the long wing variant in 2011 for which CASA has been provided conflicting information and some limited spin flight testing of the short wing design variant conducted in mid 2019 in the Russian Federation. There is also reference to informal spin testing in 2014 for the long wing variant and performed by the same test pilot as in 2019, Mr Vashchuk. However, no contemporaneous records have been produced to demonstrate what was involved in this 'informal' spin testing program.</p>	<p>The spin test report included the 'informal' flight tests on the second hand NG5 long wing aircraft purchased by the test pilot Mr Yury Vashchuk for his own personal use. It is agreed that no records were made of this flight testing. Being a professional test pilot Yury was interested in confirming that his second hand long wing aircraft had the same spin characteristics as brand new aircraft from the factory. Yury confirmed that the tests on his aircraft detected no noticeable difference to the previous two formal spin test programs that he had carried out on the fixed gear, long wing and the retractable gear short wing variants.</p> <p>This information was included in the spin test report for information only.</p>
22	<p>The cover letter also states that spin testing for the NG 5 long wing fixed gear design variant was purported to have been carried out in 2011 and that the recent spin report dated 22 February 2020 is an updated version of the original report prepared in 2011.</p>	<p>The testing <u>was</u> carried out in 2011. The use of the word 'purported' implies that it was not carried out. BRM Aero strongly objects to this allegation because the report was provided to CASA based on this testing.</p>

23	<p>It is of significant regulatory and safety concern to CASA that the NG 5 long wing and the NG 5 short wing design variants are identified in the Form 681 Statements of Compliance signed on behalf of BRM (dated 9 September 2011 and 15 November 2012 respectively) to be compliant with Quality Assurance F2279 10 and Production Acceptance tests F2279 10.</p>	<p>BRM Aero assert that they <i>do</i> comply with the requirements of ASTM F2279 10. No regulatory authority other than CASA, including the FAA, has ever made this allegation. Additionally the authority that oversights the manufacture of LSA aircraft in the Czech Republic, the Light Aircraft Association Czech Republic (LAA CR), has never alleged that BRM Aero has not been compliant. In fact the LAA issued a 'Authorisation to produce, repair, test and import Sport Flying Equipment and its parts' (attached as <b>ANNEX H</b>) № 03/2010 in 2010 and subsequently reissued it three times, namely:</p> <ul style="list-style-type: none"> <li>• 2010 2013 <i>Initial issue</i></li> <li>• 2013 2016</li> <li>• 2016 2019</li> <li>• 2019 2022</li> </ul>
24	<p>However, based upon the cover letter and spin report, spin testing for the NG 5 short wing fixed gear design variant was not conducted until June 2019, some seven years after the issue of the first Statement of Compliance received by CASA for this aircraft design variant. The testing of this design variant appears only to have been undertaken as a result of enquiries made by CASA.</p>	<p>The NG 5 short wing variant was not specifically flight tested until 2019 but compliance with ASTM F2245 para 4.5.9 was established by analytical comparison with other variants. This approach has now been verified by a further independent aerodynamic analysis, refer response to Item 100.</p>
25	<p>QA F2279 10 of the ASTM standards requires a manufacturer to keep records on each individual aircraft. In QA 2279 10 at paragraph 8.1.2.6 it is a requirement that a Design Confirmation Flight Test be performed for the first production unit off the production line. This entails an in depth flight test to verify production uniformity to the flight criteria of the design and performance specification.</p>	<p>BRM Aero does keep the records as required by ASTM F2279 10.</p> <p>ASTM F2279 10 para 8.1.2.6 does not specify exactly what testing is required. It simply states "<i>For each completed LSA, or by random sampling at a frequency determined appropriate by the manufacturer, and for the first production unit off the production line, an in depth test flight shall be conducted to verify production uniformity to the flight criteria of the design and performance specification.</i>" It is up to the manufacturer to determine what is required in order to meet this requirement.</p> <p>The term '<i>in depth test flight</i>' is not defined in ASTM F2279 10 para 8.1.2.6 it is up to the company to decide what is required.</p>

26	Accordingly, each new type/model must have in depth flight testing to the design and performance requirements of F2245.	Refer to the response to Item 25 above.
27	Based upon the available evidence it instead appears that the NG 5 short wing design variant was not the subject of a Design Confirmation Flight Test (as required under QA 2279 10) and before the Form 681 declaration was made to CASA in November 2012. CASA was advised by BRM that spin testing on the NG 5 long wing design variant was adequate for the short wing design variant. CASA was also advised that spin testing had been conducted on the Bristell RG (retractable gear and a short wing) in September 2013 which BRM considered was sufficient for the NG 5 short wing design variant, although that took place well after the short wing variant was first registered in Australia.	<p>It is agreed that the NG 5 short wing variant was not specifically flight tested until 2019 but compliance with ASTM F2245 para 4.5.9 was established to the satisfaction of the manufacturer by analytical methods using industry accepted techniques. This approach has now been verified by a further aerodynamic analysis carried out by an independent aerodynamic consulting company AIRMOBIS s.r.o. Refer response to Item 100.</p> <p>As stated in the response to Item 25 above, ASTM F2279 10 para 8.1.2.6 does not specify exactly what testing is required, it is up to the manufacturer to decide.</p>
28	With regards to the NG 5 long wing design variant, the available evidence indicates the following sequence of events: spin test information was requested by CASA in May 2018 but no such information was provided by BRM until February 2019 despite repeated enquiries by CASA. In February 2019, BRM provided to CASA a purported spin test report dated on the front page and each page footer as 26 August 2011 and signed by Milan Bristela (2011 spin test report). CASA identified the purported 2011 report made multiple references to a design standard that was not in fact published until 2014. The 2011 spin test report contained a matrix of 176 spins and a summary section referring to 180 spins conducted. A later spin test report provided to CASA dated 22 February 2020 (2020 spin test report) stated that 152 spins were conducted when making reference to the same activity, rather than previous number of spins reported in the 2011 spin test report.	All of this item has been explained to CASA in detail before, particularly in item 2 of the BRM Aero response to the CASA PowerPoint presentation. Once again BRM Aero strongly objects to the use of the word 'purported'.
<b>TOO design variant</b>		

29	In relation to the Bristell TDO design variant (long wing), the 2020 spin test report refers only to flight testing of a TDO short wing design variant carried out in the Spring of 2014.	It is agreed that the TDO long wing variant was not specifically flight tested but compliance with ASTM F2245 para 4.5.9 was established to the satisfaction of the manufacturer by analytical methods using industry accepted techniques. This approach has now been verified by a further aerodynamic analysis carried out by an independent aerodynamic consulting company AIRMOBIS s.r.o. Refer response to Item 100.
30	The TDO design variant has been identified in the Form 681 Statement of Compliance (dated 18 January 2016) as being compliant with Quality Assurance F2972 13 and Production Acceptance tests F3035 13.	Agreed.
31	PA F3035 13 at paragraph 7.4 contains a similar requirement to QA 2279 10, in that it is a requirement that a Design Confirmation Flight Test be performed for the first production unit off the production line.	The wording of ASTM F3035 13 para 7.4 is identical to ASTM F2279 10 para 8.1.2.6. It does not specify exactly what testing is required. It simply states <i>“For each completed LSA, or by random sampling at a frequency determined appropriate by the manufacturer, and for the first production unit off the production line, an in depth test flight shall be conducted to verify production uniformity to the flight criteria of the design and performance specification.”</i> It is up to the manufacturer to determine what is required in order to meet this requirement.
32	In the cover letter it was advised that no spin testing of the TDO long wing design variant has ever been conducted. The only testing of a TDO design variant was conducted on a short wing version. The dates for such testing (2020 spin test report) only indicate that testing was conducted in the spring of 2014.	Agreed.  Refer to response to item 29 above and item 100.
33	It is of note that the cover letter also refers to an RG (retractable gear short wing version) design variant.	Whilst it is conceded that the RG variant is not LSA and therefore should not really have been included in a report covering the LSA variants, it’s inclusion is relevant to the extent that it further demonstrates compliance across the range of NG 5 variants, particularly the short wing variant.

34	While the CASA letter of 20 February 2020 did not seek information about such a variant, it appears that based upon the 2020 spin test report and the cover letter that this is a separate design variant. Notably, the ASTM standards do not permit RG design variants.	It is understood that the RG variant cannot meet the LSA requirements in that ASTM F2245 does not include the provision of retractable undercarriage. Nevertheless it was included in the report as explained in the response to item 33 above.
<b><i>BRM Response to CASA PowerPoint presentation of 3 April 2020</i></b>		
35	By email of 29 April 2020 from BRM's legal representative, CASA was provided with BRM's response to the matters set out in the CASA PowerPoint presentation on 3 April 2020.	Agreed. This is administrative and not a matter of compliance.
36	While the BRM Response was said to relate to the presentation on 3 April 2020, it is also clearly relevant to the matters set out in the notice of intention. Accordingly, I have reviewed and considered the matters set out therein when making my decision.	Agreed. This is administrative and not a matter of compliance.
37	The BRM response seeks to address the eight specific safety issues raised at the meeting on 3 April 2020. Each of those issues is outlined below.	Agreed. This is administrative.
<b><i>Issue 1 - NG 4 Basis for manufacturer declaration and lack of current records</i></b>		
38	The first issue was the basis for the manufacturer declaration for the NG 4 variant and lack of current records. The submission confirmed that BRM is unable to provide any data related to spin or other testing of the NG 4 design variant (referred to as the NG 4 model by BRM). Although the signed CASA Form 681 indicates BRM as the manufacturer, it was further advised that the manufacturer, ROKO AERO, went bankrupt and closed down at the time serial N <sup>o</sup> 001/2010 was nearing manufacturing completion. A new company, ROKO SPOL took over the business and commenced operations under new management and acquired all the technical documentation (including production documentation and test reports for the NG4 design variant).	<p>The situation regarding this aircraft was completely explained in the response to the CASA Powerpoint presentation ITEM 1. No further justification is considered necessary.</p> <p>To reiterate <b>BRM Aero no longer has involvement with the NG4 or Roko and does not have access to any associated IP.</b></p> <p>It is standard practice in the aviation industry that when an aircraft design is sold to, or acquired by a different company that the IP related to that design goes to the new company. That is what happened to the NG 4 and all of the IP associated with it.</p>

39	<p>The BRM response further noted that Mr Bristela signed the CASA Form 681 at the request of the Australian importer, Aerosport Aviation. In signing the form, Mr Bristela, advised that he did so in good faith on the basis that BRM had completed manufacturing of the aircraft. He further stated that as the LAA CR Production Certificate № 1/2008 indicated that the aircraft complied with both the CS VLA and ASTM F 2245, he believed this demonstrated compliance with the LSA requirements under the CASA Form 681. Notably, CASA has never been provided by BRM, or located itself, any evidence of the NG 4 aircraft having ever been issued a Type Certificate under the CS VLA standards.</p>	<p>The situation regarding this aircraft was completely explained in the response to the CASA PowerPoint presentation ITEM 1. No further justification is considered necessary.</p>
40	<p>The BRM response is silent as to the precise basis for Mr Bristela signing the Form 681 as the manufacturer of the aircraft on behalf of BRM when it appears to have been the case that ROKO SPOL manufactured the aircraft and held all the required technical and supporting documentation for the NG 4 design variant. By BRM making such a declaration, it has committed itself to the various obligations under the ASTM standards for which it has signed. Issue 2 CASA holds significant doubt regarding the NG 5 Fixed Long Wing Testing claimed to have taken place in Aug 2011.</p>	<p>Contrary to this statement BRM Aero maintains that it has adequately addressed the issue related to the NG 4 in the BRM Aero response ITEM 1.</p> <p>Contrary to CASA’s allegation regarding spin testing of the NG 5 long wing, the testing took place in Russia during 2011 as detailed in the February 2020 spin test report.</p>
41	<p>The evidence provided as to spin testing referred to below also causes CASA to have significant doubts regarding the testing of the NG 5 fixed long wing design variant, claimed to have taken place in August 2011.</p>	<p>Contrary to CASA’s allegation regarding spin testing of the NG 5 long wing, the testing took place in Russia during 2011 as detailed in the February 2020 spin test report.</p>

42 A significant delay from the May 2018 request until February 2019 was noted by CASA, in BRM providing a copy of the purported 2011 spin test report. BRM stated that spin testing was completed by August 2011 to demonstrate compliance with ASTM F2245 10. This was claimed to provide the basis for BRM to sign the CASA Form 681 for NG 5 aircraft serial No 003/2011. The response further stated that the "formal" spin report was not completed until 2014 and that this explains why incorrect references to ASTM F2245 14 were included (rather than a reference to ASTM F2245 10c which applied in 2011 when the actual spin testing has been reported to have taken place) in the report provided to CASA. In that regard, it is notable that ASTM F2245 14 did not come into effect until 2014.

During the period May 2018 to February 2019 several submissions were made to CASA providing spin test data. Unfortunately the data was not in a format that CASA deemed acceptable. This was due to a variety of reasons, most related to the ability of BRM Aero personnel to actually comprehend what was being asked for. As stated in the response to item 1, English is very much a second language to them and consequently a lot of misunderstanding was occurring in communication.

In a 9 page letter to CASA dated 6 October 2019 BRM Aero provided answers to CASA's issues. *Unfortunately to this date CASA have not responded to this letter or acknowledged it's content.*

The issue relating to the ASTM F2245-10 & F2245-14 was fully explained in item 2 of the BRM Aero response to the CASA PowerPoint presentation.

The BRM Aero Bristell distributor in Australia, Mr Brett Anderson, responded to the May 2018 email from CASA on the 23 June 2018 as this request was emailed only to him and not to BRM Aero. Mr Anderson's response questioned the validity of the informal flight test conducted at Latrobe Valley and the resultant unconventional and informal flight test report. This report referred to 'basic flight testing' conducted at Latrobe Regional Airport on 11 December 2017 and this testing formed the basis for the CASA request for compliance data.

The flight test report, not on letterhead and unsigned, provided no informed technical data and was not presented in a format typical of a formal flight test report. The report is expressed more as an opinion, and did not follow traditional flight test methodology. Nothing in the report proved that the aircraft was non compliant. The second flight in the test sequence had the aircraft owner on board. He has now made a statement (attached as **ANNEX F**) that the aircraft recovered normally from stalls. On one occasion the pilot allowed the aircraft to enter a spin during which it rotated 180° then recovered normally as expected.

Of interest is the fact that the 'test pilot' also was also the pilot that had previously carried out all of the familiarization type flying with the owner of the 'tested' Bristell and found no issues with the aircraft at that time, including after having conducted the required stall training.

43	<p>In respect of the apparent image manipulation of the aircraft registration of the aircraft in the 2011 spin test report, BRM acknowledged that the image was "cleaned up" in Photoshop as the image was taken for their first advertising brochure. It was also stated that the Czech registration OK OUU48 as shown in the image was a special temporary registration created by the Czech Light Aircraft Association (LAA CR) at BRM's request.</p>	<p>This statement is absolutely irrelevant. The photo is simply a Bristell NG 5 long wing version as used for the flight test.</p> <p>The photo has nothing to do with the compliance of the aircraft. It is common practice for images to be cleaned up for the purpose of advertising brochures.</p> <p>This issue was fully explained in item 2 of the BRM Aero response to the CASA PowerPoint presentation.</p>
44	<p>Regarding the discrepancy in the number of spins performed variously recorded as 176 or 180 spins BRM stated that was due to a simple mistake in compilation of the 2011 spin test report and that the numbers listed in the full table are correct in the 2020 spin test report.</p>	<p>Agreed.</p>
45	<p>In so far as the updated 2020 spin test report listed 152 spins performed, BRM stated that this number was arrived at after carefully checking and correcting of the previous report. BRM stated it was "not simple to count the number of spins". The precise basis by which the corrected number of spins was established was not explained in any detail in the BRM response, nor which spin test results were found to be accurate or otherwise. The response simply advised that the numbers in the full table of the 2020 spin test report were correct, and that the matrix contained errors due to difficulties in counting the number of spins.</p>	<p>The spin test report dated 22 February 2020 is accurate. The spin testing carried out in Russia during August 2011 was initially recorded in Russian with sufficient detail to satisfy BRM Aero that the NG 5 long wing variant fully complied with ASTM F2245 10, para 4.5.9. The initial written report in English was not completed until 2014. The corrected spin test report dated 22 February 2020 corrected errors and omissions in the earlier report and added details of spin testing carried out subsequent to the original August 2011 spin tests.</p> <p>Page 13 of the February 2020 spin test report details the results of all 152 spins carried out on S/N 002/2011. Furthermore the preceding two pages described the processes and methodology employed.</p> <p>The CASA statements in item 45 do not make logical sense.</p>
<p><b>Issue 3 - NG 5 Fixed Short Wing Satisfactory Evidence of ASTM F2245 4.5.9</b></p>		

46	<p>The response noted that BRM did not conduct initial spin testing of the short wing NG 5 design variant due to their engineering evaluation determining that testing of the long wing NG 5 design variant adequately covered testing requirements for the short wing. It was further stated that this was because the size and efficiency of the tail surfaces and rudders were identical for the long and short wing design variants. CASA considers that regardless of the similarity in the tail surfaces, a significant variation in wing length/area has considerable potential to alter the spin characteristics of the aircraft and should properly have been the subject of specific spin testing and noting again the requirement of QA F2279 10 of the ASTM standards.</p>	<p>There are industry accepted analytical processes for making aerodynamic evaluations regarding the ability of an aircraft to recover from a spin. BRM AERO carried out such an analysis.</p> <p>Airmobis has now carried out an independent detailed spin analysis of the Bristell range of aircraft using industry standard methodology (NACA TN D 6575) and authored Report No BRM NG5 006 (attached as <b>ANNEX C</b>). The author of this report concludes "<b><i>it is my opinion that all versions of the NG-5 Bristell meet the requirements of ASTM F2245 para 4.5.9</i></b>".</p>
47	<p>The response noted that, in respect of the CASA Form 681 declaration dated 18 January 2016 for NG 5 aircraft serial No 174/2016 spin testing was carried out in the spring of 2014 of the TDO short wing design variant and the results are set out in the 2020 spin test report.</p>	<p>Refer to response to item 46 above.</p>
48	<p>Further, it was claimed that this spin testing of the short wing TDO NG 5 design variant combined with the original 2011 short wing spin testing was sufficient to cover the long wing TDO NG 5 design variant as the size and efficiency of the tail surfaces and rudders were identical for the long and short wing variants. As noted above, even aside from the specific requirements of the ASTM standards, CASA does not accept that this constitutes an appropriate engineering basis not to have conducted any spin testing of the TDO long wing design variant.</p>	<p>Refer to response to item 46 above.</p>
<p><b><i>Issue 5 - ASTM Compliance Documentation is Generally Dated in 2017</i></b></p>		
49	<p>This issue in the CASA PowerPoint noted that much of the ASTM compliance documentation which was provided to CASA in June of 2018 and January 2020 was dated as having been certified only in 2017, although BRM has made declarations on Statements of Compliance against ASTM standards since 2011.</p>	<p>This item is insufficiently detailed to author an accurate response.</p>

50	The response stated that initially BRM only had hand written spin testing records in Russian and did not then have the capacity to translate those into English. BRM stated it was for this reason that it initially only supplied CASA with data and reports that were immediately available in English.	<p>Agreed the spin testing as required by ASTM F2245, para 4.5.9 was carried out in Russia in 2011 and the initial reports were hand written and held in Russian. This issue has been comprehensively explained by BRM Aero in responses № 2 and № 5 to the CASA 3 April 2020 PowerPoint presentation.</p> <p>Once again this does not demonstrate non compliance.</p>
51	BRM further noted that just because no report covering ASTM F2245 paragraph 4.5.9 was provided to CASA at that time, it did not mean that the required tests had not been completed.	Agreed.
52	The response also noted that BRM employed a certification engineer, Petr Javorsky, in August 2015. His role was to take over those aspects of the role in circumstances where the business was expanding dramatically. It was noted that between 2014 to 2016, BRM built new hangars and Mr Bristela was working 12 hour or more days including weekends. It was further noted that BRM employed someone in the sales department in the second half of 2016 and a "new guy" to run the test department in 2018. It was also stated that BRM was a small family company with 80 workers.	<p>Agreed. Most companies start with minimal staff and gradually expand as their position in the market place expands and consolidates. This does not support a claim of non compliance.</p> <p>What does this item have to do with spin recovery compliance?</p>
<p><b>Issue 6 - BRM Written Commitment to CASA 23 January 2019</b></p>		

53	<p>The response stated that details as to why the flight testing which BRM had initially committed to undertake to resolve CASA's concerns was not completed were set out in BRM's previous letter dated 5 October 2019. This commitment by BRM was in the form of a letter to CASA proposing that BRM had self elected to comply with FAA AC 23 8C and perform a test of 176 spins as it is described in that flight test guide. Subsequently, BRM completed only 20 of the 176 spins proposed. The response suggested that the weather was unsuitable for test flying for any extended period of time and that the test pilot, Mr Vashchuk, was only available for a small window of opportunity.</p>	<p>This was the original plan redo the spin testing just to attempt satisfy CASA. Unfortunately circumstances including unmanageable COVID 19 pandemic restrictions changed dramatically and out of BRM Aero's control. Yes weather and Yury Vashchuk's availability caused delays. At that time CASA had not provided any details of what was required in order to satisfy them the best response was that they '<i>were not satisfied</i>'! CASA has never been specific as to why they were not satisfied.</p> <p>In frustration BRM Aero then offered to comply with FAA AC 23 8C and perform a test of 176 spins but the above mentioned circumstances prevented that actually happening. In addition BRM Aero are also perplexed as to why they should conduct testing that has already been completed and compliance against the standard already demonstrated.</p>
54	<p>It was also noted in their response that BRM had offered to add more flight test cases but that CASA did not comment upon that offer.</p>	<p>At that stage BRM Aero was prepared to do anything that they thought would satisfy CASA. However CASA have never stated what that is or why, or provide <u>any</u> evidence of non compliance.</p>
55	<p>Further, it was claimed that the videos and 2020 spin test report including the limited 2019 spin testing were presented to Aircraft Design Certification GmbH in Germany and that the view was expressed that it would most likely accept that the spin characteristics showed compliance with ASTM F2245 paragraph 4.5.9. At no stage has CASA has been provided any evidence to support this claim by BRM for the four design variants.</p>	<p>Refer to the response to Item 100.</p>
56	<p>Finally, BRM stated that the 2019 testing confirmed in full the test results from the previous spin testing conducted from 2011 to 2017. However, it was not explained in any detail which previous test results were considered valid or invalid noting BRM separately stated in its response that further checking of records had resulted in a reduced number of spin test results being listed in the 2020 spin test report.</p>	<p>No spin testing was considered invalid. All spin testing documented in the 22 February 2020 spin test report is valid. Yes some discrepancies were found in the 2011 spin test report and these were corrected in the 2020 report.</p> <p>There is nothing unusual about updating a report and correcting previous errors, it happens all the time through all industries.</p> <p>Correcting a report does not support a claim of non compliance on the part of CASA.</p>

**Issue 7 - BRM - 2017 Compliance Statement Identified Insufficient Explanation Provided by BRM Aero**

57	This issue noted the existence of a letter dated 6 March 2017 referencing ASTM standards which had been signed and counter signed by not less than three BRM key personnel, being the Chief Designer, Test Pilot and Certification Manager. The letter not only declared that "the spin testing of Bristell aeroplane has not been performed from the above explained reasons" but clearly had a sole purpose of making that fact known to the reader. Without that fact, the letter had no other purpose to have been written. CASA also identified a similar letter addressed to the Israeli CAA in relation to Bristell aeroplanes and BCAR S certification.	The BRM Aero response to this issue was fully explained in the response to the CASA PowerPoint presentation ITEM 7.
58	BRM stated that the reference in a communication dated 6 March 2017, that "spin testing had not been performed" was taken out of context. BRM stated that certification for "BRISTELL RG" (retractable gear) was to the UK BCAR S standard rather than the ASTM. As the UK BCAR S is not a self certification standard and because BRM did not, at that time, have translated reports of the Russian test flying, an alternative approach was negotiated to fit the aircraft with a ballistic parachute rescue system. On that basis, the aircraft obtained type certification under BCAR S.	This CASA criticism has been comprehensively explained in the BRM Aero response to the CASA PowerPoint presentation, Item 7. In essence the sentence quoted was intended to relate only to the BCAR S certification of the Bristell RG variant where an alternative means of compliance was successfully negotiated with the Israelian authority during certification of the Bristell RG. The Bristell RG is not eligible for certification under ASTM F2245 as it has retractable undercarriage and the ASTM F2245 standard does not make provision for retractable undercarriage.
59	BRM further noted that the wording of the letter of 6 March 2017 "isn't good" and "isn't exactly true" as full spin testing was carried out in 2011. Further, that the letter was drafted by BRM's Certification Engineer, Mr Javorsky, and Mr Bristela did not carefully consider the content before signing. It was also noted that in the letter, Mr Javorsky was comparing Czech UL 2 and German LTF UL rules rather than the ASTM.	This was due to a variety of reasons, most related to the ability of BRM Aero personnel to actually comprehend what was being asked for. As stated in the response to item 1, English is very much a second language to them and consequently a lot of misunderstanding has occurred in communication in the past.

**Issue 8 - Minimum Useful Load Non-Compliant ASTM Declarations**

60	BRM acknowledged that the three BLSA (serial Nos 353/2018, 375/2019 and 370/2019) were over the maximum empty weight allowable under the ASTM Standards when delivered to Australia and that was an error on the part of BRM.	Agreed this was an error on BRM Aero's part. Now that the issue has been discovered <u>BRM Aero has undertaken to never let a similar situation occur again.</u>  Nevertheless this issue has nothing to do with spin recovery, the subject of the safety notice and operating limitations.
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61	In the case of aircraft 353/2018, BRM advised that it was retrofitted with a lighter battery and seat cushions to bring the weight below the maximum permitted. It was further stated that the aircraft was now fully compliant with ASTM F2245 paragraph 4.2 and the weight and balance records had been updated.	This statement is completely accurate. <b>Aircraft 353/2018 is now fully compliant</b> and the aircraft's records and Aircraft Operating Instructions have been amended to accurately reflect the new W&B data.
62	In the case of aircraft 375/2019, BRM stated that the aircraft was subject to a legal process and the outcome was unknown.	This is still the case. The aircraft is subject to a legal dispute and BRM Aero has absolutely no knowledge about the current situation with this aircraft.
63	In the case of aircraft 370/2019, BRM stated the aircraft was returned to the Czech Republic and the aircraft was never registered in Australia, never received a Certificate of Airworthiness and never flew in Australia.	Agreed that is what happened.
64	BRM further stated that the circumstances arose due to the customers choosing an "excessive" amount of optional equipment. It was further claimed that each of the customers was warned that the aircraft would be "heavy" and each is claimed to have replied they were not concerned so long as the aircraft stayed below 600kg MTOW.	That statement reflects the situation exactly. However this will not occur again as more stringent processes are now in place.
65	As a result of the above events, BRM stated it has corrected the optional equipment installation weights so that customers can more clearly see the effect of their choices upon the aircraft weight. BRM have advised CASA that they state to customers that they will not accept an order if it would make the aircraft non compliant.	The offered optional equipment fit on the sales documents now accurately reflect what the effect of adding any combination of these options has on the final empty weight of the aircraft.
66	BRM also claimed that the three aircraft were the first fitted with a Rotax 915 engine and that the BLSA is the lightest aircraft fitted with such an engine.	Agreed.
67	Fundamentally however, the BRM response failed to address how BRM had made a certification for compliance with the ASTM standards in respect of each of these aircraft which was demonstrably incorrect especially in circumstances where it concedes an awareness that the aircraft would be "heavy". This, in my view, demonstrates either a fundamental disregard for rigorous compliance with applicable certification standards, or (at best) a lack of appropriate care and diligence in ensuring the necessary compliance.	BRM Aero has already acknowledged that this was a mistake on their part.  <u>Now that the error has been discovered BRM Aero undertakes to never let a similar situation occur again.</u>

**Further responses by BRM**

68	In addition to responses to the above eight safety issues, the BRM response letter also provided information under the heading "ASTM Compliance & ASTM 4.5.9" and sub headings "Question1" and "Question 2" being a response to the CASA PowerPoint presentation slide with that heading.	Agreed.
69	Question 1 sought confirmation as to the compliance status at the time of BRM signing each CASA Form 681 for the four previously identified aircraft. Question 2 sought assurances as to the compliance status of each of the four aircraft as at the present time.	Agreed.
70	In answer to Question 1, BRM stated that the CASA Form 681 was signed in good faith as the manufacturer for aircraft serial № 001/2010. It was stated that reliance was placed upon the LAA CR production certificate №1/2008 which itself stated the aircraft was compliant with CS VLA and ASTM F2245. BRM further stated that as it no longer has access to ROKO AERO documentation it has not been possible to provide documentary evidence for spin testing of the NG 4 model.	It is now impossible for BRM Aero to provide any details related to this aircraft as BRM Aero no longer has access to any of the documentation relating to it. Mr Bristella has had to rely on his memory for details, it was some 11 years ago, and it was at a time when the company was undergoing significant and fundamental changes related to the BRM Aero/Roko split including the legal actions involved. The NG4 as stated now on numerous occasions is not supported by BRM Aero and BRM Aero has no data related to the NG4.
71	It is significant in my view that it remains uncertain what manufacturing and test data (if any) for serial № 001/2010 was available to Mr Bristela (and in what capacity) at the time he signed the CASA Form 681. As noted above, I consider that there are significant grounds for concern that there was no proper basis upon which BRM could have reasonably regarded itself as the manufacturer of this aircraft.	Refer to the response to item 70 above.
72	In respect of aircraft serial № 003/2011, BRM stated that the aircraft was found to comply with ASTM F2245 4.5.9 following the August 2011 spin testing of the long wing NG 5 design variant serial № 002/2011. BRM maintains that it demonstrated compliance at that time.	Agreed.

73	<p>In respect of aircraft serial № 0042/2012, BRM stated that spin testing of the short wing NG 5 design variant was not carried out as it was sufficiently covered by the long wing NG 5 spin testing. Later spin testing of the short wing RG design variant in September 2013 was considered sufficient to cover the "standard" NG 5. Those spin test results are set out in the 2020 spin test report.</p>	<p>It is agreed that the NG 5 short wing variant was not specifically flight tested at that time but compliance with ASTM F2245 para 4.5.9 was established to the satisfaction of the manufacturer by analytical methods using industry accepted techniques. This approach has now been verified by a further aerodynamic analysis carried out by an independent aerodynamic consulting company AIRMOBIS s.r.o. Refer response to Item 100.</p> <p>Spin testing of the RG variant was not actually required as it was not eligible for LSA certification. Nevertheless the spin testing provided BRM Aero with useful data regarding the variation of spin characteristics over the different NG 5 variants.</p>
74	<p>In respect of aircraft serial № 174/2016, BRM stated that spin testing of the TDO short wing design variant was carried out in spring 2014 and the results are set out in the 2020 spin test report. Further, it was considered that spin testing of the short wing TDO variant combined with the original 2011 spin testing was sufficient to cover the TDO long wing variant.</p>	<p>The long wing TDO variant, 174/2016, was not specifically flight tested but compliance with ASTM F2245 para 4.5.9 was established by analytical comparison with other variants. This approach has now been verified by a further independent aerodynamic analysis, refer response to Item 100.</p>
75	<p>In answer to Question 2, BRM states that while no documentary evidence can now be supplied for aircraft serial № 001/2010, the LAA CR production certificate for № 1/2008 states compliance with CS VLA and ASTM F2245 and because the NG 4 was aerodynamically "virtually identical" to the NG 5, spin testing for the NG 5 was applicable to the NG 4. As outlined in paragraph 39, CASA has never been provided by BRM, or located itself, any evidence of the NG 4 aircraft having ever been issued a Type Certificate under the CS VLA standards.</p>	<p>It is now impossible for BRM Aero to provide any details related to this aircraft as BRM Aero no longer has access to any of the documentation relating to it. Mr Bristella has had to rely on his memory for details, and as it was some 11 years ago, and it was at a time when the company was undergoing significant and fundamental changes related to the BRM Aero/Roko split including the legal actions involved.</p> <p><i>Reiterating BRM Aero no longer has any connection to the NG 4 and is unable to respond further.</i></p>
76	<p>In respect of aircraft serial numbers 003/2011, 042/2012 and 174/2016, BRM stated that all these aircraft were deemed compliant with ASTM F2245 paragraph 4.5.9 by way of the 2020 spin test report and the explanations provided in the BRM response.</p>	<p>Agreed. The 2020 spin test report collated, corrected and added to previous spin test data that had been supplied to CASA.</p> <p>Compliance of different variants that were not specifically subjected to flight test was established to BRM Aeros satisfaction by industry accepted analytical methods.</p>

**Consideration of BRM's responses**

77	I consider that BRM has been afforded extensive and multiple opportunities to provide the requested compliance evidence and, for various reasons, has not been able to provide a satisfactory level of assurance as to ASTM F2245 paragraph 4.5.9 compliance. This is of significant concern given that diligent compliance with the requirements of the ASTM standards would have ensured that the necessary records and data were immediately available to be provided to CASA.	The ASTM standard is a 'self certification' standard. It is incumbent on the company to carry out sufficient testing to assure themselves that the aircraft is compliant with the particular design standard paragraph. They did.
78	As previously noted, the 2011 spin test report signed and dated 26 August 2011 provided to CASA on 6 February 2019, makes references to compliance to ASTM F2245 14 paragraph 4.5.9 in multiple places in that report, despite this standard ( 14) having not been published until some years after the report was purported to have been dated (that standard was published in 2014). The 2011 spin test report also identified 176 spins in the matrix, but the summary referred to 180 spins. The report also contained a picture of the test aircraft which showed that the registration markings had been manipulated or added at a later date. BRM concedes that the image was manipulated for marketing purposes.	<p>This item was comprehensively addressed several times before and more specifically in item 2 of the BRM Aero response to the 3 April 2020 CASA PowerPoint presentation.</p> <p>As far as the photograph referred to is concerned BRM Aero takes umbrage at the fact that CASA continues to imply that the company has done something wrong in using this photo. The photo is the first photo taken of the first aircraft for the first advertising brochure and that is why it was "cleaned up" in photoshop, not to fix/fudge anything for the report. Such an accusation is false.</p>
79	The 2020 spin test report dated 22 February 2020 and provided to CASA was similarly inconsistent as it now reported that only 152 spins were conducted.	<p>This item was addressed in item 2 of the BRM Aero response to the 3 April 2020 CASA PowerPoint presentation.</p> <p>152 spins were planned and were carried out on S/N 002/2011 in August 2011. The February 2020 spin test report accurately reflects this.</p>
80	I am reasonably satisfied that significant concerns exist with respect to the reliability of the spin testing information that has been provided by BRM. It is apparent that BRM has not ensured that comprehensive, contemporaneous, consistent and reliable records of the certification testing of its products are made and retained in order to demonstrate compliance with applicable ASTM quality standards.	<p>Unfortunately if CASA continue to have 'significant concerns' with respect to the reliability of the spin testing information provided by BRM Aero, and considering the data that has already been provided, there is not much that can be done to convince them.</p> <p>Nevertheless additional data has been provided and attached with this document refer response to item 100.</p>

81	<p>Critically, the information provided by BRM shows some spin testing for design variants has taken place after CASA Form 681 manufacturer self certification declarations have been made claiming compliance with the various ASTM standards. While BRM claims that the absence of testing was due to its conclusion that earlier testing of a different design variant adequately demonstrated the likely performance of other design variants, I do not accept this response to be satisfactory. The ASTM standard clearly requires production testing to be conducted on the first production unit of each new type or model. BRM acknowledges that this did not occur.</p>	<p>All points in this item have already been addressed in response to previous items.</p>
82	<p>Furthermore, I have significant concerns as to BRM's engineering justification for the conclusion that testing of one design variant was sufficient to show compliance for other design variants, particularly when there were significant differences between the variants (including in relation to wing length and area) which were likely to affect the aerodynamic performance of those variants.</p>	<p>Refer to the Airmobis report № BRM NG5 006 (attached as ANNEX C).</p>
83	<p>While I am prepared to accept BRM's claims that due to changes in corporate structures it is now unable to access and provide supporting documentation in support of previous certifications for the NG 4 design variants, the fact is that the company remains unable to provide supporting documentation evidencing the basis for the certifications of those aircraft. As noted above, given BRM's explanation for the reasons why it is unable to now access the certification data relating to the NG 4 design variants, I consider that these are substantial grounds for concern as to whether there was a proper basis for BRM to have certified itself to be the manufacturer of those aircraft.</p>	<p>This item has been completely and thoroughly explained by BRM Aero in response № 1 to the CASA 3 April 2020 PowerPoint presentation.</p> <p>BRM Aero cannot do anything about the fact that CASA are not prepared to accept this explanation.</p>
84	<p>Furthermore, it is notable that the above issues exist in respect of each of the four aircraft subject to CASA's request for supporting information as to self certification and spin testing. I am reasonably satisfied based upon BRM's latest response that similar deficiencies in demonstrating compliance would likely be discovered for the other aircraft known to be operating in Australia</p>	<p>Refer to BRM Aero response to Item 100.</p>

85	<p>It is incumbent upon the manufacturer to ensure that all compliance records are retained and accessible as required by the ASTM LSA Quality Standard. If such material is not available then it is necessary for the manufacturer to provide other verifiable evidence of compliance, such as further testing.</p>	<p>The ASTM LSA Quality Standard ASTM F2279, para 6.1 states <i>“The manufacturer shall keep a permanent record of the design documentation used to show compliance of a particular configuration to the version of the design and performance specification in effect at the time of manufacture.”</i></p> <p>In the case of the NG 5 the spin testing as required by ASTM F2245, para 4.5.9 was carried out in Russia in 2011 and the initial reports were hand written and held in Russian. This issue has been comprehensively explained by BRM Aero in responses № 2 and № 5 to the CASA 3 April 2020 PowerPoint presentation.</p>
86	<p>All of this suggests to me that BRM takes a less than diligent and disciplined approach to ensuring compliance with its obligations to make accurate certifications to CASA which are supported by complete and detailed records. I consider that this approach creates a significant level of risk that BLSA may not in fact comply with the requirements of the ASTM Standards. This has previously been demonstrated in relation to the three aircraft referred to in paragraph 60 which were found clearly not to comply within the minimum useful load requirements specified in the ASTM Standards, notwithstanding BRM's incorrect certification that they did comply.</p>	<p>BRM Aero does not agree. The company <u>does</u> have a diligent and disciplined approach to it’s obligations, however it does concede that at times this approach does not seem to align with CASA’s expectations, and sometimes even with the best intentions mistakes are made, as was the case with the three overweight aircraft referred to. The issue about the overweight aircraft was comprehensively explained by BRM Aero in response № 8 to the CASA 3 April 2020 Powerpoint presentation. This issue has nothing to do with spin recovery compliance.</p>
87	<p>I am further concerned that this lack of rigour and diligence is reflected in the engineering decision made by BRM, not to conduct full production testing of new models/types prior to release into service on the basis of testing data derived from other models. As noted above, I consider that there are significant problems in applying testing data derived from one design variant to another design variant which has design modifications including different wing spans and overall wing areas.</p>	<p>Refer to BRM Aero response to Item 100. In particular refer to the Airmobis report № BRM NG5 006 (attached as <b>ANNEX C</b>).</p>
88	<p>This leaves a situation where, notwithstanding the express requirements of the ASTM standards, BRM has acknowledged that not all of its design variants have been flight tested for compliance with paragraph 4.5.9 of ATSM standard F2245 in circumstances where I have significant concerns about the engineering justification upon which BRM has proceeded in making that decision.</p>	<p>Refer to BRM Aero response to Item 100. In particular refer to the Airmobis report № BRM NG5 006 (attached as <b>ANNEX C</b>).</p>

89	<p>While I accept that there is no conclusive basis to presently find that BLSA do not comply with the spin recovery requirements specified in paragraph 4.5.9 of ATSM standard F2245, I am nonetheless concerned that BRM have been unable to demonstrate to CASA conclusively that each BLSA design variant does in fact comply with this requirement in a manner that is free from errors, omissions and inconsistency that have, at the very least, led to significant doubt.</p>	<p>This CASA statement is very significant <b><i>“there is no conclusive basis to presently find that BLSA do not comply with the spin recovery requirements specified in paragraph 4.5.9 of ATSM standard F2245”</i></b>.</p> <p>Refer also to BRM Aero response to Item 100. In particular refer to the Airmobis report № BRM NG5 006 (attached as <b>ANNEX C</b>).</p>
90	<p>This is significant in my view taking into account the generally less than rigorous approach to its certification responsibilities demonstrated by BRM and taking into account the significant number of accidents in Australia and elsewhere in which BLSA have seemingly entered an irrecoverable flat spin.</p>	<p>There has not been a ‘significant number of accidents in Australia and elsewhere in which BLSA have seemingly entered an irrecoverable flat spin.’ We are unaware of ANY accident report that <b><u>categorically states</u></b> that the aircraft entered an unrecoverable spin.</p> <p>The two accidents that occurred in Australia that CASA have implicated as being ‘spin’ accidents are:</p> <ul style="list-style-type: none"> <li>• Clyde accident The only report available relating to this accident, the coroners report, states, at para 43 <i>“I am satisfied that the accident is not a result of a faulty aircraft.”</i></li> <li>• Stawell accident The ATSB report does not blame the spin characteristics of the Bristell for the accident. The pilot was carrying out low level aerobatic type manoeuvres (1,600 ft AGL) when he inadvertently ‘snap rolled’ the aircraft pulling some 4.7 g in the process, then applied incorrect recovery procedures prior to the aircraft impacting the ground. Although making reference to CASA’s ‘doubts’ on the aircraft the ATSB clearly placed the blame for the accident on the pilot for carrying out aerobatic manoeuvres for which he had not been trained and for which the aircraft was not approved/certified.</li> </ul> <p>To suggest there has been a significant number of accidents is false.</p>

91	<p>Of the known fatal spin accidents involving the BLSA aircraft worldwide relevant to CASA concerns, I consider it of note that a number were being operated with two people on board in the course of flight training or similar exercises (relevant accidents are 8 November 2016, 3 August 2017, 9 June 2019 and 24 April 2020).</p>	<p>Contrary to this CASA statement NO final accident report relating to Bristell aircraft exists that specifically blames the aircraft for the accident. Referring to the accidents quoted:</p> <p>8 Nov 2016 Accident in Czech Republic. The official report No CZ 16 989 is inconclusive as to the cause of this accident. Para 1.1.3 states that a witness “saw him fall from a height of about 200 250 m”. Hardly an altitude from which an aircraft could be expected to recover from a spin even if it did occur.</p> <p>3 Aug 2017 Accident at Clyde Victoria. The only report available relating to this accident, the coroners report states, at para 43, “I am satisfied that the accident is not a result of a faulty aircraft.”</p> <p>24 Apr 2020 Accident in Czech Republic. There is no published report that I can find that indicates that this accident was a ‘spin’ related accident.</p>
92	<p>This is significant because it is my understanding that, unlike Australian operations BLSA in many other countries, such as the United States (where there are approximately 66 BLSA aircraft on their aircraft register) are currently used for private operations. The Australian context sees many BLSA performing flight training operations. Although eligible to be operated in flight training operations, CASA has been advised that all the BLSA operating in the United States are only being used for private operations.</p>	<p>Contrary to this CASA statement some 20% of all BLSA aircraft in the USA are used for full time flight training.</p> <p>Refer <b>ANNEX G</b> Letter dated 9 February 2021 from Mr John Rathmell the National Sales Manager/Import Partner, Bristell Aircraft USA.</p> <p>Below are some links to flying schools in the USA using Bristell aircraft <i>there are others:</i></p> <p><a href="https://www.midislandair.com">https://www.midislandair.com</a>  <a href="https://sportflyingusaservices.com/flight%20training">https://sportflyingusaservices.com/flight training</a>  <a href="https://sebringflightacademy.com/sport%20pilot%20training">https://sebringflightacademy.com/sport pilot training</a></p>
<p><b>Submissions from BLSA owners in Australia holding a Special Certificate of Airworthiness.</b></p>		

93	<p>Of the 48 Special Certificate of Airworthiness (SCOA) holders issued with a copy of the notice of intention, CASA received a total of four responses. One response was received from a person who was not a SCOA holder. Three of the responses were provided by private owners of BLSA. The other response was provided by a flying school which operates two BLSA. The responses cover a total of 5 of the 48 BLSA presently operated in Australia and 1 of 3 flying training organisations which operate the BLSA.</p>	<p>Our feedback from operators is that most operators of BSLA are of the opinion that the CASA restrictions are a 'crock of shit' and not worth the effort of responding to.</p>
94	<p>Each response is summarised and referred to below.</p>	<p>All four of the following responses (Items 95 through 98) from respondents indicate the general feeling amongst BLSA owners and operators <i>there is nothing wrong with this aircraft.</i></p>
95	<p>Response 1 opposed the making of operational limitations on the following grounds:</p> <ul style="list-style-type: none"> <li>any restrictions will restrict the use of the aircraft</li> <li>cause unnecessary fear and anxiety for passengers</li> <li>devalue the aircraft</li> <li>have a detrimental effect on the business of the aircraft manufacturer and distributor in Australia.</li> <li>CASA should wait till independent spin testing agreed to be undertaken by BRM has been carried out.</li> </ul>	<p>This response clearly indicates the feeling of the owner/operator. CASA's actions are considered to be very detrimental.</p>
96	<p>Response 2 opposed the making of operational limitations on the following grounds:</p> <ul style="list-style-type: none"> <li>they have 270 hours of incident free flying in the aircraft</li> <li>they have obtained and viewed the spin test data and video and consider</li> <li>that the aircraft complies with the ASTM standard</li> <li>any restrictions on the aircraft will have a financial impact.</li> <li>CASA should wait until independent testing proposed by BRM Aero is conducted before imposing operation limitations.</li> </ul>	<p>This response clearly indicates the feeling of the owner/operator. CASA's actions are considered to be very detrimental.</p>

97	<p>Response 3 opposed the making of operational limitations on the following grounds:</p> <p>they have operated the aircraft as a training aircraft for 5 years without any issues.</p> <p>requested that CASA not take any proposed action against the aircraft until further spin testing has been conducted by BRM Aero by an independent testing organisation.</p> <p>stated that the proposed action will have a financial impact on business operations.</p> <p>suggested that while CASA awaited independent test results, it not impose limitations on aircraft if they were fitted with a Ballistic Parachute Recovery System.</p>	<p>This response clearly indicates the feeling of the owner/operator. CASA's actions are considered to be very detrimental.</p>
98	<p>Response 4 opposed the making of operational limitations on the following grounds:</p> <p>they have reviewed the spin test data from BRM Aero and cannot understand why CASA has an issue with the safety of this aircraft.</p> <p>stated that imposing operating limitations on the aircraft will have serious consequences for flying schools and students.</p>	<p>This response clearly indicates the feeling of the owner/operator. CASA's actions are considered to be very detrimental.</p>
99	<p>I have taken each of these responses into account in reaching my decision, noting in particular the expectation expressed in the majority of those responses, that further spin testing to be conducted by BRM would address CASA's concerns. To date, that testing has not been conducted for each design variant and in a manner that is free from errors and inconsistency in its reporting.</p>	<p>Clearly <b>CASA has not applied sufficient weight to these responses</b>. The expectation that BRM Aero would carry out additional spin testing is a natural reaction innocently made without adequate knowledge of all the spin testing already successfully completed.</p>

100

In view of the ongoing lack of certainty as to the extent of spin testing conducted, whether all design variants have been tested in accordance with ASTM F2245 and the evidence of at least one of the design variants having been certified as compliant before spin testing was in fact undertaken, I consider that it is in the interests of aviation safety that operational limitations as described below be imposed upon all BLSA design variants until it has been conclusively established that each aircraft design variant complies with the relevant requirements of the ASTM Standards in relation to spin recovery.

BRM Aero engaged the services of ADxC GmbH to assess the existing BRM Aero spin test report '*Report on the Spin Testing Bristell LSA Aircraft Completed*' dated 22 February 2020. ADxC is an independent EASA certified aircraft design organisation EASA Terms of Approval № 21J.411. A copy of their approval certificate is attached as **ANNEX A**.

ADxC have reviewed the provided data (report and ref. videos) and have concluded that ***all tested variants are compliant with the requirements of ASTM F2245, para 4.5.9***. A copy of the ADxC letter attesting to this is provided as **ANNEX B**.

The BRM Aero spin test report dated 22 February 2020 covered the following NG 5 variants:

- Long wing tricycle undercarriage
- Short wing tricycle undercarriage
- Short wing retractable undercarriage (RG)
- Short wing tailwheel undercarriage (TDO)

**NOTE:** *The RG variants are not certified as LSA.*

The **only** LSA variant not specifically covered by the BRM Aero spin test report dated 22 February 2020 is the long wing TDO. Although BRM Aero has previously carried out it's own aerodynamic analysis, BRM Aero has recently engaged the services of an independent aerodynamics consulting company, AIRMOBIS s.r.o. Airmobis provides specialist consulting services to the aviation industry throughout Europe and abroad. Full company capabilities can be found on the Airmobis web site:

[www.airmobis.com](http://www.airmobis.com).

Airmobis has now carried out an independent detailed spin analysis of the Bristell range of aircraft using industry standard methodology (NACA TN D 6575) and authored Report № BRM NG5 006 (attached as **ANNEX C**). The author of this report concludes "***it is my opinion that all versions of the NG-5 Bristell meet the requirements of ASTM F2245 para 4.5.9***".

101	<p>While the 2020 spin test report provided by BRM sets out further explanations and additional information for CASA to assess the compliance status and the airworthiness concerns as to the aircrafts' spin characteristics, my view is that the information remains insufficient for CASA to be assured as to the airworthiness of each of the aircraft variants in the event of entering a spin (whether intentional or otherwise) at this time.</p>	<p>Refer to response to Item 100 above.</p>
102	<p>While I have given serious consideration to imposing operational limitations across all operating environments as foreshadowed in the notice of intention, I am reasonably satisfied that at this time it would be most appropriate and in the interests of aviation safety that the limitations be tailored towards flight training operations due to the higher likelihood of a mishap leading to a fully developed spin (including the potentially higher frequency of operations), the nature of flight training operations generally and the risk posed by potentially uninformed and/or low hour student pilots acting under instruction.</p>	<p>Refer to response to Item 100 above.</p>
103	<p>Flight training involves fee for service participants. Student pilots are called upon to initiate and recover from stalls as part of instructional sequences. This creates a proportionately greater risk of mishandling, leading to unintentional entry into a spin. Taking into account the differing risks associated with different activities and operations, I consider that the risks entailed in private operations of an unintended stall are correspondingly lower and are presently sufficiently and appropriately mitigated by an updated CASA Safety Notice to ensure private operators remain informed pilots of their BLSA (including for all nonfare paying activity).</p>	<p>This is irrelevant, it does not matter for what purpose the aircraft are being used. The BLSA has been demonstrated to be fully compliant to ASTM F2245 para 4.5.9.</p> <p>Refer to response to Item 100 above.</p>

104	<p>While I consider that there is significant doubt as to whether it applies to my decision, in reaching that decision, I have also considered the potential economic effect of my decision in accordance with the requirements of subsection 9(3) of the Civil Aviation Act 1998 which provides as follows:</p> <p>(3) Subject to subsection (1), in developing and promulgating aviation safety standards under paragraph 9(1)(c), CASA must:</p> <p>(a) consider the economic and cost impact on individuals, businesses and the community of the standards; and</p> <p>(b) take into account the differing risks associated with different industry sectors.</p>	<p><b>BRM Aero maintains that CASA has not adequately considered the economic effect of their decision as required by subsection 9(3) of the Civil Aviation Act 1998</b> in that:</p> <ul style="list-style-type: none"> <li>• The economic and cost impact on individuals and businesses involved with the Bristell range of aircraft right around the world has been considerable and it has been estimated that millions of dollars have been lost due to CASA’s decision to impose the safety notice and the operating limitations. In today’s internet connected world the CASA safety notice and operating limitations spread worldwide and have impacted sales, owner confidence and resale value.</li> <li>• CASA have also failed to take into account the differing risks associated with different industry sectors. The LSA sector is intended to be self regulating as far as airworthiness is concerned we are dealing with very light aircraft, restricted to VFR operations with a maximum seating capacity of two <b>informed</b> persons (placard on the instrument panel advising occupants of the potential risks). This is in contrast to other higher level sectors where passengers are not informed of potential risks and always expect to arrive at their intended destinations safely.</li> </ul>
105	<p>As noted above, I am satisfied that there is a proper safety basis for imposing operating limitations in respect of use of BLSA for stall training in a flight training context. I accept that imposing operating limitations of this nature may result in an economic and cost impact upon flight training organisations currently using BLSA for the conduct of stall training.</p>	<p>BRM Aero maintains that CASA did not have a satisfactory safety basis for imposing the safety notice and operating limitations. As advised in the response to Item 104 above the economic and cost impact upon flight training organisations currently using BLSA for the conduct of stall training, and indeed all owners and operators of BLSA aircraft has been and continues to be considerable.</p> <p>We reiterate CASAs own statement at point 89.</p> <p><b><i>“there is no conclusive basis to presently find that BLSA do not comply with the spin recovery requirements specified in paragraph 4.5.9 of ATSM standard F2245”.</i></b></p>

106	<p>Based upon the information currently available to me, it is my understanding that three operators and a total of approximately 25 BLSA are presently available to be used for flight training operations. Of those three operators, two do not currently use BLSA for stall training as they conduct such training in other aircraft types. Accordingly, it is my understanding that there is presently only one flying training operator (who provided a submission to the notice of intention) who will potentially be affected by my decision.</p>	<p>My understanding is as follows:</p> <ul style="list-style-type: none"> <li>• SOAR Aviation. Operated 19 BLSA aircraft. The company is now in liquidation. The administrators, KPMG in their Report to Creditors dated 4 Feb 2021, para 3.4.5 states: <i>“As noted above, in February 2020 CASA implemented a safety notice in respect of Bristell LSA aircraft, of which the Group operates 19. The notice issued operational limitations to particular activities associated with flight training and resulted in the grounding of all Bristell aircrafts by the Group”</i>. Clearly the issuance of the safety notice has has a catastrophic effect on SOAR Aviation finances.</li> <li>• Learn 2 Fly (Bathurst, Canberra &amp; Moruya) operate 2 BLSA aircraft and have reported that they have endured considerable financial losses as a result of the CASA imposed safety notice and operating limitations.</li> <li>• Leading Edge Aviation, Bacchus Marsh operates one BLSA. Attempts to contact this company by phone and email has so far been unsuccessful so it can only be assumed that they have gone out of business.</li> <li>• Central Coast Aero Club. Operated one Bristell until the safety notice was issued. The aircraft is now advertised for sale.</li> </ul>
107	<p>While I accept that imposing the operating limitations will prevent certain flying training activities being conducted in the BLSA, it will not preclude all flight training activities (the majority of which do not involve stall training exercises or intentional stalling) and students can seek to achieve competency in other suitable aircraft as part of their training. The focussed nature of the intended limitation is therefore likely in my opinion, to limit its economic impact on operators who use the aircraft in a flight training context.</p>	<p>Refer to the response to Item 104 above.</p>

108	<p>A further consideration is that due to the current COVID 19 pandemic, flight training activities have been substantially curtailed or ceased. Therefore, any potential economic effect of my decision is to a great extent already overtaken by such other external factors.</p>	<p>COVID 19 pandemic or not, flying training activities continued around Australia and elsewhere, albeit not to the pre pandemic levels. It must also be remembered that the impact of the COVID 19 pandemic impacted flying training operations when they were at a very vulnerable time when ANY additional impact due to the CASA restrictions placed an even greater burden on the flying training organisations.</p> <p>COVID 19 restrictions were always going to, and have now eased, flight training is slowly returning to pre pandemic levels. While the Safety Notice and Operating Limitations remain the impact both operationally and commercially continues. The Safety Notice and Operating Limitations also minimises the option for future use of the Bristell for flight training. The impact is significant and ongoing.</p>
109	<p>I have also taken into consideration that BRM can seek to have the operating limitations lifted by way of the process outlined in paragraph 115 of this notice.</p>	<p>This document, together with the attached annexes provides proof from qualified experts that the Bristell series of aircraft are fully compliant with ASTM F2245, para 4.5.9 and always have been. Additional testing was not practical during the COVID 19 pandemic and is still not. In any event additional testing is deemed to be unnecessary as qualified experts have determined that the aircraft are fully compliant with ASTM F2245, para 4.5.9.</p>
110	<p>In so far as all registered operators were given the opportunity to make a submission in relation to the proposed operating limitations, I consider that the relatively small response rate indicates either a lack of opposition to the grounds for imposing operating limitations or that such a decision would not significantly affect their use of the aircraft.</p>	<p>The small response rate was clearly due to the feeling of the owner/operators that a response was a waste of time as once CASA make up their mind about something it is almost impossible to change it. Common sense, logic and evidence are simply ignored. It is a wide spread industry belief that any arguments against CASA decisions will simply 'fall on deaf ears'.</p>

111	<p>I have also taken into consideration the potential economic effect of my decision in respect of BRM and its Australian distributor. While I accept that the operational limitations do necessarily impose some restrictions and may have some economic impact on the reputation and goodwill of the manufacturer and distributor, the limitations are discrete and only affect certain activities. Balanced against this are the interests of the safety of air navigation to ensure that the aircraft is not operated in certain ways which may lead to the aircraft entering a potentially unrecoverable state.</p>	<p>The economic impact of the CASA decision has been downplayed. The economic consequences of the decision has been felt by owners &amp; operators around the world in addition to the economic impact and reputation of the manufacturer, BRM Aero. For CASA to suggest otherwise is not supported by facts.</p> <p>The 'safety of air navigation' argument is not relevant when the BLSA aircraft is, and always has been, compliant with the requirements of ASTM F2245, para 4.5.9.</p> <p>This argument could be applied to any aircraft that has ever had an accident.</p>
112	<p>In this context, I consider that the proposed limitations are necessary in the interests of aviation safety and proportionate to the nature of the risk which CASA seeks to address.</p>	<p>Refer to the previous BRM Aero responses. There is no risk to aviation safety when flying an aircraft that has been demonstrated to be compliant with the applicable design specifications, ASTM F2245.</p>