# TYPE-CERTIFICATE

# DATA SHEET

**No. EASA.A.607**

for
BS 115

**Type Certificate Holder**
BLACKSHAPE S.P.A.

Strada Statale 16 KM 841+900
70043 Monopoli (BA)
ITALY

For models: BS 115
BK 160

**Contents**

## SECTION A: BS 115

### A.I. General

| | |
|---|---|
| 1. Type/ Model /Variant | |
| 1.1 Type | BS 115 |
| 1.2 Model | BS 115 |
| 1.3 Variant | -- |
| 2. Airworthiness Category | Normal |
| 3. Manufacturer | Blackshape SPA<br>SS 16 KM 841+900 Z.I.<br>70043 Monopoli (BA) Italy |
| 4. EASA Type Certification Application Date | 14 March 2013 |
| 5. State of Design Authority | N/A |
| 6. State of Design Authority Type Certificate Date | N/A |
| 7. EASA Type Certification Date | 03 April 2017 |

### A.II. EASA Certification Basis

| | |
|---|---|
| 1. Reference Date for determining the applicable requirements | 15 September 2014 |
| 2. Airworthiness Requirements | CS-VLA Amdt. 1, 5 May 2009 |
| 3. Special Conditions | none |
| 4. Exemptions | none |
| 5. (Reserved) Deviations | none |
| 6. Equivalent Safety Findings | none |
| 7. Environmental Protection | CS-36 Amdt. 2 dated 31 August 2009, subpart C with reference to ICAO Annex 16, Volume 1, Chapter 10, Amdt. 9 dated 30 July 2009. |

## A.III. Technical Characteristics and Operational Limitations

1. Type Design Definition

Document No. "TDDCR-BS115-001" Type Design Data Configuration Report, latest applicable issue.

2. Description

Single-engine low wing monoplane, tandem two-seater configuration. Equipped with retractable landing gear and variable pitch constant speed propeller. Airframe made by composite material carbon fibre reinforced epoxy (CFRP).

3. Equipment

Equipment list as reported in BCV-00-38-00 "BS115 Airplane Flight Manual" Section 6

4. Dimensions

| | | |
|---|---|---|
| Span | 9.000 m | 29.53 ft |
| Length | 7.437 m | 24.40 ft |
| Height | 2.455 m | 8.05 ft |
| Wing area | 10.31 m2 | 111.00 sqft |

5. Engine

5.1. Model: Lycoming IO-320-D1B

5.2 Type Certificate: TCDS no. US 1E12

5.3 Limitations:

Max Take-off Power: 160 shp

Max Continuous Power: 160 shp

Other limitations are listed in BCV-00-38-00 "BS115 Airplane Flight Manual" Section 2

6. Load factors

| | Flap UP | Flap DOWN |
|---|---|---|
| Max positive | +5 | +2.0 |
| Max negative | -2.5 | 0 |

7. Propeller

7.1 Model: Hartzell Raptor series

Hub: 3C1-L675A1

Governor: S-1-78

Blades: 76C03-7

7.2 Type Certificate: TCDS No. IM.P.137

7.3 Number of blades: 3

7.4 Diameter: 1.75 m (69 in)

7.5 Sense of Rotation: Clockwise (pilot's view)

8. Fluids

| | |
|---|---|
| 8.1 Fuel | Refer to AFM, Section 2 for engine fuels |
| 8.2 Oil | Refer to AFM, Section 2 for engine oil |
| 8.3 Coolant | N/A |

9. Fluid capacities

| | |
|---|---|
| 9.1 Fuel | 2 tanks, 64 litres (17 USG) each. Total usable capacity: 113.5 litres (30 USG). |
| 9.2 Oil | |
| Total: | 7.57 litres (8 quart) |
| Minimum: | 3.78 litres (4 quart) |
| 9.3 Coolant system capacity | N/A |

| | |
|---|---|
| 10. Air Speeds | Never Exceed Speed $V_{NE}$: 172 KCAS<br>Max. structural cruising speed $V_{NO}$: 150 KCAS<br>Operating Manoeuvring speed $V_A$: 123 KCAS<br>Max. speed with landing gear extended: $V_{LE}$: 90 KCAS<br>Max. speed for landing gear operation $V_{LO}$: 90 KCAS<br>Max. speed with flaps fully deployed $V_{FE}$: 90 KCAS |
| 11. Maximum Operating Altitude | 11500 ft – Density Altitude |
| 12. Approved Operations Capability | Day VFR<br>Flights in known icing conditions is prohibited |

13. Maximum Masses

| | |
|---|---|
| Max. Take-off: | 750 kg (1653 lbs) |
| Max. Landing | 750 kg (1653 lbs) |

| | |
|---|---|
| 14. Centre of Gravity Range | 23% MAC 31% MAC at 750 Kg<br>16.5% MAC 31% MAC at 712 Kg<br>Mean Aerodynamic Chord: 1360.26 mm |
| 15. Datum | 800 mm aft of composite bulkhead.<br>165 mm up from airplane fuselage centreline. |

16. Control surface deflections

| | |
|---|---|
| Aileron (Left / Right) | Up: 28° ±2°<br>Down: 23° ±2° |
| Elevator | Up: 29° ±1°<br>Down: 8° ±1° |
| Rudder | Left: 25° ±2°<br>Right: 25° ±2° |
| Elevator trim | UP: 25° ±1°<br>Down: 15° ±1° |
| Flap | Take-off: 15° ±1°<br>Landing: 30° ±1° |

| | |
|---|---|
| 17. Levelling Means | Baggage compartment surface |
| 18. Minimum Flight Crew | 1 pilot seated in the front seat |
| 19. Maximum Passenger Seating Capacity | 1 |
| 20. Baggage/ Cargo Compartments | 33 kg capacity, 2.5 m aft of datum |
| 21. Wheels and Tyres | Nose Landing Gear: 5.00-5”<br>Main Landing Gear: 4.00-5”<br>For approved tyres and ratings, see AMM |
| 22 Serial Numbers Eligible | s/n BCV.001 and subsequent |

## A.IV. Operating and Service Instructions

| | |
|---|---|
| 1. Flight Manual | BCV-00-38-00 “BS115 Aircraft Flight Manual”, Issue 1 - latest approved revision |
| 2. Maintenance Manual | BCV-00-39-00 “Aircraft Maintenance Manual”, Issue 0 - latest approved revision |
| 3. Structural Repair Manual | N/A |
| 4. Weight and Balance Manual | included in the AFM |
| 5. Illustrated Parts Catalogue | BCV-00-30-01 “Illustrated Parts Catalogue” |

## A.V. Notes

N/A

## SECTION B: BK 160

### B.I. General

| | |
|---|---|
| 1. Type/ Model / Variant | |
| 1.1 Type | BS 115 |
| 1.2 Model | BK 160 (refer to B.V. Note 1) |
| 1.3 Variant | -- |
| 2. Airworthiness Category | Normal |
| 3. Manufacturer | Blackshape SPA<br>SS 16 KM 841+900 Z.I.<br>70043 Monopoli (BA) Italy |
| 4. EASA Type Certification Application Date | 14 March 2013 |
| 5. State of Design Authority | N/A |
| 6. State of Design Authority Type Certificate Date | N/A |
| 7. EASA Type Certification Date | 03 April 2017 |

### B.II. EASA Certification Basis

| | |
|---|---|
| 1. Reference Date for determining the applicable requirements | 15 September 2014 |
| 2. Airworthiness Requirements | CS-VLA Amdt. 1, 5 May 2009 |
| 3. Special Conditions | SC-CVLA-div01-02 “CS-VLA Aeroplanes with MTOM of more than 750 Kg”<br>SC-OVLA.div03-02 – Night VFR Operation with VLA |
| 4. Exemptions | none |
| 5. (Reserved) Deviations | none |
| 6. Equivalent Safety Findings | ESF to SC-OVLA.div-03-02 SC 1143 and SC 1147<br>ESF to CS VLA.161 (b)(2)(ii)Amdt 1 |
| 7. Environmental Protection | CS-36 Amdt. 2 dated 31 August 2009, subpart C with reference to ICAO Annex 16, Volume 1, Chapter 10, Amdt. 9 dated 30 July 2009. |

## B.III. Technical Characteristics and Operational Limitations

| | |
|---|---|
| 1. Type Design Definition | Document No. "TDDCR-BS115-004" Type Design Data Configuration Report, latest applicable issue. |
| 2. Description | Single-engine low wing monoplane, tandem two-seater configuration. Equipped with retractable landing gear and variable pitch constant speed propeller. Airframe made by composite material carbon fibre reinforced epoxy (CFRP). |
| 3. Equipment | Equipment list as reported in BCV-00-38-00 BS115 Airplane Flight Manual Section 6 |

4. Dimensions

| | | |
|---|---|---|
| Span | 9.000 m | 29.53 ft |
| Length | 7.437 m | 24.40 ft |
| Height | 2.455 m | 8.05 ft |
| Wing area | 10.31 m2 | 111.00 sqft |

5. Engine

| | | |
|---|---|---|
| 5.1. Model | Lycoming IO-320-D1B | |
| 5.2 Type Certificate | TCDS no. US 1E12 | |
| 5.3 Limitations | Max Take-off Power: | 160 shp |
| | Max Continuous Power: | 160 shp |
| | Other limitations are listed in BCV-00-38-00 "BS115 Airplane Flight Manual" Section 2 | |

6. Load factors

| | Flap UP | Flap DOWN |
|---|---|---|
| Max positive | +4.4 | +2.0 |
| Max negative | -2.0 | 0 |

7. Propeller

| | |
|---|---|
| 7.1 Model | Hartzell Raptor series<br>Hub: 3C1-L675A1<br>Governor: S-1-78<br>Blades: 76C03-7 |
| 7.2 Type Certificate | TCDS No. IM.P.137 |
| 7.3 Number of blades | 3 |
| 7.4 Diameter | 1.75 m (69 in) |
| 7.5 Sense of Rotation | Clockwise (pilot's view) |

8. Fluids

| | |
|---|---|
| 8.1 Fuel | Refer to AFM, Section 2 for engine fuels |
| 8.2 Oil | Refer to AFM, Section 2 for engine oil |
| 8.3 Coolant | N/A |

9. Fluid capacities

| | |
|---|---|
| 9.1 Fuel | 2 tanks, 64 litres (17 USG) each. Total usable capacity: 113.5 litres (30 USG). |
| 9.2 Oil | |
| | Total: 7.57 litres (8 quart) |
| | Minimum: 3.78 litres (4 quart) |
| 9.3 Coolant system capacity | N/A |
| 10. Air Speeds | Never Exceed Speed $V_{NE}$: 172 KCAS |
| | Max. structural cruising speed $V_{NO}$: 148 KCAS |
| | Operating Manoeuvring speed $V_A$: 122 KCAS |
| | Max. speed with landing gear extended: $V_{LE}$: 90 KCAS |
| | Max. speed for landing gear operation $V_{LO}$: 90 KCAS |
| | Max. speed with flaps fully deployed $V_{FE}$: 90 KCAS |
| 11. Maximum Operating Altitude | 11500 ft – Density Altitude |
| 12. Approved Operations Capability | Day/Night VFR |
| | Flights in known icing conditions is prohibited |
| 13. Maximum Masses | |
| | Max. Take-off: 850 kg (1874 lbs) |
| | Max. Landing 850 kg (1874 lbs) |
| 14. Centre of Gravity Range | 23% MAC 31% MAC at 850 Kg |
| | 19% MAC 31% MAC at 765 Kg |
| | Mean Aerodynamic Chord: 1360.26 mm |
| 15. Datum | 800 mm aft of composite bulkhead. |
| | 165 mm up from airplane fuselage centreline. |

16. Control surface deflections

| | |
|---|---|
| Aileron (Left / Right) | Up: 14° ±1° |
| | Down: 13° ±1° |
| Elevator | Up: 25° ±1° |
| | Down: 8° ±1° |
| Rudder | Left: 25° ±2° |
| | Right: 25° ±2° |
| Elevator trim | DWN: 30° ±2° |
| | UP: 4° ±1° |
| Flap | Take-off: 15° ±1° |
| | Landing: 30° ±2° |

| | |
|---|---|
| 17. Levelling Means | Baggage compartment surface |
| 18. Minimum Flight Crew | 1 pilot seated in the front seat |
| 19. Maximum Passenger Seating Capacity | 1 |
| 20. Baggage/ Cargo Compartments | 33 kg capacity, 2.5 m aft of datum |
| 21. Wheels and Tyres | Nose Landing Gear: 5.00-5”<br>Main Landing Gear: 4.00-5” |
| | For approved tyres and ratings, see AMM |
| 22. Serial Numbers Eligible | s/n BCV.21005 and subsequent<br>(refer to B.V. Note 2) |

## B.IV. Operating and Service Instructions

| | |
|---|---|
| 1. Flight Manual | BCV-00-38-00 “BS115 Aircraft Flight Manual”, Issue 2 or later approved issue |
| 2. Maintenance Manual | BCV-00-39-00 “Aircraft Maintenance Manual”, Issue 1 or later approved issue |
| 3. Structural Repair Manual | N/A |
| 4. Weight and Balance Manual | included in the AFM |
| 5. Illustrated Parts Catalogue | BCV-00-30-03“Illustrated Parts Catalogue” |

## B.V. Notes

1) BK 160 model consists of BS 115 model modified as per major changes MOD-BCV-17-020 “BS 115 weight increase to 850 kg” (EASA Approval 10071128), major change MOD-BCV-17-021 “Internal Muffler (EASA Approval 10071131) and MOD-BCV-17-026 “BS 115 Night-VFR”(EASA Approval 10071129).

2) Aircraft S/N BCV.21003 and S/N BCV.21004 were originally produced as BS 115 model with applied Major Changes see B.V. Note 1) resulting in conformity of these 2 aircraft with basic specifications of BK 160 model.

**SECTION ADMINISTRATIVE**

## I. Acronyms & Abbreviations

**Acronyms**

AFM – Aircraft Flight Manual

AMM – Aircraft Maintenance Manual

CRI – Certification Review Item

CS – Certification Specification

VLA – Very Light Aircraft

EASA – European Aviation Safety Agency

ESF – Equivalent Safety Finding

ICAO – International Civil Aviation Organization

IPC – Illustrated Part Catalogue

KCAS – Knots Calibrated Air Speed

KOEL – Kind of Operations Equipment List

MAC – Mean Aerodynamic Chord

MLW – Maximum Landing Weight

MTOW – Maximum Take-Off Weight

MZFW – Maximum Zero Fuel Weight

TC – Type Certificate

TCDS – Type Certificate Data Sheet

VFR – Visual Flight Rules

N-VFR –Night - Visual Flight Rules

Ft - feet

## II. Type Certificate Holder Record

| TC Holder | Period |
|---|---|
| Blackshape S.p.A.<br>SS 16 KM 841+900 Z.I.<br>70043 Monopoli (BA)<br>Italy | Effective |

## III. Change Record

| Issue | Date | Changes | TC Issue No. & Date |
|---|---|---|---|
| Issue 01 | 03 April 2017 | Initial Issue | Initial Issue, 03 April 2017 |
| Issue 02 | 17 Dec 2018 | Change to maximum operating altitude, definition of eligible serial numbers and elevator deflections. | Initial Issue, 03 April 2017 |
| Issue 03 | 02 Oct. 2019 | Added Variant *BK160 Gabrièl* incorporating major changes: MOD-BCV-17-020, MOD-BCV-17-021 and MOD-BCV-17-026 | Initial Issue, 03 April 2017 |
| Issue 04 | 12 May 2020 | Variant BK 160 transformed to a new separate model BK 160 – document general restructuration | Issue 01, 12 May 2020 |

-END-