



European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

EASA.A.379

MS 890 and Rallye 235 Series

Type Certificate Holder:

**SOCATA
65921 Tarbes Cedex 9
France**

For models: MS 890 and its variants: MS 890 A, MS 890 B
MS 892 and its variants: MS 892 A.150, MS 892 B, MS 892 E,
MS 892 E-D
MS 893 and its variants: MS 893 A, MS 893 B, MS 893 E, MS 893 E-D
MS 894 and its variants: MS 894 A, MS 894 C, MS 894 E
RALLYE 235 and its variants RALLYE 235 E, RALLYE 235 E-D,
RALLYE 235 A, RALLYE 235 C, RALLYE 235 F

Issue 02: 18 June 2014

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SECTION A: MODEL MS 890 TYPE DESIGN

A.I. General

- | | |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 1. Data Sheet No.: | EASA.A.379 - Issue 01 Date : 26 November 2010 |
| 2. a) Type: | MS 890 |
| b) Model: | MS 890 A |
| c) Variant: | MS 890 B |
| | (see Section F, Note 1) |
| 3. Airworthiness Category: | Normal and Utility Categories |
| | (see Section F, Note 3) |
| 4. Type Certificate Holder: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 5. Manufacturer: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 6. Certification Application Date: | April 1961 |
| 7. National Certifying Authority | D.G.A.C. (Direction Générale de l'Aviation Civile) |
| 8. National Authority Type Certificate Date: | 11-December-1962 |
| 9. National Authority Type Certificate: | DGAC-France Type Certificate No.22
The present EASA Type Certificate replaces
DGAC-France Type Certificate No.22 |

A.II. EASA Certification Basis

- | | |
|----------------------------------------------------------------|------------------------------------------------|
| 1. Reference Date for determining the applicable requirements: | April 1961 |
| 2. Airworthiness Requirements: | French Norme AIR 2052 - Ed. Novembre 1959 |
| 3. Special Conditions: | None |
| 4. Exemptions: | None |
| 5. Deviations: | None |
| 6. Equivalent Safety Findings: | None |
| 7. Requirements elected to comply: | None |
| 8. Environmental Standards: | CS 36 (ICAO Annex 16, volume I, as applicable) |

9. (Reserved) Additional National Requirements: None
10. (Reserved) /

A.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: MS 890 Airplane main drawing No. 890-00.0.001
2. Description: Single-engine, all-metal, four seats, low-wing airplane, conventional tail, fixed tricycle landing gear.
3. Equipment: The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in the aircraft for airworthiness certification.
The applicable DGAC/EASA approved Flight Manual is required for all operations. Included within the Flight Manual (if necessary) is information in the form of supplements, which cover installation of optional systems and equipment that are required for safe operation of the aircraft.
4. Dimensions:
- | | |
|-----------|-----------------------------------------------------------------------------------|
| Span | 9.740 m (31.95 ft) for large wing tips,
9.600 m (31.50 ft) for small wing tips |
| Length | 7.100 m (23.29 ft) |
| Height | 2.800 m (9.18 ft) |
| Wing area | 12.28 m ² (132.18 sq.ft) |
5. Engine:
- 5.1.1 Model: Continental 0.300 A, B, C or D
- 5.1.2 Type Certificate: /
- 5.1.3 Limitations: All operations: 2700 RPM (108 kW - 145 HP)
6. Load factors:
- | | |
|---------------------------|--------------------------|
| <u>Utility Category</u> , | Flaps up: + 4.4
- 1.8 |
| <u>Normal Category</u> , | Flaps up: + 3.8
- 1.5 |
7. Propeller:
- 7.1.1 Model: Continental 0.300 A or B engine:
McCauley: 1C 172 MDM 7652
Or
Continental 0.300 C or D engine
McCauley: 1C 172 EM 7652
- 7.1.2 Type Certificate: /
- 7.1.3 Number of blades: 2
- 7.1.4 Diameter: 1.93 m (75.98 in.)

- | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------|--|-------------------------------------|-----------------------|----------------------------|--|-------------------------------------|----------------|----------------------------|--|-------------------------------------|-----------------------|----------------------------|--|-------------------------------------|-------------------|--------------------------|
| 7.1.5 | Sense of Rotation: | / | | | | | | | | | | | | | | | | | | |
| 7.1.6 | Minimum Static RPM at sea level: | 2300 RPM (full throttle) | | | | | | | | | | | | | | | | | | |
| 8. Fluids: | | | | | | | | | | | | | | | | | | | | |
| 8.1 | Fuel: | 80/87 minimum aviation grade gasoline | | | | | | | | | | | | | | | | | | |
| 8.2 | Oil: | SAE 20 for OAT < 5°C,
SAE 40 for OAT > 5°C | | | | | | | | | | | | | | | | | | |
| 8.3 | Coolant: | Not Applicable | | | | | | | | | | | | | | | | | | |
| 9. Fluid capacities: | | | | | | | | | | | | | | | | | | | | |
| 9.1 | Fuel: | <p>2 structural wing tanks</p> <p><u>With sight tube gauges</u> (see Note 1)</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Total capacity</td> <td>180 litres (47.55 US Gal):</td> </tr> <tr> <td></td> <td>Each tank: 90 litres (23.76 US Gal)</td> </tr> <tr> <td>Total usable capacity</td> <td>178 litres (47.02 US Gal):</td> </tr> <tr> <td></td> <td>Each tank: 89 litres (23.51 US Gal)</td> </tr> </table> <p><u>With electrical gauges</u></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Total capacity</td> <td>184 litres (48.61 US Gal):</td> </tr> <tr> <td></td> <td>Each tank: 92 litres (24.30 US Gal)</td> </tr> <tr> <td>Total usable capacity</td> <td>170 litres (44.91 US Gal):</td> </tr> <tr> <td></td> <td>Each tank: 85 litres (22.45 US Gal)</td> </tr> <tr> <td>Unusable capacity</td> <td>4.4 litres (1.16 US Gal)</td> </tr> </table> | Total capacity | 180 litres (47.55 US Gal): | | Each tank: 90 litres (23.76 US Gal) | Total usable capacity | 178 litres (47.02 US Gal): | | Each tank: 89 litres (23.51 US Gal) | Total capacity | 184 litres (48.61 US Gal): | | Each tank: 92 litres (24.30 US Gal) | Total usable capacity | 170 litres (44.91 US Gal): | | Each tank: 85 litres (22.45 US Gal) | Unusable capacity | 4.4 litres (1.16 US Gal) |
| Total capacity | 180 litres (47.55 US Gal): | | | | | | | | | | | | | | | | | | | |
| | Each tank: 90 litres (23.76 US Gal) | | | | | | | | | | | | | | | | | | | |
| Total usable capacity | 178 litres (47.02 US Gal): | | | | | | | | | | | | | | | | | | | |
| | Each tank: 89 litres (23.51 US Gal) | | | | | | | | | | | | | | | | | | | |
| Total capacity | 184 litres (48.61 US Gal): | | | | | | | | | | | | | | | | | | | |
| | Each tank: 92 litres (24.30 US Gal) | | | | | | | | | | | | | | | | | | | |
| Total usable capacity | 170 litres (44.91 US Gal): | | | | | | | | | | | | | | | | | | | |
| | Each tank: 85 litres (22.45 US Gal) | | | | | | | | | | | | | | | | | | | |
| Unusable capacity | 4.4 litres (1.16 US Gal) | | | | | | | | | | | | | | | | | | | |
| 9.2 | Oil: | <p>Maximum capacity: 7.5 litres (7.93 qts)</p> <p>Usable capacity: Refer to Airplane Flight Manual</p> | | | | | | | | | | | | | | | | | | |
| 9.3 | Coolant system capacity: | Not Applicable | | | | | | | | | | | | | | | | | | |
| 10. Air Speeds: | | | | | | | | | | | | | | | | | | | | |
| | | (Indicated Airspeeds) (see Section F, Note 10) | | | | | | | | | | | | | | | | | | |
| | | V_{NE} (Never Exceed speed): 290 km/h (156 KIAS) | | | | | | | | | | | | | | | | | | |
| | | V_d (Design diving speed): 322 km/h (174 KIAS) | | | | | | | | | | | | | | | | | | |
| | | V_{NO} (Maximum structural cruising speed): 250 km/h (135 KIAS) | | | | | | | | | | | | | | | | | | |
| | | V_A (Maneuvering speed): 210 km/h (113 KIAS) | | | | | | | | | | | | | | | | | | |
| | | V_{FE} (Maximum Flap Extended): 140 km/h (76 KIAS) | | | | | | | | | | | | | | | | | | |
| 11. Maximum Operating Altitude: | | | | | | | | | | | | | | | | | | | | |
| Refer to Airplane Flight Manual | | | | | | | | | | | | | | | | | | | | |
| 12. Allweather Operations Capability: | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> - Day VFR - Night VFR if required equipment installed as defined in Flight Manual Supplement for Night VFR - Flight in icing conditions is prohibited | | | | | | | | | | | | | | | | | | | | |

13. Maximum Weights: (see Note 3)
Normal Category
Maximum Takeoff: 980 kg (2160 lbs)
Maximum Landing: 980 kg (2160 lbs)
Utility Category
Maneuvers: 980 kg (2160 lbs)
14. Centre of Gravity Range: (see Section F, Notes 4 and 11)

Forward Limit: 0.780 m (30.71 in.)
aft of datum under 685 kg (1510 lbs)
Intermediate limit: 0.943 m (37.13 in.)
aft of datum at 980 kg (2160 lbs)

Straight line variation between points given.
Aft Limit: 1.047 m (41.22 in.) aft of datum

Fuel:
From firewall: at Station + 1.067 m (41.01 in.)

Oil in the sump:
From firewall: at Station - 0.493 m (19.41 in.)
15. Datum: Front face of engine firewall
16. Control surface deflections:
- | | | |
|----------------------------|-------|----------------------------|
| Elevator: | Up | $25^{\circ} \pm 1^{\circ}$ |
| | Down | $28^{\circ} \pm 1^{\circ}$ |
| Elevator tab: | Up | 20° |
| | Down | 28° |
| Rudder relative to fin: | Right | $30^{\circ} + 1^{\circ}$ |
| | Left | $30^{\circ} + 1^{\circ}$ |
| Ailerons relative to wing: | Up | $17^{\circ} \pm 1^{\circ}$ |
| | Down | $13^{\circ} \pm 1^{\circ}$ |
| Flaps relative to wing: | Up | 0° |
| | Down | $30^{\circ} \pm 1^{\circ}$ |
17. Levelling Means: Upper spar of horizontal frame (canopy rail)
18. Minimum Flight Crew: 1 (Pilot) at Station + 0.947 m (37.28 in.)
19. Maximum Passenger Seating Capacity: One at front R.H. Station + 0.947 m (37.28 in.),
Two at rear Station + 1.777 m (69.96 in.) provided a total maximum weight of 154 kg (339 lbs) (see Note 2) (see Section F, Note 11)
20. Baggage/Cargo Compartments: 45 kg (99 lbs) at Station + 2.447 m (96 in.)

21. Wheels and Tyres:

21.1 <u>Nose landing gear:</u>	Wheel:	Morane Saulnier
	Tire:	330 x 130
	Pressure:	1.4 bars (20.31 psi)
	Shock absorbers:	Eram, air-over-oil type
	Inflation:	30 bars (435 psi)
21.2 <u>Main landing gear:</u>	Track:	2000 mm (78.74 in.)
	Wheels:	Morane Saulnier
	Tires:	420 x 150
	Pressure:	1.8 bars (26.11 psi)
	Shock absorbers:	Eram, air-over-oil type
	Inflation:	31 bars (449.5 psi)

22. Serial Numbers Eligible: List available at SOCATA

A.IV. Operating and Service Instructions

1. Flight Manual:
DGAC/EASA approved Pilot's Operating Handbook (POH) original issue or later revision.
2. Technical Manual:
SOCATA Rallye Maintenance Manual at revision 10 or later revision *
3. Repair Manual:
SOCATA Rallye Repair Manual at revision 10 or later revision
4. Manual for Operation:
N/A
5. Spare Parts Catalogue:
SOCATA Rallye Spare Parts Catalogue at revision 12 or later revision
6. Table of Dimensions, Limits and Clearances:
N/A
7. Instruments and aggregates:
N/A

* Refer to Section E for SOCATA Rallye 235 Maintenance Manual

A.V. Notes

- 1) Indications of sight tube gauges are valid only when the aircraft is in a level flight attitude.
- 2) Passenger(s) are allowed on the rear seat if the front passenger seat is already occupied, preferably by the passenger with the highest weight.
- 3) The aircraft empty weight must include unusable fuel quantity.

SECTION B: MODEL MS 892 TYPE DESIGN

B.I. General

- | | |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 1. Data Sheet No.: | EASA.A.379 - Issue 01 Date : 26 November 2010 |
| 2. a) Type: | MS 892 |
| b) Model: | MS 892 A.150 |
| c) Variant: | MS 892 B.150, MS 892 E.150, MS 892 E-D.150
(see Section F, Note 1) |
| 3. Airworthiness Category: | Normal and Utility Categories
(see Section F, Note 3) |
| 4. Type Certificate Holder: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 5. Manufacturer: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 6. Certification Application Date: | January 1964
May 1972 for E variants |
| 7. National Certifying Authority | D.G.A.C. (Direction Générale de l'Aviation Civile) |
| 8. National Authority Type Certificate Date: | <u>MS 892 A.150 and B.150</u> : 26-June-1964
<u>MS 892 E.150</u> : 09-May-1972
<u>MS 892 E-D.150</u> : 22-June-1976 |
| 9. National Authority Type Certificate: | DGAC-France Type Certificate No. 22
The present EASA Type Certificate replaces
DGAC-France Type Certificate No. 22 |

B.II. EASA Certification Basis

- | | |
|----------------------------------------------------------------|-------------------------------------------|
| 1. Reference Date for determining the applicable requirements: | January 1964
May 1972 for E variants |
| 2. Airworthiness Requirements: | French Norme AIR 2052 - Ed. Novembre 1959 |
| 3. Special Conditions: | None |
| 4. Exemptions: | None |
| 5. Deviations: | None |
| 6. Equivalent Safety Findings: | None |
| 7. Requirements elected to comply: | None |

8. Environmental Standards: CS 36 (ICAO Annex 16, volume I, as applicable)
9. (Reserved) Additional National Requirements: None
10. (Reserved) /

B.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: MS 892 Airplane main drawings No. 892-00.0.001 and 892-00.0.002
2. Description: Single-engine, all-metal, four seats, low-wing airplane, conventional tail, fixed tricycle landing gear.
3. Equipment: The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in the aircraft for airworthiness certification.
The applicable DGAC/EASA approved Flight Manual is required for all operations. Included within the Flight Manual (if necessary) is information in the form of supplements, which cover installation of optional systems and equipment that are required for safe operation of the aircraft.
4. Dimensions:
- | | |
|-----------|-----------------------------------------------------------------------------------|
| Span | 9.740 m (31.95 ft) for large wing tips,
9.600 m (31.50 ft) for small wing tips |
| Length | 7.100 m (23.29 ft) |
| Height | 2.800 m (9.18 ft) |
| Wing area | 12.28 m ² (132.18 sq.ft) |
5. Engine:
- 5.1.1 Model: Lycoming O-320 E
- 5.1.2 Type Certificate: /
- 5.1.3 Limitations: All operations 2700 RPM (112 kW - 150 HP)
(see Note 1)
6. Load factors:
- | | |
|---------------------------|--------------------------|
| <u>Utility Category</u> , | Flaps up: + 4.4
- 1.8 |
| <u>Normal Category</u> , | Flaps up: + 3.8
- 1.5 |
7. Propeller: (see Note 2)
- 7.1. Only MS 892 A.150 and B.150
- 7.1.1 Model: McCauley: 1C 172 MGM 7650
or
McCauley: 1C 172 MGM 7652
- 7.1.2 Type Certificate: /

- 7.1.3 Number of blades: 2
- 7.1.4 Diameter: 1.93 m (75.98 in.)
- 7.1.5 Sense of Rotation: /
- 7.1.6 Minimum Static RPM at sea level: 2450 RPM (McCauley 1C 172 MGM 7650)
2350 RPM (McCauley 1C 172 MGM 7652)
(full throttle)

7.2. All

- 7.2.1 Model: Sensenich: M.74 DM 058 to 054
or
Sensenich: M.74 DM 6-058 to 6-054
- 7.2.2 Type Certificate: /
- 7.2.3 Number of blades: 2
- 7.2.4 Diameter: 1.88 m (74 in.)
- 7.2.5 Sense of Rotation: /
- 7.2.6 Minimum Static RPM at sea level: 2250 to 2450 RPM (full throttle)

8. Fluids:

- 8.1 Fuel: 80/87 minimum aviation grade gasoline
- 8.2 Oil: (see Note 3)
- 8.3 Coolant: Not Applicable

9. Fluid capacities:

- 9.1 Fuel: 2 structural wing tanks

Aircraft	MS 892		
Gauge type Capacity	Sight tube gauges (see Note 4)	Electrical gauges	
Total: Both tanks	180 litres (47.55 US Gal)	184 litres (48.61 US Gal)	235 litres (62.08 US Gal)
Each tank	90 litres (23.77 US Gal)	92 litres (24.30 US Gal)	117.5 litres (31.04 US Gal)
Total usable: Both tanks	178 litres (47.02 US Gal)	170 litres (44.91 US Gal)	220 litres (58.12 US Gal)
Each tank	89 litres (23.51 US Gal)	85 litres (22.45 US Gal)	110 litres (29.06 US Gal)
Unusable:	4.4 litres (1.16 US Gal)		

9.2 Oil:	Maximum capacity: 7.5 litres (7.93 qts) Usable capacity: 5.5 litres (5.81 qts)
9.3 Coolant system capacity:	Not Applicable
10. Air Speeds:	(Indicated Airspeeds) (see Section F, Note 10) V_{NE} (Never Exceed speed): 290 km/h (156 KIAS) V_d (Design diving speed): 322 km/h (174 KIAS) V_{NO} (Maximum structural cruising speed): 250 km/h (135 KIAS) V_A (Maneuvering speed): 210 km/h (113 KIAS) V_{FE} (Maximum Flap Extended): 162 km/h (87 KIAS)
11. Maximum Operating Altitude:	Refer to Airplane Flight Manual
12. Allweather Operations Capability:	<ul style="list-style-type: none">- Day VFR- Night VFR if required equipment installed as defined in Flight Manual Supplement for Night VFR- Flight in icing conditions is prohibited
13. Maximum Weights:	(see Note 6) <u>Normal Category</u> Maximum Takeoff: 980 kg (2160 lbs) Maximum Landing: 980 kg (2160 lbs) <u>Utility Category</u> Maneuvers: 980 kg (2160 lbs)
14. Centre of Gravity Range:	(see Section F, Notes 4 and 11) Forward Limit: 0.780 m (30.71 in.) aft of datum under 685 kg (1510 lbs) Intermediate limit: 0.943 m (37.13 in.) aft of datum at 980 kg (2160 lbs) Straight line variation between points given. Aft Limit: 1.047 m (41.22 in.) aft of datum <u>Fuel:</u> From firewall: at Station + 1.067 m (41.01 in.) <u>Oil in the sump:</u> From firewall: at Station - 0.493 m (19.41 in.)
15. Datum:	Front face of engine firewall

16. Control surface deflections:
- MS 892 A and B:
Elevator: Up $25^{\circ} \pm 1^{\circ}$
Down $28^{\circ} \pm 1^{\circ}$
- MS 892 E and E-D:
Elevator: Up $25^{\circ} \pm 1^{\circ}$
Down $20^{\circ} \pm 1^{\circ}$
- All:
Elevator tab: Up 20°
Down 28°
- Rudder relative to fin: Right $30^{\circ} + 1^{\circ}$
Left $30^{\circ} + 1^{\circ}$
- Ailerons relative to wing: Up $17^{\circ} \pm 1^{\circ}$
Down $13^{\circ} \pm 1^{\circ}$
- Flaps relative to wing: Up 0°
Down $30^{\circ} \pm 1^{\circ}$
17. Levelling Means: Upper spar of horizontal frame (canopy rail)
18. Minimum Flight Crew: 1 (Pilot) at Station + 0.947 m (37.28 in.)
19. Maximum Passenger Seating Capacity: One at front R.H. Station + 0.947 m (37.28 in.),
Two at rear Station + 1.777 m (69.96 in.) provided a total maximum weight of 154 kg (339 lbs) (see Note 5) (see Section F, Note 11)
20. Baggage/Cargo Compartments: 45 kg (99 lbs) at Station + 2.447 m (96 in.)
21. Wheels and Tyres:
- 21.1 Nose landing gear: Wheel: Morane Saulnier
Tire: 330 x 130
Pressure: 1.4 bars (20.31 psi)
Shock absorbers: Eram, air-over-oil type
Inflation: 30 bars (435 psi)
- 21.2 Main landing gear: Track: 2000 mm (78.74 in.)
Wheels: Morane Saulnier or Cleveland
Tires: 420 x 150
for Morane Saulnier wheels
435 x 155
for Cleveland wheels (see Note 7)
Pressure: 1.8 bars (26.11 psi)
Shock absorbers: Eram, air-over-oil type
Inflation: 31 bars (449.5 psi)
22. Serial Numbers Eligible: List available at SOCATA

B.IV. Operating and Service Instructions

1. Flight Manual:
DGAC/EASA approved Pilot's Operating Handbook (POH) original issue or later revision.
2. Technical Manual:
SOCATA_Rallye Maintenance Manual at revision 10 or later revision *
3. Repair Manual:
SOCATA Rallye Repair Manual at revision 10 or later revision
4. Manual for Operation:
N/A
5. Spare Parts Catalogue:
SOCATA Rallye Spare Parts Catalogue at revision 12 or later revision
6. Table of Dimensions, Limits and Clearances:
N/A
7. Instruments and aggregates:
N/A

B.V. Notes

- 1) Specific limitation for operation in Germany:
The MS 892 E-D.150 is limited for maximum continuous operation to 2600 RPM.
- 2) The installation of the propellers Sensenich M.74 DM 058 or 74 DM 6-058 and Mac Cauley 1C 172 MGM 7652 or 7650 is possible on MS 892 A.150 **only if not equipped** with SOCATA modification No. 89 (Installation of Cleveland wheels on main landing gear).
- 3)

above + 15° C	SAE 50
from - 0° C to + 32° C	SAE 40
from - 15° C to + 21° C	SAE 30
below - 12° C	SAE 20
- 4) Indications of sight tube gauges are valid only when the aircraft is in a level flight attitude.

* Refer to Section E for SOCATA Rallye 235 Maintenance Manual

- 5) Passenger(s) are allowed on the rear seat if the front passenger seat is already occupied, preferably by the passenger with the highest weight.
- 6) The aircraft empty weight must include unusable fuel quantity.
- 7) Cleveland wheels on main landing gear installed in series for MS 892 E.150 and E-D.150; optional (modification No. 89) for MS 892 A.150.

SECTION C: MODEL MS 893 TYPE DESIGN

C.I. General

- | | |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 1. Data Sheet No.: | EASA.A.379 - Issue 01 Date : 26 November 2010 |
| 2. a) Type: | MS 893 |
| b) Model: | MS 893 A |
| c) Variant: | MS 893 B, MS 893 E and MS 893 E-D
(see Section F, Note 1) |
| 3. Airworthiness Category: | Normal and Utility Categories
(see Section F, Note 3) |
| 4. Type Certificate Holder: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 5. Manufacturer: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 6. Certification Application Date: | August 1964 |
| 7. National Certifying Authority | D.G.A.C. (Direction Générale de l'Aviation Civile) |
| 8. National Authority Type Certificate Date: | <u>MS 893 A and B</u> : 27-April-1965
<u>MS 893 E</u> : 09-May-1972
<u>MS 893 E-D</u> : 22-June-1976 |
| 9. National Authority Type Certificate: | DGAC-France Type Certificate No.22
The present EASA Type Certificate replaces
DGAC-France Type Certificate No.22 |

C.II. EASA Certification Basis

- | | |
|----------------------------------------------------------------|-------------------------------------------|
| 1. Reference Date for determining the applicable requirements: | August 1964
May 1972 for E variants |
| 2. Airworthiness Requirements: | French Norme AIR 2052 - Ed. Novembre 1959 |
| 3. Special Conditions: | None |
| 4. Exemptions: | None |
| 5. Deviations: | None |
| 6. Equivalent Safety Findings: | None |
| 7. Requirements elected to comply: | None |

8. Environmental Standards: CS 36 (ICAO Annex 16, volume I, as applicable)
9. (Reserved) Additional National Requirements: None
10. (Reserved) /

C.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: MS 893 Airplane main drawings No. 893-00.0.001, 893-00.0.004 and 893-00.0.007
2. Description: Single-engine, all-metal, four seats, low-wing airplane, conventional tail, fixed tricycle landing gear.
3. Equipment: The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in the aircraft for airworthiness certification.
The applicable DGAC/EASA approved Flight Manual is required for all operations. Included within the Flight Manual (if necessary) is information in the form of supplements, which cover installation of optional systems and equipment that are required for safe operation of the aircraft.
4. Dimensions:
- | | |
|-----------|-----------------------------------------------------------------------------------|
| Span | 9.740 m (31.95 ft) for large wing tips,
9.600 m (31.50 ft) for small wing tips |
| Length | 7.100 m (23.29 ft) |
| Height | 2.800 m (9.18 ft) |
| Wing area | 12.28 m ² (132.18 sq.ft) |
5. Engine:
- 5.1.1 Model: Lycoming O.360.A
- 5.1.2 Type Certificate: /
- 5.1.3 Limitations: All operations 2700 RPM (135 kW - 180 HP)
(see Note 1)
6. Load factors:
- | | |
|---------------------------|--------------------------|
| <u>Utility Category</u> , | Flaps up: + 4.4
- 1.8 |
| <u>Normal Category</u> , | Flaps up: + 3.8
- 1.5 |
7. Propeller:
- 7.1.1 Model: Sensenich: M 76 EMM-54 to 60 or
Sensenich: 76 EM8 -54 to 60
or
McCauley: 1 A 200 FA 8044 or
McCauley: 1 A 200 FA 8046

or

Hartzell: HC C2.YK.1B/7666 A-2
(Hartzell regulator F4-4A with O-360 A.1 only)

7.1.2 Type Certificate: /

7.1.3 Number of blades: 2

7.1.4 Diameter: 1.93 m (75.98 in.) (Sensenich)
2.03 m (79.92 in.) (McCauley)
1.88 m (74 in.) (Hartzell)

7.1.5 Sense of Rotation: /

7.1.6 Minimum Static RPM at sea level: 2450 to 2310 RPM * (Sensenich)
2300 RPM (McCauley)
(full throttle)
(*) (see Notes 2 and 3)

7.1.7 Pitch limits: Hartzell propeller:
High pitch 31°, low pitch 11°30' (see Note 4)

8. Fluids:

8.1 Fuel: 91/96 minimum aviation grade gasoline

8.2 Oil: See Note 5

8.3 Coolant: Not Applicable

9. Fluid capacities:

9.1 Fuel: 2 structural wing tanks

Aircraft	MS 893		
Gauge type	Sight tube gauges (see Note 6)	Electrical gauges	
Capacity			
Total: Both tanks	180 litres (47.55 US Gal)	184 litres (48.61 US Gal)	235 litres (62.08 US Gal)
Each tank	90 litres (23.77 US Gal)	92 litres (24.30 US Gal)	117.5 litres (31.04 US Gal)
Total usable: Both tanks	178 litres (47.02 US Gal)	170 litres (44.91 US Gal)	220 litres (58.12 US Gal)
Each tank	89 litres (23.51 US Gal)	85 litres (22.45 US Gal)	110 litres (29.06 US Gal)
Unusable:	4.4 litres (1.16 US Gal)		

9.2 Oil: Maximum capacity: 7.5 litres (7.93 qts)

Usable capacity: 5.5 litres (5.81 qts)

9.3 Coolant system capacity:	Not Applicable
10. Air Speeds:	(Indicated Airspeeds) (see Section F, Note 10) V_{NE} (Never Exceed speed): 290 km/h (156 KIAS) V_d (Design diving speed): 322 km/h (174 KIAS) V_{NO} (Maximum structural cruising speed): 250 km/h (135 KIAS) V_A (Maneuvering speed): 210 km/h (113 KIAS) V_{FE} (Maximum Flap Extended): 162 km/h (87 KIAS)
11. Maximum Operating Altitude:	Refer to Airplane Flight Manual
12. Allweather Operations Capability:	<ul style="list-style-type: none"> - Day VFR - Night VFR and IFR if required equipment installed as defined in Flight Manual Supplement for Night VFR and Flight Manual Supplement for Night IFR - Flight in icing conditions is prohibited
13. Maximum Weights:	(see Note 9) <u>Normal Category</u> Maximum Takeoff: 1050 kg (2314 lbs) Maximum Landing: 1000 kg (2204 lbs) <u>Utility Category</u> Maneuvers: 1000 kg (2204 lbs)
14. Centre of Gravity Range:	(see Section F, Notes 4 and 11)
14.1 <u>For MS 893 A up to s/n 746:</u>	Forward Limit: 0.780 m (30.71 in.) aft of datum under 685 kg (1510 lbs) Intermediate limit: 0.943 m (37.13 in.) aft of datum at 1000 kg (2204 lbs) 0.969 m (38.15 in.) aft of datum at 1050 kg (2314 lbs) Straight line variation between points given. Aft Limit: 1.047 m (41.22 in.) aft of datum
14.2 <u>For MS 893 A from s/n 747 and MS 893 B, MS 893 E, MS 893 E-D:</u>	Forward Limit: 0.780 m (30.71 in.) aft of datum under 685 kg (1510 lbs) Intermediate limit: 0.839 m (33 in.) aft of datum at 950 kg (2094 lbs) 0.900 m (35.43 in.) aft of datum at 1000 kg (2204 lbs) 0.969 m (38.15 in.) aft of datum at 1050 kg (2314 lbs) Straight line variation between points given. Aft Limit: 1.047 m (41.22 in.) aft of datum

- Fuel:
From firewall: at Station + 1.067 m (41.01 in.)
- Oil in the sump:
From firewall: at Station - 0.493 m (19.41 in.)
15. Datum: Front face of engine firewall
16. Control surface deflections:
- MS 893 A and B:
Elevator: Up $25^\circ \pm 1^\circ$
Down $28^\circ \pm 1^\circ$
- MS 893 E and E-D:
Elevator: Up $25^\circ \pm 1^\circ$
Down $20^\circ \pm 1^\circ$
- All:
Elevator tab: Up 20°
Down 28°
- Rudder relative to fin: Right $30^\circ + 1^\circ$
Left $30^\circ + 1^\circ$
- Ailerons relative to wing: Up $17^\circ \pm 1^\circ$
Down $13^\circ \pm 1^\circ$
- Flaps relative to wing: Up 0°
Down $30^\circ \pm 1^\circ$
17. Levelling Means: Upper spar of horizontal frame (canopy rail)
18. Minimum Flight Crew: 1 (Pilot) at Station + 0.947 m (37.28 in.)
19. Maximum Passenger Seating Capacity: One at front R.H. Station + 0.947 m (37.28 in.),
Two at rear Station + 1.777 m (69.96 in.) provided a total maximum weight of 154 kg (339 lbs) (see Note 7) (see Section F, Note 11)
20. Baggage/Cargo Compartments: 45 kg (99 lbs) at Station + 2.447 m (96 in.)
21. Wheels and Tyres:
- 21.1 Nose landing gear:
- Wheel: Morane Saulnier
Tire: 330 x 130
Pressure: 1.4 bars (20.31 psi)
Shock absorbers: Eram, air-over-oil type
Inflation: 30 bars (435 psi)
- 21.2 Main landing gear:
- Track: 2000 mm (78.74 in.)
Wheels: Morane Saulnier or Cleveland
Tires: 420 x 150
for Morane Saulnier wheels
435 x 155
for Cleveland wheels (see Note 8)
Pressure: 1.8 bars (26.11 psi)
Shock absorbers: Eram, air-over-oil type
Inflation: 31 bars (449.5 psi)

22. Serial Numbers Eligible: List available at SOCATA

C.IV. Operating and Service Instructions

1. Flight Manual:
DGAC/EASA approved Pilot's Operating Handbook (POH) original issue or later revision.
2. Technical Manual:
SOCATA Rallye Maintenance Manual at revision 10 or later revision *
3. Repair Manual:
SOCATA Rallye Repair Manual at revision 10 or later revision
4. Manual for Operation:
N/A
5. Spare Parts Catalogue:
SOCATA Rallye Spare Parts Catalogue at revision 12 or later revision
6. Table of Dimensions, Limits and Clearances:
N/A
7. Instruments and aggregates:
N/A

C.V. Notes

- 1) Specific limitation for operation in Germany:
The MS 893 E-D is limited for maximum continuous operation to 2575 RPM.
- 2) Diameter reduction not allowed for repair purpose.
- 3) Avoid continuous operation between 2150 RPM and 2350 RPM, except for Lycoming O-360.A4A.
- 4) Avoid continuous operation between 2000 RPM and 2250 RPM.
- 5)

above + 15° C	SAE 50
from - 0° C to + 32° C	SAE 40
from - 15° C to + 21° C	SAE 30
below - 12° C	SAE 20

* Refer to Section E for SOCATA Rallye 235 Maintenance Manual

- 6) Indications of sight tube gauges are valid only when the aircraft is in a level flight attitude.
- 7) Passenger(s) are allowed on the rear seat if the front passenger seat is already occupied, preferably by the passenger with the highest weight.
- 8) Cleveland wheels on main landing gear installed in series for MS 893 E and E-D; optional (modification No. 89) for MS 893 A.
- 9) The aircraft empty weight must include unusable fuel quantity.

SECTION D: MODEL MS 894 TYPE DESIGN

D.I. General

- | | |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 1. Data Sheet No.: | EASA.A.379 - Issue 01 Date : 26 November 2010 |
| 2. a) Type: | MS 894 |
| b) Model: | MS 894 A |
| c) Variant: | MS 894 C, MS 894 E
(see Section F, Notes 1 and 2) |
| 3. Airworthiness Category: | Normal and Utility Categories
(see Section F, Note 3) |
| 4. Type Certificate Holder: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 5. Manufacturer: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 6. Certification Application Date: | September 1967 |
| 7. National Certifying Authority | D.G.A.C. (Direction Générale de l'Aviation Civile) |
| 8. National Authority Type Certificate Date: | <u>MS 894 A</u> : 24-April-1968
<u>MS 894 C</u> : 08-April-1970
<u>MS 894 E</u> : 09-May-1972 |
| 9. National Authority Type Certificate: | DGAC-France Type Certificate No.22
The present EASA Type Certificate replaces
DGAC-France Type Certificate No.22 |

D.II. EASA Certification Basis

- | | |
|----------------------------------------------------------------|-------------------------------------------|
| 1. Reference Date for determining the applicable requirements: | September 1967
May 1972 for E variant |
| 2. Airworthiness Requirements: | French Norme AIR 2052 - Ed. Novembre 1959 |
| 3. Special Conditions: | None |
| 4. Exemptions: | None |
| 5. Deviations: | None |
| 6. Equivalent Safety Findings: | None |
| 7. Requirements elected to comply: | None |

8. Environmental Standards: CS 36 (ICAO Annex 16, volume I, as applicable)
9. (Reserved) Additional National Requirements: None
10. (Reserved) /

D.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: MS 894 Airplane main drawings No. 894-00.0.001, 894-00.0.002 and 894-00.0.004
2. Description: Single-engine, all-metal, four seats, low-wing airplane, conventional tail, fixed tricycle landing gear (MS 894 A and E) or conventional landing gear (MS 894 C).
3. Equipment: The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in the aircraft for airworthiness certification.
The applicable DGAC/EASA approved Flight Manual is required for all operations. Included within the Flight Manual (if necessary) is information in the form of supplements, which cover installation of optional systems and equipment that are required for safe operation of the aircraft.
4. Dimensions:
- | | |
|-----------|-----------------------------------------------------------------------------------|
| Span | 9.740 m (31.95 ft) for large wing tips,
9.600 m (31.50 ft) for small wing tips |
| Length | 7.150 m (23.46 ft) |
| Height | 2.800 m (9.18 ft) |
| Wing area | 12.28 m ² (132.18 sq.ft) |
5. Engine:
- 5.1.1 Model: Franklin 6.A.350 C1 (see Note 1)
- 5.1.2 Type Certificate: /
- 5.1.3 Limitations: All operations 2800 RPM (164 kW - 220 HP)
6. Load factors:
- | | |
|---------------------------|--------------------------|
| <u>Utility Category</u> , | Flaps up: + 4.4
- 1.8 |
| <u>Normal Category</u> , | Flaps up: + 3.8
- 1.5 |
7. Propeller:
- 7.1.1 Model: McCauley: 2A31-C.21/84 S-8
(Woodward regulator 210453 or 210660)
or
Hartzell: HC C2YK.1B/8459-4 A-2
(Woodward regulator 210453 or 210660)

- 7.1.2 Type Certificate: /
- 7.1.3 Number of blades: 2
- 7.1.4 Diameter: 1.93 m (75.98 in.) (McCauley)
2.03 m (79.92 in.) (Hartzell)
- 7.1.5 Sense of Rotation: /
- 7.1.6 Minimum Static RPM at sea level: /
- 7.1.7 Pitch limits: Mc Cauley propeller:
High pitch 22°, low pitch 13°30'
Hartzell propeller:
High pitch 31°, low pitch 11°30'

8. Fluids:

- 8.1 Fuel: 100/130 minimum aviation grade gasoline
- 8.2 Oil: SAE 30 for OAT < 5 °C, SAE 50 for OAT > 5°C
- 8.3 Coolant: Not Applicable

9. Fluid capacities:

- 9.1 Fuel: 2 structural wing tanks

Aircraft	MS 894		
Gauge type Capacity	Sight tube gauges (see Note 3)	Electrical gauges	
Total: Both tanks.....	180 litres (47.55 US Gal)	184 litres (48.61 US Gal)	235 litres (62.08 US Gal)
Each tank.....	90 litres (23.77 US Gal)	92 litres (24.30 US Gal)	117.5 litres (31.04 US Gal)
Total usable: Both tanks.....	178 litres (47.02 US Gal)	170 litres (44.91 US Gal)	220 litres (58.12 US Gal)
Each tank.....	89 litres (23.51 US Gal)	85 litres (22.45 US Gal)	110 litres (29.06 US Gal)
Unusable:	4.4 litres (1.16 US Gal)		

- 9.2 Oil: Maximum capacity: 9 litres (9.5 qts)
Usable capacity: 5.3 litres (5.6 qts)
- 9.3 Coolant system capacity: Not Applicable

10. Air Speeds: (Indicated Airspeeds) (see Section F, Note 10)
- 10.1 Normal Category
- | | |
|-----------------------------------------------|---------------------|
| V_{NE} (Never Exceed speed): | 305 km/h (165 KIAS) |
| V_d (Design diving speed): | 339 km/h (183 KIAS) |
| V_{NO} (Maximum structural cruising speed): | 250 km/h (135 KIAS) |
| V_A (Maneuvering speed): | 200 km/h (108 KIAS) |
| V_{FE} (Maximum Flap Extended): | 165 km/h (89 KIAS) |
- 10.2 Utility Category
- | | |
|-----------------------------------------------|---------------------|
| V_{NE} (Never Exceed speed): | 325 km/h (175 KIAS) |
| V_d (Design diving speed): | 361 km/h (195 KIAS) |
| V_{NO} (Maximum structural cruising speed): | 250 km/h (135 KIAS) |
| V_A (Maneuvering speed): | 210 km/h (113 KIAS) |
| V_{FE} (Maximum Flap Extended): | 165 km/h (89 KIAS) |
11. Maximum Operating Altitude: Refer to Airplane Flight Manual
12. Allweather Operations Capability:
- Day VFR
 - Night VFR and IFR if required equipment installed as defined in Flight Manual Supplement for Night VFR and Flight Manual Supplement for Night IFR
 - Flight in icing conditions is prohibited
13. Maximum Weights: (see Note 5)
- Normal Category
- | | |
|------------------|--------------------|
| Maximum Takeoff: | 1100 kg (2425 lbs) |
| Maximum Landing: | 1050 kg (2314 lbs) |
- Utility Category
- | | |
|------------|--------------------|
| Maneuvers: | 1000 kg (2204 lbs) |
|------------|--------------------|
14. Centre of Gravity Range: (see Section F, Notes 4 and 11)
- 14.1 MS 894 A and C:
- | | |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Forward Limit: | 0.800 m (31.50 in.)
aft of datum under 725 kg (1598 lbs) |
| Intermediate limit: | 0.872 m (34.33 in.)
aft of datum at 1000 kg (2204 lbs)
0.969 m (38.15 in.)
aft of datum at 1100 kg (2425 lbs) |
| Straight line variation between points given. | |
| Aft Limit: | 1.047 m (41.22 in.) aft of datum |
- 14.2 MS 894 E:
- | | |
|---------------------|------------------------------------------------------------------------------------------------------------------------|
| Forward Limit: | 0.787 m (30.98 in.)
aft of datum under 750 kg (1653 lbs) |
| Intermediate limit: | 0.852 m (33.54 in.)
aft of datum at 1000 kg (2204 lbs)
0.963 m (37.91 in.)
aft of datum at 1100 kg (2425 lbs) |

Straight line variation between points given.

Aft Limit: 1.047 m (41.22 in.) aft of datum

Fuel:

From firewall: at Station + 1.067 m (41.01 in.)

Oil in the sump:

From firewall: at Station - 0.543 m (21.38 in.)

15. Datum:

Front face of engine firewall

16. Control surface
deflections:

MS 894 A and C:

Elevator:	Up	25° ± 1°
	Down	30° ± 1°

MS 894 E:

Elevator:	Up	25° ± 1°
	Down	20° ± 1°

All:

Elevator tab:	Up	20°
	Down	28°

Rudder relative to fin:	Right	30° + 1°
	Left	30° + 1°

Rudder tab:	Right	10° + 1°
	Left	25° + 1°

Ailerons relative to wing:	Up	17° ± 1°
	Down	13° ± 1°

Flaps relative to wing:	Up	0°
	Down	30° ± 1°

17. Levelling Means:

Upper spar of horizontal frame (canopy rail)

18. Minimum Flight Crew:

1 (Pilot) at Station + 0.947 m (37.28 in.)

19. Maximum Passenger
Seating Capacity:

One at front R.H. Station + 0.947 m (37.28 in.),
Two at rear Station + 1.777 m (69.96 in.) provided a
total maximum weight of 154 kg (339 lbs) (see Note 2)
(see Section F, Note 11)

20. Baggage/Cargo
Compartments:

45 kg (99 lbs) at Station + 2.447 m (96 in.)

21. Wheels and Tyres:

21.1 MS 894 A and E (Tricycle type landing gear)

21.1.1 Nose landing gear:	Wheel:	Morane Saulnier
	Tire:	330 x 130
	Pressure:	1.5 bars (21.76 psi)
	Shock absorbers:	
	Inflation:	36 bars (522 psi)

21.1.2 Main landing gear:	Track:	2000 mm (78.74 in.)
	Wheels:	Morane Saulnier or Cleveland
	Tires:	420 x 150 (Morane Saulnier wheels)
	or	435 x 155 (Cleveland wheels)
		(see Note 4)
	Pressure:	2.1 bars (30.46 psi)
	Shock absorbers:	
	Inflation:	31 bars (449.5 psi)

21.2 MS 894 C (Conventional type landing gear)

21.2.1 Main landing gear:	Track:	2000 mm (78.74 in.)
	Wheels:	Morane Saulnier
	Tires:	420 x 150
	Pressure:	2.3 bars (33 psi)
	Shock absorbers:	
	Inflation:	31 bars (449.5 psi)
21.2.2 Tail landing gear:	Wheel:	Morane Saulnier
	Tire:	2.80/2.50-4
	Pressure:	1.4 bars (20.31 psi)
	Shock absorbers:	
	Inflation:	23 bars (333.5 psi)

22. Serial Numbers Eligible: List available at SOCATA

D.IV. Operating and Service Instructions

1. Flight Manual:
DGAC/EASA approved Pilot's Operating Handbook (POH) original issue or later revision.
2. Technical Manual:
SOCATA Rallye Maintenance Manual at revision 10 or later revision *
3. Repair Manual:
SOCATA Rallye Repair Manual at revision 10 or later revision
4. Manual for Operation:
N/A
5. Spare Parts Catalogue:
SOCATA Rallye Spare Parts Catalogue at revision 12 or later revision

* Refer to Section E for SOCATA Rallye 235 Maintenance Manual

6. Table of Dimensions, Limits and Clearances:

N/A

7. Instruments and aggregates:

N/A

D.V. Notes

- 1) Carburettor Marvel MA.5-10-4865, setting BC.11.
- 2) Passenger(s) are allowed on the rear seat if the front passenger seat is already occupied, preferably by the passenger with the highest weight.
- 3) Indications of sight tube gauges are valid only when the aircraft is in a level flight attitude.
- 4) Cleveland wheels on main landing gear installed in series for MS 894 E; optional (modification No. 89) for MS 894 A.
- 5) The aircraft empty weight must include unusable fuel quantity.

SECTION E: MODEL RALLYE 235 TYPE DESIGN

E.I. General

- | | |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Data Sheet No.: | EASA.A.379 - Issue 01 Date : 26 November 2010 |
| 2. a) Type: | RALLYE 235 |
| b) Model: | RALLYE 235 E |
| c) Variant: | RALLYE 235 E-D, RALLYE 235 A, RALLYE 235 C,
RALLYE 235 F
(see Section F, Notes 1 and 2) |
| 3. Airworthiness Category: | Normal and Utility Categories
(see Section F, Note 3) |
| 4. Type Certificate Holder: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 5. Manufacturer: | SOCATA
65921 TARBES Cedex 9
FRANCE |
| 6. Certification Application Date: | April 1975 |
| 7. National Certifying Authority | D.G.A.C. (Direction Générale de l'Aviation Civile) |
| 8. National Authority Type Certificate Date: | <u>RALLYE 235 E</u> : 04-November-1975
<u>RALLYE 235 E-D</u> : 22-June-1976
<u>RALLYE 235 A</u> : 23-June-1976
<u>RALLYE 235 C</u> : 07-March-1978
<u>RALLYE 235 F</u> : 06-June-1984 |
| 9. National Authority Type Certificate: | DGAC-France Type Certificate No.22
The present EASA Type Certificate replaces
DGAC-France Type Certificate No.22 |

A.II. EASA Certification Basis

- | | |
|----------------------------------------------------------------|----------------------------------------------|
| 1. Reference Date for determining the applicable requirements: | April 1975
December 1983 for Rallye 235 F |
| 2. Airworthiness Requirements: | French Norme AIR 2052 - Ed. Novembre 1959 |
| 3. Special Conditions: | None |
| 4. Exemptions: | None |
| 5. Deviations: | None |

- | | |
|-------------------------------------------------|------------------------------------------------|
| 6. Equivalent Safety Findings: | None |
| 7. Requirements elected to comply: | None |
| 8. Environmental Standards: | CS 36 (ICAO Annex 16, volume I, as applicable) |
| 9. (Reserved) Additional National Requirements: | None |
| 10. (Reserved) | / |

E.III. Technical Characteristics and Operational Limitations

- | | | | | | | | | | |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|--------|--------------------|--------|-------------------------------------------------------------------------------------------------|-----------|-------------------------------------|
| 1. Type Design Definition: | <u>RALLYE 235E</u>
Airplane main drawing No. 895-00.0.001,
<u>RALLYE 235E-D</u>
Airplane main drawing No. 895-00.0.008,
<u>RALLYE 235A</u>
Airplane main drawing No. 895-00.0.005,
<u>RALLYE 235C</u>
Airplane main drawing No. 895-00.0.017,
<u>RALLYE 235F</u>
Airplane main drawing No. 895-00.0.028 | | | | | | | | |
| 2. Description: | Single-engine, all-metal, four seats, low-wing airplane, conventional tail, fixed tricycle landing gear (RALLYE 235 E, E-D, A, F) or conventional landing gear (RALLYE 235 C). | | | | | | | | |
| 3. Equipment: | <p>The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in the aircraft for airworthiness certification.</p> <p>The applicable DGAC/EASA approved Flight Manual is required for all operations. Included within the Flight Manual (if necessary) is information in the form of supplements, which cover installation of optional systems and equipment that are required for safe operation of the aircraft.</p> | | | | | | | | |
| 4. Dimensions: | <table border="0"><tr><td>Span</td><td>9.740 m (31.95 ft) for large wing tips,
9.600 m (31.50 ft) for small wing tips</td></tr><tr><td>Length</td><td>7.280 m (23.88 ft)</td></tr><tr><td>Height</td><td><u>RALLYE 235 E, E-D, A, F</u>
2.800 m (9.18 ft)
<u>RALLYE 235 C</u>
2.310 m (7.60 ft)</td></tr><tr><td>Wing area</td><td>12.28 m² (132.18 sq.ft)</td></tr></table> | Span | 9.740 m (31.95 ft) for large wing tips,
9.600 m (31.50 ft) for small wing tips | Length | 7.280 m (23.88 ft) | Height | <u>RALLYE 235 E, E-D, A, F</u>
2.800 m (9.18 ft)
<u>RALLYE 235 C</u>
2.310 m (7.60 ft) | Wing area | 12.28 m ² (132.18 sq.ft) |
| Span | 9.740 m (31.95 ft) for large wing tips,
9.600 m (31.50 ft) for small wing tips | | | | | | | | |
| Length | 7.280 m (23.88 ft) | | | | | | | | |
| Height | <u>RALLYE 235 E, E-D, A, F</u>
2.800 m (9.18 ft)
<u>RALLYE 235 C</u>
2.310 m (7.60 ft) | | | | | | | | |
| Wing area | 12.28 m ² (132.18 sq.ft) | | | | | | | | |

5. Engine:

- 5.1.1 Model: Lycoming O-540-B4B5
- 5.1.2 Type Certificate: /
- 5.1.3 Limitations: All operations 2575 RPM (175 kW - 235 HP)
(see Note 1)
- With option No. 343: Rallye 235 F muffler version
All operations 2500 RPM (112 kW – 150 HP)
(see paragraph 7.1: MT Propeller)

6. Load factors: Utility Category, Flaps up: + 4.4
- 1.8
- Normal Category, Flaps up: + 3.8
- 1.5

7. Propeller:

- 7.1.1 Model: Hartzell HC-C2YK-1-BF/F8468 A-4
(Woodward regulator 210-681)
or
With option No. 343 – see Section F, Note 8:
MT Propeller: MTV-14-B/190-17, Spinner: P 431
- 7.1.2 Type Certificate: /
- 7.1.3 Number of blades: 2 (Hartzell)
4 (MT Propeller)
- 7.1.4 Diameter: 2.03 m (79.92 in.) (Hartzell)
1.90 m (74.80 in.) (MT Propeller)
- 7.1.5 Sense of Rotation: /
- 7.1.6 Minimum Static RPM at sea level: /
- 7.1.7 Pitch limits: Hartzell propeller:
High pitch 28°18', low pitch 12°50'
MT propeller:
High pitch 30°, low pitch 12°, at 0.665 m (26.18 in.)

8. Fluids:

- 8.1 Fuel: 80/87 minimum aviation grade gasoline
- 8.2 Oil: See Note 2
- 8.3 Coolant: Not Applicable

9. Fluid capacities:

9.1 Fuel: 2 structural wing tanks

Aircraft	Rallye235 E, 235 A and 235 F	Rallye 235 C
Gauge type	Electrical gauges	
Capacity		
Total: Both tanks.....	280 litres (73.97 US Gal)	254 litres (68 US Gal)
Each tank.....	140 litres (36.98 US Gal)	127 litres (33.55 US Gal)
Total usable: Both tanks.....	270 litres (71.33 US Gal)	246 litres (64.99 US Gal)
Each tank.....	135 litres (35.66 US Gal)	123 litres (32.49 US Gal)
Unusable:	4.4 litres (1.16 US Gal)	

9.2 Oil: Maximum capacity: 12 litres (12.68 qts)

Usable capacity: 9.4 litres (9.93 qts)

9.3 Coolant system capacity: Not Applicable

10. Air Speeds: (Indicated Airspeeds) (see Section F, Note 10)

10.1 Normal Category

V_{NE} (Never Exceed speed): 315 km/h (170 KIAS)

V_d (Design diving speed): 350 km/h (189 KIAS)

V_{NO} (Maximum structural cruising speed): 250 km/h (135 KIAS)

V_A (Maneuvering speed):

Rallye 235 E, A, C..... 210 km/h (113 KIAS)

Rallye 235 F..... 220 km/h (119 KIAS)

V_{FE} (Maximum Flap Extended): 176 km/h (95 KIAS)

10.2 Utility Category

V_{NE} (Never Exceed speed): 337 km/h (182 KIAS)

V_d (Design diving speed): 375 km/h (202 KIAS)

V_{NO} (Maximum structural cruising speed): 250 km/h (135 KIAS)

V_A (Maneuvering speed): 210 km/h (113 KIAS)

V_{FE} (Maximum Flap Extended): 176 km/h (95 KIAS)

11. Maximum Operating Altitude: Refer to Airplane Flight Manual

12. Allweather Operations Capability:	<u>All</u> - Day VFR - Flight in icing conditions is prohibited <u>RALLYE 235 E, 235 A, 235 C</u> - Night VFR and IFR if required equipment installed as defined in Flight Manual Supplement for Night VFR and Flight Manual Supplement for Night IFR																		
13. Maximum Weights:	(see Note 4)																		
	<table><tr><th></th><th><u>RALLYE 235 E, 235 A, 235 C</u></th><th><u>RALLYE 235 F</u></th></tr><tr><td>13.1 <u>Normal Category</u></td><td></td><td></td></tr><tr><td>Max. Takeoff:</td><td>1200 kg (2645 lbs)</td><td>1250 kg (2755 lbs)</td></tr><tr><td>Max. Landing:</td><td>1140 kg (2513 lbs)</td><td>1250 kg (2755 lbs)</td></tr><tr><td>13.2 <u>Utility Category</u></td><td></td><td></td></tr><tr><td>Maneuvers:</td><td>1000 kg (2204 lbs)</td><td>1000 kg (2204 lbs)</td></tr></table>		<u>RALLYE 235 E, 235 A, 235 C</u>	<u>RALLYE 235 F</u>	13.1 <u>Normal Category</u>			Max. Takeoff:	1200 kg (2645 lbs)	1250 kg (2755 lbs)	Max. Landing:	1140 kg (2513 lbs)	1250 kg (2755 lbs)	13.2 <u>Utility Category</u>			Maneuvers:	1000 kg (2204 lbs)	1000 kg (2204 lbs)
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13.2 <u>Utility Category</u>																			
Maneuvers:	1000 kg (2204 lbs)	1000 kg (2204 lbs)																	
14. Centre of Gravity Range:	(see Section F, Notes 4 and 11)																		
14.1 <u>RALLYE 235 E, 235 A, 235 C:</u>	Forward Limit: 0.787 m (30.98 in.) aft of datum under 800 kg (1763 lbs) Intermediate limit: 0.839 m (33.03 in.) aft of datum at 1000 kg (2204 lbs) 0.852 m (33.54 in.) aft of datum at 1050 kg (2314 lbs) 0.969 m (38.15 in.) aft of datum at 1200 kg (2645 lbs) Straight line variation between points given. Aft Limit: 1.047 m (41.22 in.) aft of datum																		
14.2 <u>RALLYE 235 F:</u>	Forward Limit: 0.813 m (32.00 in.) aft of datum under 800 kg (1763 lbs) Intermediate limit: 0.821 m (32.32 in.) aft of datum at 1000 kg (2204 lbs) 0.826 m (32.51 in.) aft of datum at 1120 kg (2469 lbs) 0.854 m (33.62 in.) aft of datum at 1250 kg (2755 lbs) Straight line variation between points given. Aft Limit: 1.047 m (41.22 in.) aft of datum <u>Fuel:</u> From firewall: at Station + 1.067 m (41.01 in.) <u>Oil in the sump:</u> From firewall: at Station - 0.500 m (19.68 in.)																		

15. Datum: Front face of engine firewall
16. Control surface deflections:
- RALLYE 235 A, C and F:
- | | | |
|-----------|------|------------------------|
| Elevator: | Up | $25^\circ \pm 1^\circ$ |
| | Down | $28^\circ \pm 1^\circ$ |
- RALLYE 235 E:
- | | | |
|-----------|------|------------------------|
| Elevator: | Up | $25^\circ \pm 1^\circ$ |
| | Down | $20^\circ \pm 1^\circ$ |
- All:
- | | | |
|---------------|------|--------------|
| Elevator tab: | Up | 20° |
| | Down | 28° |
| | | (see Note 5) |
- | | | |
|-------------------------|-------|----------------------|
| Rudder relative to fin: | Right | $30^\circ + 1^\circ$ |
| | Left | $30^\circ + 1^\circ$ |
- | | | |
|-------------|-------|----------------------|
| Rudder tab: | Right | $10^\circ + 1^\circ$ |
| | Left | $25^\circ + 1^\circ$ |
- | | | |
|----------------------------|------|------------------------|
| Ailerons relative to wing: | Up | $17^\circ \pm 1^\circ$ |
| | Down | $13^\circ \pm 1^\circ$ |
- | | | |
|-------------------------|------|------------------------|
| Flaps relative to wing: | Up | 0° |
| | Down | $30^\circ \pm 1^\circ$ |
17. Levelling Means: Upper spar of horizontal frame (canopy rail)
18. Minimum Flight Crew: 1 (Pilot):
- RALLYE 235 A and F: at Station + 0.947 m (37.28 in.),
- RALLYE 235 E and C: at Station + 0.967 m (38.07 in.)
19. Maximum Passenger Seating Capacity:
- One at front R.H. Station:
- RALLYE 235 A and F: + 0.947 m (37.28 in.),
- RALLYE 235 E and C: + 0.967 m (38.07 in.)
- Two at rear Station + 1.777 m (69.96 in.) provided a total maximum weight of 154 kg (339 lbs) (see Note 3) (see Section F, Note 11)
20. Baggage/Cargo Compartments: 45 kg (99 lbs) at Station + 2.447 m (96 in.)
21. Wheels and Tyres:
- 21.1 RALLYE 235 E, 235 A, 235 F (Tricycle type landing gear)
- 21.1.1 Nose landing gear:
- | | |
|------------------|----------------------|
| Wheel: | Morane Saulnier |
| Tire: | 330 x 130 |
| Pressure: | 1.8 bars (26.11 psi) |
| Shock absorbers: | |
| Inflation: | 36 bars (522 psi) |

21.1.2 Main landing gear:	Track:	2000 mm (78.74 in.)
	Wheels:	Cleveland
	Tires:	435 x 155
	Pressure:	2.3 bars (33.36 psi)
	Shock absorbers:	
	Inflation:	33 bars (478.5 psi)

21.2 RALLYE 235 C (Conventional type landing gear)

21.2.1 Main landing gear:	Track:	2000 mm (78.74 in.)
	Wheels:	Morane Saulnier
	Tires:	420 x 150
	Pressure:	2.3 bars (33.36 psi)
	Shock absorbers:	
	Inflation:	33 bars (478.5 psi)
21.2.2 Tail landing gear:	Wheel:	Morane Saulnier
	Tire:	2.80/2.50-4
	Pressure:	3.5 bars (50.76 psi)
	Shock absorbers:	
	Inflation:	22 bars (319 psi)

22. Serial Numbers Eligible: List available at SOCATA

E.IV. Operating and Service Instructions

1. Flight Manual:
DGAC/EASA approved Pilot's Operating Handbook (POH) original issue or later revision.
2. Technical Manual:
SOCATA Rallye 235 Maintenance Manual at revision 2 or later revision
3. Repair Manual:
SOCATA Rallye Repair Manual at revision 10 or later revision
4. Manual for Operation:
N/A
5. Spare Parts Catalogue:
SOCATA Rallye Spare Parts Catalogue at revision 12 or later revision
6. Table of Dimensions, Limits and Clearances:
N/A

7. Instruments and aggregates:

N/A

E.V. Notes

- 1) Specific limitation for operation in Germany:
The Rallye 235 is limited for maximum continuous operation to 2525 RPM.
- 2)

above + 15° C	SAE 50
from - 0° C to + 32° C	SAE 40
from - 15° C to + 21° C	SAE 30
below - 12° C	SAE 20
- 3) Passenger(s) are allowed on the rear seat if the front passenger seat is already occupied, preferably by the passenger with the highest weight.
- 4) The aircraft empty weight must include unusable fuel quantity.
- 5) Elevator automatic tab: automaticity ratio = 100 %

SECTION F: GENERAL NOTES

Note 1: Design differences between models:

- Models "A": equipped with a pitch and roll control stick,
- Models "B" and "E": equipped with a pitch and roll control wheel,
- Models "C": equipped with a "conventional" landing gear (main + tail landing gear).

Note 2: Specific equipment and devices:

MS 894: Thermometer monitoring air temperature at carburetor outlet.

Rallye 235: Thermometer monitoring air temperature at carburetor outlet,
Exhaust gas temperature indicator (ALCOR).

Note 3: (a) Normal Category: all aerobatic maneuvers are **prohibited**.

(b) Utility Category:

- The following maneuvers are **only authorized during utility category operation** with the following initial speeds (Vi):

- MS 890/892/893/894

Climb zoom: Vi = 240 km/h (129 kt)

Lazy heights: Vi = 220 km/h (118 kt)

High bank turns (60 °):

Vi = 175 km/h (94 kt)

190 km/h (102 kt) for MS 894

- RALLYE 235

Climb zoom: Vi = 260 km/h (140 kt)

Lazy heights: Vi = 230 km/h (124 kt)

High bank turns (60 °):

Vi = 200 km/h (108 kt)

- All

Stalls

- Inverted flight and Spinning are prohibited.

Note 4: Loading on rear seats and in baggage compartment:

Normal loading on rear seats is 154 kg (339 lbs). If both rear places are occupied, check baggage loading in order to be within weight and balance limits.

Note 5: Glider or banderole towing is authorized under the following conditions:

The equipment necessary for such operation is installed. This equipment is defined in SOCATA Options No. 22 or No. 350.

Models:

All

Limitations:

- Maximum Takeoff weight:
 - MS 890 and MS 892: 760 kg (1675 lbs)
 - MS 893: 780 kg (1719 lbs)
 - MS 894: 850 kg (1873 lbs)
 - RALLYE 235: 900 kg (1984 lbs)
- Towed glider maximum weight:
 - MS 890 and MS 892: 500 kg (1102 lbs)
 - MS 893: 600 kg (1322 lbs)
 - MS 894: 850 kg (1873 lbs)
 - RALLYE 235: 900 kg (1984 lbs)
- Towed banderole:
 - Towed banderole 100Cx.S (drag coefficient) must be equal or below:
 - MS 890 and MS 892: 120
 - MS 893: 180
 - MS 894: 230
 - RALLYE 235: 245
- Mandatory engine instruments:
 - MS 894 and RALLYE 235:
 - Air temperature thermometer at carburetor intake
 - RALLYE 235:
 - Exhaust gases temperature indicator (ALCOR)
- Minimum speed with towed glider:
 - IAS = 100-110 km/h (54 – 59 kt), depending on glider weight.
- Towing speed envelope:
 - 100 km/h (54 kt) < IAS < 120 km/h (65 kt), depending on glider limitations.
- Placard must be placed on instruments panel in clear view of the pilot:
 - French version:

REMORQUAGE PLANEUR OU BANDEROLE	MS 890, MS 892	MS 893	MS 894	RALLYE 235
Masse maximum au décollage (kg)	760	780	850	900
Vitesse minimum de remorquage (km/h)	100	100	100/110	100/110
Vitesse optimum de montée (km/h)	110 to 115 km/h volets 0°			
Masse maximale planeur remorqué (kg)	500	600	850	900
100Cx.S maximum des banderoles	120	180	230	245

- English version:

GLIDER OR BANDEROLE TOWING	MS 890, MS 892	MS 893	MS 894	RALLYE 235
Maximum takeoff weight [kg (lbs)]	760 (1675)	780 (1719)	850 (1873)	900 (1984)
Minimum towing speed [km/h (kt)]	100 (54)	100 (54)	100/110 (54/59)	100/110 (54/59)
Optimum climb speed [km/h (kt)]	110 to 115 km/h (59 to 62 kt) with flaps up			
Towed glider maximum weight [kg (lbs)]	500 (1102)	600 (1322)	850 (1873)	900 (1984)
Maxi. 100Cx.S (drag coefficient) for banderoles	120	180	230	245

Note 6: Parachutes dropping is authorized for the following models with regard to the following limitations: Doit-on mentionner l'arrêté de 1991 ?

The equipment necessary for such operation is defined in SOCATA Option n° 63.

Models:

MS 893, MS 894, Rallye 235

Limitations:

- Flight with fully opened canopy is authorized only if SOCATA modification n° 62 is embodied and according to the Flight Manual requirements.
- Only jumps with **manually** activated opening are authorized, in the conditions described in the approved Flight Manual.

Note 7: Skis:

The following models may be equipped with SOCATA Option n° 117 "Snow skis.

Models:

MS 894 C, RALLYE 235 C

Limitations:

- | | <u>MS 894 C</u> | <u>RALLYE 235 C</u> |
|-----------------------------------------------------------------------------|---------------------------|---------------------|
| - Maximum takeoff weight: | | |
| • Airfield with snow or not: | 1100 kg (2425 lbs) | 1200 kg (2645 lbs) |
| • Mountain airfield or glacier: | | |
| Pressure altitude ≤ 7000 ft | 1100 kg (2425 lbs) | 1200 kg (2645 lbs) |
| Pressure altitude > 7000 ft | 1020 kg (2248 lbs) | 1120 kg (2469 lbs) |
| - Maximum load in skis compartment: | | |
| • 4 pairs with sticks, excluding any other load | | |
| [the authorized maximum load in baggage compartment remains 45 kg (99 lbs)] | | |
| - Maximum speeds [km/h (KIAS)]: | | |
| • in Normal and Utility categories: | Vne = 275 km/h (148 KIAS) | |
| | Va = 200 km/h (107 KIAS) | |
| - Mandatory engine equipment: | | |
| • <u>MS 894 C</u> : Carburetor Marvel-Schebler MA 4-5. | | |

- Maximum crosswind:
 - 20 kts (32 km/h)

Note 8: RALLYE 235 F in Low noise configuration (SOCATA Option No. 343):

- Silencer: GOMOLZIG
- 4 blades propeller: MT PROPELLER
- Engine RPM limitation: 2500 RPM

Note 9: Agricultural spray operation:

Agricultural spray kit is defined by SOCATA Options No. 104 and 104.1.

Models:

MS 893 A and MS 894 A

Limitations:

- Mandatory propeller configurations:
 - MS 893 A: Sensenich 76 EM8 054 to 058,
Mac Cauley 1A 200 FA 8044 to 8046
Hartzell HC C2YK.1B/7666A-2
 - MS 894 A: Hartzell HC C2YF.1B/8459-4
- Maximum liquid weight in tank:
 - 310 kg (683 lbs)
- CG envelope is not changed.
- Maximum fuel quantity:
 - MS 893 A: 60 litres (15.85 US Gal)
 - MS 894 A: 70 litres (18.49 US Gal)
- Maximum takeoff weight:
 - MS 893 A: 1050 kg (2314 lbs)
 - MS 894 A: 1100 kg (2425 lbs)
- Never exceed speed:
 - Vne = 220 km/h (118 KIAS)
- No passenger allowed.

Note 10: Lateral wind limit:

- MS 890, MS 892, MS 893
 - 20 kts (35 km/h)
- MS 894, Rallye 235
 - 25 kts (46 km/h)

Note 11: Medical flight:

For medical flight with 1 pilot, 1 injured person weighing 77 kg (169 lbs) laying on a stretcher, 1 nurse or other person weighing 77 kg (169 lbs) on the rear bench, the balance is satisfactory.

ADMINISTRATIVE SECTION

I. Acronyms

II. Type Certificate Holder Record

1961 to 1963	Société MORANE-SAULNIER 5, rue Volta PUTEAUX (Seine) FRANCE
1963 to 1979	Société d'Exploitation des Etablissements MORANE-SAULNIER 46, Avenue Kléber PARIS 16 ^e FRANCE
1979 to 2000:	Société de Construction d'Avions de Tourisme et d'Affaires "S.O.C.A.T.A." - Groupe AEROSPATIALE Boîte Postale n° 930 65009 TARBES FRANCE
2000 to 2009:	EADS SOCATA 65921 TARBES Cedex 9 FRANCE
Since 2009:	SOCATA 65921 TARBES Cedex 9 FRANCE

III. Change Record

Issue	Date	Changes	TC Issue No. & Date
Issue 01	26 November 2010	Transfer from the DGAC TCDS No. 71 issue 12 dated May 1997 to the EASA TCDS form.	26 November 2010
Issue 02	18 June 2014	Typo corrections pages 18 and 43	