



TYPE-CERTIFICATE DATA SHEET

NO. EASA.A.059

for
P.180 SERIES

Type Certificate Holder
Piaggio Aviation S.p.A

Viale Generale Disegna,
17038 – Villanova d'Albenga (SV)
ITALY

For models: Avanti
 Avanti II



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SECTION A: P.180 Avanti

A.I. General

- | | |
|---|--|
| 1. a) Type | P.180 |
| b) Model | Avanti |
| c) Variant | --- |
| 2. Airworthiness Category | Normal |
| 3. Type Certificate Holder: | Piaggio Aviation SpA
Viale Generale Disegna 1
17038 – Villanova d'Albenga (SV), ITALY |
| 4. Manufacturer: | Piaggio Aero Industries SpA
Viale Generale Disegna, 1
17038 Villanova d'Albenga (SV) - ITALY
until 1998
I.A.M. Rinaldo Piaggio S.p.A.
ITALY |
| 5. Certification Application Date: | December 19th, 1983 |
| 6. The ENAC Certification Date: | March 7 th , 1990 |
| 7. The EASA Type Certificate replaces the ENAC Type Certificate No. A 390 | |

A.II Certification Basis

- | | |
|--|---|
| 1. Reference Date for determining the applicable requirements: | -- |
| 2. (reserved) | |
| 3. (reserved) | |
| 4. Airworthiness Requirements: | RAI Regolamento Tecnico Part 223, including amendments 223-1 through 223-33, correspondent to FAR 23, effective February 1 st 1965, including amendments 23-1 through 23-33

JAR AWO Subpart 2, Change 2, dated August 1 st 1996

RVSM specific requirements included in the JAA Leaflet n. 6 rev.1 and in the FAA Interim Guidance Material 91 – RVSM, Ch. 1 |

For airplanes incorporating the optional Mod. n. 80-0642 or equivalent SB 80-0215:
as above, except CS-23 requirements (first issue) applicable to the areas affected by the change (see Appendix 2 – MTOW Increased Major Change (80-0642) CRI A-01).



5. Requirements elected to comply:

Special Federal Aviation Regulations n. 27, effective 1st February 1974, including amendments 27-1 through 27-5.

FAR 23.2, amendment 36.

FAR 91 Appendix A dated August 18, 1989.

Applicable JAR 23 (first issue dated March 11, 1994) requirements for the following modifications

80-0228 "Vertical fin - aluminum alloy instead of composite"
80-0229 "Aluminum canard wing instead of composite"
80-0241 "Aluminum rudder and trim tab"

and for the relevant Service Bulletins:

80-0106 "Replacement of the Composite Forward Wing Assembly with the new metallic one"
80-0142 "Replacement of the Composite Material Tail-cone/Vertical Fin Assembly, with the Metal Construction Assembly, in the event of not repairable damages"

14 CFR Part 36, effective 1st Dec. 1969, including amendments 36-1 through 36-16.

EASA Certification Specifications CS-23, dated 23/11/2003, paragraph 23.1529.

6. EASA Special Conditions

Special Conditions enclosed to the RAI paper n. 257.240/SCMA dated July 21, 1989 (Docket n. 031 CE, Special Conditions n. 23-ACE-29, and Special Condition FAA n. 23-ACE-52) which include the following Issue Papers:

Issue Paper	Special Condition
C-1 Composite Structures Fatigue/Damage Tolerance	23-ACE-29 No. 4
C-2 Full Scale Airload Verification	23-ACE-29 No. 5
C-3 Doors and Exits (Outward Opening)	23-ACE-29 No. 6
C-4 Lightning Protection of Composite Structure	23-ACE-29 No. 4
C-6 Forward and Main Wing Flap Interconnection	23-ACE-29 No. 7
C-7 Loads for P180 Configuration	23-ACE-29 No. 5
F-1 Buffet Onset Envelope	23-ACE-29 No. 1
F-2 Effect of Rain or Contamination on Laminar Flow Airfoils	23-ACE-29 No. 3
F-5 Inadvertent Excursion Beyond Maximum Operating Speed	23-ACE-29 No. 2
P-6 Propeller Ground Clearance	23-ACE-29 No. 8
P-7 Propeller marking	23-ACE-29 No. 9
P-8 Propeller Ice Protection and Exhaust Gas Impingement	23-ACE-29 No. 10
SE-4 Cockpit Smoke Evacuation	23-ACE-29 No. 11
SE-5 Protection for Systems from Lightning and High Energy Radio Frequency (HERF)	23-ACE-52 No. 2

7. EASA Exemptions:

None

8. EASA Equivalent Safety Findings:

23.1305(g) Fuel pressure indication
23.1545(b)(5) Marking of Air Speed Indicator for V_{YSE}



Airplanes incorporating the Mod. n. 80-0657 or SB 80-0231:

Model: Pratt & Whitney of Canada PT6A-66B turboprop engines, each flat rated at 850 shp. when installed on the aircraft
Right Engine 3072196 Build Spec. 1223
Left Engine 3072196 Build Spec. 1224
Type Certificate: EASA.IM.E.008

5.1. Engine Limits

Operating Conditions	Shaft (shp.)	N1 Gas Generator Speed (%)	Torque ft-lbs (kgm)	Prop. shaft speed (r.p.m.)	Maximum Permissible Interstage Temperature (°C)
Takeoff Max. continuous Max. climb Max. cruise	850	104,1	2230 (308,3)	2000	830
Normal Climb Normal Cruise	850	104.1	2230 (308,3)	2000	820
Starting Limits (5 sec.)	-	-	-	-	1000
Transient (20 sec.)	-	104.1	2750 (380,2)	2205	870

Oil Temperature

Starting - 40°C (min.)
Minimum Idle - 40°C ÷ 110°C
Transient 0°C ÷ 110°C
Max. continuous and max. reverse 0°C ÷ 110°C

Note: The above mentioned engine limits are applicable to both engine models PT6A-66 and PT6A-66B

6. Propellers: No. 2
Model Hartzell
Right: HC-E5N-3L or HC-E5N-3AL (hub) / LE 8218 (each blade)
Left: HC-E5N-3 or HC-E5N-3A (hub) / HE 8218 (each blade)
Type Certificate The EASA Propeller/engine Type Certification standard includes that of FAA TC P20NE based on individual EU member state acceptance or certification of this standard prior to 28 September 2003.
Number of blades 5



6.1. Sense of Rotation

Right propeller rotates Counterclockwise in view of flight direction
Left propeller rotates Clockwise in view of flight direction

6.2. Diameter

2159 mm maximum, 2146 mm minimum

6.3. Pitch

Nominal pitch angle at 0,761 m (30") station

Minimum on ground: $14^{\circ} \pm 0,5^{\circ}$

Minimum in flight: $18^{\circ} \pm 0,5^{\circ}$

Reverse (negative): $-13^{\circ} \pm 0,5^{\circ}$

Feathered: $89^{\circ} \pm 0,5^{\circ}$

|

6.4. Propeller Limits

No further reduction of the minimum diameter is allowed.

Stabilized ground operations between 600 and 900 rpm are prohibited.

Stabilized ground operations at or below 600 rpm are allowed only when the propeller is feathered.

Stabilized ground operations between 1300 and 1600 rpm are prohibited.

7. Fluids

7.1 Fuel

JP4, JP8, JET A, JET A-1, JET B; RP-3 (No.3 Jet Fuel); RT and TS-1 (as per GOST 10227-86) conforming to the latest revision of Pratt & Whitney Service Bulletin No. 14004.

Fuel Anti-Ice Additive compliant with Specification MIL- I-27686 must be used with JET A, JET A1, JET B and RP-3 fuels.

7.2 Oil

Mobile Jet Oil II, AeroShell Turbine Oil 500 and Castrol 5000.

Refer also to the Limitations Section of the Pilot's Operating Handbook and Airplane Flight Manual (latest revision).

8. Fluid Capacities

8.1 Fuel

Total:	1500 lt	(396.3 US Gal)
Usable:	1486 lt	(392.6 US Gal), or
Total:	1597 lt	(421.9 US Gal)
Usable:	1583 lt	(418.2 US Gal)

for Aeroplanes with modification n. 80-0257 "Wing Tank Extension" or SB 80-0123 embodied



8.2 Oil

Total: 25 lt (6.7 US Gal)
Usable quantity: 9,4 lt (2.5 US Gal),
Refer to Note 3 for non-drainable oil.

9. Air Speeds

	<u>Speed</u>	<u>Condition</u>	<u>KIAS</u>	<u>Mach</u>	
Maximum operating speed	V _{MO}	up to 28.400 ft	260	--	
	M _{MO}	above 28.400 ft	--	0,67, or	
	M _{MO}	above 28.400 ft	--	0,7	
(for aeroplanes with modification n. 80-0407)					
Maneuvering speed	V _A	at 5239 kg (11550 lbs.)	199	--, or	
	V _A	at 5489 kg (12100 lbs.)	202	--	
(for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed)					
Max Flap Extended Speed	V _{FE}		175	--, or	
	V _{FE}		177	--	
	(for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed)				
	V _{FE}	take-off configuration (T.O.)	180	--, or	
	V _{FE}	take-off configuration (T.O.)	183	--	
(for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed)					
Max Flap Operating Speed	V _{FO}		150	--	
	V _{FO}	take-off configuration	170	--	
Max Landing Gear Extended Speed	V _{LO}		180	--, or	
	V _{LO}		181	--	
	(for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed)				
Max Landing Gear Extended Speed	V _{LE}		185	--	
Max Landing Light Operating / Extended Speed	V _{LLO} / V _{LLE}		160	--	
Minimum Control Speed	V _{MC}	Propeller feathered	100	--	
		Propeller windmilling	128	--	

10. Maximum Operating Altitude: 12500 m / 41000 ft



11. All-weather Capability:

Airplanes with modification n. 80-0101 "Category II Kit" embodied may be authorised to perform Category 2 (Cat. II) operations according to the limitations included in the Supplement n. 26 of the Pilot's Operating Handbook and Airplane Flight Manual.

12. Weights:

12.1	Maximum Weight for		
	Taxi and ramp		5262 kg (11600 lbs.)
	Take-off		5239 kg (11550 lbs.)
	Landing		4965 kg (10945 lbs.), or
	Taxi and ramp		5511 kg (12150 lbs.)
	Take-off		5489 kg (12100 lbs.)
	Landing		5216 kg (11500 lbs.)

for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed

12.2	Zero Fuel Weight	at forward C.G. limit	4309 kg (9500 lbs.)
		at aft C.G. limit	4218 kg (9300 lbs.)
		Straight line variation between limits given 4445 kg (9800 lbs.) C.G. whereas (MSN 1016 and up airplanes) except MSN. 1016-1104 installing S.B. 80-0482: 4627 kg (10200 lbs.)	

13. Centre of Gravity Range:

Landing gear extended C.G. range

From	To	Weight
5,273 m (207.6")	5,435 m (214.0")	5262 kg (11600 lbs.), or
5,340 m (210.25")	5,435 m (214.0")	5511 kg (12150 lbs.)]

for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed

4,958 m (195.2")	5,435 m (214.0")	3967 kg (8745 lbs.)
4,927 m (194.0")	5,410 m (213.0")	3856 kg (8500 lbs.)
4,927 m (194.0")	5,328 m (209.8")	3493 kg (7700 lbs.) or less
Straight line variation between limits given.		

Empty Weight C.G. Range None

14. Datum

6,000 m (236.22") forward of the rear pressure bulkhead centerline (at the intersection between the forward pressure bulkhead and the cockpit floor centerline).

15. Mean Aerodynamic Cord (MAC) 1,270 m (50")

16. Leveling Means

Refer to the "P.180 Maintenance Manual" Piaggio Doc. n. 9066, Chapter 8, or to the applicable Pilot's Operating Handbook and Airplane Flight Manual, Sec. 8.



17. Minimum Flight Crew 1 (Pilot)
18. Maximum Passenger Seating Capacity 11
including flight crew at 1,250 m (49.2") station.
Refer to the POH/AFM for Passengers and flight crew loading instructions and approved configuration
19. Exits (No. and type) 2
one main door
one emergency exit
20. Baggage / Cargo Compartments
- | Compartment | Weight | Station | |
|-------------------|-------------|---------------------|----------------|
| Cabin compartment | on floor | 23 kg (50 lbs.) | 5,588 m (220") |
| | on coat rod | 18,1 kg (40 lbs.) | 5,588 m (220") |
| Rear compartment | | 181,4 kg (400 lbs.) | 7,569 m (298") |
21. Wheels and Tires
For approved wheels types and tires types, rating, dimensions and ply rating, refer to applicable Pilot's Operating Handbook and Airplane Flight Manual

A.IV Operating and Servicing Instructions

1. Aircraft Flight Manual
"Pilot's Operating Handbook and Airplane Flight Manual" – Report n. 6591, RAI approved on July 7, 1992, and subsequent approved revisions.
2. Maintenance Manual
"P.180 Maintenance Manual" – Report n. 9066
3. Structural Repair Manual
"P.180 Structural Repair Manual" - Report n. 180-MAN-0250-01106
4. Service Bulletins
Refer to Piaggio Report n. 9078

A.V Operational Suitability Data (OSD)

The Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate EASA.A.059 as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014;

- 1 **Master Minimum Equipment List**
Piaggio Report ref No 180-RPT-0000-09700 Rev 00 dated 11 May 2017 „MMEL P180 Avanti MSN 1004 through 1104“, or later approved revisions.
- 2 **Flight Crew Data**
The Flight Crew Data is defined in Piaggio Report ref 180 RPT-0000-10210 "P180 Avanti/



Avanti II – EASA OSD Flight Crew” original Issue dated 24 February 2017, or later approved revisions.

3 Cabin Crew Data

Not applicable;

4 SIM Data

Not applicable;

5 Maintenance Certifying Staff Data

Not applicable;

A.VI Notes

1. Customized Cabin Interior and Seating Configurations must be approved
2. Applicable A/C Serial Number from 1004 to 1104, except MSN installing Piaggio S.B. n. 80-0484 that upgrades them to Avanti II configuration (Section B apply).
3. Requirements for the issue of the CoFA
 - The minimum required equipment as prescribed in the applicable airworthiness regulations must be installed on the individual aircraft for certification.
 - Current weight and balance data, a list of equipment included in the certification empty weight and loading information when necessary must be provided for each aeroplane when the CoA will be issued

The certification empty weight and balance data shall include the unusable fuel and the total engine oil as follows:

	Quantity	Station
Unusable fuel:	11,24 kg (24.8 lbs.)	6,319 m (248.8”)
Undrainable fuel:	3,94 kg (8.7 lbs.)	6,304 m (248.2”)
Undrainable oil:	2,2 kg (4.9 lbs.)	6,975 m (274.6”).
Total oil quantity:	25 Kg (55 lbs.)	6,975 m (274.6”).

- Aeroplane Flight Manual is required

4. Placards

All required placards as listed in the approved Airplane Flight Manual must be installed in the appropriate locations.

5. Continued Airworthiness

Airworthiness Limitations and Service Life Limits of some equipment are contained in Chapter 4 (Airworthiness Limitations) and Chapter 5 (Maintenance Schedule and Time Limits) of the Piaggio Report n. 9066.

6. Painting

Changing the color and the thickness of the exterior paint (including registration numbers) for composite components is only permissible after prior approval of the Type Certificate Holder.



SECTION B: P.180 Avanti II

B.I General

- | | |
|------------------------------------|--|
| 1. Type | P.180 |
| Model | Avanti II |
| Variant | --- |
| 2. Airworthiness Category | Normal |
| 3. Type Certificate Holder: | Piaggio Aviation SpA
Viale Generale Disegna 1
17038 – Villanova d'Albenga (SV) - ITALY |
| 4. Manufacturer: | Piaggio Aero Industries SpA
Viale Generale Disegna, 1
17038 Villanova d'Albenga (SV) - ITALY |
| 5. Certification Application Date: | October 16 th 2003 |
| 6. The EASA Certification Date: | October 21 st 2005 |

B.II Certification Basis

- | | |
|---|--|
| 1. Reference Date for determining the applicable requirements | October 16 th 2003 |
| 2. (reserved) | |
| 3. (reserved) | |
| 4. Airworthiness Requirements | As per para A.II.4, except the requirements applicable to the areas affected by the PA-05 major change (see Appendix 1 – PA05 Major Change CRI A-01)

Airplanes incorporating the optional Mod. n. 80-1270 or SB 80-0459:

as above, with the addition of ADS-B Out Specific Requirements included in the CS-ACNS Initial Issue (17 December 2013), section 4 “1090 MHz Extended Squitter ADS-B”

Airplanes incorporating the optional Mod. n. 80-0642 or SB 80-0215:

as above, except the CS 23 requirements (first issue) applicable to the areas affected by the change (see Appendix 2 – MTOW Increased Major Change (80-0642) CRI A-01). |
| 5. Requirements elected to comply | As per para. A.II.5 |
| 6. Special Conditions | Special Condition RAI-NTO SE-5 [FAA 23-ACE-52 n°.2] “Protection for Systems from Lightning and High Energy Radio Frequency” is superseded, for this design change, by the new Special Condition originated by CRI F-01 (HIRF Protection) and by the conclusions of CRI F-02 (Protection from the Effects of Lightning Strike: Indirect Effects).

Airplanes incorporating the optional Mod. 80-1432 “Lithium Ion Main Battery”:
Special Condition(s): SC-F23-1353-01. (CRI F-58). |



2. Description:

2.1. General

The General Description of the P.180 Avanti (provided in § A.III, 2 of Section A1) applies to P.180 Avanti II, except for the avionics suite.

2.2. Avionics

The standard avionics package is a Collins Pro Line 21 avionic suite, as it has been configured for the P180.

2.3. Commercial Designations / Modification Packages

P.180 Avanti EVO is the informal, commercial designation used to identify P.180 Avanti II, MSN 3001 and up, fitted at delivery with the major modifications listed below:

- Winglet, DMT 80-1121
- Community Noise Reduction, DMT 80-1117,

that cannot be installed separately (DMT 80-1117 installed means that DMT 80-1121 is installed too).

This designation is not recognized as a separate model at EASA level.

2.4 Also those P.180 Avanti airplanes with S.B. 80-0484 embodied belong to the P180 Avanti II Model.

3. Equipment:

The list of approved equipment is shown in Piaggio document "P.180 Avanti II List of approved type design changes" Piaggio Doc. N. 180-CNF-0000-01165 at the latest revision.

4. Dimensions:

Forward Wing Span	3356 mm (11.01 ft)
Main Wing Span	14 033 mm (46.04 ft)
Length	14 408 mm (47.27 ft)
Height	3980 mm (13.05 ft)
Total Wing Area	16,00 m ² (172.212 ft ²)

5. Engines:	No.	2
	Model:	Pratt & Whitney of Canada PT6A-66 turboprop engines, each flat rated at 850 shp. Right Engine 3037000 Build Spec. 676 Left Engine 3037000 Build Spec. 677
	Type Certificate:	EASA.IM.E.008

Airplanes incorporating the Mod. n. 80-0657 or SB 80-0231:

	Model:	Pratt & Whitney of Canada PT6A-66B turboprop engines, each flat rated at 850 shp. when installed on the aircraft. Right Engine 3072196 Build Spec. 1223 Left Engine 3072196 Build Spec. 1224
	Type Certificate:	EASA.IM.E.008



Airplanes incorporating the Mod. n. 80-1117:

Model: Pratt & Whitney of Canada PT6A-66B turboprop engines, each flat rated at 850 shp. when installed on the aircraft.
Right Engine 3072196 Build Spec. 1243
Left Engine 3072196 Build Spec. 1244
Type Certificate: EASA.IM.E.008

5.1. Engine Limits

Operating Conditions	Shaft (shp.)	N1 Gas Generator Speed (%)	Torque ft-lbs (kgm)	Prop. shaft speed (r.p.m.)	Maximum Permissible Interstage Temperature (°C)
Takeoff Max. continuous Max. climb Max. cruise	850	104.1	2230 (308,3) 2480 [*] (342,9) [*]	2000 1800 [*]	830
Normal Climb Normal Cruise	850	104.1	2230 (308,3) 2480 [*] (342,9) [*]	2000 1800 [*]	820
Starting Limits (5 sec.)	-	-	-	-	1000
Transient (20 sec.)	-	104.1	2750 (380,2)	2205	870

[*] for airplanes incorporating the Mod. n. 80-1117

Oil Temperature

Starting - 40°C (min.)
Minimum Idle - 40°C ÷ 110°C
Transient: 0°C ÷ 110°C
Max. continuous and max. reverse 0°C ÷ 110°C

Note: The above mentioned engine limits are applicable to both engine models: PT6A-66 and PT6A-66B.

6. Propellers:

6.1. For P180 MSN 1002 and P180 Avanti II, Modification 80-1117 "Community Noise Reduction" **not** incorporated

No. 2
Model Hartzell



Right: HC-E5N-3L or HC-E5N-3AL (hub) / LE
8218 (each blade)
Left: HC-E5N-3 or HC-E5N-3A (hub) / HE
8218 (each blade)
Type Certificate: EASA.(IM).P.125
Number of blades: 5

6.1.1. Sense of rotation

Right propeller rotates Counterclockwise in view of flight direction
Left propeller rotates Clockwise in view of flight direction

6.1.2. Diameter 2159 mm maximum, 2146 mm minimum

6.1.3. Pitch

Nominal pitch angle at 0,761 m (30") station

- Minimum on ground: $14^{\circ} \pm 0,5^{\circ}$
- Minimum in flight: $18^{\circ} \pm 0,5^{\circ}$
- Reverse (negative): $-13^{\circ} \pm 0,5^{\circ}$
- Feathered: $89^{\circ} \pm 0,5^{\circ}$

6.1.4. Propeller Limits

- No further reduction of the minimum diameter is allowed.
- Stabilized ground operations between 600 and 900 rpm are prohibited.
- Stabilized ground operations at or below 600 rpm are allowed only when the propeller is feathered.
- Stabilized ground operations between 1300 and 1600 rpm are prohibited.

6.2. For P.180 MSN 1002 and P.180 Avanti II, Modification 80-1117 "Community Noise Reduction" incorporated ("P.180 Avanti EVO")

No. 2
Model: Hartzell
Right: HC-E5N-3L or HC-E5N-3AL (hub) / LE
8492 (each blade)
Left: HC-E5N-3 or HC-E5N-3A (hub) / HE
8492 (each blade)
Type Certificate: EASA.(IM).P.125
Number of blades: 5

6.2.1. Sense of rotation

Right propeller rotates Counterclockwise in view of flight direction
Left propeller rotates Clockwise in view of flight direction

6.2.2. Diameter 2197 mm maximum, 2184 mm minimum

6.2.3. Pitch

Nominal pitch angle at 0,761 m (30") station

- Minimum on ground: $14^{\circ} \pm 0,5^{\circ}$
- Minimum in flight: $19^{\circ} \pm 0,5^{\circ}$
- Reverse (negative): $-8^{\circ} \pm 0,5^{\circ}$
- Feathered: $87.6^{\circ} \pm 0,5^{\circ}$



6.2.4. Propeller Limits

- No further reduction of the minimum diameter is allowed.
- Stabilized ground operations between 600 and 900 rpm are prohibited.
- Stabilized ground operations at or below 600 rpm are allowed only when the propeller is feathered.
- Stabilized ground operations between 1250 and 1550 rpm are prohibited.

7. Fluids

7.1. Fuel

JP4, JP8, JET A, JET A-1, JET B; RP-3 (No.3 Jet Fuel); RT and TS-1 (as per GOST 10227-86) conforming to the latest revision of Pratt & Whitney Service Bulletin No. 14004.

Fuel Anti-Ice Additive compliant with Specification MIL-I-27686 must be used with JET A, JET A1, JET B and RP-3 fuels

7.2. Oil

Mobile Jet Oil II, AeroShell Turbine Oil 500 and Castrol 5000.

Refer also to the Limitations Section of the Pilot's Operating Handbook and Airplane Flight Manual (latest revision)

8. Fluid capacities

8.1. Fuel

	Total	1597 l (421.9 US Gal)
	Usable	1583 l (418.2 US Gal), or
	Total	1816 l (479.7 US Gal)
	Usable	1802 l (476.0 US Gal)

for aeroplanes with modification n. 80-1091 "P.180 Extended Range" or S.B. 80-0424 embodied

8.2. Oil

	Total	25 l (6.7 US Gal)
	Usable quantity	9,4 l (2.5 US Gal)

Refer to Note 3 for non-drainable oil.

9. Air Speeds

	<u>Speed</u>	<u>Condition</u>	<u>KIAS</u>	<u>Mach</u>	
Maximum operating speed	V _{MO}	up to 28 400 ft	260	--	
	M _{MO}	above 28 400 ft	--	0.7	
Maneuvering speed	V _A	at 5239 kg (11550 lbs.)	199	--,	or
	V _A	at 5489 kg (12100 lbs.)	202	--	



<u>Speed</u>	<u>Condition</u>	<u>KIAS</u>	<u>Mach</u>
	(for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed)		
Max Flap Extended Speed	V _{FE}	175	--, or
	V _{FE}	177	--
	(for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed)		
	V _{FE} take-off configuration (T.O.)	180	--, or
	V _{FE} take-off configuration (T.O.)	183	--
	(for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed)		
Max Flap Operating Speed	V _{FO}	150	--
	V _{FO} take-off configuration	170	--
Max Landing Gear Operating Speed			
	V _{LO}	180	--, or
	V _{LO}	181	--
	(for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed)		
Max Landing Gear Extended Speed			
	V _{LE}	185	--
Max Landing Light Operating / Extended Speed			
	V _{LLO} / V _{LLE}	160	--
Minimum Control Speed	V _{MC}		
	Propeller feathered	100	--
	Propeller windmilling	128	--

10. Maximum Operating Altitude 12500 m / 41000 ft

11. All-weather Capability

The airplanes are authorised to perform Category 2 (Cat. II) operations according to the limitations included in the applicable Airplane Flight Manual.

12. Maximum Weight

12.1 Maximum Weight for

Taxi and ramp	5262 kg (11600 lbs.)
Take-off	5239 kg (11550 lbs.)
Landing	4965 kg (10945 lbs.), or



Taxi and ramp	5511 kg (12150 lbs.)
Take-off	5489 kg (12100 lbs.)
Landing	5216 kg (11500 lbs.)

(for aeroplanes with modification n. 80-0642, or equivalent
Service Bulletin n. 80-0215 installed)

12.2 Zero Fuel 4445 kg (9800 lbs.)
except airplanes

- MSN 1105-1234 installing S.B. 80-0482
- MSN from 3001 to 3018 installing modification 80-1440
- MSN 3019+ installing modification 80-1338
- MSN 1004-1104 installing S.B. 80-0484

for which 4627 kg (10200 lbs.)

13. Centre of Gravity Range

For Landing Gear Extended

From	To	Weight
5,273 m (207.6")	5,435 m (214.0")	5262 kg (11600 lbs.), or
5,340 m (210.25")	5,435 m (214.0")	5511 kg (12150 lbs.)]
for aeroplanes with modification n. 80-0642, or equivalent Service Bulletin n. 80-0215 installed		
4,958 m (195.2")	5,435 m (214.0")	3967 kg (8745 lbs.)
4,927 m (194.0")	5,410 m (213.0")	3856 kg (8500 lbs.)
4,927 m (194.0")	5,328 m (209.8")	3493 kg (7700 lbs.) or less

Straight line variation between limits given

Empty Weight C.G. Range none

14. Datum

6,000 m (236.22") forward of the rear pressure bulkhead centerline (at the intersection between the forward pressure bulkhead and the cockpit floor centerline).

15. Mean Aerodynamic Chord (MAC) 1,270 m (50")

16. Leveling Means

Refer to the "P.180 Avanti II Maintenance Manual" or to the applicable Pilot's Operating Handbook and Airplane Flight Manual.

17. Minimum Flight Crew 1 (Pilot)



18. Maximum Passenger Seating Capacity 11
including Flight Crew at 1,250 m (49.2") station
Refer to the "P.180 Avanti II Weight and Balance Manual" for Passengers and flight crew loading instructions and approved configuration
19. Exits (No. and type) 2
one main door
one emergency exit
20. Baggage / Cargo Compartments
- | Compartment | Weight | Station |
|-------------------|---------------------|-------------------|
| Cabin compartment | on floor | 23 kg (50 lbs.) |
| | on coat rod | 18,1 kg (40 lbs.) |
| Rear compartment | 181,4 kg (400 lbs.) | 7,569 m (298") |
21. Wheels and Tires
For approved wheels types and tires types, rating, dimensions and ply rating, refer to applicable Airplane Flight Manual, Weight and Balance Manual and Pilot's Operating Handbook.

B.IV Operating and Servicing Instructions

1. Aircraft Flight Manual
"P.180 Avanti II Airplane Flight Manual" – Report n.180-MAN-0010-01100
"P.180 Avanti II Weight and Balance Manual" – Report n. 180-MAN-0020-01101
2. Maintenance Manual
For P.180 MSN 1002 and P.180 Avanti II, Modification 80-1117 "Community Noise Reduction" **not** incorporated
- "P.180 Avanti II Maintenance Manual" – Report n. 180-MAN-0200-01105
Airworthiness Limitations are contained in P.180 Avanti II Chapter 4 (Airworthiness Limitations)
- Report n. 180-MAN-0200-01109

For P.180 MSN 1002 and P.180 Avanti II, Modification n. 80-1117 "Community Noise Reduction" incorporated ("P.180 Avanti EVO")
- "P.180 Avanti II Maintenance Manual" – Report n. 180-MAN-0200-01105(E)
Airworthiness Limitations are contained in P.180 Avanti II Chapter 4 (Airworthiness Limitations)
- Report n. 180-MAN-0200-01109(E)
3. Structural repair Manual
"P.180 Structural Repair Manual" – Report n.180-MAN-0250-01106
4. Service Bulletins
Refer to Piaggio Report n. 9078



B.V Operational Suitability Data (OSD)

The Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate EASA.A.059 as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014;

1 Master Minimum Equipment List

Piaggio Report ref No 180-RPT-0000-01203 Rev 01 dated 03 Dec 2014 „ MMEL P180 Avanti II MSN 1105 and up including P180 Avanti „EVO“ MSN 3001 and up“, or later approved revisions.

2 Flight Crew Data

The Flight Crew Data is defined in Piaggio Report ref 180 RPT-0000-10210 “P180 Avanti/Avanti II – EASA OSD Flight Crew” original Issue dated 24 February 2017, or later approved revisions.

3 Cabin Crew Data

Not applicable;

4 SIM Data

Not applicable;

5 Maintenance Certifying Staff Data

Not applicable;

B.VI Notes

1. Customized Cabin Interior and Seating Configurations must be approved
2. Applicable A/C serial numbers:
 - MSN 1002,
 - from MSN 1004 to 1104 with SB 80-0484 installed,
 - from MSN 1105 and up.
3. Requirements for the issue of the CofA
 - * The minimum required equipment as prescribed in the applicable airworthiness regulations must be installed on the individual aircraft for certification.
 - * Current weight and balance data, a list of equipment included in the certification empty weight and loading information when necessary must be provided for each aeroplane when the CoA will be issued.
 - * The certification empty weight and balance data shall include the unusable fuel and the total engine oil as follows:

	Quantity	Station
Unusable fuel:	11,24 kg (24.8 lbs.)	6,319 m (248.8”)
Undrainable fuel:		
	3,94 kg (8.7 lbs.)	6,304 m (248.2”)
for aeroplanes with modification n. 80-1091 “P.180 Extended Range” or S.B. 80-0424 embodied	7 kg (15.4 lbs.)	6,012 m (236.7”)
Undrainable oil:	2,2 kg (4.9 lbs.)	6,975 m (274.6”)
Total oil quantity:	25 Kg (55 lbs.)	6,975 m (274.6”)

- * Aeroplane Flight Manual is required



4. Placards

All required placards as listed in the approved Airplane Flight Manual must be installed in the appropriate locations.

5. Painting

Changing the color and the thickness of the exterior paint (including registration numbers) for composite components is only permissible after prior approval of the Type Certificate Holder.

6. P.180 Avanti EVO

P.180 Avanti EVO is the informal, commercial designation used to identify P.180 Avanti II, MSN 3001 and up, fitted at delivery with the major modifications listed below:

- Winglet, DMT 80-1121

- Community Noise Reduction, DMT 80-1117

that cannot be installed separately (DMT 80-1117 installed means that DMT 80-1121 is installed too).

This designation is not recognized as a separate model at EASA level



SECTION ADMINISTRATIVE

I Acronyms

None

II Type Certificate Holder Record

Until 1998

I.A.M. Rinaldo Piaggio S.p.A.

Until April 2018

Piaggio Aero Industries SpA
Viale Castro Pretorio 116 – 00185 ROMA – ITALY
Headquarter:
Viale Generale Disegna, 1
17038 Villanova d’Albenga (SV) – ITALY

From 17 April 2018

Piaggio Aviation SpA
Viale Generale Disegna 1 – 17038 Villanova d’Albenga (SV) – ITALY

Contracted DOA Holder supporting TC Since 17 April 2018

Piaggio Aero Industries SpA
Viale Castro Pretorio 116 – 00185 ROMA - ITALY
Headquarter:
Viale Generale Disegna, 1
17038 Villanova d’Albenga (SV) – ITALY

From 19 September 2018 DOA Responsibility transfer to

Piaggio Aviation SpA
Viale Generale Disegna 1 – 17038 Villanova d’Albenga (SV)
EASA Approval 21J.685

From 19 September 2019 DOA Responsibility transfer to

Piaggio Aero Industries SpA
Viale Generale Disegna, 1
17038 Villanova d’Albenga (SV) – ITALY
EASA Approval 21J.220



III Change Record

Issue	Date	Changes
1	21-Oct-2005	- Initial EASA issue replacing ENAC / RAI TCDS
2	10-Jan-2006	- Addition of optional Mod 80-0642 or SB 80-0215
3	23-Mar-2007	- Addition of Mod. 80-0657 (P.EASA.A.C.03574)
4	19-Feb-2010	- Editorial changes and corrections
5	20-Apr-2010	- Editorial corrections to engine built specifications
6	18-Feb-2011	- RP-3 fuel type added - list of fuel types corrected - error in sense of rotation of propeller corrected
7	11-Oct-2012	- Russian fuels TS-1 and RT added
8	03-Jun-2014	- all pages: TCDS reformatted - all pages: minor editorial changes - page 10 & 18, Item 21: Wheels and Tires data removed and related reference to Flight Manual added (Mod. 80-1100). - page 16, item 8.1 new fuel tank capacity and undrainable fuel capacity values added for aeroplanes with Mod. 80-1091 "Extended Range" installed - page 20, item 3 new fuel tank capacity and undrainable fuel capacity values added for aeroplanes with Mod. 80-1091 "Extended Range" installed
9	28-Nov-2014	- page 1: Issue date revised, "Issue 9, 28-Nov-2014" added - page 13: Item B.III, 1. corrected for "P.180 Avanti II" Item B.III, 2.3. added - page 14: Item B.III, 5. Engine Information for Mod n. 80-1117 added - page 15: Item B.III, 5.1. Engine Information for Mod n. 80-1117 added Item B.III, 6.1. applicability added and for 6.1.1. to 6.1.4. numbering adapted - page 16: Item B.III, 6.2. added - page 20: Item B.IV, 2. information for Mod n. 80-1117 added - page 21: Item B.V, Note 6 added
10	23-May-2017	- page 3 Item A.I, Manufacturer address updated - page 5 Item A.III, Operational Suitability Data (OSD) requirements added - page 9 Item A.III (13.) CG envelope - Max Weight reference updated - page 9 Item A.III (19.) Doors "Type" definition corrected as "type" - page 10 Item A.V, Operational Suitability Data (OSD) added - page 11 Item A.VI notes section re-numbered - page 13 Item B.II, Operational Suitability Data (OSD) requirements added - page 14 Item B.III (3.) Ref. to Equipment reference documentation updated - page 19 Item B.III (13.) CG envelope - Max Weight reference updated - page 19 Item B.III (19.) Doors "Type" definition corrected as "type" - page 21 Item B.V Operational Suitability Data (OSD) added - page 21 Item B.VI notes section re-numbered
11	18-Sep-2017	- page 1 Issue date revised, "Issue 11, 18-Sep-2017" added - page 12 Item B.II (4.) CS ACNS First Issue, section 4, added
12	17 April 2018	-.Page 1 TC holder name changed - Page 3 TC holder name changed -.Page 12 TC holder name changed



		- Page 22	TC holder name changed, and contracted DOA provider name added.
13	19 September 2018	- Page 22	DOA record amended to ref 21J.685 Piaggio Aviation SpA.
14	19 September 2019	-Page 23	DOA record amended to ref 21J.220, Piaggio Aero Industries SpA
15	07 February 2020	-Page 8 -Page 14 -Page 18 -Page 20 -Page 22 -Various pages	Item A.III 9. Modification number corrected (was 80-0642, is 80-0407. Copy/paste error introduced at previous revision) Item B.III 2.3. clarification on configuration of EVO airplanes Item B.III 9. Table title re-positioned Item B.III 21. "Tyres" corrected in "Tires" Item B.IV 2. P.180 EVO Maintenance Manual (180-MAN-0200-01105(E)) applicability extended to P.180 MSN 1002 Item B.VI 6. clarification on configuration of EVO airplanes Acronyms aligned for nomenclature (i.e. "shp.", "lbs.", "MSN")
16	10 November 2021	-Page 9 -Page 11 -Page 13 -Page 14 -Page 19 -Page 20 -Page 21 -Appendix 1 and 2	Item A.III.12.2: Max. Zero Fuel Weight updated for a/c installing S.B. 80-0482 Item A.VI.2: Updated airplanes MSN belonging to Avanti Model Item B.III.1: Type Design document reference updated for a/c MSN 1004-1104 installing SB 80-0484 Item B.III.2.4: Designation updated for Avanti a/c installing S.B. 80-0484 Item B.III.12.2: Max. Zero Fuel Weight updated for a/c installing S.B. 80-0482 or Mod. 80-1338 or 80-1440 Item B.III.21: Operating Manuals reference updated for Wheels and Tires information Item B.VI.2: Updated airplanes MSN belonging to Avanti II Model Appendix 1 and 2 - added

-END-



APPENDIX 1 – PA05 MAJOR CHANGE CRI A-01

The following requirements applicable to the areas affected by the PA-05 major change, to the extent necessary to cover such areas :

(CS23 at initial issue and FAR 23 including amendment 33)

1. Flight

(*) F23 .143	all	CONTROLLABILITY AND MANOEUVRABILITY – GENERAL
F23 .161	all	TRIM
F23 .207	all	STALL WARNING
CS23 .253	all	HIGH SPEED CHARACTERISTICS

(*) Piaggio demonstrates compliance to CS23.143 for Flight Guidance System controllability aspects.

2. Structures

F23 .301	all	LOADS
F23 .303		FACTOR OF SAFETY
F23 .305	all	STRENGTH AND DEFORMATION
F23 .307	all	PROOF OF STRUCTURES
F23 .395	all	CONTROL SYSTEM LOADS
F23 .397	all	LIMIT CONTROL FORCES AND TORQUES
F23 .499	all	SUPPLEMENTARY CONDITIONS FOR NOSE WHEELS
F23 .561	(b)(2), (e)	EMERGENCY LANDING CONDITIONS – GENERAL

3. Design and Construction

F23 .603	all	MATERIALS AND WORKMANSHIP
F23 .605	all	FABRICATION METHODS
F23 .609	all	PROTECTION OF STRUCTURES
F23 .611		ACCESSIBILITY
F23 .613	all	MATERIAL STRENGTH PROPERTIES AND DESIGN VALUES
F23 .619		SPECIAL FACTORS
F23 .623	all	BEARING FACTORS
F23 .625	all	FITTING FACTORS
F23 .671	all	CONTROL SYSTEMS – GENERAL
CS23 .677	all	TRIM SYSTEMS
F23 .683	all	OPERATION TESTS
F23 .685	all	CONTROL SYSTEMS DESIGN
F23 .689	(a),(b),(c), (d),(e)	CABLE SYSTEMS
F23 .699	(b)	WING FLAP POSITION INDICATOR
F23 .729	(e)	LANDING GEAR EXTENSION AND RETRACTION SYSTEM
F23 .771	(a), (b)	PILOT COMPARTMENT
F23 .773	(a), (b)	PILOT COMPARTMENT VIEW



F23	.777	(a),(b),(g), (h)	COCKPIT CONTROLS
(**)F23	.783		DOORS
F23	.841	(b)(6)	PRESSURISED CABINS
F23	.853	(a), (e)	FIRE PROTECTION – COMPARTMENT INTERIOR

(**) refer to Special Condition RAI-NTO C-3 [FAA 23-ACE-29 N°.6 (c)].

4. Powerplant

F23	.963	(e)	FUEL TANK – GENERAL
F23	.991	(c)	FUEL PUMPS
F23	.1203	(d)	FIRE DETECTOR SYSTEM

5. Equipment

CS23	.1301	all	EQUIPMENT – FUNCTION AND INSTALLATION
CS23	.1303	(a), (b), (c), (e), (f)	FLIGHT AND NAVIGATION INSTRUMENTS
CS23	.1305	(a), (c), (e)	POWERPLANT INSTRUMENTS
CS23	.1309	(a)(1), (a)(3), (b), (c), (d), (e), (f)	EQUIPMENT, SYSTEMS AND INSTALLATIONS
CS23	.1311	all	ELECTRONIC DISPLAY INSTRUMENT SYSTEMS
CS23	.1321	all	ARRANGEMENT AND VISIBILITY
CS23	.1322	all	WARNING, CAUTION AND ADVISORY LIGHTS
F23	.1323	(a), (b)	AIRSPD INDICATING SYSTEM
F23	.1325	(a),(b)(1)-(2), (c), (e)	STATIC PRESSURE SYSTEM
CS23	.1326	all	PITOT HEAT INDICATION SYSTEMS
CS23	.1327	all	MAGNETIC DIRECTION INDICATOR
CS23	.1329	(a), (b), (d), (e), (f), (g), (h)	AUTOMATIC PILOT SYSTEM
CS23	.1331	all	INSTRUMENTS USING A POWER SOURCE
CS23	.1335	all	FLIGHT DIRECTOR SYSTEMS
F23	.1337	(b)(1)	POWERPLANT INSTRUMENTS INSTALLATION
CS23	.1351	(a), (a)(1), (a)(2)(i), (b)(1), (c)(4), (d)(1)	ELECTRICAL SYSTEMS AND EQUIPMENT – GENERAL
CS23	.1353	(a),(b),(c),(d), (e),(g)(2),(h)	STORAGE BATTERY DESIGN AND INSTALLATION
CS23	.1357	(a),(b), (c), (d)	CIRCUIT PROTECTIVE DEVICES
CS23	.1359	(a), (b), (c)	ELECTRICAL SYSTEM FIRE PROTECTION
CS23	.1361	(a), (c)	MASTER SWITCH ARRANGEMENT
CS23	.1365	(a),(b), (c), (d)	ELECTRIC CABLES AND EQUIPMENT
CS23	.1367	all	SWITCHES
CS23	.1381	all	INSTRUMENT LIGHTS



F23 .1383	(b)(1)	LANDING LIGHTS
F23 .1416	(c)	PNEUMATIC DE-ICER BOOT SYSTEM
CS23 .1431	(a), (b), (e)	ELECTRONIC EQUIPMENT
F23 .1435	(a)(2)	HYDRAULIC SYSTEMS

6. Operating Limitations and Information

CS23 .1501	all	OPERATING LIMITATIONS AND INFORMATION - GENERAL
CS23 .1523		MINIMUM FLIGHT CREW
CS23 .1525		KINDS OF OPERATION
(***) CS23 .1529		INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
CS23 .1541	(a), (b)	MARKINGS AND PLACARDS – GENERAL
CS23 .1543	(b), (c)	INSTRUMENT MARKINGS – GENERAL
F23 .1545	all	AIRSPEED INDICATOR
CS23 .1547	all	MAGNETIC DIRECTION INDICATOR
CS23 .1549	all	POWERPLANT AND AUXILIARY POWER UNIT INSTRUMENTS
CS23 .1553		FUEL QUANTITY INDICATOR
F23 .1555	(a),(b),(c)(1), (c)(4),(d),(e)	CONTROL MARKINGS
CS23 .1559	(a), (c)	OPERATING LIMITATIONS PLACARD
F23 .1563		AIRSPEED PLACARDS
(***) CS23 .1581	(a),(b)(1),(c), (d), (e), (f)	AEROPLANE FLIGHT MANUAL - GENERAL
CS23 .1583	(a), (b), (g), (h)	OPERATING LIMITATIONS
CS23 .1585	(j)	OPERATING PROCEDURES
CS23 .1589		LOADING INFORMATION

(***) Piaggio elect to comply with all applicable aspects detailed within these requirements.

Special Conditions

RAI-NTO C-3 [FAA 23-ACE-29 n°.6]	Doors and Exits (Outward Openings)
RAI-NTO C-6 [FAA 23-ACE-29 n°.7]	Forward and Main Wing Flap Interconnection
CRI F-01	HIRF Protection

Operating Rules

EASA CS-AWO – Subpart 2



APPENDIX 2 – MTOW INCREASED MAJOR CHANGE (80-0642) CRI A-01

the following requirements applicable to the areas affected by the 80-0642 major change, to the extent necessary to cover such areas, to be considered applicable only where the weight exceeds the originally certified MTOW/MLW of 11550/10945 lbs:

(CS23 at initial issue)

1. Flight

CS23	.21	All	Proof of compliance
CS23	.23	All	Load distribution limits
CS23	.25	(a)	Weight limits
CS23	.45	(a), (b), (d), (e), (f), (g)(1), (g)(4)	Performance – General
CS23	.49	(a), (b)	Stalling speed
CS23	.51	(a), (b)	Takeoff speeds
CS23	.53	(a), (b)	Takeoff performance
CS23	.63	(a), (c)	Climb: general
CS23	.65	(b)	Climb: all engine operating
CS23	.66	All	Take-off climb: one engine inoperative
CS23	.67	(b)	Climb: one engine inoperative
CS23	.69	All	En-route climb/descent
CS23	.73	(b)	Reference landing approach speed
CS23	.75	(a), (b), (c) (d), (e), (f)	Landing distance
CS23	.77	(b)	Balked landing
CS23	.141	All	Flight Characteristics – General
CS23	.143	All	Controllability and Maneuverability - General
CS23	.145	All	Longitudinal control (includes SPECIAL CONDITION RAI NTO F-5 [23-ACE-29 n° 2])
CS23	.147	All	Directional and lateral control
CS23	.149	(a), (b), (c), (d), (e)	Minimum control speed
CS23	.153	All	Control during landings
CS23	.155	All	Elevator control force in maneuvers
CS23	.157	All	Rate of roll
CS23	.161	(a), (c), (d)	Trim
CS23	.171	All	Stability – General
CS23	.173	(a), (b)(1), (c)	Static longitudinal stability
CS23	.175	(a), (b)(1), (c)	Demonstration of static longitudinal stability
CS23	.177	(a), (b), (d)	Static directional and lateral stability
CS23	.181	All	Dynamic stability



CS23	.201	All	Wing level stalls
CS23	.203	All	Turning flight and accelerated stalls
CS23	.207	(a), (b), (c), (d), (e)	Stall warning
CS23	.233	(a), (b), (c)	Directional stability and control
CS23	.251	All	Vibration and buffeting
CS23	.253	All	High speed characteristics

2. Structures

CS23	.301	(a), (b), (c)	Loads (includes SPECIAL CONDITION RAI NTO C-2 [23-ACE-29 n° 5])
CS23	.302	All	Canard or tandem wing configurations (includes SPECIAL CONDITION RAI NTO C-7 [23-ACE-29 n° 5])
CS23	.303	All	Factor of safety
CS23	.305	All	Strength and deformation
CS23	.307	All	Proof of structure
CS23	.321	All	Flight loads - General
CS23	.331	All	Symmetrical flight conditions
CS23	.333	All	Flight envelope
CS23	.335	(a), (b), (c)	Design airspeeds
CS23	.337	All	Limit Manoeuvring Load Factors
CS23	.341	(a), (b)	Gust load factors
CS23	.343	(a), (b)	Design fuel loads
CS23	.345	All	High lift devices
CS23	.347	(a)	Unsymmetrical flight conditions
CS23	.349	All	Rolling conditions
CS23	.351	All	Yawing conditions
CS23	.367	All	Unsymmetrical loads due to engine failure
CS23	.391	All	Control surface loads
CS23	.395	All	Control System Loads
CS23	.397	All	Limit Control Forces and Torques
CS23	.399	(a)	Dual Control System
CS23	.407	All	Trim tab effects
CS23	.409	All	Tabs
CS23	.415	All	Ground gust loads
CS23	.421	All	Horizontal tail surfaces - Balancing loads
CS23	.423	All	Maneuvering loads
CS23	.425	All	Gust loads
CS23	.427	(a), (c)	Unsymmetrical loads
CS23	.441	(a), (c)	Vertical tail surfaces – Maneuvering loads
CS23	.443	(a), (c)	Gust loads
CS23	.455	All	Ailerons, Wing Flaps and Special Devices - Ailerons



CS23	.471	All	Ground Loads – General
CS23	.473	(a), (b), (d), (e), (f), (g)	Ground load conditions and assumptions
CS23	.479	All	Level landing conditions
CS23	.481	All	Tail down landing conditions
CS23	.483	All	One wheel landing conditions
CS23	.485	All	Side load conditions
CS23	.493	All	Braked Roll conditions
CS23	.499	All	Supplementary conditions for nose wheels
CS23	.507	All	Jacking loads
CS23	.509	(a), (c), (d)	Towing loads
CS23	.511	All	Ground load: unsymmetrical loads on multiple-wheel units
CS23	.571	(a)	Fatigue Evaluation – Metallic pressurised cabin structures
CS23	.572	(a)(1), (b)	Metallic wing, empennage and associated structures
CS23	.573	(a)	Damage tolerance and fatigue evaluation of structure (includes SPECIAL CONDITION RAI NTO C-1 [23-ACE-29 n° 4])

3. Design and Construction

CS23	.601	All	Design and Construction – General
CS23	.627	All	Fatigue Strength
CS23	.629	All	Flutter
CS23	.641	All	Wings - Proof of strength
CS23	.701	(b)	Flap interconnection (includes SPECIAL CONDITION RAI NTO C-6 [23-ACE-29 n° 7])
CS23	.723	All	Shock absorption tests
CS23	.725	All	Limit drop tests
CS23	.726	All	Ground load dynamic tests
CS23	.727	All	Reserve energy absorption drop tests
CS23	.731	All	Wheels
CS23	.733	All	Tyres
CS23	.735	(a), (b), (c)	Brakes

4. Equipment

CS23	.1301	All	Function and Installation
CS23	.1329	(e)	Automatic pilot system
CS23	.1419	(a), (b), (c)	Ice protection

5. Operating Limitations and Information

CS23	.1501	All	General
CS23	.1507	All	Maneuvering speed
CS23	.1511	All	Flap extended speed
CS23	.1513	All	Minimum control speed



CS23	.1519	All	Weight and Centre of Gravity
CS23	.1525	All	Kinds of operation
CS23	.1529	All	Instructions for continued airworthiness
CS23	.1541	(a), (b)	Marking and placards - General
CS23	.1545	(a), (b)(4)	Airspeed indicator
CS23	.1559	(c)	Operating limitations placard
CS23	.1563	All	Airspeed placards
CS23	.1581	(a), (b)(1), (c), (d), (e), (f)	Aeroplane Flight Manual - General
CS23	.1583	(a)(1)(2), (c)(1)(2)(3), (d), (f), (h), (p)	Operating limitations
CS23	.1585	(a)(1)(2)(3) (5), (c), (d), (e)	Operating procedures
CS23	.1587	(a)(1)(2)(3) (5), (c)(1)(3)(4) (5)	Performance information
CS23	.1589	All	Loading information

Special Conditions

RAI NTO F-1
[FAA 23-ACE-29 n°.1]

Buffet Onset Envelope

RAI NTO F-2
[FAA 23-ACE-29 n°.3]

Effects of contamination on laminar flow airfoils

Operating Rules

EASA CS-AWO – Subpart 2

