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Change Record:

- Issue 01: Initial Issue
- Issue 02: Addition of the factory installed Avidyne Entegra option for PA-46-350P, change of TC holder and manufacturer name, minor editorial changes and updates
- Issue 03: Addition of the new model PA-46R-350T (Malibu Matrix), corrections
- Issue 04: Addition of the G1000 integrated avionics option for PA-46-500TP, minor updates
- Issue 05: Addition of the Hartzell propeller HC-I3Y1R-1N/N7605(K)+2 option and the G1000/GFC700 integrated avionics option for models PA-46-350P and PA-46R-350T, addition of PA-46-500TP POH VB-2182 (1999 kg MTOW)

SECTION A: **Model PA-46-310P (Malibu)**

A.I. General

Data Sheet No.: EASA IM.A.077	Issue: 02	Date: 18 December 2006
1. a) Type:	PA-46	
b) Variant:	PA-46-310P	
2. Airworthiness Category:	Normal Category	
3. Type Certificate Holder:	Piper Aircraft, Inc 2926 Piper Drive Vero Beach, Florida 32960 U.S.A.	
4. Manufacturer:	Piper Aircraft, Inc 2926 Piper Drive Vero Beach, Florida 32960 U.S.A.	
5. EASA Certification Application Date:	N/A	
6. EASA Type Certification Date:	28 September 2003 (in accordance with EC 1702/2003, Article 2, para. 3. (a))	

A.II. Certification Basis

1. Reference Date for determining the applicable requirements:	Date of application for FAA TC - 22 August, 1979
2. (Reserved)	
3. (Reserved)	
4. Certification Basis:	FAR Part 23, effective 1 February 1965, as amended by Amendment 23-25, effective 6 March 1980; FAR 25.783(e) as amended by Amendment 25-54, effective 14 October 1980; FAR 25.831(c) and (d) as amended by Amendment 25-41, effective 1 September 1977;
5. Airworthiness Requirements:	FAR 23 (for applicable amendments see A.II.4)
6. Requirements elected to comply:	None
7. Special Conditions:	No. 23-ACE-53, Docket No. 082CE
8. Exemption:	None
9. Equivalent Safety Findings:	None
10. Environmental Standards:	ICAO Annex 16, Volume 1, Chapter 6

A.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: New Piper Report number VB-1192
2. Description: Single engine turbo-charged, all-metal, six-place, pressurized, low wing airplane, retractable tricycle landing gear.
3. Equipment: For minimum equipment required by certification see applicable AFM/POH, section 2.
For approved additional equipment, see applicable AFM/POH, section 6.
(For applicable AFM/POH see A.IV.).
4. Dimensions:
 - Span 13.11 m (43.0 ft)
 - Length 8.81 m (28.9 ft)
 - Height 3.44 m (11.3 ft)
 - Wing Area 16.30 m² (175 sqft)
5. Engines: 1 Teledyne Continental TSIO-520-BE

The EASA Engine Type Certification standard includes that of FAA TCDS E8CE (in accordance with EC 1702/2003, Article 2, para. 3. (a))
 - 5.1 Engine Limits: For all operation:
2600 RPM and 38" Hg MAP (310 HP), sea level to 24,000 ft
2600 RPM and 35" Hg MAP above 24,000 ft.

2400 RPM and 31" Hg MAP maximum when leaned to 50° F lean of peak, any altitude.

For other powerplant limitations refer to the applicable AFM/POH, section 2.
6. Propellers: Hartzell, Hub BHC-C2YF-1BF, Blade F8052()
 - Pitch: High 38.0°±1°, Low 16.0°±0.2° at 0.762 m (30") station.
 - Diameter: Not over 2.032 m (80"), not under 1.981 m (78").
 - Spinner: Hartzell D-4810 or D-4810P.
 - Governor: Hartzell Model E-5-2.
The EASA Propeller Type Certification standard includes that of FAA TCDS P-920 (in accordance with EC 1702/2003, Article 2, para. 3. (a))
7. Fluids:
 - 7.1 Fuel: 100/100LL minimum grade aviation gasoline,
for alternate fuels see TCM M77-3
 - 7.2 Engine Oil: in accordance with latest revision of TCM SIL99-2
8. Fluid capacities:
 - 8.1 Fuel: Total: 462 liters (122 US gal) in 2 wing tanks
Usable: 454 liters (120 US gal) in 2 wing tanks
 - 8.2.Oil: Maximum: 7.6 liters (8 qts)
Minimum: 3.3 liters (3.5 qts)

9. Air Speeds:

Design Manoeuvring Speed, v_A (1860 kg (4100 lb))	135 KIAS
Design Manoeuvring Speed, v_A (1111 kg (2450 lb))	103 KIAS
Never Exceed Speed v_{NE}	203 KIAS
Maximum Structural Cruising Speed, v_{NO}	173 KIAS
Maximum Flap Extend Speed, v_{FE}	120 KIAS
Maximum Landing Gear Operating Speed, v_{LO}	
Extension	170 KIAS
Retraction	130 KIAS
Maximum Landing Gear Extended Speed, v_{LE}	200 KIAS

10. Maximum Operating Altitude: 7620 m (25,000 ft)

11. Operational Capability: VFR Day and Night
IFR Day and Night
Known Icing

12. Maximum Masses: Ramp: 1868 kg (4118 lb)
Take-Off: 1860 kg (4100 lb)
Landing: 1769 kg (3900 lb)

13. Centre of Gravity Range (gear extended):

linear variation between given points

Weight kg (lb)	Fwd. Limit m (in) aft of datum	Aft Limit m (in) aft of datum
1860 (4100)	3.640 (143.3)	3.736 (147.1)
1669 (3680)	3.457 (136.1)	3.736 (147.1)
1111 (2450) or less	3.320 (130.7)	3.736 (147.1)

see also A.V. note 3

14. Datum: 2.54 m (100") forward of forward pressure bulkhead.

15. (Reserved)

16. Levelling Means: Top or bottom fuselage at B.L. 0 (constant section).

17. Minimum Flight Crew: 1 (Pilot)

18. Maximum Passenger Seating Capacity: 5, for passenger seating locations see applicable AFM/POH.

19. Baggage / Cargo Compartments: 45 kg (100 lb) at +2.250 m (+88.6) (fwd.)
45 kg (100 lb) at +6.305 m (+248.23) (aft)

20. Wheels and Tyres:

20.1 Nose Wheel Tyre Size	5.00x5, 6 ply
20.2 Main Wheel Tyre Size	6.00x6, 8 ply

21. Maximum Cabin Operating Pressure Differential: 38.67 kPa (5.5 PSID)

22. Control Surface Movements: For approved control surface deflections see applicable Airplane Maintenance Manual (A.IV.).

A.IV. Operating and Service Instructions

Airplane Flight Manual AFM and
Pilot's Operating Handbook (POH):

- a) DOA No. SO-1 approved Airplane Flight Manual Piper Report FT 157, Appendix D or Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1200, latest approved revision, for Model PA-46-310P, S/N 46-8408001 through 46-8608067, and 4608001 through 4608007.
- b) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1300, latest approved revision, for Model PA-46-310P, S/N 4608008 through 4608140.

Airplane Maintenance Manual (AMM)

P/N 761-783, latest approved revision (for all S/Ns)

Service Bulletins and Service Letters

A.V. Notes

1. Applicable Manufacturer's S/N:
46-8408001 through 46-8408087, 46-8508001 through 46-8508109, 46-8608001 through 46-8608067, 4608001 through 4608140.
2. Approved Noise Levels:
see EASA TCDSN IM.A.077
3. Weight and Balance:
Current Weight and Balance Report, including list of equipment included in certificated empty weight and loading instructions when necessary, must be provided for each aircraft at the time of original certification.

The certified empty weight and corresponding center of gravity locations must include undrainable system oil (not included in oil capacity) and unusable fuel as noted below:
Fuel: 5.44 kg (12 lb), at +3.870 m (+152.37 in)
Oil: 1.27 kg (2.8 lb), at +1.359 m (+53.5 in)
4. Placards:
All placards required in the POH and AFM must be installed in the appropriate locations. The following placard must be displayed in clear view of the pilot:
"The markings and placards installed in this airplane contain operating limitations which must be complied with when operating this airplane in the Normal Category. Other operating limitations which must be complied with when operating this airplane in this category are contained in the Airplane Flight Manual. No aerobatics maneuvers, including spins, approved."
5. Life Limitations (see also AMM, chapter 5-10-00):
The life limit of the fuselage assembly, P/N 82250, is 10,145 hours time-in-service.
The life limit of the wing assembly, P/N 83100, is 15,580 hours time-in-service.

SECTION B: Model PA-46-350P (Malibu Mirage)

B.I. General

Data Sheet No.:	EASA IM.A.077	Issue:	02	Date:	18 December 2006
1. a) Type:		PA-46			
b) Variant:		PA-46-350P			
2. Airworthiness Category:		Normal Category			
3. Type Certificate Holder:		Piper Aircraft, Inc 2926 Piper Drive Vero Beach, Florida 32960 U.S.A.			
4. Manufacturer:		Piper Aircraft, Inc 2926 Piper Drive Vero Beach, Florida 32960 U.S.A.			
5. EASA Certification Application Date:		N/A			
6. EASA Type Certification Date:		28 September 2003 (in accordance with EC 1702/2003, Article 2, para. 3. (a))			

B.II. Certification Basis

1. Reference Date for determining the applicable requirements:	Date of application for FAA TC for Model PA-46-350P 17 September 1987
2. (Reserved)	
3. (Reserved)	
4. Certification Basis:	<ul style="list-style-type: none">a) For the basic PA-46-350P aeroplane the applicable certification basis is FAR Part 23, effective 1 February 1965, as amended by Amendment 23-25, effective 6 March 1980; FAR 25.783(e) as amended by Amendment 25-54, effective 14 October 1980; FAR 25.831(c) and (d) as amended by Amendment 25-41, effective 1 September 1977;b) For PA-46-350P aeroplanes equipped with the factory installed Avidyne Entegra System the additional certification basis for installation specific items only is CS-23 as defined in CRI-A01, issue 1, or later revision (for details on applicable paragraphs see B.V., note 7).c) For PA-46-350P aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option the additional certification basis for installation specific items only is CS-23 as defined in CRI-A01, issue 5, or later revision (for details on applicable paragraphs see B.V., note 9).d) For PA-46-350P aeroplanes equipped with the factory installed HC-I3Y1R-1N/N7605(K)+2 propeller the additional certification basis for installation specific items only is CS-23 as defined in CRI-A01, issue 5, or later revision (for details on applicable paragraphs see B.V., note 10).

5. Airworthiness Requirements:

- a) FAR 23 for the basic PA-46-350P aeroplane (for applicable amendments see B.II.4.a))
- b) FAR 23 and CS-23 for PA-46-350P aeroplanes equipped with the factory installed Avidyne Entegra System (for applicable amendments see B.II.4.b))
- c) FAR 23 and CS-23 for PA-46-350P aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option (for applicable amendments see B.II.4.c))
- d) FAR 23 and CS-23 for PA-46-350P aeroplanes equipped with the factory installed HC-I3Y1R-1N/N7605(K)+2 propeller (for applicable amendments see B.II.4.d))

6. Requirements elected to comply:

None

7. Special Conditions:

- a) No. 23-ACE-53, Docket No. 082CE, for the basic PA-46-350P aeroplane,
- b) CRI-F01, Protection from the Effects of HIRF
CRI-F02, Protection from the Effects of Lightning Strike; Indirect Effects,
CRI-F05, Human Factors in Integrated Avionic Systems, for PA-46-350P aeroplanes equipped with the factory installed Avidyne Entegra System
- c) CRI-F01, issue 3 or later revision, Protection from the Effects of HIRF
CRI-F02, issue 3 or later revision, Protection from the Effects of Lightning Strike; Indirect Effects,
CRI-F05, issue 3 or later revision, Human Factors in Integrated Avionic Systems, for PA-46-350P aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option.

8. Exemption:

None

9. Equivalent Safety Findings:

- a) None for the basic PA-46-350P aeroplane,
- b) CRI-F03, Power Plant Instruments, for PA-46-350P aeroplanes equipped with the factory installed Avidyne Entegra System
- c) CRI-F03, issue 2 or later revision, Powerplant Instruments, for PA-46-350P aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option.

10. Environmental Standards:

ICAO Annex 16, Volume 1, Chapter 6 if equipped with HC-I2YR-1BF/F8074 propeller (2-bladed)

ICAO Annex 16, Volume 1, Chapter 10 if equipped with HC-I3YR-1E/7890K propeller (3-bladed)

ICAO Annex 16, Volume 1, Chapter 10, Amendment 9, if equipped with HC-I3Y1R-1N/N7605(K)+2 propeller (3-bladed)

B.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: New Piper Report number VB-1343
For TDD of TCDS relevant changes see B.V., Note 8.
2. Description: Single engine turbo-charged, all-metal, six-place, pressurized, low wing airplane, retractable tricycle landing gear.
3. Equipment: For minimum equipment required by certification see applicable AFM/POH, section 2.
For approved additional equipment, see applicable AFM/POH, section 6.
(For applicable AFM/POH see B.IV.).
4. Dimensions:

Span	13.11 m (43.0 ft)
Length	8.81 m (28.9 ft)
Height	3.44 m (11.3 ft)
Wing Area	16.30 m ² (175 sqf)
5. Engines: 1 Textron Lycoming TIO-540-AE2A

The EASA Engine Type Certification standard includes that of FAA TCDS E14EA (in accordance with EC 1702/2003, Article 2, para. 3. (a))
 - 5.1 Engine Limits: For all operation:
2500 RPM and 42" Hg MAP (350 HP), sea level to 20,600 ft,
42-1.6" Hg MAP decrease per each 1000 ft altitude increase,
20,600 ft to 25,000ft

For other powerplant limitations refer to the applicable AFM/POH, section 2.
6. Propellers:
 - 6.1 Propeller 1: Hartzell, Hub HC-I2YR-1BF, Blade F8074 (standard 2-blade)
(S/N 4622001 through 4622200, and 4636001 through 4636195)

Pitch:	High 40.5°± 0.5°, Low 17.6°± 0.2°, at 0.762 (30") station.
Diameter:	Not over 2.032 m (80"), not under 2.007 m (79").
Spinner:	Hartzell A-2298-3P.
Governor:	Hartzell Model V-5-2 or V-11-1
 - The following limitation is applicable to the two-bladed aluminium propeller installation:
Do not exceed 36" MAP below 2400 RPM
Do not exceed 32" MAP below 2300 RPM
 - 6.2 Propeller 2: Hartzell, Hub HC-I3YR-1E, Blade 7890K (3-blade)
(S/N 4636132 and up)

Pitch:	High 38.7°±0.5°, Low 13.65°± 0.15°, at 0.762 m (30") station.
Diameter:	2.032 m (80")
Spinner:	Hartzell D-6750P.
Governor:	Hartzell Model V-5-2 or V-11-1

The EASA Propeller Type Certification standard includes that of FAA TCDS P42GL and P33EA (in accordance with EC 1702/2003, Article 2, para. 3. (a))

6.3 Propeller 3: Hartzell, Hub HC-I3Y1R-1N/N7605(K)+2 propeller (3-bladed)
(S/N 4636460, S/N 4636462 and up)
Pitch: High $38.0^{\circ} \pm 1.0^{\circ}$, Low $14.0^{\circ} \pm 0.2^{\circ}$, at 0.762 m (30") station.
Diameter: 2.032 m (80")
Spinner: Hartzell D-6750-1P.
Governor: Hartzell Model V-5-2, V-11-1 or S-1-30

EASA Type Certificate Data Sheet, EASA.IM.P.132

7. Fluids:

7.1 Fuel: 100/100LL minimum grade aviation gasoline, for alternate fuels
see latest revision of Lycoming SI 1070
7.2 Engine Oil: in accordance with latest revision of Lycoming SI 1014

8. Fluid capacities:

8.1 Fuel: Total: 462 liters (122 US gal) in 2 wing tanks
Usable: 454 liters (120 US gal) in 2 wing tanks
8.2.Oil: Maximum: 11.4 liters (12 qts)
Minimum: 2.6 liters (2.75 qts)

9. Air Speeds:

Design Manoeuvring Speed, v_A (1950 kg (4300 lb) for S/N 4636196 and up: 133 KIAS
Design Manoeuvring Speed, v_A (1968 kg (4340 lb): 133 KIAS
Design Manoeuvring Speed, v_A (1111 kg (2450 lb): 100 KIAS
Never Exceed Speed v_{NE} : 198 KIAS
Maximum Structural Cruising Speed, v_{NO} : 168 KIAS
Maximum Flap Extend Speed, v_{FE} : 116 KIAS
Maximum Landing Gear Operating Speed, v_{LO}
Extension: 165 KIAS
Retraction: 126 KIAS
Maximum Landing Gear Extended Speed, v_{LE} : 195 KIAS

10. Maximum Operating Altitude: 7620 m (25,000 ft)

11. Operational Capability: VFR Day and Night
IFR Day and Night
Known Icing

12. Maximum Masses:

Ramp: 1958 kg (4318 lb)
Take-Off: 1950 kg (4300 lb)
Landing: 1860 kg (4100 lb)

for S/N 4636196 and up:

Ramp: 1977 kg (4358 lb)
Take-Off: 1968 kg (4340 lb)
Landing: 1871 kg (4123 lb)

13. Centre of Gravity Range (gear extended):

linear variation between given points

Weight kg (lb)	Fwd. Limit m (in) aft of datum	Aft Limit m (in) aft of datum
1950 (4300)	3.640 (143.3)	3.736 (147.1)
1860 (4100)	3.533 (139.1)	3.736 (147.1)
1815 (4000)	3.480 (137.0)	3.721 (146.5)
1111 (2450)	3.320 (130.7)	3.495 (137.6)
1089 (2400)	3.320 (130.7)	3.487 (137.3)

see also B.V. note 3

for S/N 4636196 and up:

linear variation between given points

Weight kg (lb)	Fwd. Limit m (in) aft of datum	Aft Limit m (in) aft of datum
1968 (4340)	3.660 (144.1)	3.736 (147.1)
1871 (4123)	3.546 (139.6)	3.736 (147.1)
1815 (4000)	3.480 (137.0)	3.721 (146.5)
1111 (2450)	3.320 (130.7)	3.495 (137.6)
1089 (2400)	3.320 (130.7)	3.487 (137.3)

see also B.V. note 3

14. Datum: 2.54 m (100") forward of forward pressure bulkhead.

15. (Reserved)

16. Levelling Means: Top or bottom fuselage at B.L. 0 (constant section).

17. Minimum Flight Crew: 1 (Pilot)

18. Maximum Passenger Seating Capacity: 5, for passenger seating locations see applicable AFM/POH.

19. Baggage / Cargo Compartments: 45 kg (100 lb) at +2.250 m (+88.6 in) (fwd.)
45 kg (100 lb) at +6.305 m (+248.23 in) (aft)

20. Wheels and Tyres:
20.1 Nose Wheel Tyre Size 5.00x5, 6 ply
20.2 Main Wheel Tyre Size 6.00x6, 8 ply

21. Maximum Cabin Operating Pressure Differential: 38.67 kPa (5.5 PSID)

22. Control Surface Movements: For approved control surface deflections see applicable Airplane Maintenance Manual (B.IV.).

B.IV. Operating and Service Instructions

Airplane Flight Manual AFM and
Pilot's Operating Handbook (POH):

- a) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1332 for Model PA-46-350P, S/N 4622001 through 4622200.
- b) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1609 for Model PA-46-350P, S/N 4636001 through 4636020.
- c) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1602 for Model PA-46-350P, S/N 4636021 through 4636131.
- d) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1446 for Model PA-46-350P, S/N 4636132 through 4636195. For S/N 4636160 special supplement VB-1855 is required.
- e) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1710 for Model PA-46-350P, S/N 4636196 and up.
- f) DOA No. 510620-CE approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1950, revision 2 or later approved revision for Model PA-46-350P S/N's 4636375 and up, equipped with the factory installed Avidyne Entegra option.
- g) ODA No. 510620-CE approved Pilot's Operating Handbook and EASA approved Airplane Flight Manual Report No. VB-2121, revision 2 or later approved revision, for Model PA-46-350P, S/N's 4636460, 4636463 and up, equipped with the factory installed G1000 integrated avionics, GFC700 AFCS system.

Airplane Maintenance Manual (AMM):

- a) P/N 761-783, latest approved revision (S/N 4622001 through 4622200)
- b) P/N 761-876, latest approved revision (S/N 4636001 and up)

Service Bulletins and Service Letters

B.V. Notes

1. Applicable Manufacturer's S/N and certification import requirements:

- | | |
|-----------------------------------|---|
| a) Basic aeroplane: | S/N 4622001 through 4622200, 4636001 and up |
| b) Avidyne Entegra option: | S/N 4636375 and up |
| c) HC-I3Y1R-1N/N7605(K)+2 option: | S/N 4636460, 4636462 and up |
| d) G1000/GFC700 option: | S/N 4636460, 4636463 and up |

In addition for import into EU-countries following requirements have to be met:

- PFD set-up has to be configured to display hPa (mbar) altimeter units
- Pointer type altimeters (including stand-by altimeters) have to be either factory installed or installed in accordance with an approved change, and have to have a hPa (mbar) barometric pressure setting scale.

PFD/MFD fuel quantity and fuel flow units can be configured either in metric or US units.

2. Approved Noise Levels:

see EASA TCDSN IM.A.077

3. Weight and Balance:

Current Weight and Balance Report, including list of equipment included in certificated empty weight and loading instructions when necessary, must be provided for each aircraft at the time of original certification.

The certified empty weight and corresponding center of gravity locations must include undrainable system oil (not included in oil capacity) and unusable fuel as noted below:

Fuel: 5.44 kg (12 lb), at +3.870 m (+152.37 in)

Oil: 1.72 kg (3.8 lb), at +1.549 m (+61.0 in)

4. Placards:

All placards required in the POH and AFM must be installed in the appropriate locations. The following placard must be displayed in clear view of the pilot:

"The markings and placards installed in this airplane contain operating limitations which must be complied with when operating this airplane in the Normal Category. Other operating limitations which must be complied with when operating this airplane in this category are contained in the Airplane Flight Manual. No aerobatics maneuvers, including spins, approved."

5. Life Limitations (see also AMM, chapter 5-10-00 (P/N 761-783) or chapter 4-00-00 (P/N 761-876):

The life limit of the fuselage assembly, P/N 89600, is 10,145 hours time-in-service.

The life limit of the wing assembly, P/N 89640, is 15,580 hours time-in-service.

6. PA-46-350P serial numbers 4636196 and up incorporate additional structural strengthening of the wing landing gear that affects the maximum weights and C.G. range. This accounts for differences with respect to serial numbers 4622001 through 4622200 and 4636001 through 4636195.

7. In addition to the certification basis defined in CRI-A01, latest revision, the applicable paragraphs for the factory installation of the Avidyne Entegra option are listed below.

CS-23 (basic release):

CS 23.301, 23.303, 23.305, 23.307(a), 23.337, 23.341, 23.473, 23.561(b)(3), 23.561(e), 23.571(a), 23.601, 23.603, 23.605(a), 23.607, 23.609, 23.611, 23.613, 23.627, 23.771(a), 23.773(a)(2), 23.777(a), 23.777(b), 23.867(b), 23.1301, 23.1303, 23.1305, 23.1307, 23.1309, 23.1311, 23.1321, 23.1322, 23.1323, 23.1325, 23.1327, 23.1329, 23.1331, 23.1335, 23.1337, 23.1351, 23.1353, 23.1357, 23.1359, 23.1365, 23.1367, 23.1381, 23.1431, 23.1501, 23.1523, 23.1525, 23.1529, 23.1541, 23.1543, 23.1545, 23.1549, 23.1555, 23.1563, 23.1581, 23.1583, 23.1585

8. Type Design Definition of TCDS relevant changes:

a) Factory installed Avidyne Entegra option: VB-1954

b) Factory installed G1000 integrated avionics and GFC700 AFCS option: VB-2092

c) Factory installed HC-I3Y1R-1N/N7605(K)+2 propeller option: VB-2132

9. In addition to the certification basis defined in CRI-A01, latest revision, the applicable paragraphs for the factory installation of the G1000 integrated avionics and GFC700 AFCS option in the PA-46-350P are listed below.

CS-23 (basic release):

CS 23.21, 23.23, 23.25, 23.29, 23.251, 23.301(a), (b), (c), 23.303, 23.305, 23.307, 23.337, 23.341(a), (c), 23.391, 23.395(a), 23.397(a), 23.473, 23.561(a), (b)(3), (e), 23.601, 23.603, 23.605(a), 23.607, 23.609, 23.611, 23.613, 23.619, 23.625, 23.627, 23.671, 23.677(b), (d), 23.681, 23.683, 23.685, 23.689, 23.693, 23.771(a), 23.773(a)(1), (a)(2), 23.777(a), (b), (d), 23.841(b)(5), (6), 23.867, 23.1141(a), (b), (c), (d), 23.1301(a), (b), (c), (d), 23.1303 (a), (b), (c), (f), 23.1305(a)(1), (a)(2), (a)(3), (b)(2), (b)(5), (b)(6)(i), 23.1309(a)(1), (a)(2), (b), (c), (e), 23.1311(a)(1), (a)(2), (a)(3), (a)(4), (a)(5), (a)(6), (a)(7), (b), (c), 23.1321(a), (c), (d)(5), (e), 23.1322(a), (b), (c), (d), (e), 23.1323(a), (c), 23.1325(a), (b)(1), (b)(2)(ii), 23.1326, 23.1327, 23.1329(a)(1), (b), (d), (e), (f), (g), (h), 23.1331(a), (b), (c), 23.1335, 23.1337(b)(1), (b)(4), 23.1351(a)(1), (a)(2)(i), (b)(1)(i), 23.1353(h), 23.1357(a)(2), (b), (c), (d), 23.1359(c), 23.1365(a), (b), (c), (d), (f), 23.1367(a), (b), (c), (d), 23.1381(a), (b), (c), 23.1419, 23.1431(a), (b), (e), 23.1501, 23.1507, 23.1523, 23.1525, 23.1529, 23.1541(a)(1), (b), 23.1543(b), (c), 23.1545(a), (b)(1), (b)(2), (b)(3), (b)(4), 23.1547, 23.1549(a), (b), (c), 23.1553, 23.1555(a), (b), (d)(2), 23.1559(c), 23.1563(a), (b), 23.1567(a), 23.1581, 23.1583, 23.1585, 23.1587, 23.1589

10. In addition to the certification basis defined in CRI-A01, latest revision, the applicable paragraphs for the factory installation HC-I3Y1R-1N/N7605(K)+2 propeller option in the PA-46-350P are listed below.
- CS-23 (basic release):
- CS 23.21, 23.23, 23.25, 23.29, 23.33, 23.45, 23.49, 23.51, 23.65, 23.75, 23.77, 23.141, 23.143, 23.145, 23.147, 23.153, 23.155, 23.157, 23.161, 23.171, 23.173, 23.175, 23.177, 23.181, 23.201, 23.203, 23.207, 23.221, 23.231, 23.233, 23.235, 23.237, 23.239, 23.251, 23.301, 23.303, 23.305, 23.307, 23.321, 23.331, 23.333, 23.337, 23.341, 23.351, 23.361, 23.363, 23.371, 23.471, 23.473, 23.479, 23.601, 23.603, 23.605, 23.607, 23.609, 23.611, 23.613, 23.619, 23.621, 23.623, 23.625, 23.627, 23.629, 23.901, 23.905(b), (d), 23.907, 23.925, 23.929, 23.939, 23.1041, 23.1043, 23.1047, 23.1301, 23.1309(a), (c), 23.1351(a), (b)(1)(i), 23.1357(a), (b), (c), (d), 23.1365(a), (b), 23.1367, 23.1419, 23.1431, 23.1501, 23.1521, 23.1529, 23.1541, 23.1549, 23.1559, 23.1581, 23.1583, 23.1585, 23.1587

SECTION C: Model PA-46-500TP (Malibu Meridian)

C.I. General

Data Sheet No.:	EASA IM.A.077	Issue:	02	Date:	18 December 2006
1. a) Type:		PA-46			
b) Variant:		PA-46-500TP			
2. Airworthiness Category:		Normal Category			
3. Type Certificate Holder:		Piper Aircraft, Inc 2926 Piper Drive Vero Beach, Florida 32960 U.S.A.			
4. Manufacturer:		Piper Aircraft, Inc 2926 Piper Drive Vero Beach, Florida 32960 U.S.A.			
5. EASA Certification Application Date:		N/A			
6. EASA Type Certification Date:		28 September 2003 (in accordance with EC 1702/2003, Article 2, para. 3. (a))			

C.II. Certification Basis

1. Reference Date for determining the applicable requirements:
Date of application for FAA TC for Model PA-46-500TP
12 February 1997
2. (Reserved)
3. (Reserved)
4. Certification Basis:
 - a) For the basic PA-46-500TP aeroplane the applicable certification basis is FAR 23. For details on the applicable FAR 23 amendments see C.V., note 6.
 - b) For PA-46-500TP aeroplanes equipped with the factory installed Avidyne Entegra System and S-Tec Magic 1500 DFCS Autopilot option the additional certification basis for installation specific items only is CS-23 as defined in CRI-A01, issue 2, or later revision (for details on applicable paragraphs see C.V., note 7).
 - c) For PA-46-500TP aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option the additional certification basis for installation specific items only is CS-23 as defined in CRI-A01, issue 4, or later revision (for details on applicable paragraphs see C.V., note 11).

5. Airworthiness Requirements:
- a) FAR 23 for the basic PA-46-500TP aeroplane (for applicable amendments see C.II.4)
 - b) FAR 23 and CS-23 for PA-46-500TP aeroplanes equipped with the factory installed Avidyne Entegra System and S-Tec Magic 1500 DFCS option (for applicable amendments see C.II.4)
 - c) FAR 23 and CS-23 for PA-46-500TP aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option (for applicable amendments see C.II.4)
6. Requirements elected to comply: None
7. Special Conditions:
- a) No. 23-096-SC, Docket No. CE153, for the basic PA-46-500TP aeroplane,
 - b) CRI-F01, Protection from the Effects of HIRF
CRI-F02, Protection from the Effects of Lightning Strike; Indirect Effects,
CRI-F05, Human Factors in Integrated Avionic Systems,

for PA-46-500TP aeroplanes equipped with the factory installed Avidyne Entegra System and S-Tec Magic 1500DFCS option.
 - c) CRI-F01, Protection from the Effects of HIRF
CRI-F02, Protection from the Effects of Lightning Strike; Indirect Effects,
CRI-F05, Human Factors in Integrated Avionic Systems,

for PA-46-500TP aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option.
8. Exemption: None
9. Equivalent Safety Findings: ELOS for 23.955(f)(3), see Certification Base
10. Environmental Standards:
- a) Noise: ICAO Annex 16, Volume 1, Chapter 10
 - b) Fuel Venting: ICAO Annex 16, Volume 2

C.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: New Piper Report number VB-1741
For TDD of TCDS relevant changes see note 10.

2. Description: Single engine turbopropeller, all-metal, six-place, pressurized, low wing airplane, retractable tricycle landing gear.

3. Equipment: For minimum equipment required by certification see applicable AFM/POH, section 2.
For approved additional equipment, see applicable AFM/POH, section 6.
(For applicable AFM/POH see C.IV.).

4. Dimensions:

Span	13.11 m (43.0 ft)
Length	9.02 m (29.6 ft)
Height	3.44 m (11.3 ft)
Wing Area	17.00 m ² (183 sqf)

5. Engines: 1 Pratt & Whitney Canada PT6A-42A

The EASA Engine Type Certification standard includes that of TCCA TCDS E-12 (in accordance with EC 1702/2003, Article 2, para. 3. (a))

5.1 Engine Limits:	Take-off and max continous power	500 SHP
	Compressor turbine speed (Ng)	39,000 rpm (104%)*
	Propeller speed (Np)	2,205 rpm*

For other powerplant limitations refer to the applicable AFM/POH, section 2, and note 8(*).

6. Propellers:

6.1 Propeller 1:	Hartzell, Hub HC-E4N-3Q, Blade E8501B-3.5
Pitch:	Low 19.0°± 0.1°, at 0.762 (30") station.
Diameter:	Not over 2.096 m (82.5"), not under 2.070 m (81.5").
Spinner:	Hartzell D-630-5P.
Governor:	Woodward Model 210 638

The EASA Propeller Type Certification standard includes that of FAA TCDS P10NE (in accordance with EC 1702/2003, Article 2, para. 3. (a)).

7. Fluids:

7.1 Fuel:	Jet A and A-1 fuels conforming to Pratt & Whitney Specification 522 or Service Bulletin 3044, CPW204, latest revision. MIL-I-27686 Fuel System Icing Inhibitor or equivalent must be used in the fuel in the amount up to 0.15% by volume.
7.2 Engine and Gearbox Oil:	PWC PT6 Engine Service Bulletin No. 3001 lists approved brand oils.

8. Fluid capacities:

8.1 Fuel:	Total: 655 liters (173 US gal) in 2 wing tanks Usable: 643 liters (170 US gal) in 2 wing tanks
8.2.Oil:	Maximum: 11.4 liters (12 qts) Minimum: not specified

9. Air Speeds:

Maximum Operating Maneuvring Speed, v_O	127 KIAS
Maximum Operating Speed v_{MO}	188 KIAS
Maximum Flap Extend Speed (10°), v_{FE}	168 KIAS
Maximum Flap Extend Speed (20°), v_{FE}	135 KIAS
Maximum Flap Extend Speed (36°), v_{FE}	118 KIAS
Maximum Landing Gear Operating Speed, v_{LO}	
Extension	168 KIAS
Retraction	129 KIAS
Maximum Landing Gear Extended Speed, v_{LE}	168 KIAS

10. Maximum Operating Altitude: 9144 m (30,000 ft)

11. Operational Capability: VFR Day and Night
IFR Day and Night
Known Icing

12. Maximum Masses:

for S/N 4697001 through 4697156:

Ramp:	2220 kg (4892 lb)
Take-Off:	2200 kg (4850 lb)
Landing:	2200 kg (4850 lb)

for S/N 4697157 and up and earlier aeroplanes having kit 767-360 installed:

Ramp:	2329 kg (5134 lb)
Take-Off:	2310 kg (5092 lb)
Landing:	2200 kg (4850 lb)
Max. Zero Fuel weight:	2200 kg (4850 lb)

For reduced MTOW see C.V., note 9.

13. Centre of Gravity Range (gear extended):

for S/N 4697001 through 4697156:

linear variation between given points

Weight	Fwd. Limit	Aft Limit
kg (lb)	m (in) aft of datum	m (in) aft of datum
2220 (4892)	3.562 (140.22)	3.736 (147.10)
2200 (4850)	3.558 (140.06)	3.736 (147.10)
1860 (4100)	3.486 (137.23)	3.736 (147.10)
1592 (3508)	3.429 (135.00)	3.649 (143.67)
1361 (3000)	3.429 (135.00)	3.575 (140.75)

see also C.V. note 3

for S/N 4697157 and up and earlier aeroplanes having kit 767-360 installed:

linear variation between given points

Weight	Fwd. Limit	Aft Limit
kg (lb)	m (in) aft of datum	m (in) aft of datum
2329 (5134)	3.585 (141.13)	3.736 (147.10)
2310 (5092)	3.581 (140.97)	3.736 (147.10)
2220 (4892)	3.562 (140.22)	3.736 (147.10)
2200 (4850)	3.558 (140.06)	3.736 (147.10)
1860 (4100)	3.486 (137.23)	3.736 (147.10)
1592 (3508)	3.429 (135.00)	3.649 (143.67)
1361 (3000)	3.429 (135.00)	3.575 (140.75)

see also C.V. note 3

14. Datum: 2.54 m (100") forward of forward pressure bulkhead.
15. (Reserved)
16. Levelling Means: Top or bottom fuselage at B.L. 0 (constant section).
17. Minimum Flight Crew: 1 (Pilot)
18. Maximum Passenger Seating Capacity: 5, for passenger seating locations see applicable AFM/POH
19. Baggage / Cargo Compartments: 45 kg (100 lb) at +6.305 m (+248.23 in)
20. Wheels and Tyres:
- 20.1 Nose Wheel Tyre Size 5.00x5, 6 ply (S/N 4697001 through S/N 4697125 not modified in accordance with SB 1106)
5.00x5, 8 ply (S/N 4697126 and up or previous S/N modified in accordance with SB 1106)
- 20.2 Main Wheel Tyre Size 6.00x6, 8 ply
21. Maximum Cabin Operating Pressure Differential: 38.67 kPa (5.5 PSID)
22. Control Surface Movements: For approved control surface deflections see applicable Airplane Maintenance Manual (C.IV.).
23. OAT Operating Limitation: For airplanes S/N 4697001 through 4697173:
+46°C (+115°F) maximum
-34°C (-30°F) minimum with Jet-A
-41°C (-42°F) minimum with Jet A-1
- For airplanes S/N 4697174 and up and S/N 4697001 through 4697158 having Piper Kit 767-380 installed and S/N 4697159 through 4697173 having Piper Kit 767-381 installed:
+46°C (+115°F) maximum
-54°C (-65°F) minimum
- Minimum Fuel Temperature For airplanes S/N 4697159 and up and S/N 4697001 through 4697158 having Piper Kit 767-380 installed:
-34°C (-30°F) minimum for starting with Jet-A/A-1
-34°C (-30°F) minimum in-flight with Jet-A
-41°C (-42°F) minimum in-flight with Jet A-1

NOTE: When a mixture of Jet A and Jet A-1 is present in the fuel tanks, the Jet A minimum fuel temperature limits must be observed.

C.IV. Operating and Service Instructions

Airplane Flight Manual AFM and
Pilot's Operating Handbook (POH):

- a) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1689 for Model PA-46-500TP, S/N 4697001 through 4697156
- b) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1751 for Model PA-46-500TP, (1999 kg) S/N 4697001 through 4697156
- c) DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1835 for Model PA-46-500TP (5092 lb. MTOW) S/N 4697157 through 4697173 and earlier airplanes having Kit 767-360 installed.
- d) DOA No. 510620-CE approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1888, revision 1, or later approved revision for Model PA-46-500TP S/N 4697174 through 4697197 and 4697199 through 4697215.
- e) DOA No. 510620-CE approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1912, revision 3 or later approved revision for Model PA-46-500TP S/N's 4697240, 4697244 and up, equipped with the factory installed Avidyne Entegra option.
- f) DOA No. 510620-CE approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1948, for Model PA-46-500TP (1999 kg MTOW), equipped with the factory installed Avidyne Entegra option, S/N's 4697240, 4697244 and up.
- g) DOA No. 510620-CE approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1993, revision 1 or later approved revision for Model PA-46-500TP, equipped with the factory installed Garmin G1000/GFC700 option, S/N's 4697002, 4697340, 4697399 and up.
- h) ODA No. 510620-CE approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-2182, basic revision or later approved revision for Model PA-46-500TP (1999 kg MTOW), equipped with the factory installed G1000/GFC700 option, S/N's 4697002, 4697340, 4697399 and up.

Airplane Maintenance Manual (AMM):

P/N 767-005, latest approved revision
(S/N 4697001 and up)

Service Bulletins and Service Letters

C.V. Notes

1. Applicable Manufacturer's S/N and certification import requirements:

- a) Basic aeroplane: S/N 4697001 and up
- b) Avidyne Entegra option: S/N 4697240, 4697244 and up
- c) G1000 and GFC700 option: S/N 4697002, 4697340, 4697399 and up

In addition for import into EU-countries following requirements have to be met:

- PFD set-up has to be configured to display hPa (mbar) altimeter units
- Pointer type altimeters (including stand-by altimeters) have to be either factory installed or installed in accordance with an approved change, and have to have a hPa (mbar) barometric pressure setting scale.

- PFD/MFD fuel quantity and fuel flow units can be configured either in metric or US units.

2. Approved Noise Levels:

see EASA TCDSN IM.A.077

3. Weight and Balance:

Current Weight and Balance Report, including list of equipment included in certificated empty weight and loading instructions when necessary, must be provided for each aircraft at the time of original certification.

The certified empty weight and corresponding center of gravity locations must include undrainable system oil (not included in oil capacity) and unusable fuel as noted below:

- Fuel: 5.44 kg (20.1 lb), at +3.667 m (+144.37 in)
- Oil: 2.52 kg (5.55 lb), at +1.971 m (+77.76 in)

4. Placards:

All placards required in the POH and AFM must be installed in the appropriate locations. The following placard must be displayed in clear view of the pilot:

"This aircraft must be operated as a Normal Category Airplane in compliance with the operating limitations stated in the form of placards, markings and manuals. No acrobatic maneuvers, including spins are approved. This aircraft is approved for VFR, IFR day and night icing flight when equipped in accordance with the airplane flight manual."

5. Life Limitations (see also AMM, chapter 4-00-00 (P/N 767-005)):

for S/N 4697001 through 4697156:

The life limit of the fuselage assembly, P/N 89600-4, is 10,145 hours time-in-service.
The life limit of the wing assembly, P/N 89640-4/-7, is 13,349 hours time-in-service.

For S/N 4697157 and up and earlier airplanes having Kit 767-360 installed:

The life limit of the fuselage assembly, P/N 89600-4, is 10,145 hours time-in-service.
The life limit of the wing assembly, P/N 89640-7, is 10,255 hours time-in-service.

For S/N 4697174 and up:

The life limit of the wing assembly, P/N 89640-8, is 10,255 hours time-in-service.

6. Certification Basis for basic PA-46-500TP aeroplanes:

FAR 23, effective February 1, 1965, as amended by Amendment 23-25, effective March 6, 1980 unless otherwise indicated herein; FAR 23.1529 as amended by Amendment 23-26, effective October 14, 1980; FAR 23.441 as amended by Amendment 23-28, effective April 28, 1982; FAR 23.994 and 23.995 as amended by Amendment 23-29, effective March 26, 1984; FAR 23.781 as amended by Amendment 23-33, effective August 11, 1986; FAR 23.173, 23.333, 23.443, and 23.1165 as amended by Amendment 23-34, effective February 17, 1987; FAR 23.2, 23.783(a), (b), (e)(2) and (e)(3), and 23.1413 as amended by amendment 23-36, effective September 14, 1988; FAR 23.331, 23.351, 23.421, 23.423, 23.425, 23.427, 23.831, 23.939, and 23.1163 as amended by Amendment 23-42, effective February 4, 1991; FAR 23.905, 23.937, 23.943, 23.951, 23.957, 23.961, 23.967, 23.971, 23.977, 23.991, 23.993, 23.997, 23.999, 23.1011, 23.1019, 23.1021, 23.1027, 23.1103, 23.1123, 23.1145, 23.1189, 23.1193, 23.1322, 23.1331, 23.1357, 23.1385, 23.1387, 23.1441, 23.1443, and 23.1445 as amended by Amendment 23-43, effective May 10, 1993; FAR 23.23, 23.141, 23.181, 23.251, 23.305, 23.321, 23.361, 23.397, 23.479, 23.485, 23.571, 23.572, 23.621, 23.655, 23.731, 23.733, 23.773, 23.1507, 23.1525, 23.1527, 23.1549, 23.1557, and 23.1563 as amended by Amendment 23-45, effective September 7, 1993; FAR 23.301, 23.335, 23.337, 23.341, 23.343, 23.345, 23.347, 23.349, 23.371, 23.391, 23.393, 23.399, 23.415, 23.457, 23.473, 23.499, 23.561, 23.575,

23.611, 23.629, 23.657, 23.673, 23.725, and 23.865 as amended by FAR 23-48, effective March 11, 1996; FAR 23.677, 23.723, 23.735, 23.745, 23.775, 23.841, 23.853, 23.867, 23.1303, 23.1307, 23.1309, 23.1311, 23.1321, 23.1323, 23.1326, 23.1329, 23.1353, 23.1359, 23.1361, 23.1383, 23.1401, 23.1447, 23.1451, and 23.1453 as amended by Amendment 23-49, effective March 11, 1996; FAR 23.3, 23.25, 23.33, 23.45, 23.49, 23.51, 23.53, 23.63, 23.65, 23.69, 23.71, 23.73, 23.75, 23.77, 23.143, 23.145, 23.153, 23.155, 23.157, 23.161, 23.175, 23.177, 23.201, 23.203, 23.207, 23.221, 23.233, 23.235, 23.253, 23.1325, 23.1511, 23.1521, 23.1543, 23.1553, 23.1555, 23.1559, 23.1567, 23.1581, 23.1583, 23.1585, 23.1587, and 23.1589 as amended by Amendment 23-50, effective March 11, 1996; FAR 23.777, 23.779, 23.901, 23.903, 23.907, 23.925, 23.929, 23.933, 23.955, 23.959, 23.963, 23.965, 23.973, 23.975, 23.1013, 23.1041, 23.1043, 23.1045, 23.1091, 23.1093, 23.1121, 23.1141, 23.1143, 23.1153, 23.1181, 23.1183, 23.1191, and 23.1337 as amended by Amendment 23-51, effective March 11, 1996; and FAR 23.1305 as amended by Amendment 23-52, effective July 25, 1996. Equivalent Level of Safety (ELOS) for FAR 23.955(f)(3), June 6, 2000. Special Condition 23-096-SC (Docket CE153), August 27, 1999.

Compliance with the requirements of FAR 23.1419 as amended by Amendment 23-14, effective December 20, 1973, has been established, provided the required ice protection systems are installed and functioning properly.

7. In addition to the certification basis defined in CRI-A01, latest revision, the applicable paragraphs for the factory installation of the Avidyne Entegra option are listed below. These CS requirements substitute the corresponding paragraphs of note 6.

CS-23 (basic release):

CS 23.301, 23.303, 23.305, 23.307(a), 23.337, 23.341, 23.473, 23.561(b)(3), 23.561(e), 23.571(a), 23.601, 23.603, 23.605(a), 23.607, 23.609, 23.611, 23.613, 23.627, 23.771(a), 23.773(a)(2), 23.777(a), 23.777(b), 23.867(b), 23.1301, 23.1303, 23.1305, 23.1307, 23.1309, 23.1311, 23.1321, 23.1322, 23.1323, 23.1325, 23.1327, 23.1329, 23.1331, 23.1335, 23.1337, 23.1351, 23.1353, 23.1357, 23.1359, 23.1365, 23.1367, 23.1381, 23.1431, 23.1501, 23.1523, 23.1525, 23.1529, 23.1541, 23.1543, 23.1545, 23.1549, 23.1555, 23.1563, 23.1581, 23.1583, 23.1585

8. Notes regarding engine limits:

The maximum propeller shaft overspeed limit for the PT6A-42A is 100% (2205 rpm) for all ratings. 91% propeller shaft speed is defined as 2000 rpm and is the normal steady state operating limit.

Minimum propeller speed (Np) corresponding to minimum idle gas generator speed (Ng) is 1200 RPM.

Gas generator speeds up to 104% are permissible for 10 seconds and 101.6% for unlimited periods subject to applicable temperature and other limits. 100% gas generator speed is defined as 37,500 rpm.

9. For operational reasons AFM/POH with a reduced MTOW of 1999 kg (4406 lb) are available. No physical changes on the aircraft are necessary for this MTOW reduction.

10. Type Design Definition of TCDS relevant changes:

a) Factory installed Avidyne Entegra and S-Tec Magic 1500 DFCS option: VB-1919
b) Factory installed G1000 integrated avionics and GFC700 AFCS option: VB-1988 and VB-2044

11. In addition to the certification basis defined in CRI-A01, latest revision, the applicable paragraphs for the factory installation of the Garmin G1000/GFC700 option are listed below. These CS requirements substitute the corresponding paragraphs of note 6.

CS-23 (basic release):

CS 23.23, 23.25, 23.143(a)(b)(c), 23.251, 23.253, 23.301(a)(b)(c), 23.303, 23.305, 23.307, 23.337, 23.341(a), 23.391, 23.395(a), 23.397(a), 23.473, 23.561(a)(b)(3)(e), 23.601, 23.603, 23.605(a), 23.607, 23.609, 23.611, 23.613, 23.619, 23.625, 23.627, 23.671, 23.672, 23.677, 23.681, 23.683, 23.685, 23.689, 23.693, 23.771(a), 23.773(a)(1)(2), 23.777(a)(b), 23.779, 23.841, 23.853, 23.867, 23.955(a)(2), 23.1183(a), 23.1191, 23.1301, 23.1303(a)(b)(d)(e)(1)(2)(f), 23.1305, 23.1307, 23.1309, 23.1311, 23.1321, 23.1322, 23.1323, 23.1325, 23.1326, 23.1327, 23.1329, 23.1331, 23.1335, 23.1337, 23.1351(a)(1)(2)(i)(b)(1)(2)(3)(d)(1)(g), 23.1353(d)(h), 23.1357(a)(2)(b)(c)(d), 23.1359(c), 23.1361(a)(b)(c), 23.1365(a)(b)(d)(e)(f), 23.1367, 23.1381, 23.1419, 23.1431(a)(b)(e), 23.1501, 23.1523, 23.1525, 23.1529, 23.1541(a)(b), 23.1543(b)(c), 23.1545(a)(b)(4)(d), 23.1547, 23.1549, 23.1553, 23.1555(a)(d)(1), 23.1563(a)(b), 23.1567(a), 23.1581, 23.1583, 23.1585, 23.1587, 23.1589.

SECTION D: Model PA-46R-350T (Malibu Matrix)

D.I. General

Data Sheet No.:	EASA IM.A.077	Issue:	03	Date:	10 September 2008
1. a) Type:		PA-46			
b) Variant:		PA-46R-350T			
2. Airworthiness Category:		Normal Category			
3. Type Certificate Holder:		Piper Aircraft, Inc 2926 Piper Drive Vero Beach, Florida 32960 U.S.A.			
4. Manufacturer:		Piper Aircraft, Inc 2926 Piper Drive Vero Beach, Florida 32960 U.S.A.			
5. EASA Certification Application Date:		11 February 2008			
6. EASA Type Certification Date:		10 September 2008			

D.II. Certification Basis

1. Reference Date for determining the applicable requirements: Date of application for FAA TC for Model PA-46R-350T
19 June 2006
2. (Reserved)
3. (Reserved)
4. Certification Basis:

For those portions of the aeroplane that are unchanged from the basic PA-46-350P the applicable certification basis is FAR Part 23, effective 1 February 1965, as amended by Amendment 23-25, effective 6 March 1980; FAR 25.783(e) as amended by Amendment 25-54, effective 14 October 1980; FAR 25.831(c) and (d) as amended by Amendment 25-41, effective 1 September 1977.

No equivalent safety findings.
Special Conditions No. 23-ACE-53, Docket No. 082CE.

 - a) For changed areas (Avidyne Entegra and PA-46R-350T specific areas) the certification basis is CS-23 as defined in CRI-A01, issue 5, or later revision (for details on applicable paragraphs see D.V., note 6 and 7).
 - b) For PA-46R-350T aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option the additional certification basis for installation specific items only is CS-23 as defined in CRI-A01, issue 5, or later revision (for details on applicable paragraphs see D.V., note 9).
 - c) For PA-46R-350T aeroplanes equipped with the factory installed HC-I3Y1R-1N/N7605(K)+2 propeller the additional certification basis for installation specific items only is CS-23 as defined in CRI-A01, issue 5, or later

5. Airworthiness Requirements:

- a) FAR 23 and CS-23 for PA-46R-350T aeroplanes (for applicable amendments see D.II.4.a))
- b) FAR 23 and CS-23 for PA-46R-350T aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option (for applicable amendments see D.II.4.b))
- c) FAR 23 and CS-23 for PA-46R-350T aeroplanes equipped with the factory installed HC-I3Y1R-1N/N7605(K)+2 propeller (for applicable amendments see D.II.4.c))

6. Requirements elected to comply:

None

7. Special Conditions:

- a) CRI F-01, Protection from the Effects of HIRF
CRI F-02, Protection from the Effects of Lightning Strike; Indirect Effects,
CRI F-05, Human Factors in Integrated Avionic Systems,
- b) CRI-F01, issue 3 or later revision, Protection from the Effects of HIRF
CRI-F02, issue 3 or later revision, Protection from the Effects of Lightning Strike; Indirect Effects,
CRI-F05, issue 3 or later revision, Human Factors in Integrated Avionic Systems,
for PA-46R-350T aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option.

8. Exemption:

None

9. Equivalent Safety Findings:

- a) CRI F-03, Powerplant Instruments
- b) CRI-F03, issue 2 or later revision, Powerplant Instruments, for PA-46R-350T aeroplanes equipped with the factory installed G1000 integrated avionics and GFC700 AFCS option.

10. Environmental Standards:

a) Noise:

ICAO Annex 16, Volume 1, Chapter 10

ICAO Annex 16, Volume 1, Chapter 10, Amendment 9, if equipped with HC-I3Y1R-1N/N7605(K)+2 propeller (3-bladed)

D.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: Piper Report number VB-2008

2. Description: Single piston engine, turbocharged, propeller, all-metal, six-place, unpressurized, low wing airplane, retractable tricycle landing gear.

3. Equipment: For minimum equipment required by certification see applicable AFM/POH, section 2.
For approved additional equipment, see applicable AFM/POH, section 6.
(For applicable AFM/POH see D.IV.).

4. Dimensions:

Span	13.11 m (43.0 ft)
Length	8.81 m (28.9 ft)
Height	3.44 m (11.3 ft)
Wing Area	16.26 m ² (175 sqf)

5. Engines: 1 Textron Lycoming TIO-540-AE2A

The EASA Engine Type Certification standard includes that of FAA TCDS E14EA (in accordance with EC 1702/2003, Article 2, para. 3. (a))
 - 5.1 Engine Limits: For all operation:
2500 RPM and 42" Hg MAP (350 HP), sea level to 20,600 ft,
42-1.6" Hg MAP decrease per each 1000 ft altitude increase,
20,600 ft to 25,000ft

6. Propellers:
 - 6.1 Propeller: Hartzell, Hub HC-I3YR-1E, Blade 7890K or 7890B
Pitch: High 38.7°±0.5°, Low 13.65°± 0.15°, at 0.762 m (30") station
Diameter: 2,032 m (80").
Spinner: Hartzell D-6750P.
Governor: Hartzell Model V-11-1

The EASA Propeller Type Certification standard includes that of FAA TCDS P33EA (in accordance with EC 1702/2003, Article 2, para. 3. (a)).

 - 6.2 Propeller 2: Hartzell, Hub HC-I3Y1R-1N/N7605(K)+2 propeller (3-bladed)
(S/N 4692123 and up)
Pitch: High 38.0°±1.0°, Low 14.0°± 0.2°, at 0.762 m (30") station.
Diameter: 2.032 m (80")
Spinner: Hartzell D-6750-1P
Governor: Hartzell Model V-11-1 or S-1-30

EASA Type Certificate Data Sheet, EASA.IM.P.132

7. Fluids:
 - 7.1 Fuel: 100/100LL minimum grade aviation gasoline,
for alternate fuels refer to latest revision of Lycoming SI 1070
 - 7.2 Engine Oil: in accordance with latest revision of Lycoming SI 1014

8. Fluid capacities:

8.1 Fuel:	Total:	462 liters (122 US gal) in 2 wing tanks
	Usable:	454 liters (120 US gal) in 2 wing tanks
8.2.Oil:	Maximum:	11.4 liters (12 qts)
	Minimum:	2.6 liters (2.75 qts)

9. Air Speeds:

Design Manoeuvring Speed, v_A (1969 kg (4340 lb))	133 KIAS
Design Manoeuvring Speed, v_A (1316 kg (2900 lb))	108 KIAS
Never Exceed Speed v_{NE}	198 KIAS
Maximum Structural Cruising Speed, v_{NO}	168 KIAS
Maximum Flap Extend Speed (10°), v_{FE}	165 KIAS
Maximum Flap Extend Speed (20°), v_{FE}	130 KIAS
Maximum Flap Extend Speed (36°), v_{FE}	116 KIAS
Maximum Landing Gear Operating Speed, v_{LO}	
Extension	165 KIAS
Retraction	126 KIAS
Maximum Landing Gear Extended Speed, v_{LE}	195 KIAS

10. Maximum Operating Altitude: 7620 m (25,000 ft)

11. Operational Capability: VFR Day and Night
IFR Day and Night
Known Icing

12. Maximum Masses:

Ramp:	1977 kg (4358 lb)
Take-Off:	1969 kg (4340 lb)
Landing:	1870 kg (4123 lb)

13. Centre of Gravity Range (gear extended):

linear variation between given points

	Fwd. Limit	Aft Limit
kg (lb)	m (in) aft of datum	m (in) aft of datum
1969 (4340)	3.660 (144.1)	3.736 (147.1)
1870 (4123)	3.546 (139.6)	3.736 (147.1)
1814 (4000)	3.480 (137.0)	3.721 (146.5)
1315 (2900)	3.366 (132.5)	3.561 (140.2)

14. Datum: 2.54 m (100") forward of forward cockpit bulkhead.

15. (Reserved)

16. Levelling Means: Top or bottom fuselage at B.L. 0 (constant section).

17. Minimum Flight Crew: 1 (Pilot)

18. Maximum Passenger Seating Capacity: 5, for passenger seating locations see applicable AFM/POH

19. Baggage / Cargo Compartments: 45 kg (100 lb) at +2.250 m (+88.6 in) (fwd.)
5 kg (100 lb) at +6.305 m (+248.23 in) (aft)

20. Wheels and Tyres:

20.1 Nose Wheel Tyre Size	5.00x5, 6 ply
20.2 Main Wheel Tyre Size	6.00x6, 8 ply

21. Maximum Cabin Operating Pressure Differential: N/A
22. Control Surface Movements: For approved control surface deflections see applicable Airplane Maintenance Manual (D.IV.).

D.IV. Operating and Service Instructions

Airplane Flight Manual AFM and Pilot's Operating Handbook (POH):

- a) DOA No. 510620-CE approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-2007, revision 5 or later approved revision for Model PA-46R-350T S/N's 4692001 and up, equipped with the factory installed Avidyne Entegra option.
- b) ODA No. 510620-CE approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-2122, revision 1 or later approved revision for Model PA-46R-350T S/N's 4692134 and up, equipped with the factory installed G1000 integrated avionics, GFC700 AFCS.

Airplane Maintenance Manual (AMM): P/N 761-876, latest approved revision

Service Bulletins and Service Letters

D.V. Notes

1. Applicable Manufacturer's S/N and certification import requirements:

- a) For the basic model PA-46R-350T S/N 4692001 and up
- b) For the HC-I3Y1R-1N/N7605(K)+2 option S/N 4692123 and up
- c) For the G1000/GFC700 S/N 4692134 and up

In addition for import into EU-countries following requirements have to be met:

- PFD set-up has to be configured to display hPa (mbar) altimeter units
- Pointer type altimeters (including stand-by altimeters) have to be either factory installed or installed in accordance with an approved change, and have to have a hPa (mbar) barometric pressure setting scale.
- PFD/MFD fuel quantity and fuel flow units can be configured either in metric or US units.

2. Approved Noise Levels:
see EASA TCDSN

3. Weight and Balance:

Current Weight and Balance Report, including list of equipment included in certificated empty weight and loading instructions when necessary, must be provided for each aircraft at the time of original certification.

The certified empty weight and corresponding center of gravity locations must include undrainable system oil (not included in oil capacity) and unusable fuel as noted below:

- Fuel: 5.44 kg (12 lb), at +3.870 m (+152.37 in)
Oil: 1.72 kg (3.8 lb), at +1.549 m (+61.0 in)

4. Placards:

All placards required in the POH and AFM must be installed in the appropriate locations. The following placard must be displayed in clear view of the pilot:

"This aircraft must be operated as a Normal Category Airplane in compliance with the operating limitations stated in the form of placards, markings and manuals. No acrobatic maneuvers, including spins are approved. This aircraft is approved for VFR, IFR day and night icing flight when equipped in accordance with the airplane flight manual."

5. Life Limitations (see also AMM, chapter 4-00-00 (P/N 761-876):

The life limit of the wing assembly, P/N 89640-10, is 15,580 hours time-in-service.

The life limit of the horizontal stabilizer assembly, P/N 83404-2, is 15,580 hours time-in-service.

The life limit of the vertical fin assembly, P/N 83401-9, is 15,580 hours time-in-service.

6. In addition to the certification basis defined in CRI-A01.PA-46R-350T, latest revision, the applicable paragraphs for the factory installation of the Avidyne Entegra option are listed below..

CS-23 (basic release):

CS 23.301, 23.303, 23.305, 23.307(a), 23.337, 23.341, 23.473, 23.561(b)(3), 23.561(e), 23.571(a), 23.601, 23.603, 23.605(a), 23.607, 23.609, 23.611, 23.613, 23.627, 23.771(a), 23.773(a)(2), 23.777(a), 23.777(b), 23.867(b), 23.1301, 23.1303, 23.1305, 23.1307, 23.1309, 23.1311, 23.1321, 23.1322, 23.1323, 23.1325, 23.1327, 23.1329, 23.1331, 23.1335, 23.1337, 23.1351, 23.1353, 23.1357, 23.1359, 23.1365, 23.1367, 23.1381, 23.1431, 23.1501, 23.1523, 23.1525, 23.1529, 23.1541, 23.1543, 23.1545, 23.1549, 23.1555, 23.1563, 23.1581, 23.1583, 23.1585

7. In addition to the certification basis defined in CRI-A01.PA-46R-350T, latest revision, the applicable paragraphs for the PA-46R-350T specific modifications are listed below:

CS-23 (basic release):

CS23.2, 23.25, 23.561, 23.572, 23.575, 23.607, 23.611, 23.613, 23.773, 23.775, 23.783, 23.831, 23.851, 23.853, 23.905, 23.907, 23.1191, 23.1309, 23.1311, 23.1321, 23.1323, 23.1325, 23.1351, 23.1357, 23.1441, 23.1443, 23.1445, 23.1447, 23.1451, 23.1453, 23.1527, 23.1529, 23.1543, 23.1545, 23.1589, CS-23 App. F and App. G

8. Type Design Definition of TCDS relevant changes:

- | | |
|--|---------|
| a) Changes relevant to the PA-46R-350T model: | VB-2008 |
| b) Factory installed G1000 integrated avionics and GFC700 AFCS option: | VB-2093 |
| c) Factory installed HC-I3Y1R-1N/N7605(K)+2 propeller option: | VB-2132 |

9. In addition to the certification basis defined in CRI-A01, latest revision, the applicable paragraphs for the factory installation of the G1000 integrated avionics and GFC700 AFCS option in the PA-46R-350T are listed below.

CS-23 (basic release):CS 23.21, 23.23, 23.25, 23.29, 23.251, 23.301(a), (b), (c), 23.303, 23.305, 23.307, 23.337, 23.341(a), (c), 23.391, 23.395(a), 23.397(a), 23.473, 23.561(a), (b)(3), (e), 23.601, 23.603, 23.605(a), 23.607, 23.609, 23.611, 23.613, 23.619, 23.625, 23.627, 23.671, 23.677(b), (d), 23.681, 23.683, 23.685, 23.689, 23.693, 23.771(a), 23.773(a)(1), (a)(2), 23.777(a), (b), (d), 23.867, 23.1141(a), (b), (c), (d), 23.1301(a), (b), (c), (d), 23.1303 (a), (b), (c), (f), 23.1305(a)(1), (a)(2), (a)(3), (b)(2), (b)(5), (b)(6)(i), 23.1309(a)(1), (a)(2), (b), (c), (e), 23.1311(a)(1), (a)(2), (a)(3), (a)(4), (a)(5), (a)(6), (a)(7), (b), (c), 23.1321(a), (c), (d)(5), (e), 23.1322(a), (b), (c), (d), (e), 23.1323(a), (c), 23.1325(a), (b)(1), (b)(2)(i), 23.1326, 23.1327, 23.1329(a)(1), (b), (d), (e), (f), (g), (h), 23.1331(a), (b), (c), 23.1335, 23.1337(b)(1), (b)(4), 23.1351(a)(1), (a)(2)(i), (b)(1)(i), 23.1353(h), 23.1357(a)(2), (b), (c), (d), 23.1359(c), 23.1365(a), (b), (c), (d), (f), 23.1367(a), (b), (c), (d), 23.1381(a), (b), (c), 23.1419, 23.1431(a), (b), (e), 23.1441(b), (c), (e), 23.1501, 23.1507, 23.1523, 23.1525, 23.1529, 23.1541(a)(1), (b), 23.1543(b), (c), 23.1545(a), (b)(1), (b)(2), (b)(3), (b)(4), 23.1547, 23.1549(a), (b), (c), 23.1553, 23.1555(a), (b), (d)(2), 23.1559(c), 23.1563(a), (b), 23.1567(a), 23.1581, 23.1583, 23.1585, 23.1587, 23.1589

10. In addition to the certification basis defined in CRI-A01, latest revision, the applicable paragraphs for the factory installation HC-I3Y1R-1N/N7605(K)+2 propeller option in the PA-46R-350T are listed below.

CS-23 (basic release):

CS 23.21, 23.23, 23.25, 23.29, 23.33, 23.45, 23.49, 23.51, 23.65, 23.75, 23.77, 23.141, 23.143, 23.145, 23.147, 23.153, 23.155, 23.157, 23.161, 23.171, 23.173, 23.175, 23.177, 23.181, 23.201, 23.203, 23.207, 23.221, 23.231, 23.233, 23.235, 23.237, 23.239, 23.251, 23.301, 23.303, 23.305, 23.307, 23.321, 23.331, 23.333, 23.337, 23.341, 23.351, 23.361, 23.363, 23.371, 23.471, 23.473, 23.479, 23.601, 23.603, 23.605, 23.607, 23.609, 23.611, 23.613, 23.619, 23.621, 23.623, 23.625, 23.627, 23.629, 23.901, 23.905(b), (d), 23.907, 23.925, 23.929, 23.939, 23.1041, 23.1043, 23.1047, 23.1301, 23.1309(a), (c), 23.1351(a),(b)(1)(i), 23.1357(a), (b), (c), (d), 23.1365(a), (b), 23.1367, 23.1419, 23.1431, 23.1501, 23.1521, 23.1529, 23.1541, 23.1549, 23.1559, 23.1581, 23.1583, 23.1585, 23.1587

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