

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A25SO
Revision 9
Piper
PA-46-310P
PA-46-350P
PA-46-500TP

September 27, 2000

TYPE CERTIFICATE DATA SHEET NO. A25SO

This data sheet, which is part of Type Certificate No. A25SO, prescribes conditions and limitations under which the product for which type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder: The New Piper Aircraft, Inc.
 2926 Piper Drive
 Vero Beach, Florida 32960

I. - Model PA-46-310P (Malibu), 6 PCLM (Normal Category), Approved September 27, 1983.

Engine Teledyne Continental, TC No. E8CE, Model TSI0-520-BE

Fuel 100/100LL minimum grade aviation gasoline

Engine Limits For all operations:
 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.

Propeller and Propeller Limits Hartzell, TC No. P-920, Hub BHC-C2YF-1BF, Blade F8052 ()
Pitch: High 38.0° ± 1°, Low 16.0° ± 0.2° at 30" station.
Diameter: Not over 80", not under 78".
Spinner: Hartzell D-4810 or D-4810P.
Governor: Hartzell Model E-5-2.

Airspeed Limits V_{NE} (Never Exceed) 203 KIAS
 V_{NO} (Maximum Structural Cruise) 173 KIAS
 V_A (Maneuvering 4100 lb.) 135 KIAS
 V_A (Maneuvering 2450 lb.) 103 KIAS
 V_{FE} (Maximum Flaps Extended) 120 KIAS
 V_{LO} (Maximum Landing Gear Operation)
 Extension 170 KIAS
 Retraction 130 KIAS
 V_{LE} (Maximum Landing Gear Extended) 200 KIAS

<u>C.G. Range (Gear Extended)</u>	<u>WT.</u> <u>(LB.)</u>	<u>FWD. LIMIT</u> <u>IN. AFT OF DATUM</u>	<u>AFT LIMIT</u> <u>IN. AFT OF DATUM</u>
	4100	143.3 in.	147.1 in.
	3680	136.1 in.	147.1 in.
	2450 or less	130.7 in.	147.1 in.

Empty Weight C.G. Range None

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<u>Maximum Weight</u>	Ramp : 4118 lb. Takeoff : 4100 lb. Landing : 3900 lb.																																				
<u>No. of Seats</u>	6 (2 at +135.5, 2 at +177.0, 2 at +218.75)																																				
<u>Maximum Baggage</u>	100 lb. at (+88.6) (Fwd.) 100 lb. at (+248.23) (Aft)																																				
<u>Fuel Capacity</u>	122 gals. at (+150.31) (2 wing tanks) See NOTE 1 for data on system fuel.																																				
<u>Oil Capacity</u>	8 qts. at (+53.5) See NOTE 1 for data on system oil.																																				
<u>Maximum Operating Altitude</u>	25,000 ft.																																				
<u>Maximum Cabin Operating Pressure Differential</u>	5.5 PSID																																				
<u>Control Surface Movements</u>	<table> <tr> <td>Ailerons</td> <td>($\pm 1^\circ$)</td> <td>Up</td> <td>18°</td> <td>Down</td> <td>18°</td> </tr> <tr> <td>Elevator</td> <td>($\pm 5^\circ$)</td> <td>Up</td> <td>23.5°</td> <td>Down</td> <td>14.5°</td> </tr> <tr> <td>Rudder</td> <td>($\pm 1^\circ, -0^\circ$)</td> <td>Left</td> <td>26°</td> <td>Right</td> <td>30°</td> </tr> <tr> <td>Elevator</td> <td>($\pm 0^\circ, -1^\circ$)</td> <td>Down</td> <td>24.5°</td> <td>Up</td> <td>19°</td> </tr> <tr> <td>Trim Tab</td> <td></td> <td></td> <td></td> <td></td> <td>(Elevator Neutral)</td> </tr> <tr> <td>Wing Flaps</td> <td>($\pm 1^\circ$)</td> <td>Up</td> <td>0°</td> <td>Down</td> <td>35°</td> </tr> </table>	Ailerons	($\pm 1^\circ$)	Up	18°	Down	18°	Elevator	($\pm 5^\circ$)	Up	23.5°	Down	14.5°	Rudder	($\pm 1^\circ, -0^\circ$)	Left	26°	Right	30°	Elevator	($\pm 0^\circ, -1^\circ$)	Down	24.5°	Up	19°	Trim Tab					(Elevator Neutral)	Wing Flaps	($\pm 1^\circ$)	Up	0°	Down	35°
Ailerons	($\pm 1^\circ$)	Up	18°	Down	18°																																
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Rudder	($\pm 1^\circ, -0^\circ$)	Left	26°	Right	30°																																
Elevator	($\pm 0^\circ, -1^\circ$)	Down	24.5°	Up	19°																																
Trim Tab					(Elevator Neutral)																																
Wing Flaps	($\pm 1^\circ$)	Up	0°	Down	35°																																
<u>Manufacturer's Serial Numbers</u>	46-8408001 through 46-8408087, 46-8508001 through 46-8508109, 46-8608001 through 46-8608067, 4608001 through 4608140.																																				

II. - Model PA-46-350P (Malibu Mirage), 6 PCLM (Normal Category), Approved August 30, 1988.

<u>Engine</u>	Textron Lycoming, TC No. E14EA, Model TI0-540-AE2A
<u>Fuel</u>	100/100LL minimum grade aviation gasoline
<u>Engine Limits</u>	For all operations: 2500 RPM and 42.0" 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 25,000 ft.
<u>Propeller and Propeller Limits</u>	<p>Hartzell, TC No. P42GL, Hub HC-I2YR-1BF, Blade F8074 (standard 2 blade-Serial Numbers 4622001 through 4622200 and 4636001 through 4636195)</p> <p>Pitch: High $40.5^\circ \pm 0.5^\circ$ Low $17.6^\circ \pm 0.2^\circ$ at 30" station. Diameter: Not over 80", not under 79". Spinner: Hartzell A-2298-3P. Governor: Hartzell Model V-5-2 or V-11-1</p> <p>Hartzell, TC No. P33EA, Hub HC-13YR-1E, Blade 7890K (optional 3 blade-Serial Numbers 4622001 through 4622200 and 4636001 through 4636195, standard 3 blade-Serial Numbers 4636196 and up)</p> <p>Pitch: High $38.7^\circ \pm 0.5^\circ$ Low $13.65^\circ \pm 0.15^\circ$ at 30" station. Diameter: 80" Spinner: Hartzell D-6750. Governor: Hartzell Model V-5-2 or V-11-1</p> <p>Do not exceed 36" MAP below 2400 RPM Do not exceed 32" MAP below 2300 RPM</p>

<u>Airspeed Limits</u>	V _{NE} (Never Exceed)	198 KIAS		
	V _{NO} (Maximum Structural Cruise)	168 KIAS		
	V _A (Maneuvering 4300 lb.)	133 KIAS		
	V _A (Maneuvering 2450 lb.)	100 KIAS		
	V _{FE} (Maximum Flaps Extended)	116 KIAS		
	V _{LO} (Maximum Landing Gear Operation)			
	Extension	165 KIAS		
Retraction	126 KIAS			
V _{LE} (Maximum Landing Gear Extended)	195 KIAS			
<u>C.G. Range (Gear Extended)</u>	WT. (LB.)	FWD. LIMIT IN. AFT OF DATUM	AFT LIMIT IN. AFT OF DATUM	
	4300 (4340)	143.3 in. (144.1 in)	147.1 in.	
	4100 (4123)	139.1 in. (139.6 in)	147.1 in.	
	4000	137.0 in.	146.5 in.	
	2450	130.7 in.	137.6 in.	
	2400	130.7 in.	137.3 in.	
	Note: Numbers in parentheses apply to serial numbers 4636196 and up.			
<u>Empty Weight C.G. Range</u>	None			
<u>Maximum Weight</u>	Ramp : 4318 lb. (4358 lb.) Takeoff : 4300 lb. (4340 lb.) Landing : 4100 lb. (4123 lb.) Note: Numbers in parentheses apply to serial numbers 4636196 and up.			
<u>No. of Seats</u>	6 (2 at +135.5, 2 at +177.0, 2 at +218.75)			
<u>Maximum Baggage</u>	100 lb. at (+88.6) (Fwd.) 100 lb. at (+248.23) (Aft)			
<u>Fuel Capacity</u>	122 gals. at (+150.31) (2 wing tanks) See NOTE 1 for data on system fuel.			
<u>Oil Capacity</u>	12 qts. at (+53.5) See NOTE 1 for data on system oil.			
<u>Maximum Operating Altitude</u>	25,000 ft.			
<u>Maximum Cabin Operating Pressure Differential</u>	5.5 PSID			
<u>Control Surface Movements</u>	Ailerons	(±1°)	Up 18°	Down 18°
	Elevator	(±0.5°)	Up 23.5°	Down 14.5°
	Rudder	(±1°, -0°)	Left 26°	Right 30°
	Elevator	(±0°, -1°)	Down 24.5°	Up 19°
	Trim Tab			(Elevator Neutral)
	Wing Flaps	(±1°)	Up 0°	Down 35°
<u>Manufacturer's Serial Numbers</u>	4622001 through 4622200, and 4636001 and up.			

III. – Model PA-46-500TP (Malibu Meridian), 6PCLM (Normal Category), Approved September 27, 2000.

<u>Engine</u>	Pratt & Whitney Canada, PT6A-42A		
<u>Fuel</u>	Jet A and A-1 fuels conforming to Pratt & Whitney Specification 522 or Service Bulletin 3044, CPW204. (Fuels shall conform to the specification as listed or to subsequent revisions thereto.) MIL-I-27686 Fuel System Icing Inhibitor or equivalent must be used in the fuel in the amount up to 0.15% by volume.		
<u>Oil (Engine & Gearbox)</u>	PWC PT6 Engine Service Bulletin No. 3001 lists approved brand oils.		
<u>Engine Limits</u>	Takeoff and max continuous power	500 SHP	
	Compressor Turbine Speed (Ng)	39000 RPM (104%)*	
	Propeller Speed (Np)	2205 RPM*	
	* See Note 5		
<u>Propeller and Propeller Limits</u>	Hartzell, T.C. No. P10NE, Hub HC-E4N-3Q, Blade E8501B-3.5		
	Pitch:	Low $19.0^\circ \pm 0.1^\circ$ at 30" station.	
	Diameter:	Not over 82.5", not under 81.5".	
	Spinner:	Hartzell D-630-5P	
	Governor:	Woodward Model 210 638E	
<u>Airspeed Limits</u>	V _{MO} (Maximum Operating Speed)	188 KIAS	
	V _O (Operating Speed @ 4850 lbs. GW)	143 KIAS	
	V _O (Operating Speed @ 4300 lbs. GW)	135 KIAS	
	V _{FE} (Flaps Extended Speed for 10° Flaps)	168 KIAS	
	V _{FE} (Flaps Extended Speed for 20° Flaps)	135 KIAS	
	V _{FE} (Flaps Extended Speed for 36° Flaps)	118 KIAS	
	V _{LO} (Maximum Landing Gear Operation)		
	Extension	168 KIAS	
	Retraction	129 KIAS	
	V _{LE} (Maximum Landing Gear Extended)	182 KIAS	
<u>C.G. Range</u>	WT. (LB.)	FWD. LIMIT <u>IN. AFT OF DATUM</u>	AFT LIMIT <u>IN. AFT OF DATUM</u>
	4892	140.22 in.	147.10 in.
	4850	140.06 in.	147.10 in.
	4100	137.23 in.	147.10 in.
	3508	135.00 in.	143.67 in.
	3000	135.00 in.	140.75 in.
<u>Empty Weight C.G. Range</u>	None		
<u>Maximum Weight</u>	Ramp:	4892 lbs.	
	Takeoff:	4850 lbs.	
	Landing:	4850 lbs.	
<u>No. of Seats</u>	6 (2 at +135.5, 2 at 177.0, 2 at 218.75)		
<u>Maximum Baggage</u>	100 lbs. at (+248.23)		
<u>Fuel Capacity</u>	173 gallons at (+148.75) (2 wing tanks) 170 gallons (1140 lbs.) useable See Note 1 for data on system fuel.		
<u>Oil Capacity</u>	12 quarts at (+77.76) See Note 1 for data on system oil.		

<u>Maximum Operating Altitude</u>	30,000 ft.		
<u>OAT Operating Limitation</u>	+46°C (+115°F) maximum -34°C (-30°F) minimum with Jet-A -41°C (-42°F) minimum with Jet A-1		
<u>Maximum Cabin Operating Pressure Differential</u>	5.5 PSID		
<u>Control Surface Movements</u>	Aileron	(± 1°	Up 18° Down 18°
	Elevator	(±.5°)	Up 23.5° Down 14.5°
	Elevator Trim Tab	(+0°, -1°)	Up 19° Down 24.5° (Elevator Neutral)
	Rudder	(+1°-0°)	Left 26° Right 30°
	Rudder Trim Tab	(±1°)	Left 13.5° Right 13° (Rudder Neutral)
	Wing Flaps	(+0°, -1°)	Up 0° Down 36°
<u>Manufacturer's Serial Numbers</u>	4697001 and up		

DATA PERTINENT TO ALL MODELS

Datum	100 in. forward pressure bulkhead.
Leveling Means	Top or bottom fuselage at B.L. 0 (constant section).
Certification Basis	Type Certificate No. A25SO issued September 27, 1983. Date of application for Type Certificate, August 22, 1979.

PA-46-310P and PA-46-350P:

FAR Part 23, effective February 1, 1965, as amended by Amendment 23-25, effective March 6, 1980; FAR 25.783(e) as amended by Amendment 25-54, effective October 14, 1980; FAR 25.831(c) and (d) as amended by Amendment 25-41, effective September 1, 1977; and FAR 36, Appendix F through Amendment 36-15, effective May 6, 1988 when equipped with 2 blade propeller or FAR 36, Appendix G through Amendment 36-16, effective December 18, 1988 when equipped with optional 3 blade propeller.

No equivalent safety findings.

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

PA-46-500TP: 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. In addition, FAR 34.11, effective September 10, 1990, and FAR 36, Appendix G, Amendment 36-22. Equivalent Level of Safety (ELOS) for FAR 23.955(f)(3), June 6, 2000. Special Condition 23-096-SC (Docket CE153), August 27, 1999.

Production Basis

Production Certificate No. 206. Production Limitation Record issued and the manufacturer authorized to issue airworthiness certificate under the delegation option provisions of FAR 21.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.

In addition, one of the following items of equipment are required:

1. 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 for Model PA-46-310P, S/N 46-8408001 through 46-8608067, and 4608001 through 4608007.
2. DOA No. SO-1 approved Pilot's Operating Handbook and FAA approved Airplane Flight Manual Report No. VB-1300 for Model PA-46-310P, S/N 4608008 through 4608140.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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 and up.

Noise Characteristics

The corrected noise level of the Model PA-46-310P is 74.8 dBA at the Maximum Normal Operating Power at 2600 rpm. The noise level stated above has been approved by the Federal Aviation Administration in noise level test flights conducted in accordance with FAR 36, "Noise Standards: Aircraft Type and Airworthiness Certification." The aircraft noise is in compliance with FAR 36 noise standards applicable to this type.

The corrected noise level of the Model PA-46-350P is 74.7 dBA at the Maximum Normal Operating Power at 2500 rpm. The noise level stated above has been approved by the Federal Aviation Administration in noise level test flights conducted in accordance with FAR 36, "Noise Standards: Aircraft Type and Airworthiness Certification." The aircraft noise is in compliance with FAR 36 noise standards applicable to this type.

The corrected noise level of the Model PA-46-350P equipped with the optional 3 blade propeller is 79.7 dBA at the Maximum Normal Operating Power at 2500 rpm. The noise level stated above has been approved by the Federal Aviation Administration in noise level flight tests conducted in accordance with FAR 36, "Noise Standards: Aircraft Type and Airworthiness Certification." The aircraft noise is in compliance with FAR 36 noise standards applicable to this type.

The corrected noise level of the model PA-46-500TP equipped with the standard 4 blade propeller is 73.7 dBA at the Maximum Normal Operating Power at 2000 RPM. This noise level has been approved by the Federal Aviation Administration in noise level flight tests conducted in accordance with FAR 36, "Noise Standards: Aircraft Type and Airworthiness Certification." The aircraft noise is in compliance with FAR 36 noise standards applicable to this type.

NOTE 1. 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:

- (a) PA-46-310P
 Fuel: 12 lb. at (+152.37)
 Oil: 2.8 lb. at (+53.5)
- (b) PA-46-350P
 Fuel: 12 lb. at (+152.37)
 Oil: 3.8 lb. at (+61.0)
- (c) PA-46-500TP
 Fuel: 20.1 lbs. at (+144.37)
 Oil: 5.55 lbs. at (+77.76)

NOTE 2 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."

- NOTE 3
- (a) PA-46-310P
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.
 - (b) PA-46-350P
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.
 - (c) PA-46-500TP
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, is 13,349 hours time-in-service.
- NOTE 4
- 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.
- NOTE 5
- Model PA-46-500TP:
The maximum propeller shaft overspeed limit for the PT6A-42A is 100% (2205 r.p.m.) of all ratings. 91% propeller shaft speed is defined as 2000 r.p.m. and is the normal steady state operating limit. 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 r.p.m.
- NOTE 6
- Model PA-46-500TP:
Minimum propeller speed (N_p) corresponding to minimum idle gas generator speed (N_g) is 1200 RPM.

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