DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A32SO
Revision 3
Piper Aircraft, Inc

PA-42-720R

October 13, 2014

TYPE CERTIFICATE DATA SHEET NO. A32SO

This data sheet, which is part of Type Certificate No. A32SO, prescribes conditions and limitations under which the product for which the Type Certificate was issued, meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder — Piper Aircraft, Inc.
2926 Piper Drive
Vero Beach, Florida 32960

Type Certificate Holder Record — The New Piper Aircraft, Inc transferred TC A32SO to Piper Aircraft, Inc on August 7, 2006.

I. - Model PA-42-720R (Cheyenne III), 6 PCLM (Restricted Category Only), Approved March 31, 1986.

Engine — 2 United Aircraft of Canada, Ltd., or Pratt & Whitney, PT6A-61 (turboprop)

Fuel — JP-4, JP-5, commercial kerosene, Jet A, A-1 and B fuels conforming to P&W Specification 522, or Service Bulletin 13044. (Fuels shall conform to the specifications as listed or to subsequent revisions thereto). See NOTE 6(a) for emergency fuel.

Oil (engine & gearbox) — UACL PT6 Engine Service Bulletin No. 13001 lists approved brand oils

Engine Limits

	Shaft Horsepower	N_1 Gas Generator Speed	Prop Shaft Speed *	Maximum Permissible Turbine Interstage Temp. (°C)
Takeoff, Max. continuous and Max. Cruise	850	104.0%	2000	800
Max. climb	850	104.0%	2000	775
Max. normal cruise;				
Starting transient (5 sec.);	- - - -	- - - -	- - - -	1000
Max. reverse (1 Min.)	200	- - - -	1900	760

*See NOTE 4
At most altitudes and low ambient temperatures the engines will produce more power at takeoff than that for which the airplane has been certificated. Under all conditions the placarded torquemeter limitations shall not be exceeded.

Oil temperatures:
-40°C: Minimum starting.
-40°C to 104°C: Low idle.
0°C to 104°C: Max. continuous.
Transient 110°C for 10 min.
See NOTE 7.

Propeller and Propeller Limits — 2 Hartzell HC-B3TN-3K hubs with Hartzell T10173DB-6Q blades.
Diameter: 95 in. No reduction permitted.
Pitch settings at
Low Pitch Stop - See NOTE 5(a)
Reverse - See NOTE 5(b)
Feathered - See NOTE 5(c)

Airspeed Limits

		KCAS	KIAS
V_{mo}	(Max. Operating)	246	245
	(Up to 22,200 ft; See V_{mo} Chart for speeds above 22,200 feet in Flight Manual)		
V_a	(Maneuvering)		
	(Minimum Weight - 8,750 lb.)	159	158
	(Max. Weight - 13,450 lb.)	177	176
V_{fe}	(Max. Flaps Extended)		
	(10° Flaps)	196	195
	(30° Full Flaps)	143	143
V_{lo}	(Max. Landing Gear Operating)		
	(Extend)	174	173
	(Retract)	156	155
V_{le}	(Max. Landing Gear Extended)	174	173
V_{mc}	(Minimum Control Speed without Autofeather)	116	113
V_{mc}	(Minimum Control Speed Autofeather Operation)	110	106

C. G. Range

(+127.50) to (+137.50) at 8,674 lb. or less
(+133.78) to (+137.50) at 13,535 lb.
Ramp weight -Takeoff Weight: 13,450 lb. at (+133.67) to (+137.50)
Straight line variation between points given.
Moment change due to retracting landing gear: (+1146 in.-lb.)

Empty Weight C. G. Range

None

Maximum Weight

Ramp:	13,535 lb.
Takeoff:	13,450 lb.
Landing:	13,450 lb.
Zero Fuel:	9,850 lb.
Centerline:	9,850 lb.

Minimum Crew

One pilot

Number of Seats

5

Maximum Baggage

300 lb.

Fuel Capacity

602 gallons
See NOTE 1 for unusable fuel data

Oil Capacity

26 quart total at (+86) (includes 12 quarts usable in two integral engine tanks)

Control Surface Movements
(All measurements taken at trailing edge from neutral position for elevator and rudder, neutral position for aileron down 2°)

Aileron	(+1.0°,-0°)	29°	Up	15°	Down
Aileron Tab	(+1.0°,-0°)	18.5°	Up	18.5°	Down
(Aileron Neutral)					
Elevator	(+0.5°,-0°)	12°	Up	20°	Down
	(+1.0°,-0°)	20°	Down		
Elevator Tab	(+1.0°,-2.0°)	7°	Up		
(Elevator Neutral)	(+1.0°,-0°)	30°	Down		
Rudder	(+1.0°,-0°)	30°	Right	20°	Left
Rudder Tab	(+1.0°,-0°)	10°	Right	20°	Left
(Rudder Neutral)					
Flaps	(±1.0°)	0°	Up		
	(±1.0°)	30°	Down		

Maximum Operating Altitude	35,000 feet
Serial Numbers Eligible	42-5501024, 42-5501028, 42-5501032, 42-5501034 through 42-5501038

DATA PERTINENT TO ALL MODELS

Datum	137 inches forward of the main spar centerline.
Leveling Means	Lateral: Seat tracks station 245 inside cabin doors. Longitudinal: Two rivnuts on right hand fuselage and forward of the wing leading edge.
Certification Basis	Application for Type Certificate, March 26, 1985. Type Certificate A32SO issued, March 31, 1986. FAR Part 23, effective February 1, 1965, as amended by Amendment 23-16, effective February 14, 1975, except as follows: Delete paragraphs 23.1, 23.45, 23.49, 23.65, 23.67, 23.77, 23.977, 23.1145, 23.1385(c), 23.1545(a), and 23.1581. Add paragraphs 23.45, 23.49, 23.65, 23.67, 23.77, 23.1145, 23.1385(c), 23.1447(c), 23.1447(d), and 23.1581, as amended by Amendment 23-21, effective March 1, 1978; and 23.1545(a), as amended by Amendment 23-23, effective December 1, 1978; and from FAR Part 25, effective February 1, 1965, as amended by Amendment 25-36, effective October 31, 1974, Paragraph 25.977, Special Condition No. 23-90-SO-3, Amendment 1, Docket Number 19591; SFAR 23, Paragraph 55, effective January 20, 1970, SFAR 27-1, effective January 1, 1975; FAR Part 36, including Amendments 1 through 6, effective January 25, 1977; and the FAA Atlanta Aircraft Certification Office letter of March 28, 1986, showing the equivalent level of safety findings to 23.201, 23.203, and 23.205. Compliance with ice protection requirements has been demonstrated in accordance with FAR 23.1419, as amended by Amendment 23-14, effective December 20, 1973. Regulations that are inappropriate: FAR 23.1, as amended by Amendment 23-10, effective March 13, 1971. Limitations required to show compliance with FAR's are specified in the Airplane Flight Manual (AFM) and in the Airworthiness limitations section of the Maintenance Manual, and may not be revised without approval by the FAA Atlanta Aircraft Certification Office.
Production Basis	Production Certificate No. 206 and the manufacturer is authorized to issue airworthiness certificates under the delegation option provisions of FAR 21.
Equipment	The basic equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition, the following items of equipment are required: 1. FAA approved Airplane Flight Manual Report No. LK-1485.

NOTE 1. Current weight and balance data, loading information, and a list of equipment included in empty weight must be provided for each airplane at the time of original certification. Basic empty weight includes unusable fuel of 13.4 lb. at (+128.0).

NOTE 2. All placards required in the FAA Approved Airplane Flight Manual must be installed in the appropriate location.

NOTE 3. The Service Life Limits on components are contained in the Maintenance Manual and are listed below:

(a) Engine mount bolts at Sta. 106.00: 7853 hrs.
(b) Wing: 18,000 hrs.
(c) Empennage: 18,000 hrs.
(d) Fuselage: 18,000 hrs.

NOTE 4. The maximum propeller shaft overspeed limit for the PT6A-61 is 100% (2200 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 104.0% are permissible for unlimited periods subject of applicable temperature and other limits. 100% gas generator speed is defined as 37,468 r.p.m.

NOTE 5.

(a) Propeller low pitch is set so that at 1900 r.p.m. there shall be an indicated 1154 ± 30 ft.-lb torque corrected to sea level standard day.
(b) Propeller reversed pitch setting is adjusted to provide reversed power of 180 SHP ± 20 (SHP = torque x prop r.p.m. x 0.00019.)
(c) Feathered angle shall be adjusted to prevent rotation while feathered at 132 KCAS.

NOTE 6.

(a) Aviation Gasoline MIL-G-5572 Grades 80/87, 91/98, 100/130 and 115/145 are permitted for a total time period not to exceed 150 hours time between turbine hot section inspections. It is not necessary to purge the unused fuel from the system when switching fuel types.
(b) MIL-I-27686 Fuel System Icing Inhibitor or equivalent may be used in the fuel in amount up to 0.15% by volume.

NOTE 7. Transient oil temperature is limited to 110° C for 10 minutes ground operating only.

...END...