DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A00006WI
Revision 5
HAIC
Y12 IV
Y12E

April 4, 2008

TYPE CERTIFICATE DATA SHEET No. A00006WI

This data sheet, which is part of Type Certificate No. A00006WI, prescribes conditions and limitations under which the product meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder: HAFEI AVIATION INDUSTRY CO., LTD. (HAIC)
No. 15 Youxie Street, Pingfang District
Harbin, Heilongjiang, China
150066

Type Certificate Holder Record: Name changed from Harbin Aircraft Manufacturing Corp.

I. Model Y12 IV (Commuter Category), Approved March 26, 1995

Engine: 2 (two) Pratt & Whitney of Canada, Ltd. PT6A-27 Turboprop

Engine Type Certificate: E2NE

Fuel: Aviation kerosene RP-1 (GB-438-77), RP-2 (GB-1788-77), RP-3, JET A, JET A-1, and JP5 (Mil-T-5624K) conforming to P&WC SB 1244

Oil (Engine & Gearbox): Mobil No. II conforming to P&WC SB 1001

Oil Temperature	
Minimum Starting	-40°F (-40°C)
Idle	-40°F (-40°C) to 210°F (99°C)
Maximum Continuous	50°F (10°C) to 210°F (99°C)

Engine Limits

	Shaft Horse Power	Torque ft-lb	Np Propeller Shaft RPM See NOTE 4	Ng Gas Generator % See NOTE 4	Max. Temp. (ITT)	Time Limits (sec.)
Conditions						
Takeoff	620	1540	2120	101.5	1336°F (725°C)	
Maximum Cont	620	1540	2120	101.5	1336°F (725°C)	
Starting Transient					1994°F (1090°C)	2
Max Reverse	620	1200	2120	101.5	1336°F (725°C)	60
Acceleration		2100	2332	102.6	1517°F (825°C)	2
Max Climb/Cruise	620	1540	2120	101.5	1283°F (695°C)	

Page No.	1	2	3	4	5	1	2	3	4	5	6	7	8
Rev. No.	5	1	-	3	-	4	-	-	4	4	5	5	4

Propeller and Propeller Limits.

2 (two) Hartzell HC-B3TN-3B/T10173B-3 or 2(two)Hartzell HC-B3TN-3B/T10173NB-3
Propeller Type Certificate: P15EA

Metal Propellers

Blades	3
Diameter (Max)	98 in
Minimum Allowable for Repair	97 in
Pitch Setting	
Feathered	87° ± 0.5°
Reverse	-14° 1
Ground Idle	See NOTE 4(e)
Flight Idle	See NOTE 4(f)

Airspeed Limits (CAS)

V_{MC} (Minimum Control Speed)	69 knots (127 km/hr)
V_{FE} (Flaps Extended Speed) (Both 10° and 20°)	104 knots (192 km/hr)
V_A (Maneuvering Speed)	126 knots (234 km/hr)
V_{MO} (Maximum Operating Speed)	162 knots (300 km/hr)

Center of Gravity(C.G.) Limits

214.44 in (5447mm) to 220.47 in (5600mm) at 12,500 lb (5670kg)
213.03 in (5411mm) to 220.47 in (5600mm) at 11,907 lb (5400kg)
210.12 in (5337mm) to 220.47 in (5600mm) below 10,688 lb (4847kg)
Straight line variation between points given

Datum

Located at airplane structure horizontal line in up and down directions, at the symmetric centerline of airplane in left and right directions, and at the nose in forward and rear directions.(Drawing Y11T-0000-03P)

Empty Weight C.G. Range

None

Mean Aerodynamic Chord (MAC)

77.24 in (1962mm) long with leading edge 195.43 in (4964mm) from datum.

Leveling Means

Leveling points on airplane will be used for leveling during manufacture and operation.

Leveling Diagram	Y11T-0000-03P
Painting Diagram	Y11T-0000-041

Maximum Weights

Ramp	12,568 lb (5700 Kg)
Takeoff	12,500 lb (5670 Kg)
Zero Fuel (See NOTE 1)	11,440 lb (5188 Kg)
Landing	11,907 lb (5400 Kg)

Minimum Crew

Two (2) pilots: Seats at 101.58 in (2580 mm)

Number of Seats

19 seats
(See Airplane Flight Manual for approved seating configuration(s))

Maximum Baggage	Forward Baggage Compartment	220 lb (100 kg) at 35.43 in (900 mm)	
	Rear Baggage Compartment	573 lb (260 kg) at 342.13 in (8690 mm)	
Fuel Capacity	Left Fuel Tank	215.3 gal (815 L) at 225.40 in (5725 mm)	
	Right Fuel Tank	215.3 gal (815 L) at 225.40 in (5725 mm)	
	See NOTE 1(a) for data on unusable fuel		
Oil Capacity	9.24 qt (8.74 L) each engine at 179.54 in (4560 mm)		
	18.47 qt (17.48 L) total both engines		
	See NOTE 1(b) for data on unusable oil		
Max. Operating Altitude	23,000 ft (7,000M)		
	Airplane shall be operated under FAR Parts 91 and 135 operating requirements when there is no oxygen system installed.		
Control Surface Movements	Elevator	Up 25°	Down 10°
	Elevator Trim Tab	Up 7°	Down 20°
	Rudder	Left 22°	Right 22°
	Rudder Trim Tab	Left 9°	Right 9°
	Aileron	Up 25°	Down 18°
	Aileron Trim Tab	Up 20°	Down 20°
	Flaps	Maximum 20°	

II. Model Y12E (Commuter Category), Approved August 2, 2006

Engine — 2 (two) Pratt & Whitney of Canada, Ltd. PT6A-135A Turboprop

Engine Type Certificate: E4EA

Fuel — Aviation kerosene RP-1 (GB-438-77), RP-2 (GB-1788-77), RP-3, JET A, JET A-1, and JP5 (Mil-T-5624K) conforming to P&WC SB 1244

Oil (Engine & Gearbox) — Mobil No. II conforming to P&WC SB 1001

Oil Temperature	
Starting / Idle	-40ºF ~210.2ºF (-40ºC ~ 99ºC)
Take off / Max Cont / Emergency	50ºF ~ 210.2ºF (10ºC ~ 99ºC)
Max Climb / Cruise / Reverse	32ºF ~ 210.2ºF (0ºC ~ 99ºC)

Engine Limits

Conditions	Shaft Horse Power	Torque ft-lb	Np Propeller Shaft RPM See NOTE 4	Ng Gas Generator % See NOTE 4	Max. Temp. (ITT)	Time Limits (sec.)
Takeoff	620	1717	1900	101.5	1481°F (805°C)	-----
Maximum Continuous	620	1717	1900	101.5	1481°F (805°C)	-----
Starting Transient	-----	-----	-----	-----	1994°F (1090°C)	2
Max Reverse	416	1200	1825	101.5	1481°F (805°C)	60
Acceleration	-----	2200	2090	102.6	1616°F (880°C)	2
Max Climb/Cruise	620	1717	1900	101.5	1481°F (805°C)	-----
Idle	-----	-----	-----	52.0	1265°F (685°C)	-----

Propeller and Propeller Limits — 2 (two) Hartzell HC-D4N-3N/D9511FK

Metal Propellers	Aluminum alloy
Maximum speed	1900 RPM
Blades	4
Diameter (Max)	96 " (2438 mm)
Minimum Allowable for Repair	95 " (2413 mm)
Pitch Setting	
Feathered	86.1° ± 0.5°
Reverse	-10.0° ± 0.5°
Ground Idle	See Note 4 (e)
Flight Idle	See Note 4 (f)
Maximum over-speed	1976 RPM

Airspeed Limits (CAS)

V_{MC} (Minimum Control Speed)	69.7 knots (129 km/hr)
V_{FE} (Flaps Extended Speed) (Both 10° and 20°)	104 knots (192 km/hr)
V_A (Maneuvering Speed)	126 knots (234 km/hr)
V_{MO} (Maximum Operating Speed)	162 knots (300 km/hr)

Center of Gravity (C.G.) Limits	214.44 in (5447mm) to 220.47 in (5600mm) at 12,500 lb (5670kg) 213.03 in (5411mm) to 220.47 in (5600mm) at 11,907 lb (5400kg) 210.12 in (5337mm) to 220.47 in (5600mm) below 10,688 lb (4847kg) Straight line variation between points given	
Datum	Located at airplane structure horizontal line in up and down directions, at the symmetric centerline of airplane in left and right directions, and at the nose in forward and rear directions.(Drawing Y11T-0000-03)	
Mean Aerodynamic Chord (MAC)	77.24 inches (1962mm) long with leading edge 195.43 inches (4964mm) from datum.	
Leveling Means	Leveling points on airplane will be used for leveling during manufacture and operation.	
	Leveling Diagram	Y12E-0000-03
	Painting Diagram	Y12E-0000-042
Maximum Weights	Ramp	12,566 lb (5700 Kg)
	Takeoff	12,500 lb (5670 Kg)
	Zero Fuel (See NOTE 1)	11,437 lb (5188 Kg)
	Landing	11,904 lb (5400 Kg)
Minimum Crew	Two (2) pilots: Seats at 101.58 in (2580 mm)	
Passenger Seat Config.	18 seats. See Airplane Flight Manual for approved seating configuration(s).	
Passenger with Cargo Config.	See Airplane Flight Manual for approved passenger seating with cargo configuration(s).	
Cargo Config.	See Airplane Flight Manual for approved cargo configuration(s).	
Maximum Baggage	Forward Baggage Compartment	220 lb (100 kg) at 35.43 in (900 mm)
	Rear Baggage Compartment	573 lb (260 kg) at 342.13 in (8690 mm)
Fuel Capacity	Left Fuel Tank	215.3 gal (815 L) at 225.40 in (5725 mm)
	Right Fuel Tank	215.3 gal (815 L) at 225.40 in (5725 mm)
	See NOTE 1(c) for data on unusable fuel	
Oil Capacity	9.24 qt (8.74 L) each engine at 179.54 in (4560 mm) 18.48 qt (17.48 L) total both engines See NOTE 1(d) for data on unusable oil	
Max. Operating Altitude	23,000 ft (7,000M)	
	Airplane shall be operated under FAR Parts 91 and 135 operating requirements when there is no oxygen system installed.	

Control Surface Movements	Elevator	Up 25°	Down 10°
	Elevator Trim Tab	Up 7°	Down 20°
	Rudder	Left 22°	Right 22°
	Rudder Trim Tab	Left 9°	Right 9°
	Aileron	Up 25°	Down 18°
	Aileron Trim Tab	Up 20°	Down 20°
	Flaps	Maximum 20°	

DATA PERTINENT TO ALL MODELS

Serial Nos. Eligible

Y12IV Serial Number: 008 and on.
The CAAC Certificate of Airworthiness for Export must be submitted for each individual airplane. See "Import Requirements."

Y12E Serial Number: 004 and on.
The CAAC Certificate of Airworthiness for Export must be submitted for each individual airplane. See "Import Requirements."

Import Requirements

A United States Certificate of Airworthiness may be issued on the basis of a CAAC Certificate of Airworthiness for Export, signed by a representative of the CAAC Authority, containing the following statement: "The airplane covered by this certificate has been examined, tested and found to conform to the type design approved under FAA Type Certificate A00006WI, and is in a condition for safe operation."

Instructions for Continued Airworthiness (ICA) complying with FAR 23.1529, must be furnished before delivery of the first airplane or issuance of a US standard certificate of airworthiness, whichever occurs later. As of April 4, 2008, the FAA has not accepted the ICAs.

Certification Basis

MODEL Y12 IV and Model Y12E
FAR 21.29 and FAR 23, effective February 1, 1965, including Amendments 23-1 through 23-42 for Commuter Category.

Y12IV FAR 36, effective December 1969, including Amendments 36-1 through 36-20.
Y12E FAR 36, effective December 1969, including Amendments 36-1 through 36-22.

FAR 34, effective September 10, 1990.

Compliance has been demonstrated with requirements of 14 CFR, Section 23.1419: Ice Protection.

Date of application for original Type Certificate: September 20, 1992

Equipment

The basic required equipment prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the airplane. In addition, the following equipment is also required:

FAA approved Airplane Flight Manual Y12 IV, Document No. Y12 IV SJWI, dated March 14, 1995, or later approved revision.

FAA approved Airplane Flight Manual Y12E, Document No. Y12E SJW1, dated October 15, 2001 or later approved revision.

NOTES:

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.

(a) Basic empty weight includes unusable fuel of 66.15 lb (30kg) at 225.40 in (5725mm).
(b) Basic empty weight includes engine oil of 38.36 lb (17.4kg) with 13.45 lb (6.1kg) being unusable.
(c) Basic empty weight includes unusable fuel of 48.1 lb (21.8 Kg) at 225.40 inches (5725 mm).
(d) Basic empty weight includes engine oil of 35.57 lb (16.14 Kg) with 13.45 lb (6.1 Kg) being unusable.

NOTE 2

All placards required in FAA approved Airplane Flight Manual must be installed in appropriate location.

NOTE 3

Y12IV mandatory retirement times for all structural components are contained in Chapter 5 of approved Y12 IV Airplane Maintenance Manual according to the requirements for Instructions for Continued Airworthiness.

Y12E mandatory retirement times for all structural components are contained in Chapter 5 of approved Y12 E Airplane Maintenance Manual according to the requirements for Instructions for Continued Airworthiness.

The US versions of the Y12IV and Y12E limitations may not be changed without FAA and AAD CAAC engineering approval.

NOTE 4

(a) Y12IV maximum propeller shaft over-speed limit (Np) is 2288 rpm.
(b) Y12E maximum propeller shaft over-speed limit (Np) is 1976 rpm.
(c) 100% Ng (gas generator speed) is defined as 37,500 rpm.
(d) Gas generator speeds up to 102.6% Ng (starting and acceleration) are permissible for 2 seconds.
(e) The engine speed Ng is 52% ± 1% at Ground Idle (low idle).
(f) The engine speed Ng is not more than 75% and the torque is 200 ft-lb at Flight Idle (high idle).

At low altitude and low ambient temperatures the engines may produce more power at takeoff than that which the airplane is certificated. Under these conditions the placarded torque-meter limitations shall not be exceeded. The FAA Airplane Flight Manual prescribes a static torque at takeoff, which must be obtained without exceeding the ITT or Ng limitations.

NOTE 5

Current weight and balance report, including list of equipment included in the certified empty weight and loading instructions, must be in each airplane at the time of original certification, and at all times thereafter (except in the case of operators having an approved weight control system).

NOTE 6

The following placards must be displayed in full view of the pilot:

a) "This airplane must be operated as a commuter category airplane in compliance with the operating limitations stated in the form of placards, markings and manuals. No aerobatic maneuvers, including spins, approved."

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

b) Each individual airplane will be supplied with a placard that specifies the kinds of operations, such as VFR or IFR, Day or Night, to which the operation of the airplane is limited by the equipment installed.

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