DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A00006WI
Revision 11
Harbin Hafei Aviation
Industry Co., Ltd (HAIC)

Y12 IV
Y12E

July 30, 2021

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	Harbin Hafei Aviation Industry Co., Ltd. (HAIC) Northeast side of Jiangnanzhonghuan Road, Nancheng second road of Hanan Industrial Park, Harbin, Heilongjiang, China 150060
Type Certificate Holder Record:	HAFEI AVIATION INDUSTRY CO., LTD. (HAIC) transferred TC A00006WI to Harbin Hafei Aviation Industry Co. Ltd. Co. (HAIC) on December 4, 2015 Harbin Aircraft Manufacturing Corp. transferred TC A00006WI to HAFEI AVIATION INDUSTRY CO., LTD. (HAIC) on January 3, 2001

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	Ng Gas Generator % See NOTE 4	Max. Temp. (ITT)	Time Limits (sec.)

See NOTE 4

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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)	

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 (See NOTE 7)	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) (See NOTE 7)	
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-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
Transient	-----	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 (See NOTE 7)	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) (See NOTE 7)	

Passenger Seat Config.

Maximum 18 seats. See Airplane Flight Manual for approved seating configuration(s).

18 seats configuration

Item	Arm mm(inches)	Quantity
Passengers Row 1(left)	3590(141.3)	1
Passengers Row 2(left)	4370(172.0)	1
Passengers Row 3(left)	5090(200.4)	1
Passengers Row 4(left)	5810(228.7)	1
Passengers Row 5(left)	6530(257.1)	1
Passengers Row 6(left)	7250(285.4)	1
Passengers Row 1(right)	3960(155.9)	2
Passengers Row 2(right)	4710(271.3)	2
Passengers Row 3(right)	5460(303.2)	2
Passengers Row 4(right)	6210(335.1)	2
Passengers Row 5(right)	6960(367.0)	2
Passengers Row 6(right)	7770(398.9)	2

17 seats configuration

Item	Arm mm(inches)	Quantity
Passengers Row 1	3960(155.9)	3
Passengers Row 2	4710(271.3)	3
Passengers Row 3	5460(303.2)	3
Passengers Row 4	6210(335.1)	3
Passengers Row 5	6960(367.0)	3
Passengers Row 6	7770(398.9)	2

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: 081and on. (NOTE 8, NOTE 9 and NOTE 11)
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 February 5, 2013, the FAA has not accepted the ICAs for the Y12IV.

Refer to the applicable bilateral agreement to verify eligibility for import into the United States of both new and used aircraft based on the scope of the agreement, to identify any required statements by the exporting authority on the export certificate of airworthiness (or equivalent document), and for procedures for coordinating exceptions to conformity statements on these documents. Refer to FAA Order 8130.2, *Airworthiness Certification of Aircraft*, for requirements for issuance of an *airworthiness certificate* for imported aircraft.

The Y12E must have the required manuals (ICAs and AFM) at the revision level as shown in the Service Information section of this TCDS at the time of the US standard certificate of airworthiness.

Certification Basis

MODEL Y12 IV and Model Y12E

1) FAR 21.29 and FAR 23, effective February 1, 1965, including Amendments 23-1 through 23-42 for Commuter Category.

2) **Y12IV** FAR 36, effective December 1969, including Amendments 36-1 through 36-20.

3) **Y12E** FAR 36, effective December 1969, including Amendments 36-1 through 36-22.

4) **Y12IV** FAR 34, effective September 10, 1990.

5) **Y12E** FAR 34, effective September 10, 1990, including Amendments 34-1 through 34-3.

6) No Exemptions for either model.

7) No Special Conditions for either model.

8) Y12E is approved for flight into known or forecasted icing (23.1419)

9) Y12E is not approved for ditching

Date of application for original Y12 IV 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 SJW1, dated March 14, 1995, or later approved revision.

FAA approved Airplane Flight Manual Y12E, Document No. Y12E SJW1, revision dated July 15, 2016 or later approved revision.

Service Information

Available Documents for the Y12E are:

Y12E Aircraft Airplane Maintenance Manual, Document No.Y12ESJW4, Normal Revision: RN001dated March 30, 2016 or later CAAC/FAA approved revisions. (Limitation section chapter 4 dated November 25, 2010 is part of AMM revision RN001 dated March 30, 2016) (See Note 3)

Y12E Aircraft Maintenance Program Document No.Y12ESJW3, Normal Revision: RN018 dated December 10, 2015 or later CAAC approved revisions.

FAA approved Airplane Flight Manual Y12E, Document No. Y12ESJW1, revision dated July 15, 2016 or later approved revisions.

Each of the following service information documents must state that it is approved by the Civil Aviation Administration of China (CAAC).

In accordance with the US/People's Republic of China Bilateral Airworthiness Agreement and the associated Schedule of Implementation Procedures (BAA-SIP) paragraph 226, any future changes that affect the US type design, including

but not limited to, the following documents must be coordinated with the FAA through the CAAC for direct FAA approval or acceptance as required. These documents will show this FAA approval and/or acceptance along with the CAAC approval:

- Y12E Aircraft Airplane Maintenance Manual, Document No.Y12ESJW4
- Y12E Aircraft Maintenance Program, Document No. Y12ESJW3
- Y12E Airplane Flight Manual Y12E, Document No. Y12ESJW1

Additional this includes any other service documents that:

- make changes to any other FAA approved limitations
- requires a US type design change
- requires an ELOS, Special Condition or Exemption
- makes an acoustical or emissions changes to this product's U.S. type certificate as defined in 14 CFR § 21.93

Any other service documents that do not affect changes to US type design (such as customer unique designs, service bulletins and product improvements) that are not dealt with by the BAA-SIP paragraph 226(a) will be accepted by the FAA and will be considered FAA approved data upon the CAAC approval statement.

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 4 limitation section of the 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 CAAC and direct FAA 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.

NOTE 7

Both the Y12E and Y12IV airplanes were FAA validated at exactly 12,500 lb. maximum takeoff weight (MTOW). The Pilot in Command of any large airplane (MTOW in excess of 12, 500 lbs.) must possess a pilot type rating specified for the airplane. If any modifications (amended type certificate, supplemental type certificate (STC) or field approval) are being proposed that increase the MTOW above 12, 500 lb, the modifier must contact the FAA Kansas City Aircraft Evaluation Group (AEG) to coordinate a Flight Standardization Board (FSB). The FSB will establish a pilot type rating for the modified airplane per the requirements of 14 CFR part 61.31.

NOTE 8

As of January 7, 2016, Y12E Serial Numbers 081 and subsequent have the required mandatory Service Bulletins (SBs) incorporated at the factory that makes them eligible for importation into the USA. The list of 11 SBs without full titles are:

Document Number	Subject
Y12-61-0077	Modification Bracket for Propeller Beta System
Y12-21-0079	Adding Water Drain Weeping Pipe In The Cabin Ventilation System
Y12-34-0089R1	Replacing the air speed indicator
Y12-53-0092	Adding landing light mesh cover
Y12-34-0117	Modifying wiring of standby horizon

Y12-34-0134	Adjusting the contents of the airspeed placard on instrument panel
Y12-53-2013-0139R1	Adding electrical indications and replacing pneumatic plugs on the emergency exit
Y12-80-2015-0007	Adding Seal Ring to Starter-Generator
Y12-29-2015-0009	Adjustment of circuit breaker's installation position-electrical hydraulic pump
Y12-29-2015-0010	adjustment of circuit breaker's installation position-electrical hydraulic pump
Y12-29-2015-0011	Change of Installation Position of Brake Low Pressure Warning Light

NOTE 9

Additionally these US eligible airplanes have several major type design changes that were validated by the FAA includes but not limited to the replacement of multifunction display KMD540 with MFD-640, replacement of GNS430W with new GTN650 communication & navigation equipment and modification of the cockpit instrument panel. (FAA project AT00778CE-A.)

NOTE 10

Cockpit Voice Recorder (CVR) modification - changed system of CVR includes one FA2100 CVR, one S251 control box, one S055 microphone, two M1090 matching boxes and one 3LO-453/3 inertia switch. This modification was CAAC approved on January 15, 2016 and accepted by the FAA on March 25, 2016.

NOTE 11

In addition to the listed 11 Service Bulletins shown in NOTE 8, Y12E Serial Number 081 also had two additional Service Bulletins incorporated at the factory to make it eligible for importation into the USA. The two additional Service Bulletins are: Service Bulletin No. Y12-11-2016-0003, dated 2016-05-25, and titled "Notice Concerning Changing Partial Marking Placards of Y12E A/C" and Service Bulletin No. Y12-77-2016-0011, dated 2017-01-25, and titled "Notice of Change of 152LC213-1 ITT Indicators on No. 081 Y12E Aircraft".

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