
Type Acceptance Report

RESTRICTED CATEGORY

TAR 95/06 – Revision 4

AIR TRACTOR AT-400/500 Series

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Executive Summary

New Zealand Type Acceptance has been granted in the Restricted Category to the Air Tractor AT-400 and AT-500 Series based on validation of FAA Type Certificate number A17SW. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Section 2, which are now eligible for the issue of an Airworthiness Certificate in the Restricted Category in accordance with NZCAR §21.177, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(c).

NOTE: The information in this report was correct as at the date of issue. The report is generally only updated when an application is received to revise the Type Acceptance Certificate. For details on the current type certificate holder and any specific technical data, refer to the latest revision of the State-of-Design Type Certificate Data Sheet referenced herein.

1. Introduction

This report details the basis on which Type Acceptance Certificate No.95/06 (which now incorporates 95/05) was granted in the Restricted Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

- (a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and
- (b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate; and
- (c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

The report notes the status of all models included under the State-of-Design type certificate which have been granted type acceptance in New Zealand, which are listed in Section 2. The history of the Air Tractor AT-400 and AT-500 Series type acceptance in New Zealand under FAA type certificate A17SW is listed in Appendix 1.

2. Aircraft Certification Details

(a) State-of-Design Type and Production Certificates:

Manufacturer: Air Tractor, Inc.
Type Certificate: A17SW
Issued by: Federal Aviation Administration
Production Approval: PC2SW

(b) Models Covered by the Part 21B Type Acceptance Certificate:

- (i) **Model:** AT-402B
- MCTOW: 2721 kg [6000 lb.]
3175 kg [7000 lb.] – (serial numbers 402B-1015, 402B-1021 and subsequent, with P/N 40059-21 main landing gear fitted.)
- Max. No. of Seats: 1 (+74.0) plus optional loader seat (+110.0)
- Max Hopper Load: 1474 kg [3250 lb.] (+12.0)
- Noise Standard: Not Applicable
- Engine:** Pratt & Whitney Canada PT6A-15AG, -27, -34 or -34AG
Type Certificate: E-6
Issued by: Transport Canada
- Propeller:** Hartzell HC-B3TN-3D/T10282(N)(S)+4
Type Certificate: P15EA
Issued by: Federal Aviation Administration
- (ii) **Models:** AT-502A, AT-502B, AT-504
- MCTOW: 3629 kg [8000 lb.]
- Max. No. of Seats: 1 (+74.0) plus optional buddy seat (+74.0)
or optional loader seat (+110.0) – AT502 Series
2 (+74.0) – AT-504
- Max Hopper Load: 1860 kg [4100 lb.] (+12.0)
- Noise Standard: Not Applicable
- Engine:** PT6A-45R, -45A, -45B, -60AG, -65B or -65AG – AT-502A
Type Certificate: E-12
Issued by: Transport Canada

PT6A-140AG – “AT-502A+”

Type Certificate: E-15

Issued by: Transport Canada

PT6A-15AG, -27, -34/AG, -36, or -34B – AT-502B

PT6A-34/AG – AT-504

Type Certificate: E-6

Issued by: Transport Canada

Propeller:

Hartzell HC-B5MP-3C/M10876A(N)S – AT-502A

Hartzell HC-B5MP-3A/M10876A+6 – AT-502A

Type Certificate: P44GL

Issued by: Federal Aviation Administration

Hartzell HC-B4TN-3C/T10702NS – “AT-502A+”

Type Certificate: P40EA

Issued by: Federal Aviation Administration

Hartzell HC-B3TN-3D/T10282 +4 or /T10282N+4 or
/T10282NS+4 – AT-502A, AT-502B, AT-504

Type Certificate: P15EA

Issued by: Federal Aviation Administration

- Notes:
1. Refer to FAA TCDS A17SW for specific applicability of engine and propeller combinations to individual aircraft models.
 2. Refer to Advisory Circular 21-1 Appendix 2 for the New Zealand type acceptance status of any engines and propellers listed above.

3. Application Details and Background Information

The initial application for New Zealand type acceptance of the Model AT-402B was from the manufacturer Air Tractor Inc dated 5 August 1995. Job number 96/21B/5 was raised on 8 May 95 against client number 45433. The first-of-type example was serial number 402B-0990 registered ZK-SAT. The Air Tractor Series is a low-wing single-engined tail-wheel agricultural aircraft with the hopper located forward of the cockpit.

Type Acceptance Certificate Number 95/06 was granted in the Restricted Category to the Air Tractor AT-402B on 7 December 1995, based on validation of FAA Type Certificate number A17SW. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The initial application for New Zealand type acceptance of the AT-502B was from the Australasian Air Tractor agents, Field Air (Ballarat) Pty Ltd, but this was subsequently taken over by the manufacturer Air Tractor Inc who submitted CAA form 24021/02 dated 5 August 1995. Job number 96/21B/6 was raised on 8 May 95 against client number 45433. The first-of-type example was serial number 502B-0265 registered ZK-SNO.

Type Acceptance Certificate No.95/05 was granted in the Restricted Category to the Air Tractor Model AT-502B on 25 October 1995, based on validation of FAA Type Certificate number A17SW. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

This report was raised to Revision 1 to add further Flight Manual serial number coverage, and clarify the applicability of Air Tractor flight manuals. In addition the AT-402B and AT-502B models have been combined into the one Type Acceptance Report, as they are approved under the same FAA Type Certificate with the same certification basis, and the report was also updated to the latest format.

Revision 2 of this report was issued to add the dual-control Air Tractor Model AT-504. The application was from the manufacturer, and the first-of-type example was serial number 504-4015 registered ZK-SKF. Type acceptance was granted on 24 May 2012. Revision 3 was issued to change the Flight Manual policy and accept all revision dates of the same manufacturer publication under the one CAA AIR number.

Revision 4 added the AT-502A. The application was from the importer, Super Air Limited, and the first-of-type example was serial number 502A-3192 registered ZK-SXP. This was one of the new Model “AT-502A+” fitted with the PT6A-140 engine, which are marketed as the 502XP. Type acceptance was granted on 1 October 2019. This revision was also used to note acceptance of Service Letter 382, which was approved by Air Tractor to authorise a structural upgrade and provide for an increase in MAUW to 7000 lb. for earlier AT-402B serial numbers, on an individual serial number basis.

The Air Tractor Series are all similar configuration aircraft, with the model designation indicating the hopper size and powerplant type. For example the AT-400 series have a 400 US gallon hopper, while the AT-500 series have a 500 US gallon hopper. The AT-402 was a turbine-powered version of the AT401, while similarly the AT-502 was a turbine version of the AT-501. The AT-502A and AT-502B had more powerful turbine engine variants.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents, or were already held by the CAA:

(1) State-of-Design type certificate:

FAA Type Certificate Number A17SW

FAA Type Certificate Data Sheet no. A17SW at Revision 14 dated March 21, 2016

- Model AT-502A approved April 10, 1992
- Model AT-502B approved December 8, 1992
- Model AT-402B approved October 25, 1994
- Model AT-504 approved February 11, 2009

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the AT-402, AT-502 and AT-504 Series (Restricted Category) as given on the type certificate data sheet is: *FAR 21.25(a)(1), (b)(1), (b)(2). Aircraft met structural requirements of FAR 23, Basic February 1 1965 through amendment 23-9. Flight criteria, propulsion and systems and equipment items met the requirements of Appendix B CAM 8, November 15 1951 as amended through January 10, 1956. Turbine engine effective December 1984: FAR 23.33, 23.361, 23.371, 23.903(b), 23.905, 23.907, 23.929, 23.933(a), 23.939, 23.951(c), 23.954, 23.955, 23.961, 23.991(a)(2), 23.993, 23.997(d), 23.1045, 23.1091(c), 23.1093, 23.1111, 23.1121(g), 23.1141(e), and 23.1155.*

For the Model AT-504 later FAR 23 requirements relating to changes to the control system and the additional crew seat were applied, as detailed on the TCDS. (See also FAA Issue Paper G-1 Type Certification Basis, Stage 4.)

This is an acceptable certification basis in accordance with CAR Part 21B Para §21.41, being accepted under paragraph (b)(2) of Appendix C of CAR Part 21 as appropriate for Restricted Category airplanes for the purpose of agricultural aircraft operations. (CAM 8 has only been accepted by the CAA where the aircraft has also been shown to meet the structural requirements of FAR Part 23.) There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

Special Conditions:

Nil

(ii) *Equivalent Level of Safety Findings:*

AT-504:

ELOS Memo #ACE-09-02 – §23.562 Emergency Landing Dynamic Conditions: Air Tractor requested the same ELOS as was granted to the AT-602/802, based in part on a review of actual crash histories of earlier Air Tractor models. In lieu of dynamic testing the FAA accepted the use of a 4-point 5000 lb rated military type lap belt and dual shoulder harness for both seats; pilots are required to wear DOT or Mil-Spec protective headgear; any cockpit protuberances or hard surfaces that could cause injury in the event of an emergency landing must be eliminated; and the hopper must be forward of the cockpit seats. (See also FAA Issue paper A-1.)

(iii) *Airworthiness Limitations:*

Note 3 on the TCDS for each model details the safe life of the wing structure.

AT-502A/502B/504 Owners Manual – Section 6 Airworthiness Limitations

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

Not applicable as non-complying agricultural aircraft under the exemption provided under FAR §36.1(a)(2) and §36.1583.

(ii) *Compliance Listing:*

Not applicable

(4) Certification Compliance Listing:

Air Tractor Report titled “FAA Checklist Model AT-402” dated 29 Oct 1988.

The manufacturer provided a complete set of the engineering reports supplied to the FAA to support certification of the AT-402B. In addition they prepared Report, No 0888 dated 8-9-95 titled “Engineering Reports used for AT-402B Certification”, which lists and summarises all the engineering reports supplied. Similarly Air Tractor prepared report, No 0889 dated 9-9-95 titled “Engineering Reports used for AT-502/502B Certification”

Air Tractor Report titled “FAA Checklist Model AT-502” dated 13 May 1987.

Type Inspection Report – Part 1 – Aircraft Ground Inspection – Model AT-502A

Snow Engineering Co. Report 2303 – Project Specific Certification Plan – PT6A-140AG Installed on AT-502A – FAA Project Number AT02260AC-A

Air Tractor Engineering Report 2376 – Master Compliance Report – AT-502A with PT6A-140AG Engine

Engineering Report ER 1757 Appendix A – Method of Compliance Checklist – AT-504 (FAA Project #: AT2089AC-A) – dated 2/11/09

Engineering Report 2559 – AT-502/502A/502B/504 Hopper Analysis New Zealand Aircraft

Engineering Report 2560 – AT-502/502A/502B/504 Seats and Restraint System Structural Analysis – New Zealand Aircraft

Submittals and Approvals – AT-401B/402B Gross Weight Increase – FAA Project AT1106AC-A

Requirement/Compliance Tracking – 402B-0971 Modifications Service Letter 382

(5) Flight Manual:

AT-402B: FAA Approved AT-402B Airplane Flight Manual (6000# Gross Weight) – Serial Numbers 402B-0966 thru 402B-1014, 402B-1016 thru 402B-1020, issued June 5, 1997 – CAA Accepted as AIR 2538

FAA Approved AT-402B Airplane Flight Manual – Serial Numbers 402B-1015, and 402B-1021 and subsequent, and having the P/N 40059-21 Main Landing Gear Installed, issued June 5, 1997 – CAA Accepted as AIR 3152

AT-502A: FAA Approved AT-502A Airplane Flight Manual (01-0037), issued April 9, 1992 – CAA Accepted as AIR 3940

Pilot's Operating Handbook and FAA Approved Airplane Flight Manual 502XP (AT-502A equipped with PT6A-140AG Turbine Engine), issued March 21, 2016 (Air Tractor Document 01-0153) – CAA Accepted as AIR 3941

AT-502B: FAA Approved AT-502B Airplane Flight Manual, issued Dec 8, 1992
CAA Accepted as AIR 3153

AT-504: FAA Approved AT-504 Airplane Flight Manual, issued Feb 2, 2009
CAA Accepted as AIR 3211

- Notes: 1. Air Tractor has advised that they do not revise AFM for individual aircraft. Once an aircraft has been manufactured and issued with an AFM at a certain revision status, the AFM remains valid at that revision status permanently. This means there are the same AFM with different revision dates in operation. (However if a replacement AFM is required the manufacturer advises they will issue the new AFM at the latest revision date.)
2. The Flight Manual must contain take-off performance data. (At the time of issue of this report AIR 3940 still required a Supplement to be provided.)

(6) Operating Data for Aircraft:

(i) *Maintenance Manual:*

AT-402 Owners Manual

AT-502A/AT-502B/AT-504 Owner's Manual – Document 01-0110

(ii) *Current service Information:*

AT-402 Service Letters and Service Information Letters

AT-502 Service Letters and Service Information Letters

Service Letter #382 – Modifications for S/N 402B-0971

(iii) *Illustrated Parts Catalogue:*

AT-402 Parts Manual

AT-502 Parts Manual

AT-502XP Parts Manual

(7) Agreement from manufacturer to supply updates of data in (5), and (6):

CAA 2171 form from Air Tractor Inc President Mr Leland Snow dated 26-7-95

CAA 2171 form from Air Tractor Inc. AT-504 Project Engineer dated Feb 13, 2012

Available on-line through the Air Tractor website www.airtractor.com

(8) Additional Information:

Engineering Report ER 1789 – Detail Specifications AT-504

5. New Zealand Operational Rule Compliance

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 is a prerequisite for the grant of a type acceptance certificate.

CAR Part 26 – Subpart B – Additional Airworthiness Requirements

Appendix B – All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	<i>To be determined on an individual aircraft basis</i>
B.2	Crew Protection Requirements – CAM 8 Appdx. B # .35	Complies – Part of aircraft certification basis

Compliance with the following additional NZ operating requirements has been reviewed and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

CAR Part 91 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Seating and Restraints – Safety belt/Shoulder Harness	Four point harness fitted as standard
91.507	Pax Information Signs – Smoking, safety belts fastened	N/A – Single-seat aircraft
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	CAM 8 App B .51(a) N/A CAM 8 App B .51(b) Fitted as standard Fitted as standard Fitted as standard – FM 1.5 Fitted as standard – FM 1.5
		(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter
		N/A – Turbine engine Fitted as standard – FM 1.5 N/A – Turbine engine N/A – Turbine engine Flaps visible from cockpit N/A – Fixed undercarriage Voltmeter fitted as standard
91.511	Night VFR Instruments and Equipment	<i>Operational requirement – Compliance as applicable</i>
91.513	VFR Communication Equipment	<i>Operational requirement – Compliance as applicable</i>
91.517	IFR Instruments and Equipment	N/A – Not approved for IFR operations
91.519	IFR Communication and Navigation Equipment	N/A – Not approved for IFR operations
91.523	Emergency Equipment	N/A – Single or dual seat aircraft
91.529	ELT – TSO C126 406 MHz after 22/11/2007	<i>To be determined on an individual aircraft basis</i>
91.531	Oxygen Indicators - Volume/Pressure/Delivery	Not fitted as standard
91.533	Oxygen Equipment for Non-Pressurised Aircraft	<i>Operational requirement – Compliance as applicable</i>
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational requirement – Compliance as applicable</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	N/A – Not approved for IFR operations
91.545	Assigned Altitude Indicator	N/A – Not approved for IFR operations
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

CAR Part 137 – Subpart F – Instruments and Equipment

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
137.255	Seating and Restraints – Shoulder harness for each crew seat	Complies – See Air Tractor Report ER 2560
137.257	Additional Instruments – Slip indicator required	Required Equipment – See TCDS
137.259	Additional Equipment	See Appendix D compliance statements
	Appendix B – Overload Weight Determination	
	The AT-400/500 Series is only certificated in the Restricted Category. Load factor is not specified on the TCDS, so there is no basis to apply Part 137 Appendix B. The higher maximum weights permitted by FAA AC 20-33B and CAM 8 therefore will be the Overload weight in NZ. (See Service Letter #304 and Flight Manual Section 9.3 for details of the process.) This is the weight specified on the TCDS and for which performance data and airspeed limitations are provided in the AFM. For AT-402B (s/n 402B-0966 thru 1020 except 1015) demonstrated restricted category takeoff weight is 7860 lb. [3565 kg] For AT-402B (s/n 402B-1015, 402-1021 and subsequent) demonstrated restricted category takeoff wt. is 9170 lb. [4159 kg] For AT-502A demonstrated restricted category takeoff weight is 10480 lb. [4754 kg] (131% increase) For AT-502B demonstrated restricted category takeoff weight is 9400 lb. [4264 kg] (117.5% increase) For AT-504 demonstrated restricted category takeoff weight is 9600 lb. [4354 kg] (120% increase)	
	Appendix D – Instruments and Equipment Airworthiness Design Standards	
D.1	Seating and Restraints – Ultimate fwd inertia load of 12g	Complies – See Air Tractor Report ER 2560
D.3	Hoppers and spray tanks – 12g fwd/1.5 rear/1.0 sideways	Complies – See Air Tractor Report ER 2559
D.4	Hopper upper level contents – Indication, density allowance	Hopper has viewing port visible in the cockpit
D.5	Jettison gear – Simple to operate, single action required – Capability demonstrated by flight test/AFM	<i>Operational Requirement – Compliance as applicable</i>
D.6	Markings/Placards – hopper or tank maximum loadings – representative jettison times – pax location, flight limits	<i>To be determined on an individual aircraft basis</i>

- NOTES: 1. A Design Rule reference in the Means of Compliance column indicates the Design Rule was directly equivalent to the CAR requirement, and compliance is achieved for the basic aircraft type design by certification against the original Design Rule.
2. The CAR Compliance Tables above were correct at the time of issue of the Type Acceptance Report. The Rules may have changed since that date and should be checked individually.
3. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/137 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

Attachments

The following documents form attachments to this report:

- Three-view drawing Air Tractor Model AT-502B
- Copy of FAA Type Certificate Data Sheet Number A17SW

Sign off



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David Gill
Team Leader Aircraft Inspection



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Checked – Greg Baum
Team Leader Product Certification

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
AT-402B	Air Tractor Inc.	96/21B/5	7 December 1995
AT-502B	Air Tractor Inc.	96/21B/6	25 October 1995
AT-402B (AIR 3152)	Air Tractor Inc.	11/21B/10	1 October 2010
AT-502B (AIR 3153)	Air Tractor Inc.	11/21B/10	1 October 2010
AT-504	Air Tractor Inc.	12/21B/16	24 May 2012
AT-502A	Super Air Limited	19/21B/31	1 October 2019
AT-402B (SL382)	Air Tractor Inc.	20/21B/20	28 August 2020

Appendix B

Three-view drawing Air Tractor AT-502B:

