

European Aviation Safety Agency

EASA

**TYPE-CERTIFICATE
DATA SHEET**

Number : P.104
Issue : 03
Date : 21 December 2011
Type : MT-Propeller Entwicklung GmbH
MTV-27 series propellers

Models
MTV-27-1

List of effective Pages:

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I. General

1. Type / Models

MTV-27 / MTV-27-1

2. Type Certificate Holder

MT-Propeller Entwicklung GmbH
Flugplatzstraße 1
94348 Atting
Germany

Design Organisation Approval No.: EASA.21J.020

3. Manufacturer

MT-Propeller Entwicklung GmbH

4. Date of Application

MTV-27-1: 07 November 1997

5. Reference Date for Determination of the Applicable Requirements

07 November 1997

6. Certification Date

MTV-27-1: 28 March 2002

II. Certification Basis

1. Airworthiness Standards

MTV-27-1	Wooden Blades: -02, -11, -14, -15, -18, -20, -21, -22, -25, -26, -27, -29, -33, -34, -35, -37, -42, -43, -45, -46, -50, -55, -58, -102, -103, -104, -109, -121	JAR-P Change 7 dated October 22, 1987, as amended by Amendment P/96/1 dated August 08, 1996
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Note:

Application was made to LBA-Germany before EASA was established. The applicable airworthiness standards were established in accordance with the rule in Germany at the time of application.

MTV-27-1	Wooden Blades: -61, -62, -63, -65, -66, -67	JAR-P Change 7 dated October 22, 1987, as amended by Amendment P/96/1 dated August 08, 1996 CS-P 390, CS-P 400 (Amendment 01 dated 16 November 2006)
MTV-27-1	Wooden Blades: -52	JAR-P Change 7 dated October 22, 1987, as amended by Amendment P/96/1 dated August 08, 1996 CS-P 360, CS-P 380, CS-P 390, CS-P 400, CS-P 560 (Amendment 01 dated 16 November 2006)
MTV-27-1-N-C-F-R(G)-J MTV-27-1-N-C-F-J	Wooden Blades: -82, -83, -84	JAR-P Change 7 dated October 22, 1987, as amended by Amendment P/96/1 dated August 08, 1996 CS-P 360, CS-P 380, CS-P 390, CS-P 400, CS-P 560 (Amendment 01 dated 16 November 2006)

III. Technical Characteristics

1. Type Design Definition

The MTV-27-1 propeller model is defined by a main assembly drawing and associated parts list:

MTV-27-1-(*) and MTV-27-1-(*)-C "Constant Speed" and
MTV-27-1-(*)-C-F "Constant Speed, Feather":
Drawing No. P-565 dated 04 December 2001 (*2)
Parts List No. S-081 dated 04 December 2001 (*2)

MTV-27-1-(*)-C-F-R(M) "Constant Speed, Feather, Reverse (System Mühlbauer)":
Drawing No. P-557-A dated 04 December 2001 (*2)
Parts List No. S-080-A dated 04 December 2001 (*2)

MTV-27-1-(*)-C-F-R(P) "Constant Speed, Feather, Reverse (System Pratt & Whitney)":
Drawing No. P-467-D dated 13 February 2001 (*2)
Parts List No. S-051-B dated 04 December 2001 (*2)

MTV-27-1-E-C-F-R(G) "Constant Speed, Feather, Reverse (System Garrett)":
Drawing No. P-635-E dated 07 December 2000 (*2)
Parts List No. S-109-C dated 04 December 2001 (*2)

MTV-27-1-E-C-F-R(W) "Constant Speed, Feather, Reverse (System Walter)":
Drawing No. P-760-1 dated 03 December 2001 (*2)
Parts List No. S-141 dated 03 December 2001 (*2)

MTV-27-1-N-C-F-J "Constant Speed, Feather":
 Drawing No. P-1151-1 dated 09 February 2010 (*2)
 Parts List No. S-184-1-A dated 26 August 2010 (*2)

MTV-27-1-N-C-F-R(G)-J "Constant Speed, Feather, Reverse (System Garrett)":
 Drawing No. P-1151-A dated 10 February 2010 (*2)
 Parts List No. S-184-B dated 26 August 2010 (*2)

Note:

- (*1) Three versions of hub flanges are available:
- E = ARP 880
 - N = BCD 5.125 in, twelve 9/16"-18 UNF studs, two dowels
 - H = Similar to N except for dowel location
- (*2) Or later approved revision. Following a revision, the Drawing No. or the Parts List No. includes the corresponding revision letter, e.g. from P-565 in P-565-A.

2. Description

5-blade variable pitch propeller with a hydraulically operated blade pitch change mechanism providing the operation mode "Constant Speed", "Feather" and "Reverse". The hub is milled out of aluminum alloy. The blades have a laminated wood structure with a composite fiber cover. The leading edge of the blade is protected by a stainless steel or nickel erosion protection sheath. Optional equipment includes spinner and ice protection equipment.

3. Equipment

Spinner:	according to MT-Propeller Service Bulletin No. 13
Governor:	according to MT-Propeller Service Bulletin No. 14
Ice Protection:	according to MT-Propeller Service Bulletin No. 15

4. Dimensions

Propeller diameter: Wooden blades: 190 cm to 300 cm

5. Weight

Depending on propeller-design configuration and blade material:

Wooden Blades

"Constant Speed":	approx. 55 kg
"Constant Speed, Feather":	approx. 68 kg
"Constant Speed, Reverse":	approx. 68 kg
"Constant Speed, Feather, Reverse":	approx. 74 kg

6. Hub/Blade-Combinations

Hub	Blades
MTV-27-1-() except MTV-27-1-N-C-F-J and MTV-27-1-N-C-F-R(G)-J	Wooden Blades: -02, -11, -14, -15, -18, -20, -21, -22, -25, -26, -27, -29, -33, -34, -35, -37, -42, -43, -45, -46, -50, -52, -55, -58, -61, -62, -63, -65, -66, -67, -102, -103, -104, -109, -121

Hub	Blades
MTV-27-1-N-C-F-J MTV-27-1-N-C-F-R(G)-J	Wooden Blades: -82, -83, -84,

7. Control System

Propeller governors as listed in MT-Propeller ServiceBulletin No. 14.

8. Adaptation to Engine

Hub flanges as identified by a letter-code in the propeller designation (refer to note VI. 7.)

9. Direction of Rotation

Direction of rotation (viewed in flight direction) as identified by a letter-code in the propeller designation (refer to note VI. 7.)

IV. Operational Limits

1. Approved Installations:

Propeller/engine/aircraft combinations that have been demonstrated to comply with the requirements of JAR-P 60(b), 160(b), 190, and 220 are listed in MT-Propeller Service Bulletin No. 16.
(see also note VI. 5.)

2. Maximum Take Off Power and Speed

	Max. Take Off Power (kW)	Max. Take Off Speed (rpm)	Diameter (cm)
MTV-27-1-() except MTV-27-1-N-C-F-J and MTV-27-1-N-C-F-R(G)-J	634	2200	190 to 250
	858	2200	190 to 220
	858	1607	190 to 250
	954	2000	190 to 235
	954	1700	190 to 270

	Max. Take Off Power (kW)	Max. Take Off Speed (rpm)	Diameter (cm)
MTV-27-1-N-C-F-J	1231	2000	190 to 250
MTV-27-1-N-C-F-R(G)-J	1231	1568	190 to 300

3. Maximum Continuous Power and Speed

	Max. Continuous Power (kW)	Max. Continuous Speed (rpm)	Diameter (cm)
MTV-27-1-() except MTV-27-1-N-C-F-J and MTV-27-1-N-C-F-R(G)-J	634	2200	190 to 250
	858	2200	190 to 220
	858	1607	190 to 250
	954	2000	190 to 235
	954	1700	190 to 270

	Max. Continuous Power (kW)	Max. Continuous Speed (rpm)	Diameter (cm)
MTV-27-1-N-C-F-J	1231	2000	190 to 250
MTV-27-1-N-C-F-R(G)-J	1231	1568	190 to 300

4. Propeller Pitch Angle

from -20° up to +86° measured at 75% radius station

V. Operating and Service Instructions

Operation and Installation Manual for hydraulically controlled variable pitch propeller	No. E-124 Issue 29 Nov. 2001 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (M)	No. E-504 Issue 12 April 2000 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (G), (P), (W)	No. E-610 Issue 29 Nov. 2001 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller MTV-16-1, MTV-27-1, -2	No. E-1083 Issue 06 Dec. 2005 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller MTV-27-1-N-C-F-R(G)-J	No. E-1922 Issue 01 July 2010 (*)
Overhaul Manual and Parts List for hydraulically controlled variable pitch propeller	No. E-220 Issue 29 Nov. 2001 (*)
Overhaul Manual and Parts List for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (M)	No. E-519 Issue 10 Oct. 2000 (*)
Overhaul Manual and Parts List for for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (G), (P), (W)	No. E-680 Issue 29 Nov. 2001 (*)
Standard Practice Manual	No. E-808 Issue 09 Nov. 2008 (*)
Overhaul Manual Metal Blades	No. E-809 Issue 20 Nov. 2001 (*)
Composite Blade Overhaul Manual (**)	No. E-1290 Issue 16 May 2010 (*)
Service Bulletins, Service Letters, Service Instructions	as published by MT-propeller

(*) or later approved revision

(**) also applicable to wooden blades

VI. Notes

1. The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable "Operation and Installation Manual" document, chapter 1. "General and Airworthiness Limitations Section".
2. The recommended overhaul intervals are published in MT-Propeller Service Bulletin No.1.
3. The suitability of a propeller for a certain aircraft/engine combination must be demonstrated within the scope of the type certification of the aircraft.
4. Some models of this propeller can incorporate a start pitch lock which may prevent propeller feathering below a given propeller speed.
5. In accordance with JAR-P 10(c), the MTV-27-2-()-C-F-R(P) / ()265-417 propeller has received a Preliminary Approval under reference P-EASA.P.C.01007. The full compliance of this propeller has yet to be demonstrated with JAR-P 60(b), JAR-P 160(b), JAR-P 190, and JAR-P 220. The MTV-27-2 propeller model is defined by a main assembly drawing and associated parts list:
 MTV-27-2-(*)-C-F-R(P) "Constant Speed, Feather, Reverse (System Pratt & Whitney)":
 Drawing No. P-955-A dated 15 February 2006 (*2)
 Parts List No. S-164-A dated 16 February 2006 (*2)
 Note:
 (*1) Three versions of hub flanges are available:
 - E = ARP 880
 - N = BCD 5.125 in, twelve 9/16"-18 UNF studs, two dowels
 - H = Similar to N except for dowel location

 (*2) Or later approved revision. Following a revision, the Drawing No. or the Parts List No. includes the corresponding revision letter, e.g. from P-955-A in P-955-B.

The MTV-27-2 propeller ratings are:

	Diameter (cm)	Max. Take Off Power Max. Continuous (kW)	Max. Take Off Speed Max. Continuous (rpm)
MTV-27-2-()	190 to 265	954	1700

6. EASA Type Certificate and Type Certification Data Sheet No. P.104 replaces LBA-Germany Type Certificate and Type Certification Data Sheet No. 32.130/102.

7. Propeller designation system:

Hub	/	Blade
MT V - 27 - (1 or 2) () () () () () () 1 2 3 4 5 6 7 8 9	/	() () 250 - 103 () 1 2 3 4 5

Hub

- 1 MT-Propeller Entwicklung GmbH
- 2 Variable pitch propeller
- 3 Identification of propeller type
- 4 Letter code for flange type:
 - E = ARP 880
 - N = BCD 5.125 in, twelve 9/16"-18 UNF studs, two dowels
 - H = Similar to N except for dowel location
- 5 Letter code for counterweights:
 - blank: no or small counterweights for pitch change forces to decrease pitch
 - C = counterweights for pitch change forces to increase pitch
- 6 Letter code for feather provision:
 - blank: no feather position possible
 - F = feather position allowed
- 7 Letter code for reverse provision:
 - blank: no feather position possible
 - R = reverse position allowed
- 8 Letter code for reversing system:
 - G = System Garrett
 - M = System Mühlbauer
 - P = System Pratt & Whitney
 - W = System Walter
- 9 Letter code for hub design changes:
 - small letter for changes which do not affect interchangeability
 - capital letter for changes which affect interchangeability

Blade

- 1 Letter code for position of pitch change pin:
 - blank: pin position for pitch change forces to decrease pitch
 - C = pin position for pitch change forces to increase pitch
 - CF = pin position to allow feather; pitch change forces to increase pitch
 - CR = pin position to allow reverse; pitch change forces to increase pitch
 - CFR = pin position to feather and reverse; pitch change forces to increase pitch

- 2 Letter code for blade installation and direction of rotation:
 - blank: right-hand tractor
 - RD = right-hand pusher
 - L = left-hand tractor
 - LD = left-hand pusher

- 3 Propeller diameter in cm

- 4 Identification of blade design

- 5 Letter code for blade design changes:
 - small letter for changes which do not affect interchangeability of blade set
 - capital letter for changes which affect interchangeability of blade set
