

I. General

1. Type / Variants

MTV-16 / MTV-16-1

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-16-1	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, -102, -103, -104, -109, -121	04 March 2002
MTV-16-1	Wooden Blades	-63, -65, -66, -67	25 November 2004
	Aluminium Blades	-402, -406, -407, -408, -409, -410, -411, -413	

5. Reference Date for Determination of the Applicable Requirements

04 March 2002

Note: Application was made to LBA-Germany before EASA had been established.
The application date to LBA has also been used as reference date.

6. Certification Date

MTV-16-1	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, -102, -103, -104, -109, -121	24 August 2004
MTV-16-1	Wooden Blades	-63, -65, -66, -67	15 May 2007
	Aluminium Blades	-402, -406, -407, -408, -409, -410, -411, -413	

II. Certification Basis

1. Airworthiness Standards

- 1.1 Airworthiness Standards: JAR-P Change 7 dated October 22, 1987, as modified by Amendment P/96/1 of August 8, 1996
CS-P 390 Amendment No. P/1
CS-P 400 Amendment No. P/1
- 1.2 Special Conditions (SC): None
- 1.3 Equivalent Safety Findings (ESF): None

III. Technical Characteristics

1. Type Design Definition

The MTV-16 propeller model is defined by a main assembly drawing and associated parts list:

MTV-16-1>(*1) and MTV-16-1(*1)-C "Constant Speed"
Drawing No. P-226-B dated October 10, 2001 (*3)
Parts List No. S-034-C dated January 19, 2003 (*3)

MTV-16-1(*1)-C-F "Constant Speed, Feather"
Drawing No. P-534-A dated October 29, 2001 (*3)
Parts List No. S-074-C dated January 19, 2003 (*3)

MTV-16-1(*1)-C-R(M) "Constant Speed, Reverse (System Mühlbauer)"
Drawing No. P-571-A dated October 25, 2001 (*3)
Parts List No. S-085-C dated January 19, 2003 (*3)

MTV-16-1(*1)-C-F-R(M) "Constant Speed, Feather, Reverse (System Mühlbauer)"
Drawing No. P-570-A dated October 25, 2001 (*3)
Parts List No. S-084-C dated January 19, 2003 (*3)

MTV-16-1-E-C-F-R(W) "Constant Speed, Feather, Reverse (System Walter)"
Drawing No. P-787-A dated January 19, 2003 (*3)
Parts List No. S-144-B dated January 19, 2003 (*3)

MTV-16-1-E-C-F-R(G) "Constant Speed, Feather, Reverse (System Garrett)"
Drawing No. P-738 dated January 19, 2003 (*3)
Parts List No. S-157 dated January 19, 2003 (*3)

MTV-16-1(*2)-C-F-R(P) "Constant Speed, Feather, Reverse (System P&W Canada)"
Drawing No. P-658-A dated October 25, 2001 (*3)
Parts List No. S-116-C dated January 19, 2003 (*3)

MTV-16-1-D-C-F-R(A) "Constant Speed, Feather, Reverse (System Allison)"
Drawing No. P-944 dated January 17, 2005 (*3)
Parts List No. S-161-E dated May 18, 2005 (*3)

Note:

- (*1) Three versions of hub flange are available:
 - B = AS-127-D, SAE No.2 mod., 1/2 inches – 20 UNF bolts
 - D = ARP 502 Type 1
 - E = ARP 880

- (*2) Three versions of hub flange are available:
 - E = ARP 880
 - N = BCD 5.125 inches, twelve 9/16"-18 UNF bolts, 2 index pins
 - H = BCD 5.125 inches, twelve 9/16"-18 UNF bolts, 2 index pins

- (*3) Or later approved revision. Following a revision, the Drawing No. or the Parts List No. includes the corresponding revision letter, e.g. from P-226-B to P-226-C.

2. Description

4-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 aluminium alloy. The blade materials are:

- Wooden blades: Laminated wood structure with a composite fiber cover. The leading edge of the blades is protected by a stainless steel erosion protection sheath.
- Aluminium blades.

Optional equipment includes spinner and ice protection.

3. Equipment

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

4. Dimensions

Propeller diameter: Wooden blades: 190 cm to 280 cm
 Aluminium blades: 190 cm to 245 cm

5. Weight

Depending on propeller-Design Configuration and blade material:

Wooden Blades	"Constant Speed"	approx. 32 kg
	"Constant Speed, Feather"	approx. 45 kg
	"Constant Speed, Reverse"	approx. 45 kg
	"Constant Speed, Feather, Reverse"	approx. 49 kg
Aluminium Blades	"Constant Speed"	approx. 52 kg
	"Constant Speed, Feather"	approx. 54 kg
	"Constant Speed, Reverse"	approx. 54 kg
	"Constant Speed, Feather, Reverse"	approx. 55 kg

6. Hub/Blade-Combinations

MTV-16-1	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
	Aluminium Blades	-402, -406, -407, -408, -409, -410, -411, -413

7. Control System

Propeller governors as listed in MT-Propeller Service Bulletin No. 14.

8. Adaptation to Engine

Hub flanges as identified by a letter in the propeller designation (refer to note VI.4)

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.4)

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.

2. Maximum Take Off Power and Speed

	Max. Take Off Power (kW)	Max. Take Off Speed (rpm)	Diameter (cm)
Wooden Blades	448	2700	190 to 225
	540	2080	190 to 260
	634	2200	190 to 250
	895	1700	190 to 280
	954	1700	190 to 270
Aluminium Blades	540	2080	190 to 245
	634	2200	190 to 235

3. Maximum Continuous Power and Speed

	Max. Take Off Power (kW)	Max. Take Off Speed (rpm)	Diameter (cm)
Wooden Blades	448	2700	190 to 225
	540	2080	190 to 260
	634	2200	190 to 250
	895	1700	190 to 280
	954	1700	190 to 270
Aluminium Blades	540	2080	190 to 245
	634	2200	190 to 235

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 Jan. 14, 2004 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller - reverse-Systems (M)	No. E-504, Issue Nov. 11, 2003 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (G), (P), (W), (A)	No. E-610 Issue Dec. 16, 2004 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller MTV-16-1, MTV-27-2	No. E-1083, Issue Dec. 06, 2005 (*)
Overhaul Manual and Parts List for hydraulically controlled variable pitch propeller	No. E-220 Issue Nov. 26, 2004 (*)
Overhaul Manual and Parts List for hydraulically controlled variable pitch propeller	No. E-519 Issue Nov. 26, 2004 (*)
Overhaul Manual and Parts List for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (G), (P), (W), (A)	No. E-680 Issue Nov. 26, 2004 (*)
Overhaul Manual for Metal Blades	No. E-809 Issue Nov. 29, 2001 (*)
Service Bulletins	as noted in the current List of Service Bulletins

(*) or later approved revision

VI. Notes

1. The suitability of the propeller for a given aircraft/engine combination must be demonstrated within the scope of the type certification of the aircraft.
2. Some models of this propeller can incorporate a start pitch lock which may prevent propeller feathering below a given propeller speed.

3. The overhaul intervals recommended by the manufacturer are listed in MT-Propeller Service Bulletin No. 1.
4. Propeller designation system:

				Hub						/	Blade										
MT	V	-	16	-	()	-	()	-	()	-	()	-	()	/	()	()	280	-	65	()	
1	2		3		4		5		6		7		8		9	10	1	2	3	4	5

Hub

- 1 MT-Propeller Entwicklung GmbH
- 2 Variable Pitch Propeller
- 3 Identification of propeller type
- 4 Identification of variant of the propeller type
- 5 Letter code for flange type:
 - B = AS-127-D, SAE No.2 mod., 1/2 inch – 20 UNF bolts
 - D = ARP 502, Type 1
 - E = ARP 880
 - N = BCD 5.125 in, twelve 9/16 inch-18 UNF bolts, 2 index pins
 - H = BCD 5.125 in, twelve 9/16 inch-18 UNF bolts, 2 index pins
- 6 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
- 7 Letter code for feather provision:
 - blank: no feather position possible
 - F = feather position allowed
- 8 Letter code for reverse provision:
 - blank: no reverse position possible
 - R = reverse position allowed
- 9 Letter code for reversing system:
 - A = System Allison
 - G = System Garrett
 - M = System Mühlbauer
 - P = System P&W Canada
 - W = System Walter
- 10 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 allow feather and reverse; pitch change forces to increase pitch

- 2 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
