TYPE-CERTIFICATE DATA SHEET

No. P.101

for Propeller
MTV-21 Series

Type Certificate Holder
MT-Propeller Entwicklung GmbH

Flugplatzstraße 1
94348 Atting
Germany

For Models:
MTV-21-A
MTV-21-D
MTV-21-F

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I. General

1. Type / Models

MTV-21 / MTV-21-A, MTV-21-D, MTV-21-F

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-21-A: 23 February 1988
MTV-21-D: 23 February 1988
MTV-21-F: 23 February 1988

5. EASA Type Certification Date

All models: 10 June 1993

II. Certification Basis

1. **Reference Date for determining the applicable airworthiness requirements:**

   23 February 1988

2. EASA Certification Basis

2.1. Airworthiness Standards

14 CFR Part 35, as amended by 35-1 through 35-7, effective 28 December 1995

2.2. Special Conditions (SC): None

2.3. Equivalent Safety Findings (ESF): None

2.4. Deviations: None

III. Technical Characteristics

1. Type Design Definition

The MTV-21 propeller model consists of different design configurations, each one of the design configurations may have different versions of the hub flange. Each design configuration is by a main assembly drawing and associated parts list as per the following table:

Design Configuration	Assembly Drawing	Parts List
MTV-21-(*) Constant Speed	P-300-(x)	S-048-(x)
MTV-21-D Constant Speed	P-649-(x)	S-112-(x)
MTV-21-A-MF Constant Speed + Mechanical Feather	P-443-(x)	S-062-(x)
MTV-21-A-C-F Constant Speed + Feather	P-439-(x)	S-058-(x)
MTV-21-A-C-R(M) Constant Speed + Reverse (System Mühlbauer)	P-667-(x)	S-117-(x)
MTV-21-(**)-C-()-R(M) Constant Speed + Feather + Reverse (System Mühlbauer)	P-701-(x)	S-121-(x)
(*): Flange types: A, F (**): Flange types: A, D, F		
Notes: 1. Three versions of hub flanges are available: -A = Motorglider engines bolt 7/16” – 20 UNF -D = ARP-502, Type 1 -F = SAE No. 1, bolts 3/8” – 24 UNF 2. In the assembly drawing number and the part list number, the suffix (x) indicates the revision status.		

2. Description

2-blade variable pitch propeller with a hydraulically operated blade pitch change mechanism providing the operation mode “Constant Speed”, “Feather” and “Reverse”. The MTV-21-A model can be optionally equipped with a mechanically operated feather mechanism. The hub is milled out of aluminium alloy. The blades have a wood composite structure. The leading edge of the blade is equipped with an erosion protection device. Optional equipment includes spinner and ice protection.

3. Equipment

Spinner: refer to MT-Propeller Service Bulletin No. 13 (see also VI.6)
Governor: refer to MT-Propeller Service Bulletin No. 14 (see also VI.6)
Ice Protection: refer to MT-Propeller Service Bulletin No. 15 (see also VI.6)

4. Dimensions

Blade diameter: 145 cm to 203 cm

5. Weight

Depending on Propeller-Design Configuration

“Constant Speed”:	approx. 10 kg
“Constant Speed, Feather”:	approx. 12 kg
“Constant Speed, Reverse”:	approx. 12 kg
“Constant Speed, Feather, Reverse”:	approx. 13,5 kg

6. Hub / Blade Combinations

For all design configurations listed under III.1 the following wooden blades are applicable:

-03, -04, -05, -06, -07, -08, -09, -12, -16, -23, -28, -31, -49, -51, -64, -69, -80, -81, -90, -106, -112, -122, -123, -125, -129, -140, -312

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-code in the propeller designation (see VI.5.)

9. Direction of Rotation

Direction of rotation (viewed in flight direction) as identified by a letter-code in the propeller designation (see VI.5.)

IV. Operating Limitations

1. Approved Installations

The suitability of a propeller for a given aircraft/engine combination must be demonstrated within the scope of the type certification of the aircraft.

2. Maximum Take Off Power and Speed

Diameter (cm)	Maximum Take Off Power (kW)	Maximum Take Off Speed (rpm)
145 to 160	59	3400
145 to 160	64	3200
145 to 175	73.6	2750
145 to 180	85	2388
145 to 203	104	2279

3. Maximum Continuous Power and Speed

Diameter (cm)	Maximum Continuous Power (kW)	Maximum Continuous Speed (rpm)
145 to 160	68	3000
145 to 175	73.6	2750
145 to 180	73.5	2265
145 to 203	104	2279

4. Propeller Pitch Angle

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

V. Operating and Service Instructions

Manuals	
Operation and Installation Manual for hydraulically controlled variable pitch propeller MTV-21-( ), MTV-21-A-MF, MTV-21-A-C-F	No. E-124 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (M) MTV-21-A-C-R(M), MTV-21-( )-C-( )-R(M)	No. E-504 (*)

Instructions for Continued Airworthiness (ICA)	
Operation and Installation Manual for hydraulically controlled variable pitch propeller MTV-21-( ), MTV-21-A-MF, MTV-21-A-C-F	No. E-124 (*)
Operation and Installation Manual for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (M) MTV-21-A-C-R(M), MTV-21-( )-C-( )-R(M)	No. E-504 (*)
Overhaul Manual and Parts List for hydraulically controlled variable pitch propeller MTV-21-( ), MTV-21-A-MF, MTV-21-A-C-F	No. E-220 (*)
Overhaul Manual and Parts List for reversible hydraulically controlled variable pitch propeller; Reverse-Systems (M) MTV-21-A-C-R(M), MTV-21-( )-C-( )-R(M)	No. E-519 (*)

(*) latest revision of

VI. Notes

1. The EASA approved Airworthiness Limitations Section (ALS) of the Instructions for Continued Airworthiness is published in the applicable "Operation, Installation and Maintenance Manual" document, chapter 10.0 "Airworthiness Limitations Section". This ALS section is empty because no life limit is necessary for these models.

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. EASA Type Certificate and Type Certificate Data Sheet No. P.101 replace LBA-Germany Type Certificate and Type Certificate Data Sheet No. 32.130/86.

5. Propeller designation system**:**

				Hub								/	Blade					
MT	V	-	21	-	( )	( )	( )	( )	( ) – ()		/	( )	( )	200	-	15	( )	
1	2		3		4	5	6	7	8	9	/	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:
-A = Motorglider engines bolt 7/16” – 20 UNF
-D = ARP-502, Type 1
-F = SAE No. 1, bolts 3/8” – 24 UNF

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 (hydraulically)
-MF= feather position allowed (mechanically)

7 Letter code for reverse provision:
- blank = no reverse position possible
- R = reverse position allowed

8 Letter code for reversing system:
- M = System Mühlbauer

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 direction of rotation and installation:
- 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

6. The equipment listed in SBs No.13, 14 and 15 is not included in the certified Type Design. Related propeller equipment must be approved as part of the aircraft installation regardless of manufacture.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

CFR Code of Federal Regulations
LBA Luftfahrt Bundesamt

II. Type Certificate Holder Record

As per I.2

III. Change Record

TCDS Issue	Date	Changes	TC Issue Date
Issue 01	31 January 2019	Initial issue following approval of additional rating and additional blade types, reference EASA Major Change Approval 10068523. The type was previously covered by LBA TCDS No. 32.130/86 Issue 5.	Initial Issue, 31 January 2019

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