EASA

TYPE-CERTIFICATE
DATA SHEET

Number :  P.013
Issue :  1
Date :  08 November 2005
Type :  MT-Propeller Entwicklung GmbH
       MTV-12 series propellers

Variants
MTV-12-B
MTV-12-C
MTV-12-D

List of effective Pages:

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I. General

1. Type/Variants

MTV-12 / MTV-12-B, MTV-12-C, MTV-12-D

2. Type Certificate Holder

MT-Propeller Entwicklung GmbH
Flugplatzstraße 1
94348 Atting
Germany

3. Manufacturer

MT-Propeller Entwicklung GmbH

4. Date of Application

<table>
<thead>
<tr>
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<th>MTV-12-D</th>
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<tr>
<td>05 August 1988</td>
<td>03 May 1989</td>
<td>03 May 1989</td>
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5. Reference Date for determination of the applicable requirements

05 August 1988

6. Certification Date

<table>
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<tr>
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<th>MTV-12-D</th>
<th>MTV-12-B</th>
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Note: EASA Type Certification of the MTV-12 propeller has been covered previously by German Type Certificate No. 32.130/67

II. Certification Basis

1. Airworthiness Standards

FAR 35 Amdt. 35-7 effective December 28, 1995

Note: Initial type certification was based on airworthiness standard FAR 35 Amdt 35-5, effective 14 October 1980. Update of type certification to airworthiness standard FAR 35 Amdt. 35-6 was made on application of MT-Propeller, dated 04 December 1996.
Update of type certification to airworthiness standard FAR 35 Amdt. 35-7 was made on application of MT-Propeller, dated 23 July 2002. Propellers fitted with full composite blades in addition have been shown to comply CS-P 240, 370 and 380

III. Technical Characteristics

1. Type Design Definition

The MTV-12 propeller model covers the following design configurations, and each one being defined by a main assembly drawing and an appropriate Parts List. The propeller variant is defined by the hub version installed, and which fits on a certain engine propeller flange.

Design Configuration “Constant Speed”
MTV-12-(*1) and MTV-12-(*1)-C
Drawing No. P-199-1-( ) dated 16 October 1987 (*2)
Parts List No. S-023-1-( ) dated 26 July 1987 (*2)

Note:
Since 04 April 2000 Drawing No. P-199-2-( ) and P-199-3-( ) as well as Parts Lists No. S-023-2-( ) and S-023-3-( ) have been included in P-199-1-A and S-023-1-A.

Design Configuration “Constant Speed, Feather”
MTV-12-(*1)-C-F
Drawing No. P-551-( ) dated 19 August 1987 (*2)
Parts List No. S-078-( ) dated 19 August 1987 (*2)

replaced by:
Drawing No. P-706-( ) dated 13 July 2000 (*2)
Parts List No. S-122-( ) dated 14 July 2000 (*2)

Design Configuration “Constant Speed, Reverse (System Mühlbauer)”
MTV-12-(*1)-C-R(M)
Drawing No. P-552-( ) dated 19 August 1987 (*2)
Parts List No. S-079-( ) dated 19 August 1987 (*2)

Design Configuration “Constant Speed, Feather, Reverse (System Mühlbauer)”
MTV-12-(*1)-C-F-R(M)
Drawing No. P-482-( ) dated 19 July 1996 (*2)
Parts List No. S-068-( ) dated 14 October 1996 (*2)

Note:
(*1) optionally different versions of hub flange available
- B: AS-127-D, SAE No. 2 mod., 1/2 inch bolts
- C: AS-127-D, SAE No. 2, 7/16 inch bolts
- D: ARP-502, Type 1

(*2) Effective is the declared issue or a later approved revision. At a revision, the Drawing No. or the Parts List No. will be completed with the current revision letter, e.g. from P-199-1 in P-199-1-A
2. **Description**

3-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.

Blade material (optional):
- Wood composite blades: Laminated wood composite structure with epoxy-fiber glass cover
- Full composite blades:
  - Series -500: AFRP design (Aramid Fiber Reinforced Plastics)
  - Series -600: CFRP design (Carbon Fiber Reinforced Plastics)

The leading edge of the blades are equipped with an erosion protection device. Optionally the propeller may have installed a 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: 152 cm to 203 cm

   **Note:** The propeller type certification is valid for any MTV-12 propeller model with a diameter covered by the declared diameter range. Individual propeller diameter is determined particularly by the demands of the aircraft on which the propeller will be installed.

5. **Weights**

   Propeller-Design Configuration
   - “Constant Speed”:
     - approx. 20 kg
   - “Constant Speed, Reverse”:
     - approx. 23 kg
   - “Constant Speed, Feather”:
     - approx. 25 kg
   - “Constant Speed, Feather, Reverse”:
     - approx. 28 kg

6. **Hub/Blade-Combinations**

<table>
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<tr>
<th>Hub</th>
<th>Blade-Type</th>
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<tbody>
<tr>
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<td>CFRP blades: -617, -656</td>
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</table>
7. **Control System**

Hydraulically operating governors corresponding to the data of MT-Propeller Service Bulletin No. 14.

8. **Adaptation to Engine**

Hub flanges corresponding to the particular letter in the propeller designation (see chapter VI. 4.)

9. **Sense of Rotation**

Sense of rotation (viewed in flight direction) corresponding to the particular letter in the propeller designation (see chapter VI. 4.)

### IV. Operational Limits

1. **Propeller Speed**

   max. 2800 min\(^{-1}\)

2. **Driving Power**

   max. 168 kW for a propeller-diameter/ -speed of max. 192 cm / 2800 min\(^{-1}\)
   max. 224 kW for a propeller-diameter/ -speed of max. 203 cm / 2700 min\(^{-1}\)

3. **Propeller Pitch Angle**

   from -20° up to +86°

### V. Operating and Service Instructions

<table>
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<tr>
<th>Manual</th>
<th>Issue Date</th>
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<tr>
<td>Operation and Installation Manual for hydraulically controlled variable pitch propeller</td>
<td>No. E-124 Issue 01 July 1988 (*)</td>
</tr>
<tr>
<td>Operation and Installation Manual for hydraulic reversible propeller governor P-9( )-( )</td>
<td>E-1046 Issue 01 April 2004 (*)</td>
</tr>
<tr>
<td>Overhaul Manual and Parts List for hydraulically controlled variable pitch propeller</td>
<td>No. E-220 Issue 01 June 1998 (*)</td>
</tr>
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</table>
VI. Notes

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

2. The overhaul intervals recommended by the manufacturer are listed in MT-Propeller Service Bulletin No. 1.

3. Propeller designation system

<table>
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<tr>
<th>Hub</th>
<th>Blade</th>
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<tr>
<td>MT  V - 12 - ( ) ( ) ( ) ( ) ( ) / ( ) 203 - 56 ( )</td>
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Hub

1. MT: MT-Propeller Entwicklung GmbH
2. V: Variable Pitch Propeller
3. No. of propeller model
4. code letter for flange type
   - B: AS-127-D, SAE No. 2 mod., 1/2 inch-20 UNF bolts
   - C: AS-127-D, SAE No. 2, 7/16 inch-20 UNF bolts
   - D: ARP 502
5. code letter for counterweights
   - blank: no or small counterweights for pitch change forces to decrease pitch
   - C: counterweights for pitch change forces to increase pitch
6. code letter for feather provision
   - blank: no feather position possible
   - F: feather position installed
7. code letter for reverse provision
   - blank: no feather position possible
   - R: reverse position installed
8. code letter for reverse system
   - M: System Mühlbauer

(*) effective is the declared issue or a later approved revision
9 code letter for design changes
   - small letter for changes which do not affect interchangeability
   - capital letter for changes which restrict or exclude interchangeability

Blade

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

2 code letter for blade design and installation
   - blank: right-hand tractor
   - RD: right-hand pusher
   - L: left-hand tractor
   - LD: left-hand pusher

3 propeller diameter in cm

4 No. of blade type (contains design configuration and aerodynamic data) according to the certified hub/blade-combinations

5 code letter for design changes
   - small letter for changes which do not affect interchangeability of blade set
   - capital letter for changes which restrict or exclude interchangeability of blade set