EASA

TYPE-CERTIFICATE

DATA SHEET

Number : P.001
Issue : 02
Date : 15 May 2007
Type : MT-Propeller Entwicklung GmbH
       MTV-16 series propellers

Variants
MTV-16-1

List of effective Pages:

<table>
<thead>
<tr>
<th>Page</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MTV-16-1</td>
<td>Aluminium Blades</td>
<td>-402, -406, -407, -408, -409, -410, -411, -413</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MTV-16-1</td>
<td>Aluminium Blades</td>
<td>-402, -406, -407, -408, -409, -410, -411, -413</td>
<td></td>
</tr>
</tbody>
</table>
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)

   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:

<table>
<thead>
<tr>
<th>Blade Material</th>
<th>Operation Mode</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wooden Blades</td>
<td>“Constant Speed”</td>
<td>approx. 32 kg</td>
</tr>
<tr>
<td></td>
<td>“Constant Speed, Feather”</td>
<td>approx. 45 kg</td>
</tr>
<tr>
<td></td>
<td>“Constant Speed, Reverse”</td>
<td>approx. 45 kg</td>
</tr>
<tr>
<td></td>
<td>“Constant Speed, Feather, Reverse”</td>
<td>approx. 49 kg</td>
</tr>
<tr>
<td>Aluminium Blades</td>
<td>“Constant Speed”</td>
<td>approx. 52 kg</td>
</tr>
<tr>
<td></td>
<td>“Constant Speed, Feather”</td>
<td>approx. 54 kg</td>
</tr>
<tr>
<td></td>
<td>“Constant Speed, Reverse”</td>
<td>approx. 54 kg</td>
</tr>
<tr>
<td></td>
<td>“Constant Speed, Feather, Reverse”</td>
<td>approx. 55 kg</td>
</tr>
</tbody>
</table>
6. **Hub/Blade-Combinations**

<table>
<thead>
<tr>
<th>MTV-16-1</th>
<th>Wooden Blades</th>
<th>Aluminium Blades</th>
</tr>
</thead>
</table>

7. **Control System**


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**

<table>
<thead>
<tr>
<th></th>
<th>Max. Take Off Power (kW)</th>
<th>Max. Take Off Speed (rpm)</th>
<th>Diameter (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wooden Blades</td>
<td>448</td>
<td>2700</td>
<td>190 to 225</td>
</tr>
<tr>
<td></td>
<td>540</td>
<td>2080</td>
<td>190 to 260</td>
</tr>
<tr>
<td></td>
<td>634</td>
<td>2200</td>
<td>190 to 250</td>
</tr>
<tr>
<td></td>
<td>895</td>
<td>1700</td>
<td>190 to 280</td>
</tr>
<tr>
<td></td>
<td>954</td>
<td>1700</td>
<td>190 to 270</td>
</tr>
<tr>
<td>Aluminium Blades</td>
<td>540</td>
<td>2080</td>
<td>190 to 245</td>
</tr>
<tr>
<td></td>
<td>634</td>
<td>2200</td>
<td>190 to 235</td>
</tr>
</tbody>
</table>
3. **Maximum Continuous Power and Speed**

<table>
<thead>
<tr>
<th></th>
<th>Max. Take Off Power (kW)</th>
<th>Max. Take Off Speed (rpm)</th>
<th>Diameter (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wooden Blades</td>
<td>448</td>
<td>2700</td>
<td>190 to 225</td>
</tr>
<tr>
<td></td>
<td>540</td>
<td>2080</td>
<td>190 to 260</td>
</tr>
<tr>
<td></td>
<td>634</td>
<td>2200</td>
<td>190 to 250</td>
</tr>
<tr>
<td></td>
<td>895</td>
<td>1700</td>
<td>190 to 280</td>
</tr>
<tr>
<td></td>
<td>954</td>
<td>1700</td>
<td>190 to 270</td>
</tr>
<tr>
<td>Aluminium Blades</td>
<td>540</td>
<td>2080</td>
<td>190 to 245</td>
</tr>
<tr>
<td></td>
<td>634</td>
<td>2200</td>
<td>190 to 235</td>
</tr>
</tbody>
</table>

4. **Propeller Pitch Angle**

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

**V. Operating and Service Instructions**

<table>
<thead>
<tr>
<th>Manual</th>
<th>No.</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>variable pitch propeller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation and Installation Manual for reversible hydraulically</td>
<td>E-504,</td>
<td>Nov. 11, 2003 (*)</td>
</tr>
<tr>
<td>controlled variable pitch propeller - reverse-Systems (M)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>controlled variable pitch propeller; Reverse-Systems (G), (P), (W),</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation and Installation Manual for reversible hydraulically</td>
<td>E-1083,</td>
<td>Dec. 06, 2005 (*)</td>
</tr>
<tr>
<td>controlled variable pitch propeller MTV-16-1, MTV-27-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhaul Manual and Parts List for hydraulically controlled variable</td>
<td>E-220</td>
<td>Nov. 26, 2004 (*)</td>
</tr>
<tr>
<td>pitch propeller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhaul Manual and Parts List for hydraulically controlled variable</td>
<td>E-519</td>
<td>Nov. 26, 2004 (*)</td>
</tr>
<tr>
<td>pitch propeller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhaul Manual and Parts List for reversible hydraulically controlled</td>
<td>E-680</td>
<td>Nov. 26, 2004 (*)</td>
</tr>
<tr>
<td>variable pitch propeller; Reverse-Systems (G), (P), (W), (A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhaul Manual for Metal Blades</td>
<td>E-809</td>
<td>Nov. 29, 2001 (*)</td>
</tr>
<tr>
<td>Service Bulletins</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*) 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:

<table>
<thead>
<tr>
<th>Hub</th>
<th>Blade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT V - 16 - ( ) - ( ) - ( ) - ( ) - ( ) / ( ) / ( ) 280 - 65 ( )</td>
<td></td>
</tr>
</tbody>
</table>

**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

--------