Airworthiness Directive Schedule
Aeroplanes
Twin Commander 500 and 600 Series
30 May 2013

Notes
1. This AD schedule is applicable to Twin Commander 500 and 600 series aircraft manufactured under Federal Aviation Administration (FAA) Type Certificate Numbers:

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<th>Aircraft Model:</th>
<th>FAA TC No:</th>
<th>Known Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>6A1</td>
<td>Commander 500</td>
</tr>
<tr>
<td>500-A</td>
<td>6A1</td>
<td>Commander 500</td>
</tr>
<tr>
<td>500-S</td>
<td>6A1</td>
<td>Shrike Commander</td>
</tr>
<tr>
<td>680F</td>
<td>2A4</td>
<td>Grand Commander</td>
</tr>
<tr>
<td>690</td>
<td>2A4</td>
<td>Turbo Commander</td>
</tr>
<tr>
<td>690A</td>
<td>2A4</td>
<td>Turbo Commander</td>
</tr>
<tr>
<td>690B</td>
<td>2A4</td>
<td>Turbo Commander</td>
</tr>
<tr>
<td>695A</td>
<td>2A4</td>
<td>Commander 1000</td>
</tr>
</tbody>
</table>

2. The Federal Aviation Administration (FAA) is the National Airworthiness Authority (NAA) responsible for the issue of State of Design Airworthiness Directives (ADs) for Twin Commander 500 and 600 series aircraft. State of Design ADs applicable to these aircraft can be obtained directly from the FAA web site. The link to the FAA web site is available on the CAA web site at [http://www.caa.govt.nz/Airworthiness_Directives/states_of_design.html](http://www.caa.govt.nz/Airworthiness_Directives/states_of_design.html)

3. The date above indicates the amendment date of this schedule.

4. New or amended ADs are shown with an asterisk *

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- DCA/AC/102 Carburettor Vent Lines - Modification
- DCA/AC/103 Horizontal and Vertical Stabilisers - Modification
- DCA/AC/104 Main Landing Gear Actuating Cylinders - Modification
- DCA/AC/105 Main Landing Gear Torque Scissors - Inspection and Modification
- DCA/AC/106 Flap Pulley Assembly - Inspection and Modification
- DCA/AC/107 Oil Shut-off Valve CB - Modification
- DCA/AC/108 Power Brake Valve - Modification
- DCA/AC/110 Cancelled - purpose fulfilled
- DCA/AC/111 Cancelled - purpose fulfilled
- DCA/AC/112 Fuel Line Routing - Modification
- DCA/AC/113 Cancelled - purpose fulfilled
- DCA/AC/114 Heater Warning Placard - Modification
- DCA/AC/116 Cancelled - purpose fulfilled
- DCA/AC/117 Cancelled - purpose fulfilled
- DCA/AC/118 Cancelled - purpose fulfilled
- DCA/AC/120 Cancelled - purpose fulfilled
- DCA/AC/123 Cancelled - purpose fulfilled
- DCA/AC/124 Horizontal Stabiliser Forward Spar - Inspection and Modification
- DCA/AC/128 Main Landing Gear Piston - Lock Pin Replacement
- DCA/AC/129 Cancelled - purpose fulfilled
- DCA/AC/130 Cancelled - purpose fulfilled
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- DCA/AC/133 Rudder Torque Tube - Modification
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From 1 October 2012 the Civil Aviation Authority of New Zealand (CAA) will no longer rewrite the text of State of Design ADs. Applicable State of Design ADs will be listed below and can be obtained directly from the National Airworthiness Authority (NAA) web site. The link to the NAA web site is available on the CAA web site at http://www.caa.govt.nz/Airworthiness_Directives/states_of_design.html If additional NZ ADs need to be issued when an unsafe condition is found to exist in an aircraft or aeronautical product in NZ they will be added to the list below.
DCA/AC/101  Cancelled - purpose fulfilled

DCA/AC/102  Carburettor Vent Lines - Modification
Applicability:  Model 680 series S/N 231 through 580
Requirement:  Modify per Aero Commander SB 45
Compliance:  By 1 July 1958

DCA/AC/103  Horizontal and Vertical Stabilisers - Modification
Applicability:  Models 500 and 680 S/N 151 through 710
Requirement:  Modify per Aero Commander SB 50
Compliance:  By 31 March 1959

DCA/AC/104  Main Landing Gear Actuating Cylinders - Modification
Applicability:  All models with S/N 231 through 892
Requirement:  Modify per Aero Commander SB 65
Compliance:  By 31 January 1961

DCA/AC/105  Main Landing Gear Torque Scissors - Inspection and Modification
Applicability:  All models with S/N 231 through 892 equipped with Electrol 400 series MLG
Requirement:  Inspect and modify per Aero Commander SB 67A
Compliance:  Within the next 100 hours TIS and thereafter reinspect at intervals not exceeding 100 hours TIS

DCA/AC/106  Flap Pulley Assembly - Inspection and Modification
Applicability:  All models with S/N 231 through 710
Requirement:  Inspect and modify per Aero Commander SB 55
Compliance:  By 31 March 1959

DCA/AC/107  Oil Shut-off Valve CB - Modification
Applicability:  All models with S/N 245 through 710
Requirement:  Modify per Aero Commander SB 58
Compliance:  By 31 August 1959
DCA/AC/109  Power Brake Valve - Modification
Applicability: All models with S/N 75, and 91 through 650 and any others with nosewheel steering
Requirement: Modify per Aero Commander SB 48
Compliance: By 31 October 1958

DCA/AC/110  Cancelled - purpose fulfilled

DCA/AC/111  Cancelled - purpose fulfilled

DCA/AC/112  Fuel Line Routing - Modification
Applicability: All models with S/N 231 through 690
Requirement: Modify per Aero Commander SB 54
Compliance: By 31 March 1959

DCA/AC/113  Cancelled - purpose fulfilled

DCA/AC/114  Heater Warning Placard - Modification
Applicability: All models with S/N 231 through 892 equipped with fuel vent heaters
Requirement: Modify per Aero Commander SB 64
Compliance: By 30 September 1960

DCA/AC/116  Cancelled - purpose fulfilled

DCA/AC/117  Cancelled - purpose fulfilled

DCA/AC/118  Cancelled - purpose fulfilled

DCA/AC/120  Cancelled - purpose fulfilled

DCA/AC/123  Cancelled - purpose fulfilled

DCA/AC/124  Horizontal Stabiliser Forward Spar - Inspection and Modification
Applicability: Models 500, 500A, 680F, 680FL with S/N 618 through 1420 except 1395, 1403, 1410, 1413 and 1416
Requirement: Inspect and modify per Aero Commander SB 85
Compliance: Within the next 100 hours TIS
Effective Date: 30 June 1964
<table>
<thead>
<tr>
<th>Document Number</th>
<th>Description</th>
<th>Applicability</th>
<th>Requirement</th>
<th>Compliance</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCA/AC/128</td>
<td>Main Landing Gear Piston - Lock Pin Replacement</td>
<td>All models with S/N 871, 875 and 893 through 1535 as detailed in SB 83A</td>
<td>Replace lock pins per Aero Commander SB 83A</td>
<td>Within the next 25 hours TIS</td>
<td>31 August 1965</td>
</tr>
<tr>
<td>DCA/AC/129</td>
<td>Cancelled - purpose fulfilled</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCA/AC/130</td>
<td>Cancelled - purpose fulfilled</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCA/AC/132</td>
<td>Magnesium Fuel Sump - Replacement</td>
<td>All models (except 500A, 500B, 500U, 680T and 1121) with S/N 231 through 1450</td>
<td>Replace fuel sump per Aero Commander SB 91</td>
<td>By 31 May 1968</td>
<td></td>
</tr>
<tr>
<td>DCA/AC/133</td>
<td>Rudder Torque Tube - Modification</td>
<td>All models with S/N 2 through 1727</td>
<td>Incorporate drain hole per Aero Commander SL 203</td>
<td>Within the next 100 hours TIS</td>
<td>31 August 1967</td>
</tr>
<tr>
<td>DCA/AC/134</td>
<td>Wing Front Spar Lower Cap - Modification</td>
<td>All models with S/N 1 through 1492 except 1490, 1495 and 1500</td>
<td>Modify per Aero Commander Service Change 81B</td>
<td>Before further flight</td>
<td>31 December 1967</td>
</tr>
<tr>
<td>DCA/AC/135</td>
<td>Engine Mounts - Modification</td>
<td>All model 500</td>
<td>Modify per Aero Commander SB 68A</td>
<td>By 30 September 1968</td>
<td></td>
</tr>
<tr>
<td>DCA/AC/136</td>
<td>Fuel Drain Lines - Modification</td>
<td>All models with S/N 1 through 1170 except as detailed in SB 78</td>
<td>Modify per Aero Commander SB 78</td>
<td>Before further flight</td>
<td>31 August 1968</td>
</tr>
</tbody>
</table>
DCA/AC/137  Circuit Breaker, Panel Insulator - Inspection
Applicability: All models with S/N 1 through 892
Requirement: Inspect per Aero Commander SL 123
Compliance: At intervals not exceeding 100 hours TIS until replaced per SL 123
Effective Date: 31 August 1968

DCA/AC/138  Elevator Torque Tube - Inspection and Modification
Applicability: All models with S/N 1 through 1230
Requirement: Inspect and modify per Aero Commander SL 124
Compliance: Within the next 100 hours TIS
Effective Date: 31 August 1968

DCA/AC/139  Cancelled - purpose fulfilled

DCA/AC/140A  Front Spar Lower Cap - Inspection
Requirement: To prevent failure of the wing structure caused by cracks in the lower front spar cap, accomplish the following:
  Inspect the wing front spar lower cap at left and right wing station 24 per Twin Commander SB 90C. If cracks are found, prior to further flight, replace the wing front spar lower cap per SB 90C.
  (FAA AD 94-04-13 refers)
Compliance: Within next 50 hours TIS, or 500 hours after the wing lower cap was replaced, whichever occurs later, and thereafter at intervals not to exceed 500 hours TIS.
Effective Date: DCA/AC/140 - 30 April 1970
DCA/AC/140A - 13 May 1994

DCA/AC/141  Main Landing Gear Axle - Modification
Applicability: Models 500 and 680, series as detailed in SL 244
Requirement: Modify per Rockwell International SL 244
Compliance: At next wheel removal
Effective Date: 31 May 1972

DCA/AC/142  Fuel Cap Assemblies - Replacement
Applicability: Models 500 and 680, series with S/N 231 through 1854; Model 680FL, S/N 1261 through 1738
Requirement: Embody Aero Commander Custom kit no. 87A.
  (FAA AD 73-06-02 refers)
Compliance: By 31 July 1973
DCA/AC/143 Elevators - Modification
Applicability: Models 500 and 680, series with S/N 231 through 3155
Requirement: Install bob-weights per Rockwell International SB 128 or SB 129, as applicable.
(FAA AD 75-12-09 refers)
Compliance: By 31 October 1974

DCA/AC/144 Elevator Bob-Weight Installation - Modification
Applicability: Models 500 and 680, series with S/N 1 through 3155 that complied with SB 129 prior to Rev 2
Requirement: Modify per Rockwell International SB 152
Compliance: By 31 October 1974

DCA/AC/145 Flexible Fuel Tanks - Inspection
Applicability: All model 500, 680 and 690 series
Requirement: Accomplish the following:
1. Inspect per Part II of Rockwell International SB 165
2. If Goodyear BTC-39 tanks found fitted, inspect per Part I of Rockwell International SB 165
(Goodyear SB FT-77-1 and FAA AD 78-05-06 also refer)
Compliance: 1. Within the next 25 hours TIS or 30 days whichever is the sooner
2. Within the next 100 hours TIS or 6 months, whichever is the sooner, thereafter at intervals not exceeding 12 months
Effective Date: 12 May 1978

DCA/AC/146 Rudder and Elevator Trim Controls - Inspection and Modification
Applicability: All model 500, 680, 690 series
Requirement: Inspect and modify per Rockwell International SL 317
Compliance: Within the next 100 hours TIS, unless already accomplished
Effective Date: 23 June 1978

DCA/AC/147 Elevator Bob-Weight Installation - Inspection and Modification
Applicability: All model 500, 500A, 500S and 680F
Requirement: Inspect and modify per Rockwell International SB 179 Parts I and II respectively
Compliance: Inspection - at intervals not exceeding 25 hours TIS until modified
Modification - within the next 100 hours TIS
Effective Date: 3 April 1981
DCA/AC/148  Elevator Trim Tab - Inspection

Applicability:  Models 500 and 680 series S/N 1 through 1854; 500S S/N 1755 through 1876 and 3050 through 3323; 690 series S/N 11001 through 11566 and 695A S/N 96001 through 96055, 96059, 96060, 96063 through 96069, 96072, 96075, 96078 and 96085

Requirement:  Inspect per Gulfstream Aerospace SB 198A Part I. Repair cracked ribs per Part II before further flight

Compliance:  At intervals not exceeding 100 hours TIS until Gulfstream Aerospace SB 198A Part II embodied

Effective Date:  13 December 1985

DCA/AC/149  Operating Limitation - Placard

Applicability:  All model 690, 690A, 690B, 690C, 690D, 695, 695A, and 695B, with ignition systems having a continuous duty cycle of less than 1 hour

Requirement:  To prevent engine flame out, fabricate a placard which, in letters not less than 2.5 mm high reads, "THIS AIRCRAFT IS PROHIBITED FROM FLIGHT INTO KNOWN ICING" and install it on instrument panel in full view of pilot.

Note:  Operating limitation no longer applicable when one of the following is accomplished:
1. Ignition systems modified to increase continuous duty cycle to 1 hour or more per Gulfstream SI -211 and -212 or
2. Automatic relight ignition systems installed per Gulfstream Custom Kits 138 or 139 (as applicable).

(FAA AD 87-24-07 refers)

Compliance:  Within the next 50 hours TIS

Effective Date:  18 March 1988

DCA/AC/150A  Wing Lower Spar - Inspection

Applicability:  The following model and S/N aircraft that do not have the wing spar lower cap replaced per one of the three modifications specified within the requirement of this airworthiness directive.

<table>
<thead>
<tr>
<th>Models</th>
<th>S/NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>500U, 680FL, 680FL(P), 680W</td>
<td>1731 through 1854</td>
</tr>
<tr>
<td>500S</td>
<td>1755 through 3323</td>
</tr>
<tr>
<td>681</td>
<td>6001 through 6072</td>
</tr>
<tr>
<td>685</td>
<td>12000 through 12066</td>
</tr>
<tr>
<td>690, 690A, 690B</td>
<td>11001 through 11566</td>
</tr>
</tbody>
</table>

Requirement:  To prevent wing structural damage that if not detected and corrected could progress to the point of failure, accomplish the following:-

Ultrasonically inspect each area of the wing front spar lower cap for corrosion per Twin Commander SB 208A. If corrosion is found to be greater than 100% of the allowable service limits referenced in Table 1 of SB 208A, prior to further flight, replace the wing front spar lower cap in accordance with one of the following modifications:

(i) Twin Commander Custom Kit CK-144, Revision A for models 685, 690, 690A and 690B.

(iii) AVIADESIGN, Inc. STC SA5740NM, for models 690, 690A and 690B. (FAA AD 94-04-14 refers)

**Compliance:**
Within next 3 months unless already accomplished and thereafter at intervals not to exceed;

- 36 months if no corrosion is found
- 30 months if corrosion is found that is less than 50% of the allowable service limits referenced in Table 1 of SB 208A
- 12 months if corrosion is found between 50 to 100% of the allowable service limits referenced in Table 1 of SB 208A

**Effective Date:**
DCA/AC/150 9 September 1988
DCA/AC/150A 10 May 1996

**DCA/AC/151A Flap System - Inspection**

**Applicability:**
All model;
- 500 500-A 500-B 500-S 500-U
- 520 560 560-A 560-E 560-F
- 680 680-E 680-F 680FL 680FL(P)
- 680FP 680T 680V 680W 681
- 685 690 690A 690B 690C
- 690D 695 695A 695B 720

**Requirement:**
To prevent failure of a flap system cable caused by fatigue, which could result in loss of control of the airplane, accomplish the following:-

1. Perform the following per the ACCOMPLISHMENT INSTRUCTIONS section of Twin Commander SB 226, Revision 1.
   - Inspect all flap system cable grooves for the correct width;
   - Inspect all flap system pulleys for rubbing on the support brackets;
   - Inspect all flap pulley cable assemblies for frayed wires; and
   - Mark pulleys that have been inspected and have the correct groove radius with two parallel lines as specified in the service bulletin.

2. If any of the above discrepancies are found, prior to further flight after the inspections required by paragraph 1, rework or replace the affected part per Twin Commander SB 226, Revision 1.

3. A pulley that does not meet the following criteria shall no longer be fitted to any aircraft.
   - A pulley that has been inspected, found acceptable, and marked with two parallel lines in accordance with paragraph (a), including all subparagraphs, of this AD;
   - A pulley that has been reworked in accordance with an FAA-approved procedure and is marked “SB 226”; or
   - A new pulley that is marked “SB 226-NEW”.
(FAA AD 98-07-17 refers)

Compliance:  
1. Within next 300 hours TIS.  
2. Prior to further flight after the inspections required by paragraph 1.  
3. From 5 June 1998

Effective Date:  
DCA/AC/151 - 13 May 1994  
DCA/AC/151A - 5 June 1998

DCA/AC/152  
Wing Rib - Inspection and Modification

Applicability:  
Model 685 S/N 12000 through 12066; models 690, 690A and 690B S/N 11001 through 11566.

Requirement:  
To prevent failure of the wing structure caused by a cracked wing front spar lower cap or cracked or deformed wing rib at Wing Station (WS) 39, accomplish the following:-  
1. Modify the wing ribs at WS 39 per Twin Commander SB 211.  
2. Eddy current inspect the wing front spar lower cap and lower wing stringer No. 7 at WS 39 for cracks and corrosion per SB 211. Prior to further flight treat or replace the wing front spar lower cap as necessary per SB 211.

(FAA AD 94-04-12 refers)

Compliance:  
Within next 50 hours TIS.

Effective Date:  
13 May 1994

DCA/AC/153  
Vertical Stabiliser - Inspection and Modification

Applicability:  

Requirement:  
To prevent failure of the vertical stabiliser, accomplish the following:-  
Inspect the vertical stabiliser for cracks per Twin Commander SB 218 Revision 2.  
If damage or cracks are found within the limits of figures 1 and 2 of SB 218 Rev 2, before further flight modify the vertical stabiliser per Part II of SB 218 Rev 2.  
If damage or cracks are found outside the limits figures 1 and 2 of SB 218 Rev 2, or if cracks intersect, before further flight, replace the damaged parts with new parts per the applicable maintenance manual instructions. The requirements of this AD still apply when damaged parts are replaced, unless the stabiliser is modified per Part II of SB 218 Rev 2.  
If no cracks are found; reinspect at intervals not to exceed 500 hours TIS, or before further flight modify the vertical stabiliser per Part II of SB 218 Rev 2. The modification may be accomplished before further flight after any repetitive inspection as terminating action for the repetitive inspections provided no cracks are found.

(FAA AD 95-13-02 refers)

Compliance:  
At 2000 hours TIS on vertical stabiliser or within next 50 hours TIS, whichever is the later. Thereafter inspect at intervals not to exceed 500 hours TIS until modified per Part II of SB 218 Rev 2.

Effective Date:  
1 September 1995
DCA/AC/154  Flight in Turbulence - Speed Reduction
Applicability: Model 690B S/N 11350 through 11566.
Requirement: To prevent structural damage caused by flight in turbulence, which could result in the loss of the aircraft, install the placard and revise the aircraft flight manual per Twin Commander Kit No. SB220-7.
(FAA AD 95-19-18 refers)
Compliance: Within next 50 hours TIS.
Effective Date: 24 November 1995

DCA/AC/155A Wing Leading Edge Attachment - Inspection and Modification
Requirement: To prevent cracks at the wing to fuselage attach points, which, if not detected and corrected, could cause structural failure and loss of the aircraft, accomplish the following:-
(a) For all models except Models 520, 560, 690C and 695, accomplish the actions in the following table per the Compliance section and PART I, II, and III of the ACCOMPLISHMENT INSTRUCTIONS sections of Twin Commander SB 223, Revision 2.

<table>
<thead>
<tr>
<th>PART I</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upon the accumulation of 6,000 hours TTIS or within the next 100 hours TIS, whichever occurs later, install access holes in left and right wing leading edges and inspect the forward attach brackets and straps for cracks. For any aircraft that have wings modified with titanium leading edges through an STC, remove the wing root farings to accomplish the required inspections, in lieu of installing the access holes. (Accomplish per PART I of Compliance Section in Twin Commander SB 223, Rev 2.</td>
<td>If cracked, prior to further flight, replace the brackets and straps or repair the part by an approved repair scheme (see paragraph (b) of this AD). Then accomplish PART II of this AD. (Accomplish per PART I of Compliance Section in Twin Commander SB 223 Rev 2.</td>
<td>If no cracks are found, repeat inspection at intervals not to exceed 1,000 hours until cracks are found, replace the cracked part or repair by an approved repair scheme (see paragraph (b) of this AD), then accomplish PART II. (Accomplish per PART I of Compliance Section in Twin Commander SB 223 Rev 2.</td>
</tr>
</tbody>
</table>
### PART II

Inspect for cracks at the wing leading edge close-outs, upper & lower return flange radius, fuselage frame where tee bracket attaches, inboard side of attach bracket and frame tee bracket.

(Accomplish per PART II of Compliance Section in Twin Commander SB 223 Rev 2.

| If cracked, prior to further flight, replace any cracked part or repair the part with an approved repair scheme (see paragraph (b) of this AD). If no cracks are found, continue to repetitively inspect at 1,000 hour TIS intervals.  

(Accomplish per PART II of Compliance Section in Twin Commander SB 223 Rev 2.  

After repair or replacement is accomplished, continue to inspect at intervals not to exceed 6,000 hours.  

(Accomplish per PART II of Compliance Section in Twin Commander SB 223 Rev 2.  

| PART III  

For pressurised airplanes, at 6,000 hr., total TIS or within the next 100 hours TIS whichever occurs later, inspect fuselage station (F.S.) 100 for cracks.  

For non-pressurised aircraft, at 12,000 hours TTIS or within the next 100 hours TIS whichever occurs later, inspect F.S. 100 for cracks.  

(Accomplish per PART III of Compliance Section in Twin Commander SB 223 Rev 2.  

| If cracked, prior to further flight, repair with an approved repair scheme (see paragraph (b) of this AD), and continue to inspect at intervals not to exceed 1,000 hours.  

(Accomplish per PART III of Compliance Section in Twin Commander SB 223 Rev 2.  

If no cracks, repeat inspection at intervals not to exceed 1,000 hours until cracks are found, then accomplish PART III B of this AD.  

(Accomplish per PART III of Compliance Section in Twin Commander SB 223 Rev 2.  

| (b) Obtain an FAA-approved repair scheme from the manufacturer.  

| (c) For Twin Commander Models 520 and 560 upon the accumulation of 6,000 hours total TIS or within the next 100 hours TIS, whichever occurs later, accomplish PART II of the table in paragraph (a) of this AD. Accomplish PART III per the compliance times in the above table of paragraph (a). These models are excluded from the wing leading edge access hole installation in PART I of the table in paragraph (a) of this AD.  

| (d) For Twin Commander Models 690C and 695, accomplish PARTS I and II per the compliance times in the above table of paragraph (a). These Models are excluded from PART III of the table in paragraph (a) of this AD.  

| Compliance:  

Compliance is required at the times specified within the requirement of this airworthiness directive, unless already accomplished per DCA/AC/155.  

| Effective Date:  

DCA/AC/155 - 29 August 1997  
DCA/AC/155A - 5 June 1998  

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Requirement: To minimise the potential hazards associated with operating the aircraft in severe icing conditions (by providing more clearly defined procedures and limitations associated with such conditions), incorporate the following into the Aircraft Flight Manual (AFM):

1. Limitations Section of the Aircraft Flight Manual

"WARNING

Severe icing may result from environmental conditions outside of those for which the aircraft is certificated. Flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) may result in ice build-up on protected surfaces exceeding the capability of the ice protection system, or may result in ice forming aft of the protected surfaces. This ice may not be shed using the ice protection systems, and may seriously degrade the performance and controllability of the aircraft.

• During flight, severe icing conditions that exceed those for which the aircraft is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.
  - Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.
  - Accumulation of ice on the upper surface of the wing aft of the protected area.
  - Accumulation of ice on the engine nacelles and propeller spinners farther aft than normally observed.

• Since the autopilot, when installed and operating, may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the aircraft is in icing conditions.

• All wing icing inspection lights must be operative prior to flight into known or forecast icing conditions at night. This supersedes any relief provided by the Master Minimum Equipment List (MMEL)."

2. Normal Procedures Section of the Aircraft Flight Manual

"THE FOLLOWING WEATHER CONDITIONS MAY BE CONDUCIVE TO SEVERE IN-FLIGHT ICING:

• Visible rain at temperatures below 0 degrees Celsius ambient air temperature.

• Droplets that splash or splatter on impact at temperatures below 0 degrees Celsius ambient air temperature.

PROCEDURES FOR EXITING THE SEVERE ICING ENVIRONMENT:

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18 degrees Celsius, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified in the Limitations Section of the AFM for identifying severe icing conditions are observed, accomplish the following:
• Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe than those for which the aircraft has been certificated.

• Avoid abrupt and excessive manoeuvring that may exacerbate control difficulties.

• Do not engage the autopilot.

• If the autopilot is engaged, hold the control wheel firmly and disengage the autopilot.

• If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.

• Do not extend flaps when holding in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.

• If the flaps are extended, do not retract them until the airframe is clear of ice.

• Report these weather conditions to Air Traffic Control.”

Note: This may be accomplished by inserting a copy of this AD in the AFM or by incorporating a manufacturer’s flight manual revision that contains the wording per this AD.

3. Flight Crew Notification

Operators must ensure that flight crew are aware of the flight manual revision.

(FAA AD 98-20-34 refers)

Compliance: By 30 November 1998

Effective Date: 23 October 1998

DCA/AC/157 Ice Protection Systems – Flight Manual Revision


Requirement: To prevent reduced controllability of the aircraft due to adverse aerodynamic effects of ice adhering to the aircraft prior to the first deicing cycle, revise the Limitations Section of the Aircraft Flight Manual (AFM) to include the following:-

"Except for certain phases of flight where the AFM specifies that deicing boots should not be used (e.g., take-off, final approach, and landing), compliance with the following is required.

Wing and Tail Leading Edge Pneumatic Deicing Boot System, if installed, must be activated:

- At the first sign of ice formation anywhere on the aircraft, or upon annunciation from an ice detector system, whichever occurs first; and

- The system must either be continued to be operated in the automatic cycling mode, if available; or the system must be manually cycled as needed to minimize the ice accretions on the airframe.
The wing and tail leading edge pneumatic deicing boot system may be deactivated only after leaving icing conditions and after the aircraft is determined to be clear of ice."

(FAA AD 2000-02-30 refers)

**Note:**
This may be accomplished by inserting a copy of this AD in the AFM or by incorporating a manufacturer’s flight manual revision that contains the wording per this AD. Operators must ensure that flight crew are aware of the flight manual revision.

**DCA/AC/158 Aileron Hinge Fittings – Inspection and Repair**

**Applicability:**
All model 690, 690A and 690B aircraft.

**Requirement:**
To detect and correct cracks in the support structures of the inboard and center aileron hinge fittings on both wings, which could result in aileron failure, inspect per Twin Commander Aircraft LLC Alert Service Bulletin (ASB) 236A or ASB 238, as applicable.

If no cracks are found, reinforce the support structures, per ASB 236A or ASB 238, as applicable, before further flight.

If cracks are found, replace and reinforce the support structure, per ASB 236A or ASB 238, as applicable, before further flight.

(FAA AD 2006-15-01 refers)

**Note:**
After reinforcement of the support structure, or replacement and reinforcement of the support structure, no further action is required.

**Compliance:**
By 27 May 2000

**Effective Date:**
27 April 2000

**DCA/AC/159 Engine Mount Beam Support Straps – Inspection and Modification**

**Applicability:**
Model 690 aircraft, all S/N
Model 690A aircraft, all S/N except 11195 and 11279
Model 690B aircraft, all S/N except 11361, 11383, 11527 and 11536

**Requirement:**
To prevent failure of the engine mount beam due to possible corrosion of the engine mount beam support straps and upper wing skins, which could result in the loss of an engine and loss of aircraft control, accomplish the following:

Inspect the surface between the left hand (LH) and right hand (RH) upper wing skins and the engine mount beam support straps for any signs of corrosion and determine the extent of the corrosion per the instructions in pages 1 through to 14 in Twin Commander Aircraft LLC ASB No. 237, dated 13 May 2005, and

Install modification access holes in the LH and RH lower wing skins per the instructions in steps 1 through to 4 and 6 through to 9 of Twin Commander Aircraft Corporation Custom Kit No. 150 dated 8 July 1994 as specified in ASB No. 237, before further flight.

If corrosion damage is found embody the modification per Part II, Options A, B, or C, on pages 15 through to 29 and 31 in ASB No. 237, before further flight.
If no corrosion damage is found, replace the upper steel straps per Part II, Option D, on pages 30 and 31 of ASB No. 237, before further flight.

Install additional wing fasteners on the LH and RH wing per Gulfstream American Corporation SB No. 182, dated 2 March 1981, before further flight.

**Note:** Although not a requirement of this AD, the CAA highly recommends compliance with the Engine Nacelle Firewall Reinforcement modification specified in Twin Commander Aircraft Corporation SB No. 217, revision 1, dated 26 May 1993, and compliance with the Outboard Flap–Inboard Hinge Inspection & Reinforcement modification specified in Twin Commander Aircraft LLC ASB No. 239, dated 13 February 2006.

(FAA AD 2009-25-02 refers)

**Compliance:** Within the next 150 hours TIS, or by 8 January 2011, whichever occurs sooner.

**Effective Date:** 8 January 2010
From 1 October 2012 the Civil Aviation Authority of New Zealand (CAA) will no longer rewrite the text of State of Design ADs. Applicable State of Design ADs will be listed below and can be obtained directly from the National Airworthiness Authority (NAA) web site. The link to the NAA web site is available on the CAA web site at http://www.caa.govt.nz/Airworthiness_Directives/states_of_design.html

If additional NZ ADs need to be issued when an unsafe condition is found to exist in an aircraft or aeronautical product in NZ they will be added to the list below.

* **2013-09-05**  Structural Components – Inspection

**Effective Date:**  29 May 2013