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# Dakota Cub Aircraft, Inc.

48473 262st.  
Valley Springs, SD 57068  
605-757-6628  
[www.dakotacub.com](http://www.dakotacub.com)

## Instructions for Continued Airworthiness for Brake Master Cylinder Assembly

Instructions for Continued Airworthiness – Brake Master Cylinder Assembly

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These instructions for continued airworthiness must be maintained by the owner / operator in a current form with all revisions as applicable. Dakota Cub Aircraft will maintain a list of all users authorized to use this STC, and will attempt to notify all users of any revisions to this document. Revisions will be controlled by revision level, date and authorizing official, and the information will be maintained at [www.dakotacub.com](http://www.dakotacub.com) or a current copy can be obtained by contacting Dakota Cub Aircraft directly. It will be the users responsibility to guarantee compliance and ensure address on file is current.

When this manual is revised the changed sections will be identified in the margin with a bar. Only the section changed in the current revision will be identified.

Revision Control

<u>Revision</u>	<u>Date</u>	<u>By</u>
Original	5-1-2007	M. Erickson
A	5-28-2014	M. Erickson

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## Description

This assembly is approved as a direct replacement part for the Piper original brake master cylinder and features the same basic configuration as the original. It is manufactured from materials and assembled with processes that are superior to the original. Its operation is identical to the original valve with the exception it produces higher braking pressures than the original. It also incorporates adjustable connecting rods to the front brake pedals providing a more easily adjustable connection between the front and rear pedal assemblies.

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## Operation

Installation of this assembly does not change or effect the operation of the aircraft. The basic master cylinder assembly mounting dimensions are identical to the Piper original assembly that it replaces.

Note: Placards are furnished with the master cylinder assemblies and must be displayed in a position that alerts the pilot to the increased braking capabilities provided with this system. An elevated awareness of the increased braking capabilities must be realized. Aggressive braking action **COULD** result in aircraft damage. Become completely familiar with the increased braking performance **PRIOR** to any aggressive brake action.

Contact your maintenance provider any time you believe your brake master cylinder assemblies have been compromised.

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## Maintenance

### **Lubrication-**

Whenever the brake master cylinder assembly is disassembled it should be lightly lubricated before re-assembly. Lubricate cylinder bore and internal components with MIL-5606H aviation hydraulic fluid, Lubriplate #105 Motor Assembly Grease or equivalent.

### **Inspection-**

Inspection interval – Annually, or at 100 hours whichever occurs first. Inspect for smooth operation. If master cylinder does not operate smoothly, it should be disassembled and inspected for internal damage.

### **Adjustment-**

The pedal to piston rod travel is adjustable, and should be adjusted to provide zero to 1/32” pedal travel with the piston rod seated against the retaining snap ring. If the piston rod is not seated against the retaining snap ring, the port that allows brake fluid to fill the piston bore may be blocked and brake fluid would not flow properly. Pedal to piston rod adjustment is critical for proper brake master cylinder operation.

### **Disassembly-**

Disassembly of valve, while installed in the aircraft, can be accomplished by removing the brake pedal, retaining snap ring, piston rod, and piston. After disassembly, check all component parts for wear with special attention paid to the sealing o-rings. If nicks or abnormal wear are noted the o-rings must be replaced.

### **Re-assembly-**

Re-assemble in reverse order of disassembly, and lubricate as noted above.

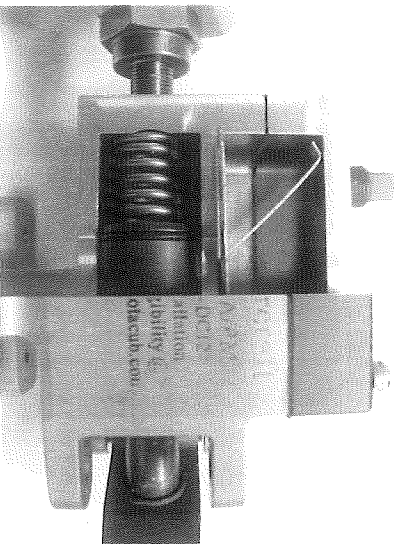
### **Replacement-**

Should it be necessary to remove the brake master cylinders from aircraft, follow instructions as detailed in Installation Instruction #1 – High Pressure Brake Master Cylinder System, dated 12-07-04 or later approved revision.

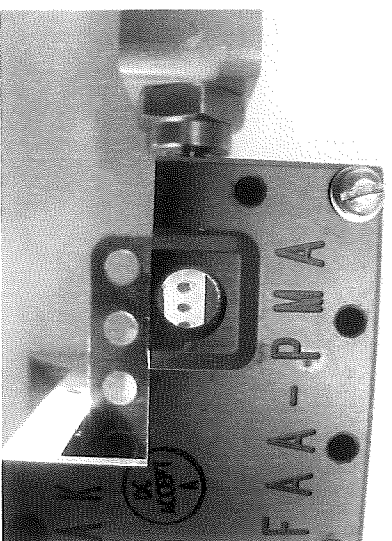
### **Fluid level check-**

Brake fluid should be checked regularly. Low fluid level could result if there are leaks in the brake system. Leaks that are not corrected will result in low fluid level in the reservoir and inadequate braking. Additionally, if the reservoir is overfilled, spillage could result. Brake fluid should be added at the brake caliper and pushed upward into the reservoir. This provides the least opportunity for air to enter the brake system. With standard size tires are utilized, the fluid level should be maintained between the bottom and middle holes of the fluid level indicator. When oversize Tundra size tire are utilized the fluid level should be maintained between the middle and top holes of the fluid level indicator.

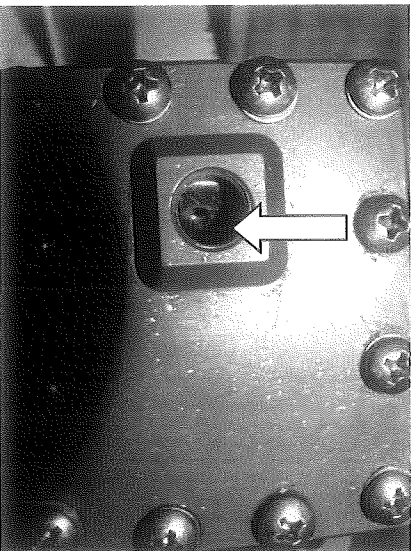
### Brake Fluid Indicator



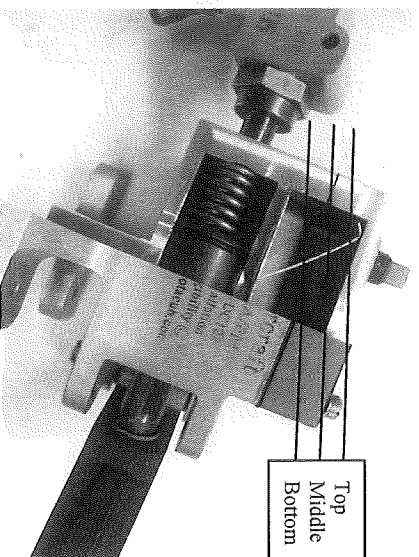
Fluid level indicator is installed on the bottom of the reservoir with fluid level indicating holes directly under the filler plug.



Fluid level indicating holes as viewed thru filler plug.



Example of the fluid level indicator showing fluid level between top and middle hole.



Fluid level is related to tire size and landing gear length (determines the aircrafts ground attitude). For aircraft with 6.00 to 8.50 tires and up to a 3 inch extended landing gear the fluid level must be maintained at or above the bottom indicator hole. For aircraft with 3 inch extended landing gear and up to a 3.5" tire the fluid level must be maintained between the top and middle indicator holes.

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## Repairs

Replacement Parts-		
1- DC1248	1 ea.	Housing
2- DC1248-Cover	1 ea.	Cover
3- DC1248-Pedal	1 ea.	Pedal Assembly
4- DC1248-B1	1 ea.	Pedal Bushing - Long
5- DC1248-B2	1 ea.	Pedal Bushing - Short
6- DC1248-Piston	1 ea.	Piston
7- DC1248-Piston Rod	1 ea.	Piston Rod
8- DC1248-Gasket	1 ea.	Cover Gasket
9- DC3252-Spring	1 ea.	Piston Spring
10- MS16625	1 ea.	Snap Ring
11- MS35265-43	12 ea.	Screw
12- MS35333-38	12 ea.	Lock Washer
13- MS35649-2252	1 ea.	Nut
14- ¼ - 20 x 1 ¾	1 ea.	Oval Point Set Screw
15- MS20913-1D	1 ea.	Fluid Check Plug (#40 vent drilled)
16- AN960-10	1 ea.	Washer
17- AN960-10L	1 ea.	Washer (light series)
18- MS17825-3	1 ea.	Nylok Castle Nut
19- AN3-17	1 ea.	Bolt
20- MS24665-134	1 ea.	Cotter
21- MS28755-020	3 ea.	O-Ring
22- DC1248-FLI	1 ea.	Fluid Level Indicator



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### Limitations

This Airworthiness Limitations section is FAA approved and specifies maintenance required under 14 CFR Secs. 43.16 and 91.403 unless an alternative program has been approved.

**No airworthiness limitations associated with this design change.**

