

***DATUM*** INC. **////**

*Success Solutions for the Aircraft Homebuilder*



***Series 1500 Manual***

DATUM inc.  
www.datumair.com  
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Fax:819-297-2426

1500 series  
Installation instructions  
for aircraft from 1200lb to 2500lb max.

## **WARNING:**

Read instructions before  
attempting installation.

## **Note:**

Some of the hardware will need installation and  
tightening and was left loose to facilitate  
installation .

By Jean-Marc Augé  
for DATUM inc.

## First time installation

*During the adaptation some attention might be required on the following items.*

Here are the different elements which may require changes or modifications:

- The rims and the wheels sizes;
- Axles length;
- The limiting cables A and B (supplied but not fitted);
- The bushing on the arms (part J);
- Front fork and axle (*Tircycle only*).
- A bushing may be needed between the two bearings of each wheel.
- Wheels camber

## Changes or modifications:

-Tires and rims : Once assembled, they should not exceed 400 mm (16") in height, and 160mm (6.250") in width and this at the widest point of the tire, when under load. This width must contain the disc brake if any.

- Axles: Need to be longer or extended, so they accept the ski anchorage bushing (see page 27, part J).

- Limiting cables: Landing gear systems differ so much from one another that it is impossible to predict their length so cables must be adapted to each type of aircraft to accommodate the travel of the skis (see pages 12-13-14).

-Anchorage bushing: *The telescopic arm anchorage bushing (see page 27, part J) can be switched from one arm to the other, depending on the type of wheels and tires to which it is being adapted. The goal is to keep the tire centered in the ski as much as possible. Washers of different thickness may also be used to make up the difference. 5mm max off center is acceptable. The length of the anchorage bushing may have to be altered to accommodate wheel and to center wheel with the ski (see pages 7-8 and 9).*

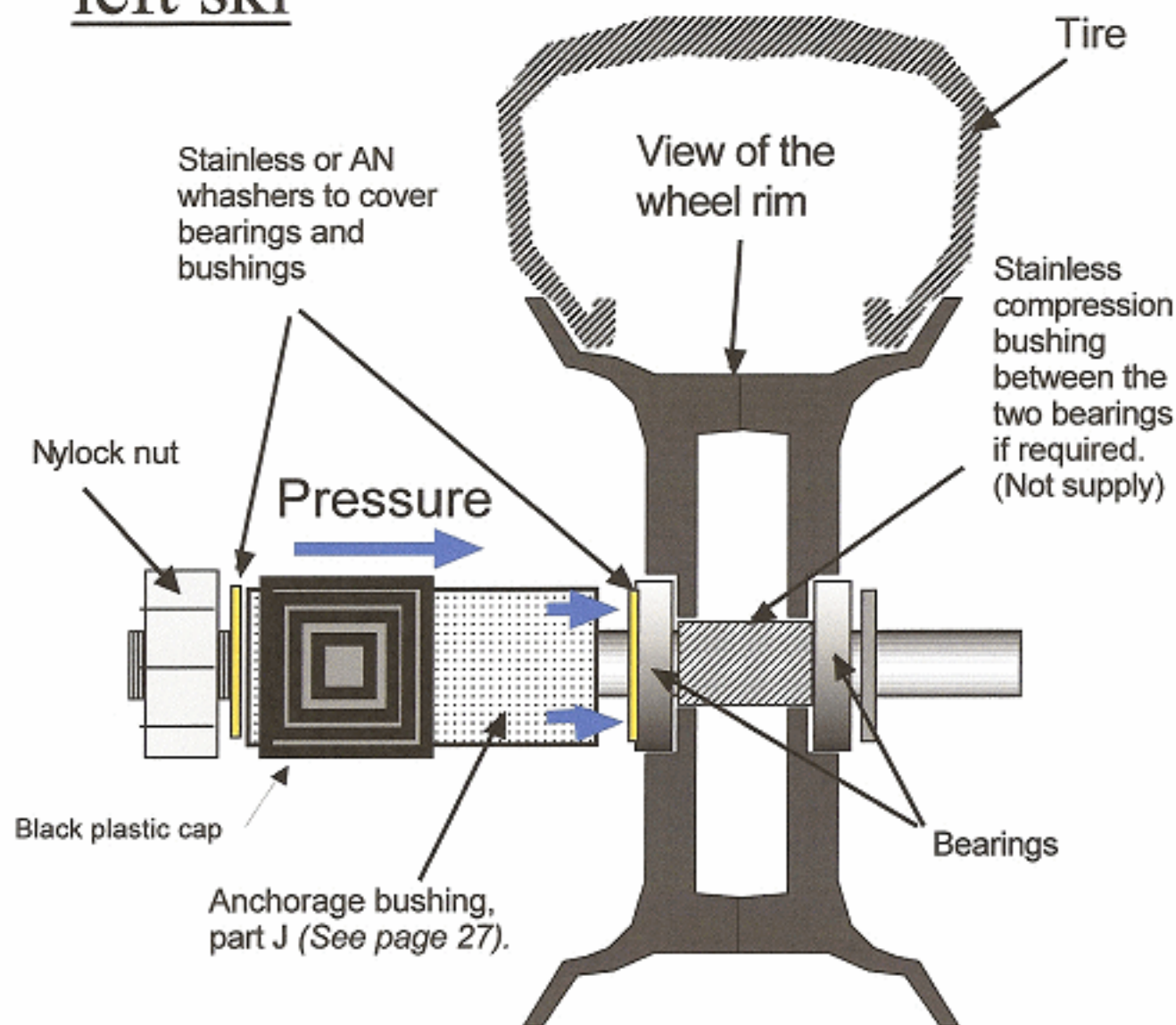
-Compression bushing: To avoid collapsing the wheel due to a lack of support between the two bearings of the wheel halves, your wheels may need a stainless steel bushing on the axle, between bearings, to eliminate excessive compression of the wheel bearings (see page 4) (SS Bushing available from local shop or at [datumair.com](http://datumair.com)).

-Wheels camber: If any camber on the wheels, an adaptation of part J will be needed (see pages 19-21).

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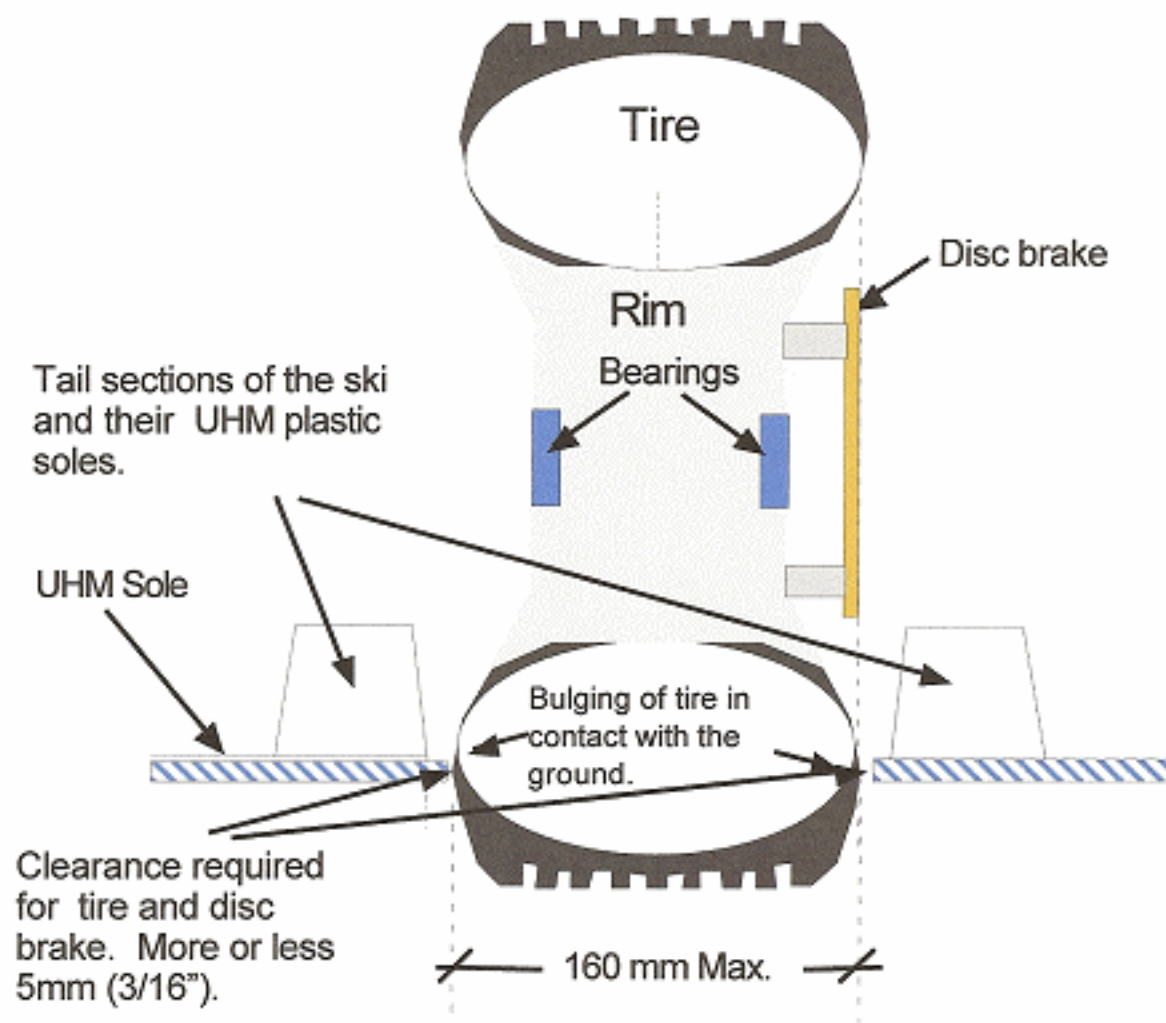


# Rear view of the system on the left ski



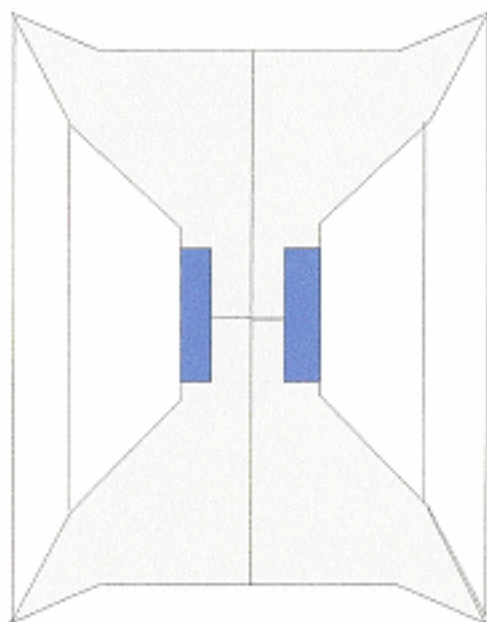
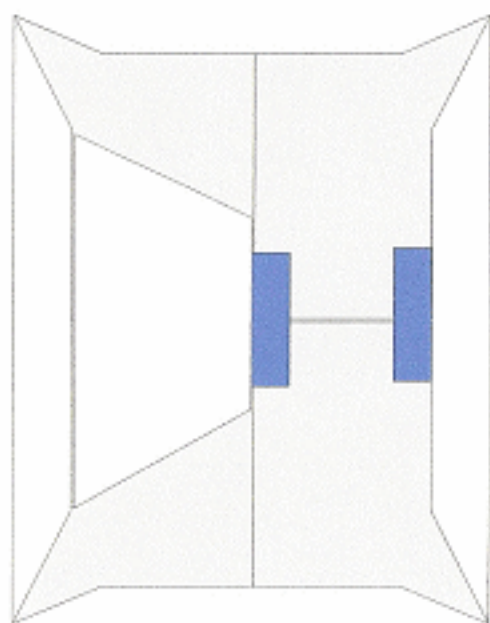
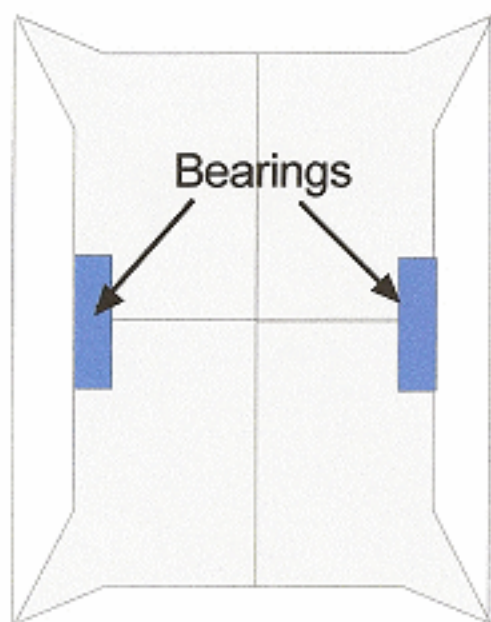
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## Rear view of the system for clearance.



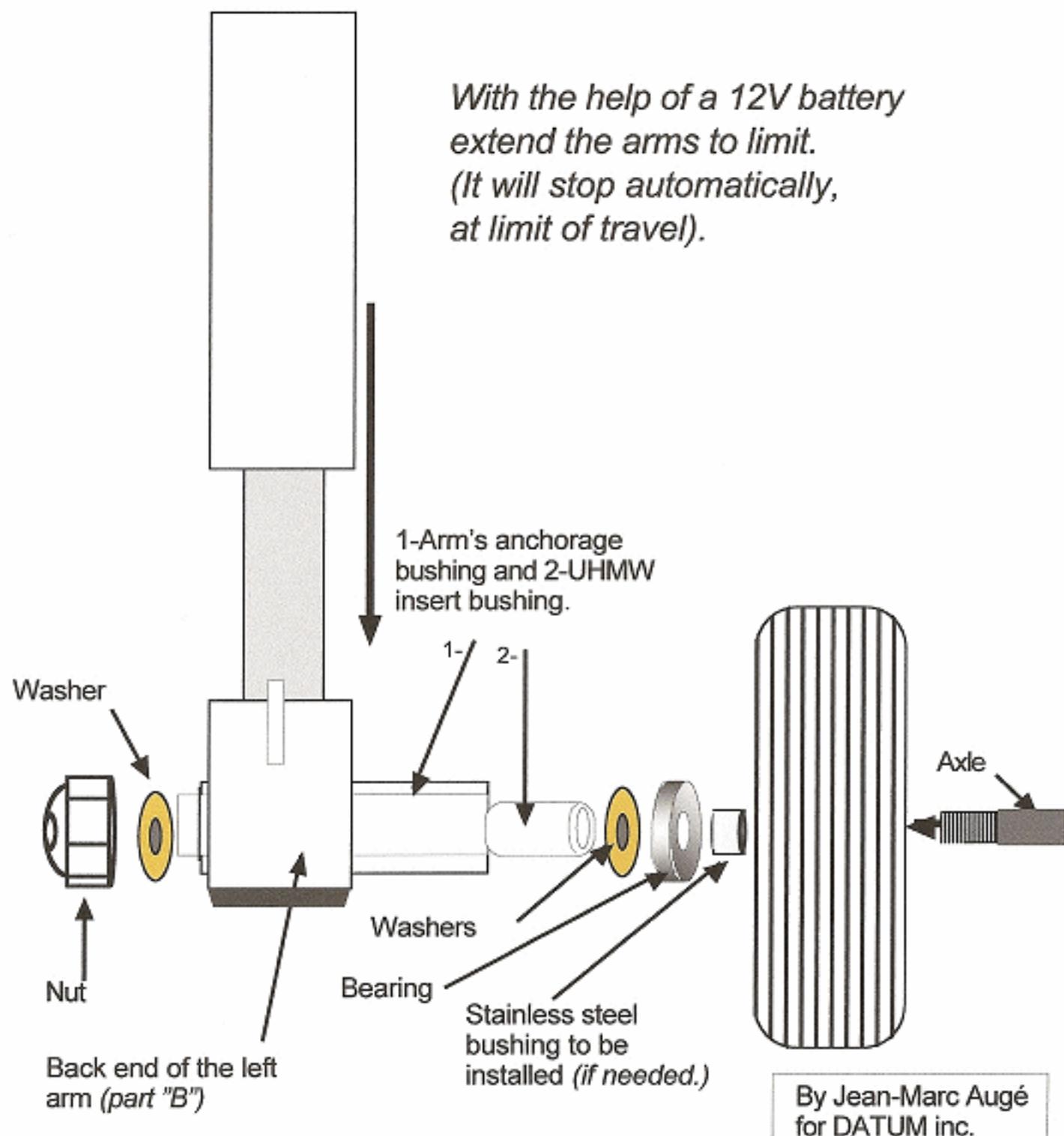
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## Different types of rims



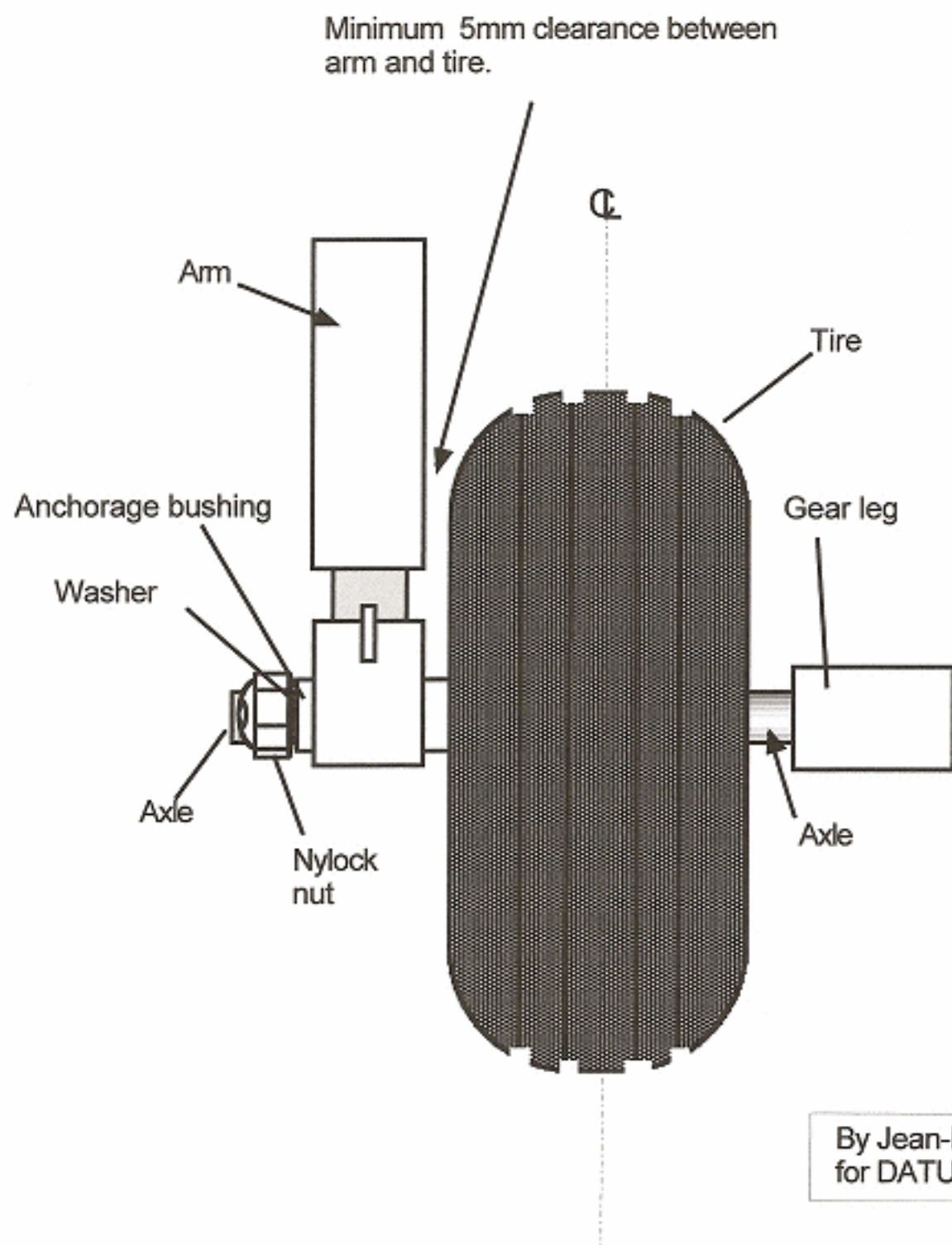
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## Top view of left arm

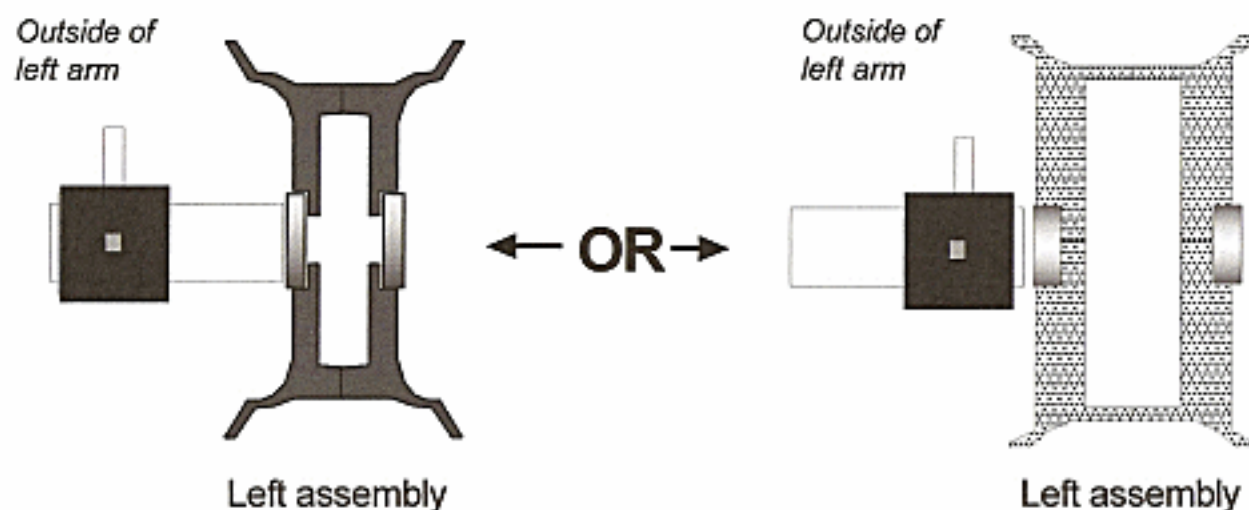




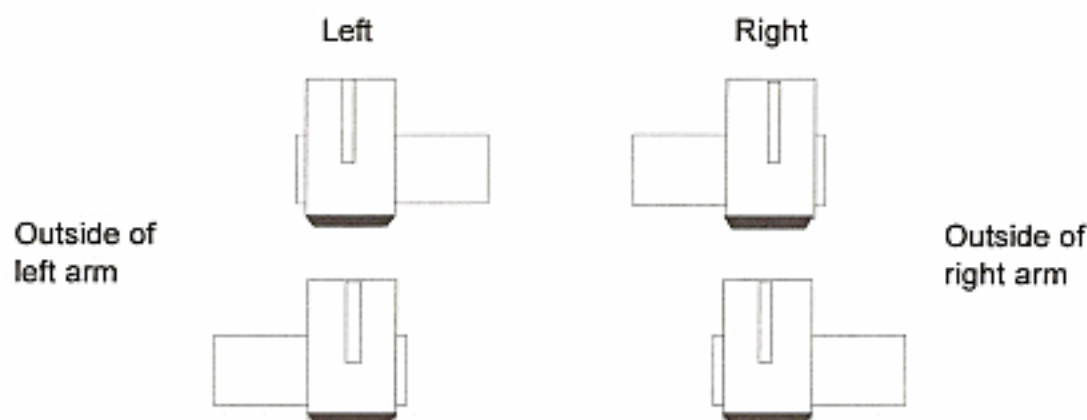
# Top view left arm assembled



The arm's bushing are reversible with each other side to accommodate different thickness of wheel hubs

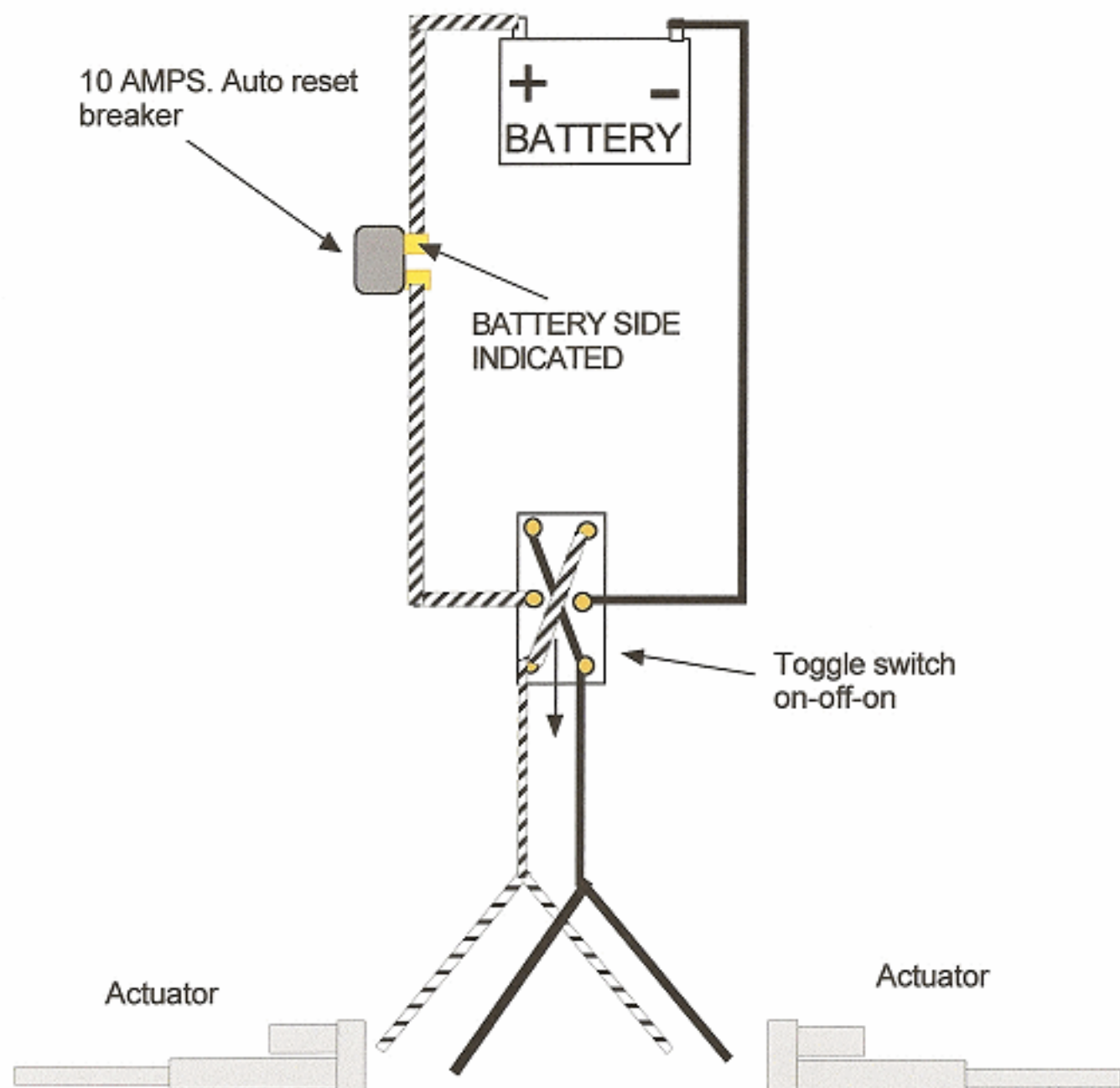


Top view of arm's anchorage bushing



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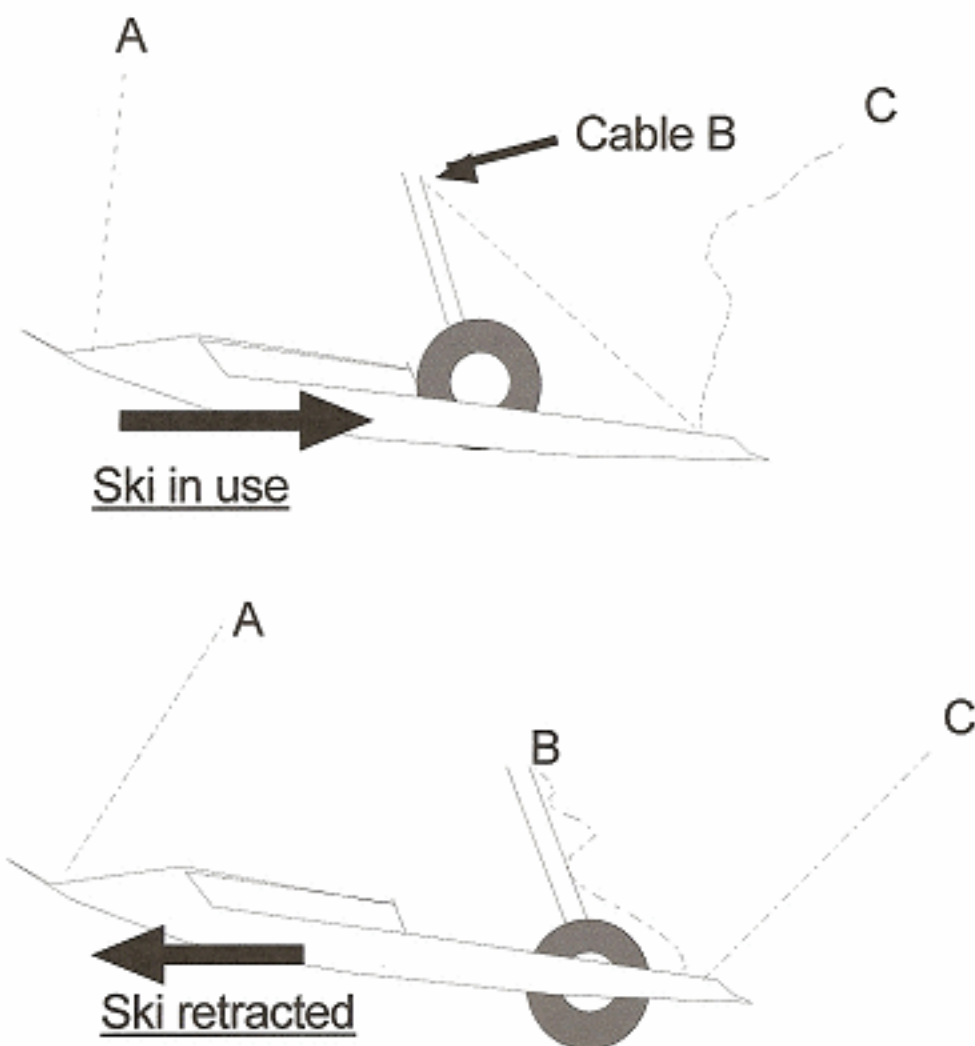
## Electrical schematic



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## The skis may be used on aircraft with different anchor points

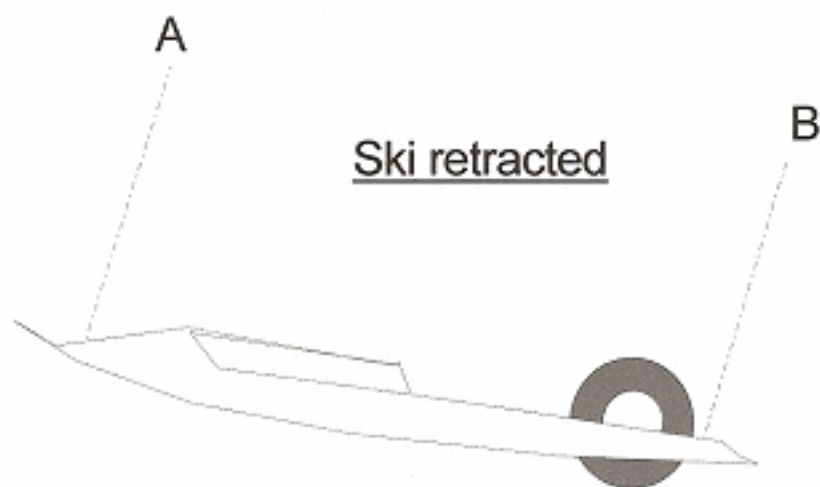
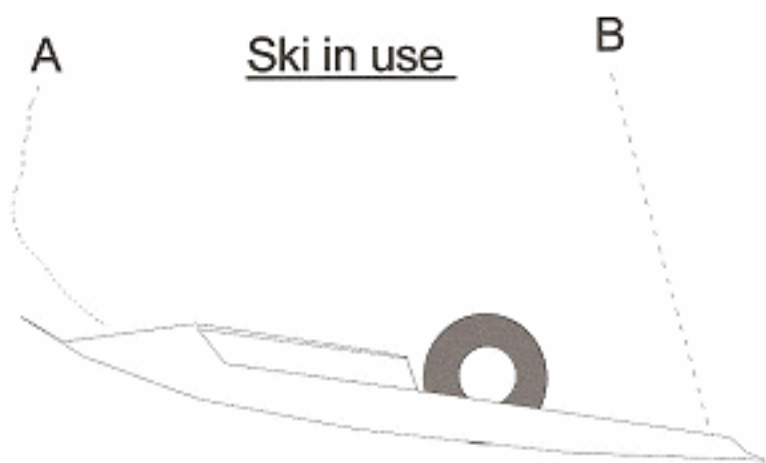
Anchorage of cable "B"  
at root of gear leg



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If cables "A" and "B" can be anchored parallel to each others, then cable "C" is not required.



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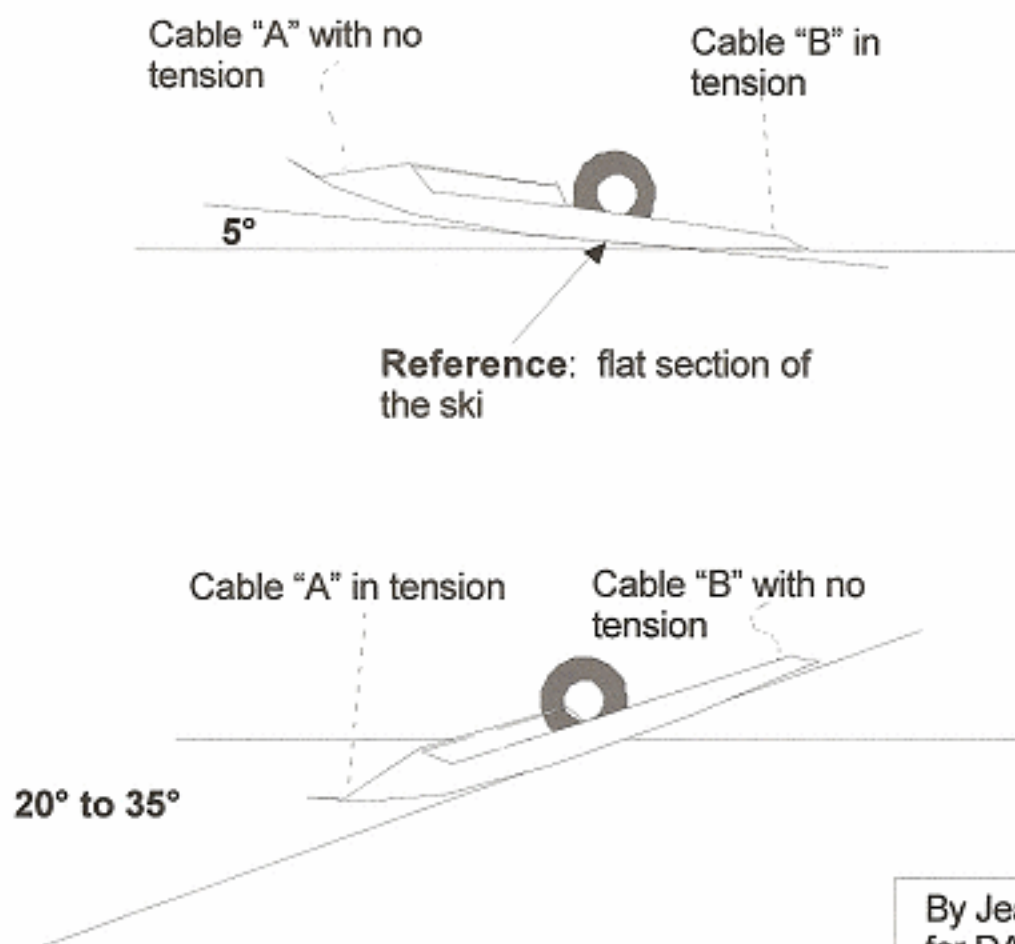
## Parameters of adjustment

### Warning:

*Parameters of adjustments must be respected:*

*With the aircraft in a leveled attitude, cable "B" must limit the ski to a nose up attitude of not more than 5°.*

*With the aircraft in a leveled attitude, cable "A" must limit the ski to a nose down attitude of not more than 20° to 35°.*



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## Retracted

In flight, retracted or in ski mode, the skis must have a nose up attitude of 5° to 7°



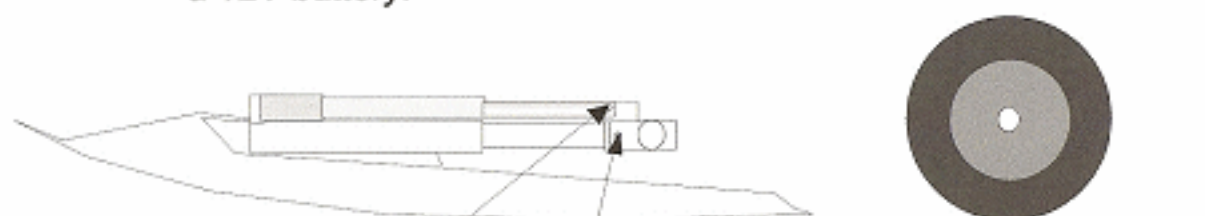
### Important note:

*Front bungee must offer sufficient tension to keep the ski's front at this right attitude in flight.*

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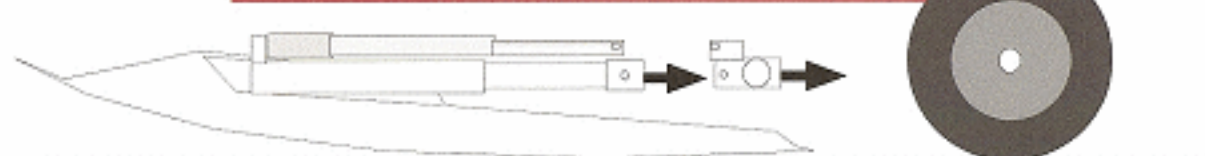
# Ski to axle installation

*To start with, extend the arm fully with a 12V battery.*



1- Remove these bolts.

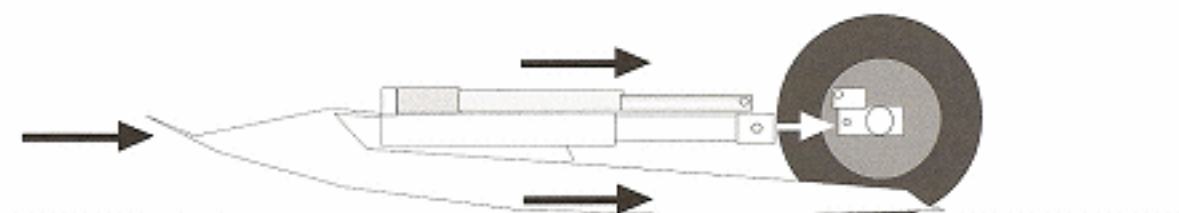
*Be careful not to damage the actuator by letting it hanging loose by one end only.*



2- Pull the end portion out.



3- Install end portion to axle.

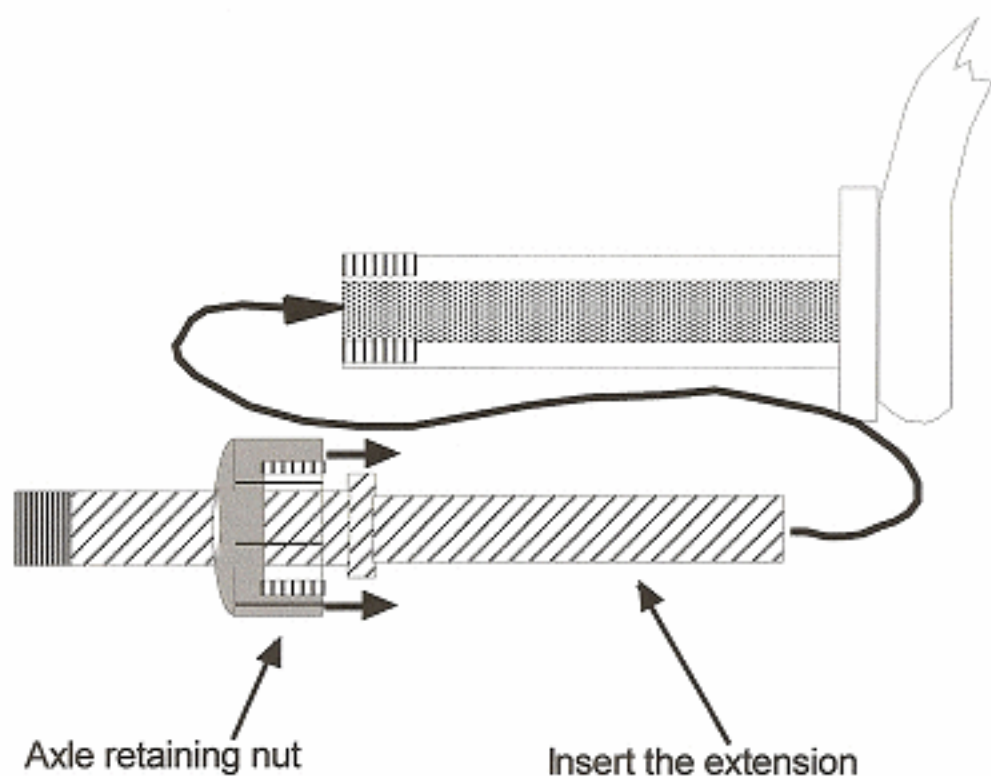


4- Pull ski in position, replace and torque nuts and bolts. VOILA!

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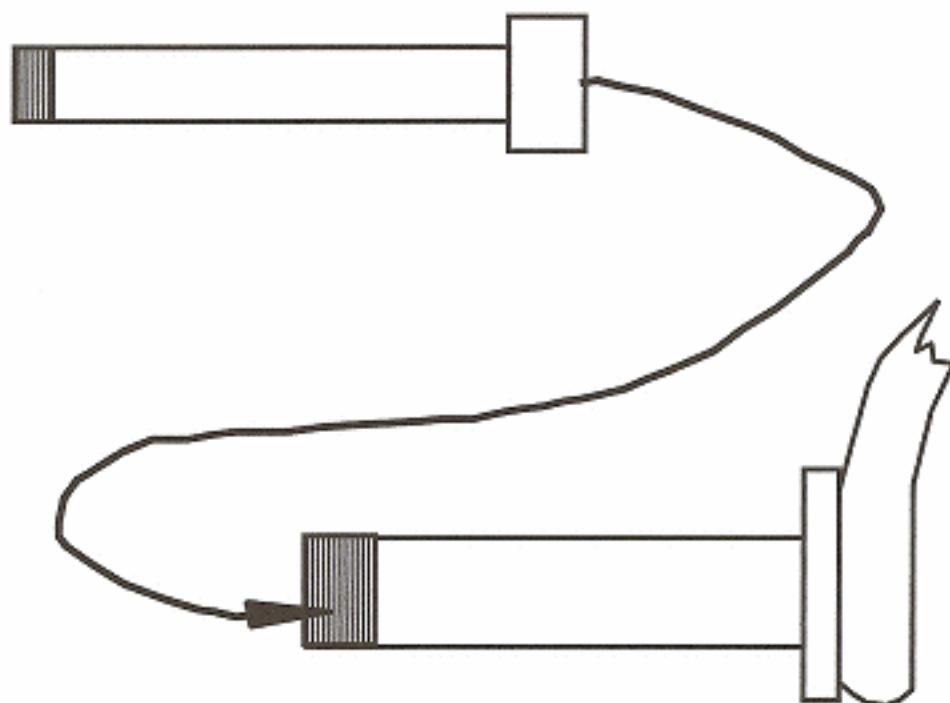
## Hollowed type axle



Hollowed type axle requires that an extension be fabricated by a machine shop or we can have one custom made for you. Call or E-mail [datum@datumair.com](mailto:datum@datumair.com) (see page 24 for dimensions).

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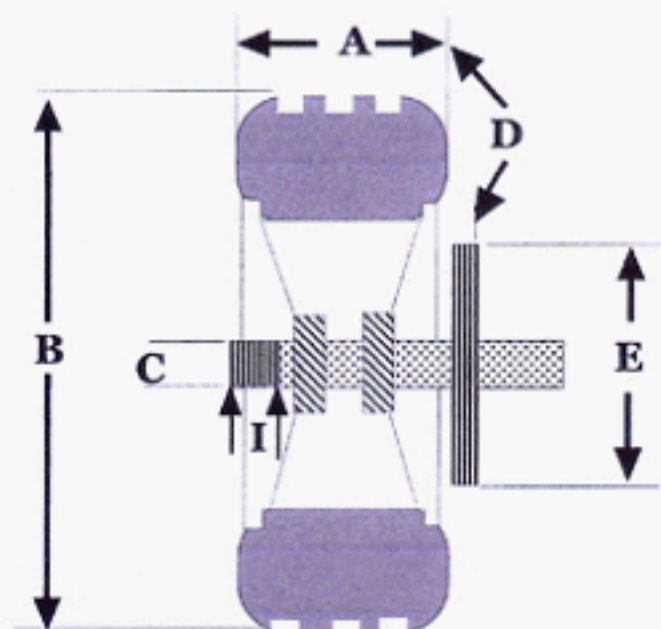
## Simple extention on a solid axle



A simple extention can be fabricated and added at the end of the axle.

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## Different measurements we need to adapt our skis to your wheels and axles.



A- Width of tire \_\_\_\_\_

B- Height of tire \_\_\_\_\_

C- Axle diameter \_\_\_\_\_

D- Disc brake to tire \_\_\_\_\_  
(distance from)

E- Disc brake diameter \_\_\_\_\_

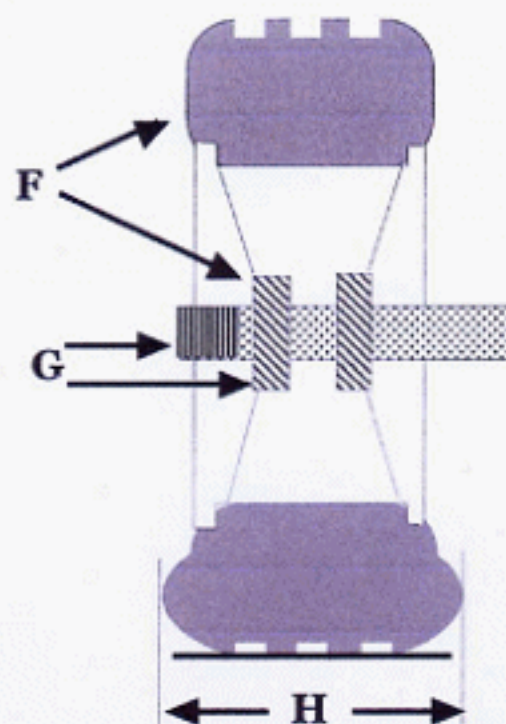
F-Bearing from tire \_\_\_\_\_ (How deep)

G-Tip of axle to bearing \_\_\_\_\_ (How deep)

H-Tire thickness at the widest \_\_\_\_\_

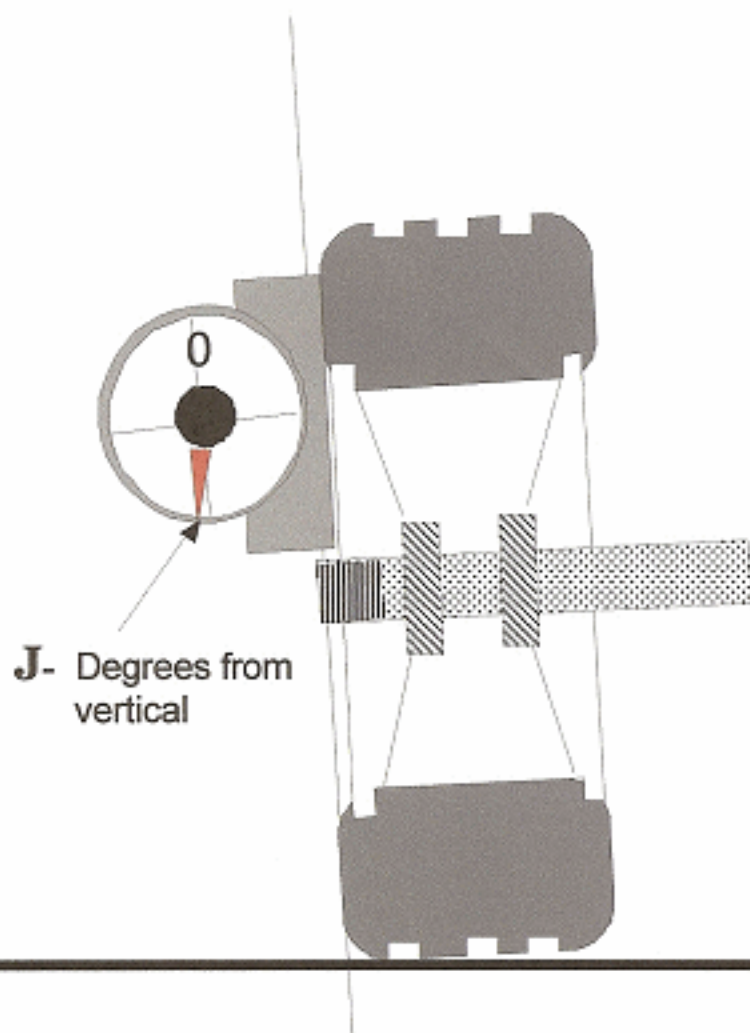
I-Threads size and length \_\_\_\_\_

J-Degrees of camber \_\_\_\_\_ (see page 19)



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## Camber



We also need to know how much camber wheels in degrees. Use a protractor.

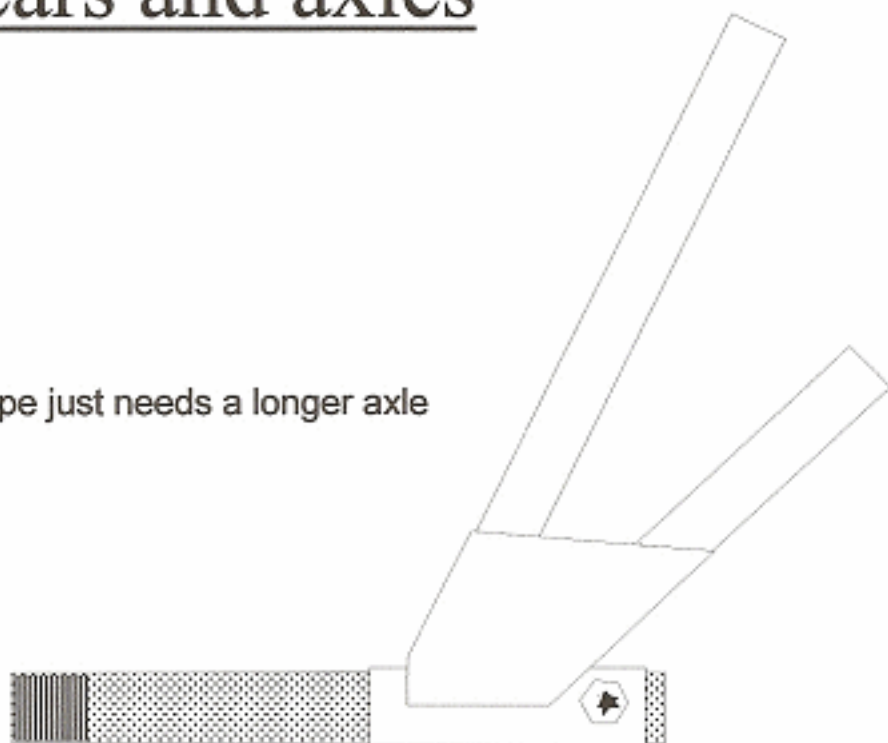
This measurement has to be taken when the plane sitting on its wheels at the gross weight.

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## Regular type of landing gears and axles

This type just needs a longer axle

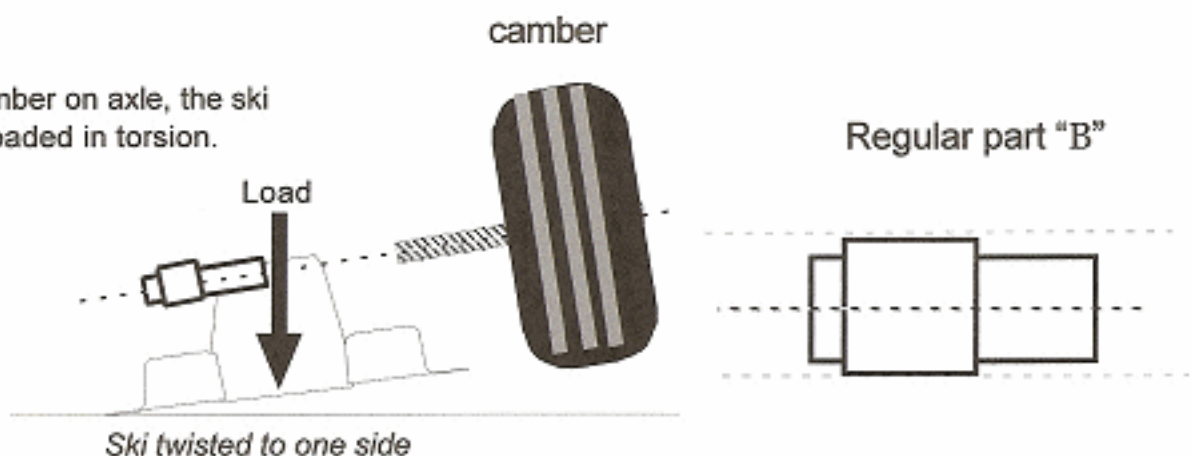


Remove locking bolt and slide the axle out from its socket. Have one made long enough to accept the extra length of the ski's anchoring bushings.

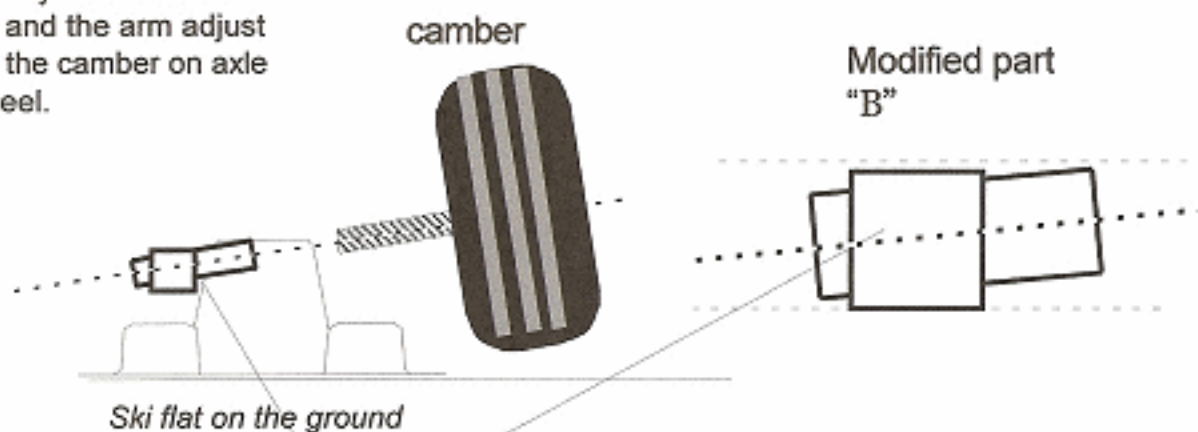
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# Camber adaptation

If camber on axle, the ski get loaded in torsion.



With a modified part "B" the ski stays flat with the ground and the arm adjust itself to the camber on axle and wheel.

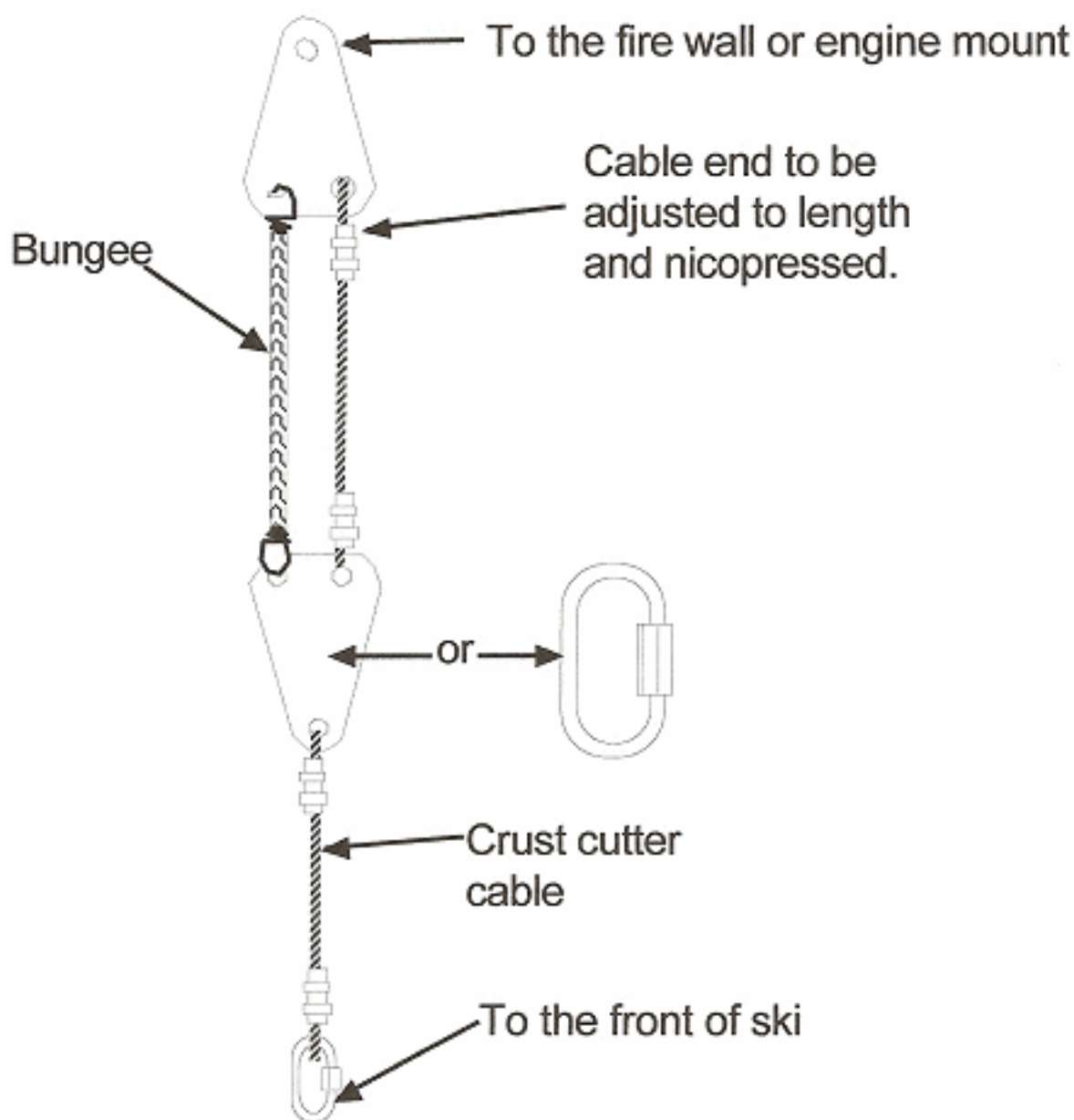


The part "B" can be removed and changed for a modified one .

Part "B" can be made and machined to an angle that will compensated for the camber of axle and wheels.

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## Front cable "A"



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## Rear Cable "B"

To airframe

See on our web  
site for photos

[www.datumair.com](http://www.datumair.com)

Slide this nicopress on the "V" cable  
to desire location for the best angle  
of cable going to the plane.  
*(some of these cables may be delivered  
as two separed cables).*

These to tail ends of the skis

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## *If your axle is hollowed.*

*We need to know what are the dimensions inside the axle and the length of the hollow and if there is any steps inside the hollow.*

We usually make an adapter for hollowed axles.

The adapter is just an extension that slides inside your axles. We need dimensions as close as possible to the thousand of an inch.

K- Axle's outside dimension\_\_\_\_\_

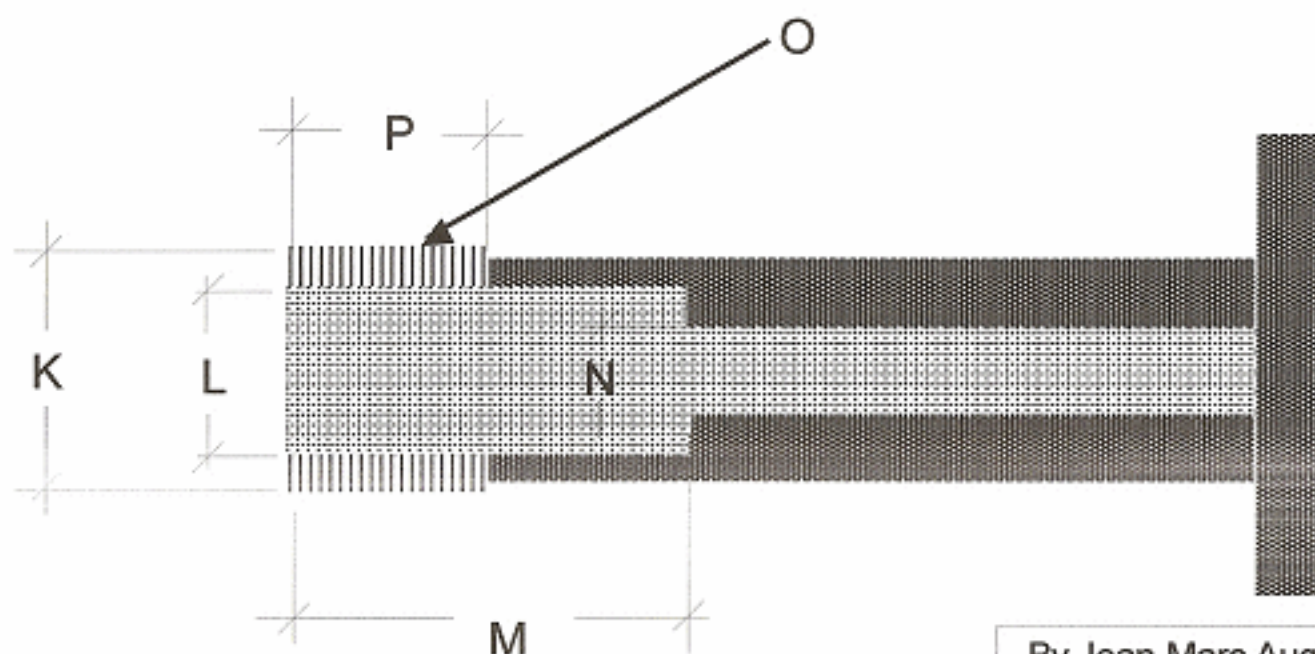
L- Axle inside dimension\_\_\_\_\_

M- Deepness of hollow\_\_\_\_\_

N- Size of the restriction in the hollow (if any)\_\_\_\_\_

O- Threads size (threads per inch)\_\_\_\_\_

P- Threads length\_\_\_\_\_



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## Maximum tires sizes

### For your #1000 series

- Nose wheel should not be wider than 120mm or 4 3/4", and it should be 267mm or 10 1/2" in diameter.
- Main wheels should not be wider than 120mm or 4 3/4" and no more than 290mm or 11 1/2" in diameter.

### For your #1500 series

- The tires for the two main skis should not be wider than 160mm or 6 1/4", and diameter should not exceed 410mm or 16".

### For your #2500 series

- The tires for the two main skis should not be wider than 215mm or 8 1/2", and diameter should not exceed 450mm or 18".

**Note:**

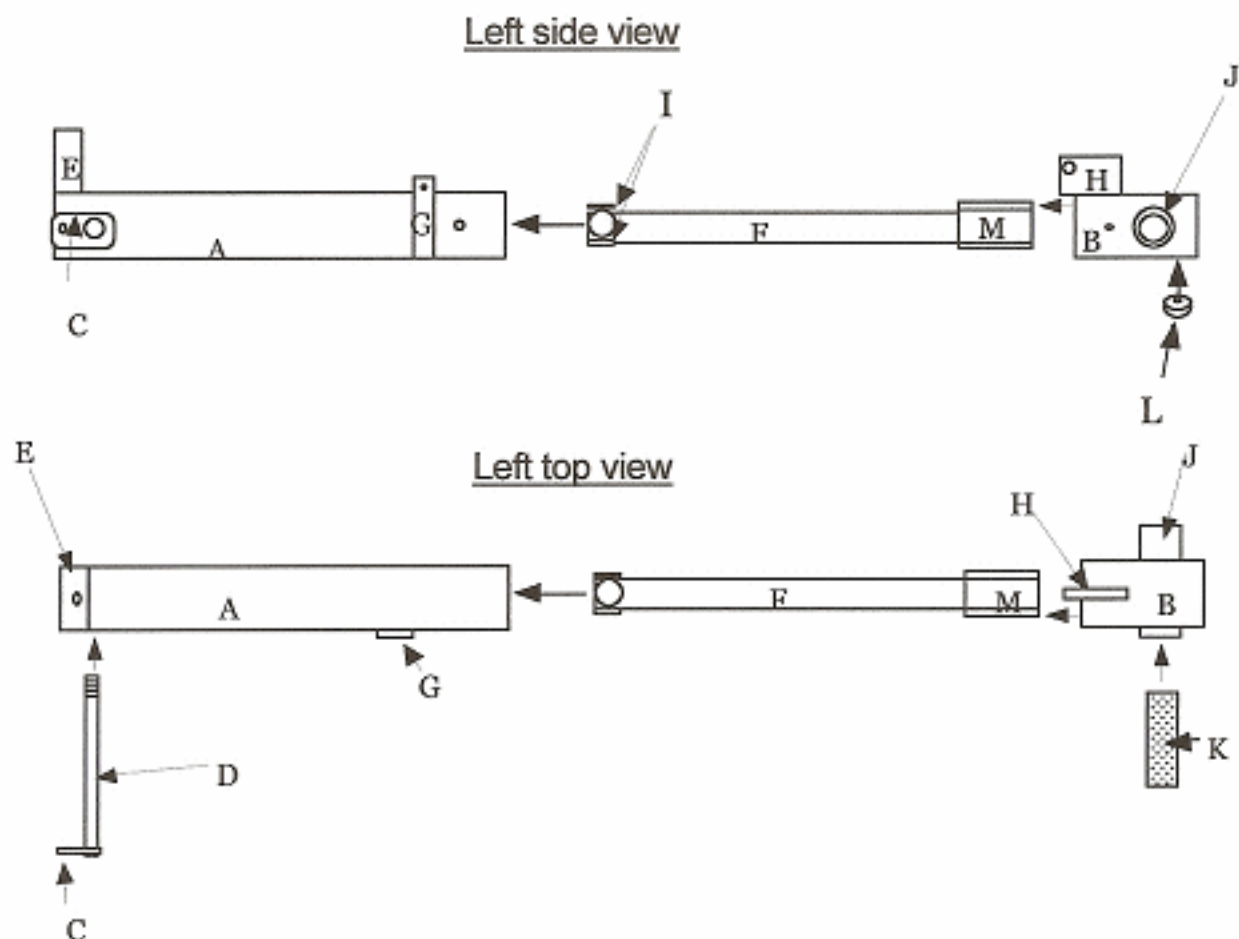
Do not rely on tire codes for required dimensions.  
Accurate measurements are a must.

## Warning:

- Do not change any of the components on the skis without our written approval.
- Always retract when in the air (*when possible*) to eliminate unnecessary efforts on actuators.
- Lubricate with greaseless lubricant telescopic arm and actuator's cylinder.
- When not in use, store skis in cool and dry ventilated place, covered and protected from dust.
- Keep aircraft battery well charged when operating on skis.
- Ask technical help if needed, at : [www.datumair.com](http://www.datumair.com) or call us at 819-297-2426
- Always do a preflight inspection of skis and system before every flight.
- This product is protected by trademark. Reproduction of all or part of any component is prohibited.

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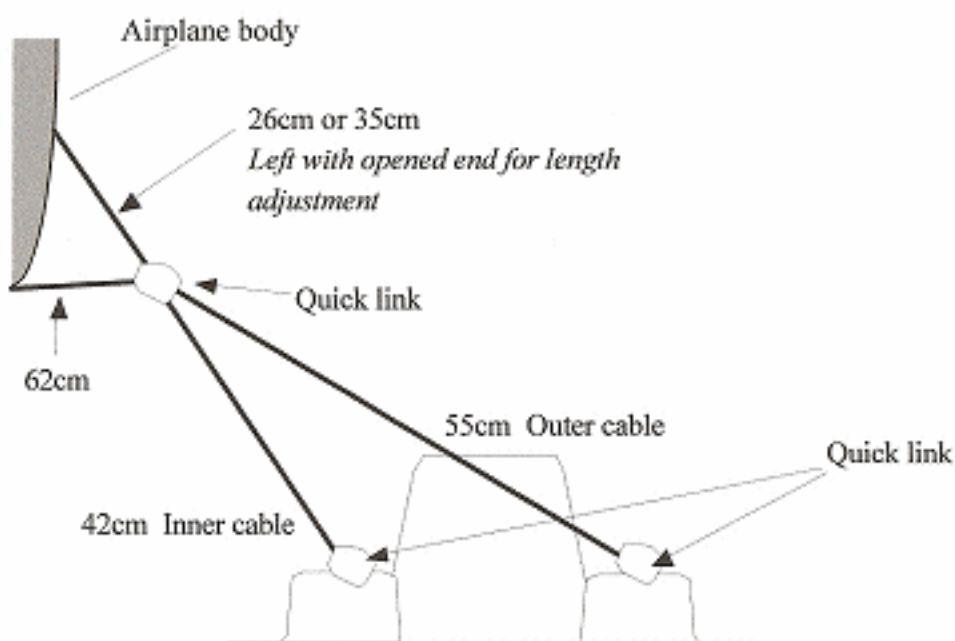
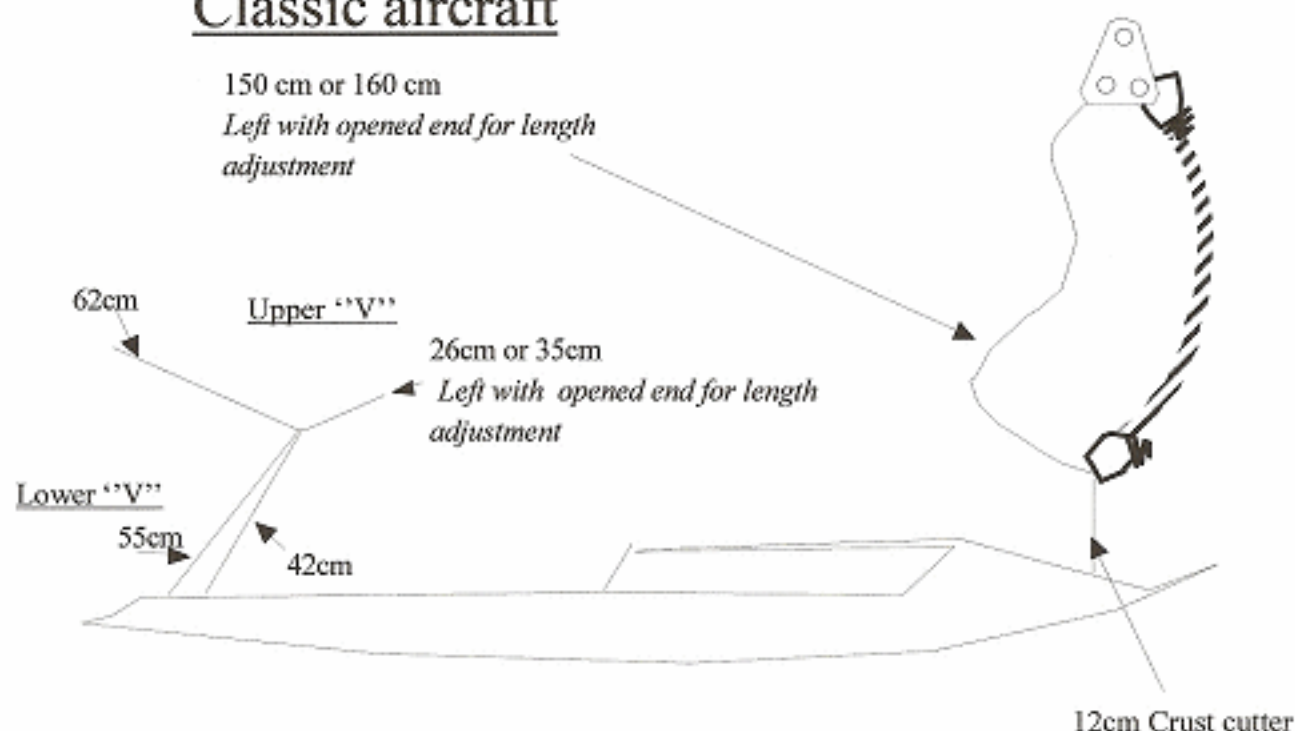
# Parts identification



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# Cables set up for skis #1500 Adaptation on Savage and Savage Classic aircraft

150 cm or 160 cm  
*Left with opened end for length adjustment*

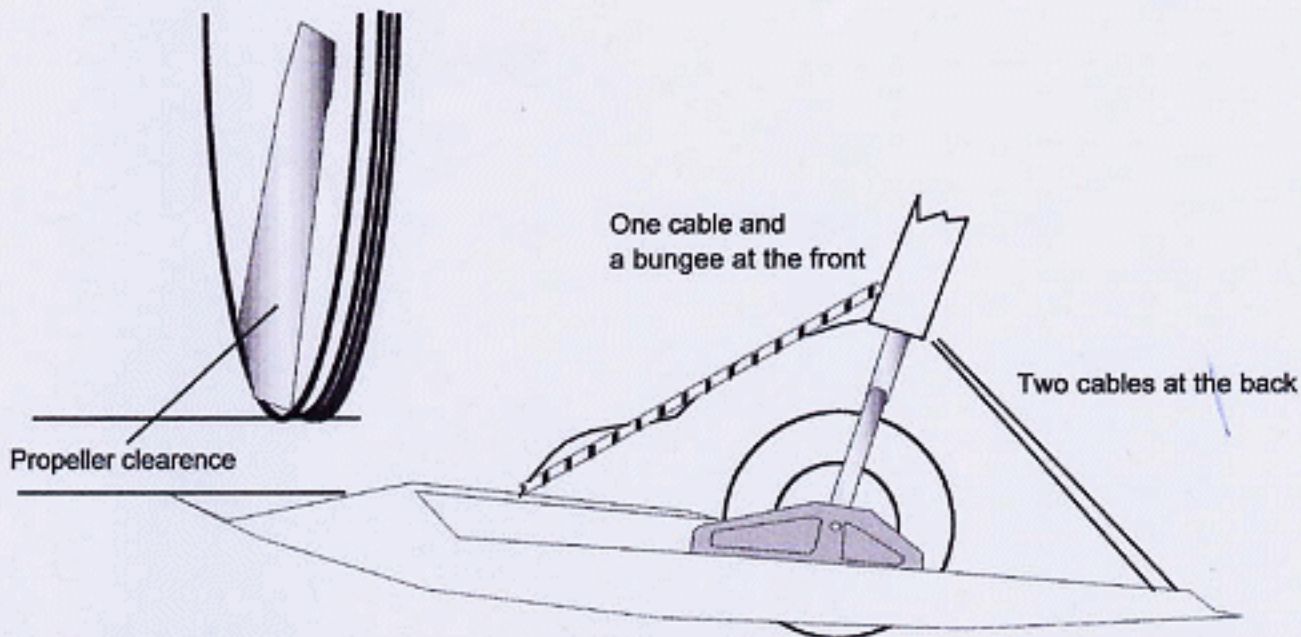


Rear view of rear attachment point

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# Front ski series 1000 & 1500



**Caution:** Cables must be made to keep the ski horizontal with the ground.  
 A very slight nose up of about 3 to 5 degrees is permitted if the propeller clears the front of the ski.

