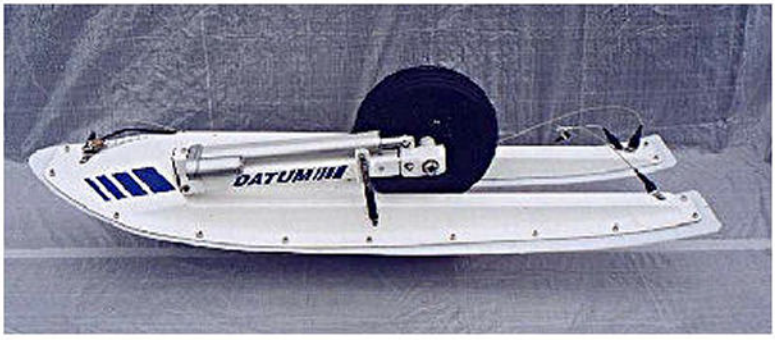
DATUM INC.

Success Solutions for the Aircraft Homebuilder



Series 1000 Manual

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

1000 series
Installation instructions
for aircraft from 400lb to 1200lb 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 lenght;
- The limitating 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

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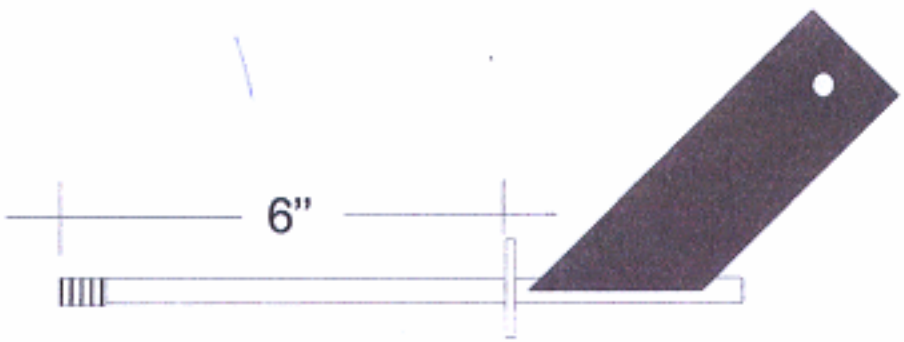
for DATUM inc.

You will need two axles that are six inches from tip to washer(not supplied) and the standard 5"AZULITE wheels, supplied with the airplane,
PS: Quad City have those in stock.

Challenger Ultralight Only



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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 wides 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).

- Limitating cables: Landing gear systems differ so much from one another that it is impossile 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*).

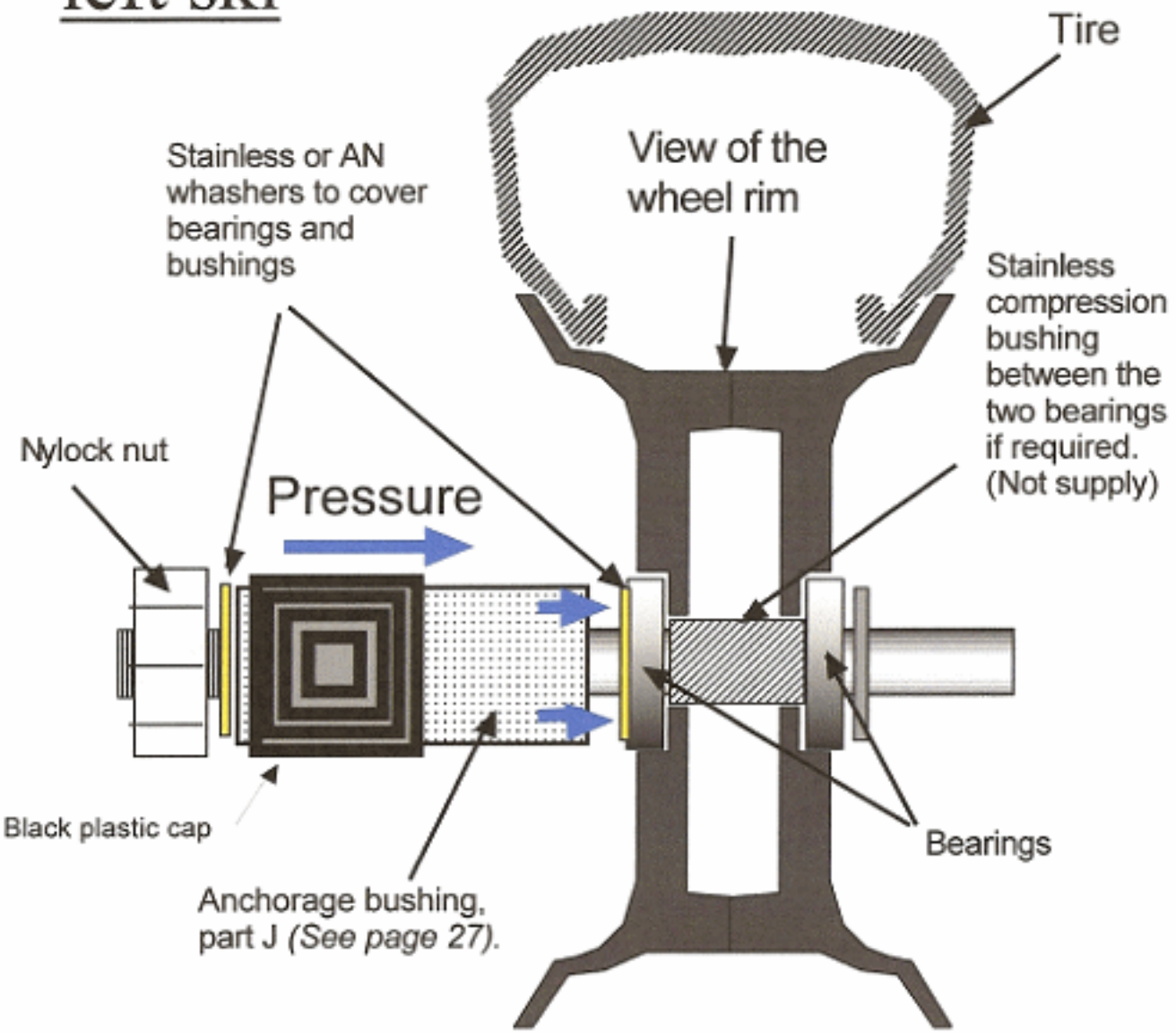
-Wheels camber: If any camber on the wheels, an adaptation of part J will be needed *(see pages 19-21).*

By Jean-Marc Augé
for DATUM inc.

Note: *These instructions pertain only to installation onto existing 5" plastic wheel equipped aircraft.It is recommended that a 5/8" wide bushing be placed between the two bearings of the wheels prior to attachment of the telescopic arm*
bushing of the ski.
This installation applies to no- brake and brake equipped aircraft.The placement of the bushing between the bearings allows for more snug tightening of the telescopic arm and reduced play after installation. Without the bushing and too tight snugging of the axle nut, the plastic hub will distort and affect the brake hub shape.
This causes the brake pads to rub and interferes with free turning of the wheel .
In addition , the increased lateral forces experienced on the axles of ski equipped aircraft in certain situations may collapse the plastic seats of the bearings in the wheel hubs.

By Jean-Marc Augé
for DATUM inc.

Rear view of the system on the left ski



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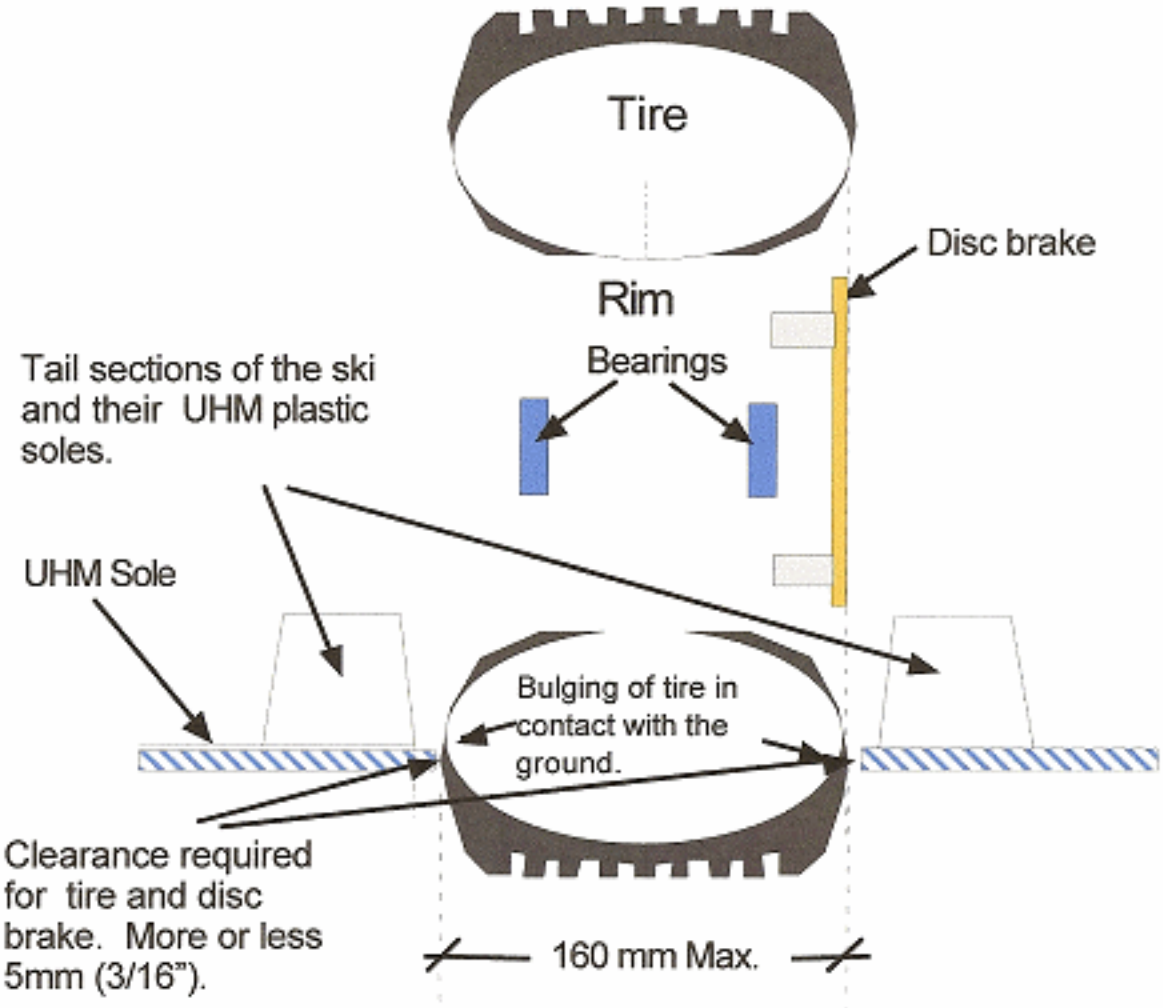
Rear view of the system for clearance.



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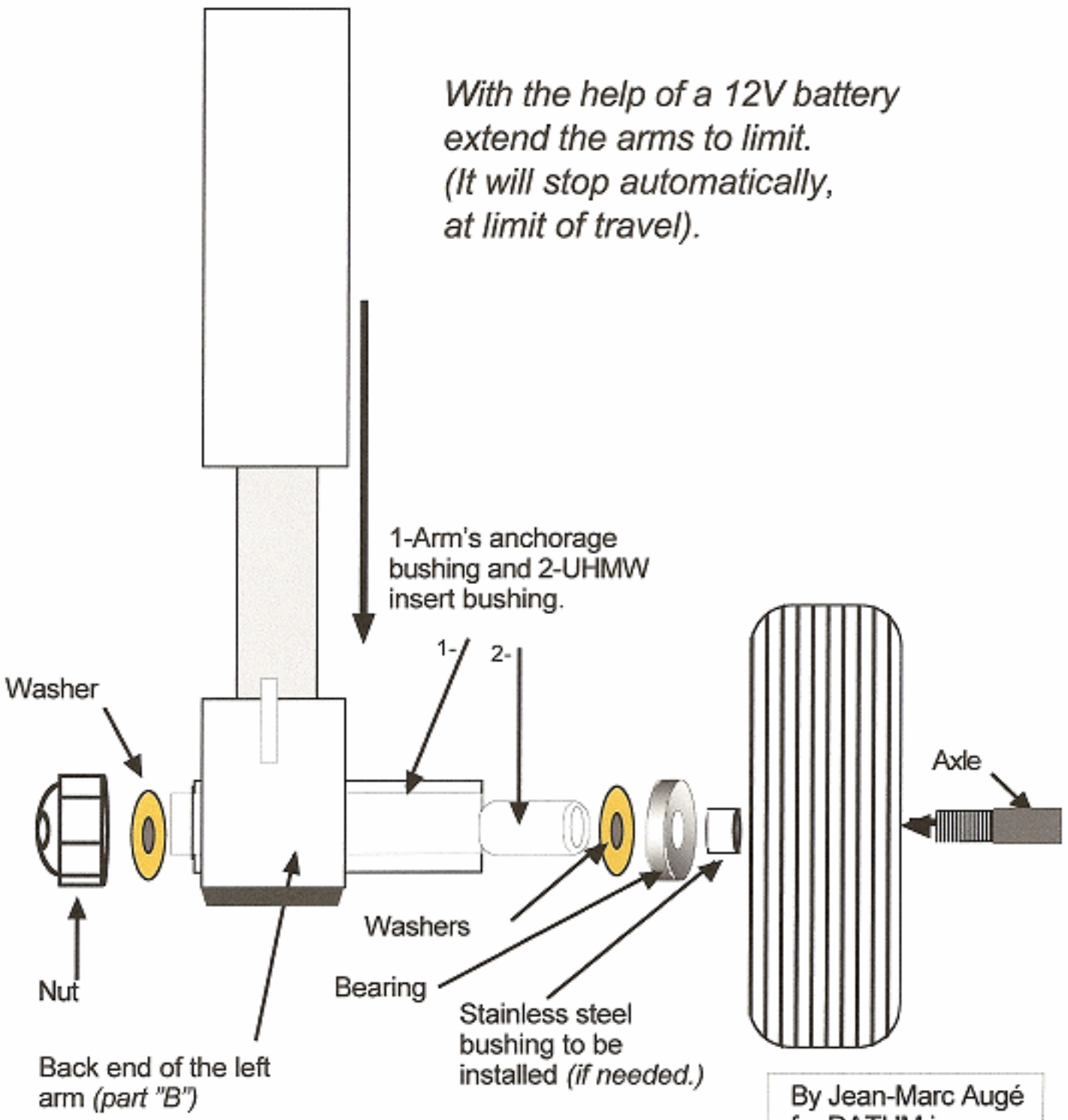
Top view of left arm



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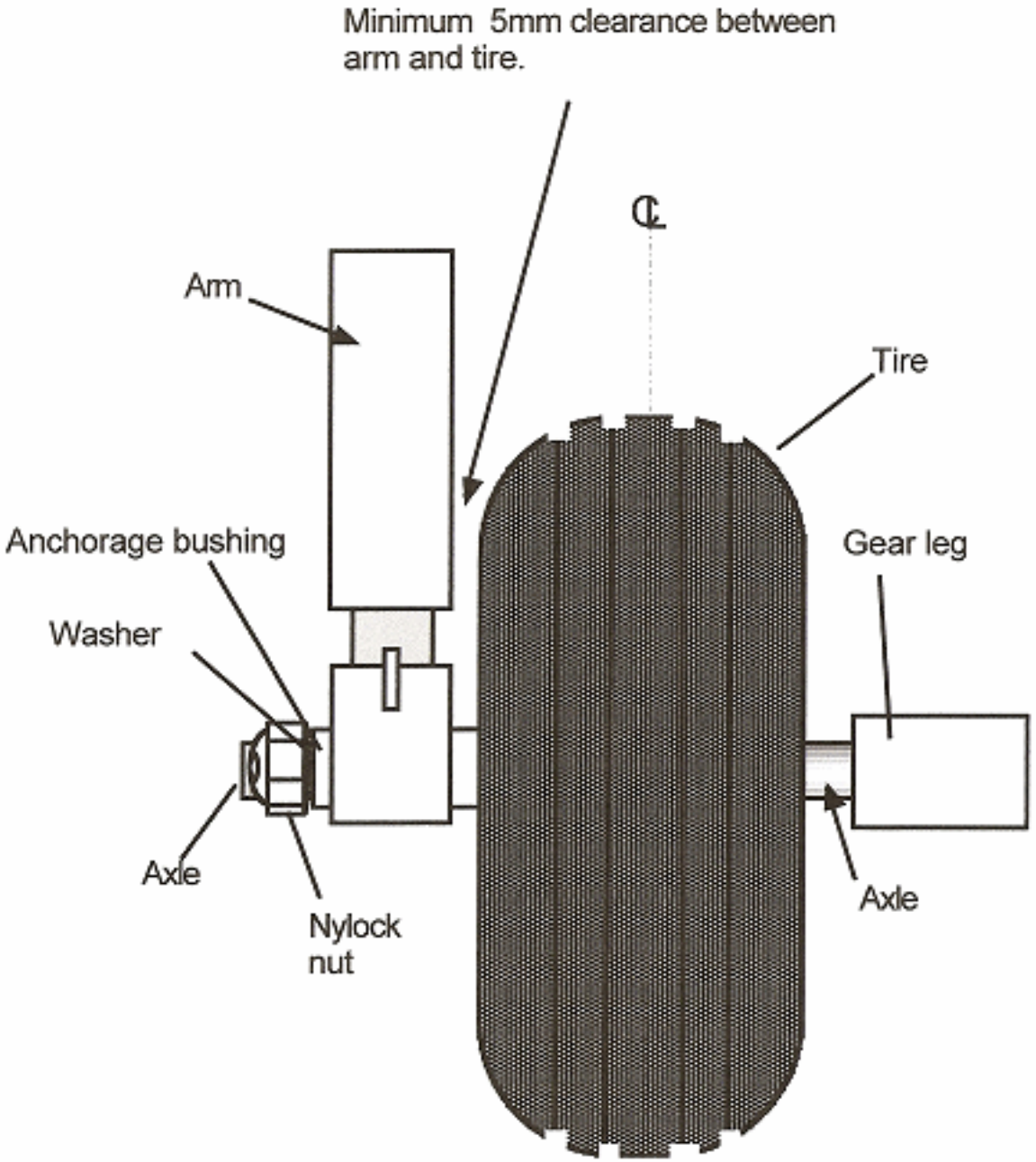
Top view left arm assembled



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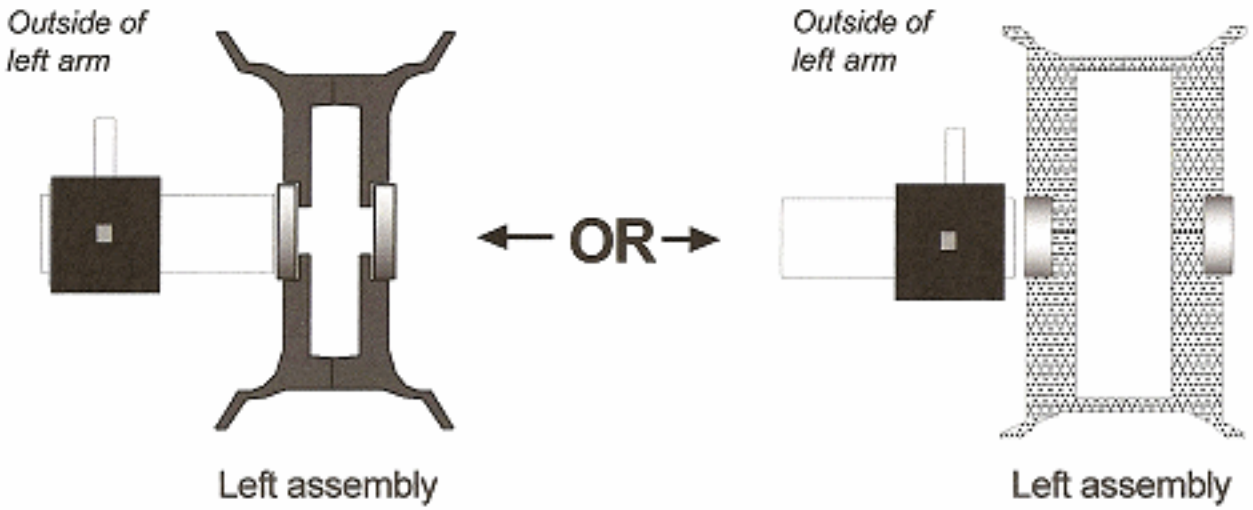
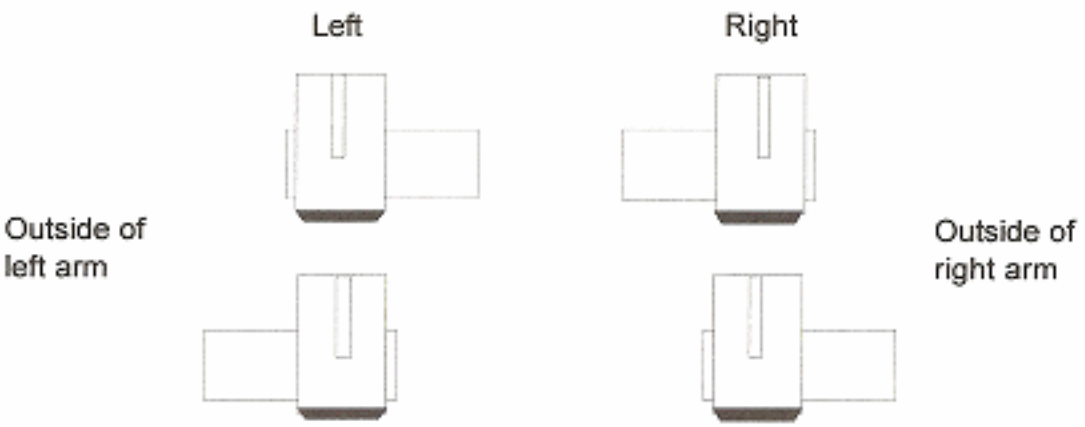
The arm's bushing are reversable with each other side to accommodate different thickness of wheel hubs



Top view of arm's anchorage bushing



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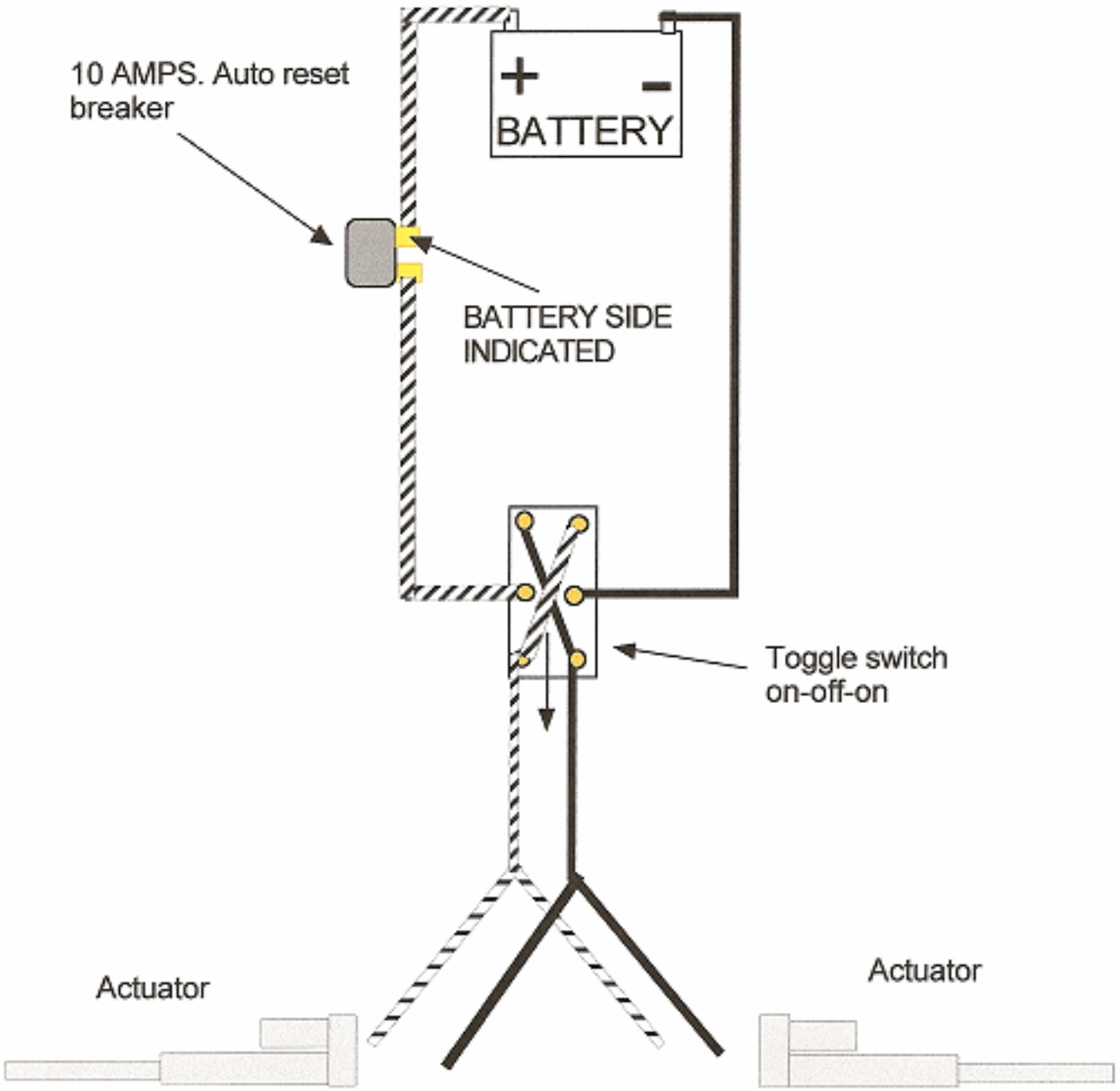
Electrical schematic



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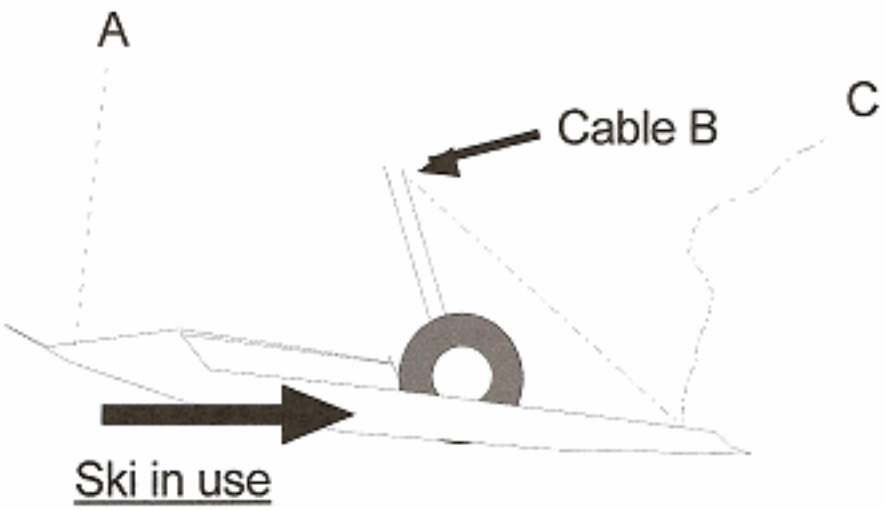
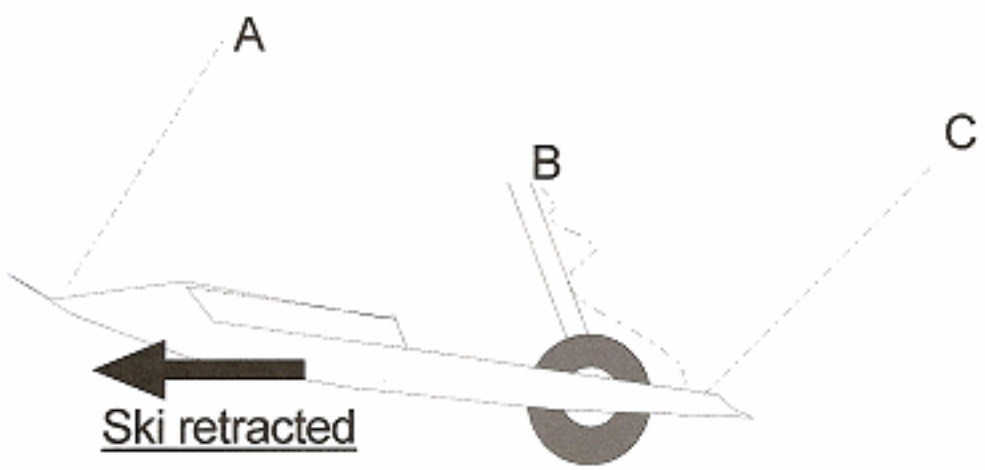
The skis may be used on aircraft with different anchor points

Anchorage of cable "B"
at root of gear leg





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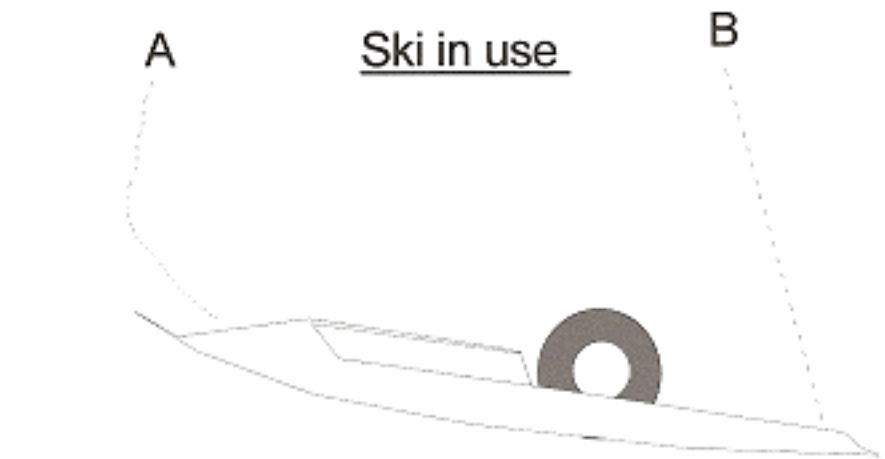
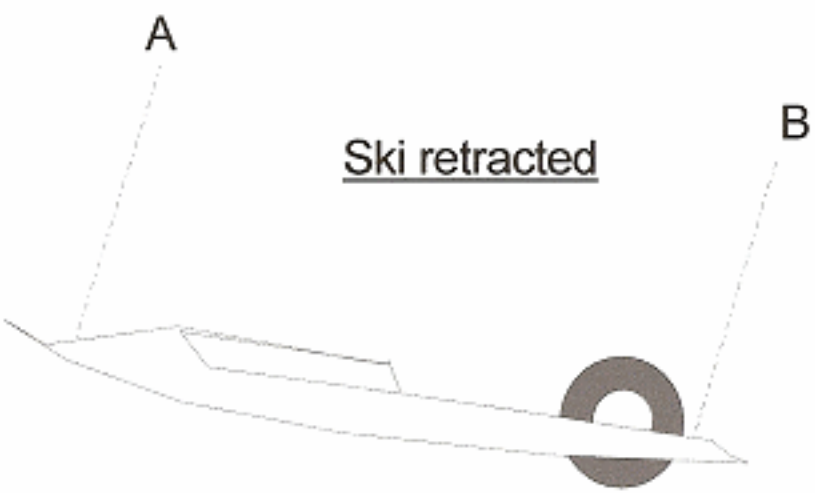
If cables “A” and “B”can be anchored parallel to each others, then cable “C” is not required.





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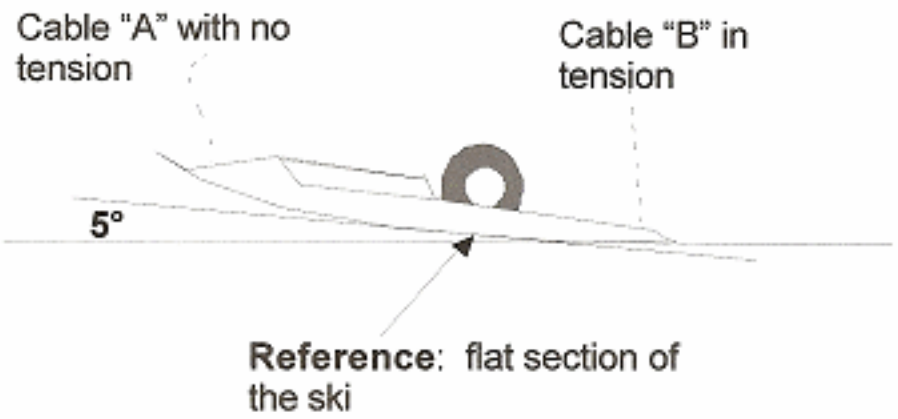
Parameters of adjustment

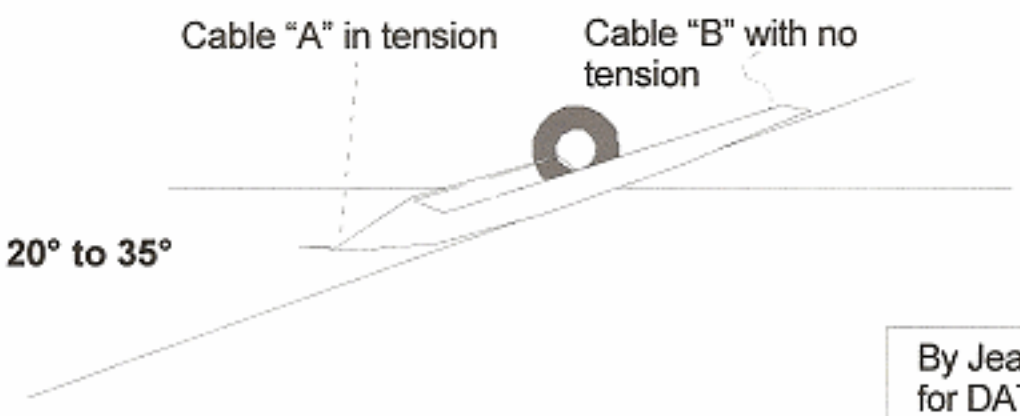
Warning:

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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for DATUM inc.

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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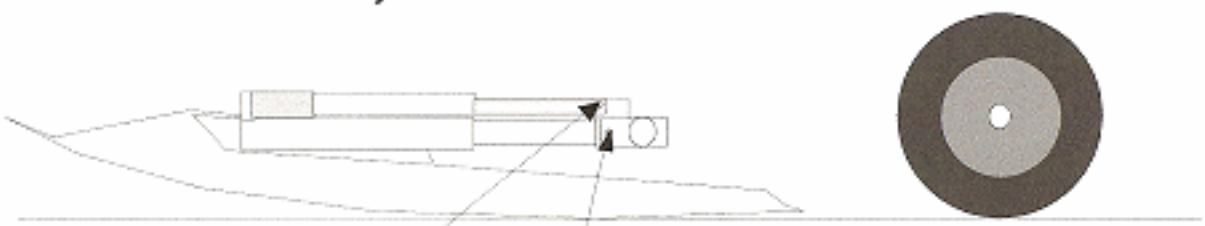
for DATUM inc.

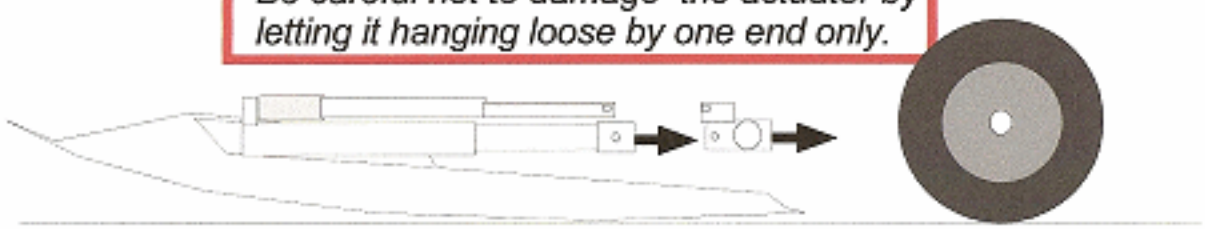
Ski to axle installation

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



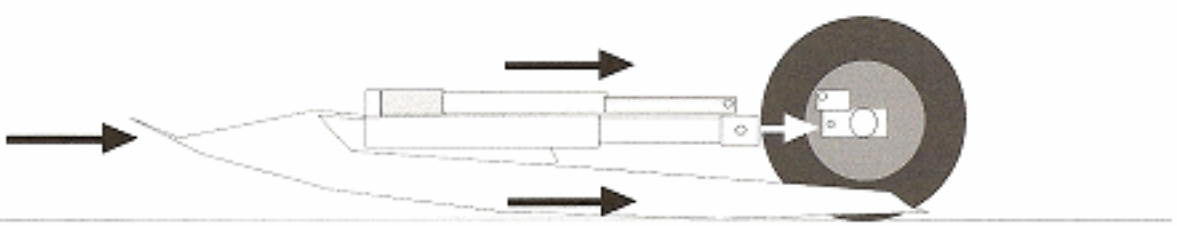
1- Remove these bolts.

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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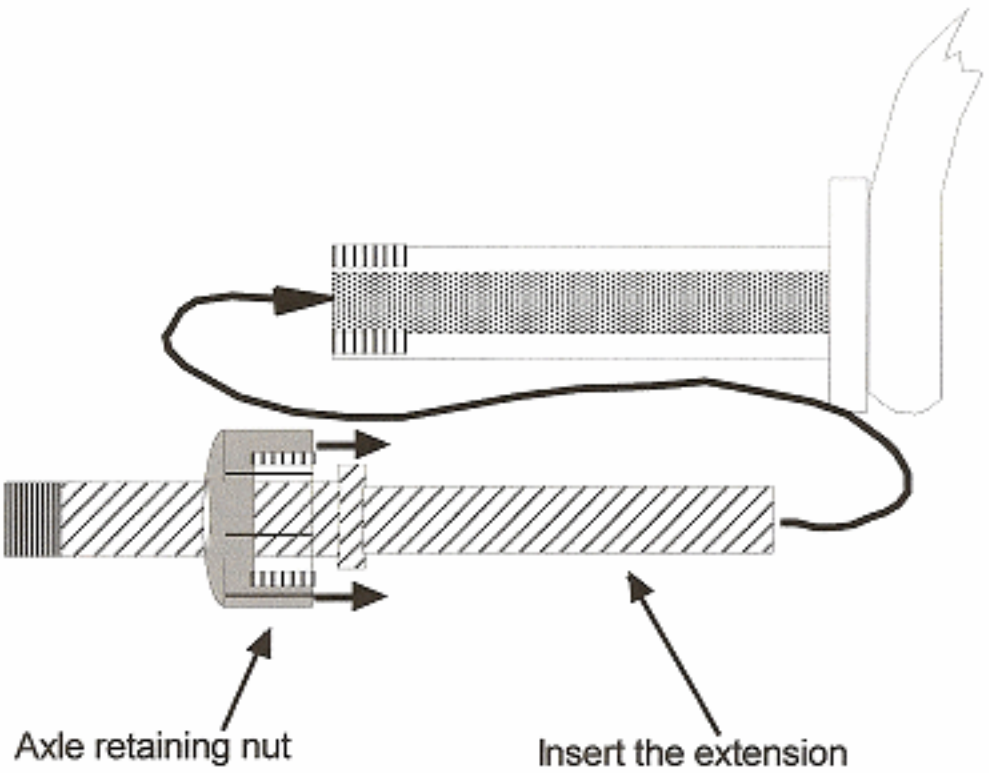
Hollowed type axle



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 (*see page 24 for dimensions)*.

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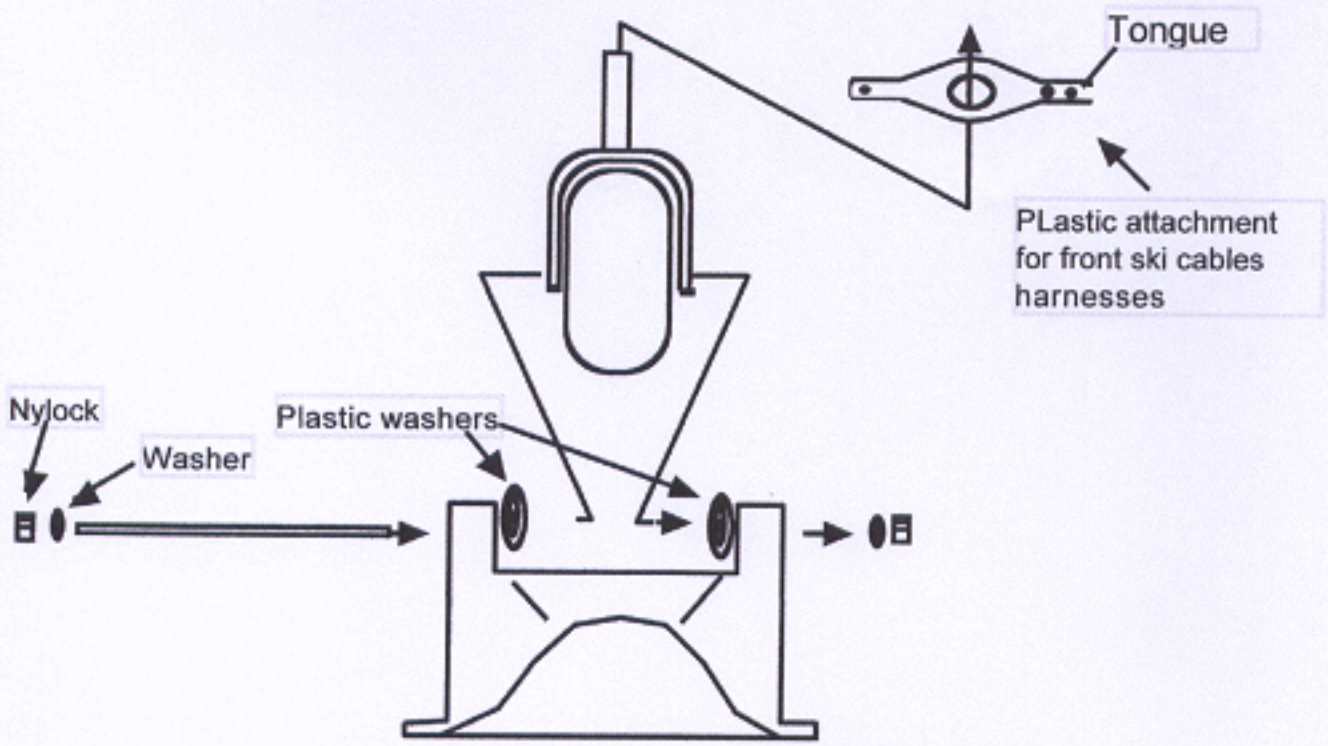
for DATUM inc.

FRONT SKI



View from the front

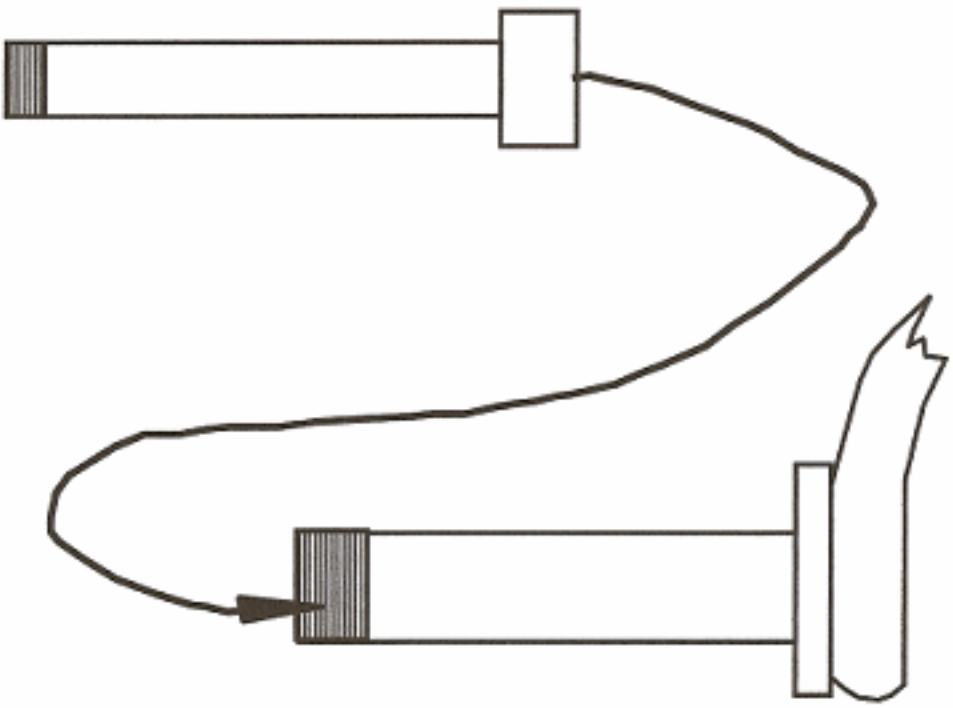
The front ski is a compromise in itself and it has to be so close to the ground that its tail drags a fair bit. There are two solutions that can be choose from to prevent this:

First, use the closest hole to the fork tube on the plastic tongue to tie the back cable. By doing so, you are making the back cables shorter, lifting the tail end of the ski from the ground. It works great!

Second option used by some, is to install at the tail end of the front ski, two little castering wheels used for desk and furniture supplies. And it works to !!!

By Jean-Marc Augé
for DATUM inc.

Simple extention on a solid axle



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

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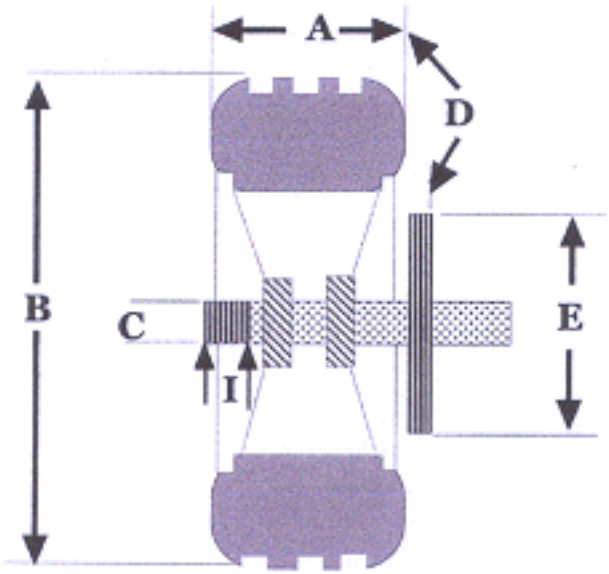
for DATUM inc.

Differents 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_____

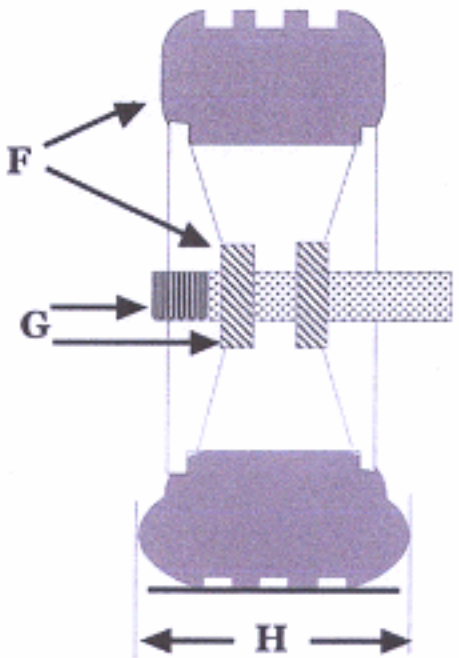
F-Bearing from tire _____*(How deep)*

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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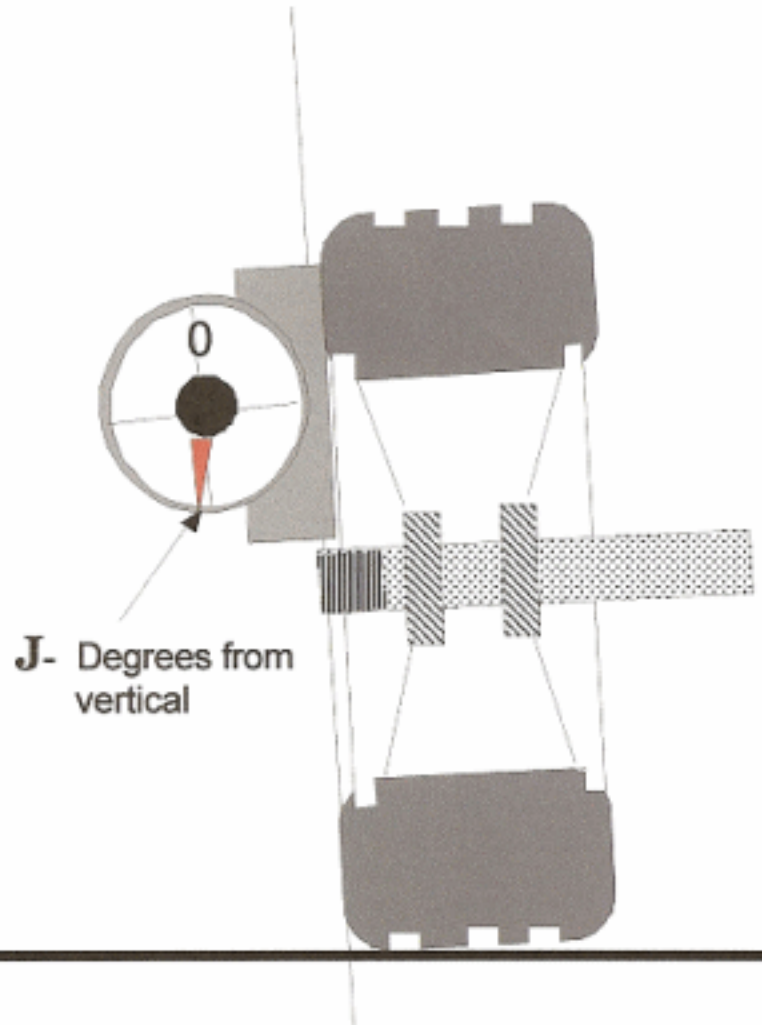
Camber



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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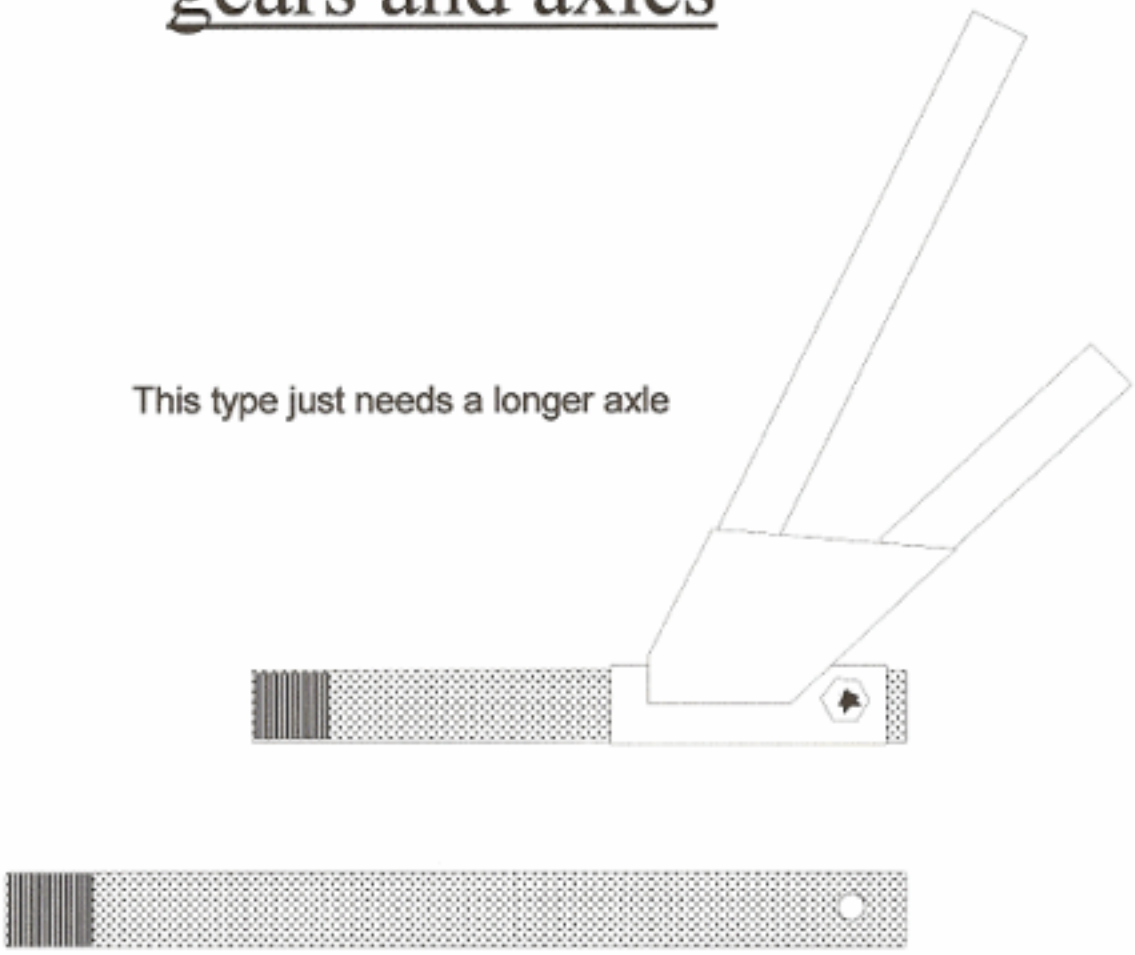
for DATUM inc.

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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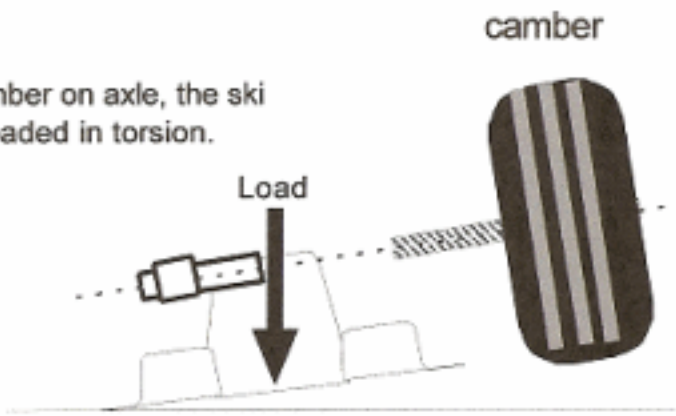
for DATUM inc.

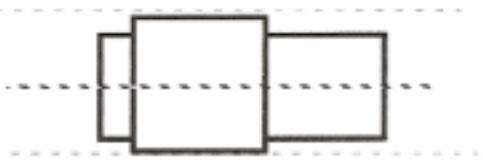
Camber adaptation

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

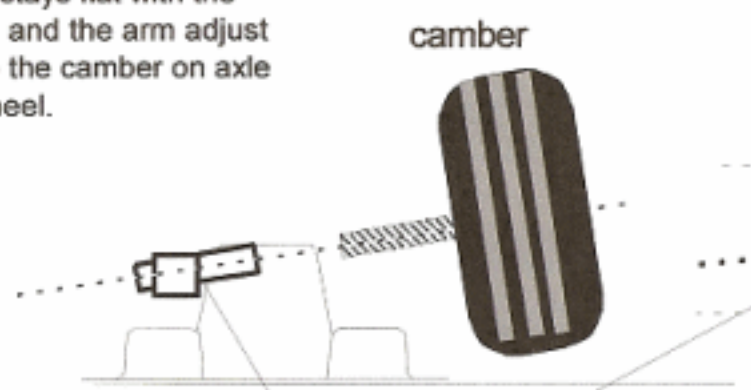


Ski twisted to one side

Regular part "B"

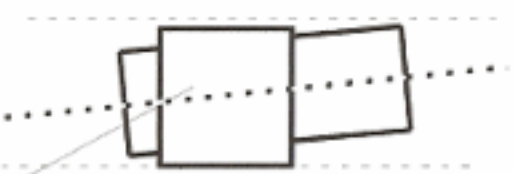


With a modified part "B" the ski stays flat with the ground and the arm adjust itself to the camber on axle and wheel.



Ski flat on the ground

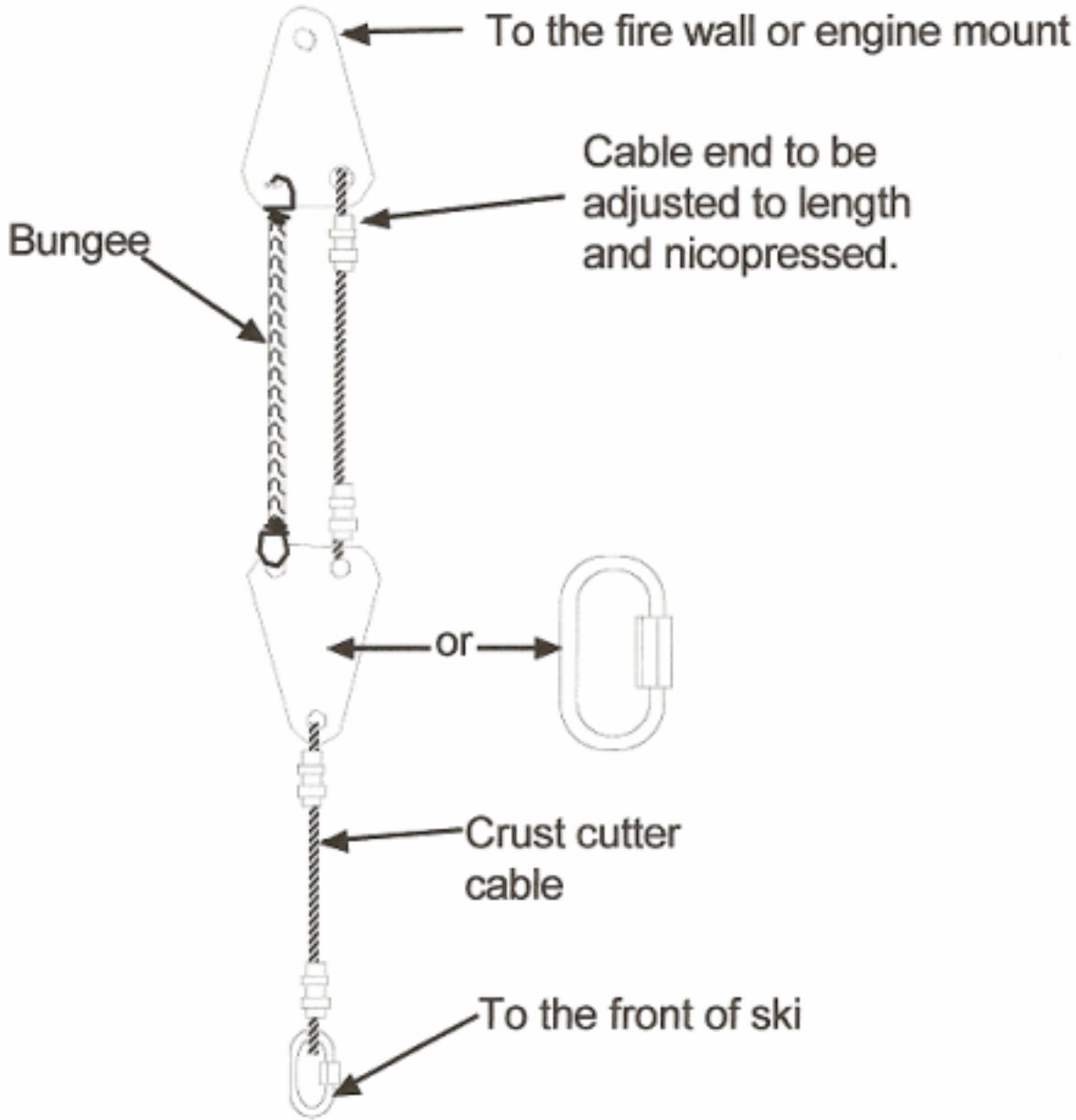
Modified part "B"



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.

By Jean-Marc Augé
for DATUM inc.

Front cable "A"



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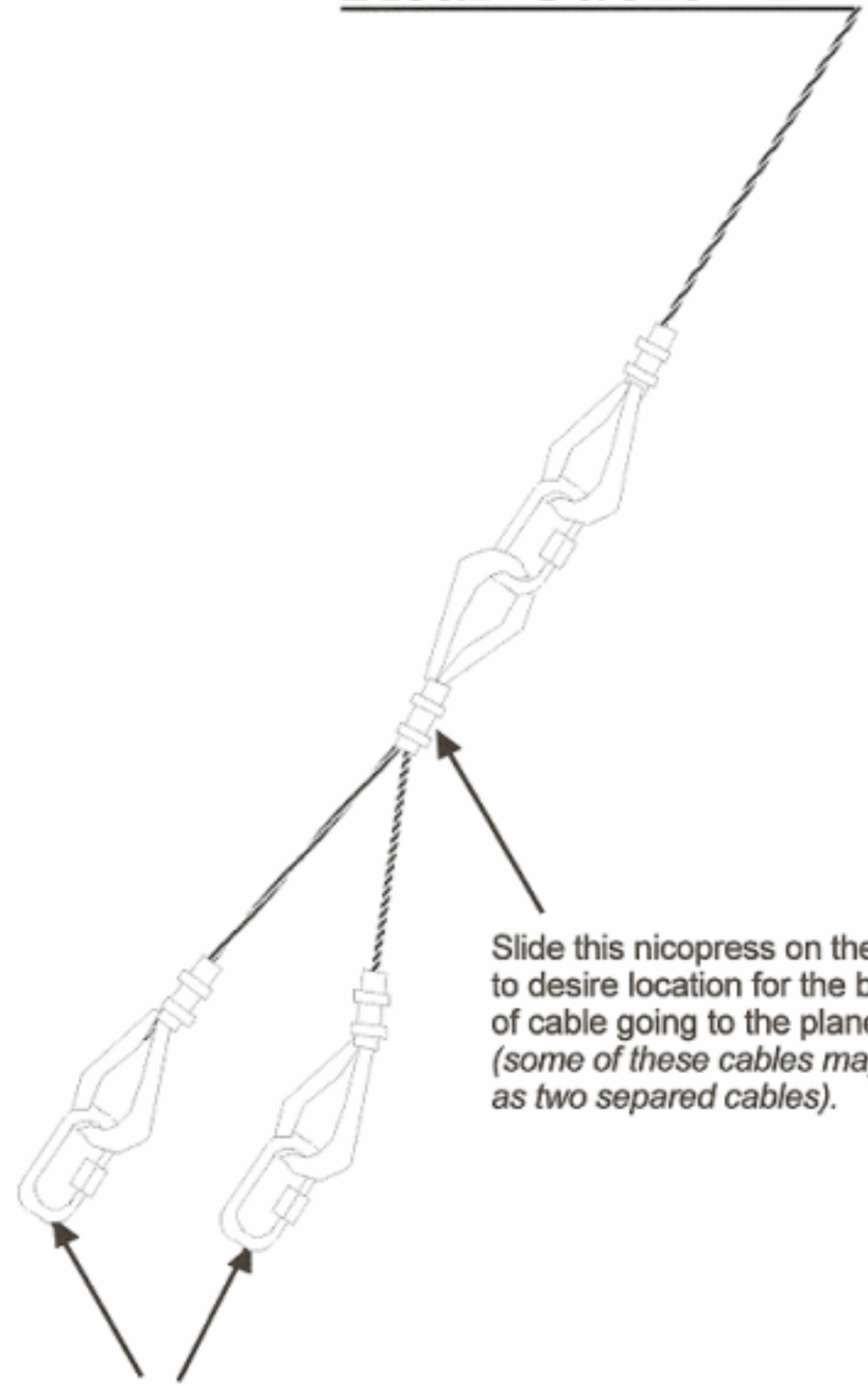
Rear Cable "B"



To airframe

See on our web site for photos

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

By Jean-Marc Augé
for DATUM inc.

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_____

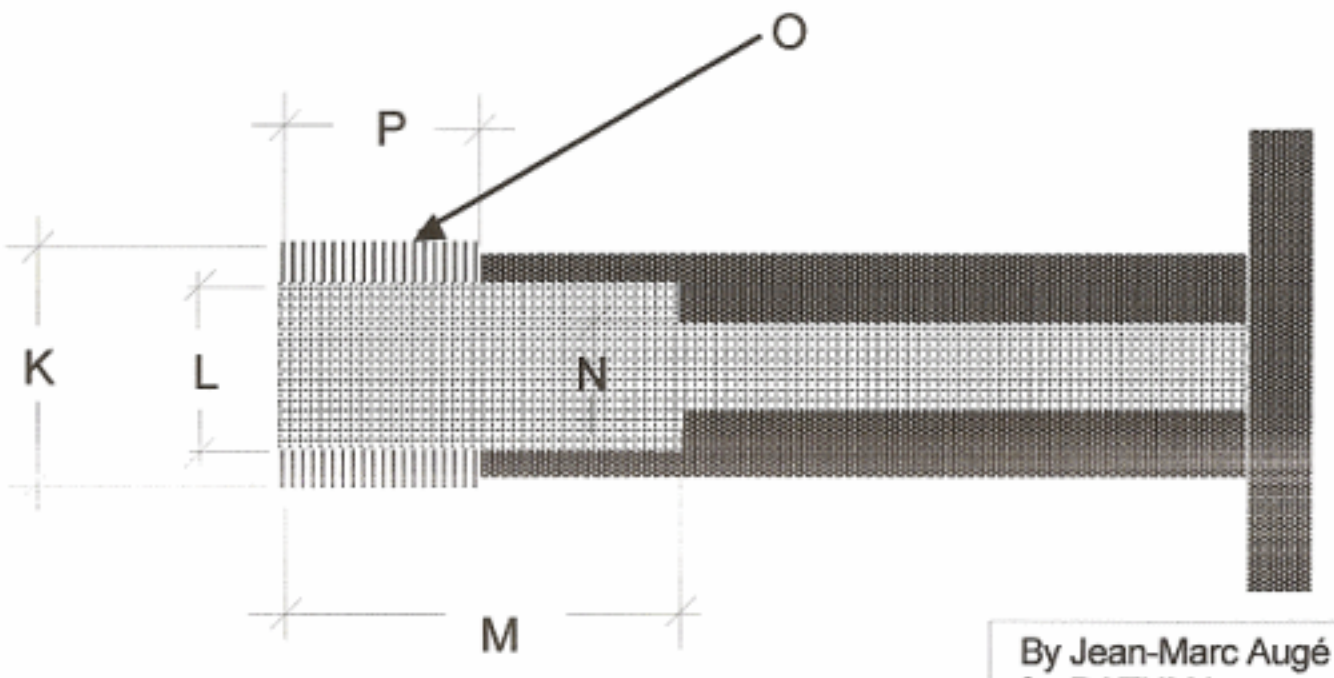
L- Axle inside dimension_____

M- Deepness of hollow_____

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

O- Threads size (threads per inch)_____

P- Threads length_____



By Jean-Marc Augé
for DATUM inc.

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 requiered dimensions.
Accurate measurements are a must.

By Jean-Marc Augé
for DATUM inc.

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.

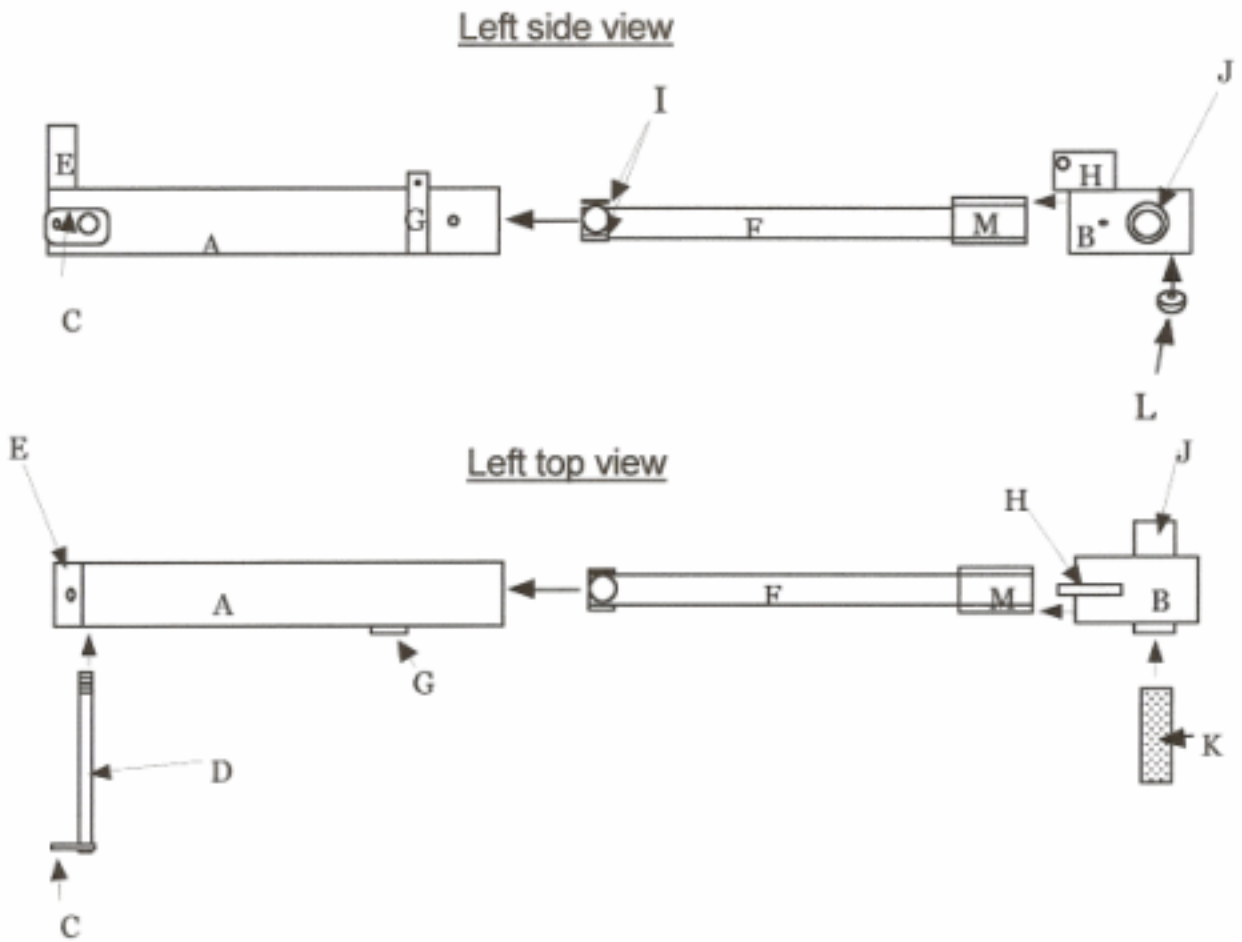
- Keep aircraft battery well charged when operating on skis.

- Ask technical help if needed, at : www.datumair.com or call us at 819-297-2426

- Always do a preflight inspection of skis and system before every flight.

By Jean-Marc Augé
for DATUM inc.

Parts identification



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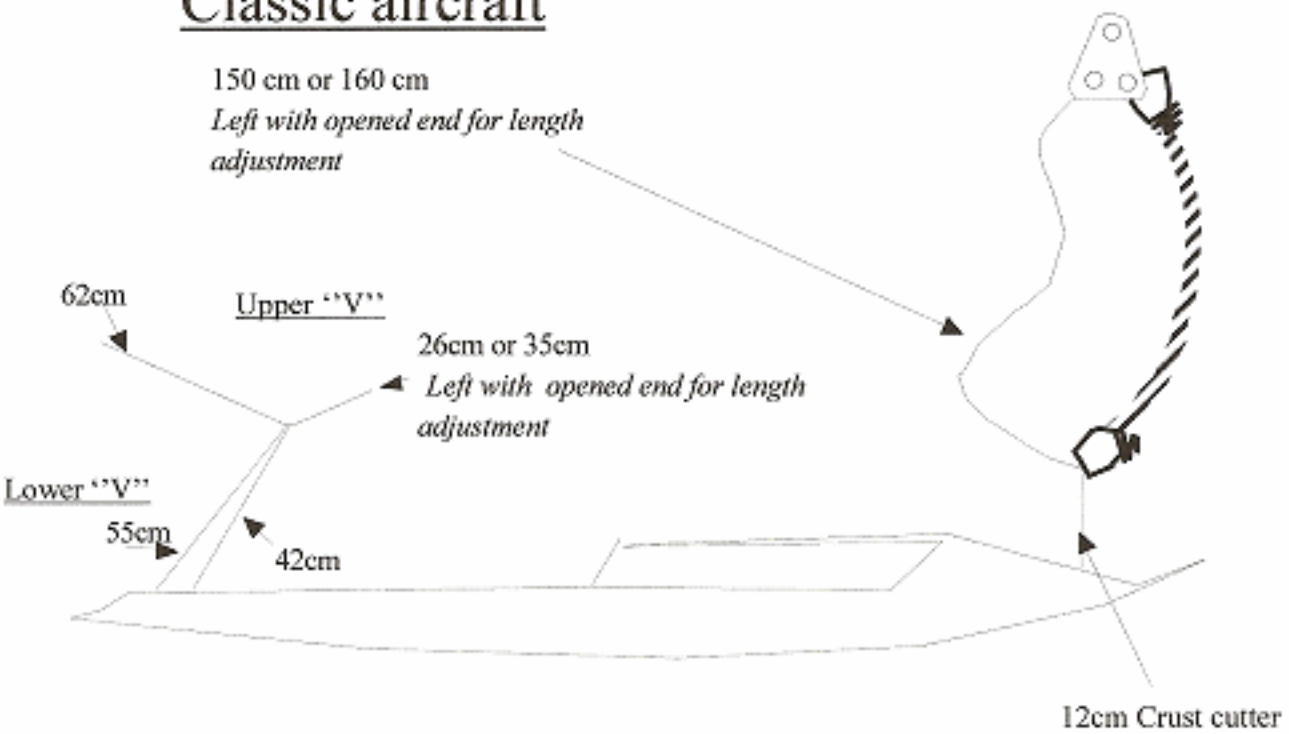
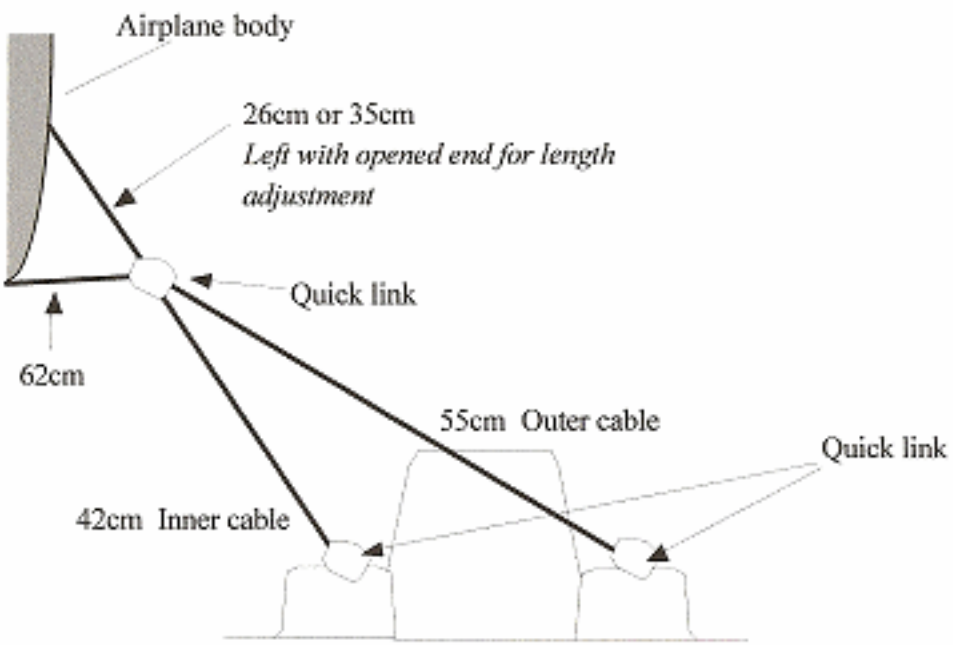
Cables set up for skis #1500 Adaptation on Savage and Savage Classic aircraft

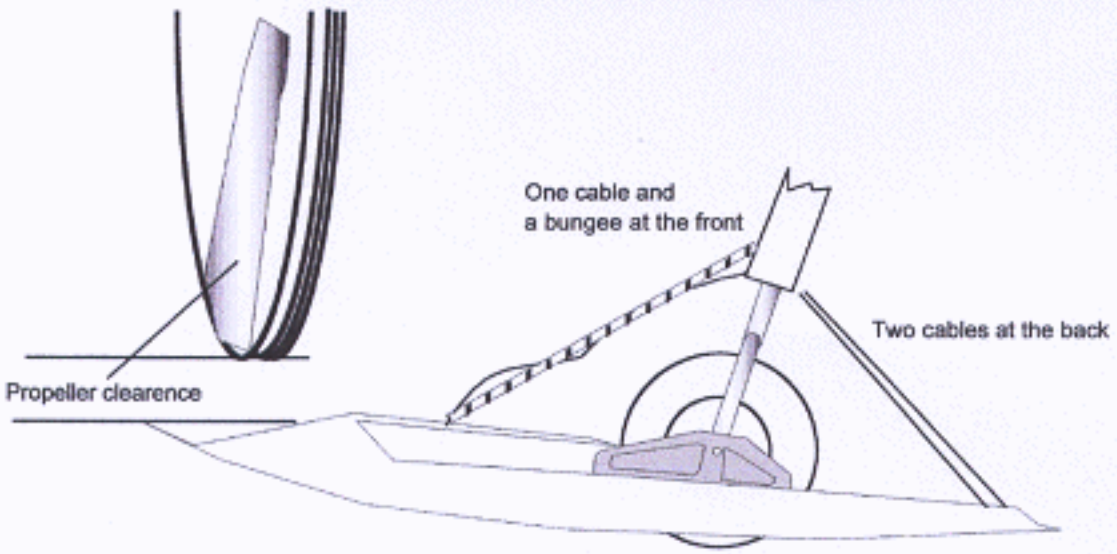




Rear view of rear attachment point

By Jean-Marc Augé
for DATUM inc.

Front ski series 1000 & 1500



Caution: Cables must be made to keep the ski horizontal with the ground.
A very slit noze upof about 3 to 5 degres is permit If the propeller clears the front of the ski.