

Elcon Airbrake - assembly

The air brake system consists of 2 main parts:

- Air brakes
- Air pump

We start with the build of the Air Brakes themselves

Needed are:

- 2x Package with brake disc, ground plate, cover plate, pressure plates, rubber membrane, inner and outer ring
- 1x Bag with hard wear for assembly of the air brakes
- 2x Uprights



- 1)
Clean and degrease the ground plate (brake cleaner).
Place some loctite (preferably high strength) in the 3 holes for the dowel pins.
Press in the stainless steel dowel pins (2.5 x 14mm)

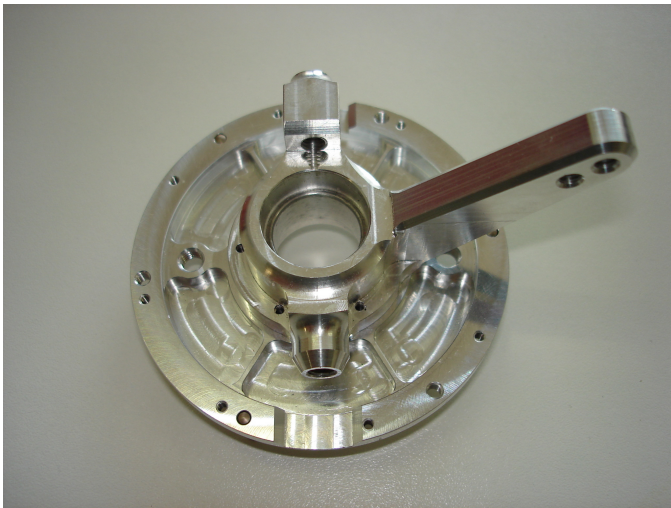


2)

In order to get the engraved Elcon logo at the cover plate on top when assembled, it is wise to check first with a quick test assembly without mounting screws.

Take one of the uprights, place the ground plate on it, the 2 holes for the air connection should be horizontal. Take the cover plate and check if it can be mounted onto the pins of the ground plate correctly so the logo is on top.

If not rotate the ground plate 180 degrees.



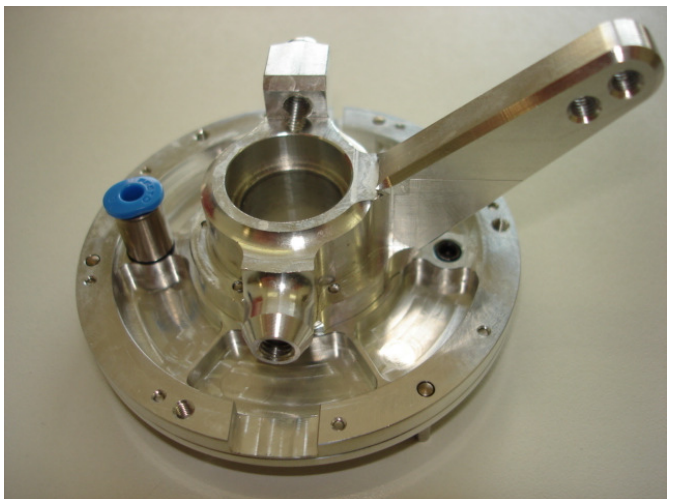
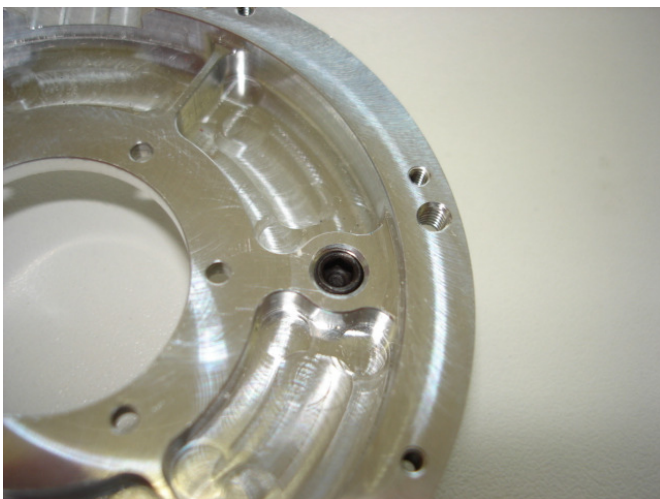
3)

The front hole is used to connect the airtube.

The rear hole must be closed.

Use the small M5x4mm grub screw to close the hole.

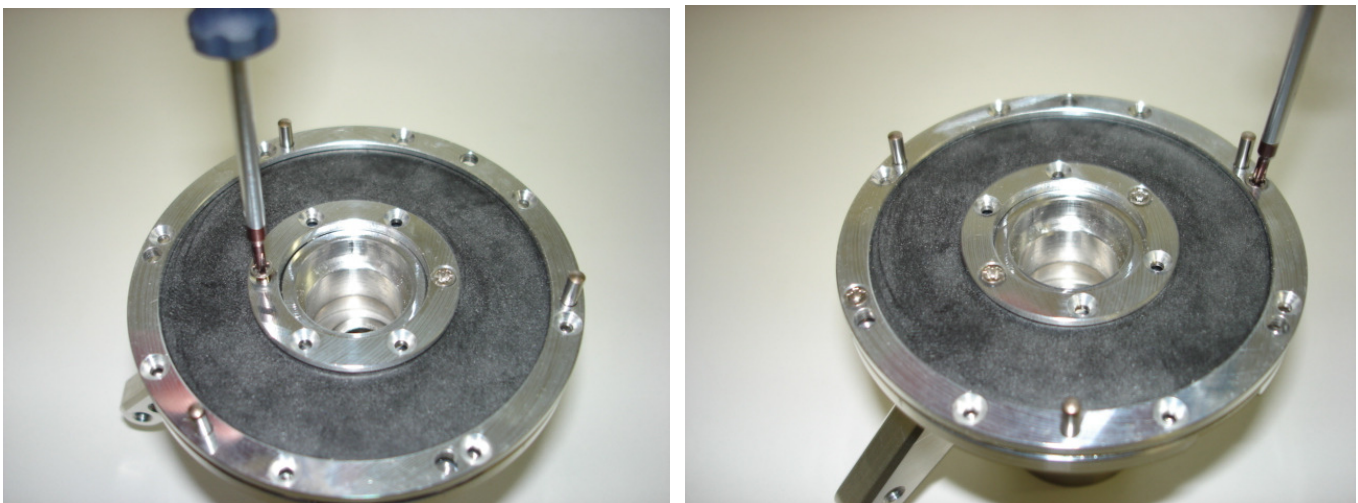
Apply loctite (rich), so the hole will be fully closed against escaping air.



4)
Place the ground plate as checked at step 2) on the upright.
Place the rubber membrane on the front plate.
Note the rubber membrane has on one side a thicker rounded edge (similar to an o-ring).
Place the membrane with this edge/ring facing down towards the ground plate.
This edge can be used to center the membran as much as possible to the ground plate.
Centring the membrane correctly is **highly** important.
Place the inner ring first, make sure it is placed in 1 go directly at the correct spot !
Place the outer ring, make sure it is placed in 1 go directly at the correct spot !
The membrane should stay centered.



5)
Insert 2 countersunk screws M2x10 in the inner ring, opposite from each other.
Turn them in till they just touch the aluminium inner ring, do not tighten.
Insert 2 countersunk screws M2x6 in the outer ring, on the same spot as the inner bolts are.
Turn them in till they just touch the aluminium inner ring, do not tighten.
Excercise patience!
Very gently turn in the screws on the inner ring 1 or 2 turns each.
Very gently turn in the screws on the outer ring 1 or 2 turns each.
Insert additional screws in the inner ring, turn till they touch the inner aluminium ring.
Insert additional screws in the outer ring, turn till they touch the aluminium outer ring.
Very gently turn each bolt 1 turn per time on the inner and outer ring so all is pressed down equally.
Excercise patience!



6)

Leakage testing.

This can only be done after the loctite on the M5x4 grub has sufficiently dried and closed the hole!

Insert the connection into the open hole for the air supply.

Inside the connector is a hexagon, use a 2mm allen wrench to tighten the connector properly.

Put the tube inside the connector (for release of the tube press down the plastic blue lid of the connector).

Blow (using ones mouth) into the tube, check if the membrane is moving outwards and pressure remains.

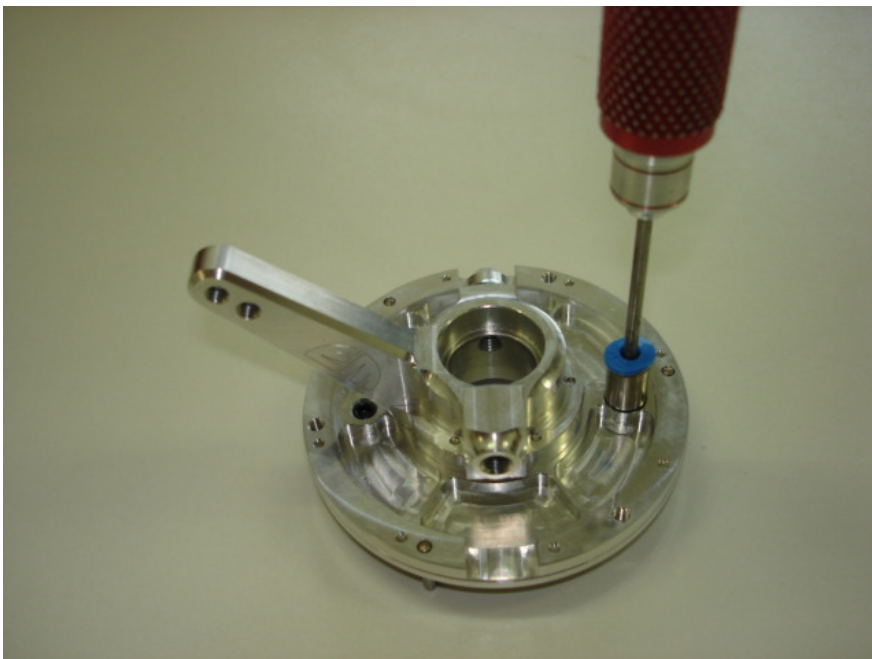
For a final check the upright can be put under water, when blowing in the tube bubbles will indicate an air leak.

The system should be fully closed and no air bubbles should be detected.

In case of any failure repeat step 4 & 5.



After assembly of all screws the membrane should be fully flat and not show any rinkle at an edge. In 9 out of 10 cases a visual inspection will be sufficient.



7)
 Make sure the brake is fully dry after step 6
 Assemble round headed nut with flange into the shaft, secure with loctite.
 Place bearings and distance bush in the upright.
 Place shaft through bearings and bushing.
 Above steps apply to the Cleon version of the air brake. Other car makes must re-use the bearings and shafts from their own brand as these are not part of the Elcon program.



8)
 Mount the wheel square/hexagon to the shaft, secure the grub screws with loctite.
 Place the first pressure plate on the dowel pins.
 Place brake disc onto the hexagon and place one small pressure spring on each dowel pin.
 The brake disc should be able to move axial over the hexagon, slightly file the inner hexagon of the epoxy disc when needed.
 Place second pressure plate on dowel pins.
 Place cover on the dowel pins and secure with loctite the M3x12mm cilinder head screws.
 Press complete package together by hand while turning the cilinder head screws in till the bottom of the cilinder head touches the cover plate, do not tighthen screws!
 Now release each screw half a turn. Release package, the cover plate should be pushed out by the springs.
 Mount assembly to the wishbones of the car.
 Repeat step 1 till 6 for the second air brake.



Air pump

Needed is the bag with the air pump and the separate small bag with grease.



9)

Place grease on the inside of the pump housing, divide equally on the surface inside the pump housing.
Press in the bushing on the ear of the pump housing.
Press in the bushing in the closing cap for the pump housing.
Turn piston rod into the piston till the end.



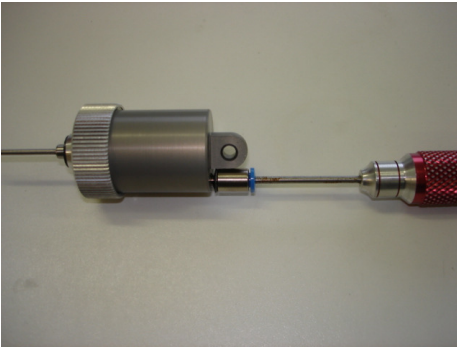
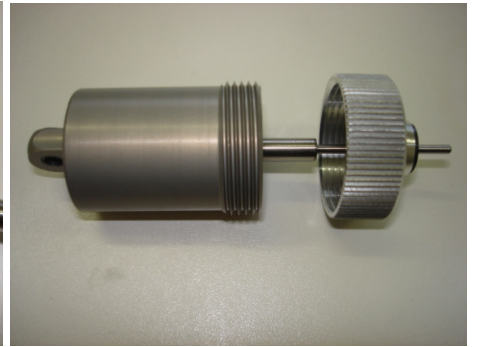
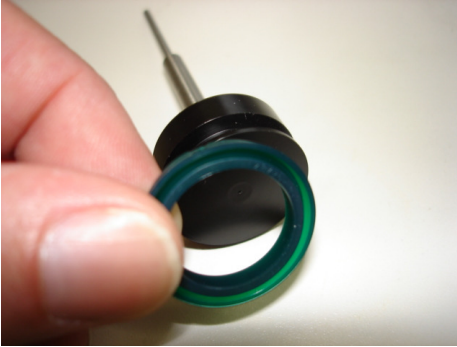
10)

Assemble the seal to the piston, note the opening should point into the housing, not correctly functioning of the pump is due to false direction of the seal.

Insert the piston into the housing.

Place the cover cap over the piston rod and screw onto the housing, secure the cover cap with loctite.

Insert the air tube connector into the housing using a correct allen wrench key.



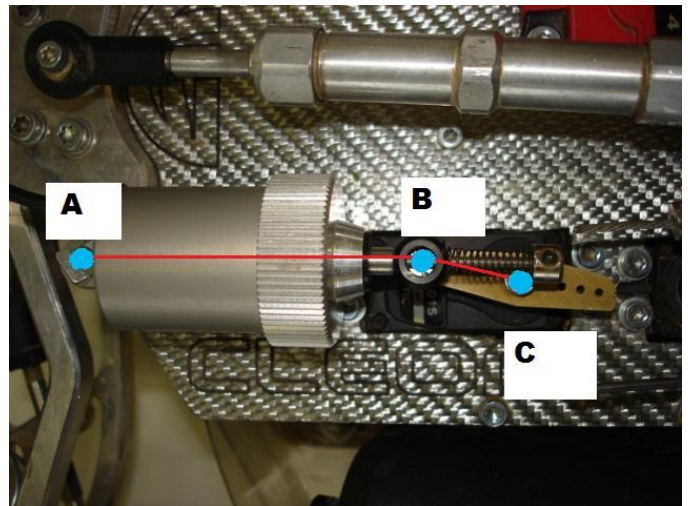
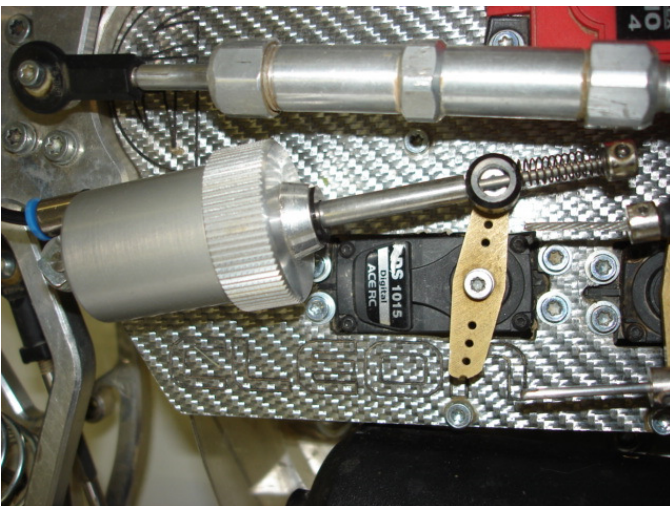
11)

Placement of the pump in connection to its servo is **highly** important to ensure full braking power.

The servo should be placed this way that when the servo reaches its end point where the pump is mounted to the chassis or radioplate (point **A**), is (almost) forming a straight line with the connection to the servo horn (point **B**) and the servo axle (point **C**).

By using this configuration the highest air pressure is achieved in the air pump.

Note the servo should NOT be able to turn over its dead point !



Setting up the brake

Choose place of the Y-splitter for the air tube.

Insert the air tube into the connector of one of the air brakes.

Move steering L/R so the maximum steering in and maximum steering out position is reached.

Move the full suspension/wishbones up and down (take off shock absorbers).

Determine necessary length for the air tube so all positions can be reached and cut to length with a sharp hobby knife.

Stick the ends of the tubes into the connectors

Repeat for other side.

Use remaining part of the tube to connect the Y-splitter to the air pump.

Note: the brake should first engage a few times to center the complete system.

You can help this by moving the piston rod a few times in and out while turning the servo horn by hand.

Check if the wheel rotates free (take out 1 air tube at any connection).

Adjust cylinder head screws at cover plate when necessary.

Check the piston position in the pump housing.

The piston rod should be fully out when the brake is not used.

Adjust the position of the servo horn and/or trim servo on the transmitter when needed.

The braking power can be increased or be decreased by changing the movement of the servo horn.

Note that at the first time using the brake some oil or other residue might be present on the friction materials which could affect braking effect. This should disappear after approximately 5~15 minutes, full braking power should then be achieved.

**NEVER USE THE AIR PUMP WHEN THE COVER PLATE IS NOT MOUNTED (WHEN BRAKES ARE OPEN).
THIS MIGHT LEAD TO DAMAGE OF THE RUBBER MEMBRANE**