How to repair your ProLink

by Alexander

(translated by schorsche, so if you find mistakes you know who is to blame)

Since nearly 30 restorings I over and over again intended to write this down.

Starting point:

The GL or CX with the ProLink system squeeks happily while riding but the old scrap heap slowly but steadily becomes impossible to ride.

The first thing to be done is to dismount the two arms/levers.

That alone can be a very big challenge (some will now roll eyes nodding …).

But we start assuming that the dismounting has been done successfully without to much injuries and damage.

Now it is time for a first rough [q&d] cleaning in order to handle the lumps without to much crumbs dropping down or spilling around.

In regard of the ProLink in front of us we assume MCA (maximum credible accident): all is bombproof stuck together even those parts that shouldn't …

With the basic hardware shown below up to now I have been able to disassemble every lever into his components okay apart from the welded ones ...

You look at:

Long 19mm wrench socket
short 27mm wrench socket
short 32mm wrench socket
drift punch 100 mm long, 15 mm in diameter where the first 25mm are down to a diameter of 9.5 mm
drift punch 110 mm long, 14.5 mm in diameter
drift punch 210 mm long. 9.5 mm in diameter
precision instrument (hammer)
part of rail or similar

Well, here is the "leverage" after the disassembly:

The bushings are fixed in the press fitted tubes, some may have the opinion that is state of the art …

For good luck I have access to an industrial washer so I throw the scrap in there.

Mafac washer made in the black forest

Who is of the opinion that is clean is way off

Time to sort parts out, this nut goes to recycling

The remains are to be cleaned by hand, the water afterwards looks like this, now they are clean enough to be handled.

Now it gets interesting

The bushings that are stuck in the tubes which are press fit in the arms have to be brought out.

Lets start with the sheet metal lever

No explanation needed if you look at the picture.

Next is the forged lever which contains three bushings snug tight.

Pay attention that the lever is leveled with the wrench socket at every blow

For the first bushing you have to go through the other with the thin punch driver,
proceeding this way avoids the possibility of deforming the lever the more if you use a press instead of a hammer.

Now you can use the thicker punch driver as the upper bushing is already removed.

This is what most certainly will appear during the dissassembling it once was the lubricant.

With a little bit of practice casting out the parts may be done in about 5 minutes and without using fluids like WD40 or similar

The next post will discribe how the bolts and tubes are to be "sterilized" to determine the wear and thereby the further proceeding

Well, after all has come apart (the tubes and the tube for the suspension mount that is cured into the lever stay there) the bushings and the inner sides of the tubes are sanded/brushed clean before the diameters are measured.

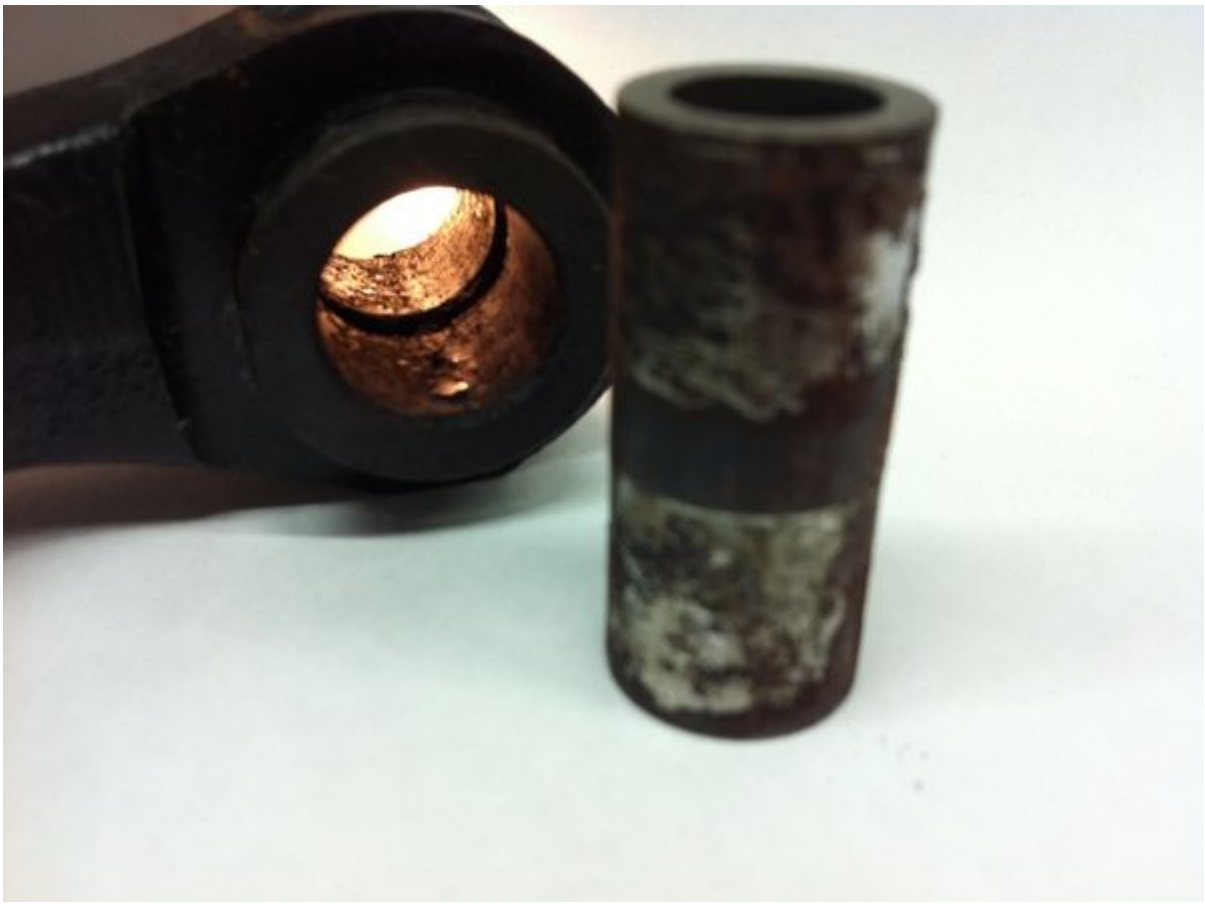
I go into the tubes with several brushes, the bushings are only roughly derusted with 150 grain sand paper as they are scrap in most cases.

Subsequently some pictures with the bearing parts in starting condition:

Bearing point sheet metal lever.

Bearing point in the middle of the forged lever.

Bearing point in the rear of the forged lever.



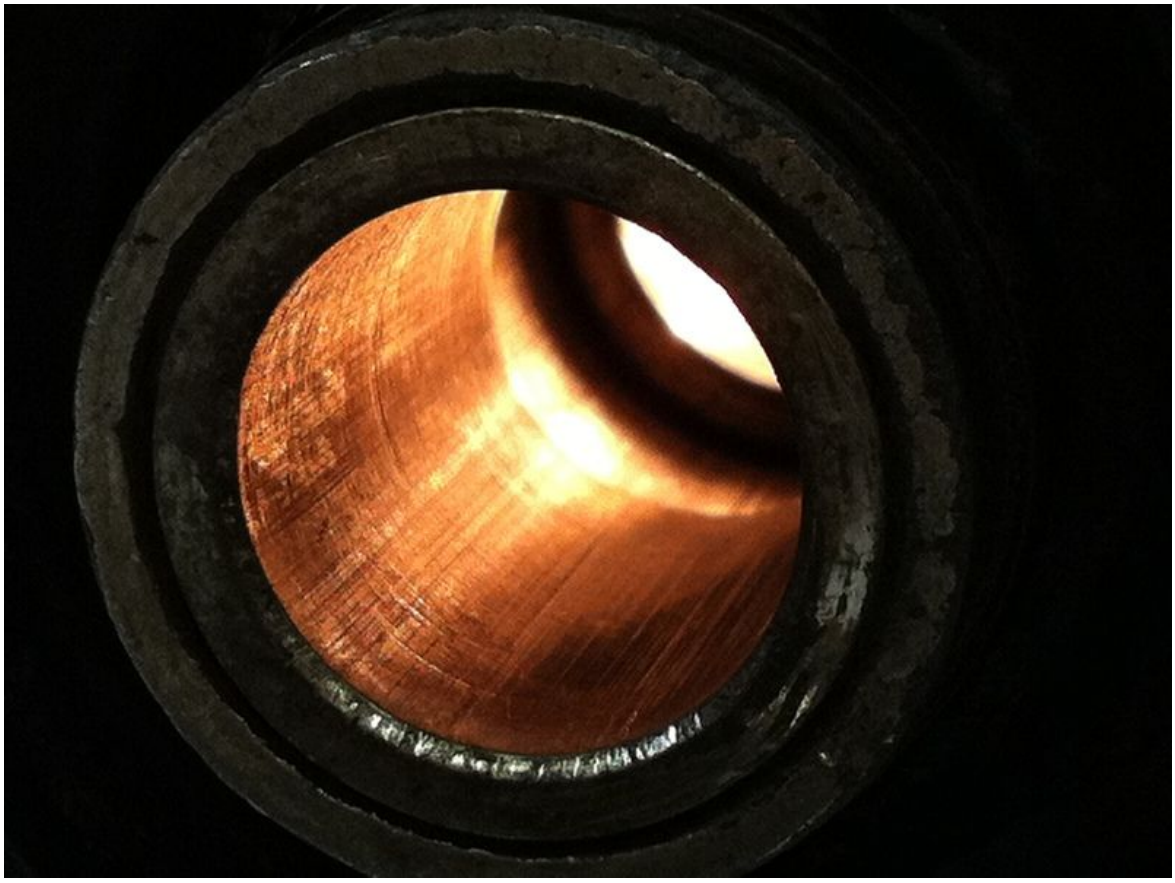
Other side.

Well, no surprise that it is squeeking and locked ... all bearings are dry as desert, if mounted one is hardly able to apply lubricant there. The circular motion will most likely take place via the threaded joint as to be seen be the scratches at the inner sides of the dust covers …

Here my utilities, I suppose every one knows how sand paper looks like ...

Several rotating brushes ...

After the work the parts should look like this. It helps to minimize measurement error ...



Now the outer and inner diameters are measured and entered into a sketch. The bushings are directly labeled with the minimum measurement.

As for the inner diameters I measure the min and max extent. If the difference is too high (more than 0.15 mm) the tubes also have to be removed.

Specified outer diameter for the bushings is 14.95 mm, for the tubes 15.10 mm to 15.15 mm for the inner diameter with the exception of the carbon bearings mounted to the rear of the forged lever. They are between 15.10 mm and 15.15 mm in outer diameter. The corresponding bushings therefore have an outer diameter of about 14.98 mm to 15.00 mm. Bearing clearance here is more tight …

As one can see uncle Honda mainly allowed a bearing clearance of nearly 0.2 mm.

The bushings that are not fit for the clearance have to be sorted out.

Others that fit come into play but they have to be neither too thick nor too thin.

Example: Inner diameter of the tube 15.15 mm to 15.20 mm that means some wear and tear.
For that I take a bolt with an outer diameter of 15.00 mm.

Before all is jammed together the levers are derusted and painted where the focus is solely on anti-corrosive protection.

Those levers are within the area of sputtering from the rear wheel and therefore one time ore another one should check them and use the brush or spray can to apply some paint.

Ready for the final act!

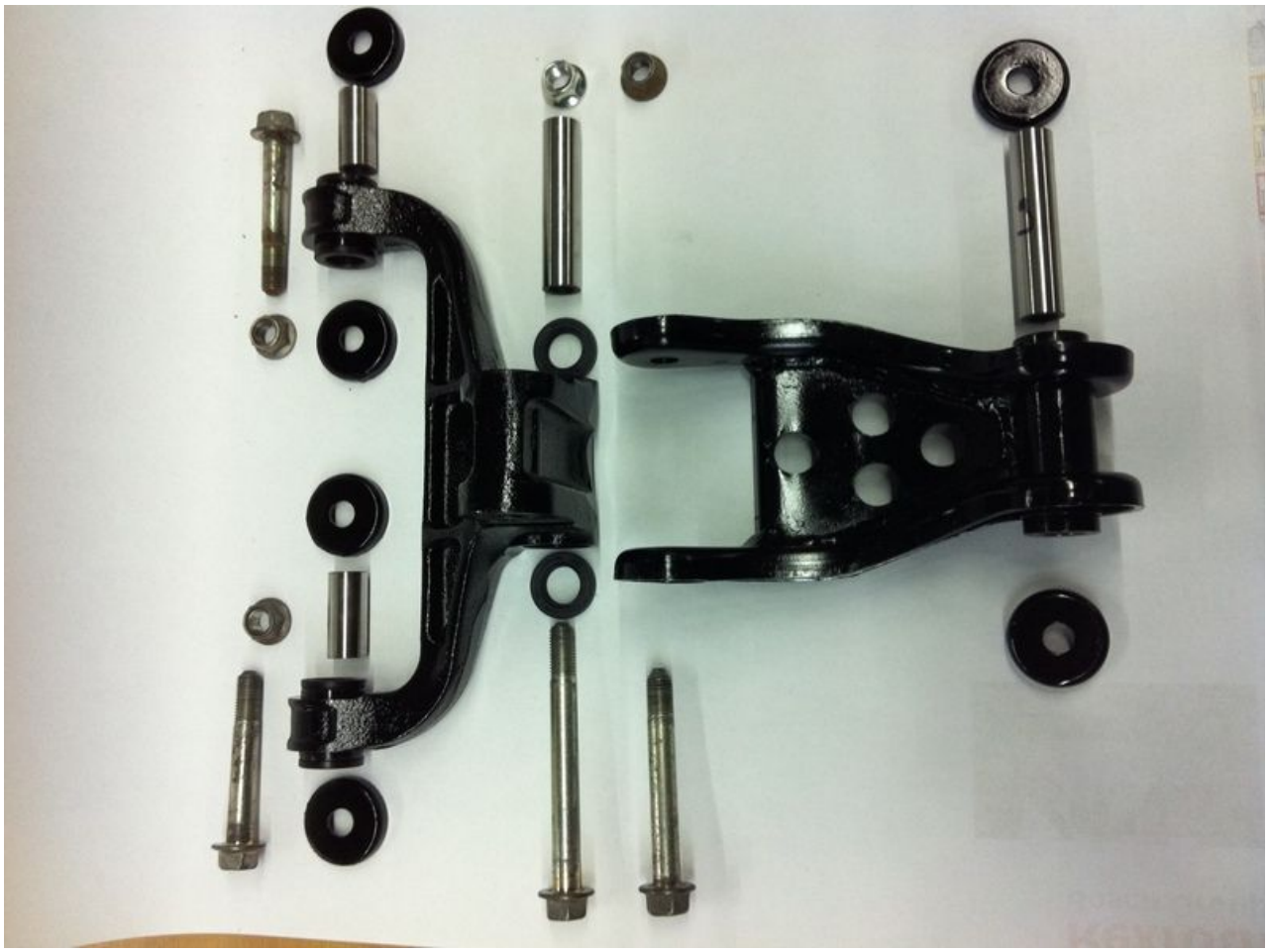
Now it gets sticky as the parts were are greased quite fat and jammed together!

One should not use Moly, copper grease or similar standard grease but a grease that is enduring high pressure and also highly water resistant in order to withstand being washed out.

I use F80 from the company Röhm for lathe chucks.

Hint: The stronger the grease struggles against being applied to a smooth surface the better it is for the purpose.

This I learned in several experiments on myself about ProLinks of own bikes.

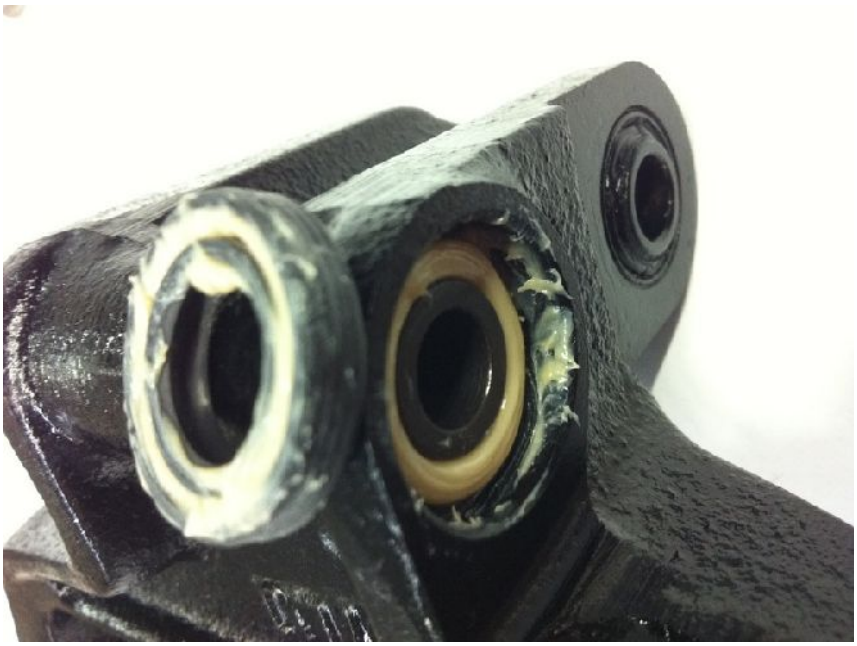


That's the appearance of the parts now.

Where there is grease nothing else can intrude

Fill all cavities!

Screw in the greased bushings to get more grease into the clearing.



Grease everywhere

Ready for assembling, torque for the thread joints is 55 Nm.

So now you know how to maintain a ProLink needing only small money.

Oversize bushings have to be made by hand because

- Original bushingss by Honda: No longer available
- Oversize bushings were never sold by Honda therefore you had to change all parts to keep the clearences.

Alexander uses 16MnCr5 steel (material specification sheet to be found under

http://www.saarstahl.com/fileadmin/saarstahl_extranet/images/04_produkte/walzstahlsorten/english/7131_7139_16MnCr5_16MnCrS5.pdf)

with an oversize diameter of +0.3 mm, 0.8 - 0.9 mm case hardened and tempered (hardness at the surface is ~55 HRC) that is than hard turned to the specified diameter, grinding is also possible.