

I. Exchange the Ema Cube's transmitter coils

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II. Demount Transmitter Coils

A. Prepare the transmitter cable

1. power off the Articulograph AG500

- shut down system
- switch off power at the main power switch

2. disconnect the transmitter cable

- There is a difference, if your carrier has a front panel where all cables are connected or not.
- in case your carrier has no front panel, open the carrier and disconnect the transmitter cable at the Transmitter DTC6 (Figure 1)
- put the transmitter cable out of the carrier
- if the carrier has its front panel, loose the transmitter cable connectors at the carriers front panel .



Figure 1: disconnect the transmitter cable

3. loose the cable inside the Ema Cube

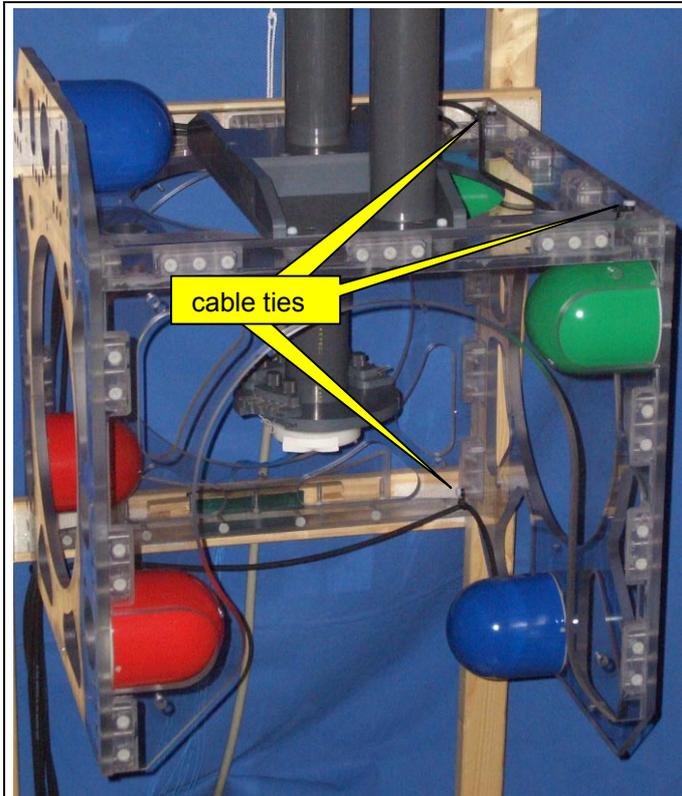


Figure 2:
unscrew the plastic machine screws

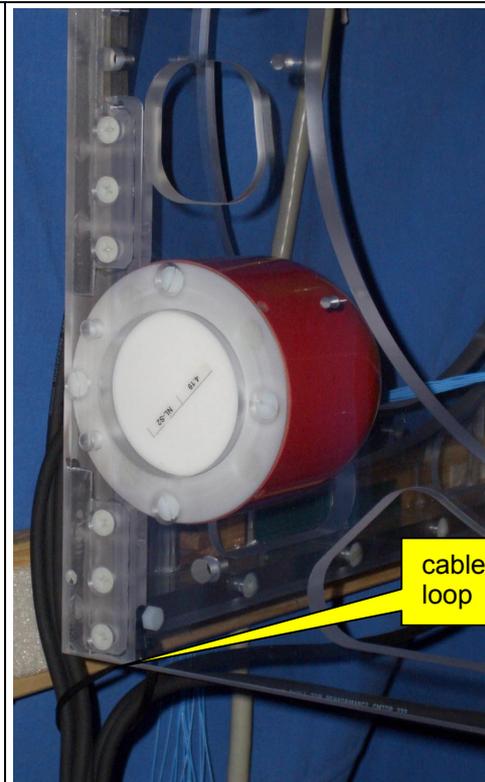


Figure 3:
all 6 cable come through this loop

- lead the cable through the loop near the red transmitter NL_2 (see. Figure 3)
- find all cable ties and unscrew the plastic machine screws except the one shown in Figure 3

B. demount the transmitter coils

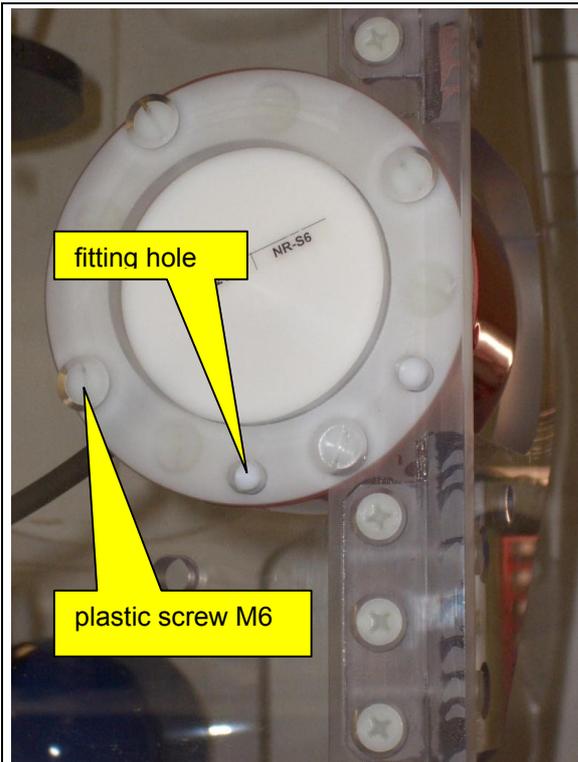


Figure 4: four screws hold the transmitter

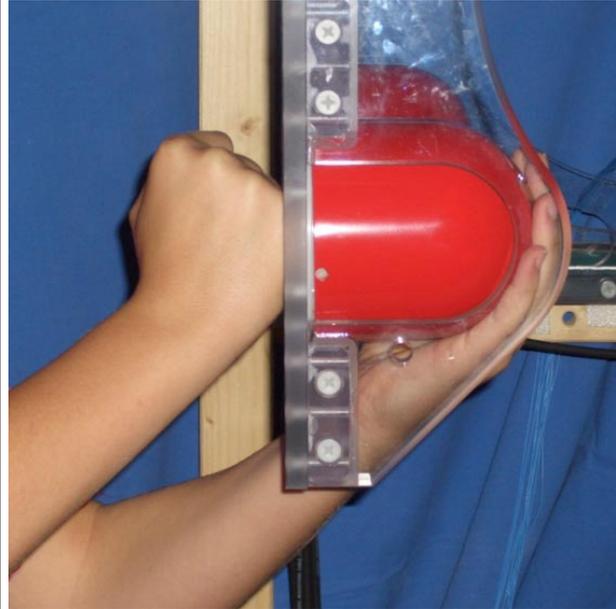


Figure 5: a little bounce frees the transmitter

- remove the four plastic screws (Figure 4) while holding the transmitter with the other hand
- bounce softly with the fist against the transmitter to bring it off the Ema Cube.
- both adjust pins stay in the Ema Cube – if one remains in the transmitter, bring it back to the Ema Cube's fitting hole

C. packing the transmitter coils

It seems that the shipping companies sometime play football with the packages. So please carefully pack the transmitter.

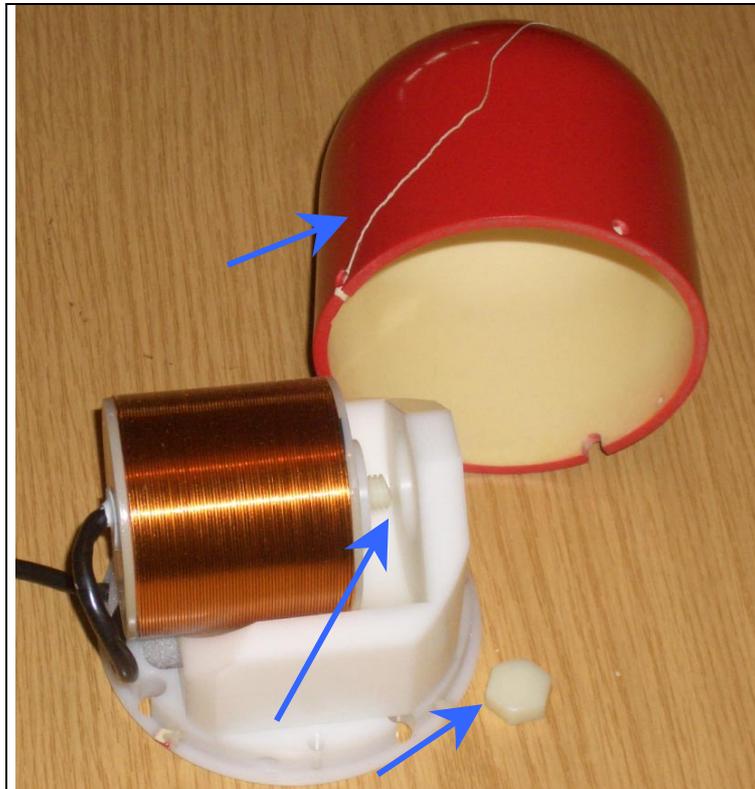


Figure 6: damage by transport

- bring at least 3 layers of bubble foil over the whole surface of the transmitter.
- prepare a box with 20mm Styrofoam at its walls
- bring the transmitter into the box and fill all cavities with foam or Styrofoam chips

D. ship the box to

Carstens Medizinelektronik GmbH

Nelkenweg 8

D-37120 Bovenden

Germany

- declare the shipping as "goods return"

III. Mount Transmitter Coils

A. unpack the transmitter coils

The transmitter are relative heavy and the caps are fragile. So carefully unpack them and take care that they will not drop.

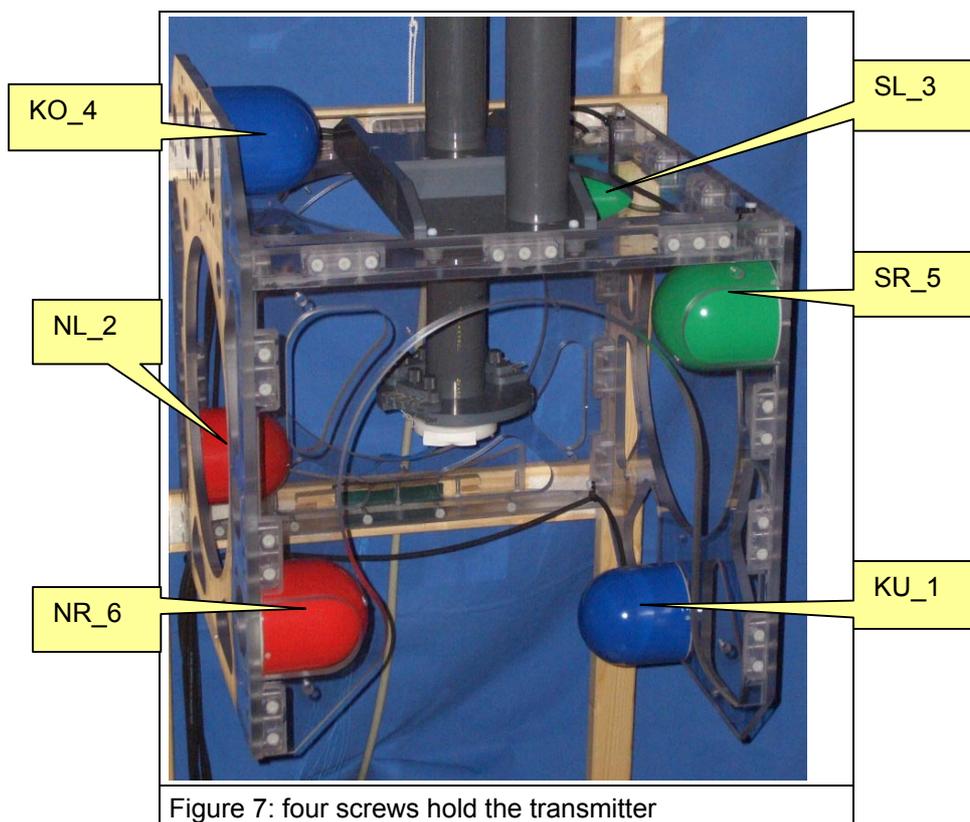
B. mount transmitter coils

Some Ema Cubes have a different grid for the fitting hole of the Nr_6 transmitter. Before you mount this transmitter, please refer to chapter III.C to check if your Ema Cube has the different grid.

For the transmitter SR_5, SL_3 and NL_2 it is necessary to lead the cable through the opening in the Ema Cube before fasten the transmitter.

In a first step, each transmitter is fastened by using the 4 metal screws. This is because the metal screws are able to force the transmitter stronger into its position.

- clean the bottom of the transmitter with a cloth so that there are no dust parts or crumbs
- clean the transmitters location at the Ema Cube in the same way
- take one coil and put it on the right place off the Ema cube (figure 6)



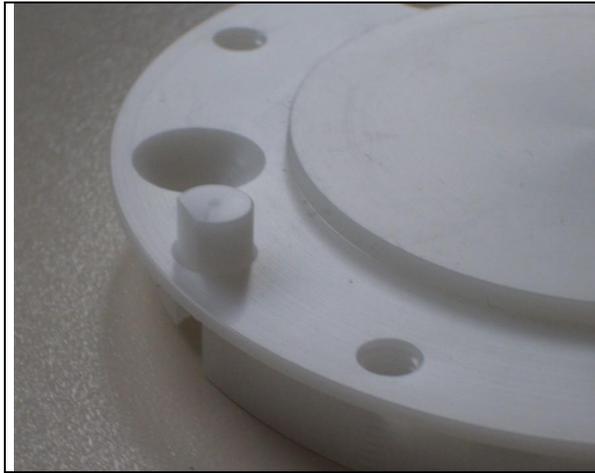


Figure 8: orientation of the adjust pin

- make sure that both adjust pins must be catch in the two fitting holes from the transmitter
- bring the adjust pin in the Ema Cube's wall in a position that its flat side is looking to the outer side when it comes into the transmitter (shown in Figure 9)
- turn slightly in the four metal screws (6x20 mm)
- fasten the four metal screws step by step in a way that the transmitter is forced parallel into its position
- check if all four screws are securely fastened and there is no space between the transmitter bottom and the Ema Cube wall.
- remove one metal screw and replace it with a plastic screw
- repeat this step for each of the remaining metal screws – one at a time

C. different fitting holes for the Nr_6 transmitter

In case your Ema Cube looks like Figure 9, the fitting holes are normal and you can mount the transmitter in the same way as the other ones.

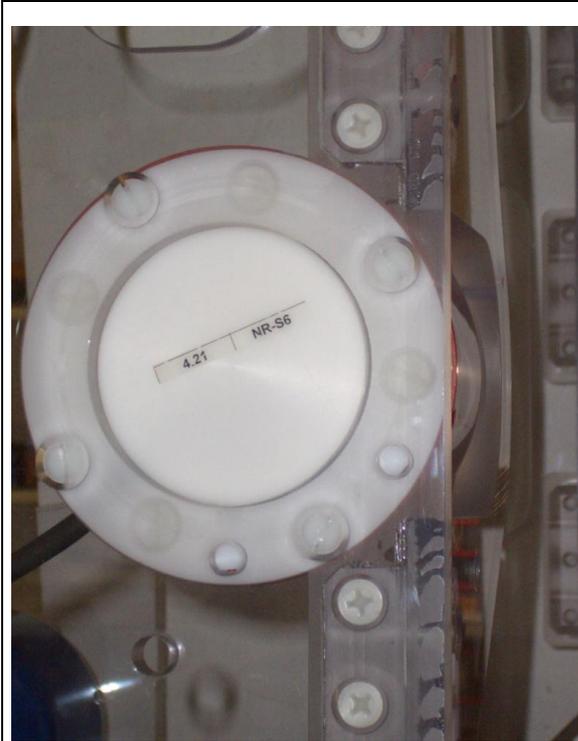


Figure 9: normal fitting holes

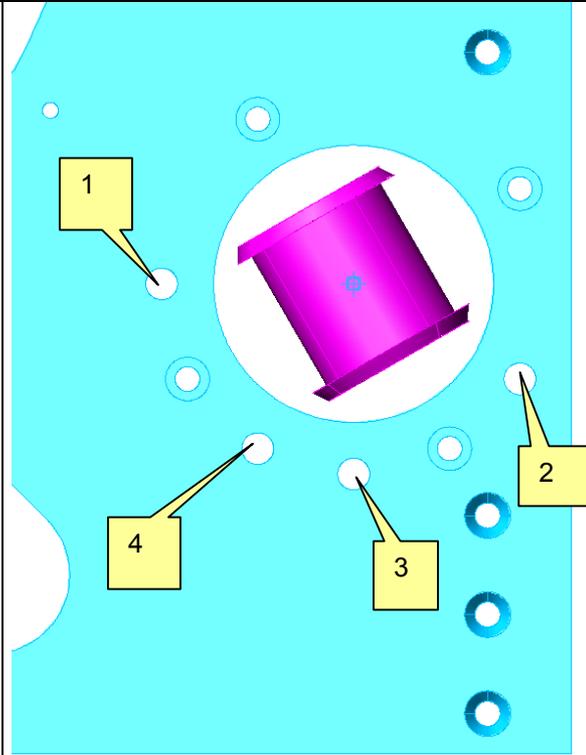


Figure 10: different fitting holes

If you have the Ema Cube with the different grid for the fitting holes, please position the transmitter as shown in Figure 10.

The transmitter has its fitting holes at the positions 2 and 3 (Figure 10) but there are no adjustment pins because the Ema Cube has no holes here.

There is only one adjustment pin for the Nr_6 transmitter at the position 1 (Figure 10).

At the position 4 there is no adjustment pin because the transmitter has no hole.

D. lay the cable inside the Ema cube

- fix five cable ties with plastic screws (6x10 mm) at the places in figure 2, 3 and 7.
- lay the cable and fix them with the cable ties
- all 6 cables come through the cable ties loop in figure 3.

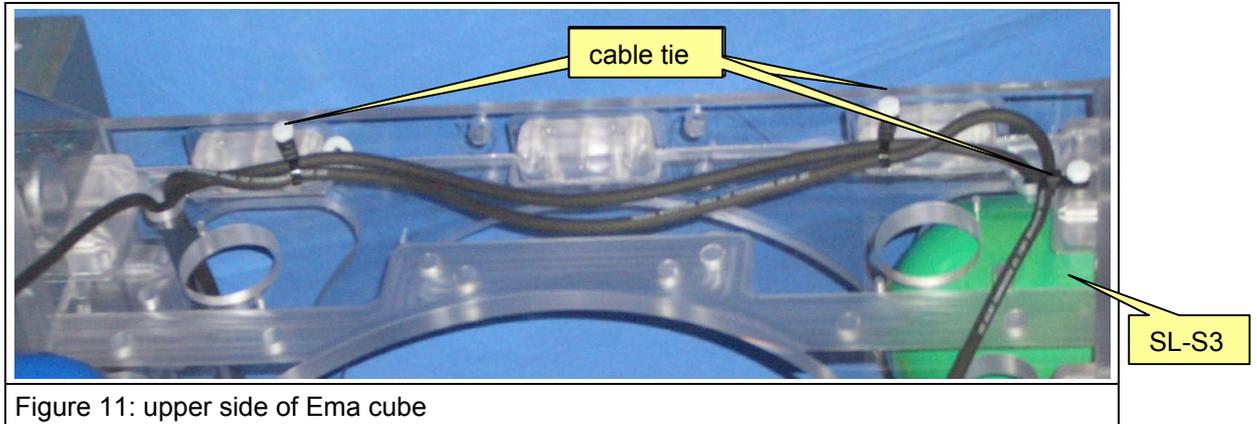


Figure 11: upper side of Ema cube

E. connect the transmitter cable

There is a difference, if your carrier has a front panel where all cables are connected or not.

in case your carrier has no front panel, open the carrier and put the transmitter cable into

connect the transmitter cable connectors at the Transmitter DTC6 (figure 7)

if the carrier has its front panel, connect the transmitter cable connectors at the carriers front panel .



Figure 12: connect the transmitter cable

IV. Complete the transmitter installation

A. Accessoires

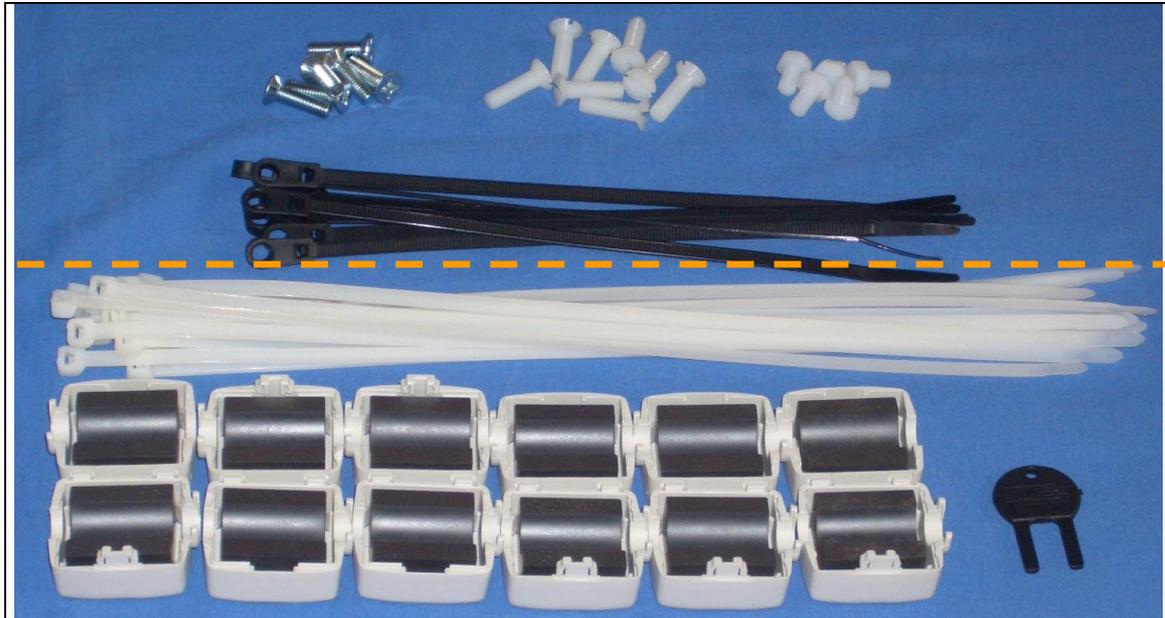


Figure 13: Accessories
– the lower half is missing when the transmitter cable have integrated ferrite beads

6 snap ferrites

1 safety key for snap ferrites

7 black cable ties (2 spare) with eye

14 grey cable ties to fix the snap ferrites (2 spare)

6 Metal screws M6 *20 (2 spare)

4 plastic screws M6 *10 (spare)

There are two versions of transmitter cable. One have integrated ferrite beads (Figure 14) and the other need to get a snap ferrite.

Skip the chapter IV.B if your cable have integrated ferrite beads.

B. fix the snap ferrites

- on each of the six cables clip one snap ferrite 4 cm behind the bend protection of the transmitter cable connector
- fix the snap ferrite with one cable tie before and one cable tie behind (figure 9)

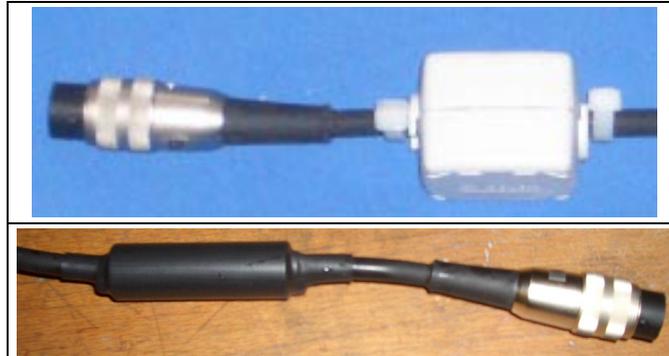


Figure 14: snap ferrite (top) and ferrite beads (bottom)

C. modify the "ag5amps.ini" file on your ida computer

It is necessary to set the transmitter amplitudes to new values. Therefore it is necessary to edit the "ag5amps.ini" file on your Ida computer with the following steps:

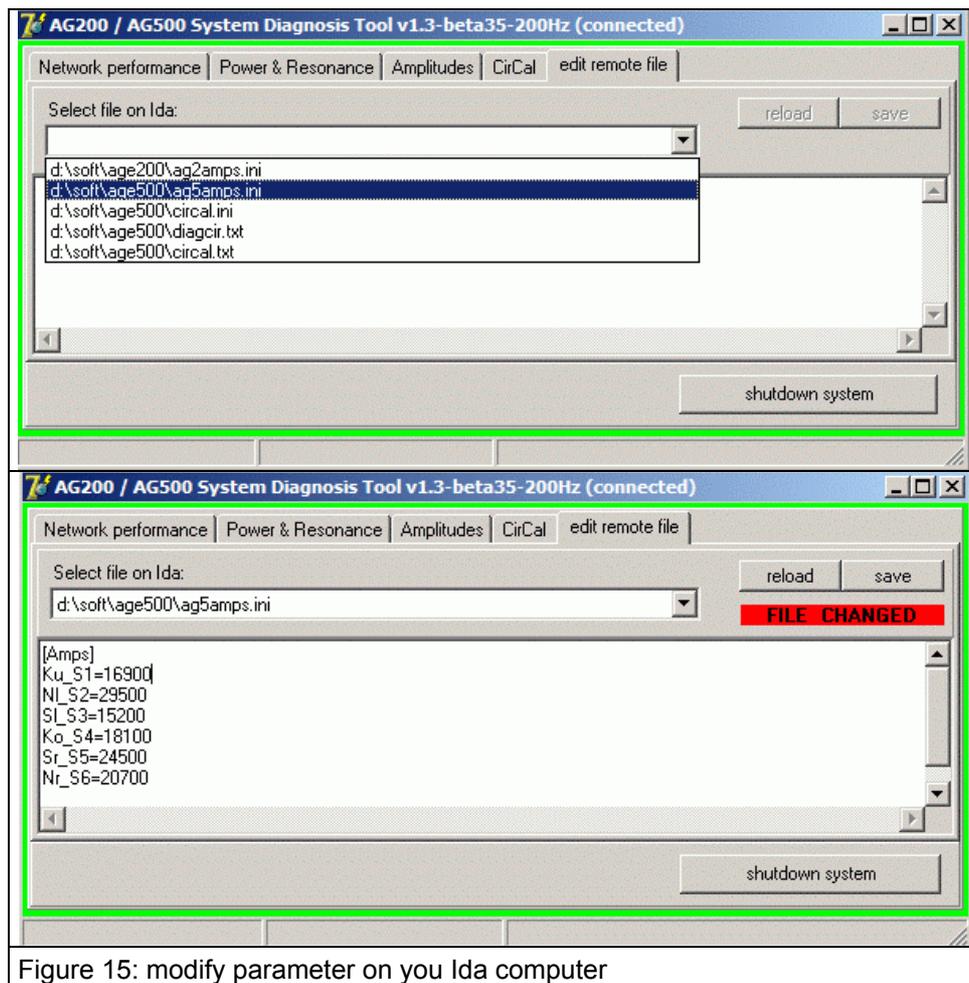


Figure 15: modify parameter on you Ida computer

- Run the "mcdiag.exe" program on you control PC and connect to your ida computer

- click the "edit remote file" tab
- select the "ag5amps.ini" file as shown in Figure 15
- Please change these values to:

[Amps]
Ku_S1=16900
NI_S2=29500
SI_S3=15200
Ko_S4=18100
Sr_S5=24500
Nr_S6=20700

- click "save"
- click "shutdown system"

V. Revision history

Date	Revision
15. Oct. 05	Initial Carstens Release
4. Nov. 05	new chapter "Mount Transmitter Coils" and "Complete the transmitter installation"