

NOTE: USE THIS MANUAL ONLY FOR grandMA S/N 1335 AND HIGHER

Replacing the pneumatic spring including hydraulic trigger

The following tasks may be performed by qualified personnel only! By disregarding the instructions or the prescribed sequence of tasks the unit can be severely damaged. These instructions are intended as a guide for qualified personnel.

1. Pull the main plug.
2. Remove connecting screws between lid and bottom section.
3. Carefully tilt the lid upwards, support it with the red rod.

Warning: Do not tilt the lid beyond 90°! This could damage the plugs in the unit's back panel.

4. Remove the screws on the back panel using an Allen key. The lower screws have to be unscrewed by only 1 turn. Remove the panel.
5. Tilt display panel backwards completely. (standard position) For the following assembly, remember or draw a sketch of how the tube is routed. Then, using a knife, carefully cut the black shrinkdown tube open and remove it.
6. Remove the locking pin on the pneumatic spring and unhook the pneumatic spring. Then, remove the hydraulic slave using a 17 mm wrench.
7. **If only the pneumatic spring is defective:** Push the shrinkdown tubes over the trigger tube and thread the pneumatic spring into the shrinkdown tubes - later (when the slave is screwed to the pneumatic spring) mounting the shrinkdown tubes will no longer be possible without heavily kinking the tube - do not yet heat up the shrinkdown tubes, and under no circumstance do open the hydraulic master or slave screws! Proceed to item 9.
8. If the hydraulic trigger is defective, proceed as follows:
 - Remove the yellow trigger knob. Holding the pin with pointed pliers, remove the knob
 - Close the lid and tilt the display panel upwards to max. 105° (see fig. 2).

Warning! Tilting the display panle over 105° may damage the electric cables in the cable duct!

- Remove the 2 fastening screws of the hydraulic master and replace the complete hydraulic trigger for a new one. Tighten the 2 fastening screws **with washers** again.
- Carefully tilt the display panel upwards. **Make sure that the electric cable duct does not jam on the underside!**

Then, tilt the lid upwards again and support it with the red rod.

Push the shrinkdown tubes over the trigger tube and thread the pneumatic spring into the shrinkdown tubes - later, mounting the shrinkdown tubes will no longer be possible without heavily kinking the tube - do not yet warm up the shrinkdown tubes, and under no circumstance do open the hydraulic master or slave screws!

9. Now, screw the pneumatic spring into the seat of the hydraulic slave. In order to adjust the travel correctly, proceed as follows:
 - With one hand, screw the pneumatic spring into the hydraulic slave, and with the other gently press on the trigger pin on the display panel. Screw-in the pneumatic spring until the trigger pin has extended completely. Thereafter, turn back the pneumatic spring for about ¼ turn. Tighten the pneumatic spring in this position, using a 17 mm nut. See fig 3.
 - Move the rubber ring on the trigger pin and screw the yellow ball button as far as possible onto the trigger pin of the hydraulic master.



10. Hook up the pneumatic spring for a test; route the tube as displayed and use the clip to secure it to the PCB. For this, remove the screw from the PCB and screw in the supplied screw (fig. 3 + 4). The tube may not be able to move within the clip. Check the settings by moving the display panel.. With proper settings, the shrinkdown tube can be warmed up. Excessive heat, however, can damage the tube.

Pay attention to the correct position of the hydraulic tube!

Then, check the pneumatic spring again by moving it forward and backward.

11. Secure the pneumatic spring at the fastening points using the cotterpins
12. The rest of the assembly is to be carried out in the reverse order.



Parts list:

- Slave
- Shrinkdown tube (3 pieces)
- Yellow knob and rubber ring
- Master with trigger pin and 2 screws with washers
- 2 cotterpins for securing the pneumatic spring
- Clip with screw and washer

Fig. 1

UNDER NO CIRCUMSTANCES DO UNSCREW THE TUBE SCREWS!

Fig. 2

(Removing the pneumatic spring incl. hydraulic trigger)

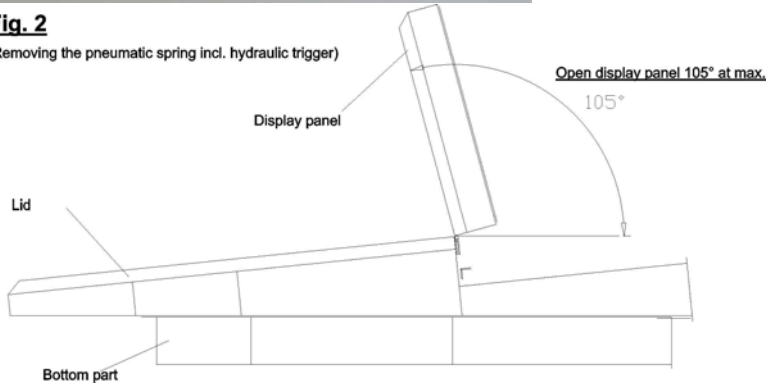


Fig. 3: Tube position with extended pneumatic spring; in this position, the tube may not be under stress or be kinked. Adjust and then tighten this locknut.

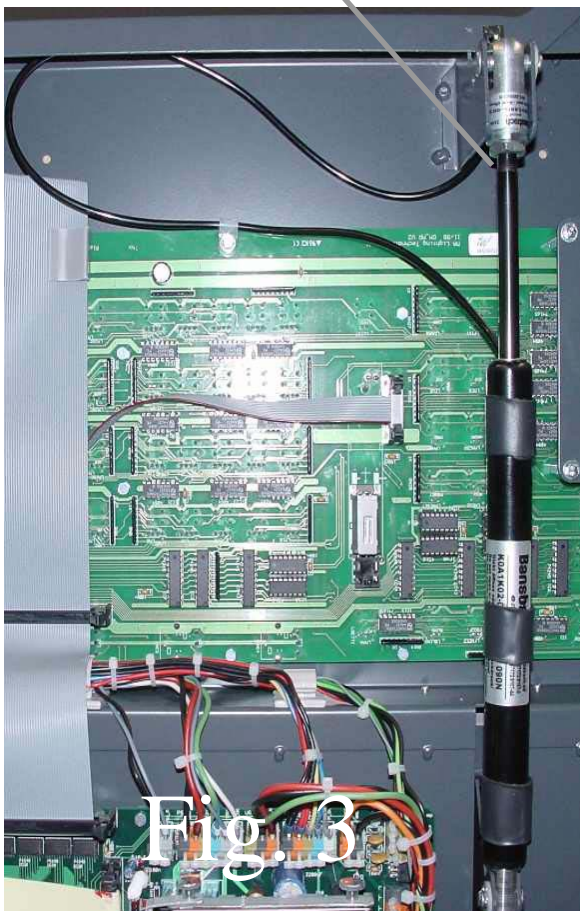


Fig. 3

Fig. 4: Tube position with retracted pneumatic spring; in this position, secure the clip to the PCB; route the tubes through the clamps so that they can follow the movements of the pneumatic spring.



Fig. 4