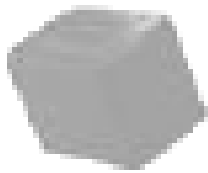


TEGID-14



BioRID-II Neck Bumper

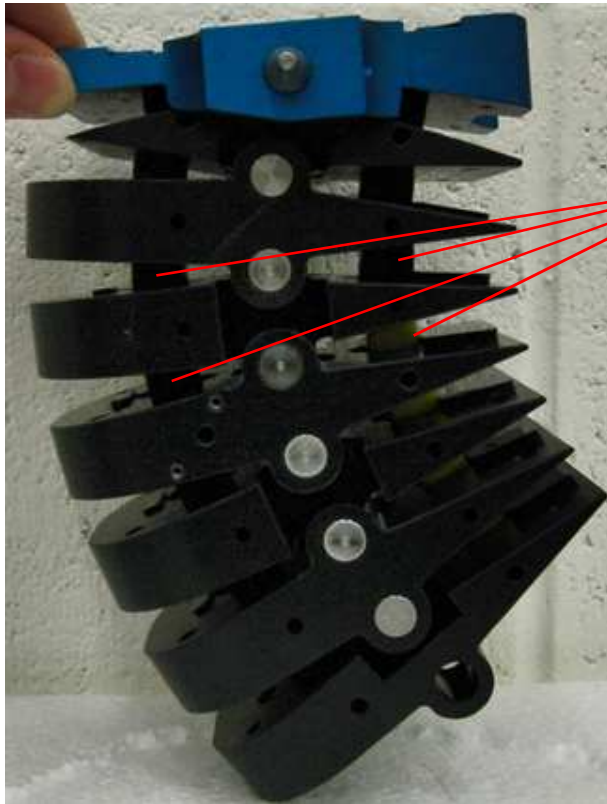
2010. 7. 13

Korea Automobile Testing and Research Institute



Neck Bumper

◆ Neck Assembly



Front

Rear

Bumper

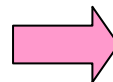
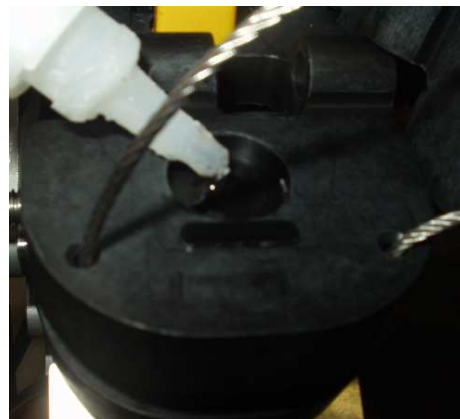
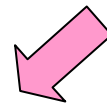
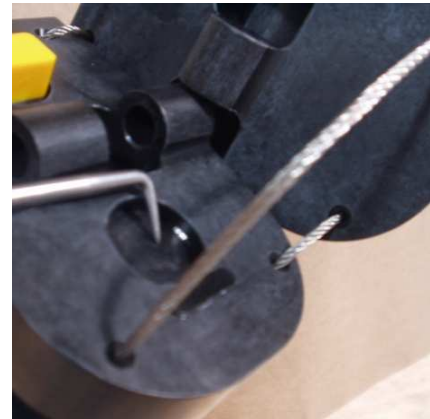
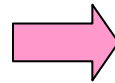
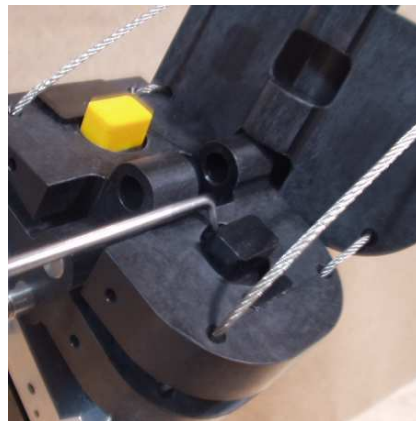


Cube-shaped bumpers, of which the front(8) are 40A durometer, black in color and 10mm tall. The rear(8) bumpers are split into 2 regions, the uppermost 3 are the same 40A, 10mm tall as used in the front, and the bottom 5 are 30A durometer, yellow in color and 9 mm tall.

Manual recommendation

It is recommended to replace the front cervical bumpers every 4 months due to the high degree of compression applied to these bumpers.

Neck bumper replacement procedures

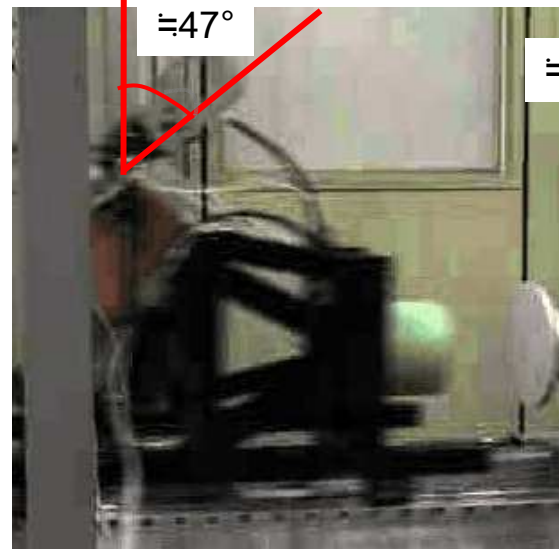


In manual

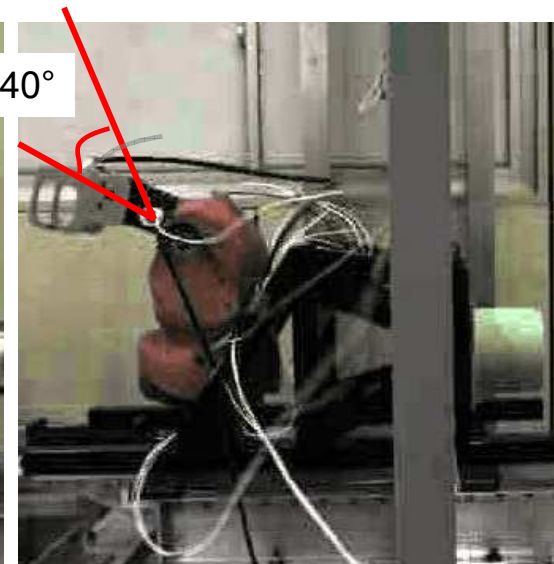
Bumper issue on the calibration



- Usually, a seat has a head restraint but this calibration system does not have a head restraint.
 - If calibration was carried out with the calibration system without a head restraint, a neck movement angle on BioRID was much bigger than that with normal seats.
 - Base on our experiences, 4 or 5 tests were needed for calibration, in some cases over 10 tests needed.
 - So, bumpers were under excessive compressive conditions.
- ⊗ With an old version cal. system, it was experienced that bumpers fell off from the bonding spot.



Rearward angle



Forward angle



Proposal

- When a neck was calibrated with the system without a head restraint, it was experienced that bumpers fell off from the bonding spot.
- It was found that head movements were much more excessive in calibration tests than those in real world tests.
- Thus, supplementary procedures may be necessary because bumpers become to subject to excessive compression and fall off from the bonding spot on some cases.
- In general, a seat is equipped with a head rest. A calibration system with a head rest should be considered as the one because consistency is provided to calibration and tests.
- A recommended replacement period is 4 month in the manual, a new replacement period may be considered. For example, a bumper must be replaced after it is subjected to XX number of tests.



Thank you
(Q & A)