

MONTEVIDEO CITY SCHOOL BUS TECHNICAL REGULATION



Background and Context



- Since 2007 the Uruguayan regulation requires mandatory seatbelt availability and use on each and every passenger on private use of M1, M2 and M3 vehicles.
- Over 90% of the school-bus fleet were old vehicles.
- TEU (School-bus Union) got in contact with Gonzalo Rodriguez Memorial Foundation (www.gonzalorodriguez.org) for technical support.
- The national school-bus fleet is privately owned, and parents must pay for the service.

Technical requirements before 2007



GRMF carried out an in-depth technical assessment of the fleet status and the following findings were drawn:

- Dimensions, construction and technical performance of the placed seats was poor. GRMF continued to scanning seats and seatbelts in the international market, looking for options that could be safely retrofitted and would offer protection according to global safety criteria.

GRMF proposed solutions:



- 1) **3 point seatbelts** that should be mounted on proper seats. (2 point belt was discarded considering solid US evidence provided by Dr. Bidez).
- 2) **Seats that can offer good safety performance**, safe anchorages to the vehicle and safe seatbelts installation.

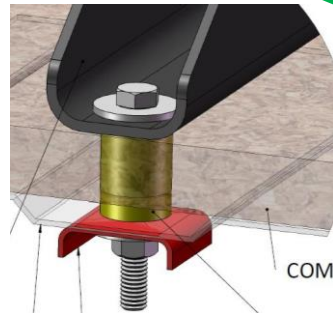
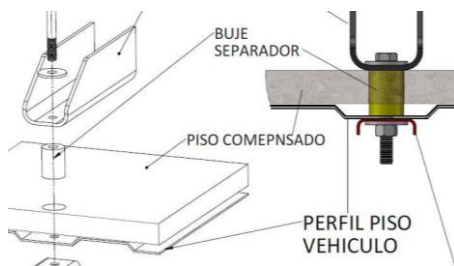
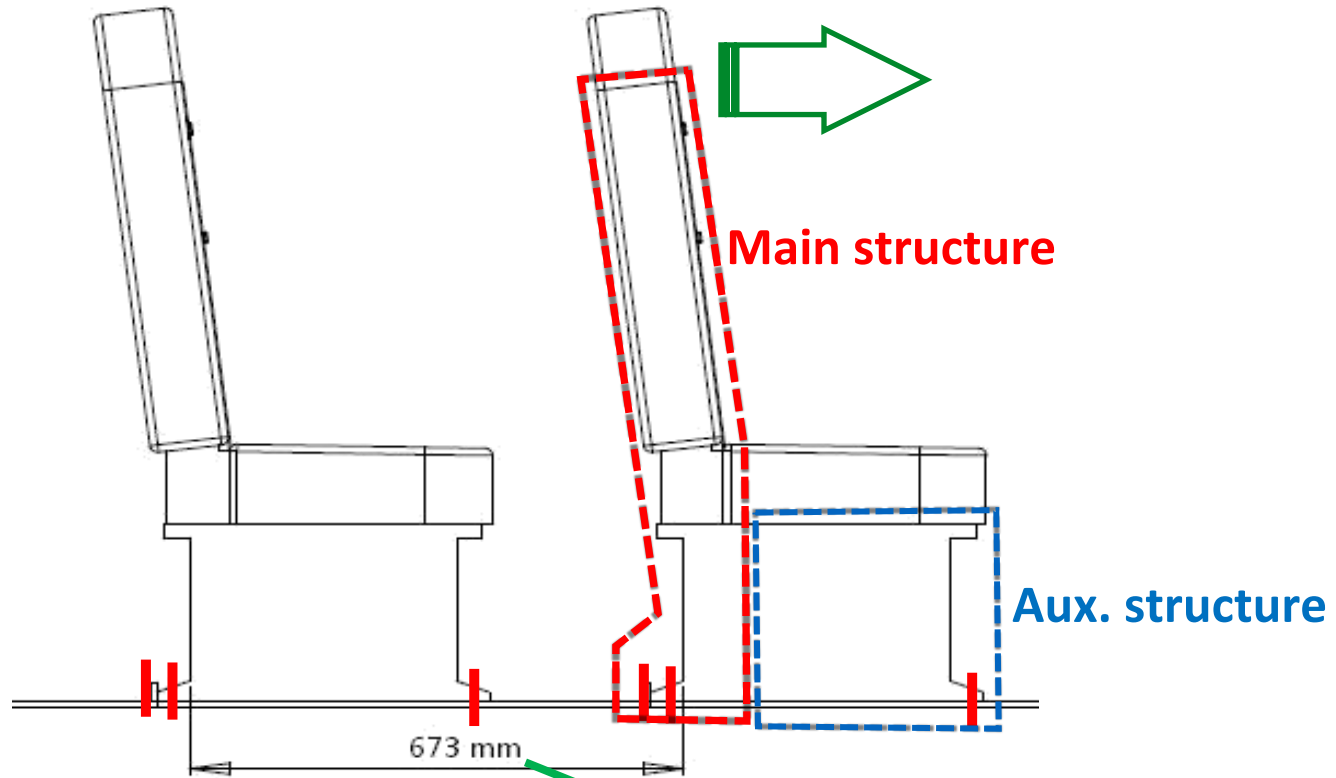
During the external market review was found:



- Europe offered limited school-bus experience in terms of 3 point belts retro fitment.
- US school-bus experience and research were further developed.

Market scanning results:

Cushioned protection around structure



Minimum distance (pitch)

Market scanning results:

Tested seats with adults (worst load case scenario).



- Unbelted rear passengers (worst load case scenario).
- Inner structure energy absorption plate.
- Shoulder height adjustment device and enhanced.
- Ergonomically for children.
- Seatback height is designed to protect in roll overs and loose objects.

PROTOTYPES WERE DEVELOPED



Highlights

- 3 point belt allows CRS's installation.
- ISOFIX
- Ergonomically designed for children.
- Shoulder height adjustment.
- Children with special needs can be safely transported.



Feasibility

- Special designed considering the market vehicle size.
- Potential local production and/or assembly
- Government tax exemptions.



BUT... the government took a more “flexible” approach due to “political reasons”

- No technical performance based criteria was required.
- Only 3 point belts are required.
- Seat pitch was much less than the proposed by GRMF.

CONSEQUENCES:

In a clear misleading attempt, local workshops started to copy the sample-seats proposed by GRMF, but using lower quality materials of questionable safety.

NEW REGULATION HIGHLIGHTS:

1. Vehicle categories.
2. New Exterior warnings and signs.
3. Interior considerations.
4. New seats design and dimensions.
5. Seat belt requirements.
6. New anchors requirements.
7. Children under 3 years need to travel in CRS.
8. Timeframe.

New Interior considerations.

1. Soft and smooth interior.
2. Lighting requirements.
3. Lights for the steps.
4. Fire extinguisher accessible.

New seats design and dimensions

1. Orientation (only FWF).
2. Anchored to the vehicle (no technical regulation required).
3. Smooth and cleanable surface.
4. Seat dimensions: 330 mm length (femur support)
300 mm wide for each children
700 mm backrest above the seating cushion
250 mm from the most fw position to the next seat or interior
670 mm between seats
250 mm minimum for interior corridors
5. The seat must safely transport children younger than 3 years in CRS (no technical regulation required).

Seat belt required.

1. The driver is accountable for overseeing that every child is wearing the seatbelt.
2. 3, 4 or 5 points seat belt required.
3. The seatbelt cannot be anchored to the seat itself, unless it is certified.
4. The shoulder strap must be able to be adjusted in height.

New seat to floor anchors requirements.

1. At least two alloy Steel bolt per leg (3/8" minimum thickness).
2. Washers used on the outside have to be at least 3/16 x 1 ½ " and sealed from the outside.

Timeframe.

1. 24 months to have 3 point seatbelts installed.
*2 point seat belts in the meantime.
2. 180 days after the regulation is released all vehicles need to be imported with 3 point seatbelts (or 4 or 5).
3. Exceptions need to be approved by local authorities.

Status in Uruguay 2021

School buses with 3 point belts and CRS (when required by size) are mandatory in Montevideo, the capital city.

Questionable and cheaper locally manufactured versions of the proposed seat also came into the market without proof of its safety performance. Only some design-related inputs were taken from GRMF's proposal.



Conclusions

- Proposal of this working group should reflect state-of-the-art children protection and criteria.
- The GRMF proposal are at least 10 years old, the proposal from this group should at least equal that 10 years old level.
- The final proposal should consider vehicles to transport children in M1, M2 and M3 vehicles safely.



Thank you

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