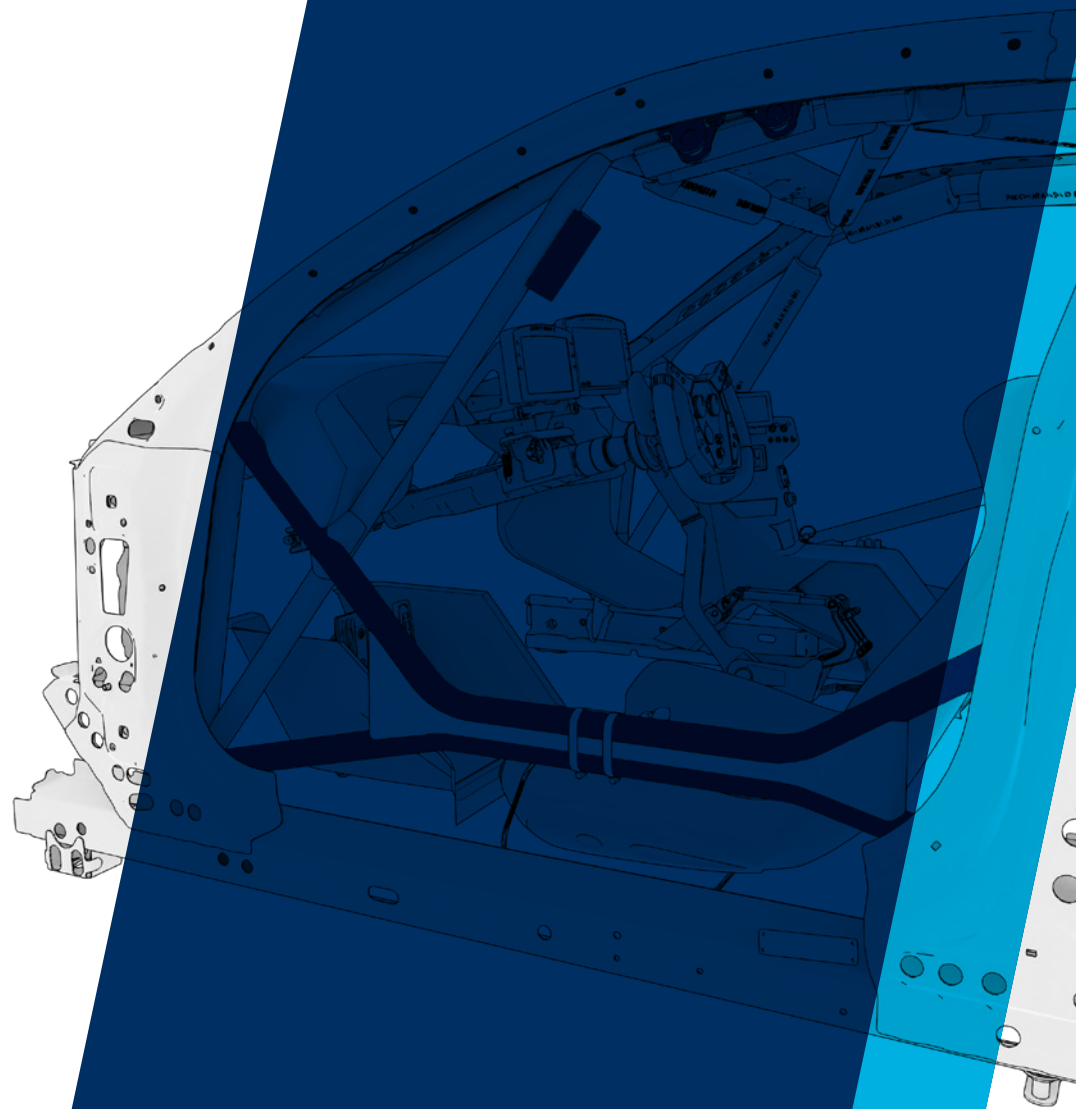




DISABILITY AND ACCESSIBILITY
COMMISSION

VEHICLE ADAPTATION GUIDELINES

FIA Disability
and Accessibility
Commission



PRELIMINARY NOTICES AND TERMS

INTRODUCTION

1. The Vehicle Adaptations Guidelines (“Guidelines”) set out general / informational guidance and illustrative graphics regarding the adaptation of motor sport vehicles for use by disabled drivers. This document is provided, at the FIA’s discretion, to clubs, ASNs, manufacturers, teams and competitors (“Third Parties”) who are interested or involved in the supply or use of such adapted vehicles.
2. Provision of the Guidelines to any Third Party is strictly subject to the Third Party’s acceptance of and agreement to comply with these Preliminary Notices and Terms.

DISCLAIMER

3. It is the full responsibility of Third Parties to ensure that they understand and comply with any obligations or duties relating to safety, product design, construction/manufacturing which are placed on them under any applicable National Sporting Authority requirements, regulations and safety standards (“ASN Regulations”), FIA requirements, regulations and safety standards (“FIA Regulations”) and any relevant transnational, national and/or local laws, regulations, directives and decrees passed by the government, a quasi-governmental entity or by any entity which has the same authority as the government in any applicable country or other territory, including all applicable local, state and federal laws, and any industry practices, codes of practice and/or codes of conduct incorporated into any of the foregoing, and all binding court orders, decrees, and any decisions and/or rulings of any competent authority that are relevant (“Applicable Laws”). The FIA assumes no responsibility in relation to such understanding or compliance.
4. The Guidelines do not contain any advice or guidance in relation to Applicable Laws, and the FIA makes no representation or warranty that the informational guidance within the Guidelines complies with ASN Regulations and/or Applicable Laws. If there is any conflict, or any doubt as to a conflict, between the contents of the Guidelines and ASN Regulations and/or Applicable Laws, ASN Regulations and/or Applicable Laws always take precedence.
5. The Guidelines contain informational guidance and illustrative graphics which may be of assistance for adapting vehicles that will take part in competitions appearing on the FIA International Sporting Calendar, as well as other competitions.
6. In relation to competitions appearing on the FIA International Sporting Calendar, if the Competitor requires an adapted vehicle (i.e. one that does not comply with the relevant homologation and/or technical regulations), the Competitor must obtain a Certificate of Adaptations in accordance with Article 18 of Appendix L to the International Sporting Code. The FIA Adaptations Working Group of the FIA Disability and Accessibility Commission has ultimate authority in relation to the evaluation of adapted vehicles and the provision of a Certificate of Adaptations.
7. The Guidelines do not include any guidance as to the particular adaptations which may be required for a particular driver. The FIA assumes no responsibility in relation to

assessing the particular needs of a driver, nor in relation to the design requirements to meet any particular needs.

8. The FIA makes no representation or warranty, express or implied, and does not assume any responsibility as to the quality, suitability or fitness for purpose of:
 - a. any application of or reliance on the contents of the Guidelines by a Third Party in relation to any particular vehicle; or
 - b. any ‘known’ or ‘example’ product or product supplier referred to within the Guidelines. For the avoidance of doubt, the FIA does not endorse or promote the use of any particular product or product supplier referred to within the Guidelines.
9. All Third Parties are made aware that the technology utilised in motor sport vehicles and equipment is at the leading edge of state of the art scientific, technical and engineering knowledge. The technology is therefore subject to ongoing change and development.
10. For the avoidance of any doubt, compliance with the Guidelines does not guarantee the safety of a particular vehicle.

LIMITATION & INDEMNITY

11. The FIA disclaims, excludes and limits any and all liability, costs, expenses, damages, losses (including but not limited to any direct, indirect or consequential losses, injuries, property damage, loss of profit, loss of reputation or goodwill, loss of agreements or contracts, loss of sales of business and all interest, penalties and legal costs) and any personal or mental injury (including nervous shock, disease, disablement and death), sustained by any organisation or person (including Third Parties and their directors, members, officers, employees, advisors, agents, consultants, representatives, successors and assigns (collectively the “Representatives”)), howsoever arising from any reliance placed on the Guidelines or any of their contents by a Third Party or its Representatives.
12. Any reliance placed on the contents of the Guidelines by any Third Party or its Representatives is strictly subject to acceptance of the following:
 - a. The Third Party and its Representatives will waive any rights and/or claims, agree to release, hold harmless and not to sue FIA in relation to any liabilities, costs, expenses, damages and losses referred to in clause 11; and
 - b. The Third Party agrees to indemnify the FIA in relation to any and all liability, costs, expenses, damages, losses (including but not limited to any direct, indirect or consequential losses, injuries, property damage, loss of profit, loss of reputation or goodwill, loss of agreements or contracts, loss of sales of business and all interest, penalties and legal costs calculated on a full indemnity basis) howsoever arising out of any reliance placed on the Guidelines or any of their contents by the Third Party or its Representatives. This indemnity shall apply whether or not the FIA has been negligent or is at fault.

FOREWORD



Dear Friends,



We are delighted to present the first edition of the Vehicle Adaptation Guidelines designed by the FIA Disability and Accessibility Commission.

These Guidelines bring together the lessons learned from all the members of the Commission, in particular, the FIA Adaptations Working Group, which since 2018 has been working with the FIA Safety and Technical Departments to facilitate safe and fair access to racing for mobility-impaired competitors.

As always, safety is a key priority for our community, and the FIA is committed to protecting motorsport competitors, spectators, officials, marshals and the media. Safe adaptations for competitors with disabilities is therefore critical.

This knowledge sharing is also essential in meeting our objective of doubling participation in motorsport worldwide and embracing equality, diversity and inclusion.

These guidelines are a valuable resource in assisting you and your colleagues on their journey into our sport and I invite you to share them as widely as possible.

Mohammed Ben Sulayem

FIA President

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5. FIA DISABILITY AND ACCESSIBILITY COMMISSION

6. FIA ADAPTATIONS WORKING GROUP

7. FIA CERTIFICATE OF ADAPTATIONS

1. INTRODUCTION

The Vehicle Adaptation Guidelines (the «Guidelines») contain general guidance regarding the adaptation of motor sport vehicles for competitors with disabilities.

These Guidelines are intended to only provide recommendations with the best practices for vehicle adaptations, and do not have regulatory value.

They present, in a non-exhaustive manner, a high level overview of adaptations/systems that the FIA Adaptations Working Group and FIA Disability and Accessibility Commission have studied since 2018 and have considered as safe and that do not provide a sporting advantage to competitors with disabilities. The Guidelines aim to provide best practices to people with mobility impairments working towards adapting their racing vehicle. It also gives reliable guidance to ASNs for their sanctioned motor sport competitions.

There is a multitude of possibilities to adapt vehicles. The key is that the design and manufacture of the adaptations are sound, developed in such a way that they are safe, are based on the needs of the individual, and do not provide a performance advantage to the competitor.

As regards adapted vehicles intended for competitions included in the International Sporting Calendar, or competitions with regulations specifically requiring an FIA Certificate of Adaptations, please consult the section dedicated to the process at the end of these Guidelines.

It is advised that the adaptations are designed and manufactured by a qualified professional.

These Guidelines are a living document, which will be periodically updated by the FIA Disability and Accessibility Commission. It will grow with the support received from competitors, experts in the field of vehicle adaptations, and ASNs, to enable our sport to consolidate experiences and share best practices and learning.

Upcoming editions of these Guidelines will include detailed recommendations for:

- Karting / Parakart;
- Mobility-impaired co-drivers;
- Lower and intermediate-level types of adaptations; and
- Transfer of street legal vehicles adaptations to motor sport vehicles.

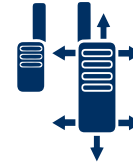
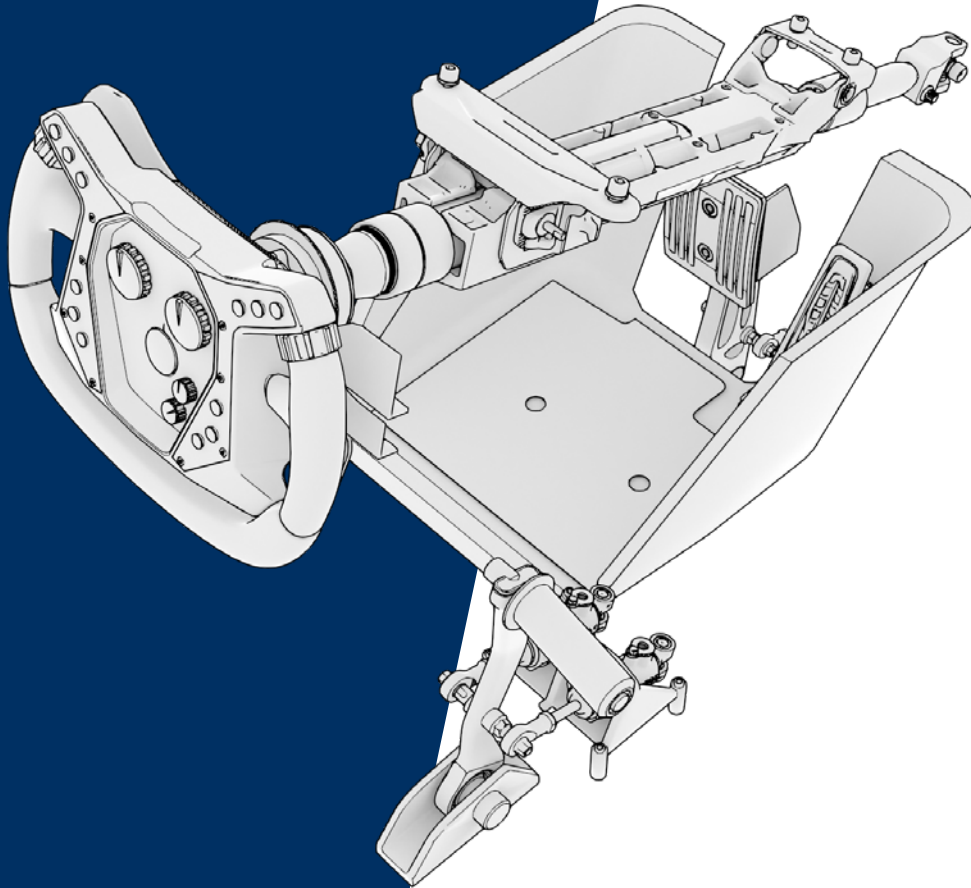
2. GENERAL ADVICE

- Whilst these Guidelines provide the best practices for car adaptations, it is strongly recommended that competitors contact their ASN in advance to validate their concepts. Some technical regulations may not authorise modifications that could provide a sporting advantage.
- All modifications must always guarantee that the fire extinguisher (if required by the technical regulations) and main switch can be immediately activated.
- If any reservoir (e.g., clutch, brake, hydraulic oil) is located inside the cockpit, it must be covered and sealed by a fire and crash resistant housing.
- The quick release of the steering wheel (if required by the technical regulations) must remain functional.
- Paralysed body parts should be secured against unwanted movement.
- If the car is meant to be driven by both disabled and non-disabled drivers, the added features should be switched off while running in normal mode – either one or the other system are advised to be in operation.
- All screws used to mount safety related equipment or items: a strength category between 10.9 and 12.9 should be chosen.
- If hand controls are necessary, the strongest arm should always operate the brake.



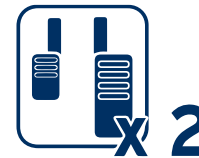
THROTTLE MANAGEMENT

/ General guidelines



MOVEMENT SPACE

Regardless of adaptations, throttle pedals must have enough space to move.



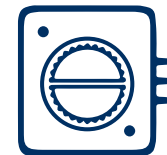
SECONDARY THROTTLE

In case of a full adaptation of the system, it is advised to install a secondary throttle system.



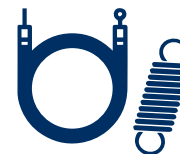
RELOCATED PARTS

Recommended relocations are to the steering wheel (front or rear) or on a hand lever next to the driver's seat.



SIGNAL TRANSFER

Preferred signal transfer is via the original port

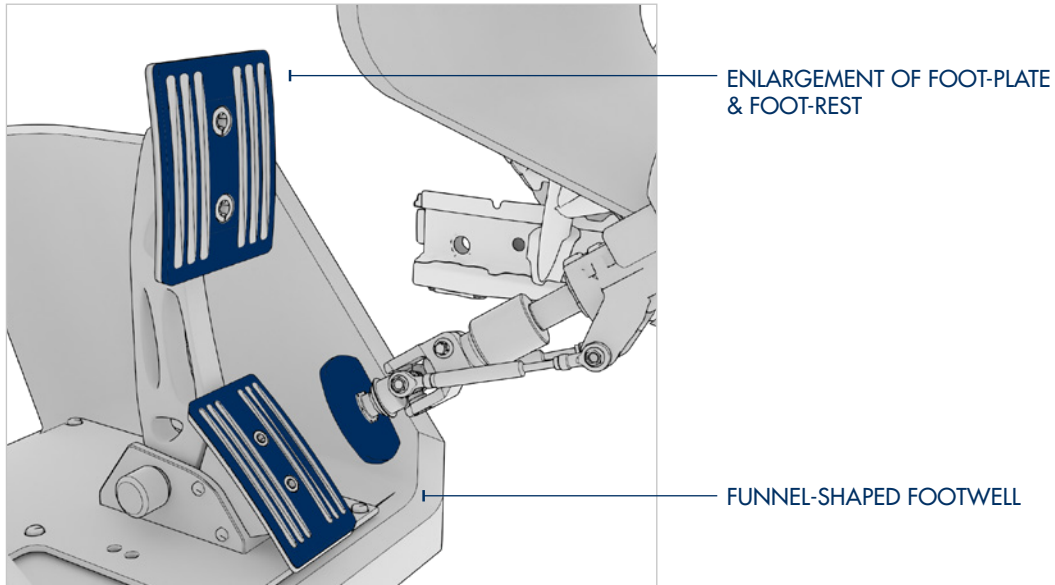


THROTTLE SAFETY

A mechanical operation over a Bowden-cable or links onto the original installation should be avoided. If this cannot be ensured, the throttle should have a helper-spring to bring the throttle to the "original" position.

THROTTLE MANAGEMENT

/ Original position

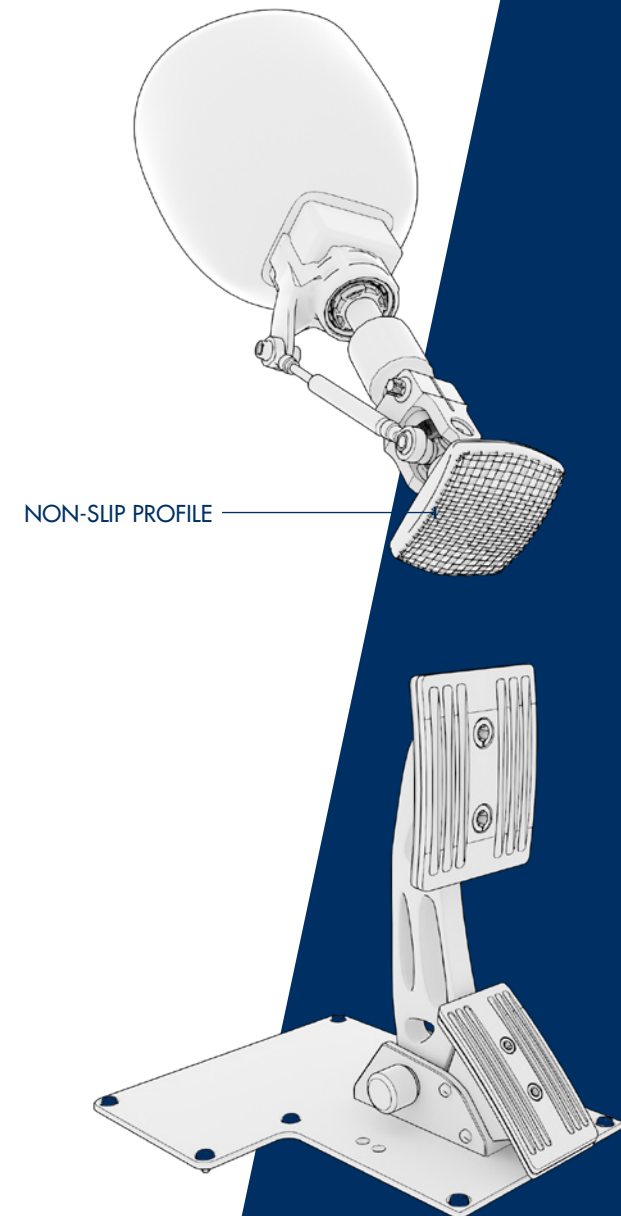


Illustrative example of a version of this adaptation

- Throttle pedals must have **enough freedom of movement**, despite of any modifications in the footwell.
- If for adaptation an **additional mounting plate** is necessary, screws must be dimensioned adequate - at least M8 is recommended.
On monocoque structures bigHeads® must be glued in according to manufacturer recommendations.
- When the original foot pedal is operated by a prosthesis, it is recommended to install a sufficiently enlarged foot plate for safe operation. It is recommended to use non-slip material to ensure an adequate grip-level.

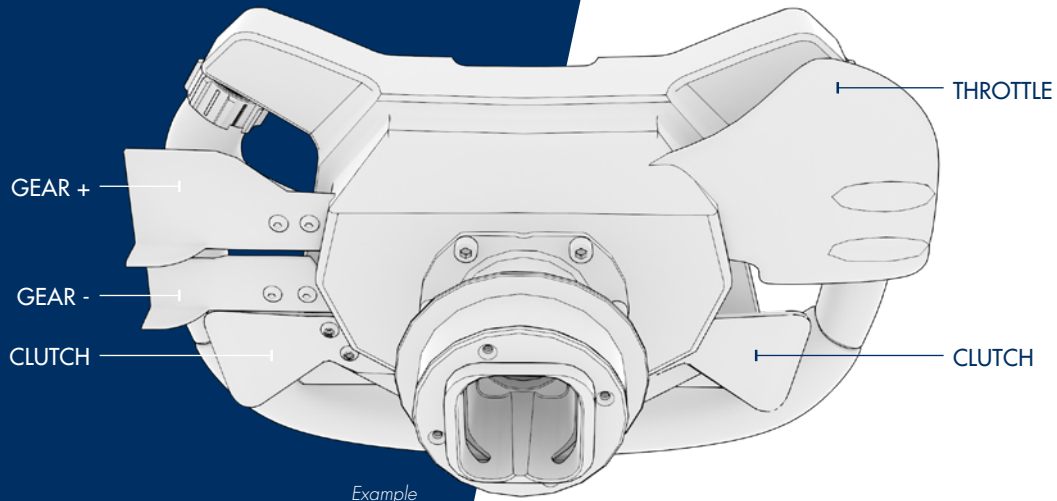
WARNING:

Drilling holes on a homologated chassis or monocoque should be avoided. When strictly necessary, holes can only be drilled after agreed by the sanctioning body that homologated the chassis/monocoque.

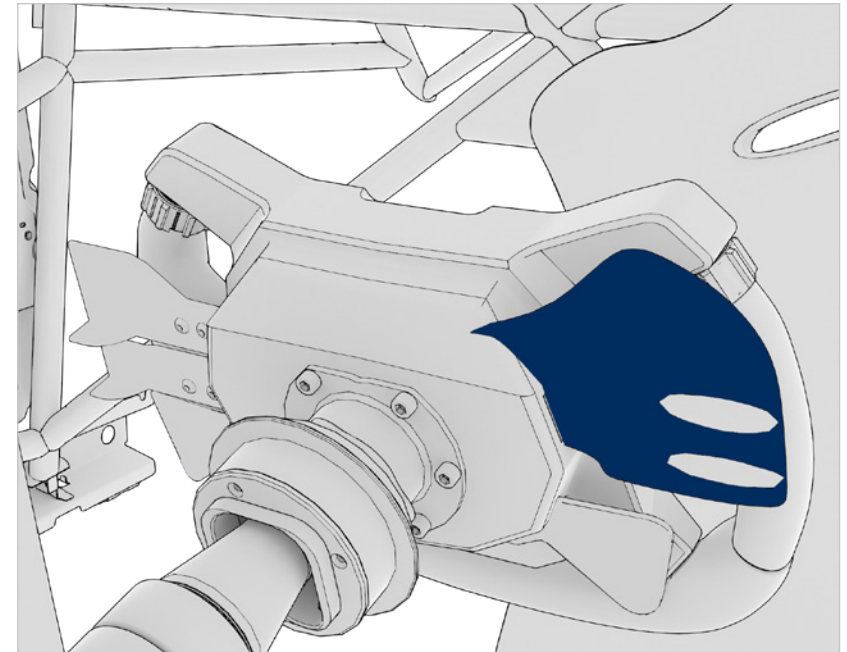


THROTTLE MANAGEMENT

/ Steering wheel

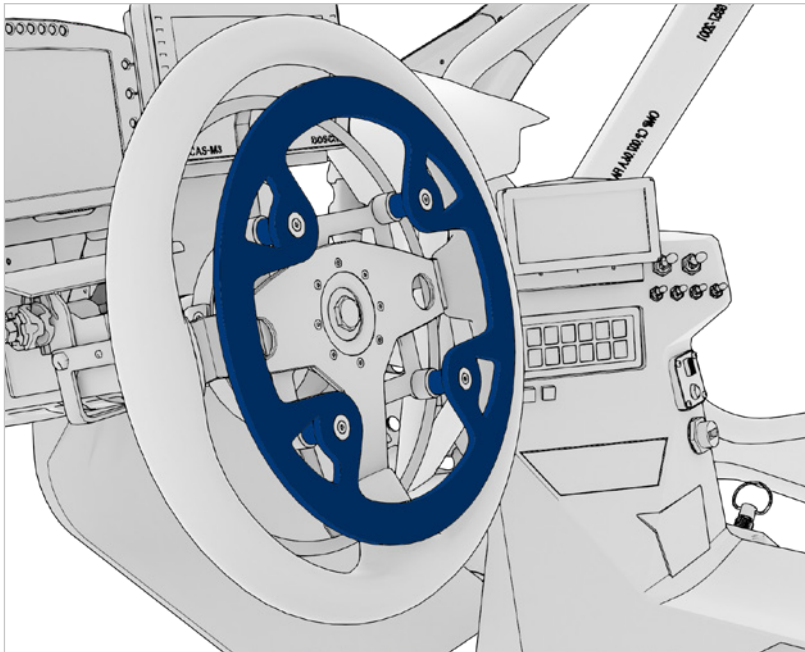


Example



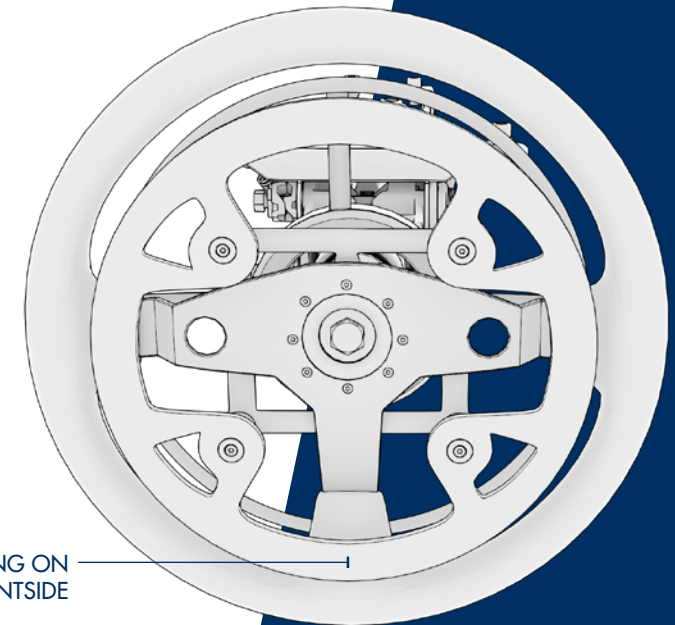
Illustrative example of a version of this adaptation

- Positioning according to available positions/space and driver preference.
- **Recesses for the fingers** are advised, to give better guidance and feel. Sharp edges must be avoided.



Illustrative example of a version of this adaptation

- Actuators are common on the front side of the steering wheel.
- For safety, controlling the **throttle on the back side** of the steering wheel should be **prioritized**.
- A **sufficient number of column guides** must ensure a **play and jam free operation**.
- For better grip, the plate should be covered by **grip tape**.



PUSH RING ON THE FRONTSIDE

THROTTLE MANAGEMENT

/ Hand lever version

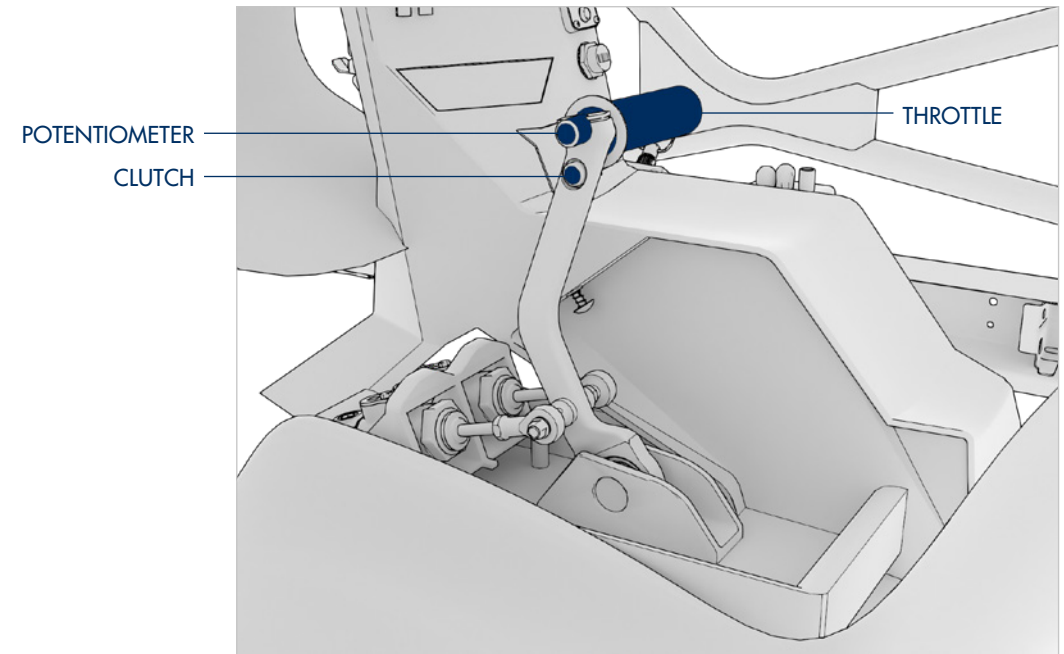
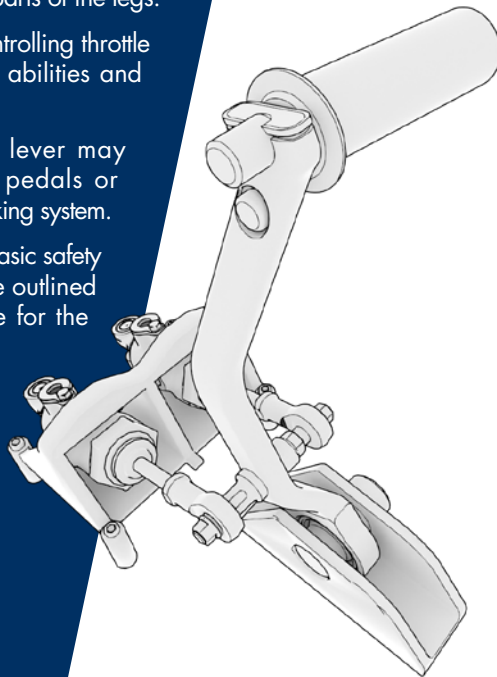
Hand levers for throttle management have many different variations of operation.

The main objective of the hand throttle is to give the driver the most effective control of the throttle by hand if the driver has paralysis or weakness in the legs or amputations of the legs or parts of the legs.

The mechanism of the lever for controlling throttle may be individual to the driver's abilities and the characteristics of the car.

Throttle management by hand lever may be mechanically linked to the pedals or electronically linked to the main braking system.

Adaptations should adhere to the basic safety principals of motorsport and those outlined in this document and be suitable for the driver's disability.



Illustrative example of a version of this adaptation

- **A combination consisting of brake lever and throttle** actuator can be realised.
- **Brake forces have to be considered** while designing the "hand throttle", to ensure that the throttle is not inadvertently activated during application of the brake.
- **Clutch** lever or button can be **added at a secure location**.

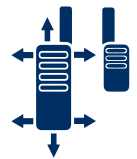
BRAKE MANAGEMENT

/ General guidelines



SECONDARY BRAKE

In case of a full adaptation of the system, it is advised to install a secondary brake system.



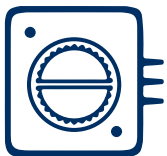
MOVEMENT SPACE

Regardless of adaptations, brake pedals must have enough space to move.



RELOCATED PARTS

Recommended brake relocations are at the steering wheel (front or rear) or on a hand lever next to the driver's seat.



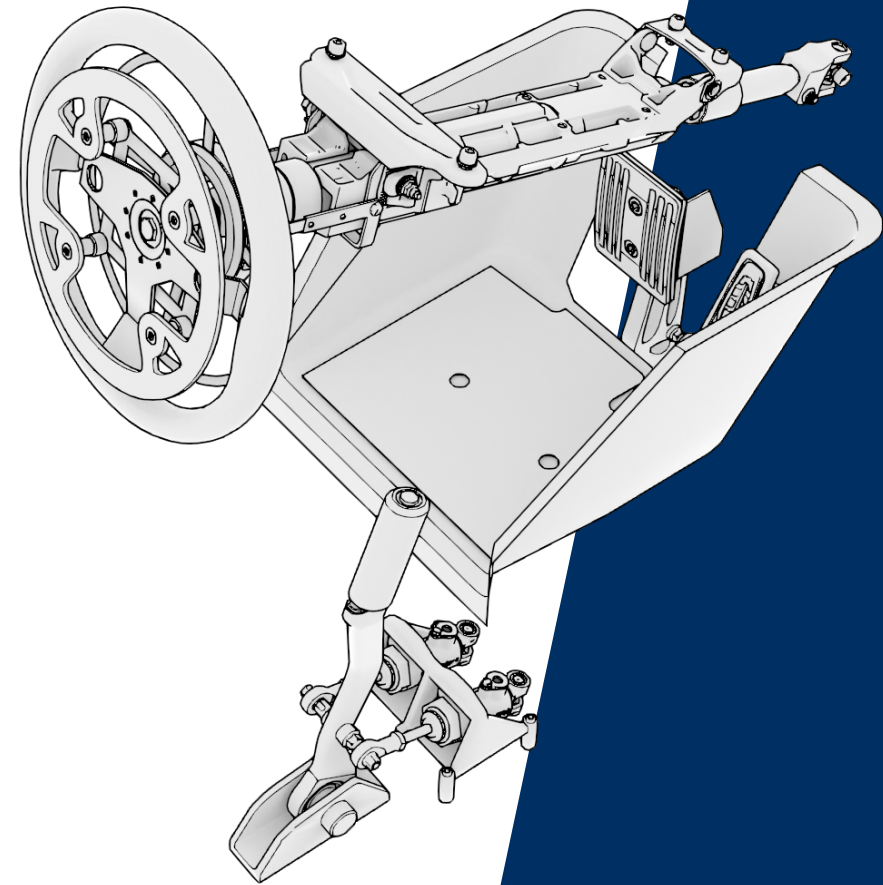
SIGNAL TRANSFER

Preferred signal transfer is via the original port.



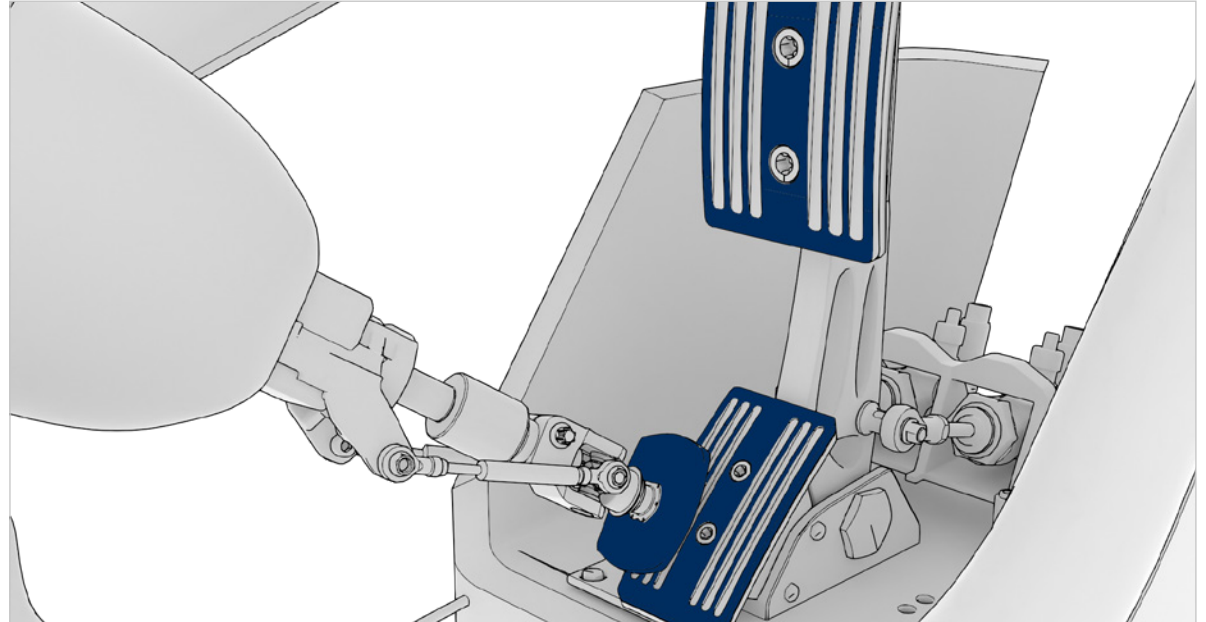
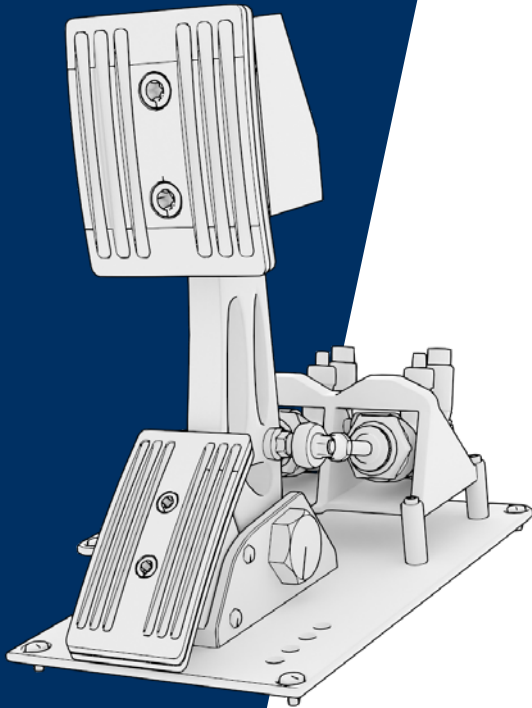
MECHANICAL LINK

If bars are used as a mechanical link to the original brake pedal, it is advised to use solid bars with uniballs on both sides.



BRAKE MANAGEMENT

/ Original position



Illustrative example of a version of this adaptation

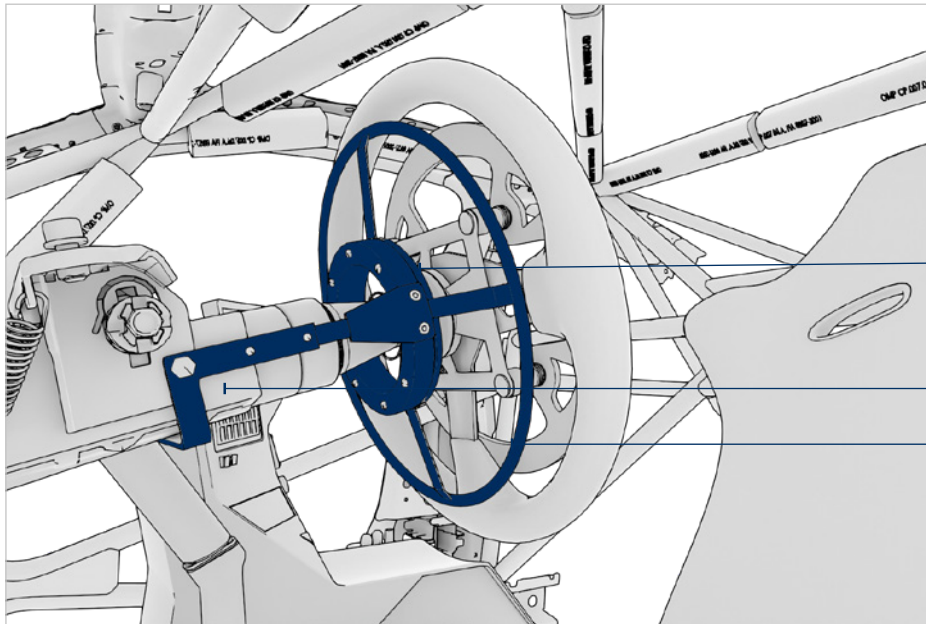
- The brake pedal must have **enough freedom of movement**, regardless of any modifications within the footwell.
- An **additional mounting plate** may be necessary for adaptations. Screws must be sufficiently dimensioned (at least M8 is recommended).
- On monocoque structures, bigHeads® must be glued according to manufacturer recommendations.
- When the original foot pedal is operated by a prosthesis, it is recommended to install a sufficiently large foot plate for safe operation. It is recommended to use non-slip material to ensure an adequate grip-level.

WARNING:

Drilling holes on a homologated chassis or monocoque should be avoided. When strictly necessary, holes can only be drilled with the approval of the sanctioning body that homologated the chassis/monocoque.

BRAKE MANAGEMENT

/ Steering wheel



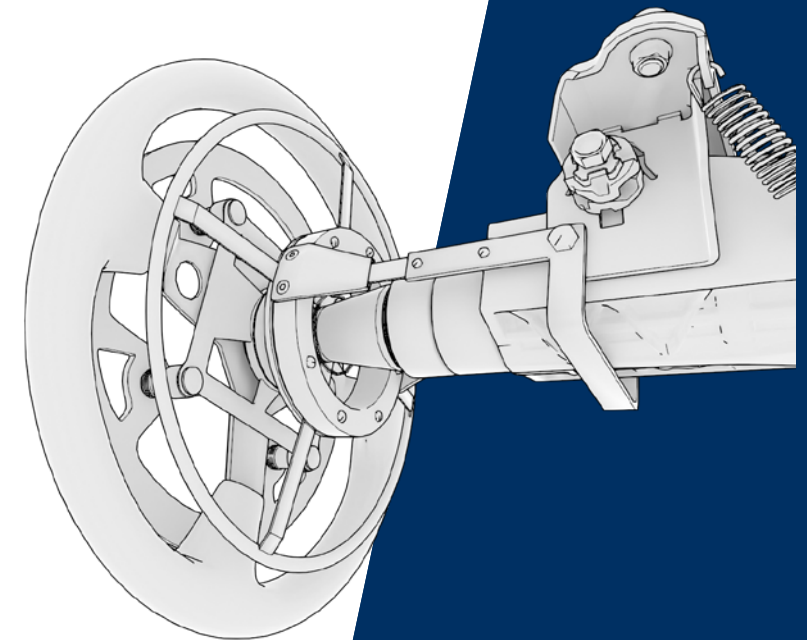
BALL BEARINGS

LINEAR RAIL

ROTATABLE RING

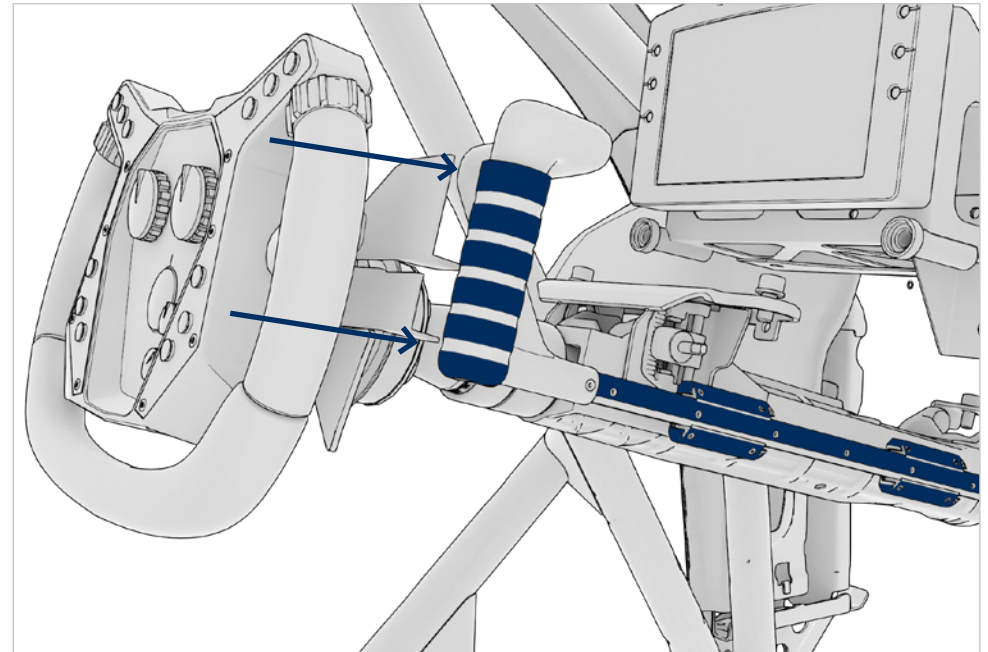
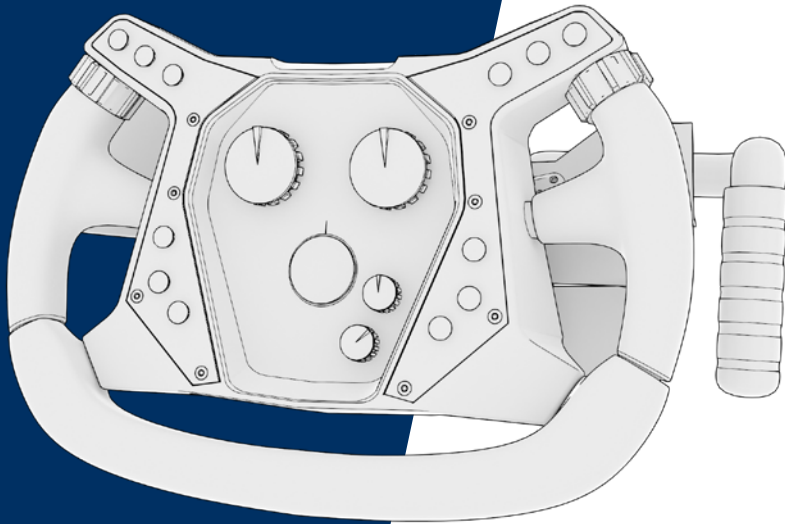
Illustrative example of a version of this adaptation

- If a **mechanical brake** on the steering wheel is implemented then it should be achieved using a ring and form a complete circle that follows the shape of the original wheel. This ring may have a mechanical link to the original brake pedal.
- By pulling or pushing (depending on the location) the ring, brake pressure will be applied.
- The ring should be **rotatable**, to ensure the driver can brake while steering without losing control.
- **Solid linear rails / ball bearings** can be used to ensure safe operation.
- For safety, preference is given to controlling the **brake on the front** of the steering wheel.



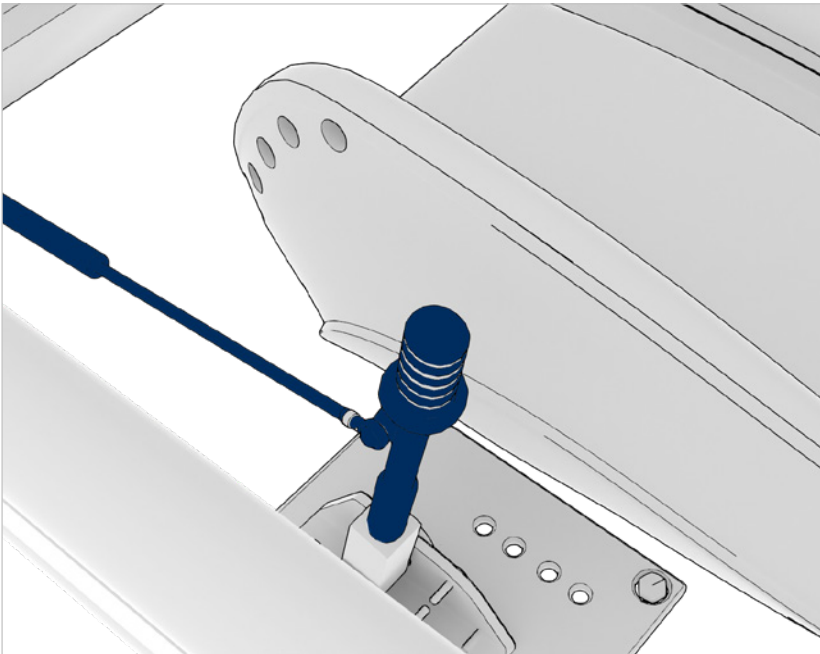
BRAKE MANAGEMENT

/ Hand lever



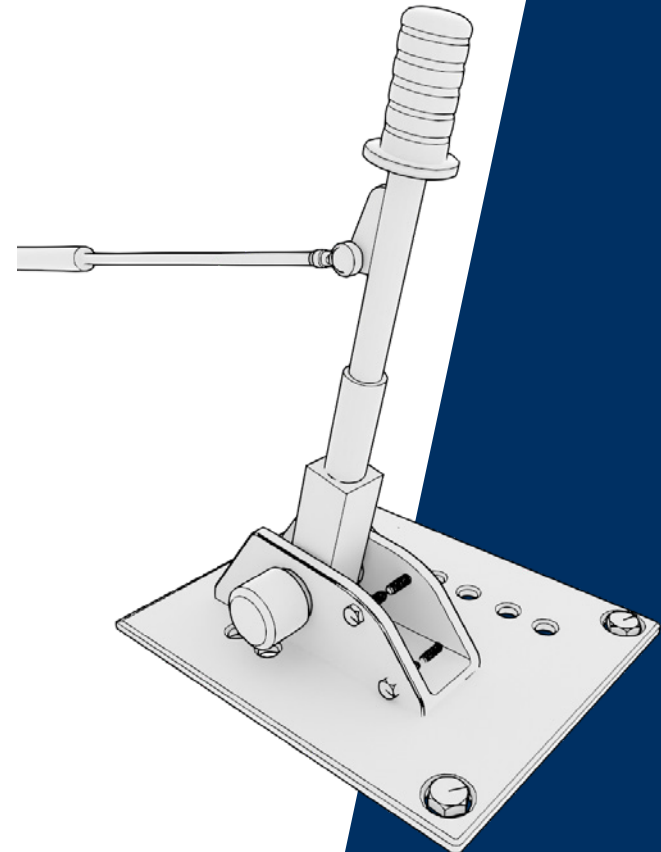
Illustrative example of a version of this adaptation

- **Safe use of the steering wheel must be guaranteed at all times** and without any restriction caused by the hand lever.
- A knurled or stippled handle for better control is recommended. For better grip, the handle should be covered by grip material. Sharp edges must be avoided.
- For stable and safe braking, a linear guide (preferably THK, SBC, Bosch Rexroth or similar) with a **double slider** attachment is recommended.



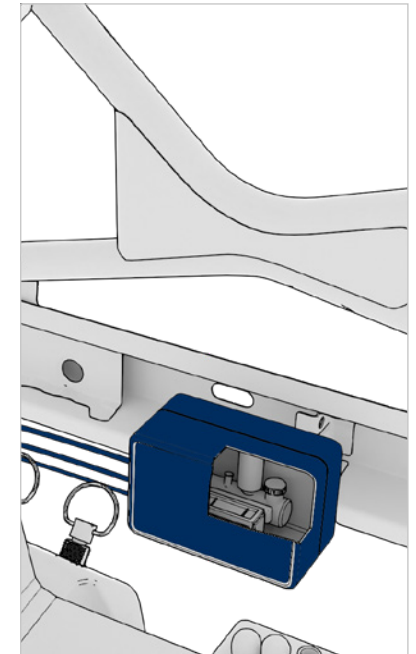
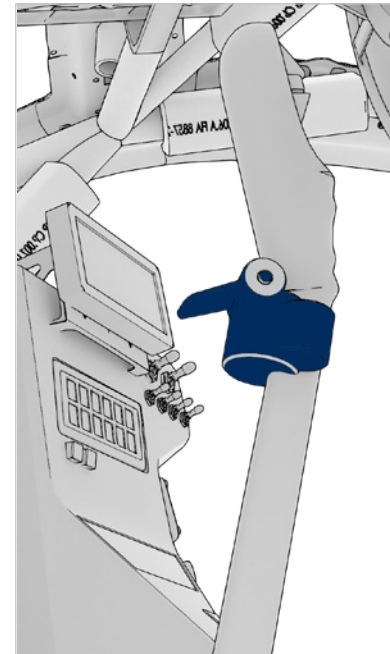
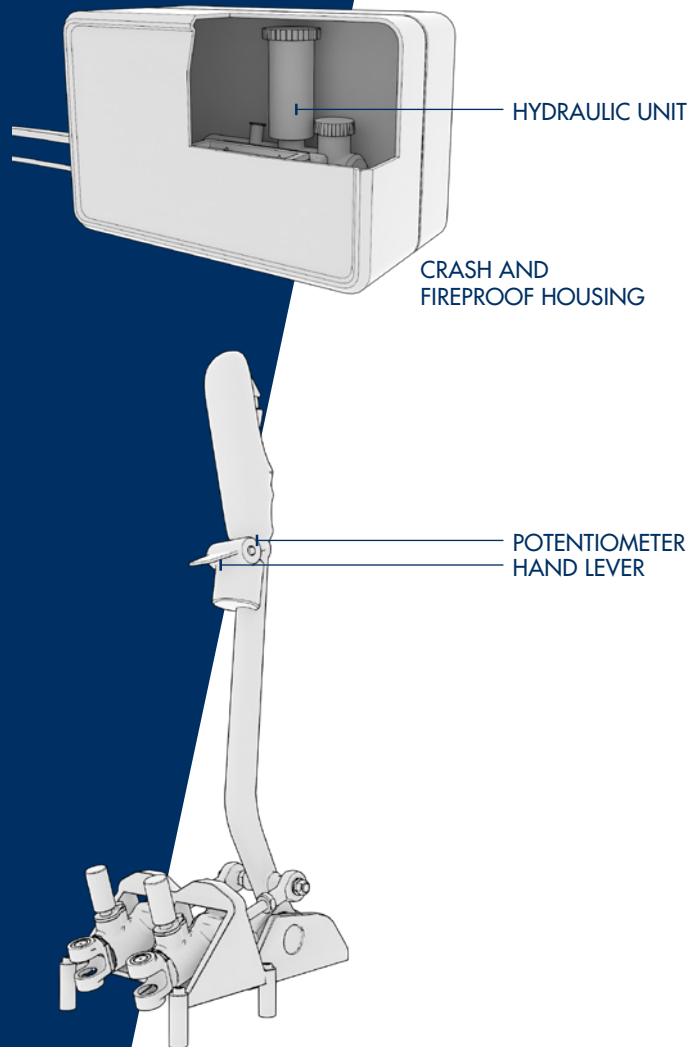
Illustrative example of a version of this adaptation

- **Mechanical link** to the original brake pedal can be achieved with a **Bowden cable or solid bars**.
- **Fixation of the plate** to the chassis with **screws of a sufficient dimension**.
- **Preferable to use existing mounting points**.
- **Activation of the hand lever** should be in the **forward direction**.
- **Entering and exiting** the car **must not be restricted**.



CLUTCH SYSTEM

/ Electronical system

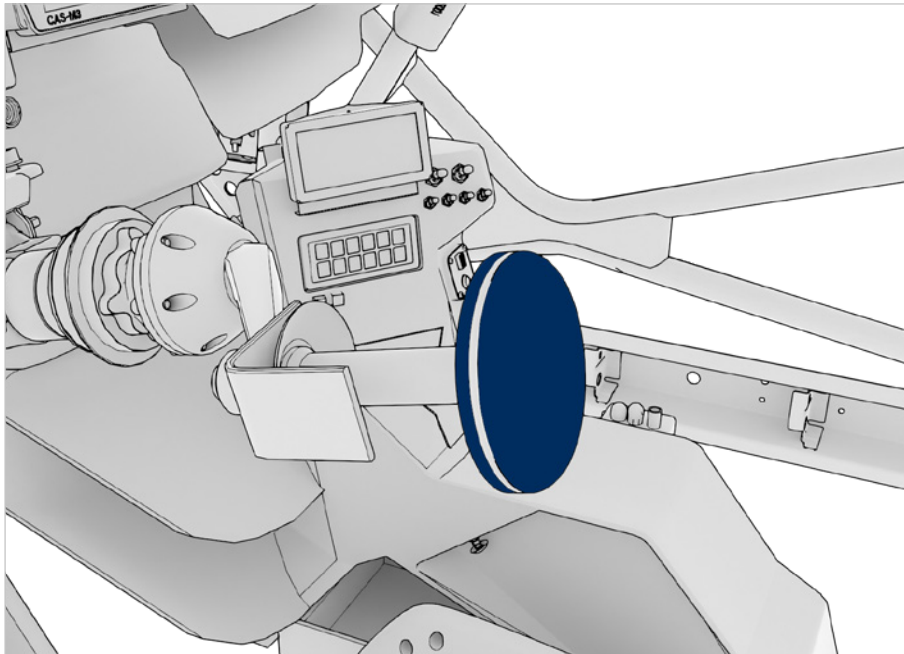


Illustrative example of a version of this adaptation

- If required, the clutch pedals can be replaced by an e-clutch system (fly by wire).
- Known suppliers : MEGAline or AP Racing.
- It is preferable to have hand operation rather than a lever or a pedal on the steering.
- Should a hydraulic system be installed inside the safety cell, a crash- and fire-resistant housing is mandatory.

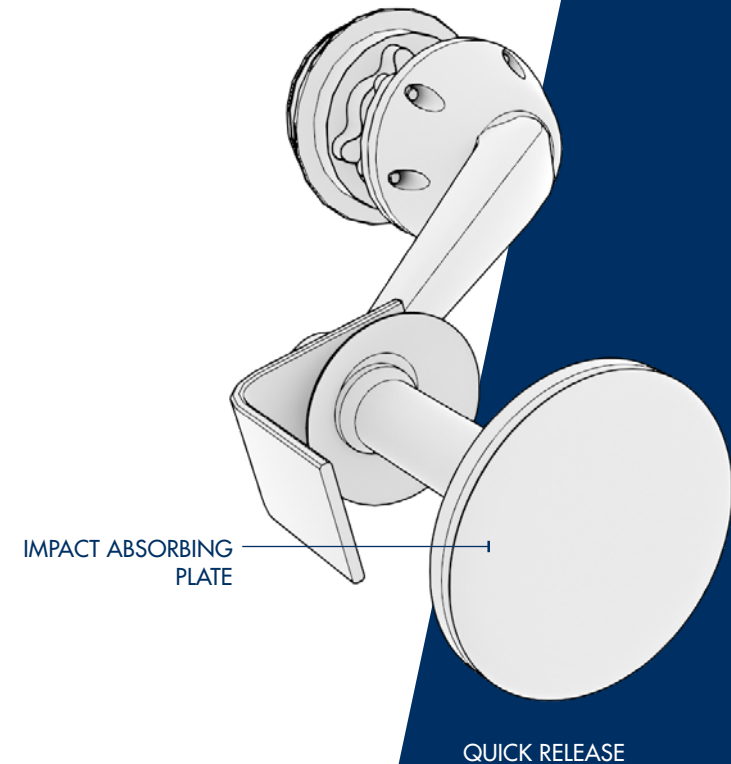
STEERING ASSEMBLY

/ Impact absorber



Illustrative example of a version of this adaptation

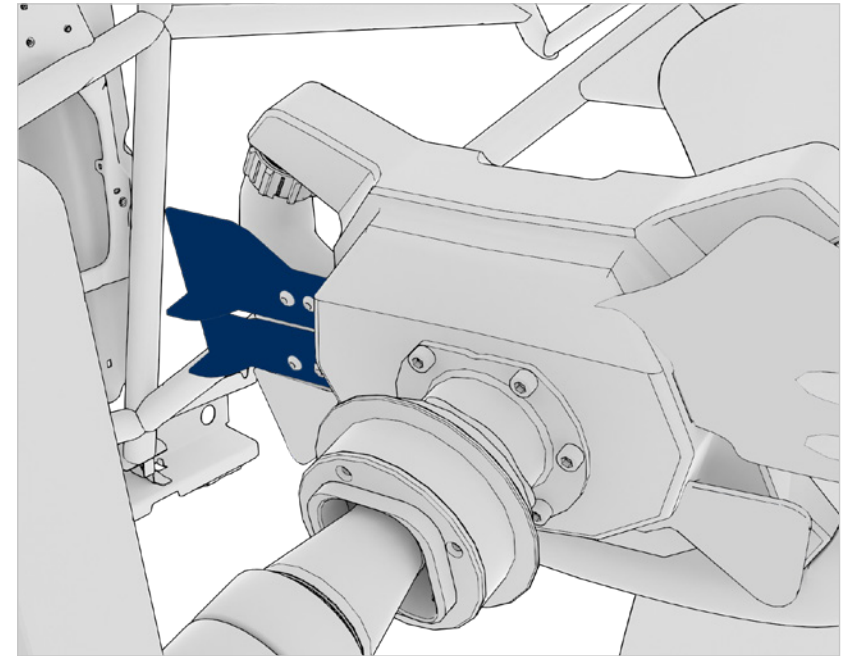
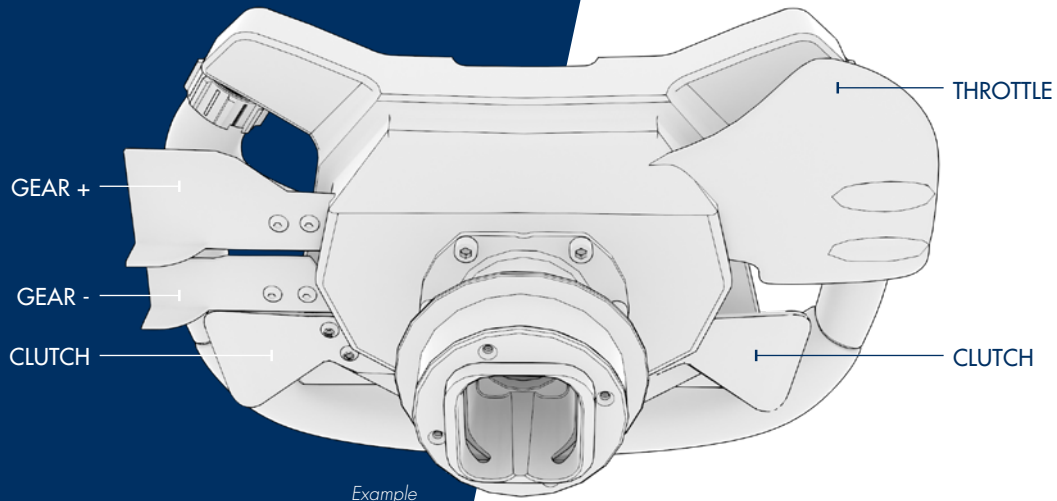
- Regardless of any modifications, the **quick** release (if required by the technical regulations) on the steering wheel must be functional and be secured.
- Even if the steering wheel itself is removed, e.g. replaced by a crank, it is highly recommended to have an **impact surface of at least 150 cm² protecting the driver** in case of a hard impact.



GEARSHIFT AND GEARBOX

/ Steering wheel

FINGER OPERATED
ON THE BACK SIDE

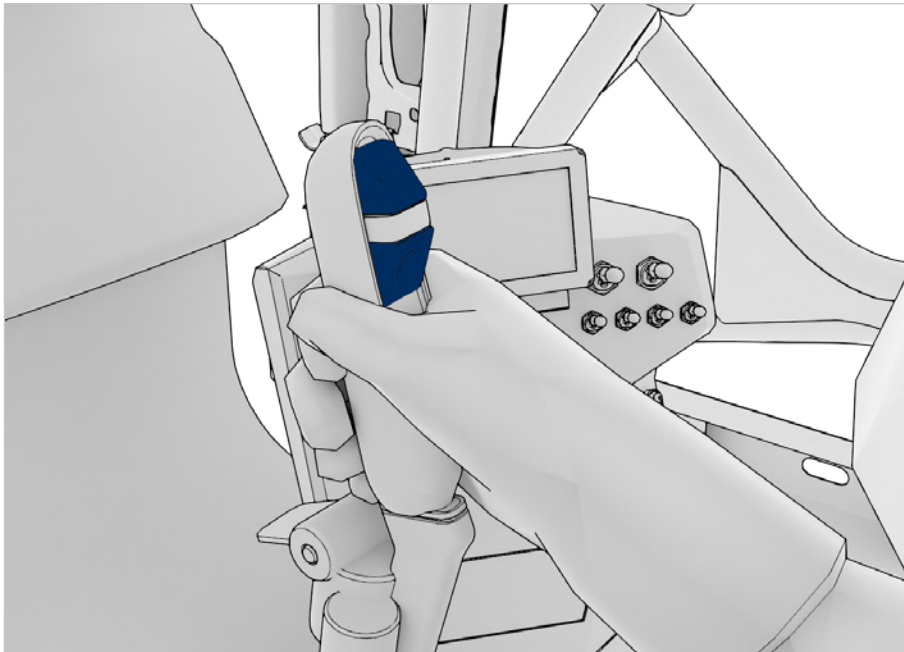


Illustrative example of a version of this adaptation

- **Positioning of shift pedals** according to available positions/space and driver preference.
- Recesses for the fingers are advised, for better guidance and feel. Sharp edges must be avoided.

GEARSHIFT AND GEARBOX

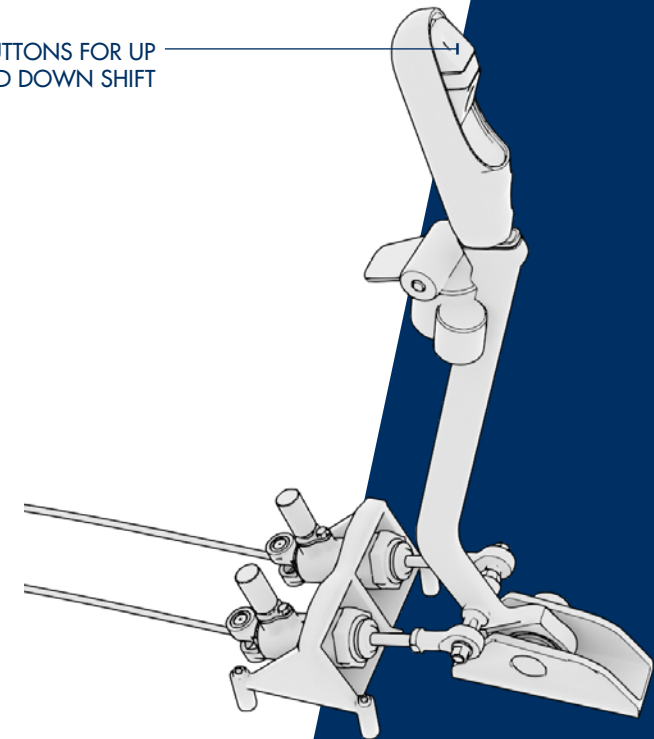
/ Brake lever



Illustrative example of a version of this adaptation

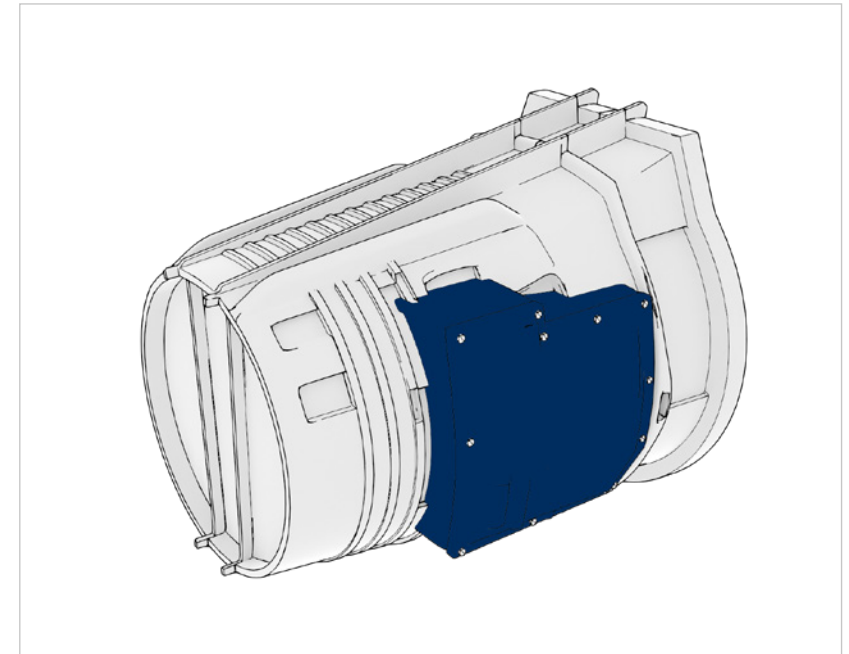
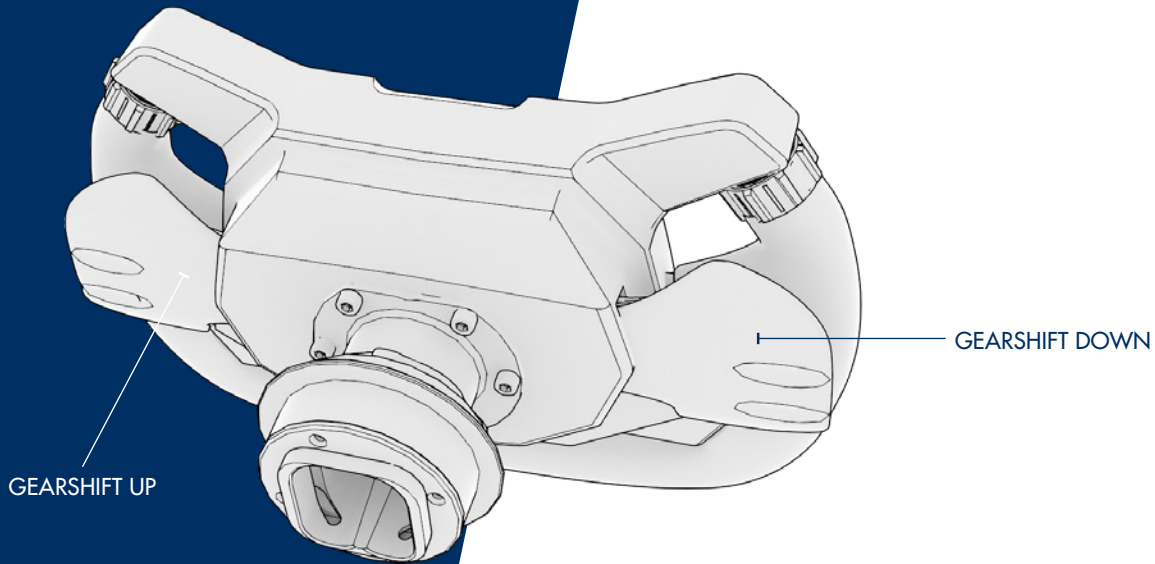
- Options can include a **highly integrated brake lever**.
- Up- and down-shift buttons **attached to the handle** to allow **combined downshift while braking**.
- A robust **handle design is mandatory**, and it is advised to clearly separate the **buttons**.

BUTTONS FOR UP
AND DOWN SHIFT



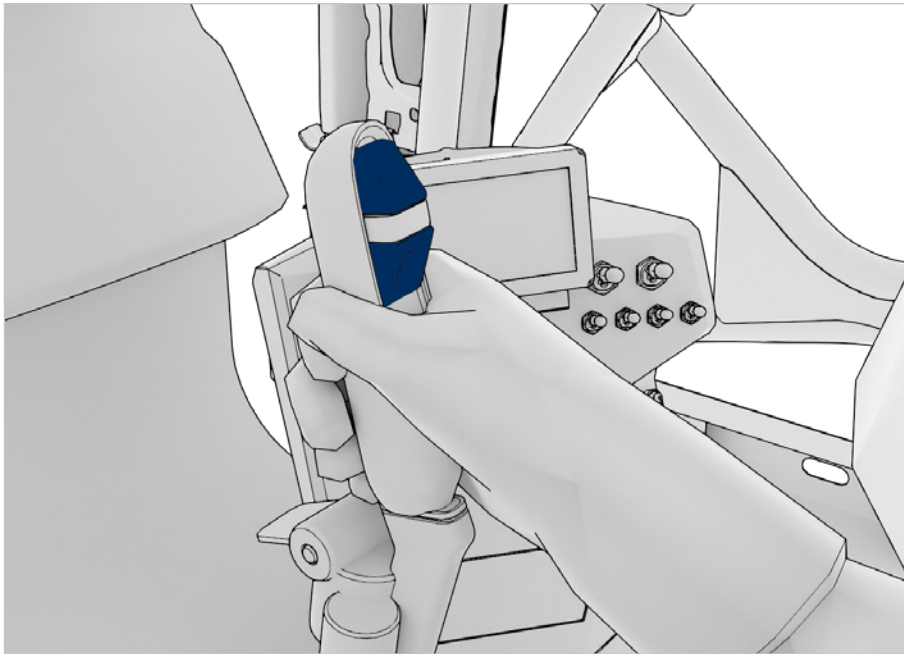
GEARSHIFT AND GEARBOX

/ H - Pattern gearbox



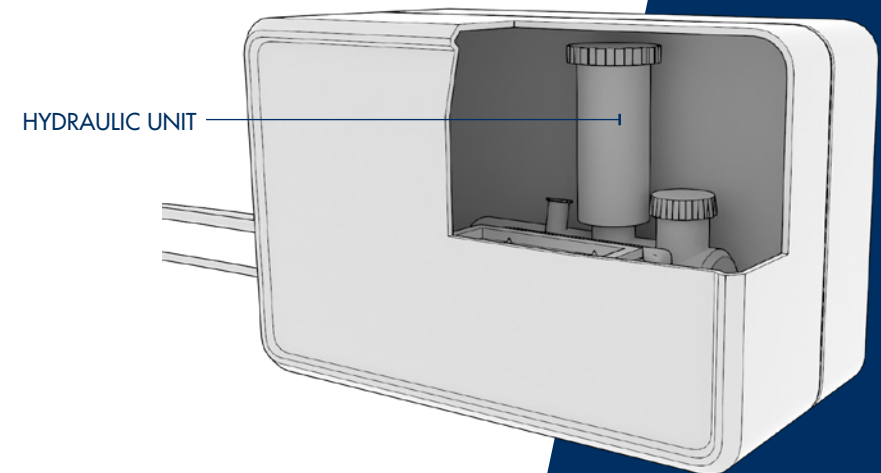
Illustrative example of a version of this adaptation

- **Manual** transmissions may be converted to sequential or automatic transmission. It is strongly recommended to contact the ASN before beginning the conversion.
- Pneumatic or hydraulic systems may be used.
- **Pneumatic systems** are best **placed outside** the safety cell.
- **Paddle shift** is preferred for **sequential transmissions**.



Illustrative example of a version of this adaptation

- Should a hydraulic gear shift system be installed, it is preferable to place the **system outside** the safety cell.
- If the **hydraulic actuator** is within the safety cell, the system must be covered by a **fire- and crash-resistant housing**.
- An unfair performance advantage can occur when converting a manual gearbox to a **semi-automatic system**.

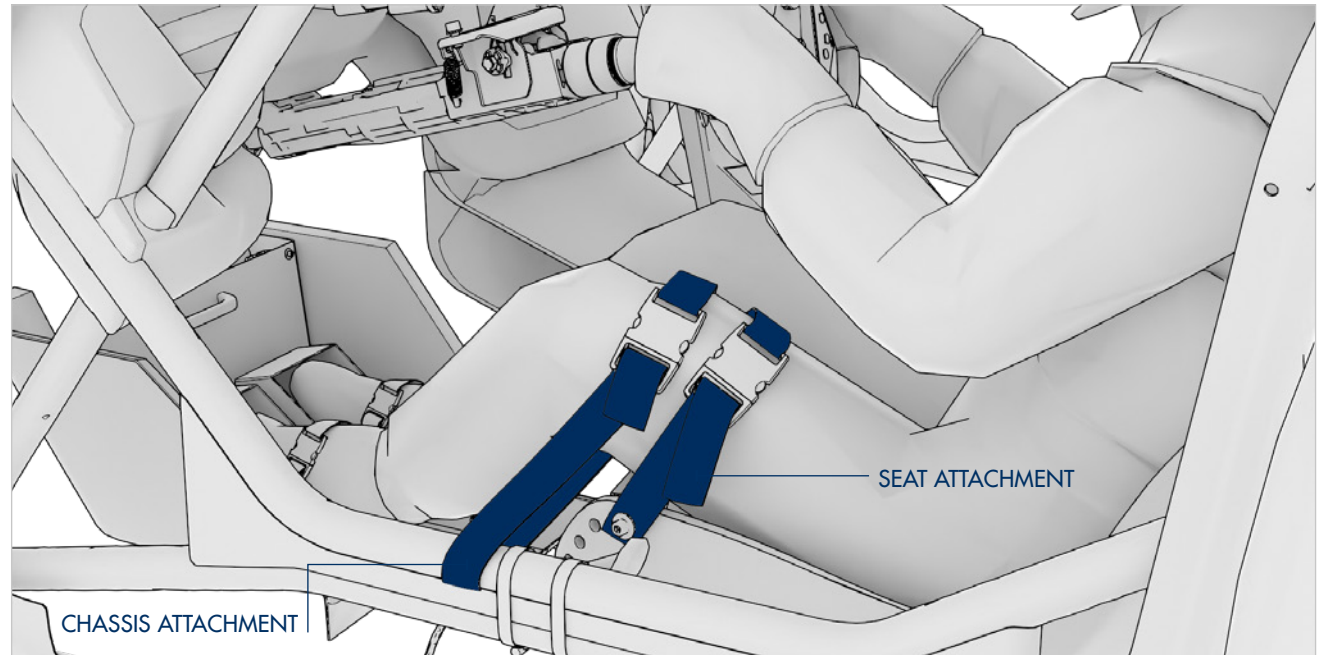


CRASH AND
FIREPROOF HOUSING

SEAT AND DRIVER RESTRAINTS

/ Upper leg fixation

- Use snap locks or quick releases on all restraints.
- A robust design and secure fixation are mandatory.
- Do not modify the chassis or the seat for fixation - use existing holes!
- Every fixation should have a single purpose. E.g. do not use an existing screw connection as an additional restraint mount.

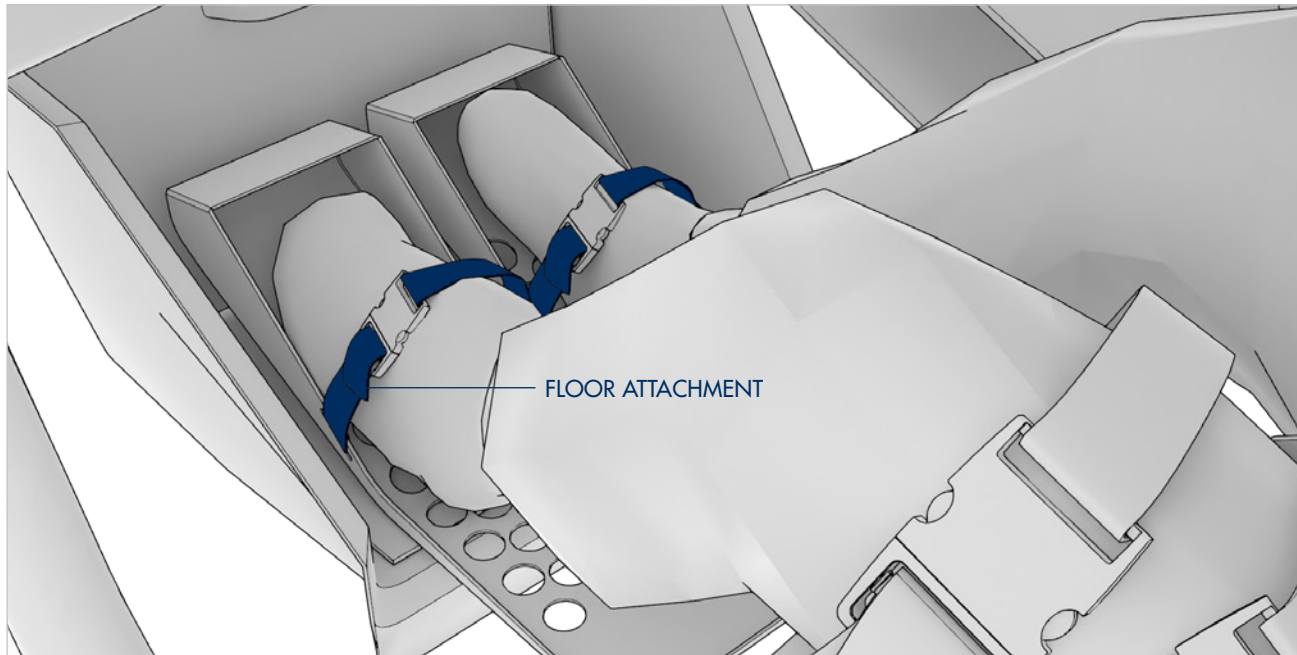


Illustrative example of a version of this adaptation

Straps can be used to secure a driver's legs in place for the purpose of comfort and to prevent unwanted movement. Each driver will have different requirements based on their disability, body shape and cockpit layout. If straps are used, they must not impede the driver's ability to self-extricate in the event of fire or emersion in water.

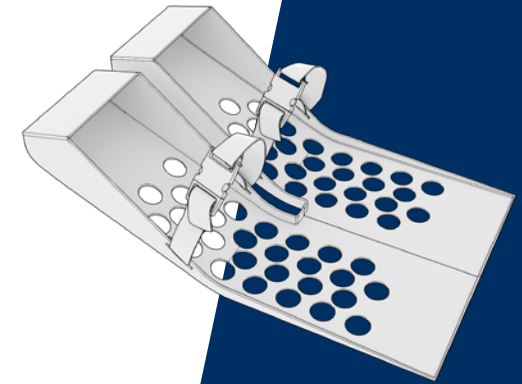
SEAT AND DRIVER RESTRAINTS

/ Lower leg fixation

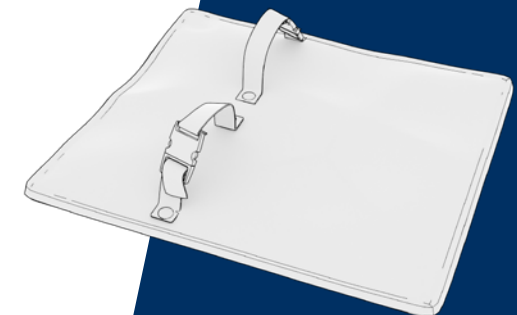


Illustrative example of a version of this adaptation

- **If straps are used to secure the feet, a strong and safe fixation** of the feet to the floor must be guaranteed.
- **Quick releases of the straps are mandatory** for safe extrication.
- **Padding** can be used to **avoid injury** and **abrasion**.



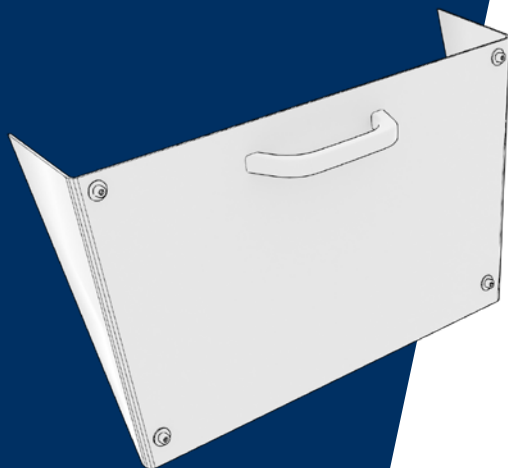
SOLID HOUSING



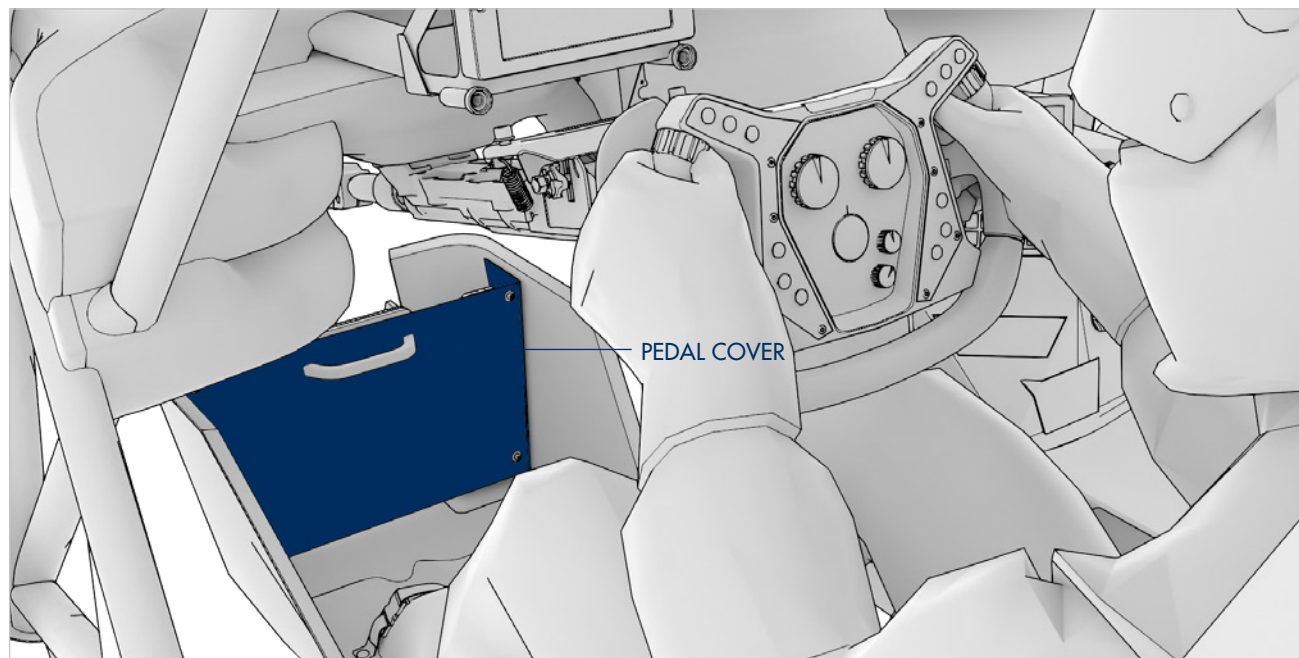
DAMPING CUSHION
FOR ENDURANCE
RACING

SEAT AND DRIVER RESTRAINTS

/ Pedal cover



COVER PLATE

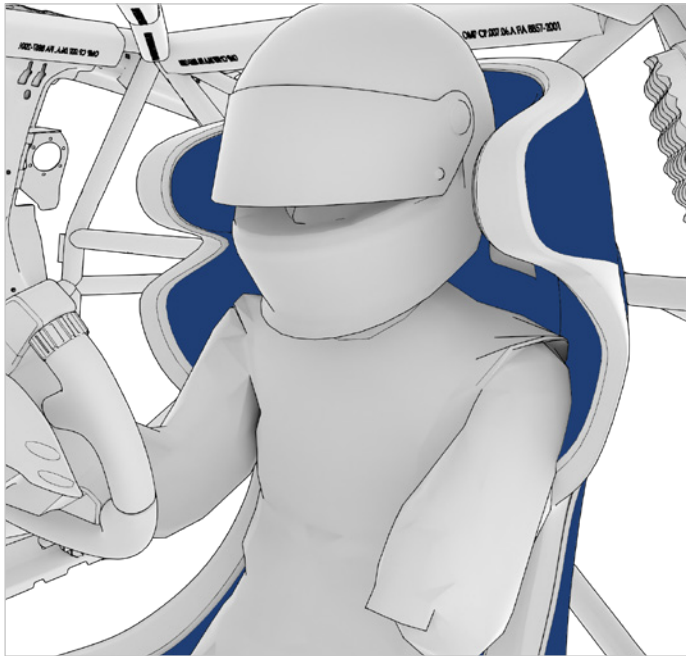


Illustrative example of a version of this adaptation

- If the pedals are not removed, a **cover for the pedals is mandatory**.
- The cover can either **be fixed in position or be removable** for **driver changes/combined driving** with **non-disabled racing drivers**.

SEAT AND DRIVER RESTRAINTS

/ Torso restraint



Illustrative example of a version of this adaptation

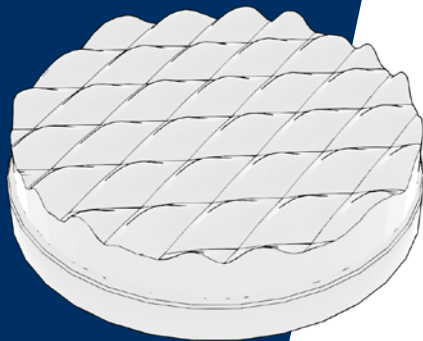
- To help with upper torso stability, a competitor should select an FIA-approved 8855-2021 or 8862-2009 seat. These seats have pelvic, shoulder and head lateral supports and seat foam inserts can be added to ensure a perfect fit.
- Seat foam inserts can be added for perfect driver fitting.



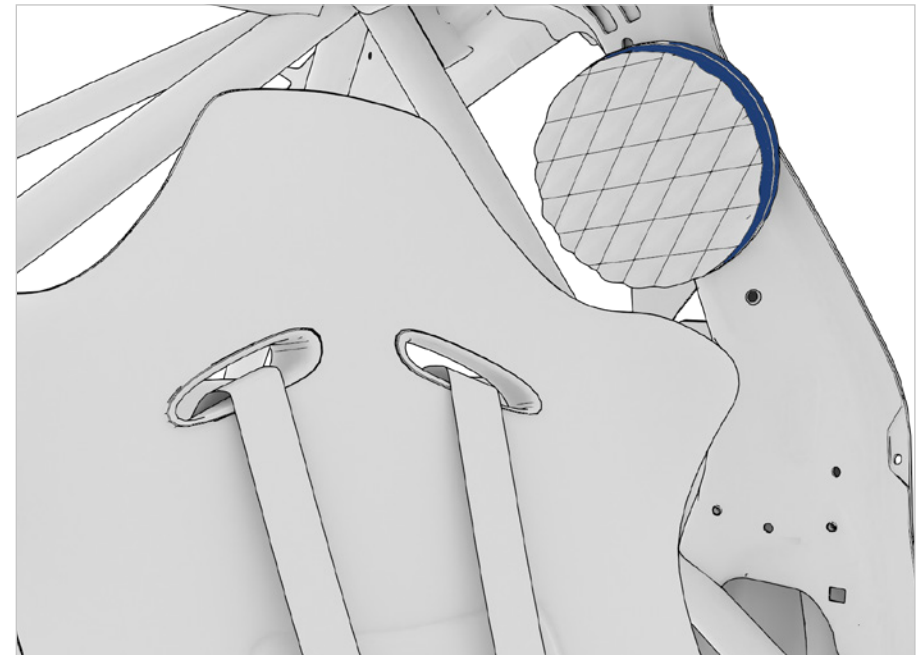
SEAT WITH PELVIC, SHOULDER & HEAD LATERAL SUPPORT DELIVERING GOOD TORSO SUPPORT AS WELL.

HEADREST AND COCKPIT ENVIRONMENT

/ Headrest



EXTRA PADDING



Illustrative example of a version of this adaptation

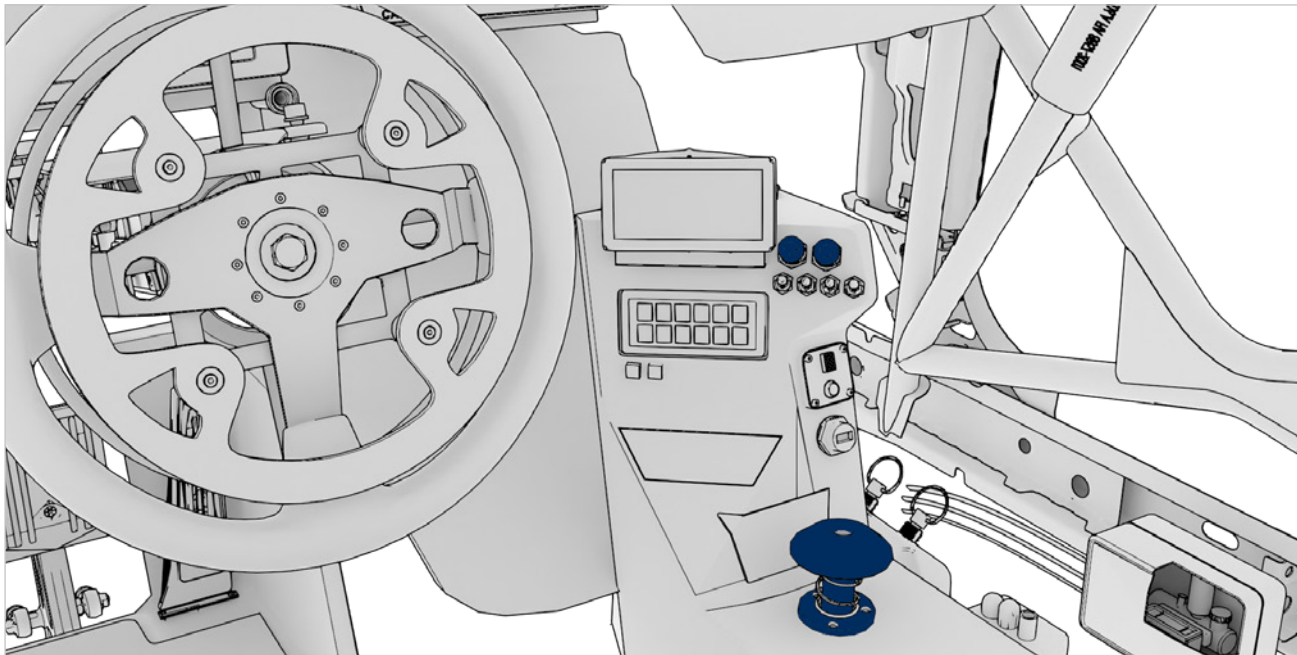
- If the head is not stable enough, the competitor should select an FIA-approved 8855-2021 or 8862-2009 seat. These seats have pelvic, shoulder and head lateral supports and seat foam inserts can be added to ensure a perfect fit.

Alternatively, additional padding is allowed. In such case:

- The padding can be attached to the chassis.
- As much movement as possible of the head should be ensured for good visibility.
- If the car is shared with a non-disabled driver, the padding should be removable.

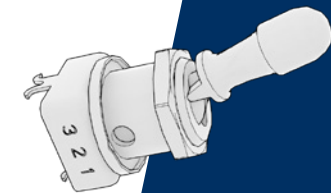
HEADREST AND COCKPIT ENVIRONMENT

/ Cockpit

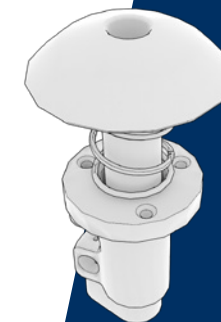


Illustrative example of a version of this adaptation

- The cockpit can be **modified to the driver's needs**.
- **Switches and buttons** can be **enlarged** for usability.
- **Emergency/kill switches** must always be **reachable by the driver**.
- The driver must always be able to trigger safety related functions like the fire extinguisher, when seated with tightened belts in his racing position.



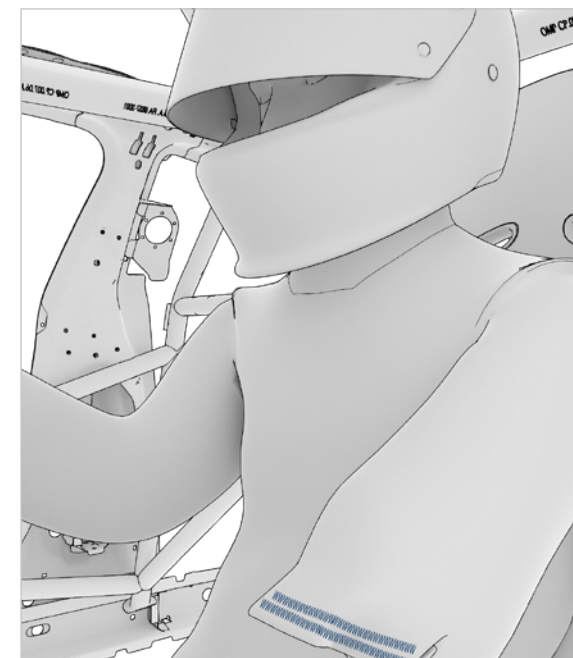
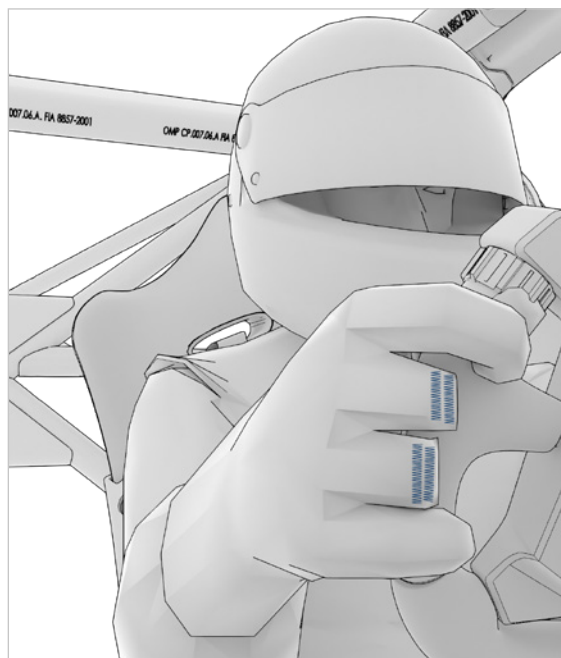
ENLARGED SWITCH



EMERGENCY STOP

DRIVER EQUIPMENT

/ Seams

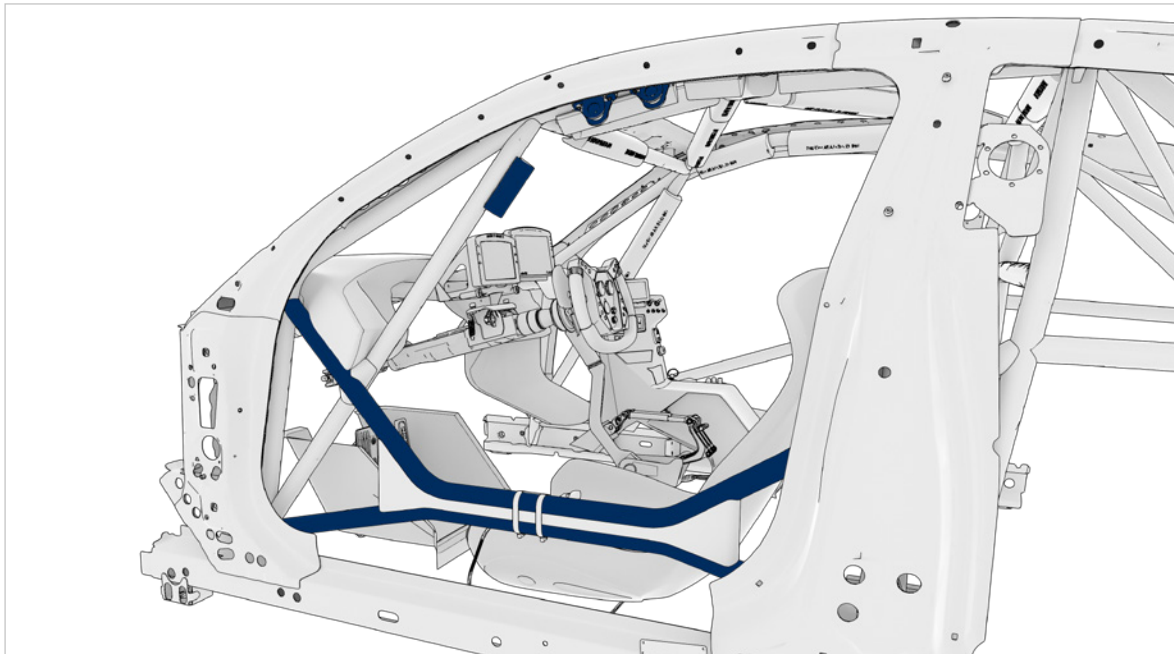


Illustrative example of a version of this adaptation

- **All modifications of the driver's equipment must not change the function and hence intended safety performance of the product.**
- **Involvement of the manufacturer is paramount.**
- **No restriction of movement** due to modifications is allowed.

CHASSIS MODIFICATION

/ Cockpit



Illustrative example of a version of this adaptation

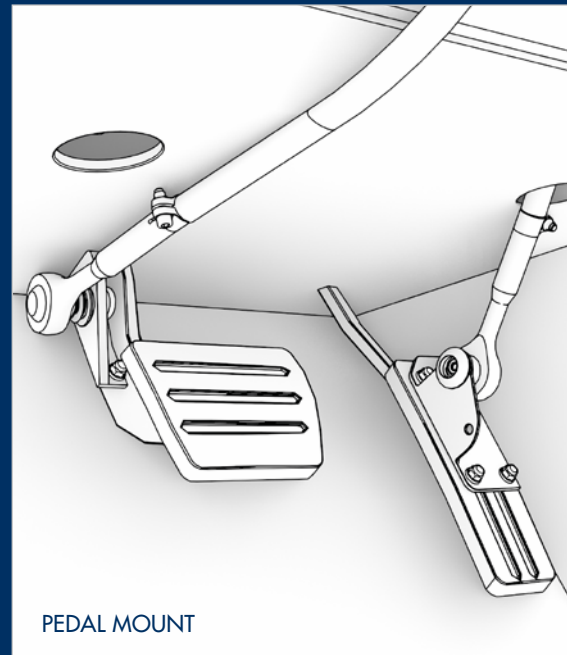
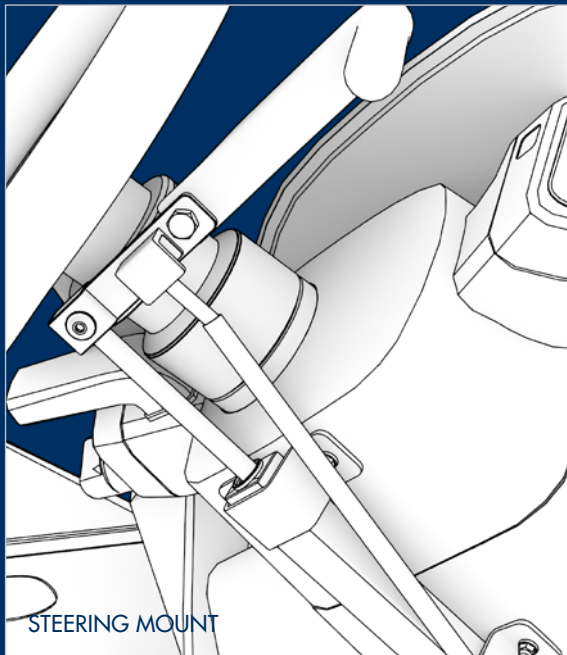
- To ensure the driver's **quick and safe exit**, the roll cage might need to be modified.
- Before starting any modification, the competitor should get in contact with their ASN to gather advise.
- The x-shaped door beams can be lowered and reinforced to have more clearance. Nevertheless, a **new safety cage certificate is always mandatory!**
- A **pulley system or handles can be used** to enter and exit the vehicle.
- Installations must not reduce driver safety and must be designed in such a way that they can withstand the forces to which they are subjected. Non-permanent fixations are allowed on the roll cage, as long as they do not damage or modify the safety cell.

3. ENTRY LEVEL CONVERSIONS

BRAKE AND THROTTLE MANAGEMENT

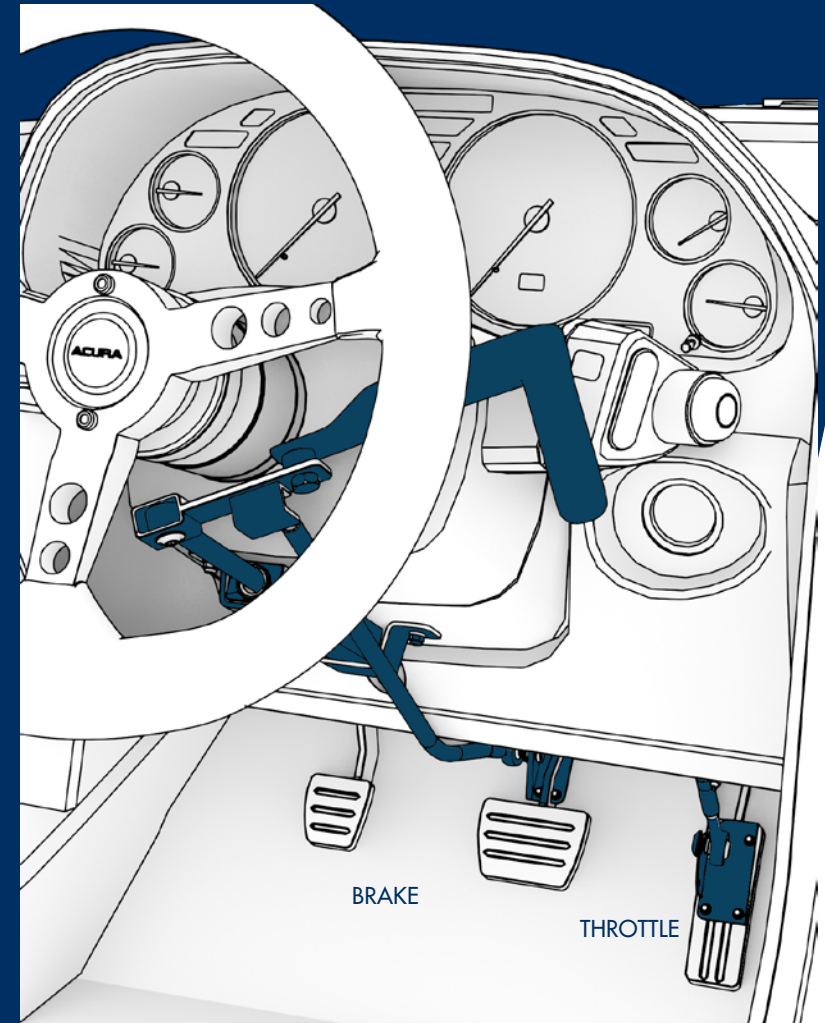


/ Push/rotate



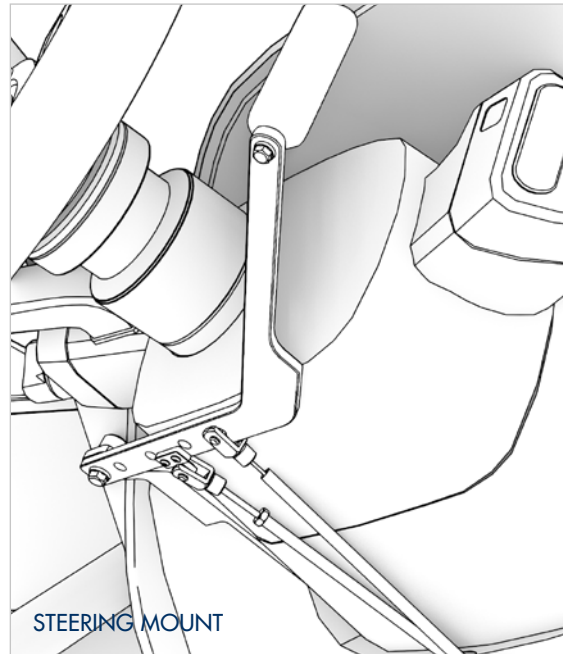
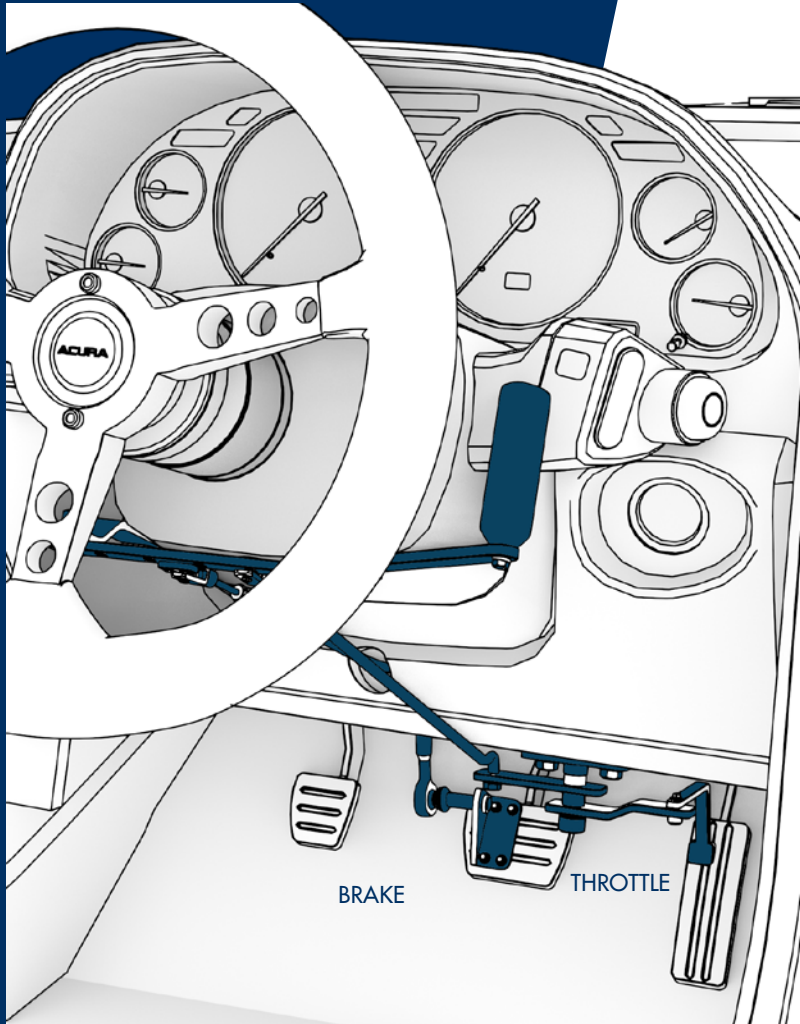
Illustrative example of a version of this adaptation

- Throttle and brake are operated with one single lever behind the steering wheel.
- Downwards rotation of the lever applies throttle, pushing the lever applies brake.
- The system allows great flexibility in installation as it can easily be adapted to any vehicle.
- The lever can be shaped to suit the driver in terms of usability and comfort.
- It is advised that the strongest hand/arm always operate the brake.

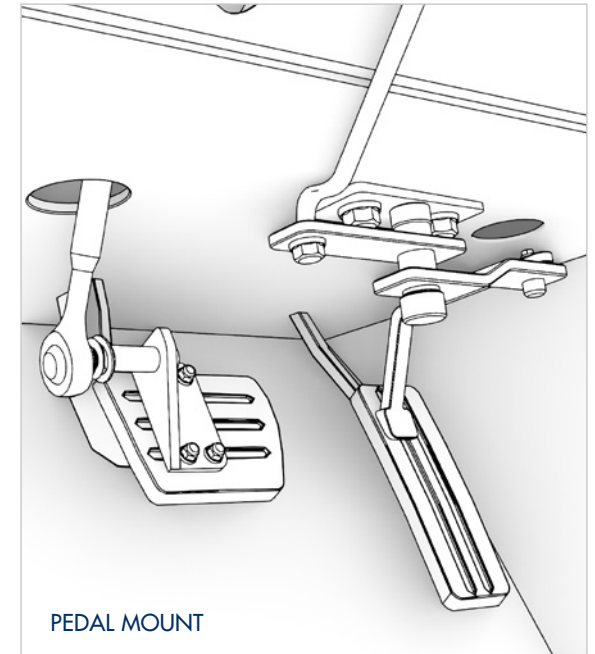


BRAKE AND THROTTLE MANAGEMENT

/ Push/pull



STEERING MOUNT



PEDAL MOUNT

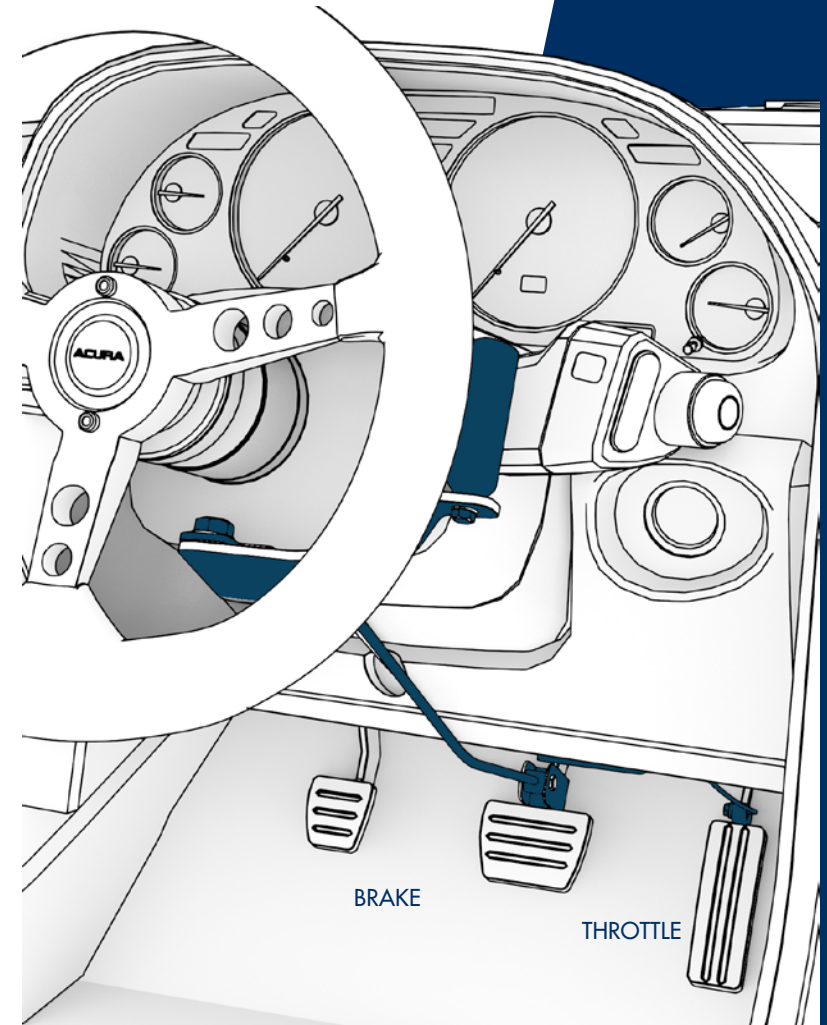
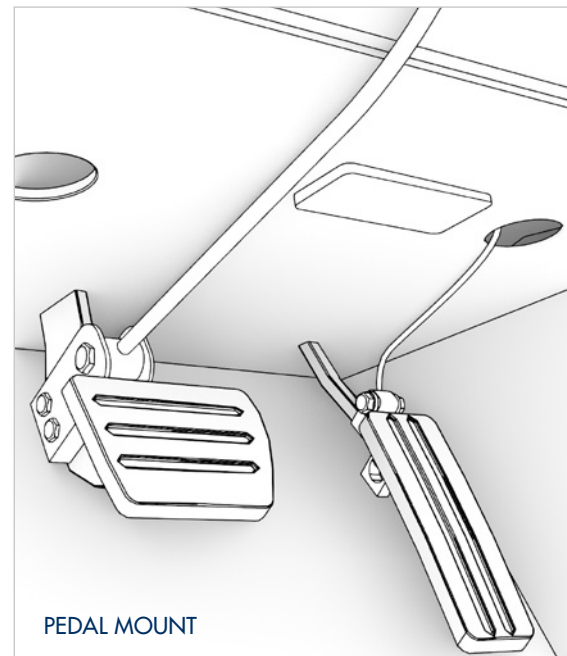
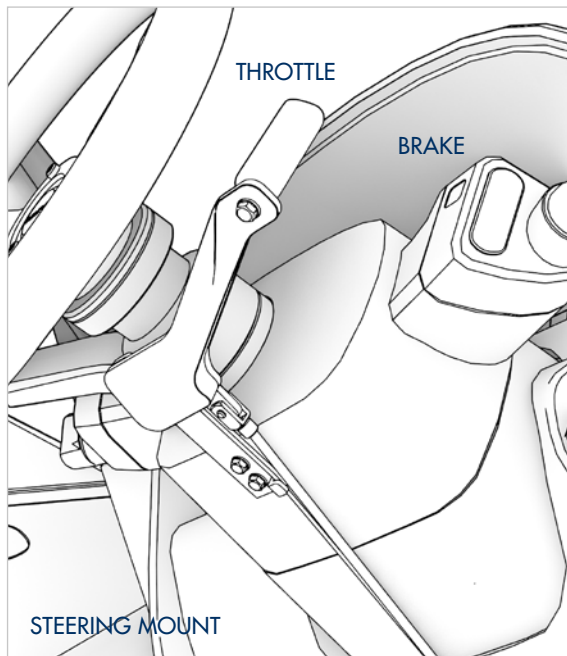
Illustrative example of a version of this adaptation

- Throttle and brake are operated by a single lever behind the steering wheel.
- Pushing the lever applies force on the connected brake pedal in the foot well.
- Pulling the lever towards the steering wheel applies throttle via a rocker system.
- Pure mechanical links allow for a quick and budget-friendly installation.
- The lever can be shaped to suit the driver in terms of usability and comfort.
- It is advised that the strongest hand/arm always operates the brake.

BRAKE AND THROTTLE MANAGEMENT



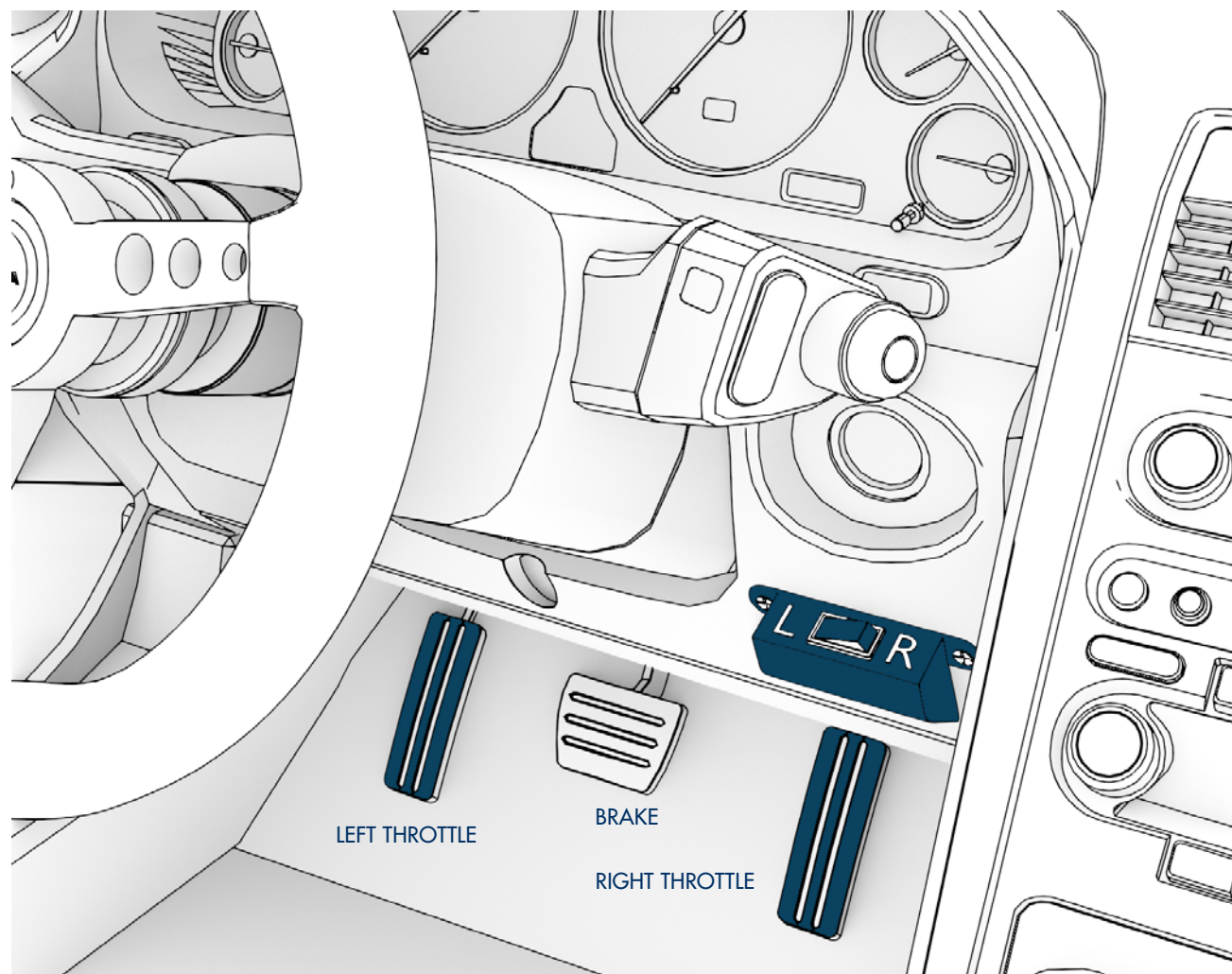
/ Push/pull with bowden-cable

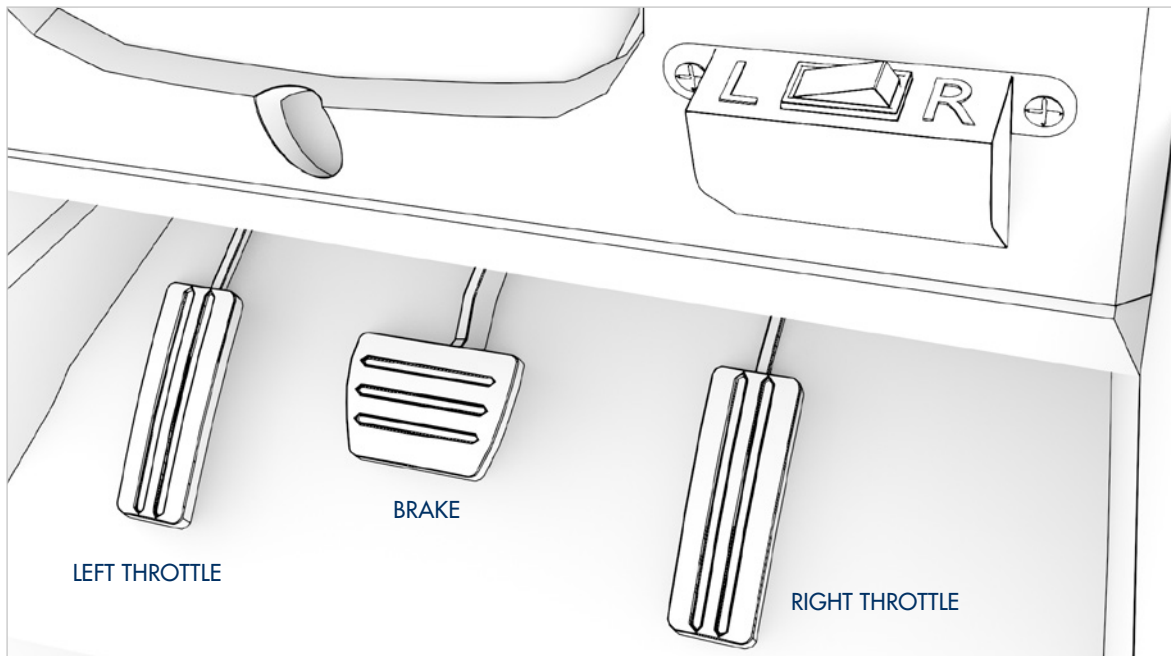


- Throttle and brake are operated by a single lever behind the steering wheel.
- Pushing the lever applies force on the connected brake pedal in the foot well, whereas pulling the lever towards the steering wheel applies throttle via a Bowden cable.
- The Bowden cable allows great flexibility in installation as it can easily be adapted to any vehicle.
- The lever can be shaped to suit the driver in terms of usability and comfort.
- It is advised that the strongest hand/arm always operate the brake.

BRAKE AND THROTTLE MANAGEMENT

/ Left-foot throttle





Illustrative example of a version of this adaptation

- A left-foot throttle pedal can be installed for drivers who have weakness, paralysis or amputation of the right leg and only have the ability to operate the pedals with the left leg.
- For safety reasons only one pedal is allowed to be active while driving.
- A switch must be installed to deactivate the original throttle pedal while the left-foot throttle pedal is active.

4. ADAPTATIONS FOR KARTING DRIVERS

KART CATEGORIES



/ General overview

THE CATEGORIES

The FIA Karting Guidelines for Drivers with Disabilities define three categories, which are:

H1

LIGHT OR NO MODIFICATIONS

Drivers with disabilities that require very limited or no modifications to any of the kart driving systems.

Minimum weight of kart including driver and its safety equipment = 170 KG

0 - 1 ADJUSTED CONTROLS

H2

MODERATE MODIFICATIONS

Drivers with disabilities that require some modifications to the kart driving systems (e.g. paralysis of legs).

Minimum weight of kart including driver and its safety equipment = 165 KG

2 ADJUSTED CONTROLS

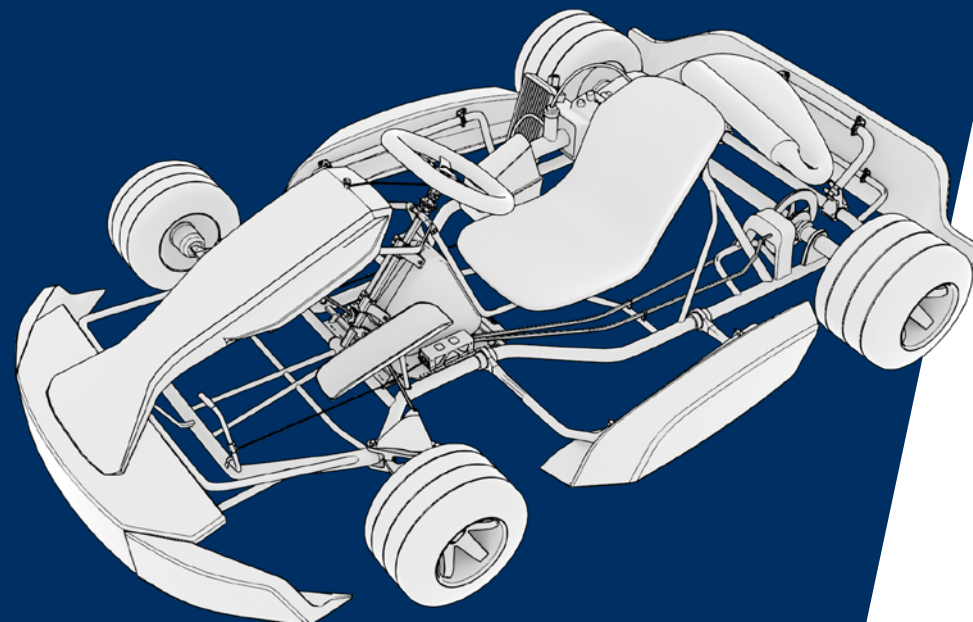
H3

STRONG MODIFICATIONS

Drivers with disabilities that require several modifications to the kart driving systems (e.g. limitation of body strength in combination with paraplegia).

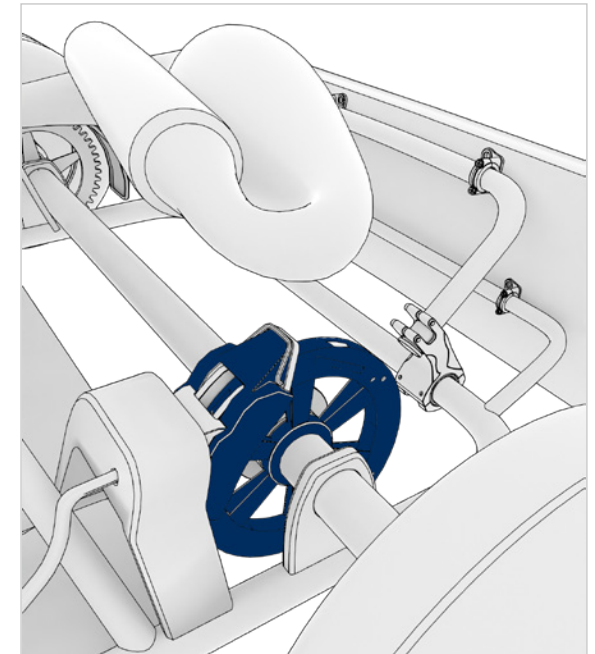
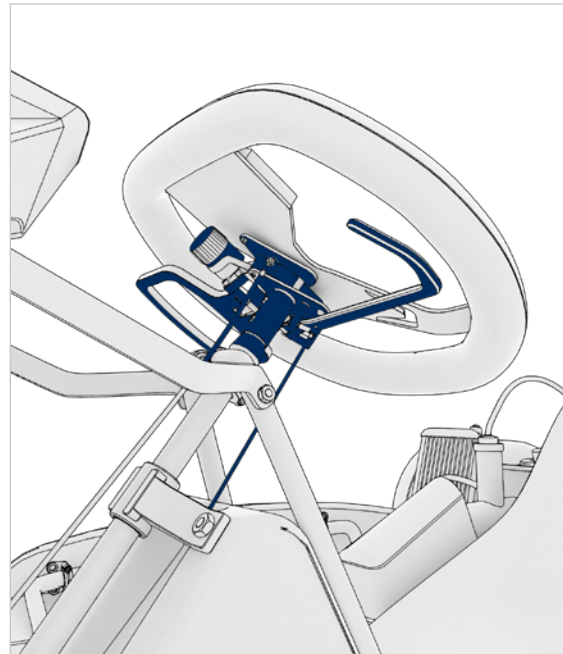
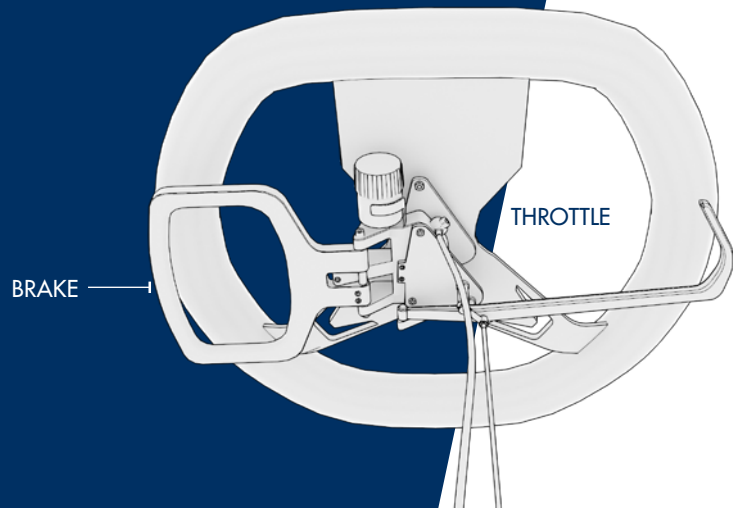
Minimum weight of kart including driver and its safety equipment = 160 KG

3 ADJUSTED CONTROLS



BRAKE AND THROTTLE MANGEMENT

/ Steering wheel

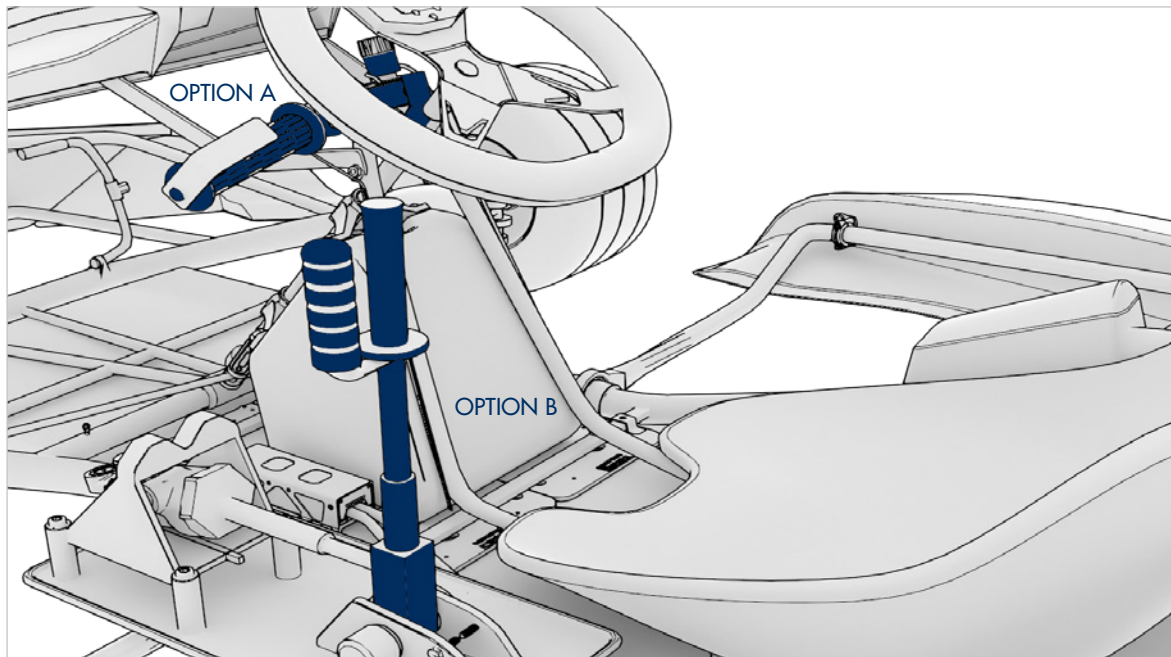


Illustrative example of a version of this adaptation

- Throttle and brake **operated by levers behind the steering wheel.**
- The **Bowden-cables allow great flexibility in installation as they can be moved or extended.**
- The **hydraulic brake system can be mounted onto the steering wheel. To avoid having to design a braking system, it is advised to use a complete kart front brake system.**
- **It is advised that the strongest hand/arm always operate the brake.**
- **Stronger rear brake system can be used.**

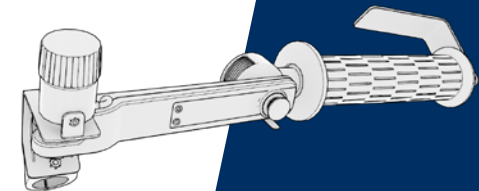
BRAKE AND THROTTLE MANGEMENT

/ Hand lever

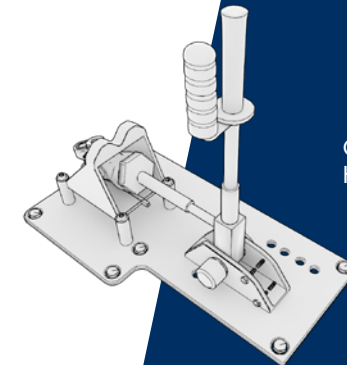


Illustrative example of a version of this adaptation

- Competitor can choose either Option A with the lever fixed to the steering column or Option B with the lever fixed to the chassis.
- Brake and throttle can be operated **with a hand-lever on either side** of the vehicle.



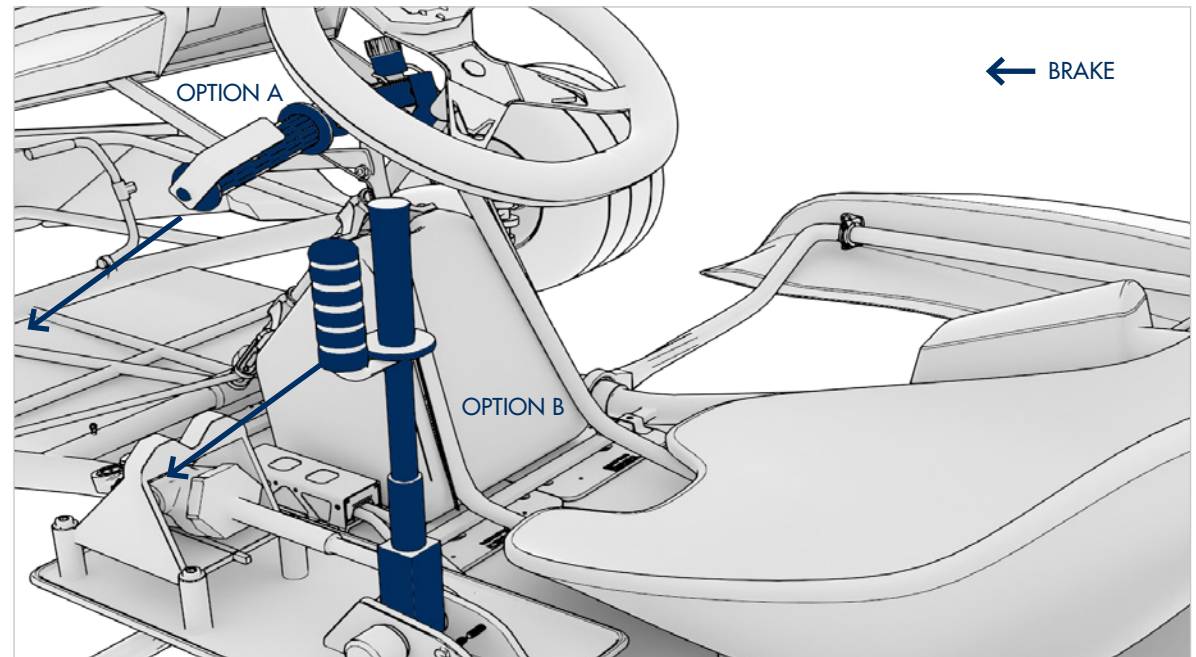
STEERING COLUMN
HAND LEVER



CHASSIS FIXED
HAND LEVER

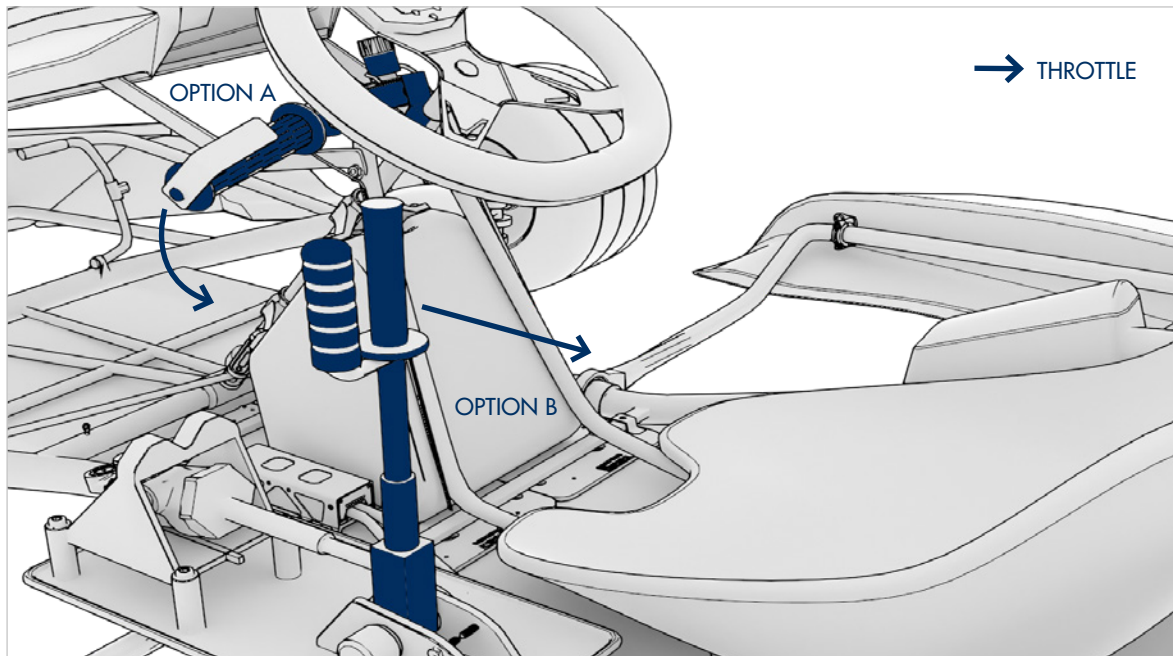
BRAKE AND THROTTLE MANGEMENT

/ Hand lever



Illustrative example of a version of this adaptation

- For both options, the lever may be used simultaneously as brake and throttle.
- **It is strongly advised that the lever be pushed forward to brake.**
- The side of fixation always depends on **the driver's preference.**

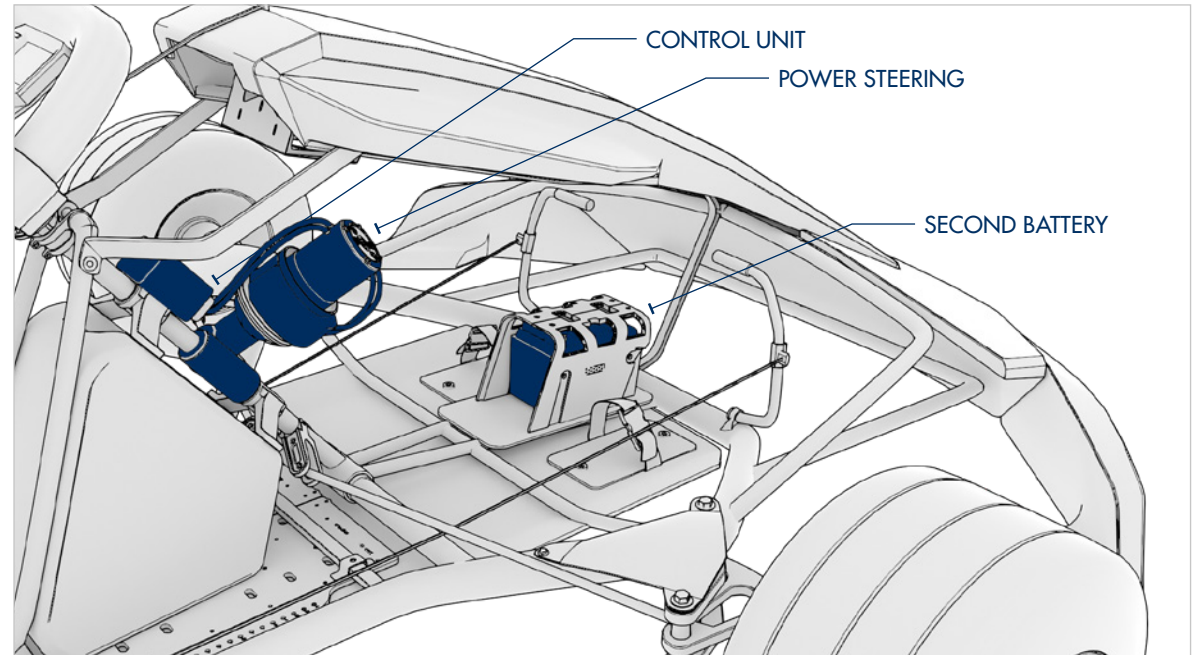


Illustrative example of a version of this adaptation

- Option A - **twisting the lever** accelerates the kart.
- Option B - applies throttle by **pulling the lever backwards**.

STEERING MANAGEMENT

/ Power steering

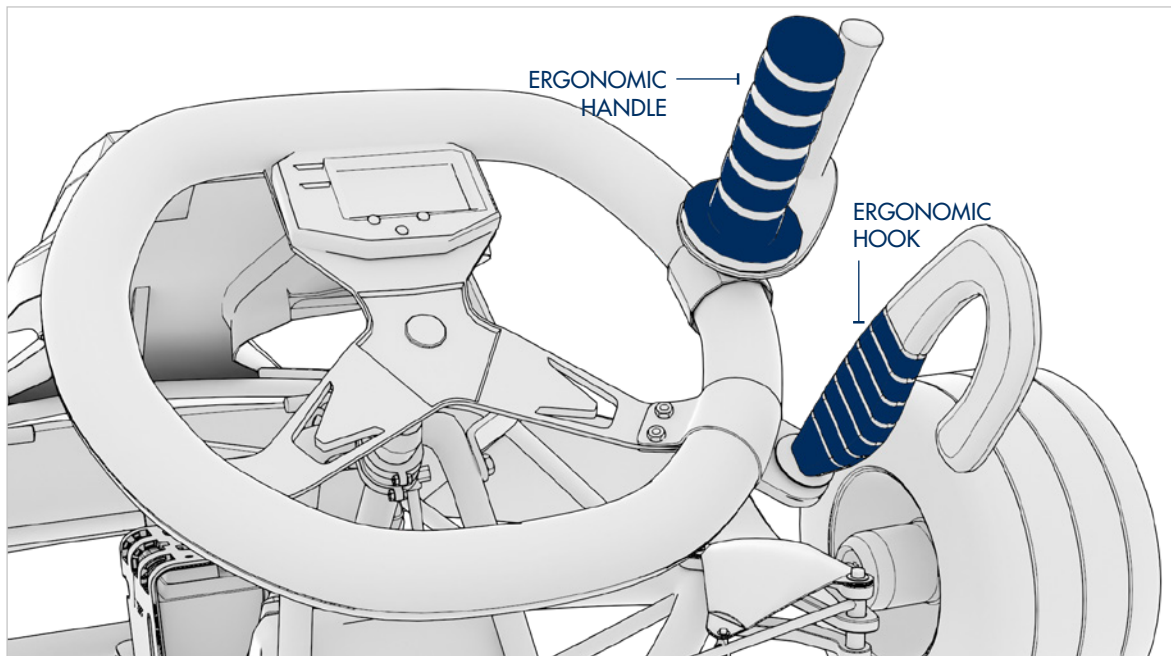


Illustrative example of a version of this adaptation

- To reduce forces while steering, power steering can be installed.
- The power unit can be directly integrated into the steering rod.
- It is highly recommended that the **control unit be safely mounted** underneath the front cover.
- A well manufactured and **fixed wiring** loom is mandatory.
- The capacity of the battery must last at least for **1.5 full races** distances.

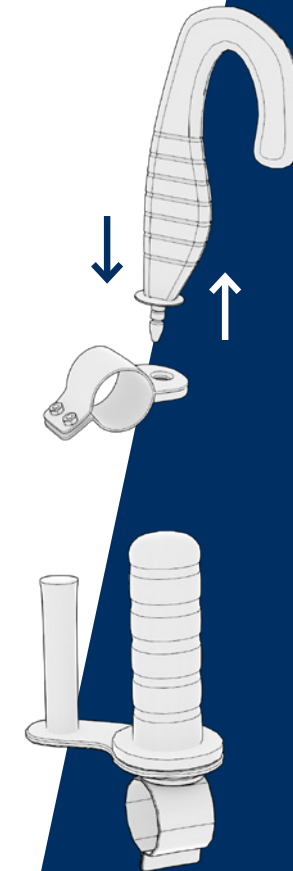
STEERING MANAGEMENT

/ Ergonomic modifications



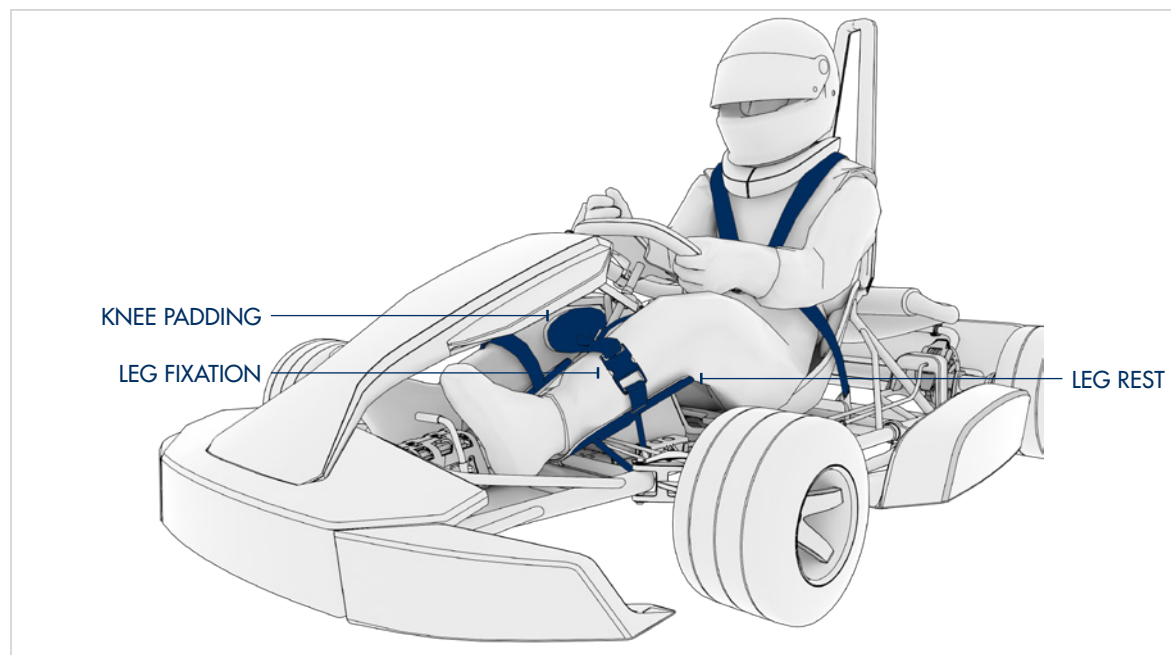
Illustrative example of a version of this adaptation

- Ergonomic handles are allowed if needed by the driver.
- It is highly recommended to use an easy-to-handle **quick release**.
- A Velcro strap for extra support is possible; **tape or rope is forbidden**.



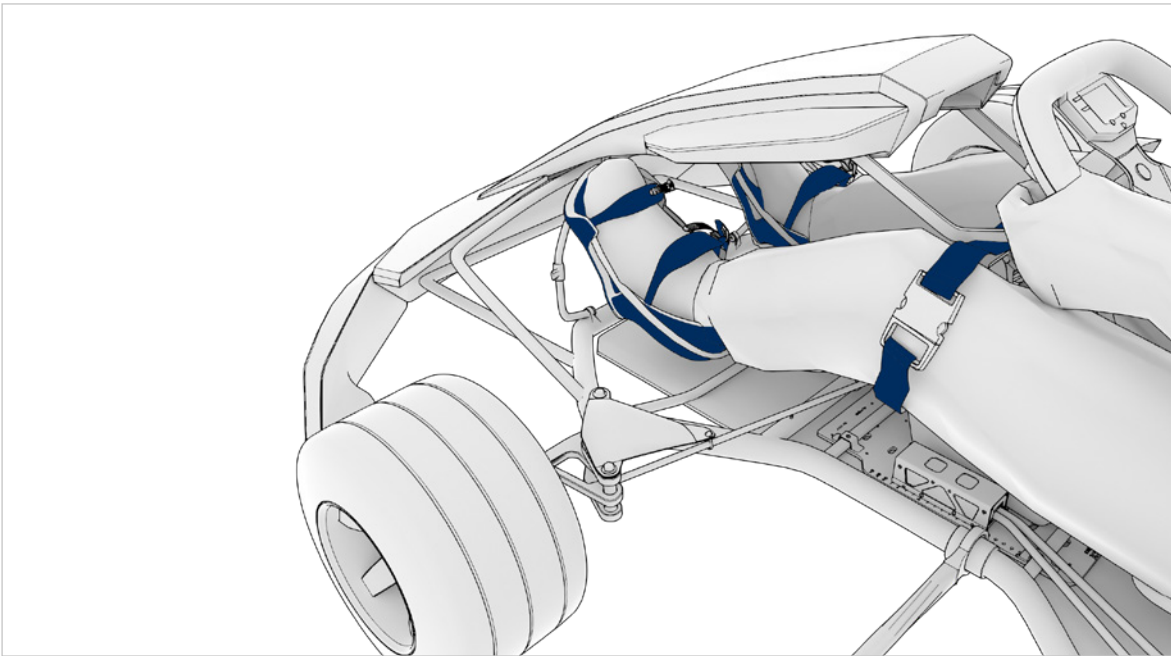
SEAT & DRIVER RESTRAINTS

/ Leg fixation



Illustrative example of a version of this adaptation

- The leg fixation should be sufficient and strong enough to **provide adequate support**.
- A quick-release mechanism (Snaplock, Velcro, etc.) is mandatory – **locks, tape or knots are forbidden**.
- To avoid injury, it is recommended to cover the steering column with padding.
- Should the leg fixation impede self-release during driver ejection, the use of an upper body harness becomes mandatory.



Illustrative example of a version of this adaptation

- For the feet, it is common to use snow-board bindings for fixation. A simplified version can also be integrated.
- A Velcro strap above the knee, around both legs, is authorised to **keep all limbs safely together**.
- To avoid injury, it is recommended to cover the steering column with padding.



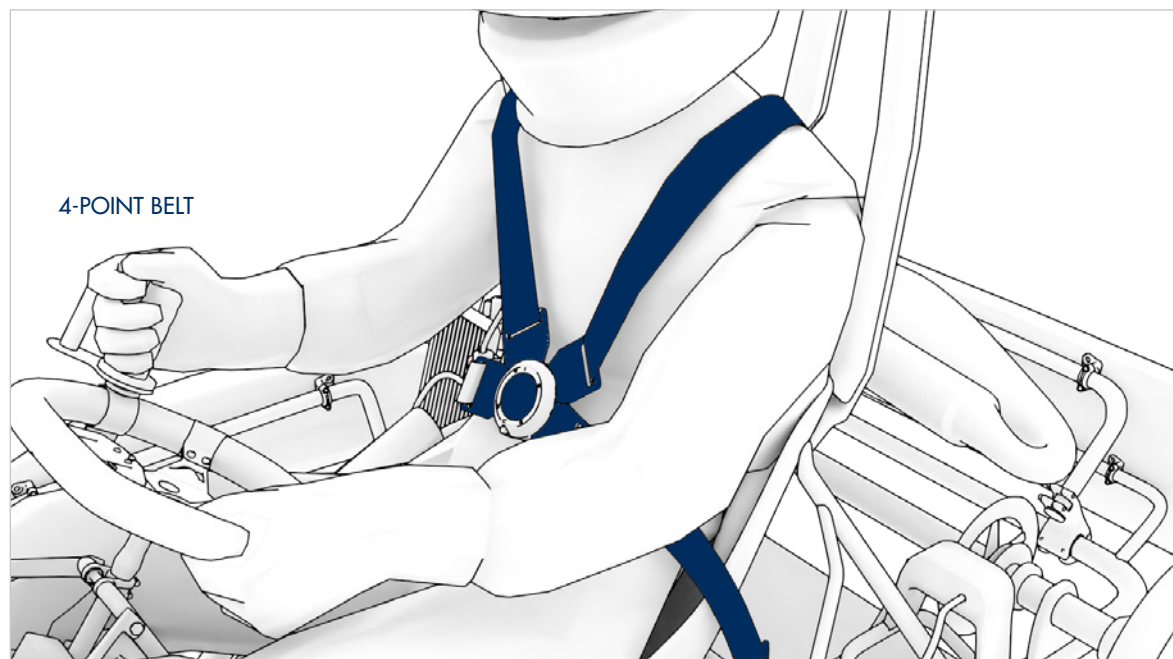
SNOW-BOARD
BINDING



SIMPLE RESTRAINT

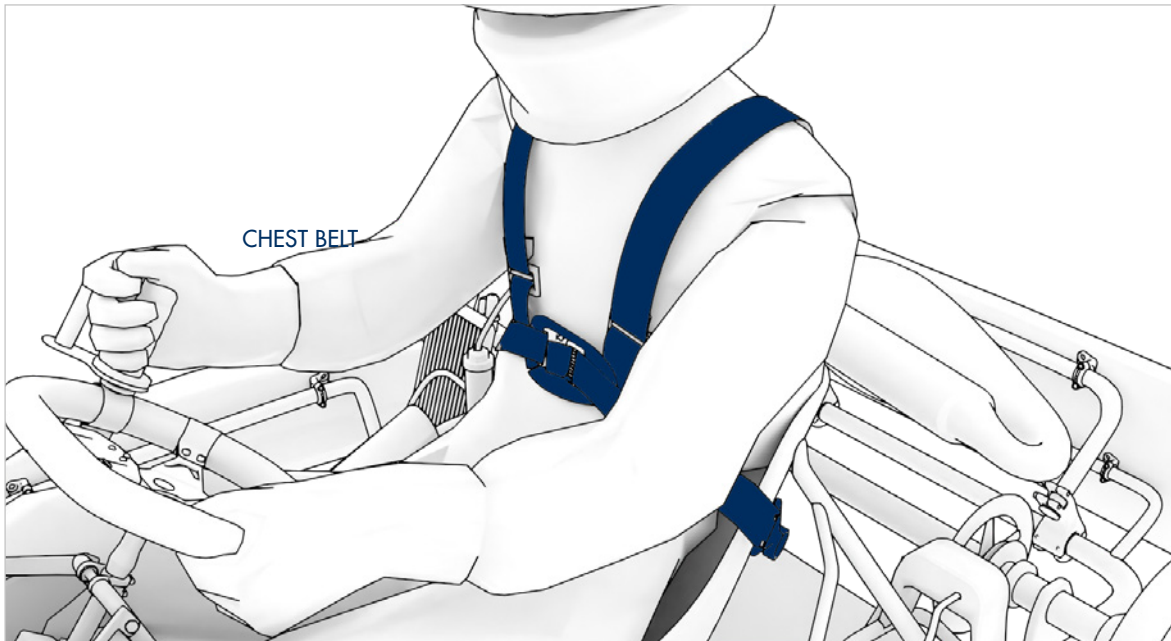
SEAT & DRIVER RESTRAINTS

/ Body fixation



Illustrative example of a version of this adaptation

- **It is authorised to stabilise the upper torso (this should only be done when strictly necessary).**
- Stabilising the upper torso can be done via an FIA-approved 8854/98 safety harness or via a chest belt.
- It is strongly recommended to use the 4-point safety harness in combination with a karting high seat with integrated shoulder strap attachments in accordance with FIA Standard 8873-2018.
- Additional padding within the seat can be used for higher lateral support.

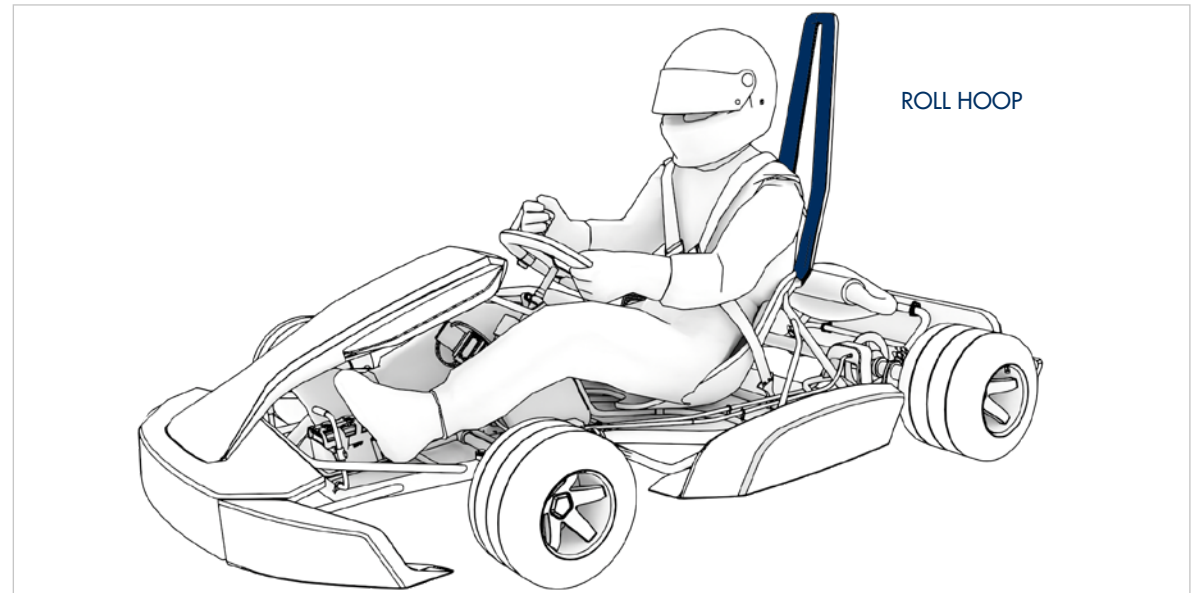


Illustrative example of a version of this adaptation

- A simple chest belt can be used with a “normal” karting seat.
- The seat can be locally reinforced to route the chest strap.
- The chest strap closing mechanism must be robust enough to provide support and stabilise the driver’s upper torso. However, it should be designed to disengage in the event of an accident or kart rollover, allowing the driver to be ejected.
- For the purposes of driving stability and comfort only, and if the driver is not secured by any other means, a basic strap with a simple closing mechanism can be utilised. This mechanism should readily disengage in the event of an accident or rollover, enabling the driver to be ejected.

SEAT & DRIVER RESTRAINTS

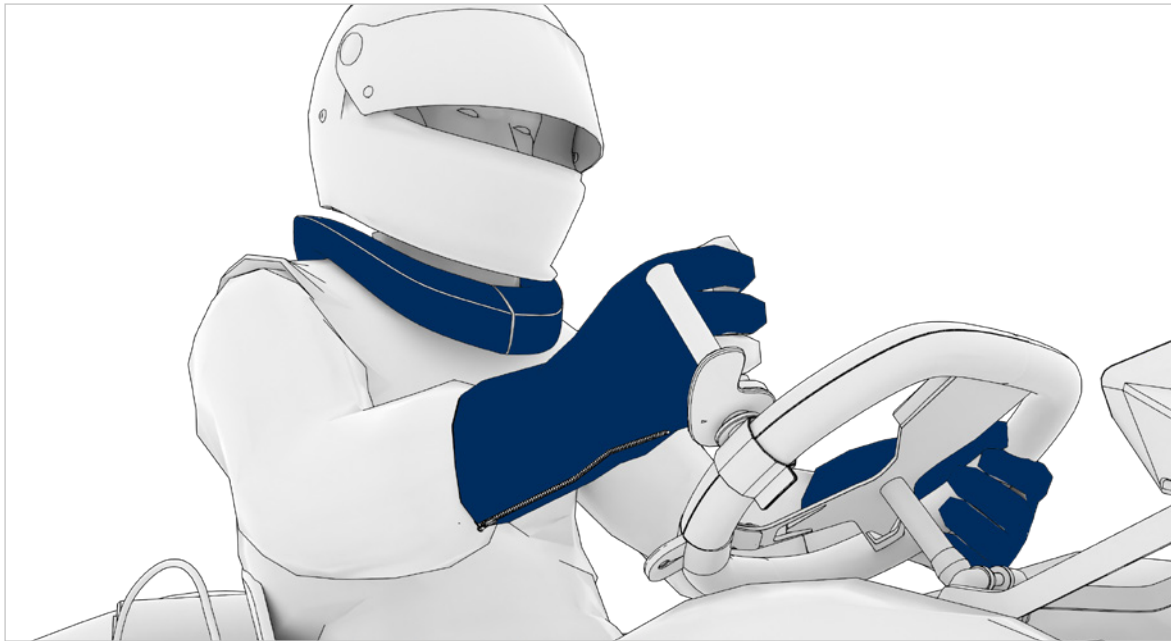
/ Headrest & rollhoop



Illustrative example of a version of this adaptation

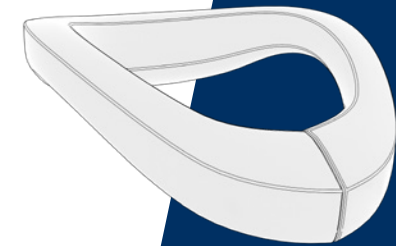
- A 4-point safety harness can be used in combination with a seat with a roll bar.
- The height of the roll bar must be such that the central highest point of the seat is 30 mm minimum above the highest point of the driver's helmet (driver in normal position).
- It is advised that the shoulder straps be fixed to the seat roll hop and the pelvic straps be attached to the kart chassis tubes (not to the seat or the tubes fixing the seat).
- The pelvic straps must fit tightly in the bend between the pelvic crest and the upper thigh, and they must not be worn over the region of the abdomen.
- It is recommended that the driver use a karting high seat with integrated shoulder straps attachments in accordance with FIA Standard 8873-2018.

DRIVER EQUIPMENT



Illustrative example of a version of this adaptation

- For faster dressing and undressing, **glove zippers** can be added to the gloves of the driver.
- It is recommended to pay attention to **pressure points** and **pinching** of the skin.



NECK PILLOW



GLOVE ZIPPER

5. FIA DISABILITY & ACCESSIBILITY COMMISSION (DAA)

One of the missions of the Disability and Accessibility Commission is to facilitate accessible racing and motoring across both the Sport and Mobility pillars.

The aim of the Commission is to break down barriers that obstruct full and effective participation of motor sport drivers and road users in society and mobility systems. Made up of representatives from Mobility and Sport Member Clubs, the DAA is committed to improving safety for disabled drivers, in coordination with the FIA specialised commissions, implementing any actions contributing to improving the comprehensiveness and quality of adaptations for drivers with disabilities. The DAA also promotes knowledge sharing and best practices between Clubs and other relevant organisations involved in the field of inclusive transport.



6. FIA ADAPTATIONS WORKING GROUP (AWG)

The Adaptations Working Group is a group of experts from a wide range of motor sport fields mandated by the FIA Disability and Accessibility Commission to evaluate adaptations of competitors who intend to participate in competitions registered on the International Sporting Calendar, or in competitions with regulations that specifically require a Certificate of Adaptations.

Composition of the FIA Adaptations Working Group:

- the President of the DAA Commission
- a representative of the FIA Technical Department
- a representative of the FIA Safety Department
- a representative of the car manufacturers
- a disabled driver who is currently active

Whenever a competitor with disabilities intends to participate in a competition included in the International Sporting Calendar or a competition with regulations specifically requiring the FIA Certificate of Adaptations and when the adaptations for fall outside of the regulations of the competition in which they intend to compete, the safety and sporting fairness of these adaptations must be evaluated.



7. FIA CERTIFICATE OF ADAPTATIONS (CoA)

Whenever adaptations for competitors with disabilities fall outside of the regulations of the competition in which they intend to compete, the safety of these adaptations must be evaluated.

- A Certificate of Adaptations is therefore required to ensure the adapted vehicle is in compliance and safe.
- The following video gives you all details of the process
- The detailed process is also set out in Article 18.3 of Chapter I “FIA International Drivers’ Licences” of Appendix L to the International Sporting Code. The FIA can also provide assistance.
- The Certificate of Adaptations is issued by the FIA Adaptations Working Group and only applies to:
 - competition cars intended to participate in an event registered in the International Sporting Calendar and
 - competition cars intended to participate in an event where the regulations specifically require an FIA CoA in order to allow the adaptations.





DISABILITY AND ACCESSIBILITY COMMISSION

CONTACT

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 [FIA](#)

 disability@fia.com

For more informations



ACKNOWLEDGEMENTS

With thanks to:

HABO Engineering GmbH & Co.KG
The FIA Disability and Accessibility Commission
The FIA Safety Department
The FIA Technical Department

Printed by the FIA Print Department FIA
VEHICLE ADAPTATION GUIDELINES
Edition 2 – November 2023