NSAI

Reduced Mobility Adaptions Scheme

For

National Vehicle Approvals (IVA)

For

Complete/Completed Vehicles Rev 02

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Record of revision

Revision	Date	Description of change
AD-69-02 Rev 01	05.04.2017	**Original Version**
AD-69-02 Rev 02	13.02.2024	- Updated sections - Included Annex on WAV - Individual Photo requirements and design notes per adaption - Added sections on Application Process, Expected workshop standards and Plates

Terminology:	
New Vehicle	Means a vehicle: that has never been registered previously or that has been registered for less than six months at the time of the application* * as per EU 2018/858
Special Purpose Vehicle (SPV):	Means a vehicle of category M or N having specific technical features in order to perform a function which requires special arrangements and/or equipment.
Date Code:	The date that an adaption is installed in a vehicle for the first time. This date must be inscribed indelibly on the adaption.
Serial Number:	If the component is supplied with a serial number, this serial number must be used. Alternatively, a serial number must be assigned to each adaption. Serial numbers must be inscribed indelibly on each adaption. The serial number must not be changed e.g., when transferred.
IVA Sticker/Label:	The sticker/label that the adaptor fits to all adapted vehicles.
Bolts:	Must be a grade equal to or exceeding those used by the original vehicle manufacturer and of appropriate dimensions.
Bolt Holes:	Slotted holes should not be used unless deemed necessary. Any use of slotted holes is subject to engineering tolerances, must be justified.
Seat Rail Extension:	An adaption which relocates the seat relative to its original anchorage points. The brackets used to relocate the seat must be non-adjustable. Seat rail extensions must not be longer than the length that still allows the seat to reach at least the rearmost position before adaption. It is intended that the seat is within the positions designated by the vehicle manufacturer while driving. Where possible the design of the seat rail extension should utilise, laser cut components as detailed in the design nots section of this document.
Swivel Seats:	A mechanism that allows the seat to rotate out through the door opening. In the case of fitting a swivel seat, the seat belt anchorages must **not** be located on the swivelling portion of the seat unless certified to do so. Where possible the design of the swivel seats should utilise, laser cut components as detailed in the design notes section of this document.

Seat Riser:	An adaption which consists of a structure intended to have the function of raising the entire seat. The structure used to fulfil this function shall offer support to the **entire length** of the original seat rail. Sear risers must be greater than 25mm. Where possible the design of seat risers should utilise, laser cut components as detailed in the design notes section of this document.
Person Hoist:	A hoist fitted in the passenger compartment and secured to the vehicle structure. The purpose of this is to lift a person into their seat. Mounting points on the vehicle structure must be appropriately supported with load spreading plates.
Boot Hoist:	A hoist fitted in the boot and secured to the vehicle structure. The purpose of this lifts a wheelchair into the boot. Mounting points on the vehicle structure must be appropriately support load spreading plates.
Hand Controls:	A hand operated device used to control the operation of the accelerator and brake of vehicle. Hand controls must be installed in accordance with the manufacturer's instructions.
Left Foot Accelerator:	A device that relocates the accelerator pedal to the left side of the brake pedal.
Pedal Extensions:	Devices fitted to the original pedals which move the pedal surface significantly closer to the driver
Wheelchair Stowage System:	A roof top mounted purpose-built storage system that can only be used to store a wheelchair.
WAV's	A vehicle of category M1 constructed or converted specifically so that they accommodate one or more persons seated in their wheelchairs when travelling on the road.
Bill of Materials (BOM):	A list of the raw materials, sub-assemblies, intermediate assemblies, sub-components, parts and the quantities of each needed to manufacture and install the adaption(s). A section for the BOM is given on the configuration sheet.
Relevant Drawings:	This consists of a collection of detailed drawings/sketches/diagrams showing clearly the relevant parts of the design of the adaption. These must be available upon request from the NSAI.
Airbag Electrical System:	All of the electrical connectors associated with the wiring and sensors for the secondary restraint system (Airbag). Any modifications to this system must be noted in detail on the configuration sheet.

Seat Anchorage:	The system by which the seat assembly is secured to the vehicle structure, including the affected parts of the vehicle structure.
Safety Belt Anchorage:	The parts of the vehicle structure or the seat structure or any part of the vehicle to which the safety-belt assemblies are secured.
Floor Bracket:	An intermediate component or sub assembly between the vehicle stricture and adapted seat. Where possible the design of the floor brackets should utilise, laser cut components as detailed in the design notes section of this document.

Disclaimer:

Please note that all definitions, guidelines, and requirements referenced in this document are subject to change as relevant regulations and governance are updated and/or revised.

Preamble

Since the 29th of April 2012 a Special Purpose Vehicle (SPV) is required to be type approved. This legal requirement comes directly from the European Framework for the type approval of motor vehicles, Regulation EU 2018/858. NSAI, the Irish Type Approval Authority has since been issuing IVA (Individual Vehicle Approval) certificates for passenger vehicles which have been adapted and are now classified as a SPV. The aim of this document is to provide procedures and technical requirements to be followed under this scheme.

All adaption applications for approval are assessed for compliance by NSAI on a case-by-case basis. **NSAI reserve the right to issue/refuse IVA's as they deem appropriate.**

The adaption(s) must be prepared and completed in accordance with the instructions issued by the equipment manufacturer and NSAI guidelines.

Details covering Wheelchair Accessible Vehicles (WAV SPV) are in Annex 10

NSAI may request a recall or inspect vehicles adapted under the scheme as they see fit. The approved adaptor will be responsible for this recall.

IVA will only be granted for applications submitted provided they meet all the administrative provisions and technical requirements set out in the relevant Annex's detailed below.

An incomplete application will not be processed further and will be returned to the applicant for completion. Re-submission of the full application will be required after all information is completed. Processing times will be recorded from submission date of full application.

Please note, it is critical the IVA certificate issued is passed on to the vehicle owner (and dealer as applicable) prior to registration.

Vehicles must be fitted and photographed clearly with the adaptor 2nd stage plate and the adaption plate prior to customer handover.

The IVA is only valid once this sticker/label is affixed to the vehicle. All adaptions must be carried out on the registered premises of the approved adaptor.

List of modifications to the vehicle that require an IVA.

1. Hand controls
2. Swivel seats (driver and passenger)
3. Seat rail extensions (driver and passenger)
4. Seat risers
5. Left foot accelerator
6. Pedal extensions
7. Wheelchair/person hoist
8. Wheelchair storage system
9. Secondary Controls

This is not an exhaustive list and is subject to change. Adaptions other than those specified above may be granted an IVA on a case-by-case basis. Regarding adaptions other than those above, the adaptor should contact NSAI prior to carrying out any work.

1. Application Process:

1.1 Application to become an adaptor

The particular adaption(s) must be covered under the scope of the Adaptor's approval issued by NSAI. If the adaption(s) are not covered by the Adaptor's approval; the adaptor can apply for their approval scope to be extended to cover this kind of adaption. Until the adaptor's approval has been extended, this adaption. cannot be carried out by the workshop. The application process to become an approved NSAI Reduced Mobility Adaptor consists of the following steps:

- Complete and submit the Reduced Mobility application form which can be found on the NSAI website. https://www.nsai.ie/certification/automotive/national-type-approva/vehicle-adaption-for-disabled-person/

- On receipt of a completed Reduced Mobility application form, NSAI will send out a Quotation to the applicant for signature.

- When the complete Quotation has been returned, fully signed by the applicant, NSAI will:

    - Assign the application to an NSAI auditor.
    - The NSAI auditor will contact the applicant to arrange an audit of the applicant's Quality System.
    - Before an audit can be organised the Adaptor must:
        - Have a Quality System in place, to the minimum requirements as outlined in Section 2 of this manual, before an audit can be organised.
        - Submit a copy of their procedures to the auditor prior to the audit.

    - Unsigned Quotation forms will be returned to the applicant for signature. The application process will stop and will not resume until a fully signed Quotation has been received by NSAI.

- On foot of a successful audit and close out of any non-conformities identified during the audit, the applicant will:
    - Be issued with their Reduced Mobility adaptor approval.
    - Entered onto the list of NSAI Approved Reduced Mobility Adaptors.

- The Reduced Mobility adaptor approval has a validity of one year and can be renewed annually.

- The validity of the Reduced Mobility adaptor approval shall require an annual audit of the Approved Reduced Mobility Adaptor and their facilities, carried out by NSAI.

- IVAs cannot be granted for vehicles if a Reduced Mobility Adaptor approval is out of date.

1.2 Adapted vehicle application:

Approved vehicle adaptors can submit an application to NSAI using the FlowForma system. Each adaptor will become setup on the system when approved by NSAI.

Please note that all aspects of the FlowForma system are handled via the outlook email account setup with the system. Please contact the admin team at NSAI should issues arise.

FlowForma will prompt the required information and photographs required for each adaption. It is the adaptors responsibility to ensure information is uploaded accurately. Incomplete/ inaccurate applications will be rejected. There is also an upload area for any extra photographs/drawings or information as necessary. Once submitted to NSAI, the application will be reviewed by the engineering team. Queries or requests for additional information are handled within the FlowForma system. Upon completion of review and any queries resolved, NSAI will issue a certificate. The adaptor receives the certificate through FlowForma, certificates should be downloaded and kept in the approval file.

Please note the following files and documentation are required for an application.

Documentation Required to Accompany IVA Applications
Copy of the Certificate of Conformity (COC) for the vehicle
Job Card
Drawings, Specifications (As Applicable)
Photographs of the adapted vehicle (As defined in relevant annexes)

1.3 Changes to an Approved Adaption

Where changes are required to an adaption after approval, these can be changed using the following methods. **Please note that the definition of *new vehicle* still applies in these cases**. Contact should be made with NSAI before proceeding with the FlowForma application in these cases:

1.3.1 Enhancement

Where a change is required that is an additional adaption or enhancement of the adaption, this will be processed by submitting a new application on FlowForma and referencing the previous IVA number. An explanation will be required as to why this is being carried out. **Please contact NSAI prior to submission** (this does not include minor adjustments)

1.3.2 Change of adaption

Where a change is required that is a complete change of adaption type the current approval certificate is withdrawn and a new certificate with a new approval number is issued.

Please note that the NSAI fee for both procedures above remain the same as a new adaption.

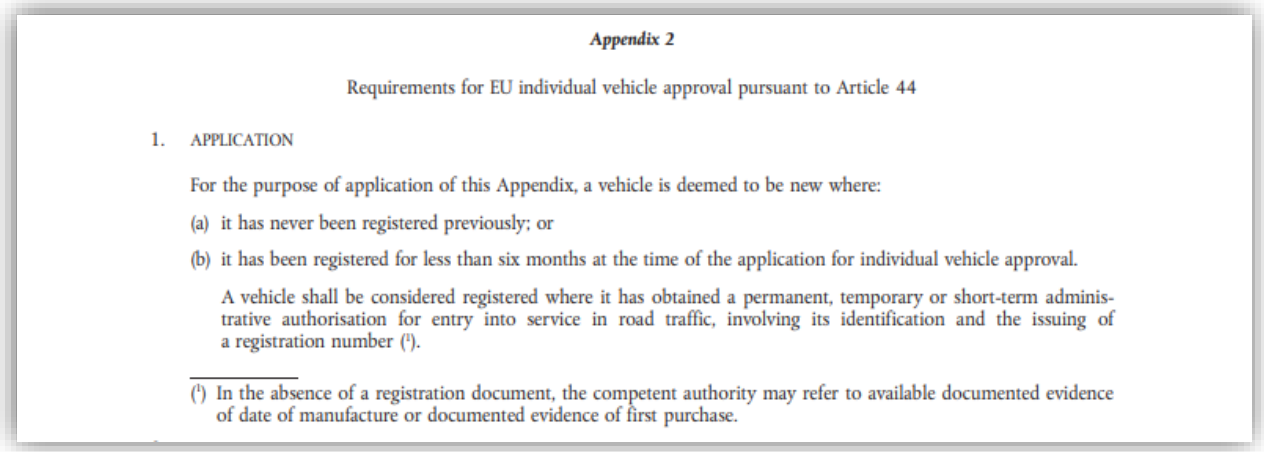
2. Expected Workshop standards:

At a minimum, the quality system shall consist of the following:

2.1 Contract Review:

2.1.1 New Vehicle Definition

- The adaptor shall determine that vehicle meets the criteria to be considered a ***new vehicle*** under the reduced mobility scheme:



Appendix 2

Requirements for EU individual vehicle approval pursuant to Article 44

1. APPLICATION

For the purpose of application of this Appendix, a vehicle is deemed to be new where:

(a) it has never been registered previously; or

(b) it has been registered for less than six months at the time of the application for individual vehicle approval.

A vehicle shall be considered registered where it has obtained a permanent, temporary or short-term administrative authorisation for entry into service in road traffic, involving its identification and the issuing of a registration number (1).

(1) In the absence of a registration document, the competent authority may refer to available documented evidence of date of manufacture or documented evidence of first purchase.

- Route to approval should be determined at contract review, this will include but is not limited to:
  - Identification of the adaption required.
  - Job specification
  - Approved component selection (if applicable)
  - Bill of materials
  - Vehicle suitability/vehicle selection criteria e.g., overall dimension limitations, bodywork/chassis alterations etc.
  - New Vehicle Definition

2.2 Drawings:

- Controlled drawings of the build shall be required.
- These drawings shall include the material specification of the components, grade of bolts, torque ratings etc.

2.3 Purchasing/Materials:

Inspection of Inward goods:

- The Adaptor shall verify that the incoming vehicle(s)/materials/components are in-line with the specification for the build.
- Installation documents are readily available.
- COC documentation supplied with the vehicle is complete.

2.3.1 Access to adaption manufacturer's instructions

All adaptors must have access to the adaption supplier's installation instructions. The adaptor shall ensure the supply and interchange of relevant documents and information to assure the finished vehicle meets all the relevant technical requirements.

As a minimum, the Adaptor must have access to:

- Installation instructions specific to the adaption and vehicle, where applicable.
- Any drawings or other information required for the correct fitment of the adaption to the vehicle.

2.4 Production

At a minimum the Adaptor production process shall have the following:

2.4.1 Production checks:

The Adaptor shall implement and maintain production checks at each stage of production for example:

- Component assembly
- Seat installation
- Installation of approved components against installation instructions
- Manufacturer guideline requirements
- CE marking requirements.
- Regulatory requirements

These checks must be carried out by competent personnel and a record retained on file. All documents must be readily available at relevant workstations.

2.4.2 Final inspection checks:

All vehicles shall be subject to a final inspection.
This final inspection shall include, but is not limited to, the following:

- Base vehicle/additional component manufacturer installation requirements.
- Checks with regard to suitability for the end user.
- Checks with regard to the design notes in the annexes to this document.
- Any other relevant checks.

These checks must be carried out by competent personnel and a record retained on file.

2.5 Procedures

As a minimum, Adaptors shall develop documented procedures for the following areas:

2.5.1 Training procedure:

- All personnel must have the appropriate qualifications and/or training e.g., welders must have appropriate welding certificates. This is to be organised by the adaptor and is mandatory.
- Minimum level and/or years of experience (to be decided by the Adaptor).
- Ongoing training:
    - Company practices
    - Base vehicle specific
    - Product specific (e.g., lift/hoist installation, swivel seats, hand controls etc.,)
- Training plan i.e., controls are in place to ensure adequate training is provided and maintained.

2.5.2 Calibration and Equipment:

- All measuring equipment used must be part of a routinely planned calibration/inspection system.
- All measuring equipment must be uniquely identified.
- Measuring equipment that can be calibrated must be calibrated at least annually. Calibration stickers **must** be displayed on these measuring devices.
- Measuring equipment that does not require calibration (e.g., measuring tapes, rules etc.,) must be checked for continued good use.
- Equipment that requires scheduled maintenance/calibration must be part of a planned routine calibration/inspection system.

Equipment out of calibration shall not be used as part of the production process.

2.5.3 Document control procedure:

- All records associated with the build must be revision controlled (documentation if updated, is assigned a revision number with records of revision). Document revision/modification must only be carried out by the quality system owner. This includes, but is not limited to, the following:
    - Bill of Materials (BOM) for each different build.
    - Forms and records (checklists, goods inwards, drawings, final inspection, etc.)
    - Job Cards
- The Adaptor is required to have access to all relevant type-approval legislation e.g., lighting, and light installation access to UNECE R48 (or equivalent), Rear under run access to UNECE R58 (or equivalent) etc…UNECE regulations can be found in the following link. https://unece.org/trans/main/wp29/wp29regs

2.5.4 Forms/Records:

- Bill of Materials (BOM) for each different build.
- COC for base vehicles.
- Approval file (approved components and/or vehicle approval records).
- Maintenance records.
- Calibration records.
- Documents for inclusion with the approved vehicle.
- Final inspection records.
- Notification of re-call.
- All other forms and records.

2.5.5 Retention of Records:

- Approval file and associated records must be retained in a secure and safe location for a minimum period of 10 years.

2.5.6 Vehicle Approval File procedure:

An approval file will be required for each approval granted.

For IVA: this file will consist of the following:

- Component approvals fitted to vehicle.
- Completed Job Card
- Base vehicle COC
- Appropriate checklists of inspection
- Final inspection records.
- Copy of IVA certificate.

2.5.7 Adaptor Plate procedure (see Section 3 for further details):

- The following two plates shall be required for each completed vehicle:
    - A manufacturer's statutory plate (see 3.1) will be required for each vehicle.
    - An adaptors 2nd stage plate following the example below in section 3.1 placed in a clear and obvious location (B Pillar).
    - An IVA adaption sticker placed directly onto the adaptation in a clear and obvious location containing the information shown in example in section 3.2.
- Adaptors Plate procedure shall take into account the plate requirements contained in Section 3 below.

2.6 Vehicle Re-call:

As a minimum, an Adaptor's expected workshop standards shall provide for vehicle re-call for the following situations:

- Vehicles completed on behalf of dealers/distributors and returned to the dealer/distributor for subsequent sale.

1. Where it is necessary to re-call vehicles already sold, registered or put into service because one or more of the systems, components or separate technical units fitted to the vehicle as part of the Adaptors work, or any approved system, component or separate technical unit part of the base vehicle interfered with and/or modified etc, during the course of the Adaptors work; presents a serious risk to road safety, public health or environmental protection, the Adaptor shall immediately inform NSAI.

2. The Adaptor shall propose to NSAI a set of appropriate remedies to neutralise the risk referred to in paragraph 1. NSAI shall communicate the proposed measures to the Road Safety Authority (RSA) and National Consumer Agency (NCA) without delay.

3. If the measures are considered to be insufficient by the RSA and / or the NCA or have not been implemented quickly enough, they shall inform NSAI.

4. NSAI shall then inform the Adaptor. If NSAI is itself not satisfied with the measures of the Adaptor, it shall take all protective measures required, including the withdrawal of the vehicle approval where the Adaptor does not propose and implement effective corrective measures. In case of withdrawal of the vehicle approval, NSAI shall notify the Adaptor, the RSA and the NCA within 20 working days.

The following template shall be used for the notification of vehicle re-call:

Notification of Vehicle Re-Call

Base vehicle details:

VIN:
EC Type Approval Number:
Manufacturer:
Make:
Trade name:
Commercial Name(s):

Completed vehicle details:

VIN:
IVA Number:
Adaptor:
Type of Adaption:
Dealership Name:
Dealership address
Commercial Name(s):

The Safety Defect
???

List of vehicles affected (VIN(S))
???

Location and number of vehicles

Dealer(s)/Distributor(s)	**Client(s) (if sold directly to clients)**	**Quantity**	**VIN(s)**

The Proposed remedies/Corrective actions
???

2.6.1 Vehicle Re-call procedure:

- All Adaptors shall develop a Vehicle Re-call procedure.
- The procedure shall provide for the notification to NSAI of any vehicle that has been issued with a National approval, which requires re-call.
- The notification to NSAI shall be as per the model contained in Section 2.6.
- The procedure shall identify the vehicle(s) requiring re-call and detail the defects and proposed remedies.
- The procedure shall provide for notification of re-call to the vehicle owners for the following situations:
    - Completed vehicles sold directly by the Adaptor to their client(s).
        - For this situation the Adaptor shall notify their client(s) directly of the re-call.
        - The notification shall be as per the model contained in section 2.6.
    - Vehicles completed on behalf of dealers/distributors and returned to the dealer/distributor for subsequent sale.
        - For this situation, the Adaptor shall notify the dealer/distributor directly.
        - The notification shall be as per the model contained in section 2.6.
        - Report to monitor when the vehicle is corrected and back on the road, all stages of the recall.

2.7 Environment

The Adaptor will need to provide a safe and sufficient workspace for the manufacturing and assembly of Adaptor related products. The infrastructure must be suitable and support the duties related to the scope of the approval. Some examples of this are but are not limited to:

- Gantry cranes for the safe removal and transportation of bodies and heavy objects on the workshop floor
- Clean and tidy workspace to ensure a safe environment for the employer/employees.
- Adequate lighting for the duties being carried out.
- Adequate storage facilities for components and stock materials such as nuts and bolts.

Infrastructure can include:

- Buildings and associated utilities
- Equipment, including hardware and software.

3. Plates:

3.1 Adaptor's 2nd stage plate:

Each Adaptor is required to fit an adaptor's plate on completion of the adaption.
This plate must be firmly attached, in a conspicuous and readily accessible position. The adaptor's statutory plate shall consist either of: (a) a rectangular stamped sheet of metal or (b) a printed rectangular self-adhesive label. Metallic plates shall be fastened with rivets. If the adaptors plate is a label, it shall be tamper evident, fraud resistant and self-destructive in case there is an attempt to remove the label. This plate must be close to the base vehicle manufacturer's plate on a part which cannot be removed i.e., B pillar. It must show clearly and indelibly the following information in the order listed:

- Name of the Adaptor,
- VIN (Vehicle Identification Number)
- Adaption Serial Number
- Adaption Date Code

The minimum height of the characters is 4 mm.

Example of the adapted vehicle sticker/label (this is given as a guide only):

APPROVED ADAPTOR'S NAME
VIN
Date code of adaption(s)
Serial number(s) of adaption(s)

This is the minimum level of information and is a guideline for each approved Adaptor. Additional information such as Transfer dates may be added to the 2nd stage plate if required however must be clearly indicated as transfer dates and separate to the original date code. 2nd stage plates that do not meet these requirements will not be approved.
Each Adaptor shall develop a procedure describing the generation of 2nd stage plates. This procedure shall include at least the following:

- The manufacture of these plates (e.g. either in-house or external manufacture).
- The person responsible for these plates (assigning the numbers, stock)
- The layout of these plates.
- Process for the correction of incorrect plates attached to a vehicle.

3.2. Adaption Identification Plate

All Adaptions fitted to vehicles must be fitted with a Adaption Identification Plate. The purpose of this plate is to uniquely identify the Adaptions fitted and is an additional plate to the adaptors 2nd stage plate.

This plate must be firmly attached, in a conspicuous and readily accessible position on a part of the adaption not subject to replacement in use. If possible, this plate should be fitted to the same side of the vehicle as the Second stage plate in section 3.1.

This plate shall contain at least the following information:

- Serial Number
- Date Code
- Transfer Date (Optional)

The minimum height of the characters used on the Adaption Identification Plate is 4mm.

Before installation, ***all new*** adaptions must be dated indelibly in a month - year format, e.g., 02/17 (meaning the installation was carried out February 2017). The minimum height of digits is 4 mm.

In the case of transferred adaptions, the original date code must be filled in on the application. Transfers that are not marked with a date code or serial number please contact NSAI with the IVA number and VIN of the transfer vehicle to check this information on the NSAI database.

· Hand controls greater than 6 years cannot be re-used.
· Swivel seats greater than 10 years cannot be re-used

Example of an Adaption Identification Plate (this is given as a guide only):

Serial Number
Date Code
Transfer Date (optional)

3.2.1 Adaption Serial Number

Each adaptor is required to generate a serial code which uniquely identifies the adaption being fitted. The adaptor must ensure the serial code has enough combinations to avoid repetition. The serial code shall be unique to the adaption and shown on the adaption plate.

As a minimum, each Adaptor shall:

- Develop a procedure for the generation and issuing of adaption serial codes.
- Develop a procedure describing the generation of adaption identification Plates. This procedure can be part of the Vehicle Plate procedure and shall include at least the following:
    - Describe the manufacture of these plates (e.g. either in-house or external manufacture).
    - The person responsible for the plates. (Assigning numbers and stock)
    - The layout of the plates.
    - Process for the correction of incorrect plates attached to an adaption identified during production and in the field.
    - Serial number identifier (e.g., EK - xx - xxxx)

Annex 1 – General Information and Design Notes Regarding All Adaptions

All adaptions must be installed in accordance with manufacturer's guidelines and instructions.

Fixtures:
Bolts must be of a grade equal to or exceeding those used by the original vehicle manufacturer and of appropriate dimensions. The use of self-tapping screws and pop rivets are prohibited.

Slotted holes should not be used unless deemed necessary. Any use of slotted holes is subject to engineering tolerances, must be justified and documented within the approval file.

The use of supplementary aids not supplied with the installation kit such as springs or cable-ties shall be kept to a minimum and documented within the approval file. **These must be Justified and Documented.**

Airbag Electrical System:

This includes all the electrical connectors associated with the wiring and sensors for the secondary restraint system (Airbag).
Any modifications to this system shall only be made in line with installation instructions and noted in detail on FlowForma and the approval file. **Any modification to the airbag system shall be notified to the user.**

Before installation, all adaptions being transferred must be inspected for any deterioration of structure, material, operation, and paint work (e.g., no surface corrosion). **All adaptions must be fit for purpose and in a presentable condition when fitted to the vehicle.** All transfer adaption labels should be inspected, if labels are missing contact NSAI.

The vehicle must be taken for a test drive to ensure the functionality of the controls fitted.

Minor adjustments to the adaption(s), if necessary to suit the user of the vehicle, may be carried out.

Photograph Requirements

All photographs are to be **colour and of good quality**. All photographs must be submitted in image file format. Photographs should be supplied to capture all the details of the adaption performed.

Adaption specific photographs (clear photos of the adaption, showing all modifications to vehicle systems, see guidelines below).

- Statutory plate (vehicle manufacturer's plate/label).
- Date code and serial number of part(s) fitted.
- Photograph verifying the vehicle was adapted at the adaptors workshop
- Photograph showing the second stage plate of the donor vehicle (If Transfer)
- Photograph showing the front or rear registration plate space of the vehicle (this may be combined with the vehicle in workshop photo.

The following are additional photos to be kept by the adaptor for their own records. These photos will be inspected by NSAI at audits. These photos do not need to be submitted with an IVA application to NSAI.

- Any relevant photo of work carried out on the adaption not requested by FlowForma.

Annex 2 – Seat Rail Extensions

Description

An adaption which relocates the seat relative to its original anchorage points. The brackets used to relocate the seat must be non-adjustable. Seat rail extensions must not be longer than the length that still allows the seat to reach at least the rearmost position before the adaption. It is intended that the seat is within the positions designated by the vehicle manufacturer while driving, having minimal impact on the seat height and seat angle. Replacement anchorage points should mimic orientation of the original anchorage points.

Photograph Requirements

- Clear visibility of the vehicle original front seat anchorage points with seat in place before any work is carried out. (Remove covers/caps when necessary)
- Clear visibility of the vehicle original rear seat anchorage points with seat in place before any work is carried out. (Remove covers/caps when necessary)
- The vehicle original seat belt (Buckle side) anchorage point before any work is carried out.
- The laser cut and formed seat rail extension(s), clearly identifying the securing bolts. (Top view with serial number and date displayed)
- Front mounting of the seat rail extensions clearly identifying the front securing bolts used to mount to the vehicle.
- Rear mounting of the seat rail extensions clearly identifying the rear securing bolts used to mount to the vehicle.
- Front and Rear anchorage(s) of the seat secured in position to the seat rail extension(s).
- The secured in use position demonstrating that the seat belt anchorage is within the designed position (if modified from original)

Design Notes

Where possible the design of seat rail extensions should utilise, laser cut components as detailed.

Number of Plates:
Where possible seat rail extensions should be composed of a single floor bracket which joins all mounting points on the vehicle structure and all mounting points on the seat structure. Seat rail extensions must be laser cut and formed to suit the vehicle. If, for technical reasons such as the shape of the vehicle floor, this is not possible an alternative method, being compliant, may be used. These alternatives must be designed in such a way to keep welding to an absolute minimum.

Where due to the design of the vehicle and/or seat this is not possible, two rail extensions can be used. A single plate must be used spanning the entire length between both left anchorages and a single plate spanning the entire length between both right anchorages.
Seat rail extensions designed for an individual mounting point is prohibited, all seat rails must at the very least span both mounting points on the respective side of the seat.
Seat rail extensions spanning laterally from left to right only is prohibited.
Replacement anchorage points should mimic orientation of the original anchorage point.

Adjustability:
Adjustable/universal seat rails extensions are prohibited. Seat rails extensions must be designed for each specific vehicle floor.
Orientation and angle of seat and seat belt anchorage points must mimic factory orientation.

Seat rail extensions thickness exceeding 25mm will be considered as a seat riser and must be applied for as such.

Annex 3 – Swivel Seats

Description

A mechanism that allows the seat to rotate out through the door opening.

Photograph Requirements

- The vehicle original front seat anchorage points with seat in place before any work is carried out.
- The vehicle original rear seat anchorage points with seat in place before any work is carried out.
- The vehicle original seat belt anchorage points (buckle side) before any work are carried out, and any additional attachments on the lower outboard anchorage point. (e.g., gas retractor)
- The laser cut and formed seat frame made in accordance with the design notes.
- The laser cut and formed floor frame made in accordance with the design notes in this document, clearly showing all mounting locations.
- The swivel mechanism
- The front of floor frame, clearly identifying the securing bolts and capturing as much detail as possible.
- The rear of the floor frame clearly identifying the rear securing bolts and the seat belt securing mechanism, capturing as much detail as possible. (Not mentioned in FlowForma)
- The front of swivel mechanism, clearly identifying the securing bolts to the floor frame and capturing as much detail of the seat as possible.
- The rear of swivel mechanism, clearly identifying the securing bolts to the floor frame and capturing as much detail of the seat as possible.
- Seat mounted to seat frame clearly showing all mounting points.
- The vehicle seat belt anchorage points after the adaption are carried out.
- The swivel mechanism date code and serial number in the vehicle.

Optional

- Additional optional video demonstrating the operation of the adaption

Design Notes

Floor brackets and swivel seat bases must be laser cut and formed to suit the vehicle. If, for technical reasons such as the shape of the vehicle floor, this is not possible an alternative method may be used. These alternatives must be designed in such a way to keep welding and bolted frames to an absolute minimum. As few pieces as possible.

The use of slotted holes should be kept to a minimum, if required must not be orientated in the direction of travel of the vehicle and have a standard hole at the other point of attachment.
In the case of fitting a swivel seat, the seat belt anchorages must not be located on the swivelling portion of the seat unless certified to do so.
The design of swivel seats should utilise laser cut components as detailed.

Seat Belt Anchorages:
In order to ensure the integrity of the restraint system for an adaption, the following practices should be observed.
Where the seat belt anchorage point is to the rear of the floor frame retaining bolt (original seat anchorage bolt in vehicle floor), sufficient upturn plate material should be in place to accommodate the potential generated loads.

Where the seat belt buckle and stalk is fixed to a bracket mounted on the floor frame via the seat anchorage bolt, ensure that the bolt has sufficient thread to allow for the additional material.

Where the seat belt buckle is attached to the wiring loom and forms part of the CAN bus of the vehicle. As far as is possible, the original buckle and wiring shall be installed.

After the adaption is complete, as far as possible the seat belt buckle must be fixed in the same relative location to the seating position as originally designed by the vehicle manufacturer. It should not be possible to rotate the buckle in any other axis than originally designed.

Rising of Seat Mounting Points:

The use of spacers between the vehicle structure and the swivel seat floor bracket is **prohibited**. If rising of the seat is required for customer needs or to allow for suitable clearance to features on the vehicle floor structure, this can be achieved by appropriate design and forming of the floor bracket.

Annex 4 – Seat Risers

Description

An adaption which consists of a structure intended to have the function of raising the entire seat. The structure used to fulfil this function shall offer support to the entire length of the original seat rail. Seat risers must be greater than 25 mm.

Photograph Requirements

- Clear visibility of the vehicle original front seat anchorage points with seat in place before any work is carried out. (Remove covers/caps when necessary)
- Clear visibility of the vehicle original rear seat anchorage points with seat in place before any work is carried out. (Remove covers/caps when necessary)
- The vehicle original seat belt (Buckle side) anchorage point before any work is carried out.
- The laser cut and formed seat riser(s), clearly identifying the securing bolts. (Top view with serial number and date displayed)
- Front mounting of the seat riser(s) clearly identifying the front securing bolts used to mount to the vehicle.
- Rear mounting of the seat riser(s) clearly identifying the rear securing bolts used to mount to the vehicle.
- Front and Rear anchorage(s) of the seat secured in position to the seat riser.
- The secured in use position demonstrating that the seat belt anchorage is within the designed position (if modified from original)

Design Notes

Seat risers must be composed of a single floor bracket which joins all mounting points on the vehicle structure and all mounting points on the seat structure. Seat risers must be laser cut and formed to suit the vehicle. If, for technical reasons such as the shape of the vehicle floor, this is not possible an alternative method, being compliant, may be used. These alternatives must be designed in such a way to keep welding to an absolute minimum.

The use of spacers between the vehicle structure and the seat rails is not permitted.

Where due to the design of the vehicle and/or seat this is not possible, two risers can be used. A single plate must be used spanning the entire length between both left anchorages and a single plate spanning the entire length between both right anchorages.

-Seat risers designed for an individual mounting point is prohibited, all seat risers must at the very least span both mounting points on the respective side of the seat.

-Seat risers spanning laterally from left to right only is prohibited.

Adjustability:

- Adjustable/universal seat risers are prohibited. Seat risers must be designed for each specific vehicle floor.
- Slotted holes should not be used unless deemed necessary. Any use of slotted holes are subject to engineering tolerances, must be justified and documented within the approval file.
- Orientation and angle of seat and seat belt anchorage points must mimic factory orientation.

Annex 5 – Hoists

Description

Person Hoist:
A hoist fitted in the passenger compartment and secured to the vehicle structure. This purpose of this is to lift a person into their seat.

Boot Hoist:
A hoist fitted in the boot and secured to the vehicle structure. This purpose of this is to lift a wheelchair into the boot.

Photo Requirements

Vehicle before adaption

- The location of the hoist intended to be fitted.
- The boot hoist kit as supplied.
- Additional components used to include fixtures/ spreader plates.
- Hoist lift rating marked in a visible location on the hoist.

Components used during adaption.

- The wiring used to power the hoist showing the attachment method to the vehicle wiring system.
- Fuse Location
- Photograph of each mounting point of the hoist in the vehicle (interior), showing both side of the securing bolt
- Photographs of the hoist on the vehicle structure (exterior), showing the use of suitable load spreading plates

After adaption

- The hoist installed in the vehicle.
- Demonstration of the hoist in its in-use position

Optional

- Additional optional video demonstrating the operation of the adaption

Design Notes

Where an electric boot or person hoist is installed, the wiring used must be of an appropriate gauge for the maximum current draw of the lift. An appropriate fuse must be fitted in the electrical circuit. This fuse must be located as close to the battery as possible.
Where the hoist is mounted by bolts through the vehicle structure, suitably sized load spreading plates must be used and adequately positioned to help support the vehicle structure. Spreader plates should be fitted in direct contact with the vehicle metal structure and not obstructed by trim. Where mounting is on the exterior of the vehicle, steps should be taken to reduce the risk or seriousness of bodily injury to a person hit by the bodywork or brushing against it in the event of a collision. This is valid both when the vehicle is stationary and in motion. All available securing points should be used, as per the manufacturer's installation instructions.

Annex 6 – Hand Controls

Description

A hand operated device used to control the operation of the accelerator and brake of a vehicle. Hand controls must be installed in accordance with the manufacturer's instructions.

Photo Requirements

- The steering column before adaption (Without trim, showing actual mounting surface for U-bolt etc)
- The pedals before adaption
- The hand controls kit supplied, and any additional components used to include such as:
    - The components to mount to the accelerator.
    - The components to mount to the brake.
    - The components to mount to steering column.
    - The components/mechanism to attach the cable to accelerator bracket/stalk.
- The mounting method on to the steering column
- The mounting method on to the pedals, capturing as much detail as possible ensuring the fixing method is clear)
- The mounting and routing of the accelerator cable
- The hand control original date code and serial number when installed in the vehicle.
- Photos of any wiring changes (e.g., ring accelerator or indicator switches)
- The finished vehicle showing the adaption.

Optional

- Additional optional video demonstrating the operation of the adaption

Design Notes

Accelerator types:

Where bolts are used, an appropriate locking nut/ washer must be used. The locking nut/washer must have sufficient contact surface to lock effectively. Failure mode of the nut loosening should be considered.

Where Roller type mechanisms are employed, they must be designed to operate in a manner that minimises friction and be free from greasing and lubrication unless specified by the manufacturer.

Although adjustment to suit the vehicle or end user may be necessary, slots on the mechanism should be kept to a minimum to avoid involuntary adjustment and failure modes should be considered. Where possible methods of adjustment should be kept to the lever end of the mechanism.

Annex 7 – Pedal Adaptions

Description

Left Foot Accelerator:

A device that re-locates the accelerator pedal to the left side of the brake pedal.

Pedal Extensions:

Devices fitted to the original pedals which move the pedal surface significantly closer to the driver.

Photo Requirements

Left foot accelerator.

- Photograph of pedal before adaption has begun.
- Photograph of all components used before installation.
- Serial number and date code on the adaption
- Photographs of the base plate on the vehicle structure (interior), showing the use of suitable load spreading plates
- Photographs of the base plate on the vehicle structure (exterior), showing the use of suitable load spreading plates
- Photograph of completed adaption, showing clearance with brake pedal
- Any additional photos

Optional

- Additional optional video demonstrating the operation of the adaption

Pedal extension

- Photograph of pedal before adaption.
- Photograph of components used for adaption.
- Photograph of all mounting points in full before installation
- Photograph of all mounting points in full after installation
- Photograph of pedal after adaption.
- Any additional photos
- Optional video

Design Notes

Left foot accelerator.

Baseplates must be one solid piece. Brackets used to fix baseplates to the floor of the vehicle must use factory mounting points where possible. Where the baseplate is mounted by bolts through the vehicle structure when mounting points are unavailable, suitably sized load spreading plates must be used and adequately positioned to help support the vehicle structure. Spreader plates should be fitted in direct contact with the vehicle metal structure and not obstructed by trim.

Self-tapping screws are not permitted.

This adaption must sufficiently clear/not impede the brake pedal in any way.

Pedal extension

Pedal extensions must be bolted to original pedal. No other method of securing extensions to pedals will be accepted. All pedal covers must be removed before installation of extensions. In case of mounting to the original pedal linkage the adaption should be bolted through or around the linkage using plates either side. Locking nuts must be used in both instances mentioned, the use of self-tapping screws is prohibited.

Annex 8 – Wheelchair Stowage System

Description

A roof-top mounted purpose-built storage system that can only be used to store a wheelchair.

Photo Requirements

Vehicle before adaption

- The location on the vehicle the adaption is intended to be fitted.
- The components before installation

Components used during adaption.

- Demonstrating the installation in the vehicle showing all mounting points
- Showing spreader plates as necessary
- Wiring as applicable, any attachment to the wiring loom, fuses etc.

After adaption

- Demonstrating the operation of the adaption

Optional

- Additional optional video demonstrating the operation of the adaption

Design Notes

Wheelchair storage systems should be fitted as per the manufacturer's installation instructions. Any additional/alteration of components should be documented in the application.

Annex 9 – Secondary Vehicle Controls

Description

An adaption that allows the secondary controls of the vehicle to be controlled from a keypad mounted to the steering wheel.

Photo Requirements

- Photograph of location adaption is intended to be fitted in vehicle.
- Photograph of all components used before installation.
- Serial Number and date code before installation.
- Photograph of control box when mounted into the vehicle.
- Photograph of adaption installed in the vehicle clearly showing all mounting points and wiring as applicable.

Optional

- Additional optional video demonstrating the operation of the adaption.

Design notes

Manufacturers installation instructions must be followed when installing the relevant adaptions.
The Control box of the device must be neatly tucked away to avoid damage. Adaption device or control box must be mechanically fastened to the vehicle. All wiring must be complete, unbroken, and where possible wiring should be maintained in original OEM position.

Annex 10 – Wheelchair Accessible Vehicle (WAV)

Description

A vehicle of category M1 constructed or converted specifically so that they accommodate one or more persons seated in their wheelchairs when travelling on the road.

The vehicle may have begun life as an N1 vehicle and converted to M1 SH (SH= special purpose code for wheelchair accessible vehicle). In this instance, the vehicle shall meet all relevant requirements as required for category M1 along with relevant WAV requirements.

Technical requirements

(The requirements below are extracted from 2018/858 (EU) Annex II, Part 3, appendix 3)

Wheelchair anchorage points

Each wheelchair location shall be provided with anchorages to which a wheelchair tie-down and occupant restraint system (WTORS) is to be fitted.

Definitions

1 Surrogate wheelchair (SWC) means a rigid, reusable test wheelchair, as defined in Section 3 of international standard ISO 10542-1:2012.

1.2. Point P means a representation of the position of the wheelchair occupant's hip when seated in the SWC, as defined in Section 3 of international standard ISO 10542- 1:2012.

1.3. WTORS means a wheelchair tie-down and occupant restraint system.

General requirements

2.1. Each wheelchair location shall be provided with anchorages to which a WTORS can be fitted.

2.2 There shall be adequate amount of floor anchorage points and upper anchorage points.

2.3. Each anchorage point fitted shall be accompanied by a test report indicating that the anchorage points had been tested accordingly with relevant testing legislation in an identical vehicle.

2.4 Each anchorage point shall be fitted identically as those in test report. Photographs of each point (and undercarriage fitment) in vehicle submitted for Individual Vehicle Approval shall reference same anchorage point as per test report.

2.5. The wheelchair occupant's lower belt anchorages shall be located accordingly, relative to Point P on the SWC, when placed in the travelling position.

2.6 The upper actual anchorage(s) shall be located at least 1 100 mm above the horizontal plane passing through the points of contact between the rear tyres of the SWC and the vehicle floor.

Wheelchair tie down and occupant restraint system (WTORS)

Each wheelchair location is to be provided with a WTORS.

All components of the WTORS shall meet the relevant requirements of international standard ISO 10542-1:2012.

An assessment shall be made of the WTORS occupant belt to ensure:

The safety-belts, restraint systems and child restraint systems shall be so installed that they will work satisfactorily and reduce the risk of bodily injury in the event of an accident. In particular they shall be so installed that:

- The straps are not liable to assume a dangerous configuration.
- That the danger of a correctly positioned belt slipping from the shoulder of a wearer as a result of his/her forward movement is reduced to a minimum.
- The risk of the strap deteriorating through contact with sharp parts of the vehicle or seat structure is reduced to a minimum.
- The design and installation of every safety-belt provided for each seating position shall be such as to be readily available for use.

Special Requirements for Rigid Parts Incorporated in Safety-belts or Restraint Systems

- Rigid parts, such as the buckles, adjusting devices and attachments, shall not increase the risk of bodily injury to the wearer or to other occupants of the vehicle in the event of an accident.
- The device for releasing the buckle shall be clearly visible to the wearer and within his easy reach and shall be so designed that it cannot be opened inadvertently or accidentally.
- The buckle shall also be located in such a position that it is readily accessible to a rescuer. needing to release the wearer in an emergency.
- The buckle shall be so installed that, both when not under load and when sustaining the wearer's mass, it is capable of being released by the wearer with a single simple movement of either hand in one direction.
- A check shall be made to ensure that, if the buckle is in contact with the wearer, the width of the contact surface is not less than 46mm.
- When the belt is being worn, it shall either adjust automatically to fit the wearer or be so designed that the manual adjusting device is readily accessible to the wearer when seated and is convenient and easy to use. It shall also be possible for it to be tightened with one hand to suit the build of the wearer and the position of the vehicle seat.
- Safety-belts or restraint systems incorporating retractors shall be so installed that the retractors can operate correctly and stow the strap efficiently. In case of both a belt adjusting device and a flexible shoulder adjustment device for height, in at least their highest and their lowest position, checks shall be made that the retractor automatically adjusts the strap to the shoulder of the concerned wearer after buckling, as well as that the tongue-plate rolls up in case of an unbuckling.

Additional seats added to WAV.

If as part of the vehicle adaption to a WAV that additional seats are fitted to the vehicle, these seats shall require test reports/approvals for seat strength (UNECE R17), seat anchorages (UNECE R14) and seat belts (UNECE R16). Test Reports for these seats tested in an identical vehicle shall be required. All must meet M1 requirements.

Ramps

Ramps as supplied for wheelchair user access shall have sufficient load capacity, safety markings and testing as appropriate (CE marking etc)

Drop floor systems

If as part of the vehicle adaption to a WAV that significant modifications are carried out on the base vehicle i.e., drop floor, it must be demonstrated that existing base vehicle approval (fuel tank, exhaust silencer etc) have not been invalidated with conversion. Significant changes to the bodywork may require confirmation from the base vehicle manufacturer that these changes are allowable (letter of non-objection etc) or that they are carried out in accordance with base vehicle manufacturer instructions/guidelines.

Mass in running order

Post conversion, the vehicle must have the requisite mass allowance for additional seats and wheelchair user. This can be determined by assessing the Mass in running order v design mass of the vehicle considering any additional seats added (75kg per seat) and wheelchair user (160kg)

Determining CO2 emissions of converted vehicle

If the base vehicle has a light duty emissions approval (715/2007/EC) a new CO2 value shall be calculated in accordance with the CO2 interpolation method, using the relevant data from the completed vehicle. This can be achieved by accessing the base vehicle manufacturers WLTP emission software based on final stage conversion to set a new CO2 and Fuel consumption value.

If the tool is not available or CO2 interpolation is impractical, the CO2 value of Vehicle High from the base vehicle shall be used. This can be requested from vehicle manufacturer or their representative.

Examples of documentation required for IVA.

- COC for base vehicle
- Test report for wheelchair anchorage points tested and fitted identically as per tested vehicle in accordance with ISO 10542- 1:2012 and UNECE R14
- Test report WTORS means a wheelchair tie-down and occupant restraint system.
- Test report for additional seats and floor system if fitted.
- Technical documentation supporting modification to base vehicle (if applicable, see drop floor above)
- Mass in running order documentation (weigh docket and mass calculation sheet)
- CO2 data sheet for finished vehicle (if applicable)
- Photos: all new anchorage points for wheelchair user and fitment on under carriage, ramp, additional seats and marking on these seats, ramps, and external/internal labelling for wheelchair user adapted vehicle.