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National Mobility Equipment Dealers Association expressly disclaims any liability for damages of any kind arising out of the use of this publication and with respect to damages of any kind arising out of the use of this publication and with respect to any errors that may inadvertently be contained in this publication.

These Guidelines do not provide “how to” instruction for vehicle modifications or equipment installations. Rather the Guidelines set forth general information that should be used as one among numerous sources by the Mobility Industry dealer. Use of these Guidelines requires an appropriate level of knowledge in the field of automotive installations and modifications, knowledge of current and recognized industry guidelines, as well as knowledge of applicable regulations and best practices. Proper work cannot be performed by relying on these Guidelines alone.

These Guidelines are not a modification or installation training manual; proper training by product manufacturers is a prerequisite to use of these Guidelines, and these Guidelines should not be used in lieu of proper training.

These Guidelines do not provide safety training information as regard to specific tasks, work area, or tools used in performing any stated operation. The user of these Guidelines is solely responsible for ensuring that all safety issues are adequately addressed so as to avoid injuries and material damages.

**WARNING:** Failure to specifically and carefully follow manufacturers’ instructions and industry best practices or failure to have proper training can result in an accident, personal injury or death.

As part of the consideration for the use of these Guidelines, the NMEDA member agrees to defend, indemnify, and hold National Mobility Equipment Dealers Association (NMEDA), its agents, employees, officers, directors and contractors (indemnities) harmless, to the fullest extent permitted by law, from and against any claim, suit, action, or proceeding asserted by any person or entity, including attorneys’ fees, arising out of member’s use of these Guidelines or its contents.
BACKGROUND:
The National Mobility Equipment Dealer’s Association (NMEDA) was formed by mobility dealers to promote and support members who are engaged in providing vehicle modifications for people with disabilities. NMEDA, in supporting their membership, established these Guidelines to direct the mobility equipment industry toward consistency, quality and compliance. In keeping with NMEDA’s Bylaws and Mission, to ensure that vehicle adaptive equipment installed is always of high quality and that ethical business practices are followed, an industry Quality Assurance Program (QAP) was created. The NMEDA Guidelines are an integral part of this accreditation program, providing the best known installation practices for the mobility equipment dealer.

PURPOSE:
The National Mobility Equipment Dealers Association’s Guidelines are intended to guide and assist mobility equipment dealers in the completion of vehicle modifications for people with disabilities. The Guidelines are established to ensure that adaptive vehicle equipment is installed and vehicle modifications are completed according to the highest level of industry standards and business practices. A mobility equipment dealer and installer shall use the Guidelines in conjunction with the equipment manufacturer installation instructions, Society of Automotive Engineers (SAE) recommended practices, the National Highway Traffic Safety Administration (NHTSA) safety standards and/or Transport Canada safety standards and practices and/or other applicable documents.

SCOPE:
Consumers, installers, allied professionals, manufacturers, employers, researchers, policy makers and the public are urged to expect that vehicle modifications be completed in accordance with NMEDA Guidelines, manufacturer installation instructions, SAE recommended practices and applicable NHTSA/Transport Canada safety standards and practices. Application of these Guidelines requires judgment and an awareness of other applicable guidelines or regulations. The NMEDA Guidelines may conflict with other laws, funding source guidelines or equipment manufacturer installation procedures. To ensure the best outcome for the consumer, in any situation, the more stringent requirement shall guide the modification process.

Important Note: This document has been developed based upon the most current information available at the time of this publication. Information may change based on the latest vehicle models and mobility equipment.
# GUIDELINES INDEX

National Mobility Equipment Dealers Association Guidelines

**Revised December 19, 2013**

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Purpose

To present to NMEDA members information they may use to prepare the documentation needed to demonstrate compliance with Government regulations when modifying vehicles for people with disabilities. This includes appropriate use of the Exemption to the Make Inoperative Prohibition, reference 49 CFR 595.7.

Scope

NHTSA prohibits companies from rendering inoperative vehicle features that affect the compliance of the vehicle to motor vehicle safety standards. Due to the nature of our business, the make-inoperative prohibition has been amended to allow modifications of some vehicle components/systems covered by FMVSS. The exemptions are very specific and are not to be considered all-encompassing and usually apply only to certain portions of the respective FMVSS standard. Penalties for failing to adhere to exemption are severe, up to and including civil liabilities.

Most modifications will need to have a Make Inoperative form filled out and a label affixed to the vehicle. There will be very few instances when a form is not required.

Requirements

1.1 Any motor vehicle repair business, which modifies motor vehicles to enable people with disabilities to operate, or ride as a passenger and intends to consider itself for the make inoperative exemption provided in 49 CFR 595.7 must provide the following information to:
   Administrator
   National Highway Traffic Safety Administration,
   400 Seventh Street, SW.
   Washington, DC 20590.
   o Full individual, partnership, or corporate name of the motor vehicle repair business (modifier).
   o Residence address of the motor vehicle repair business and State of incorporation, if applicable.
   o A statement that the motor vehicle repair business modifies a motor vehicle to enable a person with a disability to operate, or ride as a passenger in, the motor vehicle and intends to take advantage of the exemption provided in 49 CFR 595.7.
   o Applies to members governed by US law.

1.2 Each motor vehicle repair business required to submit information under requirement (1) above shall submit the information not later than 30 days after it first modifies a motor vehicle to enable a person with a disability to operate, or ride as a passenger in, the motor vehicle. Each motor vehicle repair business who has submitted the required information shall keep its entry current, accurate and complete by submitting revised information no later than 30 days after the relevant changes in the business occur.

1.3 In all cases where a company has modified a safety system, that could make the system inoperative, the “Make Inoperative” form shall be filled out and one copy shall be given to the customer, and one retained in the permanent vehicle file for 7 years (effective January 01, 2014) this complies with federal regulations. This form shall be incorporated with the payload statement.

1.4 All vehicles for which the make-inoperative exemption is used as a basis for compliance shall have a permanent label affixed to the driver’s doorjamb that states: "This vehicle had been modified in accordance with 49 CFR 595.6 and may no longer comply with all Federal Motor Vehicle Safety Standards in effect at the time of its original manufacture". (The label shall also include the Modifiers name and street address.)
1.5 If the modifier or adaptive equipment company adds more than 220 lbs (100 kg) to a vehicle, they shall notify the customer what the payload capacity of the vehicle is after modifications. This notice shall also include the statement that these calculations do or do not include the weight of the wheelchair and the new payload capacity shall be written on the “Make Inoperative” form.

Important: It is the Vehicle Modifier’s responsibility to ensure that the vehicle payload capacity after modifications have been completed is sufficient to allow for 150 lbs (68 kg) of Capacity per seating position including wheelchair tie-down positions. If the vehicle payload capacity is not sufficient to bear the number of seating positions without exceeding the vehicle GVWR, provisions shall be made to eliminate any number of seating positions necessary to comply. (Removal of seatbelts is not an acceptable method of eliminating a seating position) An overweight vehicle cannot be delivered to the customer.

1.6 If there is any uncertainty about whether a modification makes a Safety Standard inoperative, the Modifier shall proceed with completion of the form(s) and weight calculations. The modifier shall indicate any reduction in the load carrying capacity of the vehicle if it has been reduced by more than 220 pounds (100 kg).

1.7 REFERENCE: The Federal Motor Vehicle Safety Standards (FMVSS) and the specific exemptions NHTSA has permitted are detailed herein. Additionally, examples of those specific modifications or product installations that affect the specific Safety Standard are explained.

- **FMVSS 101 – CONTROLS AND DISPLAYS** - Permits controls to be operated by other means than the hand and/or foot. Products affecting this standard are any secondary control(s) no longer operated by the hand or foot. Ex: Power Headrests, Elbow Pads, Voice Activated Products. Controls that are added/relocated must, if possible and relevant, be identified as per the FMVSS 101 and, if a new symbol is identified, it must be the color required and illuminated if required. (Except for S5.2 (a), S5.3.1, S5.3.2, and S5.3.5 of that section.) Ex: Power Headrests, Elbow Pads, Voice Activated Products.

- **FMVSS 108 – LAMPS, REFLECTIVE DEVICES AND ASSOCIATED EQUIPMENT** - If it is not feasible to retain a vehicle’s turn signal self-cancelling device, it may be rendered inoperative if the vehicle’s turn signal must be modified or if the vehicle is modified so as to be driven without a steering wheel. S5.1.1.5 of 49 CFR 571.108, in the case of a motor vehicle that is modified to be driven without a steering wheel or for which it is not feasible to retain the turn signal canceling device installed by the vehicle manufacturer.

- **FMVSS 114 – KEY LOCKING SYSTEM** – This Standard was originally designed to prevent accidents due to theft, and vehicle movement regardless of keys in the ignition. When modification to the ignition allows vehicle operation without physically inserting a key, maintain the transmission interlock whenever feasible. Modifications to the vehicle’s key locking system do not require that the number of different combinations of the key locking system meet the requirements of the standard. Also, the requirement that a warning device be activated when the key is left in the locking device and the driver’s door is opened is exempt. S4.4 and S4.5 of 49 CFR 571.114, in any case in which the original key locking system must be modified. S4.4. For each vehicle type manufactured by a manufacturer, the number of different combinations of the key locking systems required by S4.2 shall be at least 1,000, or a number equal to the number of vehicles of that type manufactured by such manufacturer, whichever is less. The same combinations may be used for more than one vehicle type. S4.5. A warning to the driver shall be activated whenever the key required by S4.2 has been left in the locking system and the driver’s door is opened.
• **FMVSS 118 – **POWER OPERATED WINDOWS** – A key is not required in the ON, Start or Accessory position for the power windows or roof panels to operate. The modifier shall, however ensure that the vehicle electrical system is in the ON or Accessory position for the window to operate. Ex: Any modifications to a vehicle where the power windows could be operated without a key in the ignition. S4(a) of 49 CFR 571.118, in any case in which the medical condition of the person for whom the vehicle is modified necessitates the installation of a remote ignition switch to start the vehicle. S4. Operating requirements. Except as provided in S5, power operated window, partition, or roof panel systems may be closed only in the following circumstances:
  (a) When the key (or switch) that controls activation of the vehicle’s engine is in the “ON”, “START”, or “ACCESSORY” position;

• **FMVSS 123 – **MOTORCYCLE CONTROLS AND DISPLAYS** – Any modifications to the primary or secondary controls of a motorcycle as well as the required supplemental engine stop control. S5.1 and S5.2.1 of 49 CFR 571.123, in any case in which the modification necessitates the relocation of original equipment manufacturer’s controls.
  S5.1. Each motorcycle shall be equipped with a supplemental engine stop control, located and operable as specified in Table 1.
  S5.2 Each motorcycle to which this standard applies shall meet the following requirements:
  S5.2.1 Control location and operation. If any item of equipment listed in Table 1, Column 1, is provided, the control for such item shall be located as specified in Column 2, and operable as specified in Column 3. Each control located on a right handlebar shall be operable by the operator’s right hand throughout its full range without removal of the operator’s right hand from the throttle. Each control located on a left handlebar shall be operable by the operator’s left hand throughout its full range without removal of the operator’s left hand from the handgrip. If a motorcycle with an automatic clutch is equipped with a supplemental rear brake control, the control shall be located on the left handlebar. If a motorcycle is equipped with self-proportioning or antilock braking devices utilizing a single control for front and rear brakes, the control shall be located and operable in the same manner as a rear brake control.

• **FMVSS 135 – **PASSENGER CAR BRAKE SYSTEMS** – The modifier may remove the brake pedal only if the situation requires it and all other options have been exhausted.
  The requirement that the service brake be operated by a foot control is exempt if the modification requires the removal of the original foot control. The control of the parking brake is not required to be independent of the service brake control. S5.3.1 of 49 CFR 571.135, in any case in which the modification necessitates the removal of the original equipment manufacturer foot pedal.
  S5.3. Controls.
  S5.3.1. The service brakes shall be activated by means of a foot control. The control of the parking brake shall be independent of the service brake control, and may be either a hand or foot control.
• **FMVSS 201 – OCCUPANT PROTECTION IN INTERIOR IMPACT** - The vehicle pillars on either side of a vertically stowed lift or ramp, as well as the side rail between these pillars are exempt in the case of a vehicle that does not have a lowered floor or raised roof. If the vehicle has a lowered floor or raised roof, all FMVSS 201U targets are exempt. All hand grips and vertical stanchion bars are exempt in all vehicles. Whenever possible energy absorbing materials should be used to minimize the potential for injury.

49 CFR 571.201 with respect to:

(i) Targets located on the right side rail, the right B-pillar and the first right side “other’” pillar adjacent to the stowed platform of a lift or ramp that stows vertically, inside the vehicle.

(ii) Targets located on the left side rail, the left B-pillar and the first left side “other” pillar adjacent to the stowed platform of a lift or ramp that stows vertically, inside the vehicle.

(iii) Targets located on the rear header and the rearmost pillars adjacent to the stowed platform of a lift or ramp that stows vertically, inside the vehicle.

(iv) Targets located on any hand grip or vertical stanchion bar.

(v) All of S6 of 571.201 in any case in which the disability necessitates raising the roof or door, or lowering the floor of the vehicle.

• **FMVSS 202 – HEAD RESTRAINT** – This permits wheelchair bound occupants to ride in or operate a vehicle without having headrests. The provision allows the modifier to install alternative headrests or alter original headrests to accommodate the disabled user. **Ex: Any wheelchair tie down or headrest.** New 202a effective September 1, 2009 with a final phase-in on September 1, 2011. No exemptions provided.

• **FMVSS 203 – IMPACT PROTECTION FOR THE DRIVER FROM THE STEERING CONTROL SYSTEM** – This permits driving aids to be attached to the steering wheel despite the fact that there may be a problem with entanglement of loose clothing. **Ex: Any driving or steering aids, any modifications to the steering column, column extension, air bag removal, etc.** The exemption also applies to the steering wheel impact requirements therefore allowing the replacement or relocation of a steering wheel. S5.1 of 49 CFR 571.203, in any case in which the modification necessitates a structural change to, or removal of, the original equipment manufacturer steering shaft.

S5.2 of 49 CFR 571.203, in any case in which an item of adaptive equipment must be mounted on the steering wheel.

S5.1 Except as provided in this paragraph, the steering control system of any vehicle to which this standard applies shall be impacted in accordance with S5.1(a).

• **FMVSS 204 – STEERING CONTROL REARWARD DISPLACEMENT** - Allows for the exemption from steering wheel displacement loads when a vehicle’s steering shaft is modified (steering wheel extensions or specialized steering systems). **Ex: Any steering column extension or steering wheel modification.** 49 CFR 571.204, in any case in which the modification necessitates a structural change to, or removal of, the original equipment manufacturer steering shaft.

• **FMVSS 208 – OCCUPANT CRASH PROTECTION** - Permits modifiers to remove and/or deactivate all airbags for the front row designated seating position modified, provided Type 2 or Type 2A seat belts meeting the requirements of 49 CFR 571.209 and 571.210 are installed at that position. **Ex: Any hand controls, any position for people riding in a wheelchair.**
• **FMVSS 202, 207, and 214 – HEAD RESTRAINTS, SEATING SYSTEMS, AND SIDE-IMPACT PROTECTION** – With respect to wheelchairs and wheelchair securement systems (tie downs), this exemption allows the removal of the driver seat. Vehicles designed for individuals who drive from their wheelchair do not require a driver seat or a headrest and vehicles modified for those who ride in a wheelchair do not require a headrest. These standards address head restraints, certified seating and side impact protection. It is imperative that the modifier make every effort to create a safe environment for the securement of the wheelchair and the customer.

• **FMVSS 225 – CHILD RESTRAINT ANCHORAGE SYSTEMS** - allows the removal of a child restraint system if necessary to accommodate a person with a disability so long as there is at least one compliant tether anchor in a rear row seating position of the vehicle. If there are no rear row seats the child restraint anchorage system must be installed in the front row passenger seat. Note: If there are airbags in the front row passenger side that are not automatically deactivated by the vehicle, the air bag should be deactivated if possible.

1.8 **OTHER POINTS TO CONSIDER:**

• **Air Bags and Supplemental Restraint Systems:** In any instance where a retrofit air bag ON-OFF switch is available and the individual with a disability can operate the switch, the company shall install this system instead of simply disconnecting the airbag. In all instances, a compliant lap AND shoulder belt shall be provided. If no switch is available, a permanent disconnect of the airbag is permissible for clients who have a recognized disability.

• People of short stature having no other disability shall continue to submit written requests to NHTSA under the same format as previously required.

Some safety standards could be affected by mobility products or modifications when **NO Exemptions have been given.** If a vehicle modification affects one of the following standards, proper documentation for demonstrating compliance shall be completed.

- **FMVSS/CMVSS 102 – TRANSMISSION LEVER SEQUENCE, STARTER INTERLOCK, TRANSMISSION BRAKING EFFECT** – No exemption given. The operation of the transmission into Park, Reverse, Drive Etc, shall remain in the OEM sequence.
- **FMVSS/CMVSS 103 & 104 – WINDSHIELD DEFROSTING AND DEFOGGING, WINDSHIELD WIPING AND WASHING** – No exemption given. Vehicle modifications shall not prevent the driver from operating the necessary controls for function of the front and rear windshield defrosting or operation of windshield wipers.
- **FMVSS/CMVSS 105 – HYDRAULIC BRAKE SYSTEMS** – No exemption given.
- **FMVSS/CMVSS 111 – REARVIEW MIRRORS** – No exemption given. All vehicles shall have a rear view mirror orientated to the disabled driver as necessary.
- **FMVSS/CMVSS 113 – HOOD LATCH SYSTEM** – No exemption given.
- **FMVSS/CMVSS 124 – ACCELERATOR CONTROL SYSTEMS** – Requires that throttle returns to idle position when all force is withdrawn – No exemption given. All electronic (Drive by Wire) throttle control products shall have a monitoring system to prevent unwanted acceleration in the event of an electronic malfunction or in the event of a severance or disconnection in the accelerator control system. This includes all servo gas and brake products.
- **FMVSS/CMVSS 206 – DOOR LOCKS AND DOOR RETENTION COMPONENTS** – No exemption given for this standard. Modifications are required to maintain all OEM latching mechanisms or other compliant mechanisms. This standard includes power doors.
1 NHTSA AND EXEMPTIONS TO THE MAKE INOPERATIVE PROHIBITION

National Mobility Equipment Dealers Association
Guidelines

Revised December 19, 2013

- FMVSS/CMVSS 209 – SEAT BELT ASSEMBLIES – No exemption given. All seatbelt assemblies shall be tested and approved to this standard. Sewing belts together at the dealer level is not allowed.
- FMVSS/CMVSS 210 – SEAT BELT ANCHORAGES – No exemption given. Seat belt anchorages shall be installed according to belt manufacturer installation instructions.
- FMVSS/CMVSS 216 – ROOF CRUSH RESISTANCE – No exemption given.
- FMVSS/CMVSS 301 – FUEL SYSTEM INTEGRITY – No exemption given. All vehicles shall be certified to meet this standard. Only lowered floors/fuel systems that have been tested and certified can be used. Documentation shall be on file. All floor configurations such as cargo only, or 4 inch drop and driver drop shall be included in the certification documentation.
- FMVSS/CMVSS 302 – FLAMMABILITY OF INTERIOR MATERIALS – No exemption given. All materials used in completing a vehicle modification including carpet, wall material, and headliner material shall meet this standard. Information shall be on file showing certification.

These are only examples; there are other standards that could be affected.
Purpose

To outline the proper consumer documentation required prior to the installation of adaptive driving equipment or vehicle modifications –or- recommending and installing equipment and modifications for passengers using wheelchairs and scooters.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures. In cases where there are conflicting guidelines or procedures, the more stringent will prevail.

Requirements

General:

2.1 Prior to recommending or installing any adaptive driving equipment, the mobility equipment dealer shall require documentation that the devices/equipment is appropriate for the client. The documentation should reflect the client’s current functional status. Documentation should be in the form of an assessment report that includes equipment and modification specifications and/or a properly restricted and current driver license.

*NOTE:* Driver licensing systems and restrictions vary widely from state to state. The mobility equipment dealer should obtain and become familiar with the driver license requirements and restrictions for their clients. A convenient link to these agencies is: www.thedsaa.org.

2.2 The client shall be seen in person by the installing dealer for a proper transportation assessment.

2.3 Prior to recommending or installing modifications for a transport vehicle for a wheelchair/scooter user, the mobility equipment dealer shall obtain the following documentation:
   - Make and model of wheelchair/scooter,
   - Dimensions/weight of wheelchair/scooter,
   - Accessories (head rests, ventilators, tilt systems, etc.),
   - Seated height of the user
   - Client weight

2.4 The client’s vehicle shall be inspected by a mobility equipment dealer or professional evaluator prior to the installation of any adaptive driving equipment or vehicle modifications. The inspection and approval for the modifications should be conducted with the knowledge of the type and level of modifications being considered for the client. Equipment shall not be installed by anyone other than a qualified mobility equipment dealer.

2.5 The client shall be present for a final fitting and adjustments to insure that the equipment is properly installed and operable by the intended user(s).
Drivers:

2.6 The mobility equipment dealer shall ensure that the user has a current driver license and a copy shall be placed in the dealers customer file.

2.7 Prior to installing any adaptive driving equipment, the mobility equipment dealer shall require documentation that the devices/equipment is appropriate for the client. The documentation shall reflect the client’s current functional and medical status. The documentation shall include one of the following:
   a. Assessment report from a qualified driver rehabilitation specialist that includes specifications for equipment, modifications, and training;
   b. A copy of a valid driver’s license;
   c. Experience in operating the equipment to be installed. (See 2.7a)

NOTE: Driver license systems and restrictions codes vary widely from jurisdiction to jurisdiction. The mobility equipment dealer shall obtain and become familiar with the driver license requirements and restriction for their clients. A convenient link to these agencies is: www.thedsaa.org.

2.8 If a client is considering changing or replacing their adaptive equipment with a type that has different functional characteristics (i.e. changing from a push/right-angle hand control to a push/twist control), these procedures shall also be followed. An updated evaluation shall be obtained from a professional mobility specialist.

NOTE: Certified driver rehabilitation specialists (CDRS) are NMEDA’s strongly recommended first choice to meet the above minimum requirements. NMEDA recommends behind the wheel driver instruction and training. NMEDA requires that the driver be given operational orientation of the installed equipment. NMEDA recommends behind the wheel instruction if the driver is new to adaptive driving controls or their skills or equipment have changed.

For more information about a CDRS, visit ADED, the Association for Driver Rehabilitation Specialists at www.driver-ed.org.
### Purpose

To outline the General "Best Practices" that applies throughout NMEDA Guidelines 3 through 35.

### Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

### Requirements

3.1 All mobility equipment shall be installed according to the manufacturer’s requirements and instructions.  
   a. All equipment shall be installed by or the installation supervised in person by a qualified individual trained on that specific equipment.

3.2 Manufacturer’s instruction and/or installation manuals shall be readily available for use by dealer service and installation technicians.

3.3 No fasteners or other dealer-installed components shall damage, unless allowed by the Make Inoperative exemptions as described in Section 1.7 or otherwise reduce the performance of the original equipment. This includes but is not limited to fuel, brake, and electrical performance.

3.4 All Wiring:
   - Shall be color-coded.
   - Shall be protected with the appropriately rated protective device (circuit breaker / fuse).
   - Shall be properly routed away from heat, moving parts and sharp edges.
   - Circuits shall be shown on wire routing diagrams and schematics, which describe wiring circuit breakers, fuse sizes, other electrical devices and locations.
   - Diagrams shall be maintained in the dealer’s customer permanent file.
   - Shall be properly loomed.
   - Shall be approved for automotive use.

3.5 All Switches:
   - Shall be labeled for function, direction and be illuminated as required by FMVSS 101.
   - Shall be spaced to prevent inadvertent operation.
   - Shall be weather resistant.
   - Shall meet or exceed current automotive standards.

3.6 Wire Connections:
   - Shall meet or exceed OEM specification or applicable SAE standards for electrical requirements, and best practice recommendations. Refer to Section 6, General Electrical Specifications.
3.7 For electrical requirements and Best Practice electrical recommendations refer to Section 6, General Electrical Specifications.

3.8 Plasma cutter and welding equipment shall only be used after disconnecting the vehicle battery; properly grounding the vehicle and following any prescribed OEM procedures.

3.9 All openings created during the conversion process shall be properly sealed using an OEM approved sealant or appropriate grade sealant.

3.10 All exposed components and vehicle modifications shall be free of burrs and sharp edges.

3.11 Threaded-plumbing fittings that require a sealant shall be sealed per the equipment manufacturer’s specifications.

3.12 The customer shall always be provided with owner’s manual(s) that provide service information, maintenance requirements, and operating instructions for equipment installed by the mobility equipment dealer, for every device not included in the OEM vehicle’s operator’s manual. Any potential consequences to OEM warranty shall be discussed and documented with the consumer.

3.13 Certified welders shall perform all welding. These welders are to be licensed, certified or otherwise accredited by their state, and/or in possession of their American Welding Society D1.1 or D1.3 certification qualifications or comply with NMEDA Canada welding requirements. Companies following QAP welding certification are acceptable.

3.14 Only the crimping tool specified by the terminal or connector manufacturer shall be used.

3.15 The vehicle’s Gross Vehicle Weight Rating (GVWR) shall not be exceeded. The vehicle load carrying capacity must be adequate for its intended use. Refer to definition of Vehicle Weight Rating in Appendix C.

- Failure to abide by OEM maximum GAWR and/or GVWR may lead to premature failure of vehicle systems or individual components.
- An overweight vehicle’s stability and driving characteristics may be adversely affected. An overweight vehicle’s OEM warranty may also be voided.
- If a modification adds more than 1.5% of the vehicles GVWR in additional weight, the reduction in load carrying capacity must be determined and a Load Carrying Capacity Label or Reduced Load Carrying Capacity label stating the revised load capacity be affixed to the vehicle within 1” of the existing Tire Placard (label). The purpose of this is to record the cumulative effects of adding numerous pieces of equipment to a vehicle.

3.16 Neither the vehicle’s front nor rear Gross Axle Weight Ratings (GAWR) shall be exceeded.

3.17 All mobility dealer installed lap belts will cross the occupant at the “H-Point”.
3.18 When a mobility equipment manufacturer does not supply a designated ground wire but relies on using mounting bolts for a ground source, the installer shall be sure that proper care has been taken to remove any undercoating, paint, padding or carpet that could limit the conductive ground (negative) path. Installing an independent ground strap from unit’s motor to closest vehicle body panel will ensure continuous ground source. Note: Be sure the movement or motion of mobility equipment does not interfere with either power or ground cables. An added ground strap, installed from the negative terminal of the battery to the body of the vehicle or from the starter to the chassis of the vehicle will be installed when any type of electrically powered mobility equipment is installed. The gauge of the ground cable shall be the same or larger than the power cable supplied by the mobility equipment manufacturer. The cable will be a multi-strand copper automotive type product. Please consult OEM procedures. Refer to Section 6.5 for details on an additional ground strap.

3.19 A modified vehicle shall have a set of delivery documents completed and a vehicle acceptance document signed by the client, mobility equipment dealer, driver rehabilitation specialist and/or third party payer prior to the vehicle being released to the client. Documentation shall include the following as applicable:
Customer contact information, vehicle and equipment identification, date, Final vehicle and adaptive equipment inspection, Final client fitting, Vehicle test drive, Client and other users’ in-service training, Customer acceptance, Conditions of vehicle release.

3.20 NMEDA dealers are expected to have facilities with the following minimum specifications:
- A permanent shop service area, separate from any showroom area, which is equivalent to an area of 40 feet X 25 feet or 1,000 square feet, with a vehicle entry door that has a minimum height of 9 feet and width of 8 feet.
Or:
- A permanent shop service area, separate from a showroom, which has ample clear floor area which allows a person using a mobility device to safely maneuver around the vehicle;
- Have ample space next to the vehicle to allow the ramp/lift to be fully deployed for entry/exit during customer fitting sessions;
- Have a vehicle entry door of sufficient size to allow safe entry/egress of all vehicles that the dealer intends to sell and/or service.

3.21 NMEDA dealers are expected to have the following equipment maintained to the tool manufacturer’s recommended schedule:
- 4-Corner scales with recommended printer option;
- small crimping tools of appropriate type for connectors used in the shop;
- large crimping tool (battery cable) of appropriate type for connectors used in the shop;
- multimeter;
- floor jack and jack stands, or vehicle hoist;
- air compressor and air tools or appropriate corded/cordless tools;
- torque wrench.

3.22 Labeling Requirements: Vehicles must be labeled according to applicable regulations including the Code of Federal Regulations, Motor Vehicle Safety Act, National Safety Mark and CMVSS in the required locations (for example: Certification Label (567), Alterer label, Tire label (FMVSS 110), Make Inoperative (595), Reduced Load Carrying Capacity label) as applicable. Refer to NMEDA website link and Code of Federal Regulations website.
3.23 NMEDA dealers are required to install all adaptive equipment that they sell or must meet the following requirements if they are shipping uninstalled (loose shipped) adaptive equipment for a consumer.

- The customer must be made aware that some adaptive equipment is being shipped loose and that someone other than the selling dealer will be installing the adaptive equipment.
- The selling dealer must make arrangements with another properly accredited NMEDA dealer to install the loose shipped equipment. Such arrangements must be on file.
- The selling dealer must verify that the requirements of 3.1 and 3.2 are being met.
- The installing technician has the proper current certification from the manufacturer of the loose shipped equipment.
- Documentation must be maintained in the customer file indicating who installed the loose shipped equipment.
- Loose shipped equipment must be shipped directly to the installing dealer.
- The vehicle must be labeled when the equipment is installed.
Purpose
To outline the expected minimum service practices of all NMEDA dealers selling or servicing modified vehicles or adaptive equipment to / for customers or end-users.

Scope
These service practices apply to all NMEDA dealers selling or servicing modified vehicles or adaptive equipment to / for customers or end-users.

Requirements

4.1 Service Responsiveness:

It is a required practice for all NMEDA dealers to provide customers with 24 hour, seven-day-a-week service response. NMEDA dealers are expected to have a system in place which allows customers easy access to an after-hours answering service, or service telephone number, or service beeper number. Subsequently, NMEDA dealers are expected to respond to a service call promptly, and provide emergency assistance as warranted. It is highly recommended for the dealer to outline their response system in writing, maintained with the dealers other standard operating procedures.

The after-hours service person responding is expected to:

1. Respond within 30 minutes to a service call.
2. Verify that the situation is not life threatening.
3. Confirm whether or not the problem is related to the conversion.
4. Attempt to talk the customer through a corrective action/emergency backup procedure.
5. Confirm that the customer has completed the necessary corrective action and can safely get to his/her destination, and advise the customer to call again with any other problems.

NOTE: If the customer cannot complete the corrective action, the dealer is expected to advise the customer that a service person will be dispatched.

If an after-hours service person must be dispatched for a road call:

1. The service person is to confirm that the customer is in a safe location, and confirm any directions needed to find the customer.
2. The service person is to inform the customer that the emergency service will likely be a temporary repair, intended only to get the customer safely to their destination. Therefore, a subsequent service appointment must be scheduled during normal service hours.
3. The service person shall confirm the approximate arrival time.
4. The service person shall confirm the approximate cost of the service call (if the service is not covered under warranty).

4.2 Service Personnel Qualifications:

Personnel designated by a NMEDA dealer to service and repair mobility equipment are to be knowledgeable of and certified by the manufacturer on the particular equipment to be installed, serviced, or repaired. The servicing NMEDA dealer shall have service personnel certified to repair the level of equipment the dealer sells to the customer. Exceptions such as temporary repairs intended to get the customer to safety until permanent repairs can be made as described in 4.1 are allowable when not avoidable.
4.3 Practices for Providing Before-Sales Services:

The purchase of a vehicle adapted for use by an individual with a disability without the individual first familiarizing themselves in-person with the vehicle and its equipment introduces many potential issues and risks. Since these modified vehicles usually have a level of custom components for safe and optimum usability, it is vital that the customer/end user familiarize and interact with these components and equipment prior to committing to purchasing them.

Early in the sales process the NMEDA dealer should provide all customers with a copy of the most current NMEDA-endorsed consumer reference guide or website for selecting and purchasing adaptive vehicles and equipment so that they can become informed about the process and factors involved in selecting and purchasing adaptive vehicles and equipment and selecting the dealer to provide the equipment and service.

Note: Reference Section 2: Consumer Documentation Sub-Sections 2.1 and 2.3 for relevant Before-Sale recommendations, also reference section 4.5.2.

4.4 Practices for Providing Pre-Delivery Services:

Once adaptive equipment prescription, specifications, and sales terms between the NMEDA dealer and customer and/or funding party are agreed upon, the adaptive modification process can begin. Prior to delivery of the adapted vehicle, and depending on the complexity of the modifications package, "mid-conversion" and "final" fittings are an expected service component of the successful sale. Of special note for drivers using adaptive equipment, a mid-conversion and final fitting with the end user or client present is expected to occur at the dealer location to fine tune equipment adjustments, determine tie-down locations, torso belt dimensions, etc. (refer to section 2.2). Furthermore, in such situations it is strongly recommended for a Driver Rehabilitation Specialist, whenever available, to be actively involved on site in the fitting process to assure the end user can safely and effectively use the equipment.

Note: The dealer shall provide as much notice as possible when scheduling these fittings.

4.5 Practices for Providing After-Delivery Services:

4.5.1 After-Sale Service Dealer Agreements:

Out of NMEDA’s commitment to the overall high quality experience and outcome of the customer with a disability, NMEDA requires that all dealers who sell vehicles equipped with mobility products ensure that the contents of Appendix B are met.

A service area is defined as an area within which a NMEDA dealer can reasonably service customers to the level of service expected of NMEDA dealers with the expectation that the customer will drive back to the selling dealer for service and repairs. The definition of this proximity is for the purpose of providing customers who purchase a vehicle, adaptive equipment, or both, with a reasonable distance to travel for repairs. The servicing NMEDA dealer is expected to be certified to repair the level of equipment sold to the customer.

4.5.2 Misrepresentation of After-Sale Service Availability:

Without first establishing written service agreements between dealers, no NMEDA member shall state or imply to a client or potential customer that following a sale, ANY NMEDA MEMBER can or will provide service to the vehicle or adaptive equipment package.
4.5.3 After-Sale Equipment Use Training and Demonstration:

It is required that the NMEDA dealer will demonstrate the proper use and maintenance of the equipment to the end user/operator of the mobility equipment. This demonstration and training shall include the proper fit and use of any included wheelchair tie-down systems and wheelchair passenger restraint systems (refer to www.travelsafer.org). Furthermore, it is highly recommended to allow the end user/operator to demonstrate their competency in the use of all systems sold or provided by the dealer.

4.5.4 After-Sale Documentation:

4.5.4.1 Vehicle Acceptance Documentation:

A modified vehicle is required to have a set of delivery documents completed and a vehicle acceptance document signed by the client, mobility equipment dealer, driver rehabilitation specialist and/or third party payer prior to the vehicle being released to the client. Components of the vehicle acceptance documentation:

- Customer contact information;
- Final vehicle and adaptive equipment inspection;
- Final client fitting;
- Vehicle test drive;
- Customer and other users’ in-service training;
- Customer acceptance;
- Conditions of vehicle release.

4.5.4.2 Other Documentation:

Additionally, it is required for the NMEDA dealer to provide at a minimum the following documentation to the customer or end user no later than the final delivery of the modified vehicle or installed mobility equipment:

- The original operation/owner’s/warranty manuals for each item of installed equipment that is not included in the vehicle operator’s manual.
- Dealer is to retain an electrical circuit diagram and wire routing, in schematic format. Can be supplied to customer if requested.
- A preventative maintenance schedule detailing required maintenance for all installed equipment.
- The selling, installing, or repairing NMEDA dealer’s written warranty detailing all items covered with parts and labor components separately addressed as applicable for the customer to clearly understand what is and is not included.
- Original copies of any manufacturer’s warranties. The NMEDA dealer is required to register all warranties with equipment manufacturers. A signed privacy statement may be required.
- Per 49 CFR 595, a list of the FMVSS or portions thereof with which the vehicle may no longer be in compliance and the vehicle’s new load carrying capacity if modifications have reduced the load carrying capacity by more than 220 pounds (100 kg). Dealer must state whether the weight of the user’s wheelchair is included in the available load carrying capacity. NMEDA dealer must retain a copy for 7 years. Applies to members governed by US law.
Purpose

Any vehicle receiving adaptive equipment or modification shall not compromise OEM vehicle weight specifications.

Scope

When modifying vehicles for people with disabilities, special care shall be given to the weight of the added equipment and the effect on the vehicles driving characteristics. Not only could added equipment cause an overage of GVWR (Gross Vehicle Weight Rating), it can also exceed a GAWR (Gross Axle Weight Rating) without compromising payload guidelines. A vehicle’s safe driving characteristics can be adversely affected causing premature system failures as well as braking and steering functionality can be compromised.

Definition: (See Appendix C)

Requirements

5.1 All vehicles shall be assessed prior to any modifications to determine if the vehicle’s GVWR and GAWR are adequate for the modifications and load carrying capacity. A four-corner weight analysis shall be performed and documented when 100 lbs (45 kg) or more is added to a vehicle.

5.2 Exceeding a vehicle GVWR or GAWR is prohibited by Federal Law.

5.3 Upon completion of modification, a vehicle’s load carrying capacity shall allow for the availability of 150 lbs (68 kg) per seating position including wheelchair tie-down positions and for the weight of the mobility aid. Customer requests to modify a vehicle that will not accommodate a proper load carrying capacity shall be denied.

5.4 According to 49 CFR 595: If a modification adds more than 220 lbs (100 kg) to a vehicle, reduction in the load carrying capacity shall be disclosed to the customer via the Make Inoperative Provision. Dealer must state whether the weight of the user’s wheelchair is included in the available load carrying capacity. Refer to section 1 for more information. Applies to members governed by US Law.

5.5 When installing rear mounted scooter and wheelchair lifting or carrying devices, tongue weight rating (TWR) shall not be exceeded. Modifying hitch receivers for outside carriers is prohibited.

Note: In most cases the OEM specifies the towing capacity which determines the tongue weight rating. Manufacturer warranties can be voided when suspension modifications and special built hitches are added.

5.6 If a modification adds the lesser of one and one half percent (1.5 %) of the vehicle’s GVWR or 100 pounds (45 kg) in additional weight, the reduction in load carrying capacity must be determined and a Load Carrying Capacity Reduced Label stating the amount of weight the load capacity has been reduced from the original be affixed to the vehicle within 1” of the existing Tire Placard (label). The purpose of this is to record the cumulative effects of adding numerous pieces of equipment to a vehicle over time.

5.7 It is strongly recommended that the consumer be advised of the load carrying capacity of the vehicle to assure their safety.
Purpose

To outline the intended use and required function of General Electrical Specifications.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

6.1 Switches

All switching devices, in the driver’s compartment, shall comply with applicable federal motor vehicle safety standards (FMVSS/CMVSS). Switches installed outside the vehicle shall be weatherproof.

6.2 Connectors

Only OEM type or equivalent electrical components and systems or properly soldered connections will be permitted. No self-stripping style electrical connectors shall be used in any adaptive equipment installation. All exterior electrical connections shall be weatherproof. Connectors shall be properly sized/rated for the corresponding wire gauge and load.

6.3 Wire Sizes and Types

All added wiring shall be sized to meet the aftermarket manufacturer’s specification. If it is necessary to lengthen an original equipment wire, extreme care shall be taken to ensure that the lengthened wire will handle the required operating electrical loads with enough reserve to prevent overheating. Only then shall wire of the same type, color and gauge size to be used. Additionally, if the wire to be lengthened is identified as part of a multiplexed circuit, the newly lengthened wire shall be tested to ensure that no significant resistance is added to the circuit. All added wiring shall be SAE automotive approved.

6.4 Wire/Cable Routing

Wiring shall be SAE approved for automotive use and shall be colored or labeled to aid in service identification. Wire harness protection coverings shall be used to avoid abrasions and wear conditions commonly found in or under vehicles. Wiring harnesses shall be properly routed, retained, be of sufficient length and be supported to accommodate any motion resulting from the use of the mobility equipment. Attachments shall be used to retain (carry the weight of) the harness and placed at a maximum distance of 18”. Note: Be sure not to compromise the load carrying or volume capacity of the OEM harness clamps if they are used as securement points. Added wiring shall not be attached to the OEM vehicle fuel, hydraulic or evaporative systems. Shielding/insulating from high temperature components (mufflers, exhaust pipes, manifolds, catalytic converters, etc.) shall be maintained at all times. Grommets or feed through style connectors shall be used any time wires pass through metal panels (firewalls/dash panel, floors, door jams). All wire entries into passenger compartment shall be sealed to prevent weather element or noxious fume intrusions.
6.5 Battery Installations

All batteries shall be installed in compliance with all manufacturer’s recommendations and shall be installed in a way that readily allows maintenance access. Any time a battery is installed inside a vehicle, the following shall apply:

1) **ONLY** a sealed non-spillable gel cell type battery shall be used and shall be installed in a box that is clearly marked “CAUTION! REPLACE ONLY WITH SEALED NON-SPILLABLE GEL CELL BATTERY”
2) The battery shall be securely mounted in a manner that will prevent shorting out and can remain in place during a vehicular impact;
3) The battery shall be installed in a location that does not obstruct wheelchair access or passenger ingress or egress;
4) Battery cabling shall be in compliance with current applicable SAE standards.

6.6 Battery Considerations

When installing electrically powered mobility equipment that draws power from the vehicle battery it is important to balance the load on both sides of the battery. Newer model vehicles may be equipped with intelligent battery monitoring systems which require special caution when connecting to the vehicle power system. These Battery monitoring systems can be identified by an additional enclosure that is typically part of negative terminal. The vehicle Owners’ manual will also identify with an illustration. The Mobility equipment manufacturer’s instructions on installation should be followed with the following cautions:

6.6.1 If a vehicle battery does NOT have an OEM battery Sensor, an additional ground strap shall be installed from the negative terminal of the battery to the body on the vehicle. The gauge of the ground cable shall be the same or larger than the power cable supplied by the manufacturer. The cable shall be a black insulated multi-strand copper automotive type product.

6.6.2 If a vehicle battery DOES have an OEM battery Sensor, the mobility device ground strap shall be installed directly to an OEM specified ground point body on the vehicle. The gauge of the ground cable shall be the same or larger than the power cable supplied by the manufacturer. The cable shall be a black insulated multi-strand copper automotive type product.

6.6.3 If a vehicle battery does NOT have an OEM battery Sensor, and the Mobility Equipment manufacturer has both a positive and negative lead harness to the battery no additional ground strap needs to be installed from the negative terminal of the battery to the ground point.

6.6.4 If a vehicle battery DOES have an OEM battery Sensor, and the Mobility Equipment manufacturer has both a positive and negative lead harness to the battery, the negative is attached to the vehicle ground point by the battery but NOT to the battery terminal.

6.6.5 If a vehicle battery does not have sufficient capacity to operate the Mobility Equipment being installed without compromising the OEM installed functions, an additional power supply for the mobility equipment shall be installed. If this power supply is a battery, it shall follow the guidelines in 6.8. The operator shall be informed of the location and battery charging requirements if not automatic.
6.7 Back Up Power Systems

Commonly referred to as Back Up Battery Systems. A vehicle modification that modifies the OEM primary control system with one defined as a “High Tech Primary Controls” shall be equipped with a Back Up Power System that will allow the operator to effectively control the vehicle in the event of a loss of primary power to the high tech primary control system. This Back Up Power System shall be installed according to the equipment manufacturer’s instructions. The installer shall confirm that vehicle control with back up power system engaged in operation is obtainable at the primary driver’s level of ability and convey how to recognize that the back up power system has been engaged so that the need for this engagement can be addressed.

6.7.1 If the Vehicle Modification is Electric, the Back Up Power System needs to engage to handle situations including loss of Power, Ground or a short circuit in the primary power source.

6.7.2 The equipment manufacturer’s maintenance/service schedule should be conveyed to the primary driver of the vehicle so that the Back Up Power System can be maintained correctly.

6.7.3 The vehicle shall be labeled that it has a Back Up Power System installed so that any vehicle maintenance can be done safely for the vehicle technician(s) performing work and without damage or parameter changes occurring to the Back Up Power System.

6.8 Circuit Protection

Unless otherwise specified by the equipment manufacturer each electrical circuit shall have a circuit protection device within 18” of the power supply. The circuit protection device size will be in accordance with the product manufacturer’s specifications. All circuit protection devices located in the engine compartment of the vehicle shall be positioned in a manner to protect against the effects of heat, water and other environmental elements. All exposed terminals shall be protected to prevent corrosion.

6.9 Ground Junction Point

Insulated ground return wires shall be of sufficient gauge, size and length to carry the sum of the currents provided by the supply side(s) wiring. After securing a proper ground connection, continuity to ground should be tested for proper function.

The use of serrated paint cutting ground terminals or washer may be used on painted surfaces as long as proper installation techniques are used. A proper tool shall be used, allowing sufficient torque to force the cutting edge of the terminal or washer through the layer(s) of paint and must provide and verify an adequate ground path has been established. Ground junction points shall be accessible for servicing and protected from water, salt spray and other adverse environmental conditions.
6.10 **Documentation**

Electrical circuit diagrams, wire routings and service manuals, for all electrical components and systems installed by the mobility equipment dealer, shall be available to the client upon request. The mobility equipment dealer shall retain a copy of these diagrams and manuals.

6.11 **Labeling**

All circuit breakers and solenoids shall be labeled. The label should clearly identify the specific function of the product. All labels shall be weather resistant and be designed to stay affixed and be legible for the duration of the product’s serviceable life.

**NOTE:** Detailed information regarding the aforementioned section 6 may be obtained by referring to the following current SAE documents.

- SAEJ156 Fusible Links
- SAEJ163 Low Tension Wiring and Cable Terminals and Splice Clips
- SAEJ378 Marine Engine Wiring
- SAEJ541 Voltage Drop for Starting Motor Circuits
- SAEJ553 Circuit Breakers
- SAEJ554 Electric Fuses (Cartridge Type)
- SAEJ561 Electrical Terminals-Eyelet and Spade Type
- SAEJ858 Electrical Terminals Blade Type
- SAEJ928 Electrical Terminal-Pin and Receptacle Type
- SAEJ1127 Battery Cable
- SAEJ1128 Low-Tension Primary Cable
- SAEJ1284 Blade Type Electric Fuses
- SAEJ1291 Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring.
- SAEJ1725 Structural Modifications for Personally Licensed Vehicles to Meet the Transportation Needs of Persons with Disabilities
- SAEJ1903 Automotive Adaptive Driver Controls, Manual
- SAEJ2092 Testing of Wheelchair Lifts for Entry to or Exit from a Personally Licensed Vehicle
- SAEJ2093 Design Considerations for Wheelchair Lifts for Entry to or Exit from a Personally Licensed Vehicle
- SAEJ2094 Vehicle and Control Modifications for Drivers with Physical Disabilities Terminology

Any or all of the above documents are available at a nominal fee from the Society of Automotive Engineers at the following address:

Society of Automotive Engineers  
400 Commonwealth Drive  
Warrendale, PA 15096-0001  
Phone Number: (412) 776-4841  
www.sae.org
Purpose
To define for purposes of NMEDA dealers, High Tech and Low Tech adaptive equipment installations.

Scope
The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

7.1 High Technology Definition

High Technology (“High Tech”) devices are those that meet the following conditions:
1) Devices capable of controlling vehicle functions or driving controls, and
2) Operate with a designed logic system, or interface or integrate with an electronic system of the vehicle.

7.1.1 High Tech Examples:

7.1.1.1 Primary driving control examples:
   A) powered gas / brake systems;
   B) power park brake integrated with a powered gas / brake system;
   C) reduced effort steering systems;
   D) horizontal steering system;
   E) reduced effort brake systems;
   F) backups for primary controls.

7.1.1.2 Secondary driving control examples:
   A) remote panel or switch array interfacing with OEM electronics;
   B) wiring extension for OEM electronics;
   C) powered transmission shifter.

7.2 Low Technology Definition

Low Technology (“Low Tech”) all other devices or modifications that do not meet the definition of High Technology devices or modifications.

7.2.1 Low Tech Examples:

7.2.1.1 Primary driving control examples:
   A) manual gas / brake hand control;
   B) left foot accelerator pedal;
   C) park brake lever or stand-alone powered park brake;
   D) steering terminal device;
   E) driver training brake.

7.2.1.2 Secondary driving control examples:
   A) remote horn button (grounding system);
   B) turn signal crossover lever;
   C) switch extension on OEM controls;
   D) transmission shifter lever;
   E) transfer seat base.
8 ACCELERATOR, BRAKE & CLUTCH PEDAL MODIFICATIONS

NMEDA Classification: Low Tech

National Mobility Equipment Dealers Association Guidelines

Revised December 19, 2013

Purpose

To outline the intended use, required function and requirements of Pedal Modifications.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers' installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

8.1 Pedal modifications, such as extensions, foot supports, or enlarged surface areas, shall be securely attached to the OEM vehicle pedal. Attaching fasteners shall be OEM or their equivalent with respect to grade, size, type and finish. Each pedal modification shall be prescribed by the Driver Rehabilitation Specialist in conjunction with the mobility equipment dealer.

8.2 Foot pedal surfaces shall be an automotive grade non-skid material.

8.3 Whenever possible, modifications to the gas and/or brake pedal will not alter the OEM geometric relationship of the pedals to one another.

8.4 Accelerator pedal modification shall not interfere with the OEM return to idle when the actuating force is removed.

8.5 Pedal modifications shall not cause any inadvertent action during any dynamic driving situation.
9 AUTOMOTIVE WHEELCHAIR ROOF CARRIERS/LOADERS

NMEDA Classification: Low Tech

Purpose

To outline the intended use and required function of Automotive Wheelchair Roof Carriers/Loaders.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

9.1 Fastening plates shall be mounted with fasteners that provide a secure durable attachment. Any attachment to the roof shall be constructed and reinforced to provide secure attachment without causing roof panel distortion.

9.2 All roof-mounting points shall be water resistant.

9.3 Switch location shall not interfere with the operator’s entry or exit (transfer) from the wheelchair to the driver’s seat or vice versa.

9.4 Control switches shall be placed in a convenient position to assure the operator is able to use them independently.

9.5 Windshield and rear glass shall be free of obstructions that interfere with the driver’s field of vision.

9.6 In the event that the carrier is mounted to a detachable roof rack, the roof rack shall be specifically designed for the vehicle application and performance/capacity rated by the manufacturer to handle the weight of the carriers, wheelchair and the operating load.
Purpose

To outline the intended use and required function of Driver Training Brakes.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

10.1 It is recommended that the vehicle modifier and/or driver rehabilitation specialist be proactive in the recommendation of a driver training brake for all vehicles in which drivers need training beyond dealer orientation.

10.2 The driver training brake shall not apply any brake pedal pressure until activated by the driver trainer; shall not cause inadvertent action during any driving situation.

10.3 All mounting holes shall be filled and sealed when driver training brake pedal is removed.

10.4 Test drive required.
11 ELECTRICALLY POWERED SEAT BASES

NMEDA Classification: Low Tech

National Mobility Equipment Dealers Association Guidelines

Revised January 19, 2012

Purpose

To outline the intended use and required function of Electrically Powered Seat Bases.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

11.1 An electrically powered driver or passenger seat base may have one or more of the following power travel features:
   1. Up/Down
   2. Back/Forward
   3. Rotate Left/Right

11.2 Wiring shall be routed and protected from entanglement, inadvertent disengagement, abrasion, pinching, stretching, and chaffing when the seat travels throughout its entire operating cycle/travel range. Wiring shall be protected by a circuit breaker/fuse at the power source.

11.3 Powered seat bases shall be secured to the vehicle floor as specified by the seat base manufacturer.

11.4 Occupant restraint belts shall be compliant with FMVSS/CMVSS 208, 209 and 210.

11.5 When a power seat base is used in conjunction with a transfer seat inside a vehicle, a wheelchair securement system shall be used in the transfer position. The securement shall restrain the wheelchair during the transfer process and while the vehicle is in motion. This securement shall be independently operable by the client and should be labeled "For Unoccupied Wheelchair Only. MUST BE USED WHEN VEHICLE IS IN MOTION", unless securement has been designed and installed for occupied use.

11.6 The type of driver’s seat shall be determined by the client, mobility equipment dealer and if necessary, the Driver Rehabilitation Specialist.

11.7 Controls for the power seat base shall be placed to permit convenient, efficient and safe operation by the client. All switches shall be clearly identified. Care should be taken to locate the switches as to avoid equipment damage during the transfer process. Additionally, the location of the switches should be chosen to minimize the potential for abrasions, bruising or injury to the client during the transfer process.
### 12 EXTENDED DOORS

**NMEDA Classification: Low Tech**

National Mobility Equipment Dealers Association Guidelines

Revised January 19, 2012

For all “E” series, up to model year 2007, standard length chassis Ford vans see the applicable revision of the NMEDA “Raised Roof and Doors Manual”. For 2008-2011 E series 150, 250, 350 Ford vans, GM Savana 1500, 2500, 3500 and Chevrolet Express 1500, 2500, 3500 see the Raised Roof and Door Assembly and Installation Guidelines applicable version. This manual is available for purchase from NMEDA. For further information contact NMEDA at 1-800-833-0427. All structural modifications that are covered in this manual will be constructed to adhere to the manual’s design specifications. For any modification not covered in the manual the following minimum guideline specifications shall be met. NMEDA guidelines compliance does not insure compliance with FMVSS/CMVSS. All modifications shall comply with FMVSS/CMVSS when applicable.

**Purpose**

To outline the intended use and required function of Extended Doors.

**Scope**

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

**Definition: (See Appendix C)**

**Requirements**

12.1 If a NMEDA extended door manual exists for the vehicle to be modified, the manufacturing instructions must be followed or the upfitter must document their pathway to compliance.

12.2 Extended door systems (doors, hinges, closure components, frames and sliding door tracks) shall be similar in appearance, constructed in a manner equivalent in strength, and other performance requirements to the original door system.

12.3 Refinishing shall be consistent with OEM automotive finish. The entire refinishing process shall follow methods described in body shop repair manuals.

12.4 The extended door lintel shall incorporate a drip rail. This will insure that water is channeled away from the van entry system.

12.5 A structural support shall be attached to the topside of the lintel to prevent movement of the raised door frame. There shall be a weatherproof seal where the raised door meets the lintel.

12.6 The inside perimeter of the extended door shall be sealed with weather-strip material equivalent to OEM. Doors shall close flush and seal against water, air, wind, dust and noxious fumes.

12.7 Raised doors shall be constructed to close securely in compliance with FMVSS/CMVSS 206.
Purpose

To outline the intended use and required function of Exterior Door and Lift Controls.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers' installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

13.1 All switches receiving their power from the lift solenoid shall have an additional circuit breaker within 18 inches of the power source. The circuit breaker shall be appropriate to the load demand.

13.2 Switches or controls shall be appropriately located as determined by the client, Driver Rehabilitation Specialist, and the mobility equipment dealer and shall not interfere with any OEM controls.

13.3 If a remote entry system is utilized, an additional exterior activation system is also required, unless this option is technically infeasible, e.g., an OEM electrical system will not allow a feasible exterior control solution. In such exceptional cases, the dealer is to provide an additional backup remote control to enable the end user to have access to the additional remote at all times for situations when the primary remote may fail or become lost.
14 FLOOR LOWERING

NMEDA Classification: Low Tech

National Mobility Equipment Dealers Association
Guidelines

Revised December 20, 2012

Purpose

To outline the intended use and required function of Floor Lowering.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definitions (See Appendix C)

Requirements

14.1 If the mobility dealer cannot produce a compliant lowered floor as specified by the driver rehab specialist, other certified alternatives must be explored. 1992 thru 2003 E-150 and E-250 Ford vans shall comply with the applicable NMEDA lowered floor manuals or any other method that complies with all applicable FMVSS/CMVSS.

2004-2007 E-250 or E-350 Ford vans shall comply with the applicable NMEDA lowered floor manual or any other method that complies with all applicable FMVSS/CMVSS.

2008 Ford E-250 vans shall comply with the applicable NMEDA lowered floor manual or any other method that complies with all applicable FMVSS/CMVSS. It must be noted that the 2008 Ford E-250 or E-350 vans modified to the NMEDA lowered floor manual specifications have not been tested to the requirements of the FMVSS 208 frontal impact. It would be advisable, for those that will be using NMEDA’s lowered floor manual for the 2008 E-250 or E-350 van to properly ascertain the functionality and efficiency of the airbag system on the 2008 Ford E-250 or E-350 and conduct or obtain test results for FMVSS/CMVSS 208 for that model year.

2009 (and beyond) Ford E-series vehicles: No NMEDA lowered floor manual applies to certification to Federal/Canadian Motor Vehicle Safety Standards. Due to frequent increased fuel efficiency requirements, vehicle stability standards and OEM changes, requiring frequent compliance retesting, NMEDA has decided to no longer provide any lowered floor manuals or certification statements pertaining to the lowering of floors. Therefore modifiers lowering floors for 2009 (and beyond) Ford E-series vehicles will be required to document their pathway to compliance.

For any modification not covered in the manuals, the following minimum guideline specifications shall be met. NMEDA guidelines do not insure compliance with FMVSS/CMVSS. All modifications shall comply with all applicable FMVSS/CMVSS and/or make-inoperative requirements.

14.2 If the mobility dealer is not building to the NMEDA lowered floor build specifications, an engineering analysis or a test report, describing the modifications performed, must be on file. The modifications shall conform to the FMVSS/CMVSS, which are affected by the alteration and were in effect on the original date of manufacture of the complete vehicle or the date of completion of an incomplete vehicle. A build manual containing engineering drawings must be on hand that specify the lowered floor build process to include but not be limited to length, width, height of floor area, type of material to be used. Fuel system supplier with part numbers, raised body specifications including bumper modifications and new locations of any relocated OEM sensors.
14.3  The entry and top surface of the lowered floor area shall be a non-skid material.

14.4  The complete lowered floor and the surrounding modified OEM components shall be refinished consistent with OEM automotive finish appearance, products and processes including corrosion protection.

14.5  Cutting and/or welding of the frame for the lowered floor installation shall be performed by a certified welder. The methods used shall meet or exceed OEM recommendations and methods described in service and shop repair manuals, and shall conform to SAE Welding Standards and good engineering practices.

14.6  A quick release, removable seat base should be provided in all vans modified for wheelchair driving. A quick release seat base should have wheels for ease of removal and installation. When installed in the driving position, the seat shall be located so as to allow the driver to use the OEM seat and shoulder safety belt system. Must comply with all applicable FMVSS/CMVSS.

14.7  If the floor is going to be lowered in the driver station only, it is recommended that this area be level, a minimum or 1" wider and 1" longer than the wheelchair. The driver rehabilitation specialist, client, and the mobility equipment dealer shall determine the ramp leading into the lowered floor area.

14.8  The driver’s field of view (eye ellipse) shall be equal to the optimum field of view as designed by the OEM.

14.9  No manufacturer, distributor, dealer, or motor vehicle repair business may knowingly make inoperative any part of a device or element of design installed on or in a motor vehicle or motor vehicle equipment in compliance with an applicable motor vehicle standard.
Purpose

To outline the intended use and required function of Left Foot Accelerators.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

15.1 A left foot accelerator shall only be installed in vehicles with an automatic transmission and only if prescribed by a Driver Rehabilitation Specialist. If there is no CDRS available in the service area then training must be provided by a certified/licensed driver trainer unless the client is licensed or provides documented proof of training on the use of the left foot accelerator. Utilization of a driver rehabilitation specialist is strongly recommended, if available.

15.2 The left foot accelerator assembly shall allow only one active accelerator pedal to be accessed at a time.

15.3 If the left foot accelerator assembly requires a pedal guard to be compliant with section 15.2, the left foot accelerator pedal shall be able to be removed and re-installed without the use of tools. All left foot accelerator assemblies shall have a permanently mounted base.

15.4 The vehicle OEM accelerator pedal shall be functional and useable by a non-disabled driver when the left foot accelerator pedal device is removed and shall meet FMVSS/CMVSS 124.

15.5 The installed left foot accelerator pedal shall be road tested by the mobility dealer to provide acceleration and performance equivalent to the OEM accelerator pedal.

15.6 Installation of a left foot accelerator shall include a thorough inspection of the vehicle underside prior to drilling and/or fastening the device. The inspection shall ensure the device and its fasteners do not rub, chafe or otherwise compromise the vehicle brake lines, fuel lines and any under-vehicle wiring or hoses.

15.7 The left foot accelerator pedal shall be installed such that operation of the left foot accelerator pedal does not allow inadvertent brake pedal use. This item shall be determined by a certified/licensed driver trainer during final fitting and training with the client.

15.8 When installing the left foot accelerator pedal in a vehicle with adjustable OEM accelerator and brake pedals, the pedal shall be rendered non-adjustable and the electrical connection shall be labeled “Do not reconnect while this device is installed”. The mobility equipment dealer and/or driver rehabilitation specialist, and client shall determine the location of the OEM pedals prior to disconnection. A label shall be placed in the vehicle informing the vehicle user that the adjustable pedal feature is deactivated.
15.9 All warning and instructional labels supplied by the device manufacturer shall be placed as instructed by the manufacturer.

15.10 During installation of the left foot accelerator pedal the mobility equipment dealer and/or driver rehabilitation specialist, and client shall determine specific accelerator pedal adjustments required.

15.11 Fitting and training by the certified driver rehabilitation specialist or licensed trainer is required for all left foot accelerator applications.

15.12 Both the client and the other known users of the vehicle shall be instructed and informed about the dangers of a non-trained individual attempting to drive with the adaptive controls.

15.13 Test drive required.
16 MECHANICAL/MANUAL HAND CONTROLS

NMEDA Classification: Low Tech

National Mobility Equipment Dealers Association Guidelines

Purpose
To outline the intended use and required function of Hand Controls.

Scope
The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

16.1 Hand controls for accelerator and brake operations shall only be installed in vehicles with power brakes, power steering, and automatic transmission. Hand controls that are installed in vehicles without the above shall be authorized by the certified/licensed driver trainer.

16.2 Hand controls shall be road tested by the mobility equipment dealer to not interfere with any other driving control system through the full range of operating motion of all controls. Hand controls shall not interfere with or restrict visibility to any other vehicle operating systems (i.e. headlight switch, steering wheel, etc.).

16.3 Hand controls shall not interfere with the normal operation of any vehicle control system, when used by the non-disabled.

16.4 Hand controls for accelerator and brake shall automatically return to neutral/idle position after acceleration or braking when released by the operator.

16.5 When installing mechanical/manual hand controls in a vehicle with adjustable OEM accelerator and brake pedals or steering wheel/column, the pedal or steering wheel/column shall be rendered non-adjustable and the electrical connection shall be labeled “Do not reconnect while this device is installed.” The mobility equipment dealer, driver rehabilitation specialist and client shall determine the location of the OEM pedals or steering wheel/column prior to disconnection. A label shall be placed in a conspicuous location in the vehicle informing the vehicle user that the adjustable pedal or steering wheel/column feature is deactivated.

16.6 Pedal blocks are recommended and shall be available for installation during the final fitting process. The mobility equipment dealer shall be prepared to install pedal blocks if required by the certified/licensed driver trainer/client and mobility dealers fitting results.

16.7 The client and other known users of the vehicle shall be instructed and informed and given manufacturer notes about any special features related to the adaptive equipment. For example, removable pedal blocks and mechanical hand control lock-out feature shall be thoroughly explained.

16.8 The specific type of hand control (i.e. - push-pull, twist-push, push-rock, right angle) may be specified by the certified/licensed driver trainer. If specified by the certified/licensed driver trainer, the equipment cannot be changed without discussing with and obtaining an amended equipment recommendation from the certified/licensed driver trainer.
16.9 If training is specified in the driver rehabilitation report, it shall be provided before the equipment is released to the client or the client agrees in writing to not use the equipment until training is completed.

16.10 It is recommended that a throttle lock-out be considered by the certified/licensed driver rehabilitation specialist and mobility equipment dealer at the time of installation.

16.11 Test drive required.
17 PARKING BRAKE

NMEDA Classification: Low Tech*

National Mobility Equipment Dealers Association Guidelines
Revised January 19, 2012
Page 1 of 1

Purpose
To outline the intended use and required function of Parking Brakes.

Scope
The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

17.1 If an individual is unable to operate an OEM foot or hand controlled parking brake, an alternate method of applying the brake must be used. The type of parking brake modification needed will be determined by the certified/licensed driver trainer, client, and mobility equipment dealer.

17.2 The parking brake shall be held in the applied position by mechanical means and not hydraulic, pneumatic, or vacuum where loss of pressure, over time, would negatively affect the performance of the parking brake.

17.3 An indicator light shall be visible from the driver’s position when the parking brake is engaged and the ignition switch is on. An indicator light is preferable; if an aftermarket light is used, it shall be visible and must comply with FMVSS/CMVSS 101.

17.4 The two acceptable parking brake modification types are:

(a) Manual Parking Brake Extension
This non-powered brake extension shall be positioned so the driver can operate the parking brake safely and easily. Extension shall not interfere with the driver’s transfer in and out of the vehicle.

(b) Electric Parking Brake
The electric parking brake shall be installed in such a manner that the cables will be free from all mechanical interference, the remote switch for the power parking brake shall be clearly marked as to the engaged and disengaged positions, the location of the switch shall be determined by the Driver Rehabilitation Specialist, client and mobility equipment dealer. The electric parking brake system shall be capable of meeting the OEM’s performance requirements.

*NOTE: NMEDA High Tech/Low Tech classifications: Manual parking brake and stand-alone powered electric parking brake systems that are not associated or directly integrated with powered gas and brake systems are classified as NMEDA low tech devices. Electric parking brake systems that are associated or directly integrated with powered gas and brake systems in a modification are classified as NMEDA high tech devices. Reference Section 7 for the NMEDA definitions for High Tech and Low Tech devices.
### Purpose

To outline the intended use and required function of Power Door Openers.

### Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

### Definition: (See Appendix C)

### Requirements

18.1 All power door openers shall have a mechanical quick release, in the event of mechanical or power failure. The emergency release shall be clearly identified.

18.2 Power door(s) shall close flush, and seal against water, air, dust and noxious fumes.

18.3 Interior lighting circuits, as provided to the mobility equipment dealer, within the client’s vehicle will continue to operate as designed by the OEM when lift door(s) is/are opened and closed. In any other circumstance, the certified/licensed driver trainer will specifically prescribe client required lighting needs.

18.4 Automatic lighting shall be installed in conjunction with power door openers to illuminate the lift platform at its lowest position with the doors open.

18.5 In a swing door or a slide door application, none of the moving parts that operate the doors(s) should come into direct contact with the finished appearance surface on the vans interior or exterior. In all cases where this is unavoidable, a stainless steel, Delrin, UHMW or other suitable material will be used to protect the vehicle finish.

18.6 The addition of power door operators shall not compromise compliance with FMVSS/CMVSS including latch system requirements.
For all “2008-2010 E” series, standard length chassis Ford vans and 2008-2010 GM/Chevrolet Savana/Express see the NMEDA “Raised Roof Manufacturing Guidelines”. For further information contact NMEDA at 1-800-833-0427. All structural modifications that are covered in this manual will be constructed to adhere to the manual’s design specifications. For any modification not covered in the guidelines or any vehicle other than the Ford “E” Series standard length chassis van or the GM/Chevrolet Savana/Express, the following minimum guideline specifications shall be met. NMEDA guidelines compliance does not insure compliance with FMVSS/CMVSS. All modifications shall comply with FMVSS/CMVSS when applicable.

Purpose

To outline the intended use and required function of a Raised Roof.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

19.1 If a NMEDA raised roof manual exists for the vehicle to be modified, the manufacturing instructions must be followed or the modifier must document their pathway to FMVSS/CMVSS compliance.

19.2 After a raised roof has been installed, the inside perimeter shall be covered with non-flammable or FMVSS/CMVSS 302 compliant material and assure that there are no sharp edges.

19.3 All raised roofs shall be permanently sealed automotive grade sealant to prevent dust, air, water and wind noise intrusion.

19.4 All raised roofs shall be finished so that the van’s aesthetic appearance is maintained.

19.5 All raised roofs shall be securely attached to the vehicle and not compromise the structural integrity of the vehicle.

19.6 When a support structure is required, it shall maintain a minimum ½” clearance to the raised roof.
Purpose

To outline the intended use and required function of Seats.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers' installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

20.1 Seating systems installed in any vehicle shall be in compliance with applicable FMVSS/CMVSS or Make Inoperative for agencies governed by US law.

20.2 Seats and seat bases are limited to those specifically designed for automotive installation.

20.3 Seat belt geometry must be maintained within OEM specifications.

20.4 Wiring shall conform to Section 6: General Electrical Specifications.

20.5 Child Restraint Anchorage Systems: Child restraint anchorage systems shall comply with FMVSS 225 / CMVSS 210.2. For additional information pertaining to proper use and installation methods, refer to the most current edition of "The Latch Manual" available through Safe Ride News Publication, P.O. Box 77327, Seattle WA 98177-0327 Phone: 425 640-5710 / 800 403-1424 Fax: 425 640-5417 www.saferidenews.com
Purpose

To outline the intended use and required function of Steering Column Extensions.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers' installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

21.1 The following steering column extension methods are acceptable:

(a) Add-on Post Extension:

- The use of a spacer made of aluminum or composite material shall have a non-reflective surface to prevent glare. This spacer shall be attached to the original steering column, using OEM specified bolts. Additional distance will be added relative to the distance between the original location of the ignition switch, shift lever and turn signal lever and the steering wheel. Caution: Column extensions add weight. The added weight and leverage applied by a driver can affect the integrity of the OEM column mounting systems.
- All bolts attaching the spacer to the column and the steering wheel shall be tightened to the proper torque specified by the manufacturer and use a fastener locking device such as an automotive grade thread-locking fluid to prevent any loosening of the fastener securing the steering wheel or column.
- The maximum recommended steering wheel extension length is 6”.

(b) Integral Column Extension:

- The integral extension retains the ignition switch, shift lever, and turn signal lever in their original positions relative to the steering wheel.
- The maximum recommended steering column extension is 6”.

21.2 The type of steering column extension (i.e. integral column or add-on post extension), as well as the length of such extension shall be specified by the Driver Rehabilitation Specialist, the client and/or the mobility equipment dealer.

21.3 Completed column extensions shall be equivalent to the original equipment steering column for performance, and function. The appearance shall be of acceptable quality. The steering column extension shall not interfere with the normal collapsibility of the steering column as designed by the OEM.
Purpose

To outline the intended use and required function of Steering Wheel Devices.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

22.1 The type of counterbalances and steering device shall be determined by the Driver Rehabilitation Specialist. The location of the steering device will be determined by the Driver Rehabilitation Specialist, client and mobility equipment dealer.

22.2 The steering device or attachments and any installed counterbalances shall not interfere with client’s ability to view any instrument panel gauge such as speedometer, fuel, etc., unless noted by the Driver Rehabilitation Specialist and dealer.

22.3 The steering device, when installed, shall not interfere with the operation of the air bag system. If interference with operation of the airbag cannot be avoided the airbag should be deactivated while the steering device is in use.

22.4 Modifications to steering devices shall be authorized by the Driver Rehabilitation Specialist.

22.5 Steering devices shall be quick-release and easily removable by a non-disabled person.

*NOTE: For purposes of NMEDA High Tech / Low Tech classifications, a low tech steering device is one that is a mechanical device only with no integrated control of a secondary vehicle control function. High Tech steering devices are any steering devices that meet the requirements of a high tech device as defined in Section 7.1.
Purpose

To outline the intended use and required function of Transfer Aids (bars, handles, straps, etc.).

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

23.1 Transfer aids shall be attached to a part of the vehicle designed, or reinforced to handle the transfer aid and client load.

23.2 Location and size of transfer aids to be determined by Driver Rehabilitation Specialist, client or mobility equipment dealer.

23.3 Transfer aids shall be constructed of a durable material designed to handle a minimum weight of 250 lbs or the weight of the individual, whichever is higher.

23.4 Transfer aids shall be positioned in a manner as to avoid potential bodily harm.

23.5 Transfer aids shall not be installed to interfere with the function of the vehicle’s airbag systems.
Purpose

To outline the intended use and required function of Vehicle Column Mounted Accessory Controls.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers' installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

24.1 Controls, turn signals, horn, headlight dimmer switch, and windshield washer/wiper, shall be independently operable by the driver.

24.2 The types and locations of accessory controls and modifications shall be determined by the Driver Rehabilitation Specialist, client and mobility equipment dealer.

24.3 The relocation of OEM controls shall not cause interference with any existing controls.

*NOTE: NMEDA high tech / low tech classification: Devices and modifications commonly addressed in this section are, based on the definition presented in Section 7, primarily, low tech, but higher tech devices are sometimes employed to fulfill the functional requirements in this section.
# Purpose

To outline the intended use and required function of Wheelchair and Scooter Lifting Devices.

## Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

## Other Considerations

Vehicle shall meet FMVSS/CMVSS, NHTSA, Transport Canada and all OEM’s specifications.

**Definition:** (See Appendix C)

## Requirements

25.1 An additional ground shall be added to the appropriate ground point on a vehicle when any type of electrical powered hoist is installed. Refer to General Electrical Specifications, section 6.5 when contemplating the installation of an additional ground strap.

25.2 Receiver hitches and vehicles shall be properly weight-rated to carry an unoccupied hoist and mobility device and hitches must not be modified to exceed the OEM vehicle rated load capacity.

25.3 The installation of a wheelchair hoist and the mobility device shall not cause the GVWR or GAWR to be exceeded. Please refer to section 5.5 for information about hitch receivers and Rear Axle Weight Ratings (RAWR).

25.4 Hoists shall be installed as per manufacturer’s instructions.

25.5 The installation of a wheelchair hoist and the mobility device shall NOT interfere with the essential lighting described in FMVSS/CMVSS 108 such as brake lights, turn signals or running lights. After installation, if the hoist or mobility device does obscure the vehicle lighting, appropriate replacement shall be installed. This is normally available from the hoist OEM.
Purpose

To outline the intended use and required function of Wheelchair and Scooter Securements.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

26.1 Any unoccupied wheelchair securement shall be stable in all manners of normal (lawful, within speed limits, etc.) driving, and if constructed in the shop; be of parts rated at 6000 lb minimum and any strap components must not lay over the wheelchair arms or traverse sharp edges.

26.2 Occupied wheelchair securement systems shall comply with all applicable FMVSS/CMVSS 209 and SAE J2249. Installation shall comply with manufacturer’s instructions and shall use all backing plates, fasteners, etc. as indicated and/or supplied by the system manufacturer.

26.3 After installing the occupied driver securements position, the wheelchair shall be properly positioned and restrained in the vehicle with minimal motion.

26.4 After installing the occupied passenger securement position, the wheelchair should be properly positioned and restrained in the vehicle and tested for motion. The wheelchair should not be able to move more than ½” fore, aft or side to side after applying tension to the system.

26.5 Wheelchair securements shall not be attached to any part of the wheelchair designed for easy removal (i.e., foot rest or arm rest), or in the case of a non-rigid frame wheelchair to the cross member of the wheelchair.

26.6 Wheelchair securement for use by a wheelchair driver of a motor vehicle shall be operable (into and out of the securement) solely by the driver, without the need of assistance. When the wheelchair is secured in the driver’s position, there shall be an audible or visual signal to the driver that assures that the wheelchair is fully secured.

26.7 Vehicles equipped with a power transfer seat base shall have a securement for the unoccupied mobility device and be placed in such a position as to allow safe and adequate client transfer. The securement shall be independently operable by the client without the need of assistance and shall be clearly labeled, “For unoccupied use. MUST BE USED WHEN VEHICLE IS IN MOTION”. The mobility device shall be adequately secured.
26.8 A wheelchair occupant may be secured facing forward or rearward if in compliance with FMVSS 49CFR Subtitle B, paragraph 38.23 for dealers governed by US law. Securement for the passenger(s) shall conform to all other wheelchair securement requirements.

26.9 The mobility equipment installer, Driver Rehabilitation Specialist and/or client may add an additional upper torso positioning belt and/or other equipment where necessary to assist in a client's balance and stabilization.

26.10 Unless supporting documentation can be obtained and supplied to the end-user to verify scooter has designated securement attachment points and crashworthy seating framework, no one shall be transported in, and/or drive from a three or four-wheel scooter.

26.11 All wheelchair seating positions shall be equipped with a lap belt. Shoulder and lap belt systems shall be provided for wheelchair seating position when:
   1) The seating position is adjacent to an exterior vehicle wall.
   2) The securement manufacturer’s installation instructions require its use.
   3) 2011 and newer vehicles require shoulder and lap belt systems in all seating positions.
Purpose
To outline the intended use and required function of Wheelchair Flooring.

Scope
The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

27.1 Wheelchair sub-flooring shall provide a smooth surface for attachment of the floor covering.

27.2 Sub-floor adhesive and floor covering material shall comply with FMVSS/CMVSS 302.

27.3 Flat steel plates, when used, shall have all edges and surfaces coated with an automotive primer, sealer, or paint to prevent corrosion.

27.4 All sub-floor material (e.g. plywood or steel) shall be securely fastened to the vehicle ensuring no movement and/or rattles.

27.5 The style and type of flooring material will be determined by the client, mobility equipment installer, and Driver Rehabilitation Specialist.

27.6 All floor covering shall be securely attached to flooring. All exposed edges shall be secured.

27.7 Filling in of any step well, (e.g., drivers, passengers, or side door) should be done in such a way as to maintain the original manufactured intent, including structure, function and appearance. This includes sealing, painting and covering the filled area.
### Purpose

To outline the intended use and required function of Wheelchair Power Elevating Platform in Driver’s Position.

### Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

### Definition: (See Appendix C)

### Requirements

28.1 The size (i.e., depth, length, width and elevation) of the elevating platform shall be determined by the elevating platform manufacturer in conjunction with the Driver Rehabilitation Specialist and the mobility equipment dealer.

28.2 The location of the elevating platform control switch shall be determined by the Driver Rehabilitation Specialist, the client and the mobility equipment dealer. This switch shall be plainly marked as to its function and located to avoid inadvertent use.

28.3 The entry and top surface of the elevating platform shall be non-skid material.

28.4 The finishing of the complete elevating platform shall be corrosion resistant and consistent with the original automotive finishing.

28.5 A quick release removable seat base shall be provided for the elevating platform seating position.

28.6 If no compliance statements are available from the elevating platform manufacturer, the mobility dealer must certify the installation in accordance with sections 28.7 or 28.8.

28.7 The elevating platform shall be capable of withstanding a load test of at least 20 times the weight of the wheelchair that will be anchored to it when tested as per NMEDA’s standard C10, dated August 2011.

28.8 There shall be a three point seat belt provided for the wheelchair occupant. If the seat belt is anchored to the elevating platform, it shall be tested as per F/CMVSS 210 in conjunction with the load requirements of section 28.7. If the seat belt is anchored to the vehicle floor, it shall be tested as per F/CMVSS 210 independently of the load requirements of section 28.7.
Purpose

To outline the intended use and required function of Back-Up Braking System.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

29.1 Modifications that affect brake application shall have a back-up system.

29.2 The back-up braking system shall activate automatically to provide power braking assistance in the event that the vehicle engine stalls or that the OEM power assistance fails. The back-up braking system shall provide the same level of power assistance as the OEM system.

29.3 Upon activation, the back-up system shall notify the driver that the system has been activated by giving an audible and visual indication. The notifications shall be located so that the driver can view/hear the indicator while driving.

29.4 The back-up braking system shall have the capability to be pre-tested by the client (prior to need) so that they can verify proper operation of the system.

29.5 The back-up system shall allow continuous operation when activated.

29.6 All hoses, lines and fittings shall be equivalent to OEM specifications and meet or exceed all FMVSS/CMVSS or SAE standards. The dealer shall obtain documentation demonstrating compliance with SAE J2671.

29.7 The back-up braking system shall be designed in a manner that in the event that any one component of the back-up braking system fails, the OEM power assistance will not be compromised.

29.8 The manufacturer of a back-up system shall provide a highly visible label for the installer to place in the driver’s area visible to the vehicle operator that cautions the operator that the vehicle is equipped with a back-up braking system for emergency use only and is not to be used continuously or damage will result.

29.9 The installer shall provide a detailed owner’s manual to the end-user. The manual should outline how to test the system, any warnings about its operation, maintenance requirements that the systems needs and what to do in the event of a system failure.
30 BACK-UP HYDRAULIC STEERING SYSTEM

NMEDA Classification: High Tech

National Mobility Equipment Dealers Association Guidelines

Revised January 19, 2012

Purpose

To outline the intended use and required function of a Back-Up Hydraulic Steering System.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

30.1 Modifications that affect the steering system shall have a back-up system.

30.2 The back-up steering system shall activate automatically to provide power steering assistance in the event that the OEM power assistance fails. The back-up system shall provide the same level of power assistance as the OEM system.

30.3 Upon activation the system shall notify the driver that the system is in operation by giving an audible and visual indication. The notifications shall be located so that the driver can view/hear the indicator while driving.

30.4 The back-up steering system shall have the capability to be pre-tested by the client (prior to need) so that they can verify proper operation of the system.

30.5 The back-up system shall allow for a minimum of 180 seconds of operation when activated.

30.6 All hoses, lines and fittings shall be equivalent to OEM specifications. The dealer shall obtain documentation demonstrating compliance of all components with SAE J2672.

30.7 The installer shall place a highly visible label in the driver’s area visible to the vehicle operator that cautions the operator that the vehicle is equipped with a backup steering system for emergency use only and is not to be used continuously or damage will result.

30.8 The dealer shall obtain a detailed owner’s manual with each unit. The instructions should be specific as to the location and installation of all components of the system. The Manual should outline how to test the system, any warnings about its operation, maintenance requirements that the system needs, and what to do in the event of a system failure.
31 ELECTRONIC VEHICLE INTERFACE

**Purpose**

To outline the interfacing between vehicle electrical systems and mobility equipment.

**Scope**

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

**Definition:** (See Appendix C)

**Requirements**

31.1 When installing any controls or devices which involve connecting to the OEM vehicle electrical system, the equipment manufacturer’s installation manual applicable to the specific vehicle make, model and year must be followed explicitly and with no deviations. Any deviation must be approved by the manufacturer in writing.

31.2 Installation requiring interface to the OEM electronic system will be supervised by a certified technician as required by the equipment manufacturer.

31.3 A written company procedure outlining steps to ensure proper wiring techniques are followed. Electronic vehicle interfacing shall be performed in accordance with NMEDA Guidelines, Section 6 – General Electrical Specifications.

31.4 An OEM service manual or online service must be available to provide wiring diagrams and support for all installations involving connections to the OEM electrical system. The information must be specific to the Year, Make, and Model of the vehicle.
Purpose

To outline the intended use and required function of Gear Shifter Operation.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers' installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

32.1 A client shall be able to safely and efficiently operate the transmission shift lever to each desired gear position. The driver rehabilitation specialist, client and/or mobility equipment dealer will determine the type and/or modification.

32.2 Gear shifter extensions or crossovers shall be securely attached to the OEM shift lever and shall be operable by the client.

32.3 All powered gear shifters shall meet or exceed FMVSS/CMVSS 101 and 102 relating to illumination of the shifter icons and the layout and relationships of the icons within the shifter console.

32.4 Power gear shifter actuators shall be mounted in accordance with equipment manufacturer’s installation instructions.

32.5 All gearshift devices shall have an interlock that requires the brake be applied before the transmission can be shifted in or out of park.

*NOTE: NMEDA High Tech Classification: All electronic gear selector modifications are classified as NMEDA High Tech.
Purpose

To outline the intended use and required function of Horizontal Steering System.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

33.1 The steering wheel position shall be established by the Driver Rehabilitation Specialist, client and mobility equipment dealer. If applicable, the control switches for the unit or any actuator for raising and lowering the steering column shall be specifically located so each driver is able to operate the system within the driver’s range of motion and strength. The Driver Rehabilitation Specialist and mobility dealer will locate the switch so as to avoid inadvertent operation with the vehicle is in motion.

33.2 Horizontal steering columns shall only be installed per manufacturer’s specifications.
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**Purpose**

To outline the intended use and required function of Power Gas and Brake System.

**Scope**

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

**Definition:** (See Appendix C)

**Requirements**

34.1 Power gas and brake systems shall be installed in accordance with equipment manufacturer’s instructions.

34.2 The installation shall be performed or supervised by a technician trained and certified by the equipment manufacturer.

34.3 All equipment installed shall comply with SAE J2603 and applicable FMVSS/CMVSS standards.

34.4 A power gas/brake and control system shall only be installed when recommended by a qualified Driver Rehabilitation Specialist recognized by the equipment manufacturer.

34.5 Proper position of the control interface shall be determined and positioned by the mobility equipment installer, the Driver Rehabilitation Specialist and client. This may require a follow-up fitting and adjustments. Final fittings should be coordinated with the Driver Rehabilitation Specialist.

34.6 Power gas and brake hand controls, when prescribed, shall meet the following requirements:

- The power gas and brake system shall have a backup system, which automatically engages in the event of a power failure in the primary system (i.e. engine failure, fan belt slippage/breakage, or engine vacuum loss).
- The power gas and brake backup system shall give an audible and visual warning when activated.

34.7 When an accelerator/brake pneumatic system is prescribed:

- All pneumatic lines shall be routed within the vehicle and protected from damage or other deterioration caused by sharp edges, weather, etc.

34.8 All connections must meet General Electrical Specifications as stated in Section 6.
Purpose

To outline the intended use and required function of Reduced Effort Braking System.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers' installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

35.1 Reduced effort braking is a modification to the OEM power assistance system that decreases the amount of effort required to depress the brake pedal. The amount of reduction is classified as either "Low Effort" or "Zero Effort". Low effort is a modification that reduces the braking effort to 7-11 pounds of force applied on the brake pedal. Modifications shall comply with SAE J2671. A zero effort modification reduces the braking force to below 7 pounds of force applied on the brake pedal. The level of reduced effort braking will be determined and specified by a Driver Rehabilitation Specialist.

*NOTE: NMEDA classifies this type of system as high tech, since a back-up unit is required, and back-up units meet the NMEDA definition of a high tech device.
### Purpose

To outline the intended use and required function of Reduced Effort Steering System.

### Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

### Definition: (See Appendix C)

### Requirements

36.1 Torque Required for Steering: The torque required for steering control should be measured at the top of the steering shaft with vehicle engine running at the factory recommended curb idle rpm with engine warm and air conditioning off. SAE J2672 defines that the torque should be within the range of 4.0 – 15.0 in – lb for steering designated as “low effort steering” (Reduced Effort) and 1.5 – 4.0 in – lb for steering designated as “maximum reduced effort steering” (Zero Effort) when tested with OEM wheels and tires on a dry smooth concrete surface. The equipment manufacturer shall be consulted for the torque range achievable for the specific vehicle (SAE J2672 #3.32).

36.2 The dealer shall document final inspection that hydraulic and power lines are properly routed and protected from damage or other deterioration caused by sharp edges, weather, etc.

36.3 When zero effort power steering is installed on a vehicle and a steering device is attached to the steering wheel, a counterweight equivalent to the weight of the steering device and any attaching fixture should be added to balance the steering wheel. This counterweight should be mounted on the steering wheel directly opposite (180 degrees away from) the steering device and be removable by a non-disabled driver.

*NOTE: NMEDA classifies this type of system as high tech, since a back-up unit is required, and back-up units meet the NMEDA definition of a high tech device.*

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**36 REDUCED EFFORT HYDRAULIC STEERING SYSTEM**

*NMEDA Classification: High Tech*  

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National Mobility Equipment Dealers Association  
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### Purpose

To outline the intended use and required function of Remote Steering Systems.

### Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

### Definition: (See Appendix C)

### Requirements

37.1 All remote steering systems shall be installed in accordance with the equipment manufacturer’s instructions.

37.2 Installation and service shall be performed or supervised by a technician trained and certified by the equipment manufacturer.

37.3 All systems installed shall be in compliance with FMVSS/CMVSS regulations, SAE J2588, and applicable Provincial, state and Federal standards and guidelines.

37.4 A remote steering system shall only be installed when recommended by a qualified Driver Rehabilitation Specialist recognized by the equipment manufacture.

37.5 The mobility equipment dealer, the driver rehabilitation specialist, and the client shall determine proper mounting location of the input control device. Multiple fittings may be required.

37.6 All mounting systems for the input control device shall be designed and installed so that they will remain stable throughout the entire life cycle of the equipment.

37.7 All mounting systems for input control devices shall be free of sharp edges, corrosion resistant and coated in an automotive finish.

37.8 Mechanical/hydraulic foot steering requires low effort with backup unless further reduction is requested by the evaluator (see Section 36.4). It is recommended that whenever possible a guard should be installed.

37.9 Labeling requirement: A label stating “This vehicle is equipped with foot steering and should only be driven by a driver trained in the proper use of the equipment.” must be applied to the vehicle.
38 SECONDARY CONTROL/SYSTEMS

NMEDA Classification: High Tech*

National Mobility Equipment Dealers Association Guidelines

Revised January 19, 2012

Purpose

To outline the intended use and required function of Secondary Control/Systems.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Definition: (See Appendix C)

Requirements

38.1 The type of device and switch arrangement location shall be determined by the driver rehabilitation specialist, mobility equipment dealer/manufacturer, and driver.

38.2 The installation of the controls shall include an interim and final client fitting. The mobility equipment dealer, driver rehabilitation specialist and driver shall determine the location of the controls and determine specific adjustments as required.

38.3 Installation of the controls shall assure the greatest possible retention of OEM driver and occupant protection features including collapsible steering column, knee bolsters and airbags.

38.4 The installation shall permit vehicle operation by a non-disabled driver.

38.5 The installation shall follow NMEDA General Electrical Specifications (NMEDA Guideline Chapter 6).

38.6 Installation of controls shall include a thorough inspection of the vehicle prior to drilling and/or fastening device components. The inspection shall ensure the device fasteners do not rub, chafe or otherwise compromise the vehicle brake lines, fuel lines, vehicle wiring or hoses.

38.7 All controls shall be of a type and style so as not protrude and risk injury to a driver and/or passenger.

38.8 All switch functions shall be labeled for function and direction of operation.

38.9 The installation shall prevent inadvertent operation of controls by the driver and by a non-disabled driver.

38.10 All warning and instructional labels supplied by the adaptive equipment manufacturer shall be placed as instructed.

*NOTE: NMEDA High Tech/Low Tech Classification: With the exception of simple mechanical modifications to OEM secondary vehicle control systems, nearly all modifications to secondary vehicle control systems would be classified as NMEDA High Tech according to the NMEDA High Tech / Low Tech definition in section 7.
39 INTERLOCKS

NMEDA Classification: High Tech / Low Tech

Purpose

The purpose of the interlock is to activate or deactivate specific vehicle and mobility equipment functions.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial laws and guidelines or mobility equipment manufacturers' installation procedures; the more stringent will prevail.

Definition: (See Appendix C for High Tech and Low Tech definitions)

Requirements

39.1 Interlocks shall be vehicle specific.

39.2 Installation must meet the requirements of Section 6 – General Electrical Specifications if applicable.

39.3 The interlock shall meet or exceed specifications set forward by the adaptive equipment manufacturer and/or the Original Equipment Manufacturer.
MINI-VAN BODY TERMINOLOGY

- Roof Rail
- D-Pillar
- C-Pillar
- B-Pillar
- Rocker Panel
- Quarter Panel
- Floorpan
- A-Pillar
- Impact Channel
- A-Pillar
- Dash Panel
- Header
- Strut Tower
KEY REFERENCES

National Mobility Equipment Dealers Association
Guidelines

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1. ADED - The Association for Driver Rehabilitation Specialists – The professional organization for persons working in the specialized field of driver rehabilitation, driver training and adaptive vehicle equipment evaluation for persons with disabilities.
   www.driver-ed.org
   1-866-672-9466 Toll Free (US/CA)

2. AWS - American Welding Society – To advance the science, technology and application of welding and related disciplines.
   www.aws.org
   1-800-443-9353 or 305-443-9353

3. FMVSS/CMVSS – Federal Motor Vehicle Safety Standards - Regulations to which manufacturers of motor vehicle and equipment items shall conform and certify compliance.
   1-888-327-4236
   Canadian Standards:
   http://www.tc.gc.ca/acts-regulations/GENERAL/M/mvsa/regulations/mvsrg/toc_mvsrg.htm
   613-990-2309

   www.nhtsa.dot.gov/cars/rules/adaptive
   1-888-327-4236 Auto Safety Hotline

5. NMEDA – National Mobility Equipment Dealers Association - Trade association of mobility equipment dealers that provide vehicle modifications and equipment installation, manufacturers of equipment, driver rehabilitation specialists, and other professionals dedicated to broadening the opportunities for people with disabilities to drive or be transported in modified vehicles.
   www.nmeda.com
   1-800-833-0427

6. QAP – Quality Assurance Program - The Quality Assurance Program is a recognized accreditation program for the mobility equipment industry. The program was developed by NMEDA to promote quality, safety, and reliability within the industry.
   www.nmeda.com/quality-assurance-program/
   1-800-833-0427

7. SAE – Society of Automotive Engineers – Professional network of engineers and professionals who share information for advancing the engineering in the automotive industry. The Adaptive Devices Standards Committee develops information reports, recommended practices and standards for automotive adaptive equipment.
   www.sae.org
   1-724-776-0790 Customer Service

8. Transport Canada – The Canadian government agency with the authority to regulate the manufacture of automotive adaptive equipment and modified vehicles used by persons with disabilities.
   www.tc.gc.ca
   1-800-333-0371 Road Safety Inquiries
APPENDIX A
Title 49 Code of Federal Regulations Part 571
Summary Description of FMVSS/CMVSS

Purpose
To outline Federal/Canadian Motor Vehicle Safety Standards that are more likely to be affected by mobility modification.

Scope
The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal, State or Provincial Laws and Guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

Requirements

CRASH AVOIDANCE

FMVSS/CMVSS No. 101 - Controls and Displays - Passenger Cars - This standard requires that essential controls be located within reach of the driver when the driver is restrained by a lap belt and upper torso restraint, and that certain controls mounted on the instrument panel be identified.

FMVSS/CMVSS No. 102 - Transmission Shift Lever Sequence, Starter Interlock, and Transmission Braking Effect - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses - This standard specifies the requirements for the transmission shift lever sequence, a starter interlock, and for a braking effect of automatic transmissions, to reduce the likelihood of shifting errors, starter engagement with vehicle in drive position, and to provide supplemental braking at speeds below 40 km/h (25 mph).

FMVSS/CMVSS No. 103 - Windshield Defrosting and Defogging Systems - This standard specifies requirements for windshield defrosting and defogging systems to ensure that each vehicle shall have a windshield defrosting and defogging system which operates either by applying heat to the windshield or by dehumidifying the air inside the passenger compartment of the vehicle. Application: Passenger cars, multipurpose passenger vehicles, trucks, and buses.

FMVSS/CMVSS No. 104 - Windshield Wiping and Washing Systems - This standard specifies requirements for the windshield wiping and washing systems. The purpose of this standard is to ensure that the windshield wiping and washing system shall wipe the specified percentage area of the windshield, with at least two frequencies or speeds. Application: Passenger cars, multipurpose passenger vehicles, trucks, and buses.

FMVSS/CMVSS No. 105 - Hydraulic and Electric Brake Systems - Passenger Cars - This standard specifies requirements for vehicles equipped with hydraulic and electric service brake systems and associated parking brake systems to ensure safe braking performance under normal conditions and emergency conditions.
## APPENDIX A

**Title 49 Code of Federal Regulations Part 571**

**Summary Description of FMVSS/CMVSS**

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**FMVSS/CMVSS No. 106** - Brake Hoses - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, Trailers, and Motorcycles, and Hydraulic, Air, and Vacuum Brake Hose, Brake Hose Assemblies, and Brake Hose End Fittings for use in those vehicles. This standard establishes performance and labeling requirements for hydraulic, air, and vacuum brake hoses, brake hose assemblies, and brake hose fittings for all motor vehicles. The purpose of this standard is to reduce brake system failure from pressure or vacuum loss due to hose or hose assembly rupture.

**FMVSS/CMVSS No. 108** - Lamps, Reflective Devices, and Associated Equipment - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, Trailers, (except pole trailers and trailer converter dollies), and Motorcycles. This standard specifies requirements for original and replacement lamps, reflective devices, and associated equipment. Its purpose is to reduce traffic crashes and deaths and injuries resulting from traffic crashes, by providing adequate illumination of the roadway, and by enhancing the conspicuity of motor vehicles on the public roads so that their presence is perceived and their signals understood, both in daylight and in darkness or other conditions of reduced visibility.

**FMVSS/CMVSS No. 110** - Tire Selection and Rims - This standard specifies requirements for tire selection and vehicle labeling of tire and load carrying capacity information to prevent overloading. Application: Except for motorcycles, this standard applies to motor vehicles with a GVWR of 4,536 kg (10,000 lb) or less, and to non-pneumatic spare tire assemblies for passenger cars.

**FMVSS/CMVSS No. 111** - Rearview Mirrors - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, School Buses and Motorcycles. This standard specifies requirements for the performance and location of inside and outside rearview mirrors. Its purpose is to reduce the number of deaths and injuries that occur when the driver of a motor vehicle does not have a clear and reasonably unobstructed view to the rear.

**FMVSS/CMVSS No. 114** – Theft Protection and Rollaway Prevention – Passenger cars, Multipurpose Passenger Vehicles and Trucks with a GVWR of 4,536 kg (10,000 lbs) or less. This standard specifies vehicle performance requirements intended to reduce the incidence of crashes resulting from theft and accidental rollaway of motor vehicles.

**FMVSS/CMVSS No. 118** Power Operated Window, Partition and Roof Panel Systems – Passenger Cars, Multipurpose Passenger Vehicles and Trucks with a GVWR of 4,536 kg (10,000 lb) or less. This standard specifies the requirements for power operated window, partitions and roof panel systems to minimize the likelihood of death or injury from their accidental operation.

**FMVSS/CMVSS No. 119** - New Pneumatic Tires - Multipurpose Passenger Vehicles, Trucks, Buses, Trailers, and Motorcycles. This standard establishes performance and marking requirements for tires for use on multipurpose passenger vehicles, trucks, buses, trailers, and motorcycles. Its purpose is to provide safe operational performance levels for tires used on motor vehicles other than passenger cars, and to place sufficient information on the tires to permit their proper selection and use.

**FMVSS/CMVSS No. 120** - Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars - Multipurpose Passenger Vehicles, Trucks, Buses, Trailers, and Motorcycles, to Rims for use on those vehicles, and to Non-Pneumatic Spare Tire Assemblies for use on those vehicles. This standard specifies tire and rim selection requirements and rim marking requirements. Its purpose is to provide safe operational performance by ensuring that vehicles to which it applies are equipped with tires of adequate size and load rating and with rims of appropriate size, type designation, and manufacturer identification.
FMVSS/CMVSS No. 123 – Motorcycle Controls and Displays – Motorcycles with handlebars. The purpose of this standard is to minimize accidents caused by operator error in responding to the motoring environment, by standardizing certain motorcycle controls and displays.

FMVSS/CMVSS No. 124 - Accelerator Control Systems - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses. This standard establishes requirements for the return of a vehicle's throttle to the idle position when the driver removes his or her foot from the accelerator control, or in the event of a severance or disconnection in the accelerator control system.

FMVSS/CMVSS No. 135 - Light Vehicle Brake Systems- This standard specifies equipment and performance requirements for service brakes and for parking brake systems. The purpose of this standard is to ensure safe braking performance under normal and emergency driving conditions. Application: Passenger cars, multipurpose passenger vehicles, trucks, and buses with a GVWR of 3,500 kg (7,716 lb) or less

FMVSS/CMVSS No. 201 - Occupant Protection in Interior Impact - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses with a GVWR of 4,536 kg (10,000 lb) or less. This standard specifies performance requirements to provide head impact protection for occupants.

CRASHWORTHINESS

FMVSS/CMVSS No. 202 (a) – Head Restraints This standard specifies performance and other head restraint requirements for purposes of reducing whiplash injuries. For front seats, the expanded rule establishes a higher minimum height requirement, a requirement limiting the distance between the back of an occupant's head and the occupant's head restraint, as well as a limit on the size of gaps and openings within head restraints. The expanded rule also establishes new strength and dynamic compliance requirements, and amends most existing test procedures. In addition, the rule establishes requirements for head restraints voluntarily installed in rear outboard designated seating positions. The upgraded standard becomes mandatory for all vehicles manufactured on or after September 1, 2008. Until that time, the manufacturers may comply with the existing NHTSA standard, the upgraded NHTSA standard or the current European regulations.

FMVSS/CMVSS No. 203 - Impact Protection for the Driver from the Steering Control System - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses with a Gross Vehicle Weight Rating of 4,536 kg (10,000 lbs.) or less. This standard specifies requirements for minimizing chest, neck, and facial injuries by providing steering systems that yield forward, cushioning the impact of the driver's chest by absorbing much of his or her impact energy in front-end crashes. Such systems are highly effective in reducing the likelihood of serious and fatal injuries.

FMVSS/CMVSS No. 204 - Steering Control Rearward Displacement - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses with Unloaded Vehicle Weight (UVW) of 2,495 kg (5,500 lbs.) or less. Walk-in Vans are excluded. This standard specifies requirements limiting the rearward displacement of the steering column into the passenger compartment to reduce the likelihood of chest, neck, or head injuries.

FMVSS/CMVSS No. 206 - Door Locks and Door Retention Components - Passenger Cars, Multipurpose Passenger Vehicles, and Trucks. This standard specifies requirements for side door locks and side door retention components including latches, hinges, and other supporting means, to minimize the likelihood of occupants being thrown from the vehicle as a result of impact.
**FMVSS/CMVSS No. 207** - Seating Systems - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses. This standard establishes requirements for seats, attachment assemblies, and installation, to minimize the possibility of failure as a result of forces acting on the seat in vehicle impact.

**FMVSS/CMVSS No. 208** - Occupant Crash Protection This standard originally specified the type of occupant restraints (i.e., seat belts) required. It was amended to specify performance requirements for anthropomorphic test dummies seated in the front outboard seats of passenger cars and of certain multipurpose passenger vehicles, trucks, and buses, including the active and passive restraint systems identified below. The purpose of the standard is to reduce the number of fatalities and the number and severity of injuries to occupants involved in frontal crashes.

**FMVSS/CMVSS No. 209** - Seat Belt Assemblies - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses. This standard specifies requirements for seat belt assemblies. The requirements apply to straps, webbing, or similar material, as well as to all necessary buckles and other fasteners and all hardware designed for installing the assembly in a motor vehicle, and to the installation, usage, and maintenance instructions for the assembly.

**FMVSS/CMVSS No. 210** - Seat Belt Assembly Anchorages - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses. This standard establishes requirements for seat belt assembly anchorages to ensure proper location for effective occupant restraint and to reduce the likelihood of failure. The requirements apply to any component, other than the webbing or straps, involved in transferring seat belt loads to the vehicle structure.

This standard was established to improve child restraint and vehicle compatibility by requiring all vehicles manufactured on or after 9-1-02 to provide anchorage systems for child restraint systems that function independently of the vehicle seat belt system. The tether anchor portion of the standard specifies the location of the tether anchor, strength requirements of tether anchorages, test conditions and test procedures to test the anchorage strength requirements. Application: Except for shuttle buses, this standard applies to passenger cars, trucks and multipurpose passenger vehicles with a GVWR of 3,855 kg (8,500 lb) or less, except walk-in van-type vehicles and vehicles manufactured to be sold exclusively to the U.S. Postal Service; and to buses (including school buses) with a GVWR of 4,536 kg (10,000 lb) or less. This standard does not apply to vehicles manufactured prior to the phase-in of this standard. For such situations, reference section 20.4 NMEDA guidelines for additional information source.

**CMVSS No. 210.2 – Lower Universal Anchorages Systems for Restraint Systems and Booster Cushions**
This standard was established to improve child restraint and vehicle compatibility by requiring all vehicles manufactured on or after 9-1-02 to provide anchorage systems for child restraint systems that function independently of the vehicle seat belt system. The tether anchor portion of the standard specifies the location of the tether anchor, strength requirements of tether anchorages, test conditions and test procedures to test the anchorage strength requirements. Application: Except for shuttle buses, this standard applies to passenger cars, trucks and multipurpose passenger vehicles with a GVWR of 3,855 kg (8,500 lb) or less, except walk-in van-type vehicles and vehicles manufactured to be sold exclusively to the U.S. Postal Service; and to buses (including school buses) with a GVWR of 4,536 kg (10,000 lb) or less. This standard does not apply to vehicles manufactured prior to the phase-in of this standard. For such situations, reference section 20.4 NMEDA guidelines for additional information source.
FMVSS/CMVSS No. 212 - Windshield Mounting - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses with a Gross Vehicle Weight Rating of 4,536 kg (10,000 lbs.) or less. This standard requires that, when tested as described, each windshield mounting shall be anchored in place and retain one of two specified percentages of its periphery in a crash situation. The purpose of this standard is to keep vehicle occupants within the confines of the passenger compartment during a crash.

FMVSS/CMVSS No. 213 – Child Restraint Systems - This standard covers infant carriers, child seats, harnesses and car beds that restrain children under 65 pounds. This regulation requires child restraint systems to be manufactured as compatible with the child restraint anchorage systems required by FMVSS 225 and pass a 30 MPH frontal sled test with the typical crash test parameters. It specifies padding for children weighing less than 22 pounds and contains labeling requirements.

CMVSS No. 213.4 – Built-in Restraint Systems and Built-in Booster Cushions - This standard covers built-in infant carriers, child seats and harnesses that restrain children. This regulation requires built-in child restraint systems to meet performance and safety requirements.

FMVSS/CMVSS No. 214 - Side Impact Protection - This standard specifies performance requirements for protection of occupants in side impact crashes. The purpose of this standard is to reduce the risk of serious and fatal injury to occupants of passenger cars, multipurpose passenger vehicles, trucks, and buses.

CMVSS 215 – Bumpers Applicable to passenger cars, this standard specifies bumper geometrical requirements and maximum damage to a vehicle’s bumper in minor impacts.

FMVSS/CMVSS No. 216 - Roof Crush Resistance This standard establishes strength requirements for the passenger compartment roof to reduce deaths and injuries due to the crushing of the roof into the occupant compartment in rollover crashes. Application: Passenger cars (except convertibles) and multipurpose passenger vehicles, trucks and buses (except school buses) with a GVWR of 4,536 kilograms (10,000 pounds) or less.

FMVSS No. 225 – Child Restraint Anchorage Systems - This standard was established to improve child restraint and vehicle compatibility by requiring all vehicles manufactured on or after 9-1-02 to provide anchorage systems for child restraint systems that function independently of the vehicle seat belt system. The tether anchor portion of the standard specifies the location of the tether anchor, strength requirements of tether anchorages, test conditions and test procedures to test the anchorage strength requirements. Application: Except for shuttle buses, this standard applies to passenger cars, trucks and multipurpose passenger vehicles with a GVWR of 3,855 kg (8,500 lb) or less, except walk-in van-type vehicles and vehicles manufactured to be sold exclusively to the U.S. Postal Service; and to buses (including school buses) with a GVWR of 4,536 kg (10,000 lb) or less. This standard does not apply to vehicles manufactured prior to the phase-in of this standard. For such situations, reference section 20.4 NMEDA guidelines for additional information source.
<table>
<thead>
<tr>
<th>POST CRASH STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FMVSS/CMVSS No. 301</strong> - Fuel System Integrity (includes CMVSS 301.1 – LPG Fuel System Integrity, CMVSS 301.2 – CNG Fuel System Integrity/CMVSS 303, CMVSS 3.1.3 – Fuel System Integrity for Three-wheeled Vehicles and Motorcycles) - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses with a Gross Vehicle Weight Rating of 4,536 kg (10,000 lbs.) or less, and School Buses with a Gross Vehicle Weight Rating greater than 4,536 kg (10,000 lbs.) - This standard specifies requirements for the integrity of motor vehicle fuel systems. Its purpose is to reduce deaths and injuries occurring from fires that result from fuel spillage during and after motor vehicle crashes.</td>
</tr>
<tr>
<td><strong>FMVSS/CMVSS No. 302</strong> - Flammability of Interior Materials - Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses - This standard specifies burn resistance requirements for materials used in the occupant compartments of motor vehicles. Its purpose is to reduce deaths and injuries to motor vehicle occupants caused by vehicle fires, especially those originating in the interior of the vehicle from sources such as matches or cigarettes.</td>
</tr>
<tr>
<td><strong>FMVSS/CMVSS No. 305</strong> - Electric-Powered Vehicles: Electrolyte Spillage and Electric Shock Protection This standard specifies requirements for limitation of electrolyte spillage, retention of propulsion batteries during a crash, and electrical isolation of the chassis from the high voltage system, to be met by vehicles that use electricity as propulsion power. The purpose of this standard is to reduce deaths and injuries during a crash, which occur because of electrolyte spillage from propulsion batteries, intrusion of propulsion battery system components into the occupant compartment, and electrical shock. Application: Passenger cars, multipurpose passenger vehicles, trucks and buses with a GVWR of 4,536 kg (10,000 lb) or less, that use more than 48 nominal volts of electricity as propulsion power and whose speed attainable in 1.6 km on a paved level surface is more than 40 km/h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MISCELLANEOUS STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FMVSS/CMVSS No. 401</strong> - Interior Trunk Release - This standard establishes the requirements for providing a trunk release mechanism that makes it possible for a person trapped inside the trunk compartment of a passenger car to escape. Instead of a release latch, this standard also permits the installation of an alternative system such as a passive trunk release system that could detect the presence of a human in the trunk and would automatically unlatch the trunk lid. Application: Passenger cars containing a trunk compartment; This standard does not apply to passenger cars with a back door, a door or door system on the back end of a passenger car through which cargo can be loaded or unloaded, a hatchback or a station wagon.</td>
</tr>
<tr>
<td><strong>FMVSS No. 403</strong> - Platform Lift Systems for Motor Vehicles - This standard specifies requirements and performance tests for platform lifts designed to carry standing passengers, who may be aided by canes or walkers, as well as persons seated in wheelchairs, scooters and other mobility aids, into and out of motor vehicles. The purpose of this standard is to prevent injuries and fatalities to passengers and bystanders during the operation of platform lifts installed in motor vehicles. Application: Platform lifts designed to carry standing passengers who may be aided by canes or walkers, as well as persons seated in wheelchairs, scooters and other mobility aids, into and out of motor vehicles.</td>
</tr>
</tbody>
</table>
FMVSS No. 404 - Platform Lift Installations in Motor Vehicles - This standard specifies requirements for the installation of platform lifts in motor vehicles. It requires vehicle manufacturers to install platform lifts that are certified to Standard 403 and to install them in accordance with the lift manufacturer's instructions. The purpose of this standard is to prevent injuries and fatalities to passengers and bystanders during the operation of platform lifts installed in motor vehicles. Application: Motor vehicles equipped with a platform lift designed to carry standing passengers, who may be aided by canes or walkers, as well as persons seated in wheelchairs, scooters and other mobility aids, into and out of the vehicle.

FMVSS/CMVSS No. 500 - Low-Speed Vehicles - This standard specifies basic safety equipment including lights, reflectors, mirrors, windshields, windshield wipers, parking brake, and seat belts on motor vehicles whose maximum speed is between 20 and 25 miles per hour. The purpose of this standard is to ensure that low-speed vehicles operated on the public streets, roads, and highways are equipped with the minimum motor vehicle equipment appropriate for motor vehicle safety. Application: Low-speed vehicles. A low-speed vehicle is a 4-wheeled motor vehicle, other than a truck, whose top speed is more than 32 km/h (20 mph) and not more than 40 km/h (25 mph).
APPENDIX B
OUT OF SERVICE AREA AGREEMENT FOR NMDA DEALERS

National Mobility Equipment Dealers Association
Guidelines

Revised January 19, 2012

Purpose

This form is recommended to be used by NMEDA dealers prior to selling a vehicle outfitted with adaptive equipment for use by a consumer or end-user of the equipment that is located outside of the dealer’s service area. Refer to section 4.5.1 for additional contextual information.

Scope

The NMEDA Guidelines are intended for use by the mobility equipment industry. NMEDA Guidelines do not supersede Federal and State Laws and Guidelines or mobility equipment manufacturers’ installation procedures; the more stringent will prevail.

This agreement is intended to clarify the service responsibilities of INSERT SELLING DEALER NAME after the initial sale and delivery of the vehicle listed below. By signing below, the purchaser of the mobility conversion and/or product(s) acknowledges that INSERT SELLING DEALER NAME will be the primary provider of service for the conversion portion of the vehicle, unless otherwise noted in the “Local Servicing Mobility Dealer” section.

The servicing dealer agrees to sell conversions and products for which the dealership holds current technical certification. The servicing dealer agrees to abide by all applicable conversion and/or mobility products manufacturer’s warranty periods and procedures. It is the mobility vehicle owner’s responsibility to alert the servicing dealer as to any problems or concerns he or she may have immediately after they occur.

When no warranty is available, and/or the conversion and/or mobility products have aged out of their respective warranties, the servicing dealer agrees to provide the mobility vehicle owner with invoiced service applicable to NMEDA Guidelines, QAP rules, Best Practices.

Should a problem with the chassis occur, it is in the best interest of the mobility vehicle owner to contact the servicing dealer before taking the vehicle to their local car dealer. No chassis repair or warranty service is a requirement of or guaranteed by the servicing dealer unless otherwise mandated by state law.

If the Selling Mobility Vehicle Dealer lists a Local Servicing Mobility Vehicle Dealer as the provider of service in their place, it is the Selling Mobility Vehicle Dealer’s responsibility to guaranty that the Local Servicing Mobility Vehicle Dealer is certified to service all of the conversion and/or mobility products installed and provided by the Selling Mobility Vehicle Dealer on the chassis listed below. The Selling Mobility Vehicle Dealer must document certification of the Local Servicing Mobility Vehicle Dealer at the time of delivery of the vehicle.

Year/Make/Model/VIN
Selling Mobility Vehicle Dealer:
Name, Address, City, State, Zip, Phone
Signature of dealer and Signature of mobility vehicle owner – date
(with a check box to use as acknowledgement that the selling dealer is the servicing dealer)
Local Servicing Mobility Dealer
Same as above
Signature of dealer, Signature of mobility vehicle owner, Signature of local servicing mobility dealer – date
(with a check box to acknowledge that the local servicing dealer will provide the service in place of the selling dealer)
Accessory Controls: Switches regulating the environment of the vehicle (i.e. heater, air conditioning, power windows, radio, etc.).

Actuator: A mechanical device used to cause movement.

Adapted Key Holder: A device which by design will improve both grip and turning leverage. (Also referred to as a quad key.)

A.D.E.D.: Association for Driver Rehabilitation Specialists. Previously known as Association of Driver Educators for people with disabilities.

Aesthetically: A pleasing appearance or effect.

Aftermarket: Components used to modify a motor vehicle after the vehicle is purchased from the OEM.

Alter: To add or remove a component or change the function of a component in a vehicle prior to its first purchase for purposes other than resale.

Alterer: A company which takes a completed vehicle out of compliance from OEM and recertifies it for first retail sale.

Amputee Steering Device: See Steering Devices.

Anchorage: A means of securing something; something that provides a secure hold.


Audible: To hear; be heard or capable of being heard.

Automatic Lift: The raising, lowering, stowing and deploying of the lift is performed by a power source, other than manually.

Automatic Securement: A tie down that locks and releases through an automatic electric/mechanical latching device.

Automatic Tie Down: See Automatic Securement.


Base Vehicle: A completed vehicle or incomplete vehicle on which your company performs manufacturing operations, alterations, or modifications

Backing Plate: A reinforcement designed to relieve stress and strengthen a specific area of a modification.

Backup System: A reserve or substitute source of energy in the event of a failure in the primary equipment.

Beltline: The line running around a car’s body formed by the bottom edges of its glass panels.

Body Mount: A device insulating and/or securing the vehicle floor from/to the motor vehicle frame. Body mounts are an integral component of a body on frame vehicle.
### Booster
An auxiliary device for increasing force, power, pressure or effectiveness.

### Camber
A slight convexity or curvature. A setting of the wheels relative to the vertical centerline that describes the distance between the top and bottom of the wheels.

### Car Top Carrier
An integrated wheelchair lift and storage for a manual wheelchair. The wheelchair is lifted with a system of chains, cables or straps, while folding the wheelchair and storing it in a storage compartment on the roof of the vehicle.

### Cargo Carrying Capacity
GVWR minus unloaded vehicle weight minus 150 pounds (68 kg) times the number of designated seating positions and weight of the wheelchair.

### Center Lowered Floor
The OEM floor is removed and lowered from the rear of the driver/passenger seats to the front of the rear wheel wells and to the side entry of the vehicle. Also referred to as cargo lowered floor.

### Certified Driver Rehabilitation Specialists (CDRS)
An individual who has obtained the necessary knowledge base and experience in the field of driver rehabilitation and who has successfully obtained and maintained certification.

### Certified Welder
A person qualified to perform welds using welding methods as per established recommended processes by American Welding Society or Canadian Welding Bureau.

### CFR
Code of Federal Regulations

### Chest Harness
See Upper Torso Positioning Belt.

### Collapsibility
The action of collapsing; to fold down into a more compact shape.

### Column Extension - Add-On
A spacer added between the steering wheel and steering column. This spacer will bring the steering wheel closer to the driver.

### Column Extension - Integral
The original steering column is cut and a spacer is welded into the column. This will bring the steering wheel closer to the driver. Shall be performed by a certified welder.

### Commercially Licensed Vehicle
A vehicle licensed and tagged to a company for commercial use.

### Completed Vehicles
A vehicle that requires no further manufacturing operations to perform its intended function, other than the addition of readily attachable components, such as mirrors, tires, rims, or minor finishing operations such as painting.

### Crossover Gear Shift Extension
A device that attaches to the OEM column mounted gear selector and crosses over to the left of the steering column. (See also gear shift extension).

### Dash Panel
(Previously known as Firewall): A partition separating the engine compartment from the passenger compartment in a vehicle.

### Deep Dish Steering Wheel
An aftermarket steering wheel with the rim closer to the driver. Generally cannot accommodate use with an airbag.

### Dexterity
Skill and ease in using the hands.
Door Control: See Remote Switches.

Double Lowered or Double Dropped Floor: Generally refers to a floor modification that includes both a driver, passenger and center lowered floor area.

Driver’s Lowered Floor: Lowered motor vehicle floor extending from the driver’s compartment to the front of the rear wheel wells, excluding the front passenger compartment.

Driver Rehabilitation Specialist: As used in this document is any individual, center, hospital or business that evaluates and/or trains people with disabilities for their transportation requirements as a driver and/or passenger.

Driving Pan: See Power Pan.

Dropped Floor: See Center Lowered Floor or Driver’s Lowered Floor, Passenger Lowered Floor or Double Lowered Floor.

Electrical/Mechanical Lift: A lift powered by an electrical motor and accompanying components.

Emergency Release: A pin, lever, handle or other device to allow for a manual release in the event of a power failure.

Engineering Practices: Terminology referring to the process of analyzing and/or evaluating proper technical procedures. Usually refers to an existing process or set of standards.

Fastener: Bolt, screw, pin, tie, clamp, or other securing device.

Final Fitting: Inspection of equipment to verify installation and appropriate functional fitting and interface with the client.

Final-Stage Manufacturer (FSM): A company which performs such manufacturing operations on an incomplete vehicle that it becomes a completed vehicle.

First Retail Purchaser: The first purchaser of a vehicle for purposes other than resale.

Flat Floor: A smooth stable surface, replacing or covering the OEM corrugated flooring.

(FMVSS: www.nhtsa.dot.gov/cars/rules/standards/)
(CMVSS: http://www.tc.gc.ca/acts-regulations/regulations/menu.htm)

Foot Steering: A modification of the OEM steering, enabling the steering to be performed with the driver’s foot.

Forward Facing: The wheelchair and occupant face forward in the vehicle and parallel to the sides of the vehicle.

Four Point Securement: A wheelchair securement that attaches to the four points of the wheelchair frame and to four points of the vehicle.

Four Point Tie-Down: See Four Point Securement.

Framed Vehicle: A motor vehicle with an independent or separate body on frame.

Full Lowered Floor: See Floor Lowering.
**APPENDIX C**

**TERMINOLOGY DESCRIPTIONS**

<table>
<thead>
<tr>
<th>Gear Shift Extension:</th>
<th>A device that attaches to the OEM gear selector and offers additional leverage for shifter operation.</th>
</tr>
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<tr>
<td>Ground Strap:</td>
<td>A cable connecting the negative terminal of a battery to the vehicle body to maintain a continuous current path equal to the mobility equipment power supply.</td>
</tr>
<tr>
<td>GAWR:</td>
<td>Gross Axle Weight Rating (See Vehicle Weight Rating).</td>
</tr>
<tr>
<td>GVWR:</td>
<td>Gross Vehicle Weight Rating (See Vehicle Weight Rating).</td>
</tr>
<tr>
<td>H-Point:</td>
<td>The mechanically hinged hip point of a manikin, which simulates the actual pivot center of the human torso and thigh.</td>
</tr>
<tr>
<td>Hand Control:</td>
<td>See Manual Hand Control</td>
</tr>
<tr>
<td>HVAC:</td>
<td>Heating, ventilation and air conditioning.</td>
</tr>
<tr>
<td>Hand Control Lock-Out:</td>
<td>A locking mechanism, either manual or automatically operated, that is a feature incorporated into the design of some hand controls to restrict operation of the hand control.</td>
</tr>
<tr>
<td>Hand Held Pendant:</td>
<td>A control harness which operates adaptive/mobility equipment.</td>
</tr>
<tr>
<td>Hand Held Remote:</td>
<td>A hand held device that emits a signal to a receiver within a motor vehicle for operation of adaptive/mobility equipment.</td>
</tr>
<tr>
<td>Heat Shield:</td>
<td>An insulating shield installed between the exhaust system, catalytic converter, muffler and floor of the motor vehicle to minimize heat transfer to other components and into the vehicle's interior compartment.</td>
</tr>
<tr>
<td><strong>High Technology (“High Tech”) Devices:</strong></td>
<td>High Technology (“High Tech”) devices are those that meet the following conditions: 1) Devices capable of controlling vehicle functions or driving controls, and 2) operate with a designed logic system or interface or integrate with an electronic system of the vehicle. An interlock that interfaces with a logic system via a splice connection is classified as high tech; plug and play is considered low tech.</td>
</tr>
<tr>
<td></td>
<td><strong>High Tech Examples:</strong></td>
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<td></td>
<td>Primary driving control examples:</td>
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<tr>
<td></td>
<td>A) powered gas / brake systems;</td>
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<tr>
<td></td>
<td>B) power park brake integrated with a powered gas / brake system;</td>
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<td></td>
<td>C) reduced effort steering systems;</td>
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<td></td>
<td>D) horizontal steering system;</td>
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<tr>
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<td>E) reduced effort brake systems;</td>
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<td>F) backups for primary controls.</td>
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<tr>
<td></td>
<td>Secondary driving control examples:</td>
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<tr>
<td></td>
<td>A) remote panel or switch array interfacing with OEM electronics;</td>
</tr>
<tr>
<td></td>
<td>B) wiring extension for OEM electronics;</td>
</tr>
<tr>
<td></td>
<td>C) powered transmission shifter.</td>
</tr>
<tr>
<td>Horizontal Steering:</td>
<td>A modification that enables a steering wheel to be adjusted in a horizontal position.</td>
</tr>
</tbody>
</table>
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**Hydraulic:** Operated by the resistance offered or the pressure transmitted when a quantity of fluid (oil or water) is forced through a comparatively small orifice or through a tube.

**Hydraulic Lift:** A lift using a hydraulic pump as the power source for lifting and lowering the wheelchair platform.

**In Floor Lift:** See under the floor lift.

**Incomplete Vehicle:** A vehicle which requires further manufacturing operations in order to become a completed vehicle which meets all FMVSS requirements. Some FMVSS requirements are met on this vehicle, but not all. Generally a semi-stripped version of a fully compliant vehicle.

**Incomplete Vehicle Document:** The Incomplete Vehicle Document lists all applicable FMVSS and states whether and under what conditions the final stage manufacturer can certify compliance with certain FMVSS requirements by relying on the incomplete vehicle manufacturer. This is also referred to as “Pass-Through” certification. Some of the applicable FMVSS requirements on an Incomplete Vehicle will be Pass Through, and the Final Stage Manufacturer is responsible for certifying the balance of the FMVSS items. The Incomplete Vehicle Document is a document associated to a specific vehicle and must remain with the vehicle until final certification of the vehicle.

**Incomplete Vehicle Manufacturer:** A company which manufactures an incomplete vehicle by assembling components, none of which taken separately, constitute an incomplete vehicle.

**Integral:** Formed as an essential unit with another part; composed of integral parts.

**Interlock:** A device or arrangement by means of which the functioning of one part is controlled by the functioning of another. An interlock that interfaces with a logic system via a splice connection is classified as high tech; plug and play is considered low tech.

**Intermediate Manufacturer:** Means a company, other than the incomplete vehicle manufacturer or the final-stage manufacturer, who performs manufacturing operations on an incomplete vehicle.

**I.S.O.:** International Standards Organization.

**Joystick Control:** A steering input device using a single upright post, completely moveable in up to two axes, to control primary vehicle functions.

**Keyless Entry:** A magnetic or remote switch to open or close a vehicle door without a key.

**Keyless Ignition:** A remote switch that enables the vehicle’s engine to start or be turned off without a key.

**Kneeling System:** Commonly found on lowered floor minivans. Allows a lower floor to ground height, thus decreasing the angle of a ramp entry system.

**Lap Restraint:** See Lap Seat Belt.

**Lap Seat Belt:** The seat belt which crosses over the lap. See Seat Belt (Type 1 belt)
**APPENDIX C**

**TERMINOLOGY DESCRIPTIONS**

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**Lateral Support:** A device installed on a wheelchair to allow the user greater stability. Often required for wheelchair drivers. May also reference custom seat modifications. (See also Upper Torso Positioning Belt).

**Left Foot Accelerator:** A device installed in a motor vehicle to the left of the brake pedal to allow the operation of the accelerator pedal by the left foot of the driver. (See also Pedal Guard and Manual Hand Controls).

**Lift Platform:** The area the wheelchair occupies, to be raised and lowered during the operation of the lift.

**Lintel:** Structure carrying the load above the door(s) opening.

**Load Carrying Capacity:** GVWR minus unloaded vehicle weight.

**Low Effort Braking:** A modification to the OEM power brake system that reduces pedal effort approximately 50%. See Reduced Effort Braking.

**Low Effort Steering:** A modification of an OEM power steering system to lower the amount of effort required to steer a vehicle approximately 50%. See Reduced Effort Steering.

**Low Technology (“Low Tech”) Devices:** These are all other devices or modifications that do not meet the definition of High Technology devices or modifications.

   Low Tech examples:
   Primary driving control examples:
   A) manual gas / brake hand control;
   B) left foot accelerator pedal;
   C) park brake lever or stand-alone powered park brake;
   D) steering terminal device;
   E) driver training brake.

   Secondary driving control examples:
   A) remote horn button (grounding system);
   B) turn signal crossover lever;
   C) switch extension on OEM controls;
   D) transmission shifter lever;
   E) transfer seat base.

**Lower Torso Restraint:** See Lap Seat Belt.

**Magnetic Switch:** Switch that is activated with a magnet.

**Malfunction:** To function imperfectly or defectively; fail to operate in the normal or usual manner.

**Mandatory:** Containing or constituting a command. No choice. (SHALL)

**Manual Hand Controls:** A device to operate the accelerator and/or brake on a vehicle manually, using the driver’s hand rather than the driver’s foot.
Manual Parking Brake Extension: A handle, which enables the driver to set the parking brake with their hand.


Manual Securement: A device that secures the wheelchair. This device requires only a mechanical latch to properly fasten and release the securement.


Manufacture: To assemble or complete the assembly of a vehicle.

Maximum Reduced Effort Steering: See “Zero Effort Steering”, the minimum effort obtainable based on a specific vehicle chassis.

Minimal Effort Braking: A modification that reduces the braking force to below 7 foot-pounds.

Mobility Equipment Dealer: As used in this document is any individual or business that installs equipment or modifies vehicles for use by people with disabilities as a driver and/or passenger.

Modify: To add or remove a component or change the function of a component in a vehicle after its first purchase for purposes other than resale. For Example: making modifications to a used vehicle at the end users request.

Momentary: Continuing only a moment; operative or recurring at every moment.

New Motor Vehicle: A motor vehicle that has not been sold, except for purposes of resale. (Not yet sold to an end user)


Non-disabled: A person who does not require adaptive equipment to safely operate a motor vehicle.

Occupied: To take up space. To have a person present in the seat of a wheelchair.

Occupied Restraint: See Occupied Securement.

Occupied Securement: A system to secure the personal mobility device during movement of the vehicle while transporting the wheelchair and occupant.

Occupied Tie-Down: See Occupied Securement.

OEM: Original Equipment Manufacturer.

Original Equipment Manufacturer (OEM): A vehicle manufacturer who performs all manufacturing operations on a motor vehicle up to the point that the vehicle is certified as complying with all applicable Federal Motor Vehicle Standards. (Most commonly referring to Ford, GM, Toyota, Chrysler, etc)
Outboard Barrier: A flap to prevent the personal mobility device from rolling off the wheelchair lift platform. See Roll Stop Barrier.

Outside Control Switch: Exterior mounted switch to operate adaptive/mobility equipment.

Palm Grip Steering Device: See Steering Devices


Para Transit Vehicle: A motor vehicle modified to transport multiple wheelchair users, generally for commercial use.

Passenger Lowered Floor: The lowering of a motor vehicle floor extending from the passenger compartment to the front of the rear wheel wells, excluding the driver’s compartment.

Payload: See GVWR.

Pedal Guard: A device installed in a motor vehicle to prevent access to the accelerator pedal and/or brake pedal. (See also Left Foot Accelerator and Manual Hand Controls).

Pedal Extensions: Devices mounted to the brake and/or accelerator for use by a short stature driver. (See also Powered Pedals).

Pelvic Restraint: See Lap Seat Belt.

Personal Mobility Device: Device used for mobility, such as a wheelchair, scooter or walker, to assist a physically disabled individual.

Personally Licensed Vehicle: A vehicle licensed and tagged to an individual for private use.

Pillar: Upright member of vehicle structure connecting roof of vehicle to the body. See Illustration section.

Platform Lift: Wheelchair lift, intended for occupied wheelchair, having the area the wheelchair fits onto stored in a vertical position or under the van.

Plug and Play: An electronic device specifically designed for the application that does not require any modification to any harness.

Pneumatic: Adapted for holding or inflated with compressed air, moved or worked by air pressure.

Power Door Opener: A device to open and close the vehicle door electrically by a remote switch.

Power Elevating Platform: A lifting device to raise the portion of the floor in the driver or passenger area.

Powered Controls: Vehicle controls operated by an auxiliary source (i.e. electric, hydraulic, or vacuum diaphragm) reducing the necessary amount of strength needed by the operator.

Powered Gas and Brake Systems: A device which uses power from an energy source of the vehicle to supplement the force and motions made by the driver to control acceleration, velocity, and braking of a vehicle.
### APPENDIX C
### TERMINOLOGY DESCRIPTIONS

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<table>
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<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Powered Pedals</strong></td>
<td>A device to vary the fore and aft position of the vehicle pedals.</td>
</tr>
<tr>
<td><strong>Power Seat Base</strong></td>
<td>An electrically powered base mounted between the floor of the vehicle and the OEM or aftermarket seat. This base may be moved in a combination of needed directions.</td>
</tr>
<tr>
<td><strong>Powered Gearshift Selector</strong></td>
<td>A control activating the transmission gear selection by a switching device.</td>
</tr>
<tr>
<td><strong>Powered Parking Brake</strong></td>
<td>A powered device to set and release the OEM parking brake electrically.</td>
</tr>
<tr>
<td><strong>Primary Controls</strong></td>
<td>The controls of the vehicle governing movement and direction (i.e. acceleration, braking and steering).</td>
</tr>
<tr>
<td><strong>Proof Load</strong></td>
<td>See Static Test Load.</td>
</tr>
<tr>
<td><strong>Push/Pull Hand Control</strong></td>
<td>A device to operate the accelerator and brake pedals by hand. Push/Pull operation is push forward (toward the brake pedal) to brake and pull toward the rear to accelerate.</td>
</tr>
<tr>
<td><strong>Push/Right Angle Hand Control</strong></td>
<td>A device to operate the accelerator and brake pedals by hand. The Push/ Right Angle operation is push forward (toward brake pedal) to brake and move down toward the lap to accelerate.</td>
</tr>
<tr>
<td><strong>Push/Rock Hand Control</strong></td>
<td>A device to operate the accelerator and brake pedals by hand. The Push/Rock operation requires a push of the control handle forward (toward brake pedal) to brake and for acceleration, the rocking of an upright handle rearward toward the user.</td>
</tr>
<tr>
<td><strong>Push/Twist Hand Control</strong></td>
<td>A device to operate the accelerator and brake pedals by hand. The Push/ Twist operation is push of the control handle forward (toward brake pedal) to brake and twist the handle (much like a motorcycle) to accelerate.</td>
</tr>
<tr>
<td><strong>Quad Hand Controls</strong></td>
<td>Hand controls manufactured specifically for use by a driver with limited hand and/or wrist strength, control or dexterity. Generally these controls offer additional hand and/or wrist support.</td>
</tr>
<tr>
<td><strong>Quick Release</strong></td>
<td>A method to remove or disengage with minimum use of tools.</td>
</tr>
<tr>
<td><strong>Raised Door(s)</strong></td>
<td>Door(s) are modified or replaced to permit additional door entry height.</td>
</tr>
<tr>
<td><strong>Raised Roof</strong></td>
<td>Some or all of the OEM roof is removed and replaced with an aftermarket raised roof. (See also Roof Support Structure).</td>
</tr>
<tr>
<td><strong>Ramp</strong></td>
<td>Inclined plane providing access between two levels.</td>
</tr>
<tr>
<td><strong>Rated Load</strong></td>
<td>The maximum load capacity as designated by the manufacturer.</td>
</tr>
<tr>
<td><strong>Recommended</strong></td>
<td>To endorse as competent; acceptable.</td>
</tr>
<tr>
<td><strong>Reduced Effort Braking</strong></td>
<td>A modification to the OEM power brake system that reduces pedal effort. This term includes both low effort brake systems and zero effort brake systems. See Low Effort Braking. See Zero Effort Braking.</td>
</tr>
</tbody>
</table>
Reduced Effort Steering: A modification of an OEM power steering system to lower the amount of effort required to steer a vehicle. This term includes both low effort steering systems and zero effort steering systems. See Low Effort Steering, See Zero Effort Steering.

Reinforcement Cage: (See Roof Support Structure).

Remote: Acting, acted on, or controlled indirectly from a distance.

Remote Switches: A device acting, acting on or controlling an operation from an alternate location.

Removable Seat Base: A device or modification that allows a seat to be removed or repositioned.

Remote Steering: A second steering system mounted in an alternate location to the OEM system.

Roll Stop Barrier: A device that retains the wheelchair on a wheelchair lift platform. See Outboard Barrier.

Roof Support Structure: A structure that prevents or limits the collapse of the motor vehicle roof.

Rotary Lift: A wheelchair lift with a platform that rotates into and out of the van and stows in the cargo area (center) of the van.

S.A.E.: Society of Automotive Engineers (www.sae.org).

Safety Flap: See Outboard Barrier

Seat Belt: Strap or webbing designed to secure a person in a motor vehicle. See Two Point Belt. See Three point Belt.

Secondary Controls: All motor vehicle controls with exception of primary controls. (See Primary Controls).

Semi-Automatic Lift: The raising and lowering of the lift platform is performed by a power source, The stowing and deploying of the platform to and from a horizontal position is performed manually.

Servo: A device used to provide control of a desired operation.

Shall: Required or compelled that there be no deviation.

Should: Advised. Implies noncompliance with the specific recommendation is permissible, variations acceptable.

Shoulder Belt: Strap or webbing designed to restrain an occupant’s torso in a motor vehicle by diagonally crossing the torso.

Splice Connection: An electrical or electronic connection requiring physical modification to the original harness (es).

Static Test Load: The weight of a stationary load for the purpose of testing.
Steering Device: An apparatus attached to the vehicle steering wheel to aid in turning the steering wheel. Including but not limited to:

Knob: A steering wheel device with a knob type grip.
Tri-Pin: A steering wheel device with three upright pins to stabilize the hand and wrist of the driver.
U or V Grip: A steering wheel device with two vertical pins to stabilize the hand of a driver.
Cuff: A steering wheel device with a curved oval shape that fits around the hand of a driver.
Amputee: A steering wheel device that integrates with a driver’s prosthesis.
Custom: A steering device designed for a specific application or driver.
Palm: A steering device that wraps over the top of the hand.

Structural Reinforcement for Tops: See Roof Support Structure.

Swing Lift: See Rotary Lift.

Switch: A device used to open or close an electrical circuit. (May be momentary or latched).
Some examples of switches:

Push/Pull: Controlled with an in/out motion.
Rocker: Controlled with a pivoting motion.
Rotary: Controlled with a clockwise/counter clockwise motion.
Toggle Switch: Controlled by a lever that moves through an arc motion.
Contact Switch: Controlled by touching a specific area.

Three Point Seat Belt: A seat belt system that incorporates the lap and shoulder belt. (Type 2 belt).

Touch Pad: A contact switch controlled by touching a specific area. A specific area of contact that acts as pressure sensitive switch.

Transfer Bar: A bar, handle or strap to assist an individual in movement and/or balance.

Transfer Handle: See Transfer Bar.

Transfer Seat Base: See Powered Seat Base.

Transport Van: Vehicle for transporting a non-driver wheelchair occupant.


Turn Signal Extension: A device that attaches to the OEM turn signal lever to allow a different location for activation.

Two Point Seat Belt: A seat belt system using a lap belt. (Type 1 belt).

UVW: Unloaded Vehicle Weight (See Vehicle Weight Rating).

U-Grip Steering Device: See Steering Devices.

Under the Floor Lift: A wheelchair lift having the storage area between the floor and the frame. (Also referred to as an In-floor lift).
Under the Vehicle Lift: A wheelchair lift having the storage area under the frame of the van.

Undercoating: A protective coating applied to the underside of the vehicle.

Unibody: The body serves as the frame of the vehicle, no separate chassis involved.

Unoccupied Restraint: See Unoccupied Securement.

Unoccupied Securement: A system or device to stabilize an empty personal mobility device while the vehicle is in motion.

Unoccupied Tie-Down: See Unoccupied Securement.

Unoccupied Wheelchair Tie-Down: See Unoccupied Securement.

Upfitter: Anyone who modifies a vehicle including modifier,alterer and final stage manufacturer.

Upper Torso Positioning Belt: A belt system designed to prevent excessive upper torso movement. (See also Lateral Support).

Used Motor Vehicle: A motor vehicle that has been sold for purposes other than resale. (Has been sold to an end user)

Vehicle Weight Rating:

Gross Axle Weight Rating (GAWR): The value specified by the OEM as the maximum weight allowed when a single axle of a fully loaded vehicle (all occupants, all cargo, full fuel tank, etc.) is weighed.

Gross Vehicle Weight Rating (GVWR): The value specified by the manufacturer as the maximum weight allowed when a fully loaded vehicle (all occupants, all cargo, full fuel tank, etc.) is weighed.

Unloaded Vehicle Weight (UVW): The weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle (full fuel tank etc.), but without cargo, any occupant or accessories that are ordinarily removed from the vehicle when they are not in use.

V-Grip Steering Device: See Steering Devices.

Vacuum: A space devoid of matter, negative air pressure.

Vehicle Type:- The class or type of vehicle as defined in section 571.3 of Title 49 of the Code of Federal Regulations (49 CFR), or as prescribed in section 4 of the Canadian Motor Vehicle Safety Regulations (MVSR) and defined in section 2(1) of the MVSR, e.g., passenger car, multipurpose passenger vehicle (MPV), truck, or bus and in section 568.3, e.g., incomplete vehicle.

Visual: Done or executed by sight only.

Warp: A twist or curve that has developed in something originally flat or straight.

WC19: ANSI/RESNA standard WC19 Wheelchairs Used as Seats in Motor Vehicles is a voluntary industry standard that establishes minimum design and performance requirements for wheelchairs that are occupied by users traveling in motor vehicles.
Weatherproof: Capable of withstanding exposure to weather without damage.

Wheelchair Carrier: Device to carry an unoccupied personal mobility device in/on a vehicle.

Wheelchair Hoist: Device to load unoccupied wheelchair in a vehicle

Wheelchair Restraints: See Wheelchair Securement

Wheelchair Securement: See Securement.

Wheelchair Sub Floor: The material used to make a smooth surface for a wheelchair to roll on.

Wiring Harness: A grouping of wires contained and protected by an outer encasement.

WTORS: The SAE acronym for Wheelchair Tie-down Occupant Restraint System.

Zero Effort Braking: A modification to the OEM power brake system that reduced pedal effort approximately 95%. See Reduced Effort Braking or Low Effort Braking.

Zero Effort Steering: A modification of an OEM power steering system to lower the amount of effort required to steer a vehicle approximately 75-95%. See Reduced Effort Steering or Low Effort Steering.

For additional automotive definitions see the following web link: 
www.cartrackers.com/auto_glossary
Certification Label

http://www.access.gpo.gov/nara/cfr/waisidx_06/49cfr568_06.html
CFR Title 49 Parts 567 & 568 & 595

**Type of Label:** Manufacturer Label

**Who Uses this label:** Final Stage Manufacturer

**Original Vehicle Status:** Incomplete

**Label Location:** at the driver side B-pillar or door edge.

Requires a (Final Stage) Manufacturer Label. An Incomplete OEM vehicle will have an OEM Incomplete Vehicle Certification Label, 49 CFR 567.5 (d)(v)(A)(1,2 or 3). Do not cover the incomplete vehicle label.

### INCOMPLETE VEHICLE LABEL

<table>
<thead>
<tr>
<th>INCOMPLETE VEHICLE MANUFACTURED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE (mm/yy):</td>
</tr>
<tr>
<td>GVWR: KG. (LB)</td>
</tr>
<tr>
<td>V.I.N./N.I.V:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GAWR KG (LB)</th>
<th>TIRE SIZE</th>
<th>RIM</th>
<th>COLD INFL. PRESS PSI (KPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRT:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D
LABELS AND DESCRIPTIONS

National Mobility Equipment Dealers Association Guidelines
Revised December 19, 2013 Page 2 of 5

Adds an alteration Tag.
Requires an Alterer Label. 49 CFR 567.7

<table>
<thead>
<tr>
<th>Type of Label:</th>
<th>Alterer Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who Uses this label:</td>
<td>Alterer</td>
</tr>
<tr>
<td>Original Vehicle Status:</td>
<td>Complete, Certified and Prior to First Retail Sale</td>
</tr>
<tr>
<td>Label Location:</td>
<td>Next to the OEM Certification Label (Must not cover the OEM label).</td>
</tr>
</tbody>
</table>

![Image of the label template](image-url)
APPENDIX D
LABELS AND DESCRIPTIONS

National Mobility Equipment Dealers Association Guidelines

Revised December 19, 2013

Make Inoperative Label

http://www.access.gpo.gov/nara/cfr/waisidx_06/49cfr595.06.html

CFR Title 49 Part 595

| Type of Label: Make-Inoperative Label |
| Who Uses this label: NHTSA Registered Modifier |
| Original Vehicle Status: Complete (Labeled as Certified), Titled (Sold to End User) |
| Label Location: Applied adjacent to the OEM certification Label. (Must not cover the OEM label). |

Requires a Make Inoperative Label if any of the FMVSS standards listed in 49 CFR 595.7 are rendered inoperative after the modification. The label requires a physical address of the facility which modified the vehicle. If the inoperative label is used, there are additional requirements that must be met for documentation, tracking. 49 CFR 595.7D

Reference Guidelines Section 1.
This label must be used if there is no tire label or if seating capacity has changed or tire/rim information has changed.

(Add “Sample Completed” to Vehicle Placard)
The Alterer has two options:

1) If a modification adds the lesser of one and one half percent (1.5%) of the vehicle’s GVWR or 100 pounds (45 kg) in additional weight, the reduction in load carrying capacity must be determined and a Load Carrying Capacity Reduced Label stating the amount of weight the load capacity has been reduced from the original be affixed to the vehicle within 1” of the existing Tire Placard (label).

2) Do nothing if the load carrying capacity has not been reduced by the lesser of one and one half percent (1.5%) of the vehicle’s GVWR or 100 pounds (45 kg).

---

**CAUTION: LOAD CARRYING CAPACITY REDUCED**

Modifications to this vehicle have reduced the original load carrying capacity by _______ kg or _______ lbs

Figure 7 - Load Carrying Capacity Modification Label