# INSTALLATION MANUAL

## TT Dynamics L.L.C.

**TCR Crew**

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# TT TRANSITION PLATFORM

1. Remove plastic covers. **Fig. 1- Fig. 3**

**Figure 1: Plastic Cover 1**

**Figure 2: Plastic Cover 2**

**Figure 3: Plastic Cover 3**

2. Unlock vehicles driver seat by removing star bolts at two locations shown. **Fig. 4- Fig. 5**

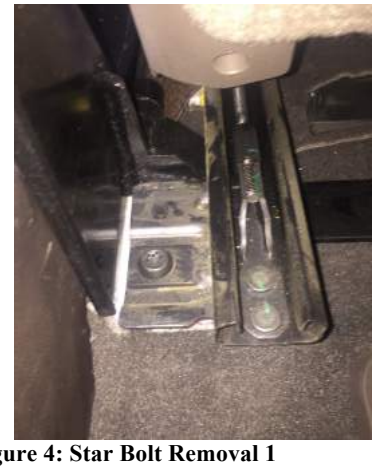

**Figure 4: Star Bolt Removal 1**

**Figure 5: Star Bolt Removal 2**

3. Unplug drivers seat electrical connections. **Fig. 6**

**Figure 6: Drivers Seat Electrical Connections**

4. Remove seat by lifting up and pulling back, to pull the tabs out of the slot.
5. Install the transition platform cross bracing to the unused holes in the front, holes in vehicles cab are to be tapped with 3/8”- 16 tap before bolting to front locations with 3/8” X 1” hardware provided. Once transition platform is in place mark the back hole locations, remove transition platform and use 7/16” drill bit to drill holes in marked locations. Reinstall transition platform and use 3/8” bolts, flat washers, lock washers, and nuts provided. **Fig. 7- Fig. 8**

**Figure 7: Front Transition Platform Bracing**

**Figure 8: Rear Transition Platform Bracing**

6. If seating area was removed from mounting cross braces slide transition platform onto two mounting cylinders and screw on bolt and washer on front mounting location. Use loc-tite on set screw and leave seat in upward position until loc-tite has settled. This will allow washer and set to turn but set screw stays stationary. **Fig. 9**


**Figure 9: Transition Platform Mounting**

7. Reinstall drivers seat by placing front tabs in slots and push down to lock in place.
8. Bolt driver's seat back in using same bolts that were removed above.
9. Plug in electrical connection for drivers seat.
10. Place in fabric to cover up electrical connections and use self-tapping screws drilled through metal box to hold in place.

ⓘ **Caution:** Do not set drivers seat directly on electrical connection when installing transition platform to avoid damaging driver's seat functionality.

# TT REAR INTERIOR WINCHING SYSTEM

1. Remove drivers side rear seat in connection with the rear middle seat.
    - Rear passenger side seat will also have to be temporarily removed so paired seating can be completely detached before reinstalling rear passenger side single seat. **Fig. 10- Fig. 13**

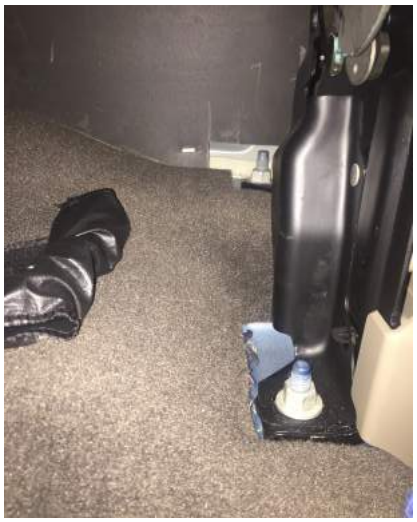

**Figure 10: Rear Seat Removal 1**

**Figure 11: Rear Seat Removal 2**

**Figure 12: Rear Seat Removal 3**

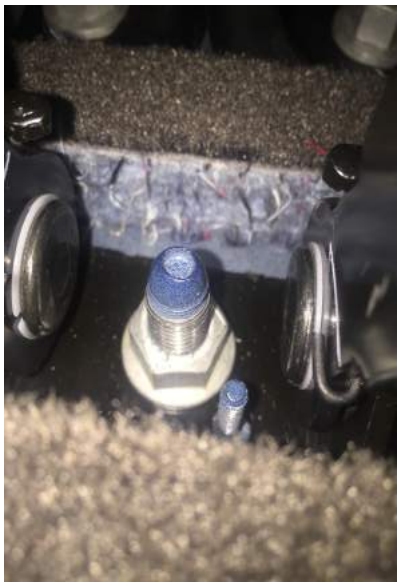

**Figure 13: Rear Seat Removal 4**

- Uninstall seat belt for seating that is removed. **Fig.14**

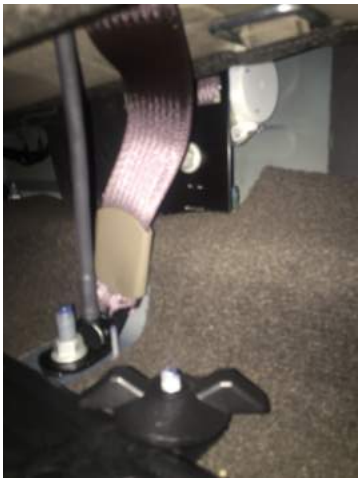

**Figure 14: Rear Seat Belt Removal**

2. Install provided fabric to rear cab paneling utilizing slot in the fabric to slide over loops shown. Use 3" Velcro strips provided to stick fabric to rear cab wall eliminating bubbling out effect of fabric. Passenger side of the fabric can be tucked behind rear passenger seat. **Fig. 15**

**Figure 15: Rear Fabric**

3. Install winch to vertical upright using 5/16” X 3” bolts, flat washers, lock washers, and nuts provided. **Fig. 16**

**Figure 16: Mounting Winch to Upright**

4. Install vertical upright in position shown below in **Fig. 17- Fig. 21**

**Figure 17: View Through Rear Passenger Door**


**Figure 18: Dimensioned View**

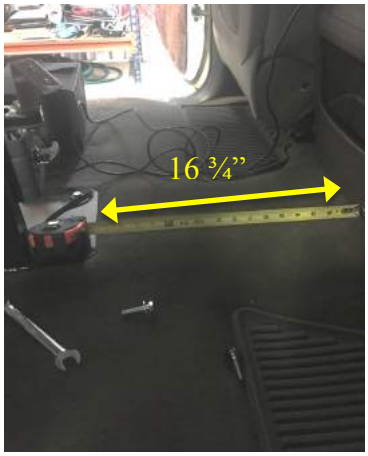


**Figure 19: Dimension From Center Counsel**

**Figure 20: View from Rear Drivers Door**

**Figure 21: Edge of Plate Up to Curve in Floor**

- Cut slits in carpet to allow for bolts to connect upper and lower support plates. Verify position from underneath floor of vehicle.
- Place support plate in position underneath vehicles floor to match up with upper plate on the passenger side bolt locations. Use 3/8” X 1-1/2” bolts, flat washers, lock washers, and nuts. The bolts with the thick washers will go in the two drivers side bolt locations. Washers may need to be ground off to fit flush with vehicles cab. (Two people needed for this operation).

ⓘ **Caution:** Either have both doors open at all times until vertical upright is secured in position or roll down windows to avoid upright mistakenly falling during install and break a window. TT Dynamics is not responsible for installation error.

5. Run winch strap through top roller and attach S-clip. **Fig. 22**

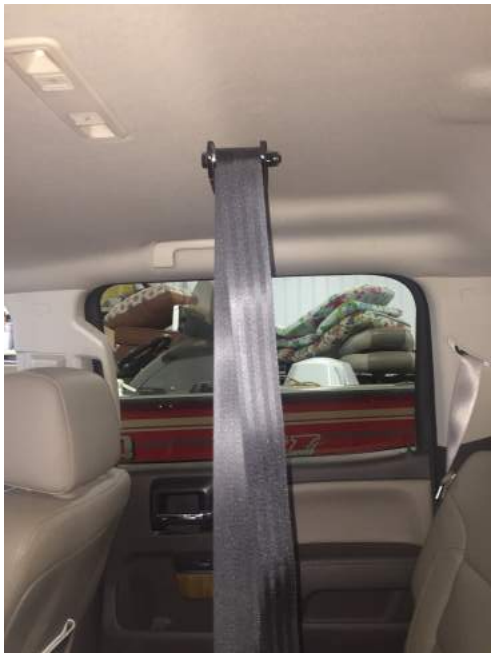

**Figure 22: Winch Strap/ S-Clip**

6. Drill ¼” piloting hole in location shown in figures below before using 1-1/8” drill bit in same location as piloting hole. Hole is used to run winches positive and ground wires to front of vehicle under the hood. **Fig. 23- Fig. 27**

**Figure 23: 3/4" Wiring Hole**

**Figure 24: Hole Relative to Rear Passenger Seating Anchor**

**Figure 25: Dimension from Seat Anchor Carpeting**

**Figure 26: Finished View**

**Figure 27: Plastic Sealing Nut**

- Place plastic nut through 1-1/8” hole and loosely tighten so wires are still able to go through hole.
- Run winch wires through plastic nut and then tighten nut to seal the wires.

7. Run wiring along frame of vehicle and zip tie. **Fig. 28- Fig. 39**

**Figure 28: Winch Wires from Bottom Side**

**Figure 29: Zip-tie Wires to Top of Running Board Brackets**

8. Screw 12V 30A breaker to passenger side sidewall of vehicle underneath the hood using hardware shipped on fuse. **Fig. 30**
9. Attach foot long wire shipped on fuse to batteries positive terminal (+) and attach positive wire coming from winch to the fuses other location. Attach winches black ground wire to batteries ground terminal (-). Either wrap excess wire out of the way or trim off excess and re-crimp terminals on end of wires securely. **Fig. 31**

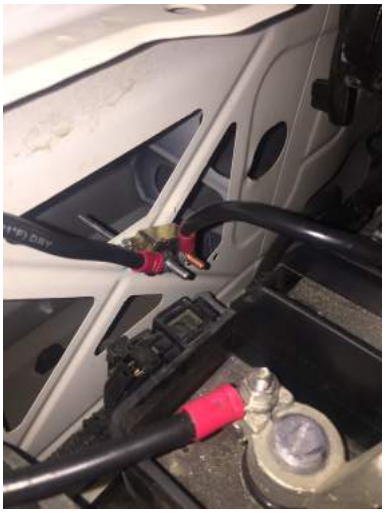

**Figure 30: Winch Breaker Mounting**

**Figure 31: Wiring Connections**

10. Place abrasion resistant wheelchair platform into position behind drivers seat **Fig. 32**

**Figure 32: Abrasion Resistant Platform**

11. Screw extension nut onto same permanent bolt that was used for rear drivers side seat. **Fig. 33**

**Figure 33: Extension Nut**

12. Roughly place rear platform bracket in position, tilt bracket down on platform and mark hole locations. Drill holes in platform using 7/16” drill bit. Loosely

place 3/8” X 2” bolts in place and use the tightening process of the bolts to bend the bracket to mount flush at each location. **Fig. 34**

**Figure 34: Rear Platform Bracket**

13. Be sure that platform is centered with the opening of the rear driver’s side door. **Fig. 35**

**Figure 35: Platform Centered in Rear Door Opening**

# TT SIDE RIDER RUNNING BOARD

1. If vehicle has a pre-installed running board, remove running board and attachment brackets. **Fig. 36**

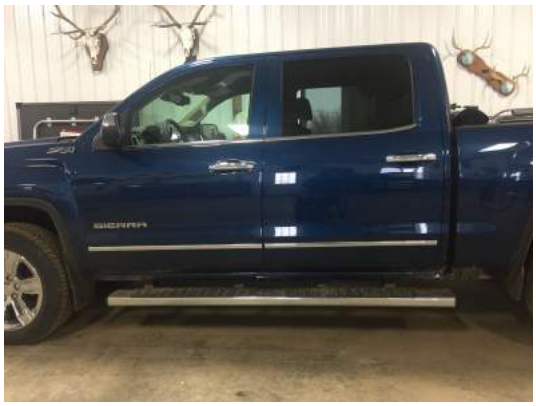

**Figure 36: Running Board Removal**

2. Install the three similar running board brackets provided by TT Dynamics in front three positions. Re-use old hardware if possible, if not new hardware is provided.
    - Brackets install in same positions as original brackets. **Fig. 37- Fig. 38**

**Figure 37: Running Board Bracket Upper Mounting Location**

**Figure 38: Running Board Bracket 2nd Mounting Location**

3. Install the one dissimilar bracket into the rear position. **Fig. 39**

**Figure 39: Rear Running Board Bracket Mounting**

4. Place the bottom side rider housing with linear motion system onto installed brackets and attach using 3/8” X 1-1/4” bolts, flat washers, lock washers, and nuts at 4 locations. **Fig. 40**

**Figure 40: Housing Mounting to Brackets**

5. Attach upper side rider housing by sliding protruding angle through rubber weather seal and secure using 3/8” X 1” bolts, flat washer, and lock washer at the front bottom four locations. There is a threaded tab on the inside of the housing that the bolts will thread into. Be sure that bolts screw on freely to avoid cross threading the nuts, which could cause major problems. Also do not over tighten these front four bottom bolts to avoid striping out the threaded tab. Use 3/8” X 1-1/2” bolts, flat washers, lock washer, and nuts at the rear top locations and fasten securely. May need to use a screw driver through the holes in tabs to get them to line up and use a clamp to secure them together whole tightening bolts. **Fig. 41**

**Figure 41: Housing Cover Attachment**

6. Drill ¼” piloting hole in location shown in Figure 49 before using 1-1/8” drill bit in same location as piloting hole. Hole is used to run stepper motor and proximity sensor wires to electrical box to be placed underneath inclined wheelchair platform. **Fig. 42**
    - Place plastic nut through 1-1/8” hole and carefully run black electrical connectors through hole. Be sure when pushing

connectors through hole that you aren't pushing on the wires themselves to avoid damaging wires.

- Zip tie flexible tubing with wires to frame of vehicle or brackets along the way.

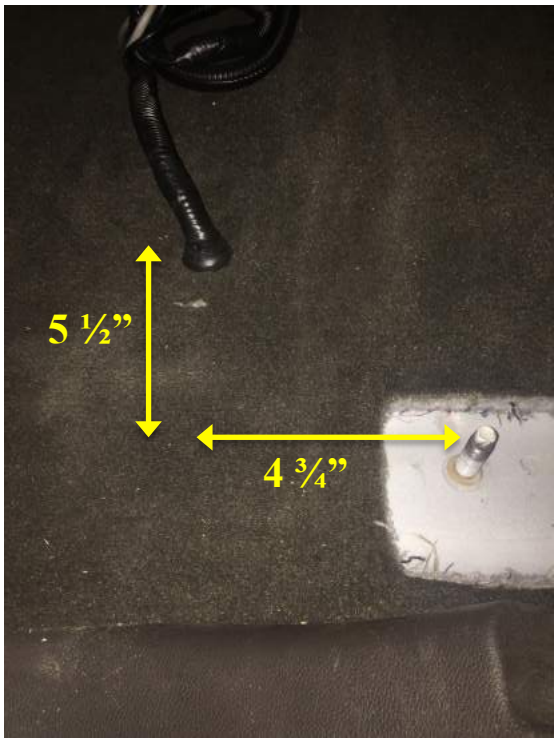


**Figure 42: TT Side Rider Motor Wiring**

7. Tighten plastic nut to seal wires.

8. Plug in electrical connectors to corresponding connectors coming from the electrical box.
    - It is vital that wires are plugged into correct locations to be sure stepper motor and proximity sensors work as intended.

9. Place electrical box in safe spot underneath inclined platform, coil up and zip tie excess wiring for a neat finish.

# REAR DRIVERS SIDE DOOR PANEL REMOVAL

1. Remove wooden accent and screws that are underneath it. **Fig. 43**
    - Caution: Be careful in removing accent, as the clips that GMC uses to hold it on are somewhat fragile.

**Figure 43: Wooden Accent Removal**

2. Remove plastic piece located by window control and remove fasteners. **Fig. 44**

**Figure 44: Remove Plastic Piece**

3. Remove fastener on bottom side of door panel. **Fig. 45**

**Figure 45: Remove Screw on Bottom Side**

4. Use a prying tool on edge of door panel to then carefully pop door panel out of clips.
5. Unplug all wiring so door panel is completely removed.
6. Unscrew speaker and carefully use prying tool to pop speaker off of adhesive holding speaker in position.
7. Tuck all loose wiring out of the way and tape in place.
8. Unscrew black door bracket and replace with extended similar bracket provided by TT Dynamics. **Fig. 46**

**Figure 46: 90 Degree Door Opener**

9. Use small disc grinder, small hacksaw, or small dremel to trim off door hinges a small amount to allow door to open up to a straight ninety degrees. View before and after photos below and use red line, as a guide on how much needs to be cut off. **Fig. 47- Fig. 48**

**Figure 47: Before: Door Tab**

**Figure 48: After: Door Tab**

**10.** Use TT Dynamics metal handle with rubber grip to mark hole locations and use 3/8" drill bit to drill through doorframe allowing the handle to be mounted in a future step. Don't place handle on door at this point. **Fig. 49-Fig 50**
****CAUTION**: Be sure to place a filler material such as wood or metal between doorframe and window to avoid drill bit going through doorframe and smashing into the glass window. The filler material will not allow that to happen. We are not responsible for broken window during installation.

**Figure 49: End Handle Placement Location**

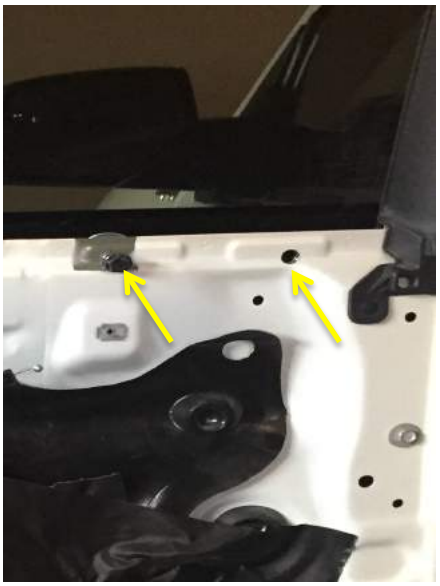

**Figure 50: Drilled Hole Locations**

**11.** Tape up original door handle cable and door electronics cable to the door in position shown below in **Fig. 51**

**12.** Slide black TT Dynamics handle assembly through pre drilled hole in back of the dark grey door covering fabric and slide doors locking mechanism through predrilled hole location shown. Use one or two 5/16" black retainers to temporarily hold fabric in place while remaining steps are completed. **Fig. 52**

**Figure 51: Bare Door Panel**

**Figure 52: Door Cover Fabric Initial Placing**

**13.** Place slotted strap fork over original door handle cable and once the ball on the end of the cable is centered in strap fork use pliers to clamp onto ball not allowing for strap fork to turn and crimp both above and below ball with another set of pliers. **Fig. 53- Fig. 54**

**Figure 53: Original Door Cable**

**Figure 54: Strap Fork with Loose Heat Shrink**

**14.** Run TT Dynamics plastic coated handle assembly through GMC Factory handle.

**15.** Fill in remaining black panel retainers in the predrilled locations around the edge of fabric at 13 locations.

**16.** Install handle over top of fabric by holding the offset nuts in the previously drilled holes making sure they are not able to fall into door frame, push 5/16" bolts through predrilled holes in fabric and tighten into offset nuts. **Fig. 55- Fig. 57**
**Note:** If offset nut and washer were to fall into doorframe remove bottom right plastic panel retainers enough to access voided speaker hole and retrieve nuts.

**Figure 55: Handle Location**

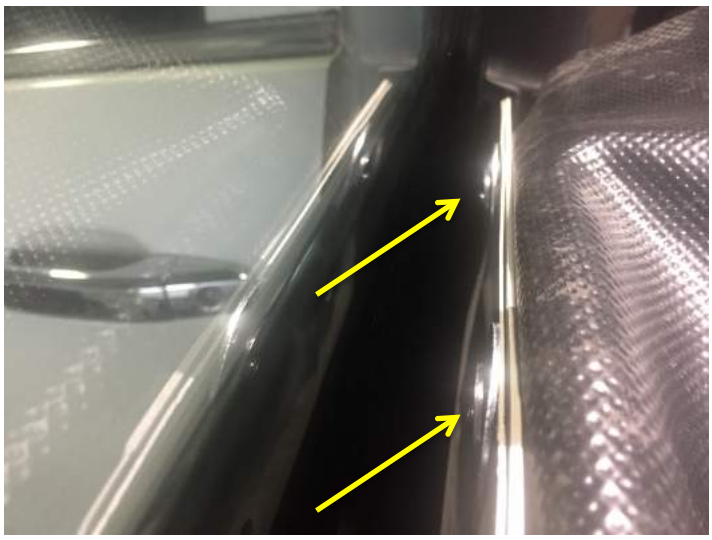

**Figure 56: Offset Nuts and Washers**

**Figure 57: Final Appearance**

**17.** Once handle is mounted fold over the remaining fabric in between the doorframe and window.

# WHEELCHAIR ATTACHMENTS

1. Attach two 1" axle clamps. The only dimension that matters is the one shown. **Fig. 58**
2. Angle of bracket will need to be adjusted to correct angle on customers wheelchair in order to lift back wheels off ground an adequate height so wheels don't rub on ground when chair is rolling back on running board actuator.
3. Attach third bracket to ¾" cross post on wheelchair backrest. **Fig. 59**

   **Note:** Tighten bracket securely to avoid rotating during loading process.


**Figure 58: Wheelchair Attachment**

**Figure 59: Wheelchair Cross Post Attachment**