

AT FOR DRIVING: PAVING THE WAY FOR SMOOTHER JOURNEYS



If you have a mobility disability—whether it’s mild or severe, or temporary or permanent—you may need assistive technology (AT) aids in order to drive. Myriad AT for vehicles, such as lifts and transfer seats, electric driving aids, and left foot gas pedals, may help you in driving from one place to the next. From automobile hand controls to the self-driving car, this guide provides you with a sampling of a range of driving aids on the market that are designed to help you drive safely and independently.

Getting in Your Vehicle

The first task for driving is getting in your vehicle. If you use a wheelchair, there are vehicle lifts and transfer seat bases available to help you do just that.

Wheelchair Transfer Seat Base

Power transfer seat bases allow you to transfer into the driver or passenger seat directly from a wheelchair in your vehicle. One example is the [Comfort Series Special C61](#), which is designed for driver-side installations in full-size vans with a lowered floor. This six-way power transfer seat base can move up and down approximately 6.4 inches, shift backwards and forwards 19.5 inches, and swivel left and right by 100 degrees. With a

weight capacity of 500 pounds, the Comfort Series Special C61 is 36.25 inches long, 13 inches wide, and 6.875 inches high (in its lowered position). You can lower or raise the seat to the required level to transfer into it from your wheelchair. Once you have positioned yourself into the driver's seat, swivel away from your wheelchair located in the center of the van using either the side-mounted switchbox or the coiled cord handheld pendant. Then turn around and move forward until you are in front of the steering wheel. The transfer seat's Passive Interlock System will secure the driver's seat in place to prevent unwarranted movement while driving.

So You Need an Accessible Vehicle. Where Do You Start?

Buying a new vehicle can be exciting, yet challenging—especially if you are buying your first accessible vehicle for yourself or a loved one with a mobility disability. Where do you start?

Read our [blog on accessible vehicles](#) for more information.

Wheelchair Lifts

Wheelchair lifts allow you to lift and move your wheelchair into your vehicle. One example is the [SPEEDY-LIFT](#). Designed for most minivans, the SPEEDY-LIFT is installed in place of the passenger's seat behind the driver's seat of your vehicle. It does not require structural vehicle modifications. You just remove the passenger seat and install the SPEEDY-LIFT in the anchorage brackets that originally secured the seat. You use a control panel to operate it. To operate the SPEEDY-LIFT, you transfer out of your wheelchair, pull the back of your wheelchair to your open sliding van door, hook it on the SPEEDY-LIFT, and push the "IN" button on the control panel. The SPEEDY-LIFT then hoists your wheelchair up, pulls it into the vehicle, and locks it in place using its automatic locking mechanism. The SPEEDY-LIFT has a 95-pound weight capacity and is powered by your vehicle's battery.

Operating Your Vehicle

If you have limited or no lower body or leg movement, vehicle hand control systems may help you with driving. With a few modifications and adjustments, these systems provide you a way to operate your vehicle's controls—such as its steering wheel, clutch, accelerator, and brake pedals—with your hands.

Mechanical & Electric Hand Control Systems

Mechanical hand control systems are physically connected to your vehicle's standard controls to allow you to operate them with your hands. One example is the [Spin Master Spinner Knob by Sure Grip Hand Controls](#). It is a knob that is designed to assist you with moving your steering wheel with less effort. Its clamping jaws (which provide a 3-inch clamping surface) and clamshell design allows the Spin Master to fit any sized steering wheel. And with its quick-release function, you can remove and refit the spinner knob with just the touch of a button. The [QuicStick Portable Handicap Hand Controls for Cars](#)

is another example of a manual hand control system. This hand control has a knob and a lever connected to two poles with a set of brackets at the end of each. You secure one pole to the brake pedal and another to the accelerator pedal by tightening one set of brackets around each pedal. You then adjust both poles to where you can reach the knob and lever with your hands while you are seated in the driver's seat. To operate your vehicle, you push down on the knob with your thumb to activate the accelerator pedal and push down on the lever to activate the brake pedal. Made with lightweight, durable T-6 aluminum and covered with anti-slip foam, you can use QuicStick Portable Handicap Hand Controls with either your left or right hand. They fit most vehicles, can be quickly installed and uninstalled, and can be transferred from one car to another.

Electronic hand control systems are another class of hand control systems that may help you with driving. Unlike mechanical hand control systems, these systems allow you to operate your vehicle without connecting to its mechanical controls, via "drive-by-wire" technology. One example is the [Joysteer One-Hand Joystick](#). This device is a

steering, accelerating, and braking controller in one. It allows you to control your vehicle with one hand via a joystick. Rotating the joystick to the right or to the left will steer your vehicle in the direction you want it to go, pushing it upward will activate your vehicle's brakes, and pressing it downward will accelerate your vehicle. The Joysteer One-Hand Joystick can be installed on conventional vehicles—and even after installation other drivers can still operate the vehicle mechanically if necessary.

Left Foot Gas Pedals

Left foot gas pedals enable drivers with limited or no use of their right leg to drive a car using their left leg. They are designed specifically for vehicles with automatic transmissions.

Helpful Resources

Finding a Driving Specialist

Driving specialists can help you identify any physical, visual, and cognitive disabilities that can impact your driving. They can also suggest vehicle modifications and other ways to limit risks. Visit the [American Occupational Therapy Association's \(AOTA\) database of driving specialists](#) to find services near you.

Getting a Disability Placard and License Plates

To park in a space designated for persons with disabilities, you must have either a disability placard or a disability license plate. Most states offer removable placards for those with short-term or long-term disabilities, as well as license plates for those with long-term disabilities. Broken down by state, the [Department of Motor Vehicle's website](#), DMV.org, provides a wealth of information about disability placards and license plates, including what you need to apply, where to apply, and how to renew or replace your disability parking permit.

One example is the [Menox Left Foot Accelerator Quick Release](#). This model allows you to control your vehicle's original accelerator with your left foot alone. This left foot accelerator consists of two hinged pedals that are connected to the original accelerator pedal by a mechanical rod. When you press down on the left foot accelerator, the hinged left foot pedal transfers the applied force to the vehicle's original accelerator through a high-quality Teflon-coated cable, initiating the gas and enabling you to drive. The Menox pedal is universal and can be installed into most makes and models; it is compatible with vehicles driven from either the right or left side (i.e. right or left side steering wheel). The floor-mounted unit has a pedal guard for the original accelerator pedal and a quick-release feature for easy removal. When not in use, the Left Foot Accelerator must be removed from the driver's side floor space so that it does not obstruct other drivers from using the car. Another example is the [Portable Left Foot Accelerator by PLFA](#). This device is portable for easy transfer from one vehicle to another. It consists of two adjoining plates. The plate on the right goes over your vehicle's existing accelerator pedal. When you press on the plate on the left, it also pushes the right plate down on your accelerator pedal. The device does not interfere with your vehicle's brake pedal. You can operate your brake pedal the standard way (i.e., with your left foot). The device has a non-skid top surface and a vinyl gripping bottom surface to secure it to the floorboard of your car.

[Having Your Vehicle Drive for You](#)

In 2009, Google started the self-driving car project, which launched the creation of the [Google driverless car](#). Google first tested its self-driving technology with existing vehicles on freeways and then progressed to city streets, which presented a more complex environment. In 2014, Google unveiled its first fully self-driving prototype vehicle. Built from the ground up, the Google self-driving car has software and sensors that perform the same functions as foot pedals and a steering wheel on any standard vehicle: accelerate, brake, steer, and veer (Google Self-Driving Car Project – B, no date). It can also process both map and sensor information to determine its exact location, down to which street it's on and the lane it's in.

The Google self-driving car's built-in laser and radar sensors is designed to detect both small and large objects from all directions as far as two football fields away. When the sensors detect an object around you, the software performs a series of steps:

- Classifies the object based on its size, shape, and movement pattern;
- Predicts what the object might do next;
- Selects a speed and trajectory based on its assessment; and
- Moves the car accordingly.

For example, if the car's software recognizes that a cyclist and a pedestrian are in close proximity to the car and predicts that the cyclist will ride by and the pedestrian will cross the street, the car will nudge away from the cyclist and slow down to yield to the

pedestrian. Powered by electric batteries, the Google self-driving car comes equipped with a camera, a computer designed specifically for self-driving, and backup systems for steering, braking, and computing (Google Self-Driving Car Project – A, n.d.).

Google is also not the only manufacturer creating self-driving cars. Other automakers, including Tesla, Mercedes-Benz, Delphi, Nissan, Audi, and Bosch have working prototypes.

For More Information

[Contact us](#) at AbleData for more information on the products mentioned in this guide and others that may help you with driving.

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