



Automotive Services

Drive-in service at HSC? No, it's not for burgers or oil changes. It's EMAT's auto bay, and it's where EMAT staff modify cars, trucks, motorcycles, garden tractors, motor homes, and just about anything else that can be driven.

The modifications are done to accommodate drivers who are amputees, have had spinal cord injuries or strokes, are short in stature, or have diseases such as Multiple Sclerosis.

Vehicle modifications often involve the installation of hand controls. For people unable to use foot-operated gas and brake pedals, custom controls are designed and installed where a handle is pulled for gas and pushed for brake. The other hand is used for steering, possibly using a spinner knob.

Someone who has had a stroke may be unable to use his or her right foot on the gas pedal. By installing a second gas pedal to the left of the brake, both brake and gas can be easily controlled by the left foot. The left gas pedal can be folded out of the way so other drivers can use the car's regular pedals.

Some vehicles are too awkward for a wheelchair user to access: a tractor seat is too high for a simple transfer, and a motor home often has stairs at the entry. By installing custom-made, powered, elevating transfer seats, disabled users can move from

wheelchair to transfer seat, then up and onto or into the vehicle.



Some changes are less complex. Occasionally, all that's needed to improve a driver's independence is a special grab handle to assist entry, modified upholstery for improved seating, or a special harness for a more secure ride

These are just some of the many automotive options and devices avail-

able for EMAT clients. As with all of EMAT's services, our staff will work with you to find the best custom solution for your particular situation. ❖



Steer-ific

Have you ever driven an old car without power steering? It can take quite a lot of strength to turn that wheel. For someone with weak arms, even power steering can often be too difficult. By modifying a car's power steering system, it is possible to decrease the amount of effort needed to steer it.

Until recently, Manitobans who needed reduced effort steering (sometimes called Zero Effort) had to remove their car's steering box, send it away for modification, then reinstall it - a long and expensive process.

EMAT Auto Services staff recently attended a course on Zero Effort steering and are now able to do the modifications right here. The time required is generally about a day, and the client's cost is greatly reduced through our program.

If you would like more information on this new service, please call us at 787-2366. ❖

The Solution Designers

How does someone “solve a problem” or “design a solution”?

There are a few common steps we all follow when faced with a problem. First is to clearly define the problem. Then brainstorming – what are ALL the possible solutions? EMAT’s solution designers have found that even the most far-fetched ideas can often give insight into the best solution to a problem.

When a client comes to EMAT with a problem, the design team collects all the relevant information and works through all the potential solutions to determine the best option for the circumstances.

One example of the design process at EMAT involved a man



who uses a power wheelchair and wanted to drive an electric lawn tractor to cut his grass. He could sit on the tractor seat if it was made more supportive, but transferring to the seat would require assistance from others.

He could drive his chair up onto a trailer that would be at-

tached behind the tractor and use relocated controls, but that would make the tractor unit very long and hard to maneuver. An EMAT staff member remarked about cutting the tractor in half and attaching the front to an entirely new rear half, onto which the client could drive his wheelchair. This last suggestion initially seemed outlandish, but it got everyone’s juices flowing.

In the end, the tractor was cut in half and re-built. The owner now uses the tractor independently to mow the family’s several-acre lot. The only downside is that last summer was so wet, he couldn’t mow as often as he would have liked! ❖

Accessible Accessories

Driving a car requires more than “start, stop and steer”. For safety, the Highway Traffic Act requires that a driver must be able to sound the horn, control the wipers, dim the headlights, and activate the signals while maintaining control of the vehicle.

Comfort is also a consideration, though not a law. Heat, windows, and other auxiliary devices should be easily controllable as well. For the disabled driver who’s using a hand control and steering wheel, it is difficult and unsafe to reach for anything else.

EMAT staff can modify vehicles to permit easy access to auxiliary control switches. The first step, often involving an occupational therapist, is to assess the



client and the vehicle to determine the modifications and switches required, as well as suitable locations for these switches.

Modifications depend on the client’s abilities, and can range from relocating a dimmer switch to a complete set of multi-functional elbow or head-operated switches. Multi-functional switches allow the driver to perform a number of tasks with one switch. For example, one tap turns window wipers on or off, two taps turns up their speed, and holding the switch down starts the wash cycle.

Auxiliary control modifications make use of a specially designed micro-controller-based circuit board, designed and built at EMAT. The car’s existing controls are analyzed and interface circuitry is custom-designed to ensure the new system is compatible with the existing electrical components. EMAT staff are also careful to minimize changes to a vehicle’s interior finish to keep the modifications as unobtrusive as possible. ❖