While most of us take our personal mobility for granted, or even greatly appreciate it, there are many who are not able to walk to their vehicle, much less enjoy the freedom of getting in and going places. Some are elderly or ill; others have suffered life-changing injury; all seek to maintain an active lifestyle. Fundamental hand controls have been available for many years, so someone without full use of their feet can perform basic acceleration and braking procedures. Racks are available to carry a wheelchair on the back of a larger vehicle. And specialized vans have been able to accommodate a passenger, and sometimes a driver, in a chair. Now, breakthrough developments by the major manufacturers are allowing the disabled unprecedented ability to access, enter, exit, stash their gear, and drive or ride in comfort and total control. A combination of newly specialized vehicles, plus standard vehicles with broader forethought applied, present an enormous leap in mobility and personal freedom.

Ford Mobility Motoring

Approximately 3,000 people with disabilities received benefits from Ford through November 2003. Since its creation in 1992, the Ford Mobility Motoring program has assisted more than 100,000 people with millions in reimbursement funds.

In addition to financial aid, Ford Mobility Motoring can provide a state-specific information packet listing assessment centers, equipment installers and other potential sources of financial assistance, including extended vehicle financing terms through Ford Credit Mobility Financing. Ford is the only automotive manufacturer to be honored by the National Business and Disability Council and two-time recipient of the National Business and Disability Council’s Valued Customer Award in 1998 and 2002 for its mobility efforts and practices. For more information call 1.800.952.2248 or log on to www.mobilitymotoringprogram.com.

Mobility Tuned Focus: The Ford Mobility “Tuned” Focus puts young people with disabilities into the driver’s seat of the “hot-hatch” craze inside the world’s best-selling car. At the Chicago Auto Show, Ford displayed a customized Focus ZX3 demonstrating mobility enhancements that can make vehicles accessible yet still exciting to people with disabilities. Ford worked with aftermarket appeal manufacturer Ballistic Unlimited and Bruno Independent Living Aids to create the “Tuned” Focus, with street-racer appeal and features.

The basic Ford Focus claims more headroom and easier ingress and egress than other cars in its class. Instrument panel controls, including larger radio and climate control knobs and buttons, are designed to be easier to locate, grab and manipulate. Building from this solid base, Bruno Independent Living Aids of
The Go Mobility Ford Expedition concept vehicle.
The engine has Toucan Industries styled to match the interior. The interior 
versatile Typhoon™ C3 Scooter in the rear. The scooter has been painted to match 
opening, which easily stores Bruno’s 
installed a trunk lift in the rear hatch 
throttle and brake. Bruno has also 
simultaneous one-hand control of both 
the steering column for independent, 
and passenger positions provide an even 
90 degrees, plus power out and down, 
Bruno’s Rio Travel Scooter™ is stowed 
fully adjustable Bruno Offset Fold-Away™ 
powered scooter lift capable of raising 
and storing a scooter or wheelchair 
widthing up to 200 pounds. The lift can 
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Monterey Mobility Minivan
Lincoln-Mercury and Bruno Independent Living Aids have teamed up to debut the 2004 Monterey mobility minivan. Mercury’s first long wheelbase minivan with adaptive mobility equipment.

Mercury Monterey Mobility Minivan
Lincoln-Mercury and Bruno Independent Living Aids have teamed up to debut the 2004 Monterey mobility minivan. Mercury’s first long wheelbase minivan with adaptive mobility equipment. Unveiled at the Greater LA Auto Show, the van features front- and second-row Bruno Turvy™ passenger seats that rotate 90 degrees, plus power out and down, allowing a person to sit in either seat before entering. Both seats are operated by individual hand-held controls and have a weight capacity of up to 330 pounds. Unlike most seats modified with accessibility functions, Monterey maintains the original factory from passenger seat. Both seats can be easily restored back to original condition for resale.

The Monterey has been engineered specifically to address the physical limitations of people. Particular attention was placed on ergonomic engineering early in the product development process to allow a full-term pregnant woman, the elderly or other people with physical limitations to perform everyday vehicle functions with minimal or no restrictions.

Ford Mobility Motoring—According to Census 2000, there are nearly 50 million people in the U.S. with a long-lasting physical disability. More than 20 million Americans have a walking disability. The US government considers a person to have a disability if he or she has difficulty performing one or more activities of daily living (walking, seeing, hear-

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In 1999, Ford developed the Third-Age Suit as a hands-on research tool. The full body Third Age Suit, appearing as technical as a space suit, ages the wearer by 30 years; using materials that add bulk and restrict movement in key areas of the body such as the knees, elbows, stomach and back. Together with gloves that reduce the sense of touch and goggles that simulate cataracts, the suit gives engineers and designers a realistic feel for the vehicle needs of the elderly.

Research gathered from the suit was helpful in the design process of these Ford Mobility vehicles.
"No Boundaries" — Tiger Racing, HP Motorsport and Ford Motor Company bring Carol Hollfelder to the SCCA Speed World Challenge GT Championship

Tiger Racing of Covina, California, first developed their technical relationship with Ford Motor Company in support of their 2003 Speed World Challenge effort. Tiger Racing campaigned a Ford Mustang for driver Carol Hollfelder, a paraplegic, who uses specially engineered hand controls to race competitively at the professional level. Ford Motor Company supplied Cobra 4.6 DOHC engines and Tremec six-speed electrohydraulic gearboxes to the team. This transmission employs fingertip control Formula 1 style paddles that enable almost imperceptible gear changes to be completed in under 250 milliseconds — less than the blink of an eye. Ford also provided technical support for the program.

To win races, any race car must be operated at its performance limits. The driver must have precise control of steering, braking, acceleration and gear selection. Furthermore, this control must be applied in a chaotic environment of g-forces, speed, proximity to other racers and changing track conditions. An able-bodied racer uses both hands and feet to control the vehicle. A paraplegic racer is unable to use her lower body, so those functions normally controlled by the feet must be accommodated elsewhere. In the Hollfelder/Therklason Hand Control System, the race car is controlled as follows:

- **Clutch**: Left Leg Extension
- **Brake**: Right Leg Extension
- **Throttle**: Arm Extension
- **Steering**: Thumb Switches

The Mustang — The Tiger Racing Mustang GT is based on the 2003 Ford Mustang. It is, however, a purpose built road racing car specially engineered hand controls to race competitively at the professional level. Ford Motor Company supplied Cobra 4.6 DOHC engines and Tremec six-speed electrohydraulic gearboxes to the team. This transmission employs fingertip control Formula 1 style paddles that enable almost imperceptible gear changes to be completed in under 250 milliseconds — less than the blink of an eye. Ford also provided technical support for the program.

GM Mobility — Universal design for all populations

The GM Mobility Reimbursement Program was launched by General Motors in 1991. GM dealers nationwide, reimbursing up to $1,900 toward the cost of adaptive mobility equipment permanently installed in a new GM vehicle. Building on the success of this program, GM launched the Mobility Center in October 1999. From engineering to marketing, the GM Mobility Center includes employees with disabilities such as severe arthritis, deafness and spinal cord injuries to help make key decisions.

Many seniors and people with disabilities can benefit from some form of adaptive equipment. GM Mobility engineers consider all adaptive equipment options when addressing the needs of seniors, people with disabilities and primary caregivers who deal with difficult entry, exit and driving tasks. Whether it’s an additional assist grip or a rotating and extending seat, there are many solutions available to ease the effects of arthritis, stroke, MS, spinal injuries, and other disabling conditions.

A tiered approach divides mobility projects into three main groups.

**TIER 1: ENHANCEMENTS TO BASE VEHICLE:** This includes features and attributes that benefit all customers, with a focus on seniors and people with disabilities. This tier incorporates Universal Design techniques in the base vehicle design, such as door swing angle (wider opening doors), outside door handle, inside door release, assist grips and control knobs.

**TIER 2: MOBILITY REGULAR PRODUCTION ACCESSORIES (RPA):** This includes development of vehicle Regular Production Accessories (RPA) that benefit seniors and people with disabilities, but are transparent to those without mobility issues, such as additional assist grips, seat bottom over

The Tiger Racing Mustang GT, as shown at the SEMA show in Las Vegas, and on the track. Driver Carol Hollfelder and crew chief Paul Brown appear before their run at a NASA race in Phoenix. The “No Boundaries” race cockpit is totally purpose-built and totally accessible.
GM Mobility Craftsman Program

The GM Mobility Craftsman program forms formal relationships with upfitters who alter GM vehicles for people with disabilities. GM offers two regular production options (RPOs) for both minivan and full-size vans: Y3G (personal use) and Y3H (commercial/paratransit use). These RPOs code lower the cost of the vehicle by eliminating unwanted equipment. For minivans, the Y3G and Y3H RPO codes eliminate the carpeting and underlayment as well as second-row seating, and furnish an extended-length wiring harness for a lowered-floor, side-entry, wheelchair-accessible van. For full-size vans, the Y3G and Y3H RPO codes eliminate carpet and underlayment and right front/second-row seating. Vehicles with the mobility RPO codes are shipped directly to the Mobility Craftsman dealer the customer selects.

Affinity Group Provides Guidance

The GM Affinity Group educates, informs, and creates awareness among employees, customers, and the general public about GM’s commitment to employ, accommodate and market to seniors and people with disabilities. The group has been the primary force behind the establishment of GM Mobility Reimbursement, the GM Mobility Center and joint GM/UA Paragon programs. In addition, it has provided help to GM in a number of areas such as awareness training, vehicle accessibility, building access and emergency-evacuation protocol, vehicle donation programs, live and open captioning, and review of brochure and auto show information.

Financial Assistance

GM offers special financing from GMAC for up to 72 months on all vans, and reimbursement of up to $1,800 toward the cost of mobility-adaptive equipment. For full details, call 800-323-9935. TTY (Text Telephone) users: 800-853-9935.

GM’s Mobility Center

Through research and input from focus groups consisting of senior drivers and people with disabilities, the GM Mobility team has provided valuable insight on features and packages that help accommodate many with special needs. “Through the Mobility Center and the GM Mobility program, GM is striving to build a stronger relationship between engineering, manufacturing and sales as it pertains to senior drivers and people with disabilities,” said Talbot.

GM and Can Partner General Motors and iCan, a leading Internet-based community for people with disabilities, have partnered to develop a web-based automotive channel specifically geared to address the needs of people with disabilities. The online channel, part of the iCan Web site (www.ican.com), provides information on vehicles with an emphasis on how they fit, or can be adapted to meet, the needs of consumers with disabilities or special needs. The site also provides forums for people with disabilities to share automotive-related information and opinions, and provides GM with feedback from customers with special needs.

OnStar System Offers Security

With GM’s available OnStar system, help can be found at the touch of a button. Advisors can contact emergency services or roadside assistance—24 hours a day, seven days a week. OnStar combines sophisticated global positioning with wireless technologies to deliver personal service. OnStar customers can have a medical history available in the event of an emergency. The customer fills out a form with pertinent medical information, such as medications, allergies, previous surgeries, insurance, physician and emergency contacts. Information is kept confidential. OnStar is available for most GM cars and trucks.

GM and the UAW Join Forces

In 1995, GM formed its Paragon Team to better understand the needs of people with disabilities. That focus has gone even further, looking at the needs of a growing senior population, people with arthritis and others. In January 2001, GM and the UAW joined forces and expanded the Paragon Team to include representatives active and retired employees. Data collected will be used to develop Paragon Team vehicle requirements.

GM and the Mobility Center seek to provide universal design solutions to accommodate all populations. “Our priority is to design vehicles that will allow as many people as possible to maintain their independence, either as a driver, passenger or with aid of a caregiver,” said Gary Talbot, manager of mobility engineering for General Motors.