

# Rotary Drop Door

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New Vehicle Architecture

by

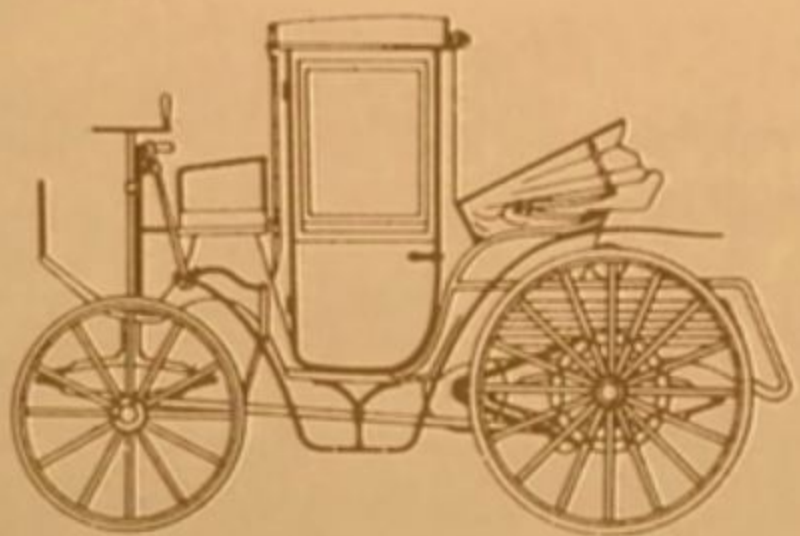
*Jatech*

“Fisher made the best car bodies  
for the 20<sup>th</sup> century - this is the  
vehicle architecture for the 21<sup>st</sup>.”

Alfred Fisher II, 1994,

after viewing a full scale studio buck introducing our new  
vehicle architecture featuring the rotary drop door.





The 1897 Benz coupe

1897-2007

2007 - ?



# Concept Vehicle Application

J2 Concept





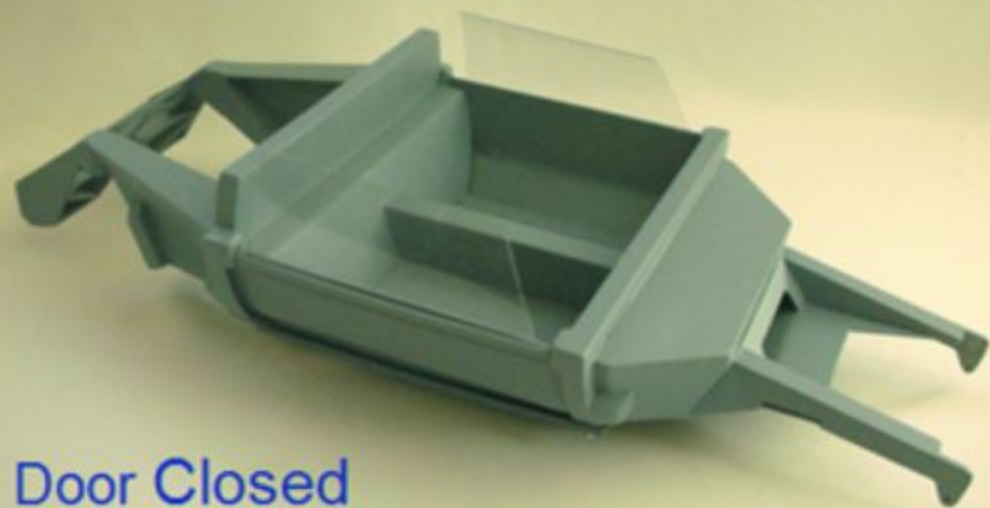
# Drivable Prototype Conversion

Coupe  
featuring long  
drop door to  
enable  
unhampered  
rear seat  
access

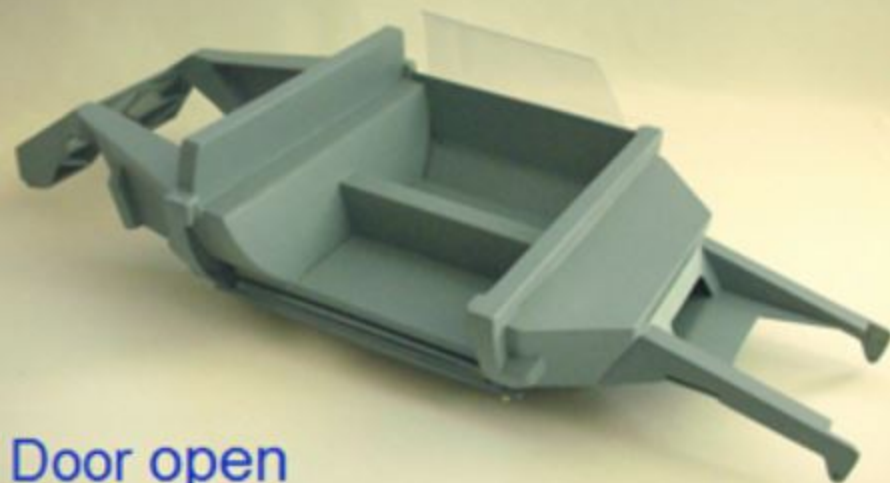


# Early Concept Car Design





Door Closed



Door open



Structural belly pan in place



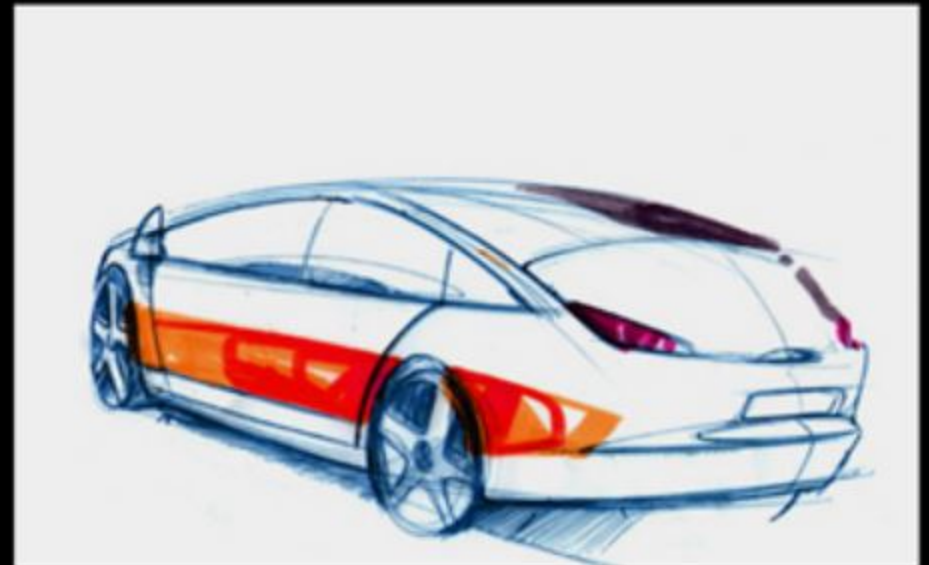
Pan removed shows double triangulated floor





# New Vehicle Architecture

- One of the most efficient structural forms is a tube or fuselage. Unprecedented ease of entry and egress is achieved by lowering the sides of this hollow form, then raising and structurally reintegrating them, thereby returning to the original tubular structure.



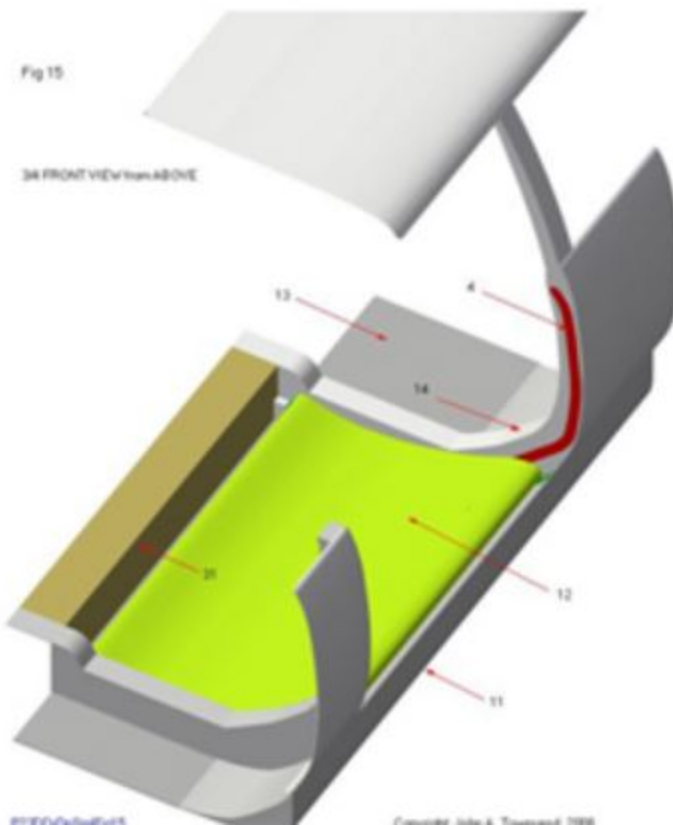


# Advantages of Drop Door Architecture

- Significant improvement in strength, stiffness and lightness of overall structure
- Applicable to all traditional and modern construction materials
- Greater safety in door operation and vehicular crashworthiness
- Access to occupants and/or their escape greatly enhanced in serious crash situations



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- Convenience of power operation
- Moving doors will stop and reverse if foreign object detected
- Vehicle floor and belly pan form a boxlike structure which greatly enhances body stiffness and strength
- New geometry of inner and outer sills also contributes to overall structural efficiency and weight savings
- Passenger doors can be opened and closed safely from drivers seat via window lift type activators
- Door cuts need not be absolutely vertical



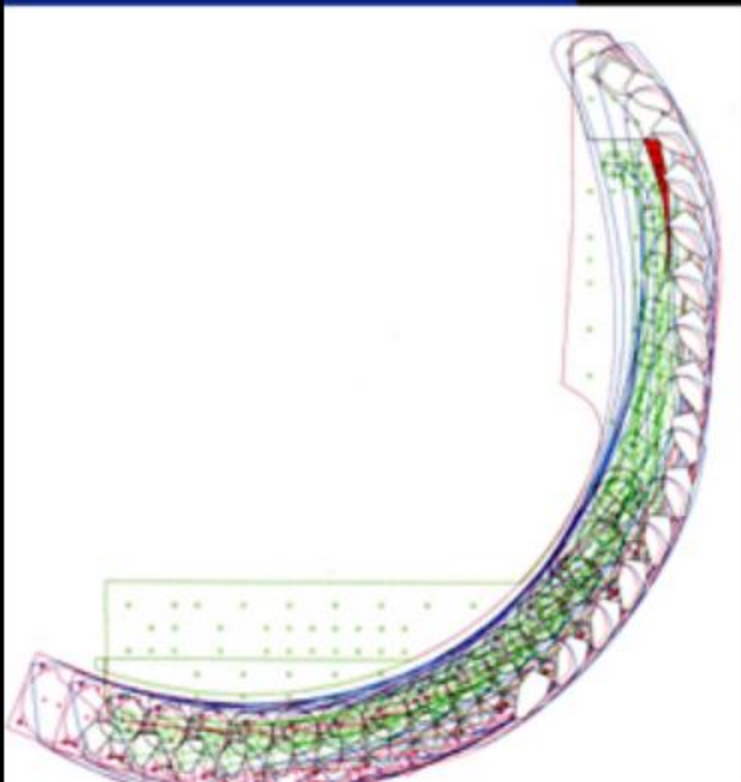
- Cannot be parked 'in'
- Side mirrors remain in place when door is opened enabling continued observation of traffic from behind
- Drop door does not swing out endangering other road users or pedestrians
- No door 'dings'
- Less parking space required



Drop door prototype coupes

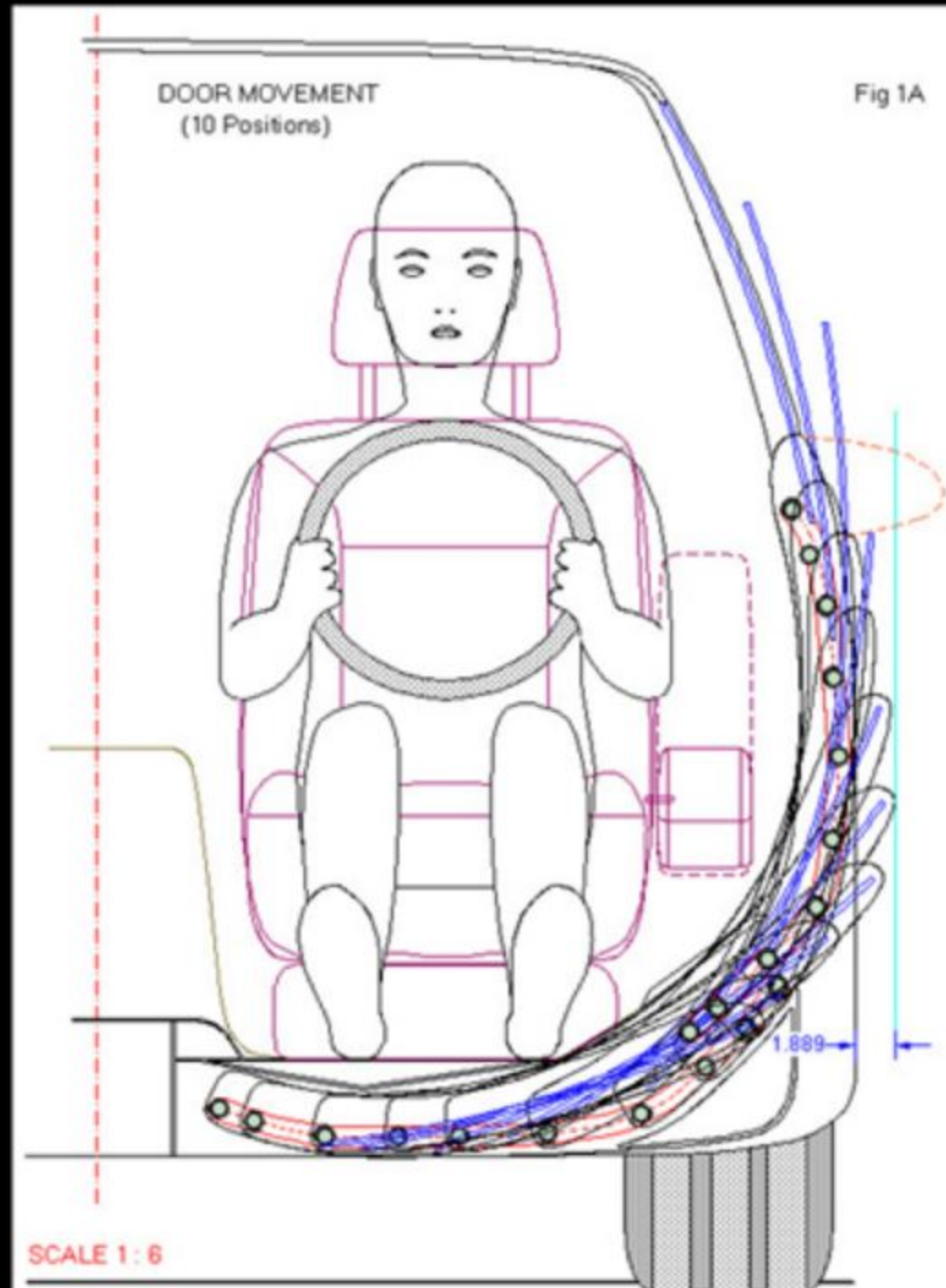


- Compact outer sill reduces 'step over' during entry and egress
- Drop door need not be stressed for multiple slams during its lifecycle
- It may be constructed as a modular component with the doorframe designed to reintegrate structurally with the main vehicle body
- 2-, 3-, 4- and 5-door applications possible for sedans, coupes, wagons, hatchbacks, convertibles, crossover vehicles, SUV's, trucks and vans, whether equipped with front, rear or all wheel drive
- Converted vehicles for the physically challenged
- Special vehicles for domestic services and the military



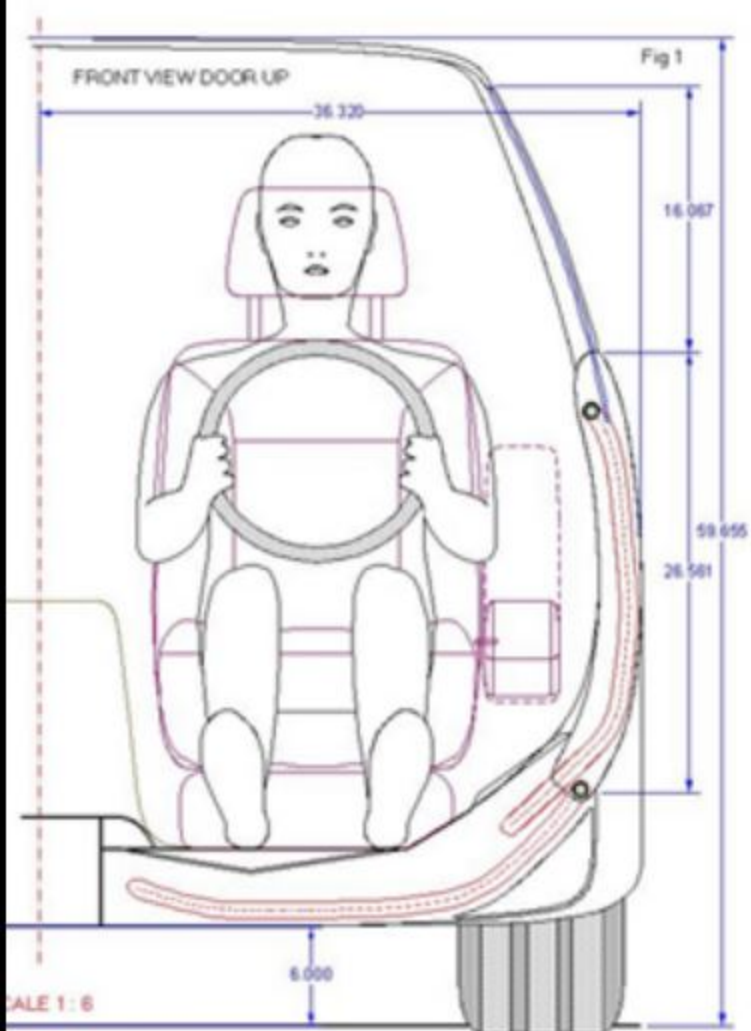
## Recent Full-Size Sedan Application

- One continuous movement automatically opens or closes door in 2 -3 seconds
- Door does not project beyond the side rearview mirrors during opening and closing cycles
- Silent operation - no door slam
- Frameless window uses normal framed window seal
- Normal ground clearance at all times

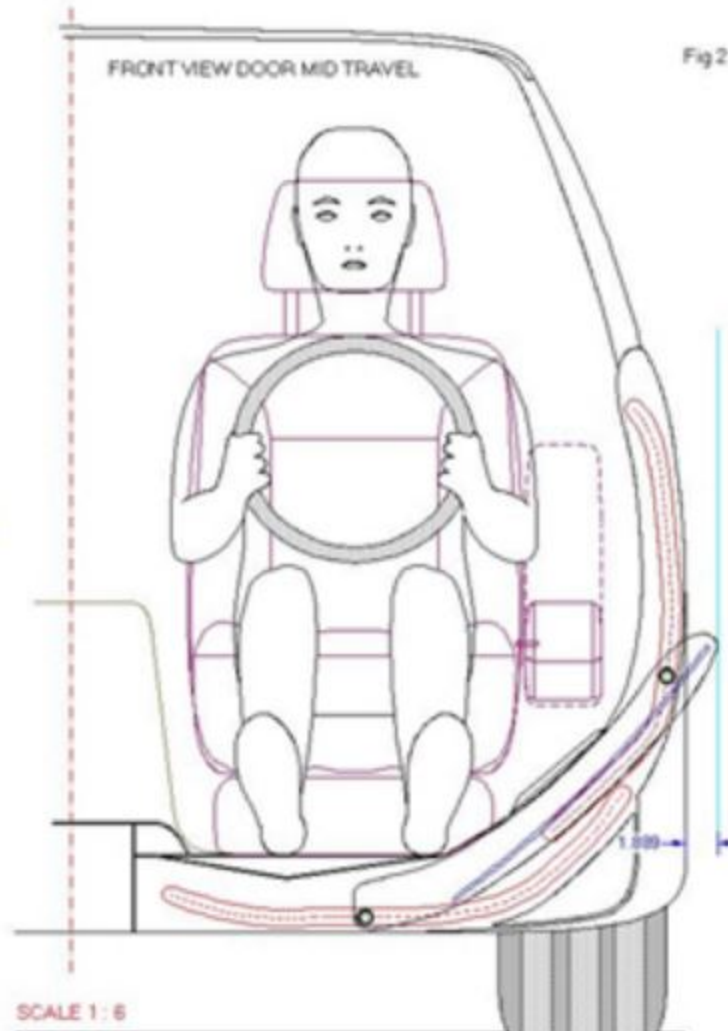




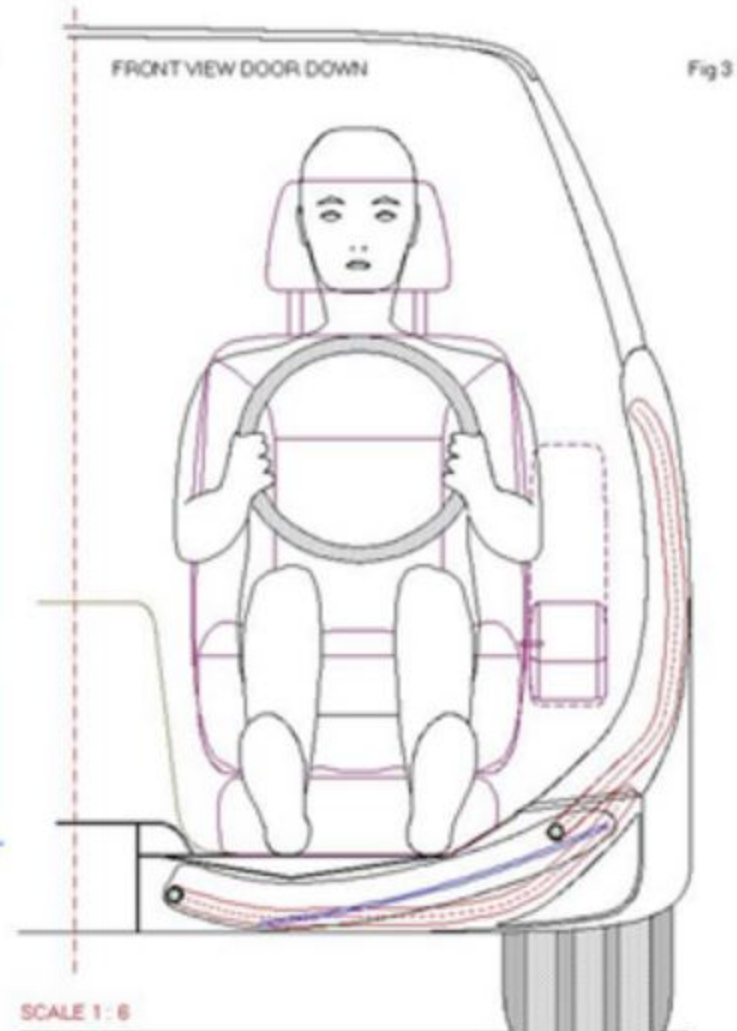
# Door Position and Movement Analysis



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Packaging of all other mechanical components is standard

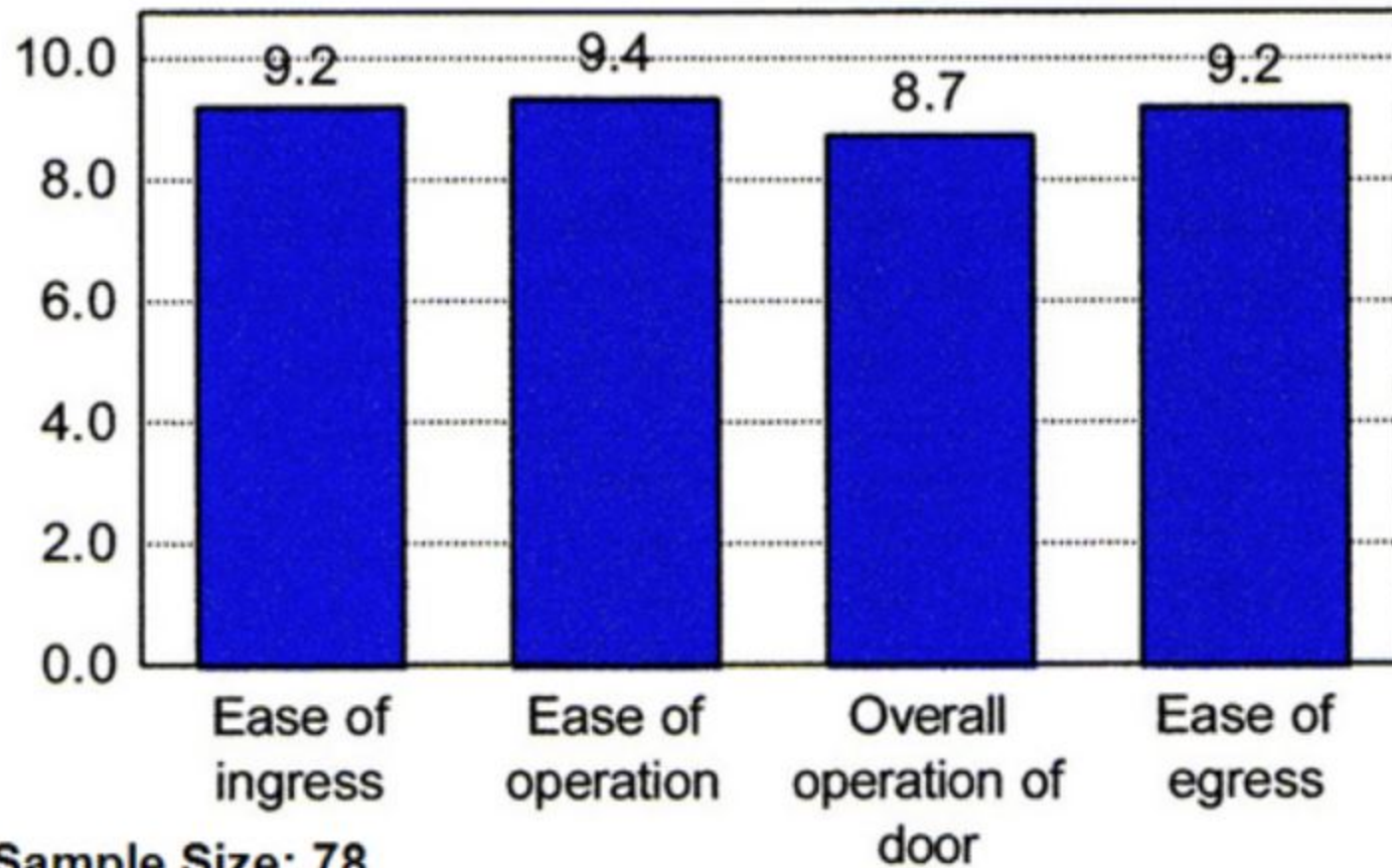


# CONSUMER CLINICS

NOP Automotive

January 2000

**Power Drop Door ratings**



# GMX - 270 Bubble-Up Clinic

By Motoresearch

Anaheim Convention Center, California, June 1995

- The Under Vehicle Door enjoys a high pre- and post-price purchase consideration rating of 3.9 on a scale of one to five. Nearly two-thirds of respondents would “definitely” or “probably” consider purchasing this door system.
- It is viewed as a very useful item as it scores a four on a scale of one to five.
- The Under Vehicle Door’s looks and design make it more appealing to respondents. They also feel it provides more clearance to passengers entering and exiting the vehicle.

# COST



In production the cost estimates equal to-days powered van door



# Summary

- Think of to-days powered sliding door on a van
- Turn it through 90 degrees
- Counterbalance it
- All the benefits of the Drop Door, including vehicle efficiency, safety and convenience now become available to everyone.

