

Safety and Liability

by Ned Einstein



A Paradigm Shift in Motorcoach Accessibility Part 2: The MCI D45 CRT LE Commuter Coach

In Part 1 of this three-installment series, I characterized the development of MCI's new ramp-equipped accessible motorcoach (the MCI D45 CRT LE) as a "paradigm shift." While I will expand on why this is so in the third and last installment next month, this installment will overview the most unique features of this remarkable vehicle – a vehicle whose ultimate potential I feel has not yet been realized.

Features and Flexibility

An examination of the CRT LE's features must begin with a discussion of the significant amount of space carved out of otherwise above-floor seating and under-floor luggage compartments to accommodate this approach to wheelchair accessibility, among other things. The initial prototype affords us only a glimpse into the almost endless potential for using this vestibule – far beyond the convertibility of the space to accommodate two wheelchair users, five ambulatory passengers or some combination in between. (Please excuse this author's error in Part 1 of this series in thinking the vehicle could accommodate five wheelchair users.) Yet even as the starting point which the CRT LE represents, its innovative features are noteworthy. Many are almost astonishing for a vehicle deployed in a traditional industry whose vehicles rarely change, from decade to decade, in the most basic ways.

The CRT LE's outstanding new features include:

- **Automatically-Operated Accessible Ramp.** Replacing the complex, costly and often maintenance-intensive wheelchair lifts deployed on other motorcoaches, the CRT LE employs a simple ramp, stowed beneath the floor surface. Even apart from its use by wheelchair and walker users, the entry into and egress from this vestibule is far easier than reaching the main floor level via the front stepwell for even ambulatory passengers. A few of them can ride, seated, in the vestibule, as well as reach the floor level from it via an interior stepwell. As a wheelchair ramp, its slope is a mild 1:6 – far more accommodating than the steeper 1:4 requirement of the ADA. Thus the loading and unloading time for a wheelchair involves a fraction of the dwell time of a vehicle with



Ramp with mild
6:1 slope

a conventional lift. Loading a chair on a conventional lift requires seated passengers to move, seats to be pushed forward and other conversions on the interior – not to even mention the un-stowing and deployment of the lift platform, and its reversal at the destination (or a rest stop). Finally, because the interior stepwell connects the vestibule to the main coach floor, total passenger loading

or unloading time for the CRT LE can be roughly half that of a conventional coach.

- **Rapid Securement Capabilities.** Unlike even the most modern securement mechanisms on paratransit vehicles, one of the two wheelchair positions in the CRT LE literally slides out, for quick and easy access by the driver, on both sides of and at both ends of the chair's securement posi-



Wheelchair securement hardware
on slide-out track

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tions, to facilitate and speed up the chair's securement.

- **Ambulatory versus Wheelchair Convertibility.** Involving almost no time or effort, flip-up seats can accommodate up to five ambulatory passengers, two wheelchair users or several combinations in between. In fact a regular, fixed passenger seat (possibly for a "companion") lies next to one of the wheelchair securement positions, and can be occupied even with two wheelchair users on board. With one wheelchair user on board, two ambulatory passengers can ride in the vestibule. With two wheelchair users on board, or five ambulatory passengers seated in the vestibule, the entire coach's capacity will lose only two seats.

- **Observable Two-Door Exterior.** The CRT LE approach is not a secret to only those using it. The second door is clearly visible from the outside – radically distinguishing this vehicle from any other motorcoach on the North American market. In fact, viewing it from the outside, this door suggests that regular passengers – not just wheelchair users – can enter and exit the vehicle at this second door. As noted, five of them can ride, seated, right inside it, below the floor level, without having to climb a single step.

- **Interior Stepwell.** Another unusual feature of the current CRT LE's vestibule is an interior stepwell between the lower vestibule floor and regular floor above. This staircase will permit drivers and other passengers (including wheelchair users' "companions" not seated in the vestibule) quick access to wheelchair users. Beyond sometimes cutting boarding and alighting time roughly in half, this dual-stepwell configuration will facilitate much quicker evacuation in an emergency situation.

- **Commuter/Express Luggage Capacity.** Overlooked in even MCI's own product literature is the fact that the replacement of several luggage bays with the vestibule still leaves an entire luggage bay free. While the CRT LE might present storage constraints for certain tour, charter and intercity operations, few commuter/express operations involve the use of more than a single luggage bay. The luggage space otherwise available for commuter/express service – the market for which the CRT LE was designed – will almost always be more than adequate.

- **Fully Electric Model (2020).** While MCI will begin taking orders for it in 2018, a 100 percent electric version of this same (or very-likely improved) coach will be available in 2020.

- **More than Bells and Whistles.** The CRT LE's innovations did not stop simply with its advances in accessibility and flexibility. Beyond state-of-the-art features in the vestibule area (like two flat-screen monitors), the coach includes a number of modern features ranging from quick-release accessible headlight panels to an under-bumper spare tire mounted on a pull-out tray, increased



interior package rack space, LED lighting throughout, integrated tire-pressure monitoring system, quick-change track seating system with adjustable seating modules (allowing near-instantaneous changes in seat spacing), and – most unusual for a rear-engine bus or coach – an optional panoramic rear window.

Other modern safety equipment and passenger amenities like a fire suppression system, pantographic bi-panel front entrance door and aircraft-type A/C and light controls over each passenger seat are almost an afterthought. Even the CRT 45 LE's headlamps are available as LEDs (optional) – extending MCI's legendary durability to even ancillary features like interior and exterior lighting, along with the ramp's loading capacity of 1000 pounds – 400 pounds more than the ADA requires. Other options include a 360-degree profile interior camera system and even a rear docking light that, simultaneously, illuminates the "danger zone" around the curb side rear tires. And even with the additional inch added from the roofline's integrated drip rail, the coach's height will accommodate the height constraints of the Lincoln Tunnel.

Starting and Finishing

Not privy to the inner thoughts of MCI's engineers, marketing personnel and decision-makers, it is hard to know what they think they have unleashed with this exotic creature. My hope is that they recognize that every great innovation (the key word being 'every') is just a starting point.

For someone first encountering the CRT LE (which should really be called the CRT

RE – although some potential buyers might mistake the "ramp-equipped" for "rear-engine"), the degree of advancement and flexibility are so hard to absorb upon one's initial inspection of the vehicle. It may be harder to see beyond it.

Without handing MCI my own visions for what else could be done with this extraordinary starting point, the third and final installment in this series will explore the directions this company might take in the future. The MCI CRT 45 LE may not simply be a better solution. It may represent a glimpse into the motorcoach future.

The CRT LE's variations of convertibility, even as a starting point, were impressive. The vestibule could carry two wheelchairs (one rear-facing), while the forward-facing section could convert to two luxurious passenger seats, and at the other end, to three. Thus, with no wheelchairs on board, this coach would, at worst, lose two of its 54 seats. This loss does not factor in something not initially obvious. It provides an enormous envelope of opportunities for using this huge space for additional and/or other purposes – opportunities that may be on MCI's drawing board, or perhaps just in the minds of its engineers. (Many, including some important ones, lie in mine).

For some people, some things are never enough. One member of the Access Committee commented that this coach's wheelchair users would not get to ride with the rest of the passengers. This obscure notion had little merit in my opinion. Far more important to me was the fact that, riding so much lower in the coach than the other passengers, the

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wheelchair users in this compartment will receive a far smoother ride. The lower the center-of-gravity, the lesser the lateral sway and the greater comfort below the vehicle's "un-sprung weight." Otherwise, the ADA's institutional spirit of "separate but equal" has effectively been replaced with "separate but better." Frankly, no one conceived of such a concept during the drafting of the ADA. Yet MCI managed to create it.

The handful of photos surrounding this text barely scratch the surface. One must spend some time inside this module to grasp not only its extraordinary ingenuity, but a conceptual use of space, mechanics, movement and convertibility. I had never before seen in any public transportation vehicle in my entire career. Yet from the outside, the coach was almost indistinguishable from any other coach on the landscape (other than from the presence of a middle door).

Shattering Tradition

Were I a betting man, the last place I would have looked for innovation would have been MCI. A traditional backbone OEM, MCIs were known and valued mostly for their legendary durability. With a couple of engine changes and top-notch maintenance, one could squeeze a couple million

miles out of one of these workhorses. Stylistically, I cared little about some of MCI's exotic features, like the rock-climbing-oriented handrails or the J4500s spiral stepwell and trapezoidal step treads (which the D45 CRT LE also has). In contrast, the D45 CRT LE represents an explosion of new thought, the solution to a capacity issue that had previously eluded the industry (solvable only with a coach that would seem to take forever to load or unload a wheelchair user), a breakthrough in the ability to capture a huge and growing yet largely untapped market, and a vehicle capable of blasting away the last frontier of travel inequality for a deserving portion of our population whose travel by motorcoach had thus far been marginalized by a profound lack of innovation, if not by an almost total absence of interest.

To me, a veteran of European bus design efforts decades ago, the most impressive aspect of the D45 CRT LE is not even its accomplishments. What I saw in the prototype was only a starting point. The potential for using this huge space now capable of carrying two wheelchair users and other combinations of passengers was so open-ended that it almost dwarfed my appreciation for what has already been accomplished. The vast size of this compartment, despite com-

prising a tradeoff for some rarely-needed luggage space, lends itself to a parade of other usages that seem almost endless.

I have no intention of volunteering design improvements and visions of further adaptability to this OEM or any other. Facing what has already been accomplished, such notions may even seem pompous. One way or another, great starting points cannot help but stimulate further thinking. I do not think we have seen the full potential of what MCI has unleashed into our sector of the passenger transportation industry. In the next installment, I will try my best to explore the potential which this inaugural vehicle suggests will likely be vast and full of surprises.

The opinions expressed in this article are that of the author and do not necessarily represent the opinions of NATIONAL BUS TRADER, Inc. or its staff and management. □

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