National Bus Trader

The Magazine of Bus Equipment for the United States and Canada

Volume XLV, No. 6 May, 2022

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- The State of the Bus Industry
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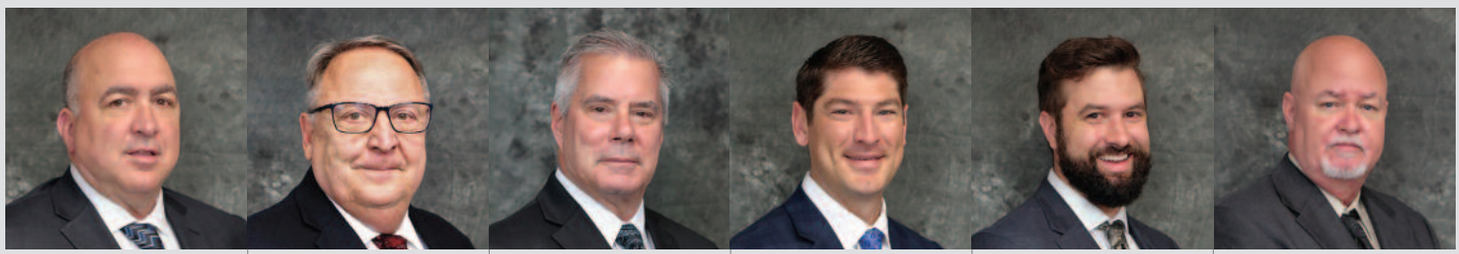

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A sign that the industry is getting back to business was TEMSA's unveiling of its newly redesigned TS45 coach at the recent United Motorcoach Association Expo in Long Beach. Also introduced was TEMSA new battery-electric TS45E model. Here are some details on both models.

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One of the more interesting developments during the pandemic was problems with the global supply chain. Moving products around to take advantage of economical labor caused some places to monopolize certain products or procedures to the detriment of local sourcing.

Sales, Technology and Relationships (by Dave Millhouser) 26
Dave Millhouser ponders on whether we should depend on technology and how to improve sales. He makes some suggestions on sales and improving customer relations while commenting on a person driving a SmartCar being unable to find their way home.

Cover Photo

TEMSA unveiled its newly redesigned TS45 coach and its battery-elecric companion, the TS45E, at the recent United Motorcoach Association Expo in Long Beach. For details, see the article starting on page 16 and the Bus of the Month section starting on page 28. TEMSA.

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Equipment News

Irizar Obtains the Calcualted and Verified Carbon Footprint

The Irizar Group's plant in Ormaiztegi (Gipuzkoa), Spain has obtained the 2020 carbon footprint certificate for its activities, which was verified in 2021.

Irizar remains firmly committed to protecting the environment and climate change by focusing its efforts on prioritizing actions that minimize potential impact. In that context, an emissions valuation and calculation that has been verified by the Spanish Office for Climate Change through the Ministry for Ecological Transition and Demographic Challenges has been completed.

The carbon footprint for activity was calculated according to the ISO 14064 guidelines (scope 1, emissions caused by the direct use of fossil fuels and scope 2, CO_2 emissions related with the consumption of electricity).

That information is the basis for reducing or, as the case may be, offsetting the emissions produced. Transparency is shown in regards to greenhouse gases and Irizar's commitment to efficient reductions in the future.

Climate change is one of the main challenges being faced. Irizar continues to design a road map for the Irizar Group to become a global actor in urban, medium- and long-distance sustainable transport.

The main actions and initiatives include:

- Moving forward in making the impact increasingly neutral, focusing efforts on minimizing GHG emissions.
- Investing in high-efficiency and 100 percent renewable energy so plants are supplied with sustainable energy.
- Make progress with the circular economy model for the products' life cycles and in the production cycles. Waste materials and other waste are reused through the IZIR brand and give a second life to batteries is given for energy storage, together with the power electronics associated with the application.
- Irizar's own sustainable and eco-innovative products and technologies are developed with a holistic approach to minimize environmental impact through the entire life cycle. Life cycle analysis (LCA) of the range of buses and coaches is carried out. In 2019, the first Environmental Product Declaration (The International EPD System), which made Irizar the first company in the sector worldwide to achieve this certification was obtained.
- Efficient use and environmental sustainability of materials are also considered in Irizar's design and manufacturing processes.

Sustainability is part of the strategy for the future and a decision-making and daily management factor, in line with the 10 Principles of the Global Compact. Progress is continued in integrating the sustainable Development Goals (SDGs) of the United Nations 2030 Agenda in the operations as a roadmap for enhancing prosperity for people and the planet.

Looking for Inmate Security Transport Vehicles?

Did you know NFI offers Inmate Security Transport Vehicles (ISTV)? Meet NFI's ISTV coach sales expert, Lee Kemp,

who leads national prisoner transit sales in North America. Kemp is a 10-year veteran of MCI and a long-term veteran of the coach industry, having spent more than 45 years maintaining and operating coaches and more than 20 years in executive and board positions with Denver RTD. He volunteers 700+ hours annually with Colorado's law enforcement institutions, and was named the 2010 North American Salesman of the Year as well as APTA's 2012 Board Member of the Year.

Kemp leverages firsthand experience as a POST-certified police officer to work with officers requiring safe and secure travel on MCI's D4000 ISTV, one of MCI's workhorse D series coaches. The D4000 ISTV is a fully-secured, heavy-duty inmate transport coach offering custom fittings that meet unique agency specifications, including movable barrier systems, custom designed containment barriers and cells, a rear officer position, window bars and shatter resistant windows, GPS tracking, onboard surveillance and more.

MCI is the only manufacturer in North America to provide customized, durable, turn-key, heavy-duty ISTV. To learn more, contact Kemp at lee.kemp@mcicoach.com.

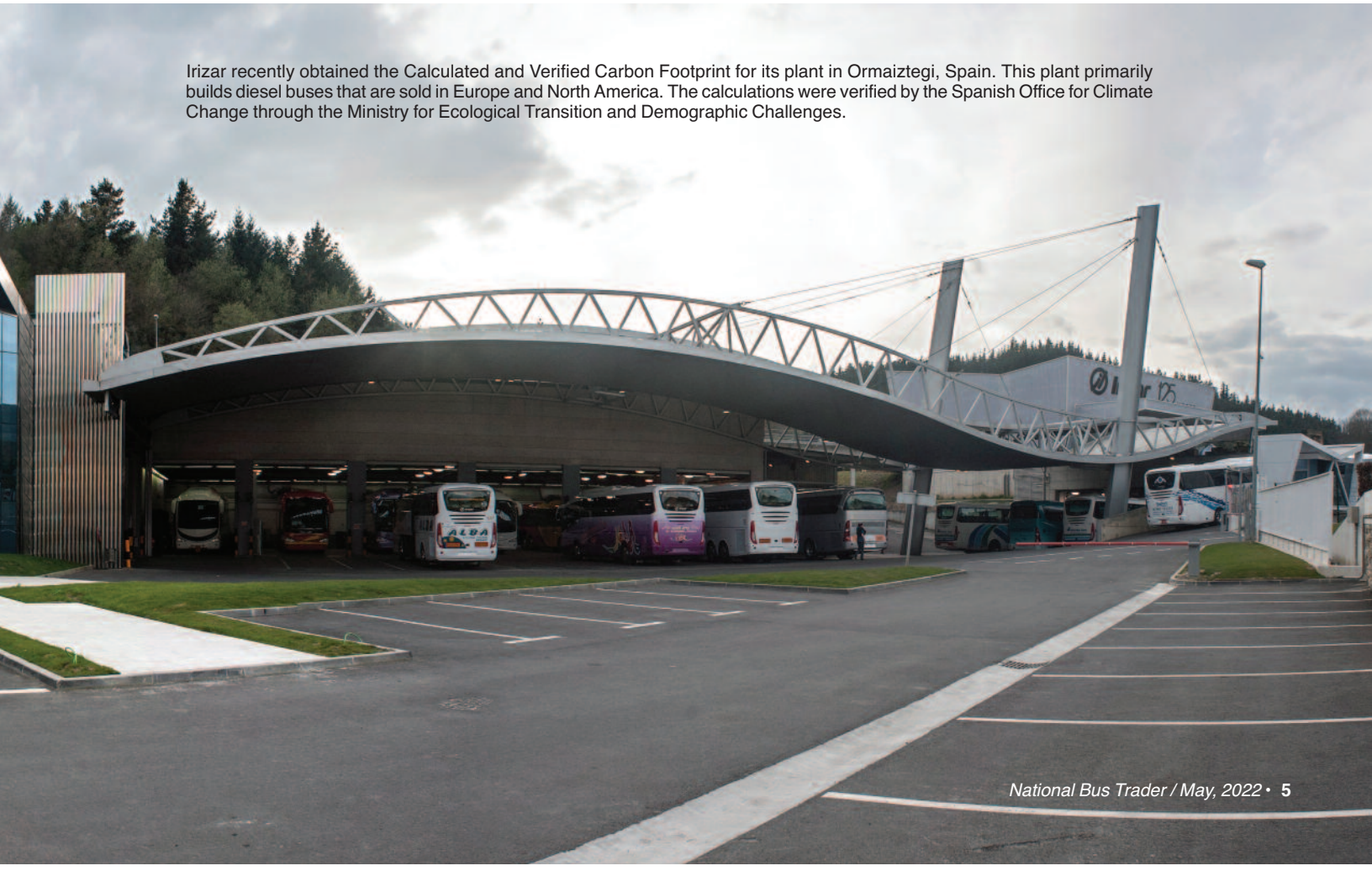
For many years MCI has offered Inmate Security Transport Vehicles. Current ISTV models are based on MCI's D series coaches but have a special interior installed at the factory. Various options are available based on the needs and requirements of the buying agency.

Vicinity Motor Corp. Announces Strategic Distribution Partnership with DATTCO

Vicinity Motor Corp. (Vicinity or the company), a North American supplier of commercial electric vehicles, on March 17 announced that it has entered into a strategic U.S. distribution agreement with DATTCO, Inc., a U.S. full-service passenger transportation company, to distribute Vicinity vehicles within the Northeastern United States.

Headquartered in New Britain, Connecticut, DATTCO operates facilities throughout New England and employs more than 2,000 people in Massachusetts, New Hampshire, Maine, Rhode Island and Vermont. The distributorship supports Vicinity's focus on U.S. distribution expansion for its growing portfolio of electric vehicles and conventionally powered buses. In addition to operating a fleet of more than 1,200 buses, DATTCO provides sales, parts, warranty and service support for transportaton providers in the region.

Irizar recently obtained the Calculated and Verified Carbon Footprint for its plant in Ormaiztegi, Spain. This plant primarily builds diesel buses that are sold in Europe and North America. The calculations were verified by the Spanish Office for Climate Change through the Ministry for Ecological Transition and Demographic Challenges.



Under the new agreement, DATTCO will distribute Vicinity vehicles throughout New England. The Vicinity line fills in key transit, EV and shuttle opportunities within the DATTCO portfolio of vehicles, further enhancing its offering to current customers while expanding to new sectors. In conjunction with the agreement, DATTCO has placed an initial order valued at more than $2 million for Vicinity Lightning2 EV and Classic transit buses and Optimal-EV S1 paratransit electric low-floor shuttle buses.

"Our distribution partnership with DATTCO will add to our reach in the Northeastern United States with a well-established company that has served the area since 1924," said William Trainer, founder and CEO of Vicnity Motor Corp. "DATTCO's large customer base – with over 1,800 customers including corporations, schools, tour operators and local organizations – are increasingly looking for sustainable solutions for their transportation needs. We are excited to provide their first EV options for customers and believe they will be quickly impressed with our range of heavy-duty, light-duty and special purpose electric vehicles. We look forward to working closely with the DATTCO team going forward."

"As one of the region's largest operators of buses, we are deeply committed to expanding our product portfolio to better serve our customers with a focus on dependability, quality service, comfort and safety," said Don DeVivo, president and CEO of DATTCO. "Our customers' priorities continue to evolve, and we're convinced Vicinity's product line has the best range of options covering traditional vehicles, as well as a widely-respected position in the expanding EV market. Both the innovative Vicinity Lightning™ EV and the VMC Optimal-EVs will be exciting new options that we believe will be an excellent choice for operators seeking electrified vehicles, designed from the ground up to be flexible, cost-effective and user friendly."

Vicinity Motor Corp. recently entered into a distribution partnership with DATTCO to distribute Vicinity vehicles in the Northeastern United States. Headquartered in Connecticut, it has several locations throughout the Northeast and employs a staff of more than 2,000. In addition to sales, DATTCO also provides parts, warranty and service support.

NFI Joins the Information Technology for Public Transport Association

NFI Group Inc. (NFI), a leading independent bus and coach manufacturer and a leader in electric mass mobility solutions, recently announced that NFI has become an official member of the Information Technology for Public Transport (ITxPT) Association. NFI joins many of its supplier partners, vehicle manufacturers and operators as an associated member.

ITxPT is a non-profit association which enables an open architecture, data accessibility and interoperability between IT systems. The members of ITxPT develop the IT architecture for public transport and other mobility services together, based on standards and best practices.

"Membership in ITxPT is critical for enabling the future of mobility, including the work it leads on standards development around vehicle connectedness and the advancement of interoperability within public transit," said Chris Stoddart, president, North American Bus and Coach. "With a focus on open architecture, data accessibility and interoperability between IT systems, ITxPT is truly making mobility smarter. Our industry benefits from this collective work through cost efficiencies, quality assurance, data compliance and standards for smart vehicles and infrastructure."

ITxPT specifications provide public transit agencies and operators with recommendations and requirements to support the purchase and integration of interoperable IT architecture. Additionally, industry suppliers use the specifications to design ITxPT-compliant equipment and services. In its laboratory, ITxPT delivers labels of compliance for vehicles and modules that are listed in the ITxPT catalogue. Through this, ITxPT is enabling interoperability across Europe and North America. For more information on ITxPT Association visit itxpt.org.

NFI is a leader in zero-emission mobility, with electric vehicles operating (or on order) in more than 80 cities in five countries. NFI offers the widest range of zero-emission battery and fuel cell-electric buses and coaches, and the company's vehicles have completed more than 50 million EV service miles. Today, NFI supports growing North American cities with scalable, clean and sustainable mobility solutions through a four-pillar approach that includes buses and coaches, technology, infrastructure and workforce development.

NFI also operates the Vehicle Innovation Center (VIC), the first and only innovation lab of its kind dedicated to advancing bus and coach technology and providing workforce development. Since opening late 2017, the VIC has hosted more than 300 interactive events, welcoming 5,000 industry professionals for EV and infrastructure training.

Villani School Bus Donated to NJ Transportation Heritage Center

A welcomed addition to Friends of the NJ Transportation Heritage Center's preserved motor bus fleet is this unusual blend of a school bus platform with over-the-road coach features; diesel pusher drive train, air conditioning, pass through underfloor luggage (for sports gear and band instruments), full air brakes, 46 capacity "Activity" seating, large deluxe transit sliding windows, air-operated bi-fold doors and more.

The bus was donated by Courtney Villani in memory of her father "Dee" Villani who drove this bus as his favorite. Villani is one of the many family-owned, multi-generational bus businesses in New Jersey, a state notable for families in the motorcoach business for many decades. One family

(DeCamp) has been in the business for five generations going back more than 130 years. One of the Friends members, James Zimenoff, "adopted" (sponsored) this bus.

The New Jersey Transportation Heritage Center recently received its first school bus. Courtney Villani of Villani Bus Company in Linden, New Jersey donated the bus in memory of her father "Dee." Built in 1995, the bus has a Cummins engine, an Allison transmission and was used for special sports, educational and entertainment trips.

Zimenoff is on the team of volunteers that maintains the 45+ vintage bus and coach fleet at the Lakewood Garage on most Saturdays (see the ad in the classified section of National Bus Trader).

Blue Bird delivered #132 to Villani in the 1995 school year. It is an "All American" third generation model "RE." It has a Cummins 6CT8.3 engine with an Allison MT64 transmission through a Spicer J-230-SB rear axle. It was used in school specialized service for team sports, educational and entertainment trips which is why it is configured above the standard school bus design. Finally, it was retired in 2016 and carefully stored out of service for five years. Fearing that #132 might be scrapped, Courtney got the idea of donating it. Friends were the lucky recipients. This is the first school bus in the fleet and the generosity of the Villani Family is most appreciated.

AVTA Goes Zero-Emission

Motor Coach Industries (MCI), a subsidiary of NFI Group Inc. (NFI), a leading independent bus and coach manufacturer and a leader in electric mass mobility solutions, on March 17 congratulated the Antelope Valley Transit Authority (AVTA) on announcing the completion of its transition to a 100 percent zero-emission transit fleet.

AVTA is the transit agency serving the cities of Palmdale, Lancaster and northern Los Angeles County in California, with an annual ridership of more than three million.

The achievement was celebrated by AVTA during a formal event held in Lancaster, California, alongside its board of directors, California Air Resources Board (CARB) representatives, Los Angeles County Supervisor Kathryn Barger and MCI representatives who also celebrated the delivery of AVTA's 20th MCI electric coach.

The agency purchased 24 D45 CRT LE CHARGE™ battery-electric coaches from MCI as part of its transition to a zero-emission fleet, the first of which was delivered last fall. The order was supported by Federal Transit Administration funds and replaced AVTA's end-of-life vehicles with high-capacity, emission-free coaches, ultimately moving AVTA to fulfillment of CARB's Innovative Clean Transit (ICT) regulation which mandates transition to 100 percent zero-emission bus (ZEB) fleets by 2040.

"We are proud to congratulate AVTA in reaching this significant zero-emission milestone and setting the pace for agencies across America, said Chris Stoddart, president, North American Bus and Coach, NFI. "With our fully accessible MCI electric coaches, AVTA is leveraging enhanced regenerative braking and high-energy batteries to provide emission-free urban commuting – and togther – we are delivering cleaner, quieter mobility in North Los Angeles County."

MCI's D45 CRT LE CHARGE was launched in May 2021. It features high-torque electric drive systems for operation at highway speeds, up to 170 miles of range, and plug-in battery charging to 100 percent in less than four hours. The D45 CRT LE CHARGE also exhibits design advancements of the next generaton D series, introduces MCI's innovative low-entry vestibule, and integates proven CHARGE technology propulsion from New Flyer.

"Long before we saw an electric bus rolling down the streets of the Antelope Valley, the AVTA Board envisioned a future with a greener and technologically superior transit system serving the citizens of Lancaster, Palmdale and the rural northern Los Angeles County communities," said Marvin Crist, chairman of the board, AVTA. "The Board cast a vision and the AVTA staff brought that vision to life."

MCI's D-Series commuter coaches are Buy America compliant, Altoona tested and built with legendary MCi quality to deliver a unique combination of dependability, passenger comfort and high-quality performance. For more information visit mcicoach.com/electric.

A special event on March 17 marked the transition of Antelope Valley Transit Authority to a 100 percent zero-emission fleet. AVTA recently took delivery of 24 MCI D45 CRT LE CHARGE™ battery-electric coaches. The coaches can operate at highway speeds and have a range of 170 miles.

NFI is a leader in zero-emission mobility, with electric vehicles operating (or on order) in more than 80 cities in five countries. NFI offers the widest range of zero-emission battery and fuel cell-electric buses and coaches, and the company's vehicles have completed more than 50 million EV service miles.

Today, NFI supports growing North American cities with scalable, clean and sustainable mobility solutions through a four-pillar approach that includes buses and coaches, technology, infrastructure and workforce development. NFI also operates the Vehicle Innovation Center (VIC), the first and only innovation lab of its kind dedicated to advancing bus and coach technology and providing workforce development. Since opening late 2017, the VIC has hosted more than 300 interactive events, welcoming 5,000 industry professionals for EV and infrastructure training.

Leveraging 450 years of combined experience, NFI is leading the electrification of mass mobility around the world. With zero-emission buses and coaches, infrastructure and technology, NFI meets today's urban demands for scalable smart mobility solutions. Together, NFI is enabling more livable cities through connected, clean and sustainable transportation.

With 8,000 team members in nine countries, NFI is a leading global bus manufacturer of mass mobilty solutions under the brands New Flyer® (heavy-duty transit buses), MCI® (motorcoaches), Alexander Dennis Limited (single- and double-deck buses), Plaxton (motorcoaches), ARBOC® (low-floor cutaway and medium-duty buses) and NFI parts™. NFI currently offers the widest range of sustainable drive systems available, including zero-emission electric (trolley, battery and fuel cell), natural gas, electric hybrid and clean diesel. In total NFI supports its installed base of more than 105,000 buses and coaches around the world.

MCI is North America's public and private market motorcoach leader. Products include the luxury J-Series (an industry best-seller for more than a decade), the workhorse D-Series and the brand new zero-emission luxury and commuter coaches: the battery-electric J4500 CHARGE™ and MCI D45 CRT LE CHARGE™. MCI also provides maintenance, repair, 24-hour roadside assistance, parts and technician training through the industry's only Automotive Service Excellence (ASE) accredited and award-winning MCI Academy.

Operation Safe Driver Week is July 10-16

This year's Operation Safe Driver Week is scheduled for July 10-16. Law enforcement personnel in Canada, Mexico and the U.S. will be on roadways throughout that week issuing warnings and citations to commercial motor vehicle and passenger vehicle drivers engaging in unsafe driving behaviors, such as speeding, distracted driving, following too closely, improper lane change, drunk or drugged driving, etc.

Earlier in March, the U.S. Department of Transportation's National Highway Traffic

Safety Administration (NHSTA) released its latest annual traffic crash report, showing that 38, 824 lives were lost in traffic crashes nationwide in 2020 – the highest number of fatalities since 2007. While the number of crashes and traffic injuried declined overall, fatal crashes increased by 6.8 percent.

Among the alarming statistics in NHTSA's report was the key finding that speed-related fatalities increased by 17 percent. Consequently, speeding, in particular, will be a dangerous driving behavior that officers will identify and target during Operation Safe Driver Week.

"The rising fatalities on our roadways are a national crisis; we cannot and must not accept these deaths as inevitable," said U.S. Transportation Secretary Pete Buttigieg.

The Commercial Vehicle Safety Alliance's (CVSA) Operation Safe Driver Program was created to improve the driving behaviors of all drivers and reduce the number of crashes involving commercial motor vehicels on our roadways through educational and traffic enforcement strategies. Operation Safe Driver Week was created by CVSA with support from federal agencis in Canada, Mexico and the U.S., the motor carrier industry and transportation safety organizations.

"This safe driving initiative and campaign focuses specifically on drivers' actions – whether it's something a driver did, like speeding, or something they didn't do, such as not paying attention to the driving task," said CVSA President Capt. John Broers with the South Dakota Highway Patrol. "This focus on drivers' behaviors is our effort to identify and educate drivers who are operating dangerously on our roadways, with the goal of preventing crashes from occurring.

To find out about Operation Safe Driver Week enforcement events in your area, contact the agency or department responsible for overseeing commercial motor vehicle safety in your area.

Vicinity Motor Corp. recently entered into a distribution partnership with ABC Companies. ABC will be selling Vicinity buses in 18 states. Included will be the Vicinity Optimal EV S1, an electric bus with a low-floor chassis built on the E4500 frame.

NFI EVs Make Debut in Omaha

On March 28, Omaha Metro Transit welcomed its first electric buses proudly built by New Flyer. Rex Colorado, regional sales manager for New Flyer and MCI, joined the Omaha Metro Transit team at the bus unveiling event.

Three 40-foot, battery-electric buses are now operating on the streets of Omaha. With each bus reducing up to 135 metric tons of greenhouse gases, these new zero-emission buses will deliver efficient, emission-free transportation to the Omaha community.

Three 40-foot NFI electric buses are now operating in Omaha. A special unveiling ceremony was held on March 28 attended by the Omaha Metro Transit team as well as NFI.

Vicinity Motor Corp. Expands Strategic U.S. Distribution Partnership with ABC Companies

Vicinity Motor Corp. (Vicinity or the company), a North American supplier of commercial electric vehicles, recently announced that it has entered into a strategic U.S. distribution agreement with ABC Companies (ABC), a leading provider of motorcoach and transit equipment in North America.

The ABC distributorship supports Vicinity's focus on U.S. expansion to market the Vicinity™ heavy-duty, mid-size bus, the Vicnity Lightning™ EV and the VMC Optimal EV S1 low-floor shuttle bus to new and existing customers.

Under the expanded agreement, ABC will distribute Vicinity's product portfolio to 18 states covering key population centers across the country important to VMC's growth markets. The Vicinity line fills in key transit and private shuttle markets within the ABC portfolio of new vehicles for these locations, enhancing the offering to current customers while expanding to other sectors.

In conjunction with the new agreement, ABC has contracted to order 18 VMC Optimal S1 shuttle buses and three Vicinity™ Classic buses – in addition to the previously announced order for 10 Vicinity Lightning™ EV buses slated for delivery in 2022.

Roman Cornell, president and CCO of ABC Companies, stated, "Our expanded partnership with VMC is important as ABC continues to be a market leader in adoption

and deployment of electric vehicles. Vicinity's innovative and environmentally-friendly vehicle solutions support our focus on delivering excellence and performance."

"Our partnership with ABC continues to evolve as we expand our already robust North American footprint and broad product portfolio," said William Trainer, founder and CEO of Vicinity Motor Corp. "ABC's proven track record of customer sales, service and support in the U.S. has enabled us to rapidly increase interest for both our traditional and EV product lines with key transit agencies and private companies alike.

"This new agreement will allow them to now market the VMC Optimal EV S1, a fully-electric, low-floor chassis built on the E450 frame that enables zero-emission operation for an extensive range of market segments including commercial trucks and buses, ambulances, recreational vehicles and fleet trucks. We look forward to continuing our sales momentum with ABC in the coming months as we strive to generate sustainable value for our shareholders," concluded Trainer.

NFI's Next Generation EV Visits Princeton

New Flyer's battery-electric transit recently stopped in New Jersey for a zero-emission bus demonstration with Princeton University.

The Princeton University and WeDriveU teams tested the zero-emission Xcelsior CHARGE NG™ bus, navigating it through the tight streets of Princeton's campus. With an innovative lightweight traction drive system and high-energy batteries onboard, New Flyer's light, efficient, smart city capable Xcelsior CHARGE NG bus demonstrated clean mobility in motion in Princeton.

New Flyer's battery-electric transit bus recently visited Princeton University. Teams from Princeton tested the zero-emission Xcelsior CHARGE NG™ bus by driving through the tight sreets of the campus.

Pace Purchases 20 Proterra ZX5 Electric Buses

Proterra Inc., a leading innovator in commercial vehicle electrification technology, and Pace Suburban Bus recently announced a landmark fleet electrification project with the agency awarding a $26.5 million contract to Proterra to acquire 20 Proterra ZX5 Max electric transit buses, featuring more than 13 megawatt hours of battery storage energy, and two Proterra megawatt-scale fleet charters.

Pace is the transportation backbone of Chicago's suburbs and one of the largest public bus service operators in North America, serving an area nearly the size of the state of Connecticut – further demonstrating Proterra's industry-leading vehicle range to meet the needs of transit agency fleets.

"Proterra is delighted to be Pace's partner to bring our industry-leading fleet electrification solutions to the Chicagoland area. With our purpose-built vehicle platform and best-in-class range, we are excited to help drive the region's switch to zero-emission, electric transportation," said John Walsh, Proterra's chief commercial officer.

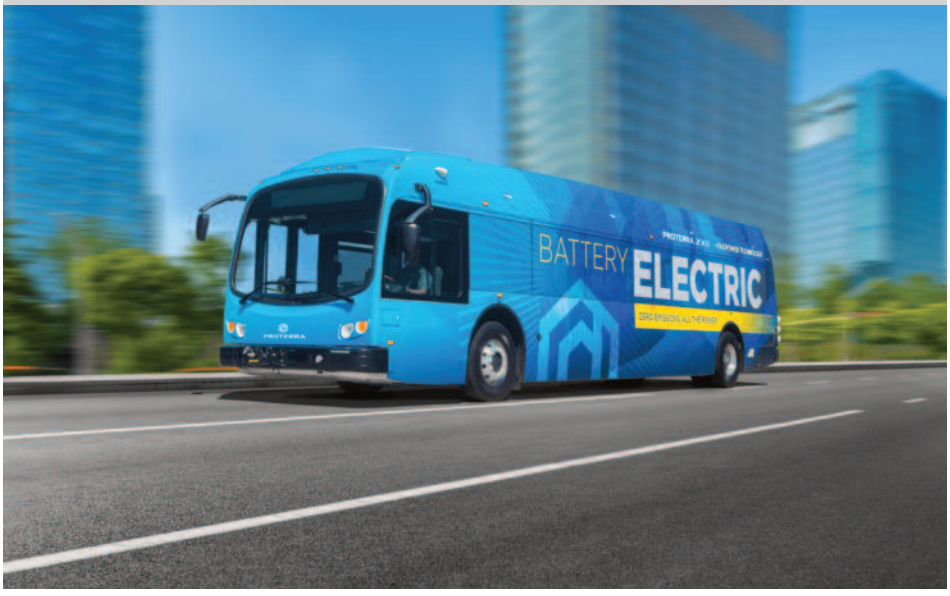
"As transit agencies across the country begin to purchase electric buses, we are excited to be able to get our first order for electric buses in the queue. This puts us ahead of our anticipated schedule and will allow us to get electric buses on the road even sooner," said Pace Executive Director Melinda J. Metzger.

Pace's transition to a zero-emission fleet is a key initiative of their new strategic vision plan, Driving Innovation. While Pace by its very nature as a transit agency helps reduce transportation-related emissions by taking cars off the road, Pace is comitted to moving away from fossil fuels and doing its part to address the climate crisis in a fiscally responsible, taxpayer-friendly way.

Designed and manufactured in the United States, Proterra's electric transit buses are equipped with the company's industry-leading battery technology systems. The 40-foot Proterra ZX5 Max selected by Pace features 675 kilowatt hours (kWh) of energy storage, the most onboard energy storage available in an electric transit bus on the road in North America today.

With more than 800 vehicles on the road, Proterra battery systems have been proven over 25 million service miles driven and selected by world-class commercial vehicle manufacturers to electrify delivery vehicles, construction equipment, school buses, coach buses and more. Proterra Transit battery-electric buses feature zero tailpipe emissions, saving approximately 230,000 pounds of greenhouse gases annually when replacing a diesel bus. The company's fleet of zero-emission, electric transit buses have displaced more than 140 million pounds of CO_2 tailpipe emissions.

Pace recently purchased 20 Proterra ZX5 electric buses and EV fleet charging infrastructure. Pace serves a vast area in suburban Chicago. This is their first order for electric buses.



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In addition to the company's Proterra Transit and Proterra Powered business units, Proterra Energy offers a turn-key approach to delivering the complete energy ecosystem for heavy-duty electric fleets through charging infrastructure design, build, financing operations, maintenance and energy optimization.

Busworld Turkey is Almost Sold Out

The ninth edition of Busworld Turkey, organized by Busworld and its Turkish partner, HKF Trade Fairs, will be held for three days, from May 26-28, 2022 in the Istanbul Expo Center.

A very symbolic show indeed, since Busworld Turkey was the last trade show right before the world's borders closed due to the pandemic – March 2020. Now it turns out to be the very first Busworld trade after the pandemic. Busworld is back.

During the last edition in 2020, the exhibition hosted 129 exhibitors. The show was visited by 7,935 professional visitors, which was surprisingly good considering the covid pandemic was starting to spread at that moment.

Today, the exhibition already counts 130 exhibitors, and this number keeps growing steadily. Vehicle manufacturers, bus and coach builders and body builders will showcase their latest vehicles on a surface of 12,500 sqm: Anadoulu Isuzu, Karsan, Otokar, BMC, Güleryüz, Mapar MAN, Bur-Can, Buskar, Erener, Erduman, E ref Karoser, Gürsözler and Harputlu. They bring a mix of vehicles of different dimensions (from double-decker to minibus), drive lines and types (public transport, tourism, long distance travel, VIP transportation, etc.). Being able to experience all these vehicles in one place is what will draw once again bus and coach buyers – and lovers – to Istanbul in May.

Of course the show will also give the floor to Turkish and international suppliers of all types. Brands like Allison Transmisison, ZF, Voith, Webasto, Aselsan, Fogmaker and many more will be represented again.

The exhibitor list is too long for being published here, but it is available on the Web site www.busworldturkey.org and is updated on a daily basis.

VDL Bus & Coach Wins Prestigious Red Dot

The jury of the world's most prestigious design competition, Red Dot, gave the award in the Product Design category to the new generation Citea. The electric buses from VDL Bus & Coach are entirely based on an electric drive train and have trend-setting features. The jury praised the "high design quality and excellent design."

European builder VDL was recently given the Red Dot award for their new generation Citea transit bus. The jury praised the high design quality and excellent design of the Citea. VDL won a previous award in 2017 for its Citea SLFA electric bus.

The Red Dot Award has been awarded annually in several categories since 1955 by the Design Zentrum Nordrhein Westfalen in Essen, Germany. This year the organization had a record number of entries. The Red Dot Award for the new Citea generation will be presented on June 20. "The fact that VDL emerged as the victor from such a strong group of participants is testament to the exceptional quality of the product," judged Professor Dr. Peter Zec, founder and CEO of the Red Dot Award. "In an evaluation process lasting several days, the entries from all over the world were examined in detail and assessed by experts for their design quality and degree of innovation."

VDL Bus & Coach has won the award for the second time in history. In 2017, the Red Dot Award also went to VDL, at the time to the VDL Citea SLFA Electric. The Dutch design agency Modyn, based in Geldermalsen, Netherlands, has played an important role in the design of the VDL Bus & Coach product range for many years.

Under the direction of VDL's design team, the close cooperation once again led to success. "The VDL design philosophy makes the journey even more pleasant for both driver and passengers," explains Bram Veendrick, design manager at VDL. "In the new generation Citea, the traveller benefits from an optimal seating arrangement and flow without obstacles, while the driver has an ergonomic driver's cabin. There is an optimal streamline for very low energy consumption. The design is based on the characteristics of the public space, which is reflected in the interior."

Rik de Reuver, head of product design at Modyn: "In the development of the new generation Citea, VDL underlined the strategic importance of design from the outset. This has been an advantage in both the design process and the cooperation. Our shared principles and ambitions are reflected in the design of the vehicle, which requires a design that is both long lasting and innovative."

The new generation of Citeas has already been sold in several countries and will be deployed in a number of cities and areas starting this year: The Netherlands (Eindhoven), Finland (Kotka and Lahti), Belgium (all of Flanders), Germany (Oberhausen) and France (Bordeaux). Currently, more than 1,000 electric VDL Citeas, delivered between 2015 and the first quarter of 2022, are in operation in 11 countreis. VDL Bus & Coach is well on its way to 200 million electric kilometers of experience and expertise.

Alex de Jong, business manager public transport at VDL Bus & Coach: "It has always been clear that the next step of a zero-emission public transport bus needs new technologies and a new way of thinking. Experience in both the bus sector and in e-mobility has been combined. For VDL Bus & Coach, having an attractive design language is an important asset in getting more people to choose public transport. The form and functionality of the Citea, such as the use of light and color, must ensure that pas-

sengers feel comfortable on board the bus. In the end, we all contribute to the greater goal of a livable city, where residents will benefit from fewer harmful emissions and noise, and more clean air."

Irizar Coaches Conquer Public Transport in Cyprus

For the first time, Irizar has moved into the medium-distance public transport service in Cyprus by concluding an agreement for the delivery of 31 units of the Irizar i4 and Irizar i3 models in the region of Paralimni, Agia Napa and the surrounding areas.

The contract signed with the operator OSEA, which after 10 years is once again the successsful bidder for the operation of these lines, includes 20 Irizar i3 coaches and 11 Irizar i4 coaches, 12 meters long, with a single wide central door, on a Mercedes chassis.

The vehicles are equipped with a Masats K7 model PRM platform and have 51 seats, a wheelchair area and two PRM seats to guarantee accessibility and fluid movement for all passengers. The comfortable interiors of both coaches feel well lit and have high-capacity, personalized climate control systems so passengers and drivers alike can have a pleasant travel experience.

The coaches have lumbar adjustment seat belts in all seats to improve passenger safety and Advanced Driver Assistance Systems (ADAS), pedestrian and cyclist protection, as well as closed-circuit television (CCTV) that monitors the passenger compartment.

Irizar recently sold 31 coaches to Cyprus for medium-duty public transport service. Included were 10 of the Irizar i3 model and 11 of the i4 model. These buses have a length of 12 meters (39 feet) and a single, wide central door as well as a multimedia and information system with 15-inch screens.

It also includes a multimedia and information system with 15-inch screens and USB charging ports. Another outstanding aspect of these coaches is that they have specific supports for the transfer of bicycles.

The adaptability and versaility of these vehicles offer a wide range of possibilities for comfort, safety, efficiency and connectivity that will undoubtedly provide a more than satisfactory experience to the more than 30,000 tourists who visit this region of Cyprus during summer.

With the incorporation of these new coaches into the OSEA fleet, Irizar's entry into public service on the island for the first time and its presence in the tourism segment, means that the growth plans for Irizar continue to be promising in this market.

Ebusco was recently awarded a major framework agreement by Duetsche Bahn. It involves zero-emission buses for 2023-2024 with options for 2025 and 2026. Best known for operating the German railway network, Deutsche Bahn is increasingly supplementing rail service with bus routes.

Deutsche Bahn Awards Ebusco Major Framework Agreement for Electric Buses

Ebusco, a pioneer and frontrunner in the development of electric buses and charging systems, announced that it was awarded a framework agreement with Deutsche Bahn. Under this framework agreement, Ebusco will be the primary supplier to Deutsche Bahn for zero-emission buses for the period 2023-2024 plus the option to extend to 2025 and 2026. This framework agreement is a key step in strengthening Ebusco's presence in the strategically important German market.

Deutsche Bahn is Germany's largest public transport operator. The framework agreement relates to the delivery of battery-electric Ebusco buses, over the period 2023-2024, with the option to extend the contract by one year twice. The buses will be put into service by Deutsche Bahn at multiple public transport authorities across Germany. As part of this agreement, Ebusco has agreed a call-off contract for approximately 260 Ebusco buses, which will materialize if and when Deutsche Bahn obtains the related concessions in the period 2023-2026. The maximum order volume under the framework agreement amounts up to 800 buses

(variety of bus configurations) over the total contract period.

Sixteen New VDL Citeas for KVG Braunschweig

Kraftverskehrsgesellschaft mbH Braunschweig will get a series of 16 new generation Citeas in 2023. The vehicles of type LF-122 are based entirely on an electric drive train and have trend-setting features. VDL Bus & Coach is thus expanding its long-term cooperation with KVG Braunschweig.

Recently, VDL Bus & Coach received the first order from STOAG Stadtwerke Oberhausen GmbH for the new generation of Citeas in Germany has also opted to make public transport more sustainable by purchasing new Citeas, which will be used on various routes in the north German city starting next year.

Kraftverskehrsgesellschaft mbH Braunschweig and VDL Bus & Coach have for many years enjoyed a good and successful collaboration, which is now entering a new phase," says Boris Höltermann of VDL Bus & Coach Deutschland GmbH. "We are very proud of the development we have gone through with this customer – from the Citea LLE to the Citea SLF-E and to our new generation Citea. This is another step towards a sustainable future, right on our doorstep."

The electric buses have a battery pack of 429 kWh. The range of the new generation of Citeas has been considerably improved. With this battery, the LF-122 (low-floor) can travel up to 300 kilometers on pure electric power without any intermediate recharging, even in harsh weather conditions. In the new generation of Citeas, it is not only the driver's seating position that has been greatly improved, but also the steering column, with a greater range of adjustment and lower steering forces for optimum comfort. The vehicles also have a larger passenger capacity and a highly efficient heat pump air conditioning system without additional diesel heating.

As a regional public transport company,Kraftverskehrsgesellschaft mbH Braunschweig, located in north central Germany, meets the mobility needs of around 13 million passengers every year with almost 200 buses. More than 400 employees ensure that customers reach their destination in a reliable, comfortable, safe and well-informed manner. Passengers have been relying on the services of Kraftverskehrsgesellschaft mbH Braunschweig since 1909.

With the company's orientation towards climate-friendly public transport, the focus is on the gradual conversion of the bus fleet to alternative drives, and in particular to electric mobility. "We want to significantly reduce our CO_2 emissions, stresses KVG Braunschweig Managing Director Axel Gierga. "The last diesel bus must be purchased by 2030 at the latest. In doing so, we will benefit from the high innovation rate of the manufacturers, who, like VDL in this case, can supply suitable models for our growing demand."

VDL is providing 16 new Citea buses for use in Braunschweig, Germany. Located in north central Germany, the operator has a fleet of almost 200 buses and transports about 13 million passengers annually. The Citea LF-122 buses operate on battery-electric power and have several new features.

VDl Bus & Coach has become one of the leading players in Europe in the field of e-mobility. Since the introduction of the first Citea SLF-120 electric in Geneva, during the UITP Mobility & City Transport exhibition in 2013, VDL Bus & Coach has focused strongly on electric mobility. In 2021, VDL Bus & Coach presented the new generation of electric Citeas. Based on the VDL vision, a bus concept has been developed that is entirely based on an electric drive train and ready for the future, with zero emissions as a matter of course.

Batteries in the floor, a one-piece composite side wall, clever energy management, a sophisticated climate control system and an ergonomic driver's environment. With these five important innovations, VDL Bus & Coach introduces the new generation Citea product range, consisting of four length variants and five types. The range of the new generation Citeas has improved significantly.

Marcopolo Supplies 300 Vehicles for the Mining Segment in Chile

Marcopolo has signed an important contract to supply 300 vehicles for the charter service to transport employees of the company Codelco, the largest copper producer in the world. The operators Renta Bus (Link) and Buses JM contracted for the service acquired 300 buses and Marcopolo micro buses of the Viaggio 900 and Senior models, delivered.

The new buses have already started to be delivered by Epysa, a Marcopolo representative in Chile, and were destined for the El Teniente (city of Rancagua, O'Higgins region) and Andina (city of Los Andes, Valparaiso region) divisions of Codelco. Deliveries will be completed by the month of August.

"This new business demonstrates the strength of the Marcopolo brand in Chile and other important Latin American countries. Last year we participated in a bid by the company Mineradora Codelco, we won the preference of LINK and Buses JM operators and we will supply 80 percent of the total bid volume, including the unprecedented Senior model with electrified chassis," highlights André Vidal Armaganijan, director of ME International and Commercial Operations.

Of the 300 new vehicles, 77 are the Senior Charter model – with electrified chassis from the company Reborn – of which 20 have already been delivered to Renta Bus (Link). The micro buses have external fiberglass side coverings, lower stainless steel structure to meet the needs of customers and further increase the standard of quality and resistance. With a capacity of 24 pas-

sengers seated in Executive 940 seats, they are equipped with a Valeo CC175 split air conditioning system with a rear condenser – an unprecedented development for the Senior line and made especially for Renta Bus (Link), a customer with a fleet made up of 95 percent Marcopolo models. The units also have curtains, electronic destination sign, luggage rack to store batteries, cup holders, luggage rack, heating and three-point seat belts.

Of the 223 Viaggio 900 buses supplied, 146 will be delivered to Renta Bus (Link) and 77 to Buses JM. The 146 units for Renta Bus (Link) are equipped with 48 Executive 1060 seats, with a three-point belt for more safety.

Due to the characteristics of the roads they drive on, covered with snow for long periods during the year, the vehicles have a lower body structure developed in stainless steel, with very high resistance to corrosion, and lower body plating in stainless steel as well as the highest anti-corrosion protection ever applied by Marcopolo.

For greater comfort, the buses have a Valeo CC300S air conditioning system, with a condenser installed in the luggage rack, the installation of a pre-heater to heat water and pressurized air in the luggage racks to prevent dust from entering, as well as a panel that indicates when a seat belt is not fastened, a parking sensor and LED back-up lights.

The 77 Viaggio 900 buses delivered to the company Buses JM, a traditional Marcopolo customer and fleet composed of more than 70 percent of models from the Brazilian brand, have a capacity for 40 seated passenges and have Executive 1060 seats, with three-point seat belts, Valeo CC356 air conditioning system, a panel that indicates when a seat belt is not fastened, a parking sensor and LED back-up lights. ❑

Marcopolo will be providing 300 buses for use in providing transportation to mines in Chile. Included will be 77 of their Senior Charter model and 223 of the Viaggio 900 model. The buses are equipped for rugged service with a stainless steel lower body structure, high anti-corrosion protection and pressurized air to prevent dust from entering the passenger cabin.

The Newly Redesigned TEMSA TS45

by Larry Plachno
Photos courtesy of TEMSA unless indicated

One of the most exciting events at the recent United Motorcoach Association's Expo in Long Beach was the unveiling of TEMSA's newly redesigned TS45. Initially requested by American operators and designed with their help, the TEMSA TS45 was originally introduced in 2014. Also introduced at the Expo in Long Beach was the companion model the TS45E.

What many considered the most exciting moment at the recent United Motorcoach Association's Expo in Long Beach was the grand unveiling at TEMSA. It was a double event because TEMSA had not one but two coaches under wraps that they were introducing to the industry. As the unveiling time approached, a crowd of people gathered at the TEMSA stand as the anticipation mounted. At the appointed moment, the wraps came off and the redesigned 45-foot TS45 model and its companion battery-electric TS45E model were unveiled to the crowd.

Some of the people there commented on the long list of improvements and new features that TEMSA included in their redesigned TS45. The new aerodynamic design helps fuel economy while other changes, like the three-piece bumpers, help reduce operating costs. An improved multiplex system simplifies diagnostics and makes maintenance easier. In addition, the new TS45 can boast of state-of-the-art technology and increased safety features. As a result, we have received requests for National Bus Trader to take a closer look at the redesigned TEMSA TS45 with its new attributes and improvements.

Background

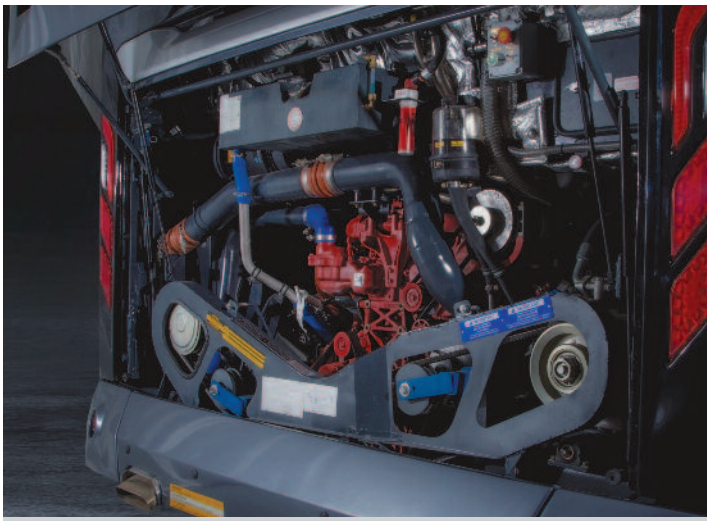
While every model has a story behind it, the TEMSA TS45's heritage is connected with customer input and suggestions. TEMSA brought their short 35-foot integral coach to North America in 2008. It became an immediate hit because coach operators were looking for a smaller coach with integral construction and big coach features for smaller groups. Customers eventually persuaded TEMSA to add a smaller 30-foot coach to its product line that also found a niche in the North American market.

As time went on, it was not unexpected that TEMSA customers pleased with the shorter coaches began asking for a full size 45-foot coach. TEMSA had previously developed a longer coach for the European market called the Diamond. I had the opportunity to ride on one and was pleased with the appearance and the ride. To TEMSA's credit, they elected not to use the old design but to start from scratch with a coach particularly designed for and geared to the North American market.

They gathered several American customers together and asked them what they would like to see in a 45-foot coach. The resulting list was then given to the TEMSA engineers and designers who set to work turning the list into a coach. An initial prototype was developed at the factory in Adana, Turkey in 2012. TEMSA then invited some of the American customers to come for a visit and critique the new model. I was there and participated in the tire kicking, measuring and discussion. It was fascinating to see the coach operators going over many details on the coach. The resulting list was given to the engineers who went back to their drawing boards. This resulting TS45 model for the North American market made its debut in 2014 and was arguably a coach designed with a great deal of customer input.

Things have moved on since the introduction of the TS45. One is that the bus industry has embraced a great deal of new technology and safety features. This ranges from three-point seat belts to improved diagnostics to new systems for accident mitigation. Another is that TEMSA already had three battery-electric models in its product line and was working on an electric version of the TS45 (to be known as the TS45E) to be the fourth. These two items prompted a major redesign of the TS45 to take advantage of new technology and state-of-the art features. All of this led to

One of the most noteworthy features on the newly redesigned TS45 is the aerodynamic design that improves fuel economy. Front lines continue back along the coach to set off the panoramic windows.



The TS45 includes an American power train with a Cummins X12 Series six-cylinder 11.8L engine with an engine brake coupled to the popular Allison B500 transmission with an optional retarder.

the redesigned TS45 model unveiled at the UMA Expo in Long Beach.

Dimensions and Specifications

Given the fact that much of the input that went into creating the TS45 came from North American coach operators, it is not surprising that the coach tends to reflect the most popular dimensions and components for the American market. As you might expect, the TS45 has a length of 45 feet and a width of 102 inches, both North American standards. The overall height is 11 feet and six inches, which means that it will comfortably fit through a standard 12-foot door. Aluminum pantograph type doors are used on the luggage compartments that have a capacity of 460 cubic feet.

TEMSA powers the TS45 with a Cummins X12 Series six-cylinder 11.8L (EPA 2021) diesel engine that offers a Cummins engine brake. A 200-gallon fuel tank is provided along with a 15-gallon DEF tank. Expectedly, the transmission is the popular Allison B500 with an optional retarder. All three axles come from ZF with independent front suspension and a steering tag axle. The basic braking system includes Bendix® disc brakes on all wheels with additional safety systems. The 12/24-volt electrical system uses dual 12-volt batteries while headlights, exterior and interior lighting uses LEDs.

The resulting redesigned TS45 coach retained some tried-and-true systems from the earlier model but replaced or added systems where new technology was available. Here is a list of different areas on the coach with the highlights on what was added or improved.

Perhaps the most noteworthy external difference on the TS45 is the new aerodynamic design that keeps fuel economy in focus while the new front lines continue back on both sides to set off the panoramic windows. Among the changes to reduce operating costs are the redesigned three-piece bumpers on both the new front and new rear face. New reshaped taillights at the rear give the TS45 a more modern appearance. The tag axle steering system, originally introduced in the TS45 in 2014, has been retained. This, combined with the independent front suspension, gives the TS45 its great handling and stability on highways.

In addition to the three-piece bumpers, there are several other features on the redesigned TS45 that help with maintenance. New fuel filters reduce maintenance costs. The digital cluster and upgraded multiplex system improves diagnostics that reduces maintenance expenses while reducing technician time.

One of the major improvements in the redesigned TS45 is a range of new technology and safety features that bring it up to state-of-the-art level. A key component of this is a new generation multiplex system that supports the CAN communications for more reliability. This combines with an improved electronic structure (KIBES 5) to support this new technology while keeping operating costs low.

Past features being continued in the new model include the lane departure warning system, the tire pressure monitoring system, three-point seat belts, tempered-laminated side windows and the structural integrity of the integral construction. Now being added on the redesigned TS45 is the Bendix® Wingman® Fusion™ lane departure warning system and collision mitigation that integrates camera, radar and brakes. This is in addition to a previous list of past driving assistance items including ABS, ATC, RSC and ESC.

American operators pleased with the shorter TEMSA coaches asked for a similar full-size, 45-foot coach. Instead of modifying a European model, TEMSA asked American operators to work closely with their engineers to develop a new model geared to American needs. Taken in 2012 at the TEMSA factory in Adana, Turkey, this shows several American operators going over an early prototype of the TS45 with TEMSA engineers and making suggestions. NBT.

The driver has not been forgotten in this list of improvements. Comfortable in the Isri driver's seat, the driver will find improved visibility with the enlarged windshield. This, along with the panoramic passenger windows and higher windshield provides a brighter interior. Driver shades and the new overlapping front windshield window blinds will improve conditions for the driver.

Other features to help the driver include a brake pad wear indicator as well as indicators for low voltage and an open engine door. Optionally available is the REI 360 camera system that adds safety by looking around the coach. To help with the pre-trip inspection, there is now a switch on the dash that turns on all of the exterior lights for the driver's walk-around inspection. Drivers like the tight turning radius of the TS45 that improves maneuverability. As already mentioned, the driver will be able to take advantage of numerous driver assistance and safety features including lane departure warning, the following distance notice, stationary object alert and braking, active cruise with braking and a traffic sign detection system.

Passengers will be pleased with many of the new improvements on the redesigned TS45. Ride quality has been improved with the advanced air suspension, Koni shock absorbers and front independent suspension. They can sit back and relax in reclining seats with three-point safety belts while enjoying the new REI infotainment multimedia system with up to six monitors that is now standard equipment. TEMSA has retained the high-capacity HVAC system originally introduced in 2014. It includes a six-cylinder air conditioning compressor and four-piece evaporators.

Passengers have not been forgotten on the redesigned TS45. They will enjoy the view out of the tempered laminated panoramic windows and can take advantage of overhead parcel racks, adjustable air vents, a reading light and speaker. Options include passenger side shades, rubber cup holders, leather and fabric seat alternatives and a KVH satellite system.

The view for the passengers is great out of the tempered laminated panoramic windows. Standard equipment includes adjustable air vents, a reading light and speaker plus overhead parcel racks. For those who want more there are several options including enclosed parcel racks, passenger side shades, rubber cup holders, leather and fabric seat options and a KVH satellite system. Also worth mentioning is the restroom at the rear with a 32-gallon recirculating tank.

Drivers will also find improvements on the newly redesigned TS45. Included is the Isri's driver's seat and the enlarged windshield that improves visibility. Noteworthy features include a brake pad wear indicator, a 360-degree camera system that looks around the coach and even a switch on the dash that turns on all lights for pre-trip inspections. Safety and driver assistance systems include lane departure warning, following distance notice, stationary object alert and braking, active cruise with braking and even a traffic sign detection system.

The Electric TS45E

TEMSA vehicles operate in 66 countries and have traveled six billion miles. The companion TS45E model to the TS45 is the fourth electric vehicle in the TEMSA product line. While it shares much the same appearance as the TS45, it is entirely electric. With diesel buses, some of the systems are able to take power from the engine that runs continuously. That option is not available with electric buses so all systems including air conditioning, power steering and the air compressor are powered by electricity.

Much of the technology on the TS45E has been geared for the American market. Among other things, TEMSA engineers specifically developed the battery package for North American requirements. A noteworthy feature of the TS45E is its one pedal drive technology. Pushing down on the pedal causes the bus to accelerate while releasing the pedal puts it into a regenerative braking mode. This converts the braking energy to electricity and puts it back into the battery, thus reducing brake maintenance costs and increasing the range of the bus by as much as 15 percent.

The TS45E can travel 250 miles on a four-hour charge. The battery packaging size of TS45E is flexible up to 560 kWh which allows the end-user to configure different battery sizes and capacity considering their operational needs. It can be 280kwh, 350kwh,

420kwh , 490 kwh and 560 kwh. A major advantage of the TS45E is the smooth acceleration and quiet ride that pleases passengers.

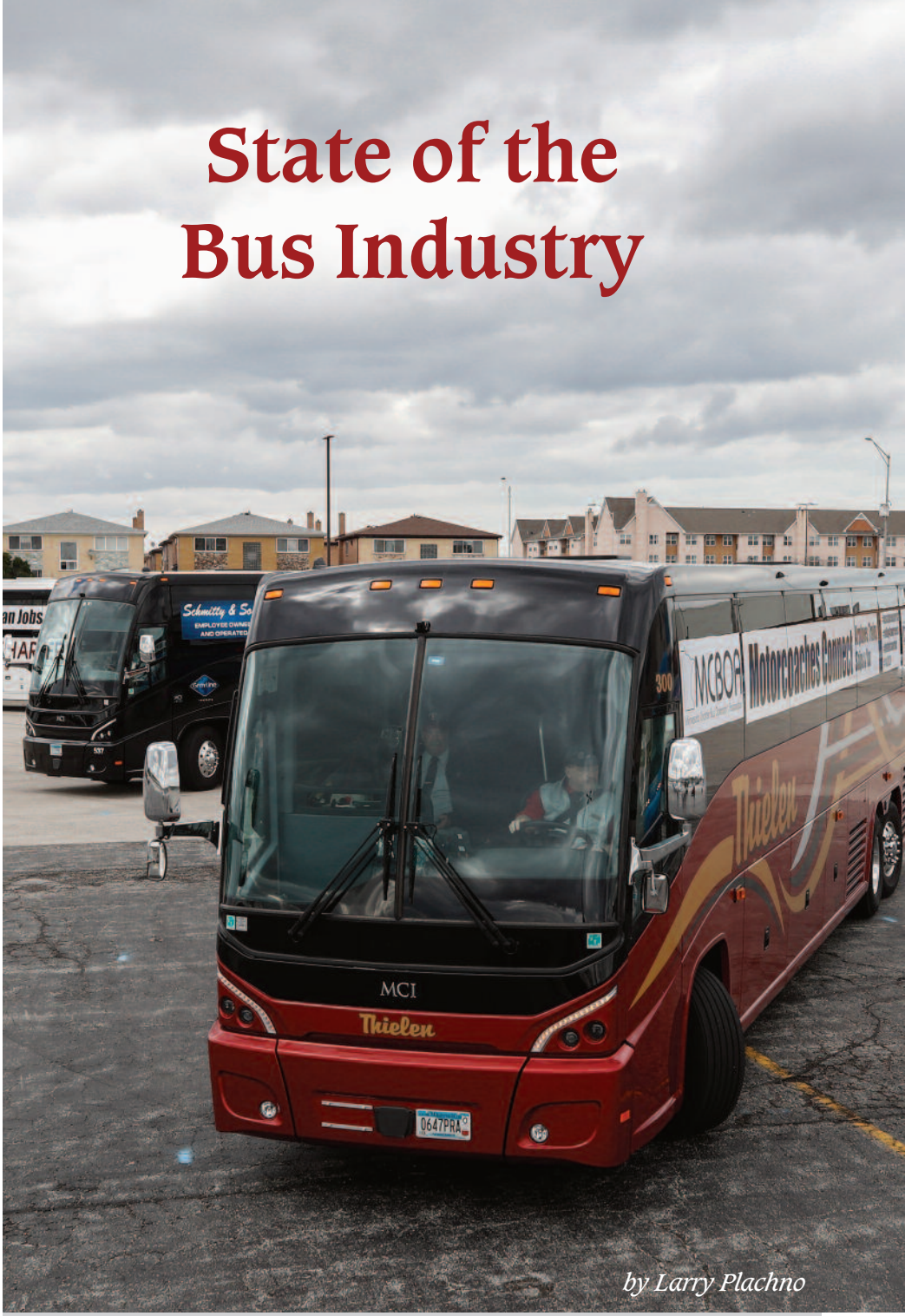
There are also two major advantages for bus operators with the battery-electric TS45E. One is reduced cost of operation because of the electric drive. The second is reduced maintenance costs. Since there is no fuel on board, the bus stays clean and is easier to work on. Maintenance costs are also lower because things like fuel filters, belts and some systems are eliminated. In addition, the electrical components tend to have a longer life.

For more information on the TS45 and the TS45E see your TEMSA representative. ❑

Both the newly redesigned TS45 (right) and the companion battery-electric TS45E were introduced at the recent United Motorcoach Association Expo in Long Beach. Originally introduced in 2014, this TS45 redesign not only involved improved styling but system upgrades and several driver safety systems. The battery-electric TS45E offers a zero-emission coach with all-electric systems but substantial compatibility with the diesel version.

State of the Bus Industry

by Larry Plachno



Several organizations and companies decided that March of 2022 marked the two-year anniversary of the pandemic and elected to report on the current status of various companies or industries. What we found is that much of the bus industry has made a substantial effort towards returning to normal. This photo of a Thielen Bus Line J4500 was taken during the Rally for Awareness. PAT PLODZEEN.

A number of different organizations and sources picked March of 2022 as the two-year anniversary of the pandemic. They have elected to issue various documents and reports so as to comment on how things have changed and where things stand. What we will try to do is to pick the information that may be appropriate to the bus industry and put it together for our readers.

General Comments

As one might expect, the overall developments are a combination of both pros and cons. On the pro side, it is obvious that the bus industry is coming back although some segments of the industry are doing better than others. As a general rule what we are seeing is that most everyone on the operating side of the business is trying to get an increased number of buses back on the road. What is interesting is that some new services were started during the pandemic, showing that many people are positive about the future of the industry. It might also be mentioned that while increased fuel prices make operating costs higher, the experts tend to agree that they will cause people to mode shift from automobiles to buses.

On the negative side, the industry is still looking for bus drivers. On several occasions we have heard about booked bus trips that were cancelled because of a shortage of drivers. This may do more to slow the return of the industry than the pandemic. Another concern is the reduced number of new bus sales, particularly in the private sector. This is slowing down improvement on the manufacturing and supply side of the business although the trade shows and publications are trying their best in spite of this.

Among other noteworthy items is the trend to battery-electric and hydrogen fuel cell buses that we will mention later. In spite of the pandemic, Daimler introduced a new model to the North American market and Temsa redesigned their TS 45 model. MCI, Temsa and ABC are all moving ahead with battery-electric coaches.

One item worth mentioning is that several sources have commented on supply chain problems during the pandemic. Noteworthy is the lack of computer chips and some dependance on Chinese sources. This may impact manufacturers and suppliers more than operators. As a result, many manufacturers have started to seek alternate sources for some of their needs. Several are looking for more local sources, and the general trend is to depend less on China for supplies than has been the case in the past.

City Transit

On the positive side, transit routes have returned nicely although in many cases it appears that the buses have returned faster than the passengers. Another positive indication is several orders for new buses using federal money. Many of these involve battery-electric or hydrogen fuel cell power.

On the negative side, some of the sources point out various concerns. Overall, ridership has been slow in returning. While there still are people working from home, an even bigger factor is the number of people who have elected to use their automobile instead of the bus. In some places the buses no longer collect fares because the cost of the fare collection exceeds the revenue. We also noted that RTC in Las Vegas reduced service and went to Saturday schedules on weekdays starting February 22.

Some industry people are concerned over continued changes in travel patterns. Decades ago, major travel patterns in most big cities involved commuter rail, rapid transit and some bus routes bringing people downtown to work or shop. Over the years,

jobs and shopping have moved out and into the suburbs thus causing major changes away from past travel patterns making bus routes less viable for many. One source noted that in some cities, ride-hail services now account for as much as 14 percent of total vehicle miles because they take people where they want to go.

Added to this are concerns about growing traffic congestion in big cities. Some sources point to increasing e-commerce where people buy online because local stores have closed or because they do not want to travel. This increases traffic with more delivery vehicles. The experts are also concerned about increased traffic when autonomous vehicles are introduced. This will put today's non-drivers on the road and make autonomous delivery vehicles possible.

Coach Operations

One source suggests that more than 60 percent of coach operations have returned to the road by the end of 2021. Depending on who you ask, this seems to vary by different types of service. Bus tours have been coming back nicely because of support from people who were tired of sitting at home. Charters seem to be coming back more slowly, but this will probably increase as interest in social distancing decreases.

In spite of the pandemic, there have been several positive things happening with long distance scheduled routes. FlixBus purchased Greyhound Lines from First Group. Noteworthy is the restoration of Greyhound service into Canada including Montreal to New York and Boston as well as the restoration of service from Seattle to Vancouver, B.C. A very positive new route is The Jet running between New York and Washington, D.C. with 14-passenger luxury buses. FlixBus has added routes, and there are some new regional routes supported by state money.

On the negative side, the lack of drivers continues to be a major problem for coach operators. There are reports of operators who have the coaches, book the charters and then are unable to run because of a lack of drivers. New vehicle sales have also been slow in the private sector because of a combination of surplus buses and operations still being less that in pre-pandemic times. While increased fuel prices will certainly increase operating costs, the experts suggest that higher fuel costs will be positive for the bus industry as more people ride buses and use automobiles less.

City transit bus operations have made major strides towards returning to pre-pandemic levels. However, they are hampered by several items including more people using personal autos and increasing competition from ride-hail services. Increased traffic congestion is another problem facing city transit buses. ALEXANDER GRISHIN.

Over-the-road coach operations have seen several changes. Flixbus took over Greyhound while former Greyhound routes to Montreal and Vancouver, B.C. are back in operation. In addition, there are several new routes including some supported by state funding. GREYHOUND.

School Buses

Most school bus routes have returned. One major factor here is the push for battery-electric school buses. This is very practical since school bus routes are short enough to be well within the range of battery capacity. In addition, school buses are idle for long periods when they can be recharged. There are federal programs that will encourage the move to electric school buses.

In common with other segments of the bus industry, the school bus operators also have a problem finding drivers. There was a short federal program to reduce licensing requirements. Chicago had problems finding bus drivers and ended up working with parents, Uber and Lyft to get kids to school. As with other segments of the bus industry, the lack of bus drivers may restrict operations more than the pandemic.

Diesel/Hydrogen/Electric

These last two years have seen an increasing movement towards alternative power sources. In the transit part of the industry, we have seen a substantial number of new transit buses ordered with battery-electric power and hydrogen fuel cell power. Bear in mind that many if not most transit routes are short enough so that battery range is workable. The supporters of hydrogen power suggest that it may become more attractive in the future because it is easy to source and does not depend on the power grid.

We are also seeing some inroads of battery-electric power in coach operations. However, battery capacity and range may limit these buses to short services like commuter operations and shuttles. There have been examples of driving battery coaches long distances and ABC drove a battery-powered Van Hool double-deck coach from Florida to California. While this proves that public charging stations are available, it does not solve the problem of the time it takes to recharge.

There are also people in the industry who point out that today's clean diesel buses are so clean that moving to alternative fuels does not accomplish a great deal. Others will suggest that the pollution caused by mining, transporting, processing and manufacturing the lithium batteries substantially offsets their lack of pollution while in use. This would make an interesting article if we could get accurate information.

The Driver Shortage

The driver shortage has impacted virtually every segment of the bus industry. Many bus operators suggest that this is a bigger hindrance than the pandemic in building back the bus industry. I might mention that this is not a local problem. Truck and bus operators in Europe have had the same problem for years while some countries have a problem with a lack of workers in several industries. Everyone is looking for a practical solution.

A part of the problem in the United States and Canada has been the compensation paid bus drivers compared to the requirements of the job. In addition to meeting licensing and health regulations, bus drivers have to deal with people, weather, traffic and possible mechanical issues. A major limiting factor in this area was the deregulation of the bus industry in 1982. While the primary intent was to eliminate regulations and open bus operations to more companies, it also created competition in the industry. As a result, the competition made it difficult to increase driver salaries.

Since the pandemic started, the bus industry has continued to move towards alternative fuels. Several new transit bus orders have specified battery-electric or hydrogen fuel cell power. This photo shows two of the new NFI battery-electric buses for Metro in St. Louis. METRO / NFI.

Some bus companies have been able to ask for higher rates because of superior service. This allows higher salaries for drivers, but many operators find themselves competing on price which limits what you can offer drivers. In addition, many would say that the recent movement to electronic logging devices has not helped. At the federal level there have been only limited efforts at lessening driver regulations and I do not see deregulation turning around.

Demographers and researchers will also tell you that a part of the problem is that birth rates are down in most developed countries. Hence, there are fewer workers and fewer people to pay into social security. This situation impacts other countries in much the same way. It would help if we went back to bigger families so we have more workers looking for work. ❑

While much of the bus industry is struggling to return from the pandemic, we are finding that hiring and training drivers has become a problem. Several segments of the industry are reporting that the lack of drivers may actually be more of a problem than dealing with the pandemic. There are reports of numerous booked charters being cancelled because of the lack of drivers. VOLVO.

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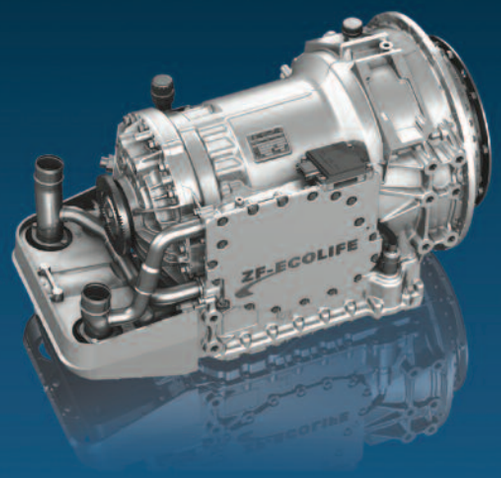

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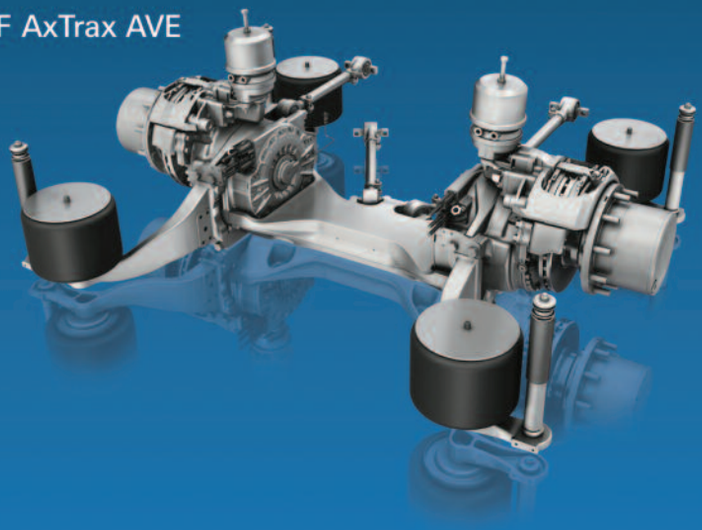

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Supply Chain Problems and the Bus Industry

by Larry Plachno

This originally started out as a question to our "Curious Coachowner" column. However, as we got into developing an answer we discovered that it was too large for that column so we turned it into an article for our readers.

The pandemic disclosed several things including multiple problems with the global supply chain and a corresponding issue with a lack of truck drivers. As a result, store shelves were sometimes empty and some products were in short supply. This ranged from toilet paper, safety equipment and lumber to automobiles. Many, if not most, of these and other shortages were caused by problems with the global supply chain.

What became apparent during the pandemic is that the global supply chain had simply grown over the years with little or no thought. Decisions were primarily made based on cost rather than on secure or alternate supply lines. As a result, supplies, parts and products were moved where labor is cheap and certain locations became major centers for specific items to the exclusion of others. Hence, any problem at one location could impact global supplies.

Part of the background on this is that modern container ships, often operating with a crew of 30 or less, have made long distance transportation relatively inexpensive. It only costs about two dollars to move a television from China to the Los Angeles ports. It costs more than that to bring it locally to the warehouse and store. Hence, products and parts have been crisscrossing the globe in ships while countries with cheap labor have been increasingly active with manufacturing. China has become the largest manufacturing country in the world with a 29 percent share in global manufacturing.

Many people may not be aware of how global the supply chains have become. Some of the larger seagoing cargo ships carry as many as 24,000 shipping containers, a number that boggles the mind if you were not aware. In spite of the pandemic, the nine largest ports in the United States handled 50.5 million shipping containers in 2021, a record number. The Los Angeles and Long Beach ports handle 40 percent of all seaborne imports coming to the United States.

The pandemic disclosed problems with the global supply chain that had substantially been based on inexpensive transportation and economical labor. Expectations are that producers will be more careful in the future to find alternative and local sources for parts and components. Buses have also taken advantage of seagoing cargo ships as this electric Van Hool CX45E was transported from Europe to the United States. ABC/VAN HOOL.

Because of the amount of global shipping, an increasing number of products include parts or labor from foreign countries. While Apple iPhones are assembled in China, they reportedly contain parts that come from 40 different countries.

Some segments of the global supply chain may seem strange other than because of costs. Cod caught around the United Kingdom is sent to China where it is filleted and then sent back to the United Kingdom and other places for sale. Likewise, tuna caught in Asia is transported to Mexico for processing before being sent to stores in the United States. The reasons for most of this is cost. The low cost of shipping allows producers to move products to take advantage of lower wages or other factors.

Another concern is that some countries or locations have become virtual monopolies for some products. As recently as 1990, the United States had a 37 percent share in global semiconductor production. That is now down to 12 percent. One source suggests that 92 percent of top semiconductor production takes place in Taiwan with two companies having more than 70 percent of the microchip market. Putting all of your eggs in one basket can cause trouble if there is a problem. Since large amounts of water are needed for semiconductor production, a drought in Taiwan led to reduced output in this industry.

A lack of microchips could impact several industries since today they are used in numerous products ranging from computers to vehicles, home appliances and the new smart devices. When the pandemic hit, auto

manufacturers cut back their orders and microchip production was moved to supply other industries. As the demand for vehicles increased, it became difficult for the auto manufacturers to get microchips because only a few companies made them.

A similar kind of thing happened because Texas became a major supplier of resins. A bad winter cut down on production which in turn reduced the amount of material needed to produce plastic bottles and related items. This ended up causing a shortage of juices and drinks in some stores.

Due at least in part to its inexpensive labor market, China has taken a lead in several aspects of the global economy. More than half of the world's mining of rare-earth elements takes place in China, and it is responsible for more than 80 percent their finishing and refining. One source suggests that 80 percent of active pharmaceutical ingredients come from China with less than half of important drugs having any domestic production. China is responsible for 40.3 percent of U.S. imports and provides 70 percent of U.S. footwear. Many of the parts and some of the material used to build American missiles and fighter planes comes from China.

As a result of problems with the global economy during the pandemic, some producers are starting to look at alternatives. The biggest items mentioned are becoming less dependant on China, finding alternative suppliers for some parts or supplies and looking to source more parts and components locally. Some people have suggested that federal and state subsidies would help in creating local sources. For example, Intel is working on building two microchip plants in Ohio that were fostered by more than $2 billion in local and state subsidies.

How will this impact the bus industry? So far, the single biggest effect appears to be with the small buses and cutaways. These smaller buses require microchips similar to automobiles which are now in short supply. The chassis builders are unable to keep up with demand on these vehicles. One source says that regular production may not return until 2025. Many are concerned about a crunch in this market when owners look for replacements for their small buses but cannot find any on the market.

So far we have not heard of any problems with the larger transit buses and coaches. However, since sales are down because of the pandemic, any problems may be minimized. Some of the bus manufacturers may end up looking for alternative or local suppliers to prevent problems in the future. However, we also suspect that the ongoing availability of seagoing cargo ships will prompt more bus manufacturers to look into selling to additional markets. ❑

One of the key factors in developing the global supply chain are seagoing container ships. They can carry an amazing amount of cargo with a crew of approximately 30. The resulting economical transportation makes it possible to move products great distances to take advantage of economical labor. DENDOKTOOR AT PIXABAY.

One of the pandemic and supply chain problems has been a lack of microchips for vehicles. In the bus industry this appears to be a particular problem for the small buses and cutaways. Production ahs been cut back in some places and may take a while to reach pre-pandemic levels. CHAMPION.

Sales, Technology and Relationships

by Dave Millhouser

While technology may be great for some things, relationships and the personal touch can be a high priority to improve your bus company sales. If you do not feel comfortable with selling, then get someone with sales experience to help with your sales. You may even find that some of your bus drivers might do well at sales when they are not driving. SETRA/DAIMLER.

It sounded like a catastrophe of biblical proportion – a woman in the hotel parking lot was wailing that someone had broken into her SmartCar and stolen her GPS. Her biggest concern was not the cost of the gizmo, but the fact that she could not find her way home without it.

Technology is terrific, but there is something to be said for not totally depending on it. Technology serves best when it enhances our abilities, rather than replacing them.

Many coach operators are accelerating their use of the Internet as a sales tool. While that is not a bad thing, it is not without risk. Selling is hard. Once you get past the clichés and misconceptions, it is a discipline like accounting, management or maintenance. It is tempting to put marketing effort (and dollars) into nifty Web sites, splashy advertising and using on-line brokers. They are easy, tidy, and it is fun to see our names in lights.

Just to confirm your suspicions regarding my intelligence, I still buy Chinese takeout from a local restaurant, despite the fact that it consistently makes my tummy hurt. The food stinks, but the folks are really nice. It would not be right to aban-

don friends just because they can not cook. (Heck, my Susan does not cook very well).

Sales and business are almost always about relationships. One exception is self-serve gasoline, which is a commodity sold almost exclusively by the lowest bidder. It can only hurt the charter/tour part of our industry if we sell luxury service as a commodity like pork bellies. When we become too dependent on technology for marketing, we come dangerously close to that position.

A lot of fine operators just do not like "selling." For a long time many depended on the Yellow Pages for marketing ("Bus" comes right after "Burglar."). For some, that thinking has evolved into depending on brokers and leads generated by Web sites.

While you need a good Internet presence, do not fool yourself into believing potential customers visit your site for the great graphics or prose. If they found you electronically, they are "shopping," and it is already about price. There will be minimal opportunity to show them why you are worth more than your competitors. For those of you who love selling and hanging out with clients, keep it up. Skip to the last paragraph where there will be an attempt at humor.

On the other hand, many of you do not have the time, or inclination, to sell. That is not a good reason to abandon the effort. You hire mechanics, lawyers and accountants to handle specialized parts of your business – why not a sales person? Heck, you would not remove your own appendix.

We are not just talking about telephone sales, but rather going out and meeting folks.

While the Internet may be attractive as a sales tool, bear in mind that customers need to find you on the global Web. Customers may find you easier with local forms of advertising including the Yellow Pages and your local newspaper. Personal contact may be the best approach if it works for you. PIXABAY.

Hire someone to tell customers why your company adds value to their trip. They give your company a "face," and they work for you (the Internet does not really care much about your company). They can hunt down groups that already charter buses and ask for the opportunity to serve them, as well as selling the concept of coach transportation to folks who had not yet considered it.

A wizened bus executive (same guy as previous columns, I only have one friend) tells of a friend that hired a salesman with hopes that he would increase business. The operator had decided on a six-month trial effort. "Wizened Executive" asked his buddy how long it took for the sales person to pay for himself – "Six weeks." That may not happen every time, but consider it.

We are in a seasonal business, so drivers are sometimes looking for extra work. Your best drivers are good with people (otherwise they would be driving trucks). Why not give them the opportunity to try sales?

Make sure that every electronic inquiry gets a human response, at least by telephone. Train your people to treat phone calls like sales calls, and do more than just give out prices. Make a valid phone number a mandatory field on Web site requests for quotes. If a potential customer will not give a phone number, they are primarily interested in beating you up on price.

Please do not think this is a knock on using every modern tool available. It is not. You need a first rate Web site, and working with brokers is a good way to fill dead spots. The point is that the only way to control your destiny is to take hands-on responsibility for selling your company.

I was hanging around my buddy's scuba shop last week when a gentleman stopped in just to thank the young woman that had sold him the "right" product. The customer's kindness made two points. Properly done, salespeople provide a real service – and it really is about relationships.

Is there irony (and maybe a lesson) in a person driving a SmartCar being unable to find their way home? ❑

May of the experts will tell you that the telephone may be your best sales tool. Train your people to treat telephone calls like sales calls. Make sure that every e-mail inquiry gets a human response, either by e-mail or phone. GERD ALTMANN.

Bus of the Month

The Newly Redesigned TEMSA TS45

TS45

One of the more noteworthy events at the recent United Motorcoach Expo in Long Beach was the introduction of the new temsa TS45 model and its battery-electric companion the TS45E.

This model was requested by TEMSA customers and then uniquely designed for the North American market with the input and help of American coach operators who wanted to see a full-size coach from TEMSA. It made its debut in 2014 as the third coach in the North American TEMSAproduct line. Numerous recent developments in technology and safety features, as well as TEMSA's progress towards providing a battery-electric version of the TS45, prompted a substantial redesign of the TS45 that was introduced at the UMA Expo in early 2022. Improvements and new systems include exterior design changes, items to reduce operating and maintenance costs and numerous new safety systems and technology.

Dimensions on the TS45 are the American standards with a length of 45 feet, a width of 102 inches and a height of 11 feet and six inches. The drive train includes a Cummins engine and an Allison B500 transmission. Axles come from ZF and include independent front suspension and a steering tag axle. The TS45 features durable integral construction as well as air suspension and all of the usual coach features including a restroom.

Externally, the redesigned TS45 has a newer aerodynamic design, panoramic windows and enlarged windshields. Redesign extends to the new tail lights at the rear as well as LED lighting on the interior and exterior.

Some of the most noteworthy features on the TS45 revolve around technology and safety features. A new generation multiplex system supports the CAN communications for more reliability and increased safety systems. Features that existed in previous models include a brake pad wearing indicator, a low voltage warning and an open engine door warning. Added in the new model is a smart digital cluster and a single switch for the pre-trip external light inspection.

Included are a lane departure warning system, tire pressure monitoring system, three-point safety belts and tempered laminated side windows. The Bendix® Wingman® Fusion™ system is now being offered on the TS45 as well a wide range of other safety systems including ABS, ATC, RSC and ESC. Optionally available is the REI 360 camera system.

Drivers appreciate the tight turning radius of the TS45 and the brighter interior of the redesigned model with panoramic windows and a higher windshield. Passengers will note REI's new generation entertainment system which is now standard equipment. They have also enjoyed the high capacity HVAC system that ensures comfortable cooling and heating.

Bus operators will appreciate several features that make the TS45 more economical to operate and reduce maintenance costs. Included are the three-piece bumpers at front and rear and the aerodynamic design that improves fuel economy. The upgraded multiplex system improves diagnostics to make work faster and easier for your technicians.

The newly redesigned TS45 will be popular in quality charter or tour service. A battery-electric version named the TS45E was also introduced at the UMA Expo. It contains many of the features of the TS45 but is all-electric. It has a range of 250 miles on a four-hour charge and features a one-pedal drive that incorporates regenerative braking to turn braking energy into electrical power and extend the operating range.

See your TEMSA representative for more information. ❑

EXPERIENCE THE ALL-NEW TS45

The new TS45 is redesigned to provide the ultimate travel experience for both over-the-road and intercity trips. A new aerodynamic design and proven driving characteristics offer a comfortable ride while keeping fuel economy in focus.

With high quality and state-of-the-art technology, the TS45 is proven for North American highways and is ready to excel in the next level of passenger transportation.

SAFETY IS OUR NUMBER ONE PRIORITY

Bendix® Wingman® Fusion™ is now being offered on the redesigned TS45 adding to the comprehensive list of driver assistance safety systems (ABS, ATC, RSC, ESC). The existing lane departure warning system, tire pressure monitoring system, 3-point safety belts, tempered-laminated side windows, and the high level of structural integrity round out the standard safety line-up.

Now the TS45 offers improved visibility with enlarged windshields and side glass which makes safer travel and better sightseeing for both the driver and passengers.

NEW LEVEL OF TOTAL COST OF OWNERSHIP

The TS45 offers numerous standard features paired with thoughtful upgrades to ensure maximized value and operating margins. One of the focus areas for the redesigned TS45 is reducing the service and maintenance intervals for lower TCO (total cost of ownership).

The new generation multiplex system supports the CAN communication for more reliability while Temsa's tool-free concept together with the three-piece bumpers, new filter systems, digital cluster and improved electronic structure (KIBES 5) assists to minimize downtime and keep operating costs low.

LONG LIFE EXPECTANCY WITH MORE OFFERING

The TS45 is designed and manufactured with a monocoque integral structure to ensure a long life expectancy to keep you on the road longer. The high-capacity HVAC system ensures ultimate cooling and heating features even under extreme weather conditions for maximized passenger comfort.

Sit back and relax in reclining seats while enjoying the new infotainment multimedia system with up to six monitors. Feel the smooth ride quality with our advanced air suspension system with airbags & Koni shock absorbers that accompany front independent suspension to ensure an unforgettable travel experience.

GENERAL MEASUREMENT AND CAPACITY

Overall Length	45′
Overall Width	102″
Overall Height	11′6″
Wheelbase	310.8″
Front Overhang	78.5″
Rear Overhang	112″
Interior Height	75.75″
Turning Radius	40.2′
GVWR	51,500 lbs
Underfloor Luggage Volume	460 ft3
Fuel Tank Capacity	200 US gal
DEF Tank Capacity	15 US gal
Passenger Capacity	56

STANDARD EQUIPMENT

Engine	Cummins X12 Series 6-Cylinder 12L Diesel (EPA 2021)
Engine Power/Torque	Max 455HP @1900 rpm/ 1,700lb-ft@1000 rpm
Transmission	Allison B500/B500R
Body	Stainless Steel Monocoque Integral Structure
Baggage Doors	Aluminum, Pantograph Type
Front Axle	ZF RL 75E- independent, 16,535 lbs
Rear Axle	ZF A132, 27,120 lbs
Tag Axle	ZF RL75A 16,535 lbs
Wheels	22.5″ Alcoa Dura-Bright Wheels
Tires	315/80R 22.5 Continental
Steering System	Bosch Power Steering System with Tilt and Telescopic Steering Wheel Tag Axle Steering System (RAS)
Suspension	Independent Suspension with Air Bags and Shock Absorbers

SAFETY

Brakes	Bendix® ESP® System, All Wheel Disc Brakes Electronic Stability Control (ESC), Automatic Traction Control (ATC), Antilock Braking System (ABS)
Engine Brakes	Cummins Engine Brake
Seating	3-Point Safety Seat Belts for Driver & Passenger
Fire Suppression System	Firetrace Engine Room Automatic Fire Extinguisher System
Warnings	Brake Pad Wearing Indicator, Low Voltage, Engine Door Open
Driver Assistance System	Bendix® Wingman® Fusion® Lane Departure Warning System

ELECTRICAL SYSTEMS

Electrical System	12-24 Volt, Continental Multiplex System, Digital Cluster
Battery	2x12 V 225Ah
Alternator	Prestolite 2X140 Ah
Lights	LED Headlights, DRL and Fog Light, LED Exterior & Interior Lighting
Diagnostic	Real Time Diagnostics of Engine, Transmission, Multiplex, A/C System

INTERIOR

Restroom	Recirculating, with 16 Gallon Tank
Windows	Tempered Laminated Side Windows and Rear Window
Seating	56+1 Reclining Seats with Leather Headrest, Piping, Side Boxing, Footrest, Magazine Net
Driver Seat	ISRI TM Air Ride 3-Point Safety Belt
Passenger Modules	Adjustable Air Vents, Reading Lights, Speaker
Driver Shades	Electric Two-Piece Overlapping Sun Visor, Manual Driver Side Sun Visor
HVAC	Mobile Climate Control A/C, Bitzer 6 Cylinder A/C Compressor Roof Cooling, Roof & Convector Heating Max Cooling Capacity 153,000 BTU, Max Heating Capacity 259,000 BTU
Media	REI A/V System ECVR-6700T-AM/FM/DVD/MP3/BT 6 15″ REI Monitors, USB Plugs for Driver and Passengers
Flooring	Gerflor Anticwood

OPTIONAL EQUIPMENT

Enclosed Parcel Racks • Passenger Side Shades • Rubber Cup Holders • Leather & Fabric Seat Options • HDMI Media Kit
REI 360 Camera System • REI Sound System • Spheros Preheater • KVH Satellite TV • Destination Sign
Rear-Mounted Braun Wheelchair Lift • Additional dumping tank for restroom (16 gallon)

Photographs

Readers and advertisers are encouraged to send in photographs or slides of buses or equipment that may be of special interest to our readers. Please, include a list explaining what makes the pictured item different, unusual or interesting.

Photos should be sent to National Bus Trader, 9698 West Judson Road, Polo, Illinois 61064. Please indicate if you would like your picture returned. Picture usage is dependent on the quality of the photo and space available.

At left: A good sign of bus industry recovery is the introduction of new and improved models. Shown is TEMSA's recently introduced newly redesigned TS45 model featuring new styling, additional features and new safety systems. At the same time TEMSA also introduced their companion battery-electric model, the TS45E.

Below: While Irizar only offers its popular i6 coach in the United States and Canada, it has an extensive product line in Europe. Included are several coach models from the equivalent of a suburban to the state-of-the-art i8. Also offered are several transit bus models including a tram bus. Irizar has a new factory dedicated to electric buses.

The Curious Coachowner

Number 283 of a Series

"The Curious Coachowner" is a question and answer column that provides simple answers to simple questions that are too short to warrant a full article or inclusion in one of our regular columns. We will accept reasonably simple technical or historical questions on commercial coaches or converted coach shells by letter, fax, e-mail or phone. If our staff is unable to answer them, we will call upon our panel of experts. Names and addresses should be submitted with your questions, but we will withhold names from publication on request. We reserve the right to modify questions to make them more useful to our readers.

Q. What is a Translohr? Where is it used and what are its advantages?
— Transit Manager

A. The Translohr is somewhat of a hybrid between a trolley bus and a tram or streetcar. Like a trolley bus, it travels on rubber tires and collects electrical power from an overhead wire, usually with a pantograph. It could also be powered with batteries.

Unlike a bus, the Translohr does not have a steering wheel but is guided along its route by a single central rail embedded in the pavement that also serves as the "ground" or "return" of the electric power. Two wheels under the vehicles ride on this rail at a 45 degree angle to steer the cars.

The original concept was developed by Lohr Industrie in France. It may be significant to note that the French seem to have an interest in rubber-tired transit since both Paris and Montreal have rubber-tired subway lines. In 2012 Alstom Group and Fonds Stratégique d'investissement acquired Translohr.

To the best of our knowledge, there are Translohr operations in four different countries. Both Paris and Clermont-Ferrand in France have lines. China has operations in Shanghai and Tianjin while Italy has Translohr operations in Padua and Venice-Mestre. There is also a line in Medellin, Columbia.

Cars look more like trams than buses and consist of three to six articulated units. Overall length ranges from 25 to 46 meters or about 82 to 150 feet. Both single-ended and double-ended versions are in use.

Depending on who you ask, the Translohr system tends to have three major advantages. One is that like all electrically-powered vehicles, it is zero emission. A second advantage is the guideway allows for longer vehicles than conventional buses, hence providing more passenger capacity than buses and similar to light rail.

What some people class as a third advantage is that the combination of rubber tires and electric power gives the Translohr a traction advantage over steel wheeled tram cars on steep hills. The Ayacucho Tram in Medellin, Columbia takes advantage of this feature on their unusual route.

People who are critical of Translohr bring up several points. One is that unlike trams, light rail and buses where you can buy from any manufacturer, Translohr is proprietary and you can only buy from the Translohr group.

The guide rail can be a problem. Unlike trams and light rail, the weight of the cars is not carried by the guide rail. Bounces and pavement problems can cause the Translohr cars to derail from the guide rail. In addition, since the guide rail is recessed into the pavement it can be a problem when you have bad weather. Ice and snow can pack in around the guide rail that can cause operational problems and possibly disrupt the electrical connection.

There is also a potential problem with the pavement. Conventional buses steered by a driver do not follow the same path on every trip. With Translohr the tires on the cars follow the exact same path each and every time. This can cause excessive pavement damage in one area.

We are not aware if any new systems are being built.

Q. Why did Academy Bus have to pay a lawsuit settlement to New Jersey?
— Reader in New York

A. Academy Bus has operated bus service under contract for a number of years. This kind of thing is fairly typical in that area. NJ Transit buys the buses using federal dollars while Academy operates them under contract on specific routes.

Based on what information we were able to obtain, Academy ran routes in or from the Hudson and South Hudson areas. There were approximately 175,000 bus trips each year for which NJ Transit was billed somewhere around $12 million annually. NJ Transit retained the fares collected on the bus routes.

A former Academy staff member filed a whistleblower complaint against the company. Following an investigation it was discovered that the numbers submitted to NJ Transit for payment were incorrect.

The paperwork submitted was to reflect the number of missed trips and the number of trips actually operated for each month. The missed trips were to be subtracted from the total. It was discovered that the number of missed trips deducted from the total was less than what had actually taken place resulting to payments for bus trips that did not operate.

As a result of the lawsuit, Academy agreed to pay $20.5 million. Involved were Academy Bus, affiliated companies and some individuals. As part of the settlement, Academy and the others made no admission of wrongdoing or liability.

Other stipulations of the settlement require Academy to take several steps to prevent this from happening in the future. Included is an independent integrity oversight monitor, requiring certification on invoices, new procedures to ensure accurate reporting as well as special training and other steps to prevent a reoccurrence.

Q. Is there any age limit on commercial drivers?
— Bus Operator

A. As far as we know, there is no limit so long as a driver can meet the requirements. Matt Daus recently mentioned a taxi driver named Johnnie Footman who was born in Florida and moved to New York City in 1937. He originally worked in a taxi garage, but in 1945 when he obtained his license he started driving.

Footman passed away in 2013 after driving taxis for approximately 68 years. He was 94 years young. His dispatcher said that he had been out driving a taxi the day before he died.

Answers not credited to other individuals are provided by Larry Plachno. ❑

Survival and Prosperity

by Ned Einstein

Survival and Prosperity
Part 4: Service Concepts

In Parts 1 of this series (see https://transalt.com/article/survival-and-prosperity-part-1-magic-corridors/), I identified a significant, if not extraordinary, opportunity for tens of thousands of motorcoaches to survive and prosper by "mode-splitting" passengers away from short- and medium-distance commercial airline flights. In Part 2 (see https://transalt.com/article/survival-and-prosperity-part-2-the-magic-coach/, I described the characteristics of the vehicle that could accomplish this task. In Part 3 (see https://transalt.com/article/survival-and-prosperity-part-2-the-gains-of-winning-the-cost-of-failure/), I provided the rationale for this opportunity, and concluded by summarizing the characteristics of the vehicle needed.

I identified a significant opportunity for tens of thousands of motorcoaches.

Yet one question remains: Once one has such a vehicle, what does one do with it? On a broad scale, Part 1 of this series answered this question. You deploy the vehicle between medium-size cities served and unserved by commercial airlines, deviating slightly to pick up and drop off some passengers at selected collection points along the way. Within this broad concept, there are a number of variations to thicken one's ridership while increasing travel time for the majority of passengers only moderately, and in many cases, insignificantly.

Route Deviation

This concept has been employed in fixed route transit service for decades. Route deviation was a "hot" idea in the '70s, but faded for a number of reasons. Among them, ridership has increasingly failed to cover transit operating costs even when service focused on major trip generators. Increasing travel time to pick up a handful of additional passengers produced diminishing returns. Each successive, out-of-the-way passenger costs more to transport than those served at stops along the route.

Compounding this problem, few fixed route bus systems are designed at all. Instead, their routes simply meander through various portions of the service area. To distinguish these routes from the "local" routes serving inner cities, and the commuter/express service often provided by motorcoaches, these convoluted routes are commonly referred to as "regional service." With tiny changes from decade to decade, these routes simply evolve – and slowly. The redesign of a major transit system since its inception is almost unheard of.

In a few systems where route deviation is still employed, ridership levels are so thin that they comprise an embarrassing waste of taxpayers' money. For example, some lines of a small system in southern New Jersey average less than one passenger per hour. Upon request, the vehicles may deviate one-tenth of a mile from the route – and then return to the same point on the route from which the vehicle departed. Yet in this system, hardly any passenger is picked up from, or dropped off at, any of its designated stops. Most riders simply flag the buses down along the route. Or wishing to alight, they simply "chime" the driver to stop where they want to get off. In either case, the driver chooses a safe place to stop – a dangerous practice in even the most rural of service areas. In contrast, stop selection should be a management decision – not the decision of a driver or stop selection software (see https://transalt.com/article/safety-compromises-part-1-introduction/).

Interestingly, if one applied this same concept to a motorcoach route between 250 and 750 miles long, where many passengers (especially on longer trips) slept on board, the deviations could exceed a tenth of a mile with little impact on overall running time. Yet a handful of deviations would add riders to the 42-passenger Magic Coach deployed on the route. The vast majority of riders would board and alight either at stops in medium-sized cities or small communities through which the vehicle passed, or at designated stops along the way. The handful picked up or dropped off apart from these points would add only a tiny portion of additional running time to a route of this length. Yet the addition of a handful of additional riders would both make the service more profitable and keep the fares low for everyone on board.

Finally, many of these deviations could occur during the "night" and "owl" periods of the longer of these routes. For such routes, on which many passengers would sleep on board, stretching an otherwise 11-hour trip into even a 12-hour trip would be harmless, and pose no significant hardships to almost any passengers picked up or dropped off at the designated stops.

Point Deviation

Point deviation – a slight variation of route deviation – was a short-lived fad in the 1970s. In point deviation, the vehicle must leave the route only at a designated stop, and then rejoin the route only at that particular stop. No portion of the regular route would be skipped. Like route deviation, this approach was not effective in fixed route transit. However like route deviation, such an approach could be a valuable tool in motorcoach service – increasing the "coverage" of the route while consuming only small increments of additional running time.

Coordination

One important difference between transit and motorcoach service is that transit service operates as a system – even if poorly- or barely-designed, as most are. In contrast, most motorcoach services operate as a series of independent routes. There are some exceptions, particularly with large service providers (e.g., Greyhound), where the large fleet enables passengers to transfer from one route to another at designated transfer points – although these transfers are limited mostly to downtown terminals in major city centers. The typically short "layover times" are not often given much consideration compared to the concern for it that some commercial airlines factor in, particularly at major. Working together with the common goal of filling up their Magic Coaches (as well as conventional coaches), there is no reason why a multitude of separate companies cannot work together to improve a passenger's abil-

It is important to recognize that the genuine competitor is not another motorcoach provider. It is the commercial airline industry.

ity to transfer from one company's motorcoach to that of another. In suggesting this approach, it is important to recognize that the genuine competitor is not another motorcoach provider. It is the commercial airline industry.

Common Spares

Anyone who has ever experienced a serious delay in commercial air travel – which must include almost everyone who has ever flown – should recognize immediately that, unlike most ground transportation modes, commercial airlines have no spare vehicles. By comparison, almost every transit and paratransit service has a "spare ratio," typically between seven to 15 percent of its total fleet. When one vehicle is out-of-service or experiences a breakdown, another vehicle is quickly deployed to pick up the out-of-service vehicle's passengers and continue them along on their journey. In worse-case situations, this procedure typically delays the passengers' trip by 20 to 30 minutes. In motorcoach service, particularly employing coordination with fellow companies (cost-splitting would be child's play), the delay might be a couple of hours at most.

This delay is very different than that of airline passengers being stranded overnight, often sleeping on the floor of the terminal (the bench seats of which all contain handles separating one seat from another – ostensibly to keep our growing homeless population from occupying them at night, when the terminals are otherwise empty). (See https://transalt.com/article/expanding-the-mode-split-dividing-line-part-1-exponential-airline-industry-corruption/.) Coordinating spares among all companies deploying motorcoaches in each corridor would also reduce each participating company's spare ratio, reducing capital costs significantly in an industry with a thin profit margin.

Posting

Posting vehicles at strategic positions within the service area or corridor served is another way to reduce the delays from vehicles running behind schedule or having broken down. This approach is employed commonly by taxi companies. In addition to compensating for delays, it reduces response times between trip requests and the arrival of the available vehicle nearest to the requested pick-up point. In sophisticated taxi companies, knowledgeable dispatchers often "reposition" vehicles after their drop-offs so that the unoccupied vehicles in the fleet as a whole are better positioned to more quickly respond to each successive trip request (most efficiently in systems where passengers request trips from dispatchers rather than wait for the next empty taxi to flag down as it cruises by). Even in "cruising cities" (e.g., NYC, Chicago, San Francisco), drivers are repositioned either by dispatchers or, often, by the knowledge of individual drivers who know how to station themselves closer to the next likely response. Some inequities occur when drivers make these choices, particularly when outlying parts of the service area experience a disproportionately lower density of vehicles, and especially in systems where drivers "cruise" – since they rarely cruise segments of the service area with a low density of demand.

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Timed Transfers

In a timed-transfer "pulse" system, all or most vehicles converge at a central point in the service area at roughly the same time. The tighter the timing, the shorter the layover/transfer time. This is largely a transit concept – even while it is rare in a sector almost devoid of any meaningful planning. I myself designed such a system in 1983 (The Carson Circuit Transit System, in Los Angeles County – see https://transalt.com/wp-content/uploads/2018/08/carson_circuit_map_big.jpg). Every vehicle converged at a mall in the city's center every 30 minutes (later extended to 40 minutes, in 1993, when, swollen with demand and as a result of other changes, the schedules became too tight for the vehicles' 30-minute "clock-face" headways). (See https://transalt.com/article/tight-schedules-part-3-fixed-route-transit-service-2/).

A service area's urban form has much to do with what is possible with such an approach. The flexibility of this type of service in a long, moderately-wide, medium-distance corridor with scores of vehicles circulating within it offers ample opportunity to focus the arrival times of multiple vehicles on a few central points along the route. One can easily envision a 30-minute layover time (or less) between multiple routes – compared to the often hours-long layover time between connecting flights by commercial airlines, even at huge airline terminals with scores of flights arriving and departing every hour. Keep in mind that commercial airlines rarely coordinate transfers from one airline to another – a customer-unfriendly practice that greatly lengthens layover times for non-direct flights – which air travelers cannot help but notice have been increasing dramatically in the past several years as passenger convenience is increasingly sacrificed for great profits. (Again, see https://transalt.com/article/expanding-the-mode-split-dividing-line-part-1-exponential-airline-industry-corruption/.)

Floaters

Deploying "floaters" has limited application, as the same task can better be accommodated by feeder service (see discussion below). A "floater" would generally involve a smaller vehicle designed to pick up and drop off passengers whose origins and destinations lie too far from the corridor's principle stops by the motorcoaches employing any (or none) of the concepts above and below. Ridership would be low, even significant higher fares would not likely cover their costs, and the vehicles could not realistically contain the range of amenities which the Magic Coach easily could (assuming some OEM is willing to produce some). A group of companies coordinating to serve a commercial-airline corridor, and making a considerable profit from it, could absorb the costs of a few floaters, if only as a marketing tool – offering a gesture of good will to those passengers unable to access the Magic Coaches operating in a particular corridor.

In a rational nation's transportation system, such vehicles would be eligible for subsidies – although the notion of providing a dime to a motorcoach carrier is anathema to a country where small (often rural) transit systems cover one or two percent of their costs from farebox revenues. Where even many major cities' transit systems recover a pittance given their system's mindless designs imposed on a service area with enormous density (e.g., Los Angeles County's transit system recovers nine percent of its costs from farebox revenues; San Francisco's MUNI recovers 13 percent – although to be fair, much of the waste can be attributed to their heavy rail systems).

The notion of providing a dime to a motorcoach carrier is anathema.

Feeder Service

One of the most underutilized forms of transportation today is known as feeder service – most commonly employed in fixed route transit service. To some extent, many or most communities with heavy or light rail systems orient some bus routes to connect with them. Informally, taxi systems, private automobiles, limousine services and even TNCs serve both rail stations and almost any bus stop. Few cities formally organize any modes to serve in this capacity. (This is why airline passengers arriving at an airport in

even the late evening encounter few or no taxis to pick them up, and must often wait in long lines for the next one to arrive.) Employing the other concepts identified above, or not, the Magic Coach fleet (coordinated among service providers or not) could use coordinated feeder service to fatten its ridership.

For those unaware of its history, our nation's first paratransit service ("The Haddonfield Experiment") – a USDOT "demonstration project," and the nation's first "Dial-A-Ride" system – did not provide door-to-door or curb-to-curb service to disabled individuals. It provided feeder service for residents in southern New Jersey to and from the Lindenwold rail line that mostly transported commuters to and from Philadelphia. Yet while this concept morphed into complementary paratransit service, the concept of deploying small vehicles in "demand-responsive" service to bus and rail lines has been grossly-underutilized, if not forgotten. To be fair to the transit or motorcoach sectors, much of this failure reflects the considerable degree of feeder service is provided informally, as noted. It would be naive to think that formally organizing this mode would not fatten ridership on transit and motorcoach services even more.

Planning and System Design

These concepts comprise a core of mostly-conventional approaches to fatten up the ridership of bus, motorcoach and rail services, even while planning and system design are grossly-underutilized, and often non- or barely-existent. These are only starting points for discussion. One's knowledge, imagination and willingness to "bother" are the limiting factors. I suspect that, in a great many service areas with various arrangements of medium-sized cities and their various urban forms, all types of concepts are possible.

As an example, working on a National Academy of Science project designed to examine the integration of school bus and transit services (20-some years ago), I made a site visit to a Tri-County area in the Florida "panhandle" where, without the slightest reliance on any software, three counties' general public "dial-a-ride" systems were providing feeder service to motorcoaches traveling along the I-10 Corridor between Orlando and Biloxi – and making most transfers within a five-minute "window." In fairness, this feat requires a handful of highly intelligent dispatchers (almost always grossly underpaid). Someone obviously thought about doing this (some official of the Tri-County Commission overseeing its paratransit programs, not anyone from the motorcoach sector).

Just the same, this obscure example illustrates what is possible if and when one bothers to devote some thought to increasing ridership, profits and passenger convenience. The handful of five-minute delays endemic to this example had an unnoticeable impact on the otherwise 10-hour-long motorcoach trip between the two cities involved. If a paratransit vehicle were late to the drop-off, it would just lay over for a few minutes until the next motorcoach came along. At the return end of the trip, if the paratransit vehicle was not awaiting it, the passenger would be dropped off at a safe point slightly further along the route, where the late "retrieval" vehicle would know to pick up the passenger.

Planning and system design were once formal operating functions that virtually disappeared from the U.S. public transportation landscape. As I noted periodically in 22 years of NATIONAL BUS TRADER articles, the disappearance of these disciplines coincided with the emergence of routing, scheduling and stop selection software (see https://transalt.com/article/drivers-v-robots-part-7-betrayal-by-robots/). For those readers understanding the discussion above, it should be apparent that robots cannot develop "service concepts." The robots

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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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1990 37-Foot Bluebird Conversion

5.9 12-valve Cummins engine, Allison industrial transmission, wheel chair lift in side, vinyl plank flooring, new electric refrigerator, 1 new domestic AC unit, new starter, 3 cylinder 8 KW Perkins diesel generator. Needs new awning. Husband was replacing lights with LEDs so that project must be completed. Pick up in Melrose, FL (near Gainesville). $20,000 cash.

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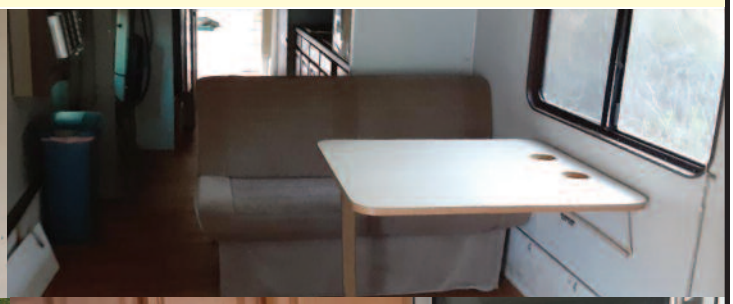

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1 – BUSES WANTED

Seeking 102D3 converted by Custom Coach. Prefer motor home interior with side aisle or semi-side aisle. Please provide details by e-mail to safety@busmag.com or phone Larry at (815) 946-2341.

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Next Deadline – May15 for July issue

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10 – PARTS AND EQUIPMENT

Detroit Diesel engines, parts. New and used. S53, S71, S60, S92. Also will rebuild or repair your engine. Leid Diesel Service, 2952 W Carson City Rd., Sheridan MI 48884. Phone (616) 754-5871. ❑

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14 – NOTICES

Visit our 40+ vintage bus collection most Saturday mornings at Lakewood NJ Bus Terminal. Join: Friends NJ Transport Heritage Center ($30 annually). See/learn: www.friendsnjthc.org. ☆

NOTICE

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Down The Road

Coming events of interest to readers of NATIONAL BUS TRADER. Submissions for the department should be directed to the editor. Unless otherwise indicated, events are not open to the general public.

June 3-4, 2022. **Museum of Bus Transportation's Spring Fling.** Hershey, Pennsylvania. For more information view busmuseum.org.

August 24-27, 2022. F**MCA's 105th International Convention and RV Expo.** Lincoln, Nebraska.

November 13-16, 2022. **Travel Exchange.** Reno Tahoe, Nevada.

January 12-16, 2023. **UMA Motorcoach Expo 2023.** Orlando, Florida. For more information view motorcoachexpo.com.

February 2-8, 2023. **American Bus Association Marketplace 2023.** Detroit, Michigan.

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