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NORTH AMERICA | JAN. 13-14, 2020

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TECHNOLOGICAL CHALLENGES & TRENDS IN ELECTRIC-, CNG/LNG- & HYDROGEN POWERTRAINS

JP Pelletier, VP Engineering MCI
NFI Group - Coach Business
January 13, 2020



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AMERICAN BUS ASSOCIATION

NFI Group.. A Global Independent Bus Builder

NFI

NORTH AMERICA'S BROADEST OFFERING

LF CUTAWAY

ARBOC



Low Floor
Cutaway
(ranging from
21' to 34')

MEDIUM-DUTY

ARBOC



Medium Duty
Shuttle (27', 29
and 34')

**ALEXANDER
DENNIS**



Medium Duty
Transit (30', 35')

HEAVY-DUTY

NEW FLYER.



Heavy Duty
Transit (35', 40')

HIGH CAPACITY

NEW FLYER.



Heavy Duty
Transit (60' articulated)

**ALEXANDER
DENNIS**



Heavy Duty
Double Deck (45')

COMMUTER

**ALEXANDER
DENNIS**



Heavy Duty
Double Deck (45')

MCI



Motor Coach
(45')

MOTOR COACH

MCI



Motor Coach
(35", 45')

MCI



Motor Coach
(35", 45')



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NFI Group - Leadership in Electric, Connected and ADAS equipped Vehicles



NFI IS A LEAD TECHNOLOGY DEVELOPMENT

Propulsion Agnostic on Proven Platforms

Leader in ZEBs and Infrastructure



VIC | VEHICLE INNOVATION CENTER

NEW FLYER.
INFRASTRUCTURE SOLUTIONS™

Telematics and Connected Vehicles

Advanced Driver Assistance Systems



MCI Model Range

MCI J Series



- J4500 & J3500
- 35' & 45'
- # 1 Selling coach.
- Common application for tour, charter and employee shuttle.

100% Electric 2020

'MCI D-Series



- D4500 & 4000 Commuter , D4505 and 4005, D4000 ISTV
- 40' & 45'
- #1 Selling all time coach model and #2 currently.
- Common application for public sector commuter transit agencies and large private scheduled service operations.

CNG

Next Generation D 45 CRT LE



- Current line D45 CRT LE
- 45' model featuring an innovative Low Entry (LE) vestibule with a ramp
- First model in our next generation of D-Series coaches 40' & 45'
- Commuter transit and employee transportation

100% Electric
2020/2021

Integrated with MCI Connect Telematics

Leadership in ADAS (Advanced Driver Assistance Systems)



Significant Product Advancements

J3500 (2019 New)

- Available NOW
- Commonality with J4500
- Best in class interior space, luggage and payload.



Next Generation D-Series (2019-21)

- D45 CRT LE available NOW
- Groundbreaking patented new Low Entry Vestibule.
- D4520 in 2020
- D45 CRT in 2021



Charge Electric (2020-2021)

J4500e – Customer demo and 2020 production

D45CRTe LE – Customer demo and Altoona testing for 202



leadership in ADAS (Advanced Driver Assistance Systems)

100% Electric CHARGE Drivetrain (2020).

Integrated with MCI Connect Telematics = Max Uptime and Low TCO



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The Market

- The California Air Resources Board (CARB) regulation in the United States that sets a statewide goal for public transit agencies to gradually transition to 100 percent zero-emission bus fleets by 2040.
 - “A zero-emission **public** bus fleet means cleaner air for all of us. (Zero = 100% battery electric or Hydrogen fuel cell)
 - As longtime partners for clean air in California, the state’s 200 public transit agencies play a pivotal role in transitioning vehicle fleets away from fossil fuel-powered technologies to zero-emission alternatives. **Eight of the 10 largest transit agencies in the state are already operating zero-emission buses, including battery electric and hydrogen fuel cell vehicles. Increasing**
 - Deployment of zero-emission buses is expected to accelerate rapidly in the coming years – from 153 buses today to 1,000 by 2020
 - Altogether, public transit agencies operate about 12,000 buses statewide.
- Early adoption phase.
 - California epicenter of demand
 - Driven by either:
 - Regulation for public sector
 - Zero emission sustainability programs for private sector
 - Focus is commuter / shuttle with fixed start and end points.
 - Lower need for baggage space.

Source: CARB