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*Welcome to the **MCI**LEARN Series*

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Today's Topic:

A/C Troubleshooting: Pre-Micromax Systems

If you do not have an audio connection, please dial 866-339-6642 and enter *8173541434*. The stars must be entered



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Agenda

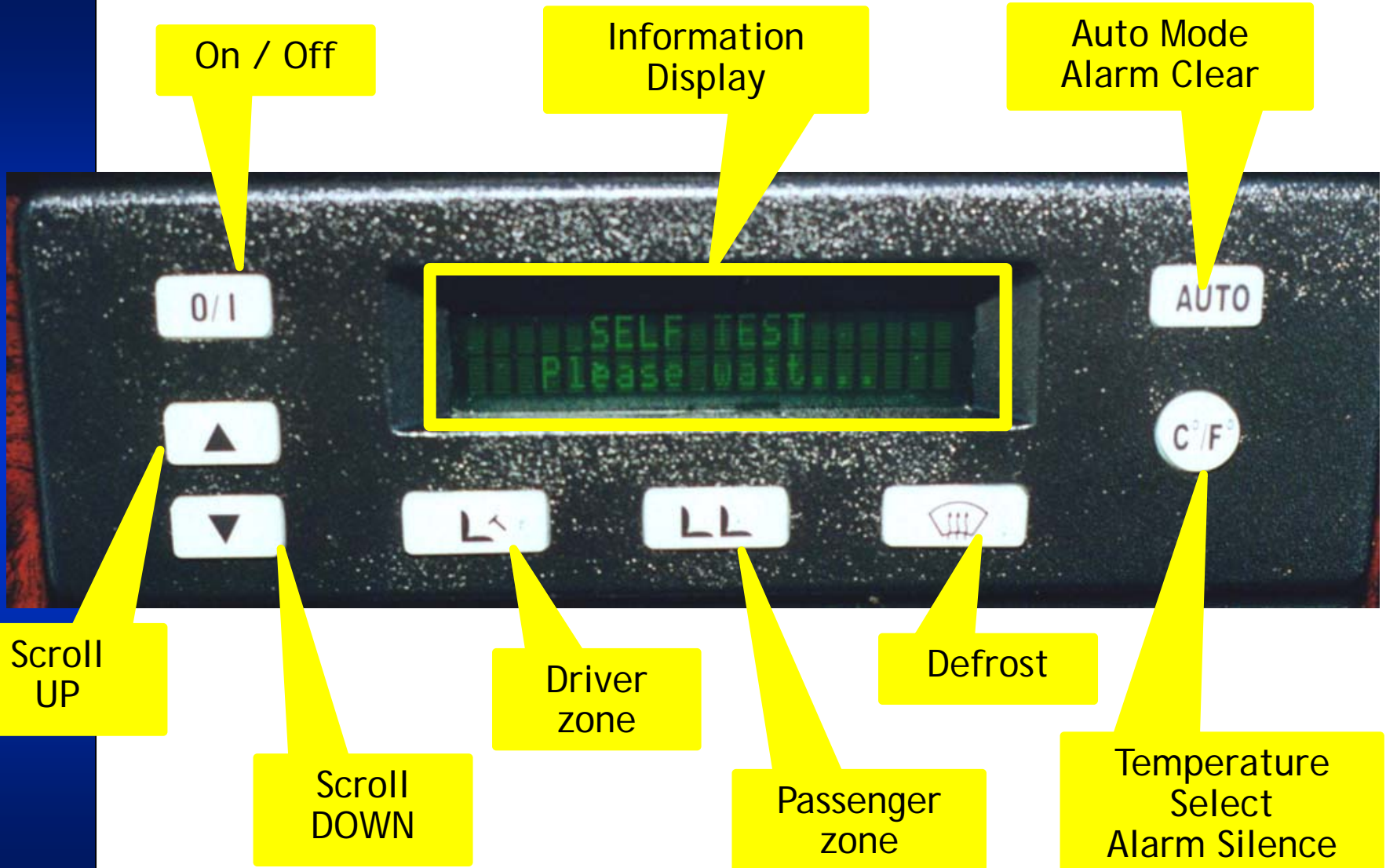
- ML2-I Controller & Driver Displays
- System Configuration & Sensors
- Diagnostics & Fault Codes
- Troubleshooting System Faults
- Troubleshooting Electrical Faults



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ML2-i Controllers & Drivers Display

16-10-1851, 16-10-1854 Driver Displays, Early E Coach



Early J Coach w/Single Evaporator 61639 - 62779





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E & J Coach with Dual Evaporator 60001 - 62032



Inside battery compartment under
curbside evaporator assembly

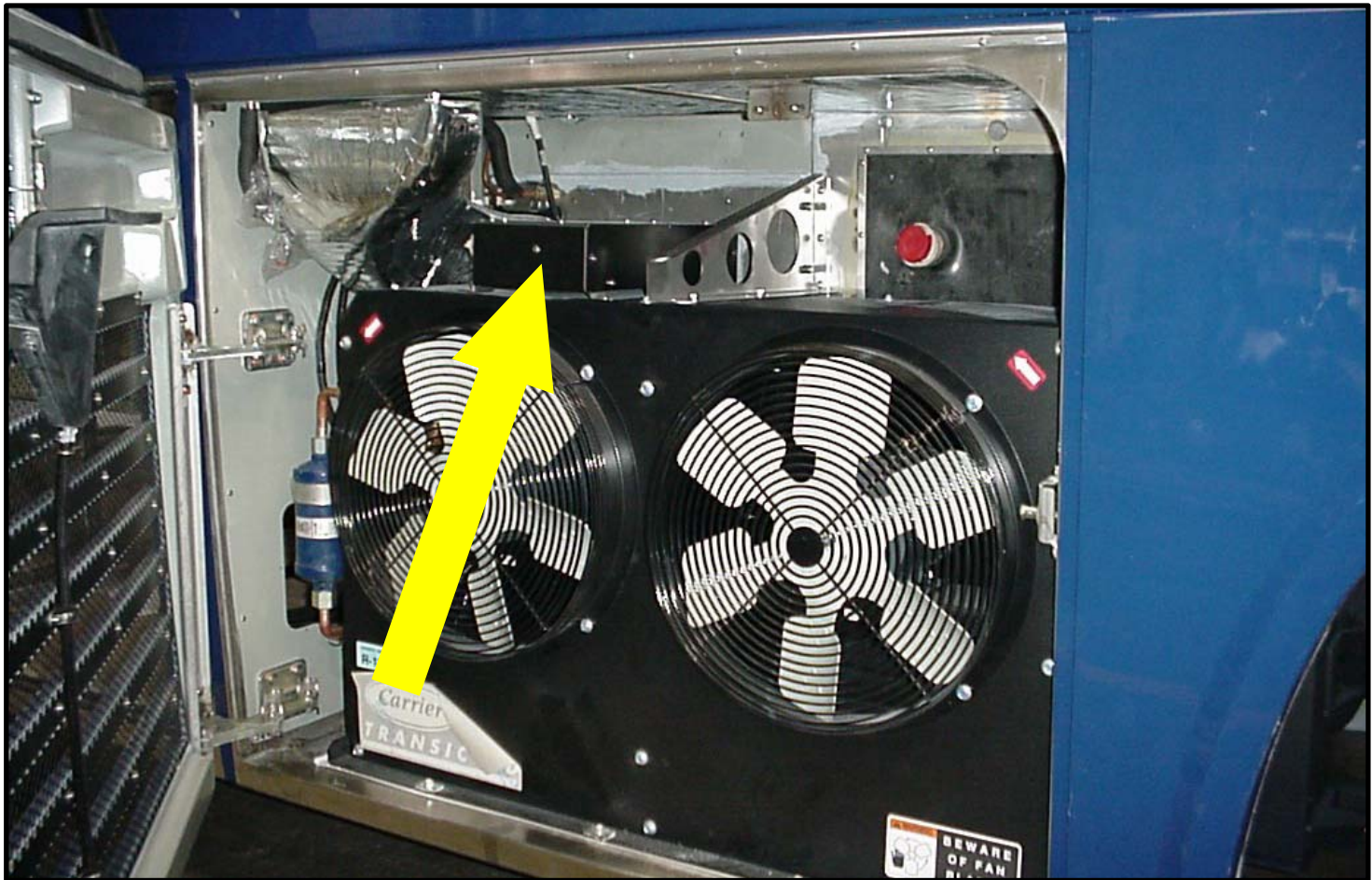




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E & J Coach with Single Evaporator 62032 - 62779

Mounted above condenser module on roadside of coach





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D Coach Dash Installation Options



Typical driver control mounted to the right of the steering column in the dash.

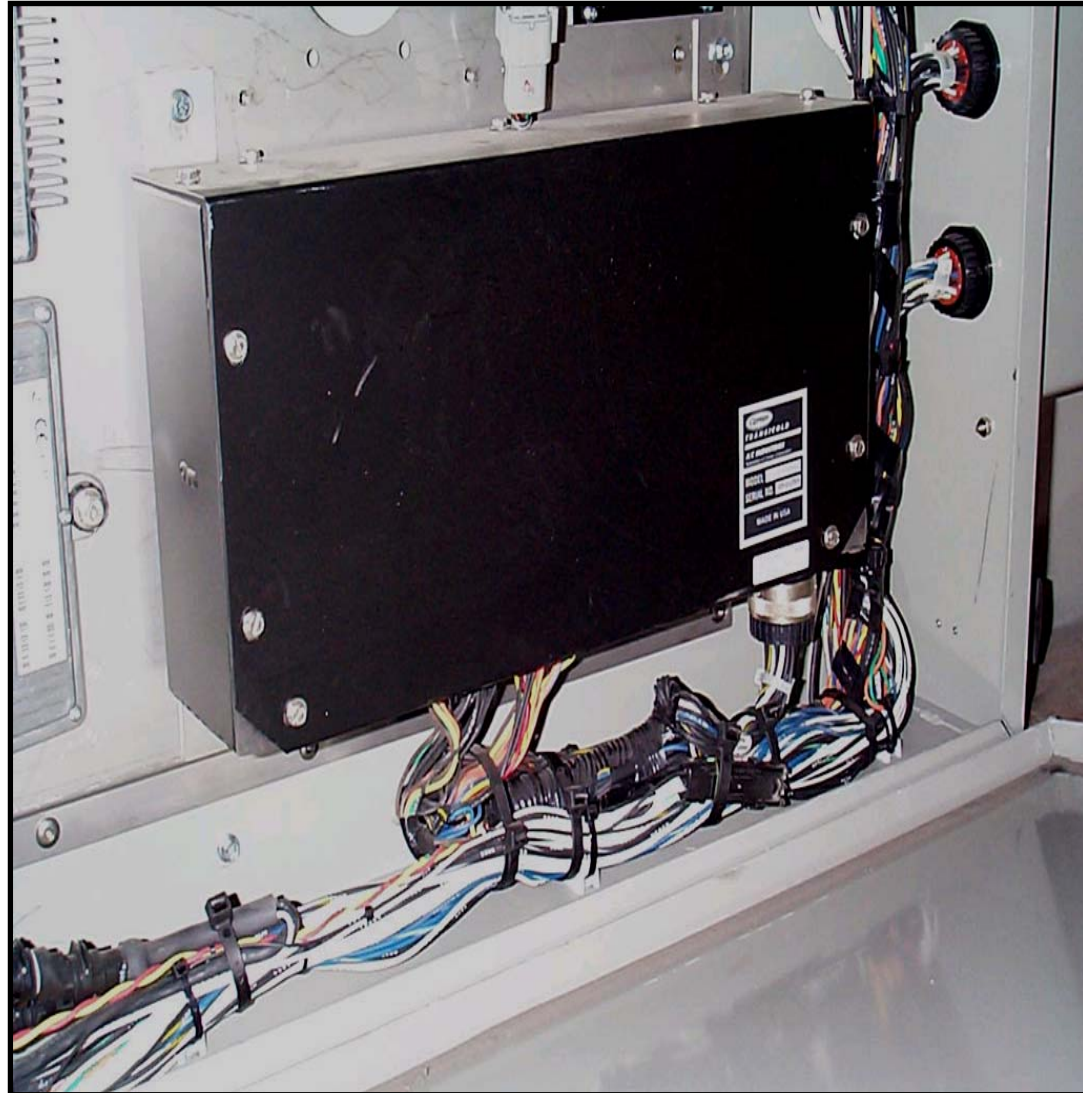


On many Commuter coaches a single switch on L/H console is the only control provided for the main unit. Simple On / Off control, set point determined by a resistor inside controller enclosure



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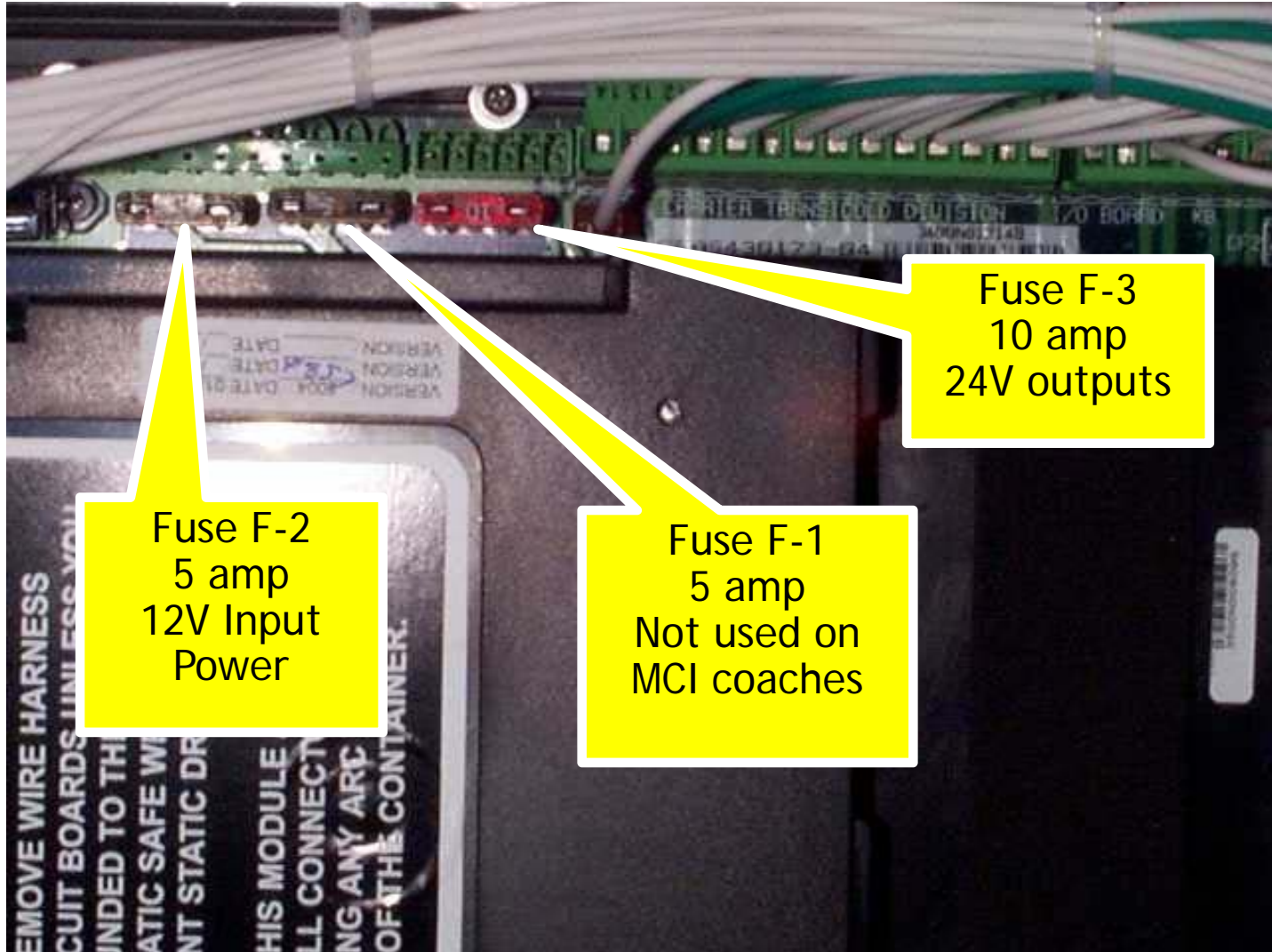
D Coach Installation - Rear Baggage Bay





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Fuses inside of Controller Enclosure





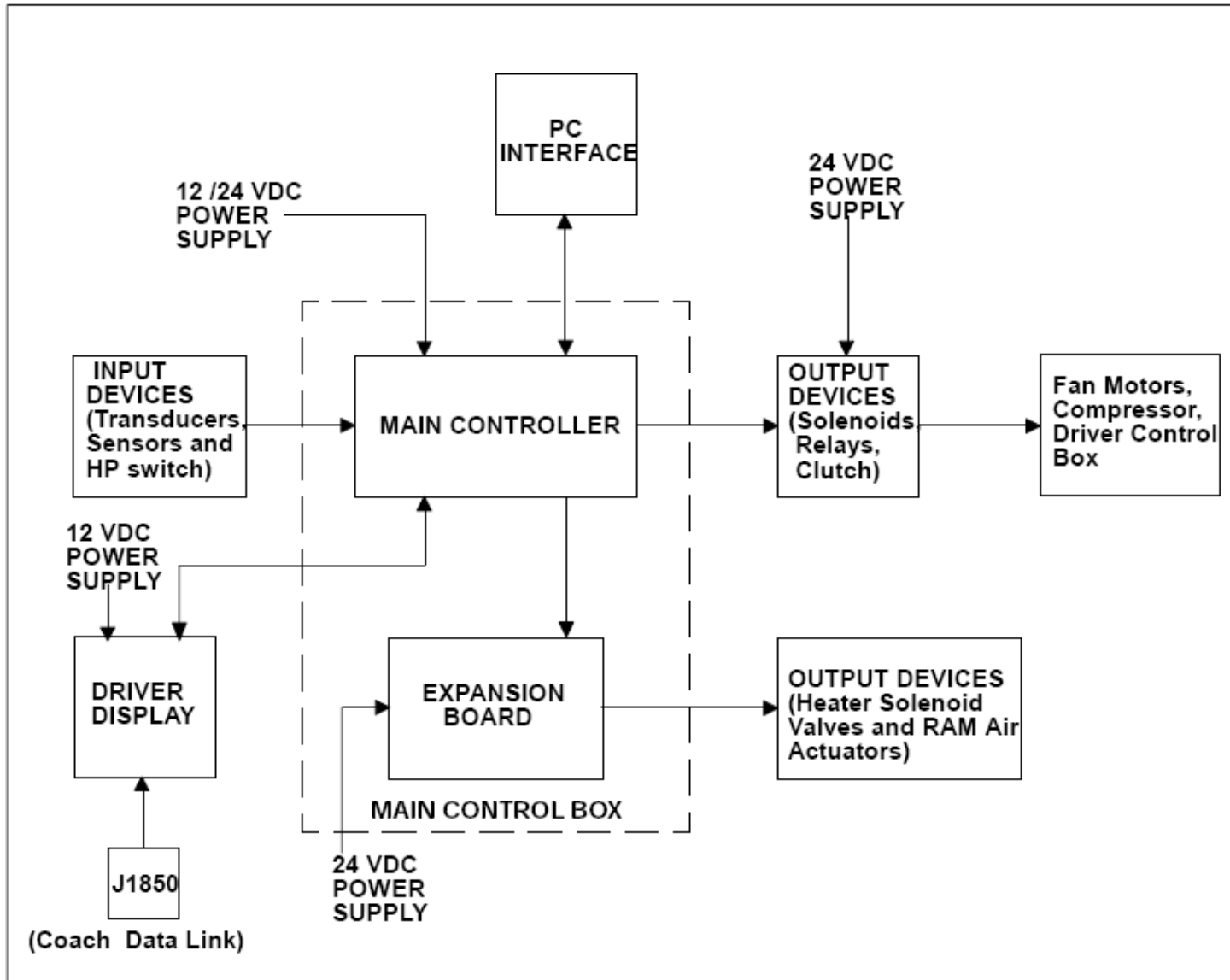
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System Configuration and Sensors



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ML2-I Controller Operation Inputs & Outputs





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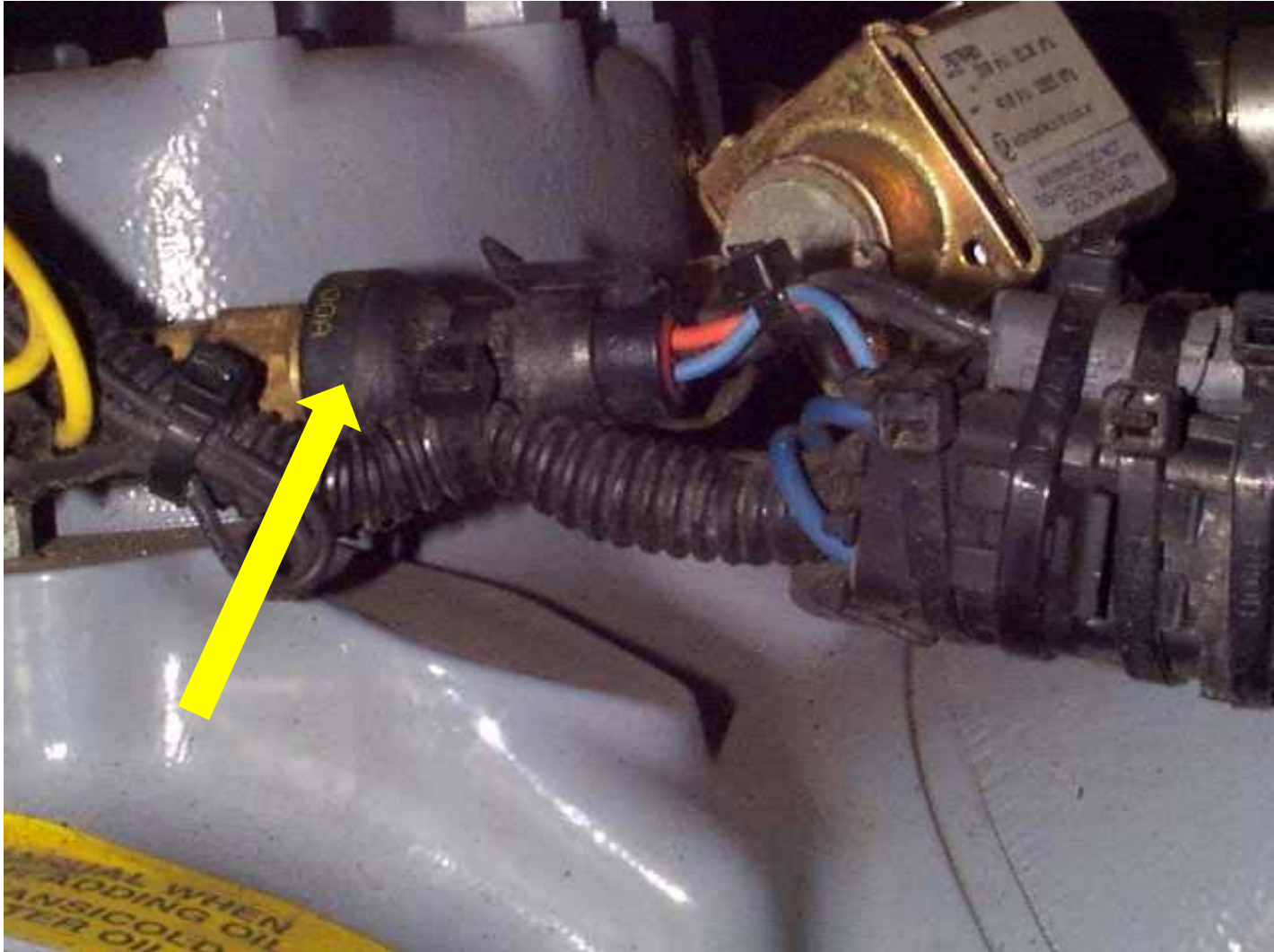
Ambient Temp Sensor - Drag Link Compartment





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Suction Transducer - Compressor Housing





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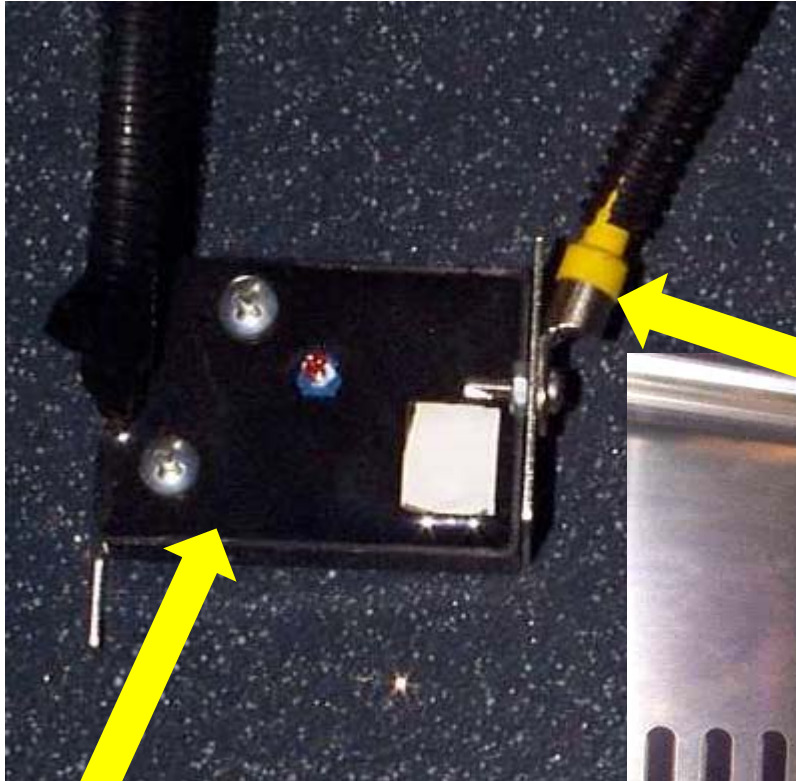
Discharge Transducer - Center Cylinder Head





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Relative Humidity Sensor & Return Air Temperature Sensor





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Quiz 1



Answers to Quiz 1

- MCI J4500 coaches were the first to have a Carrier Micromate control console
TRUE
- Carrier ML2-I controllers have Operational Test capabilities like a Micromax unit
FALSE
- There are customer serviceable fuses inside of the ML2-I controller enclosure
TRUE
- On a MCI D coach with a ML2-I controller, the ambient temperature sensor is located in the drag link compartment
TRUE



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Diagnostics with Driver Display or Parameter Reader



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16L-10-163 Parameter Reader

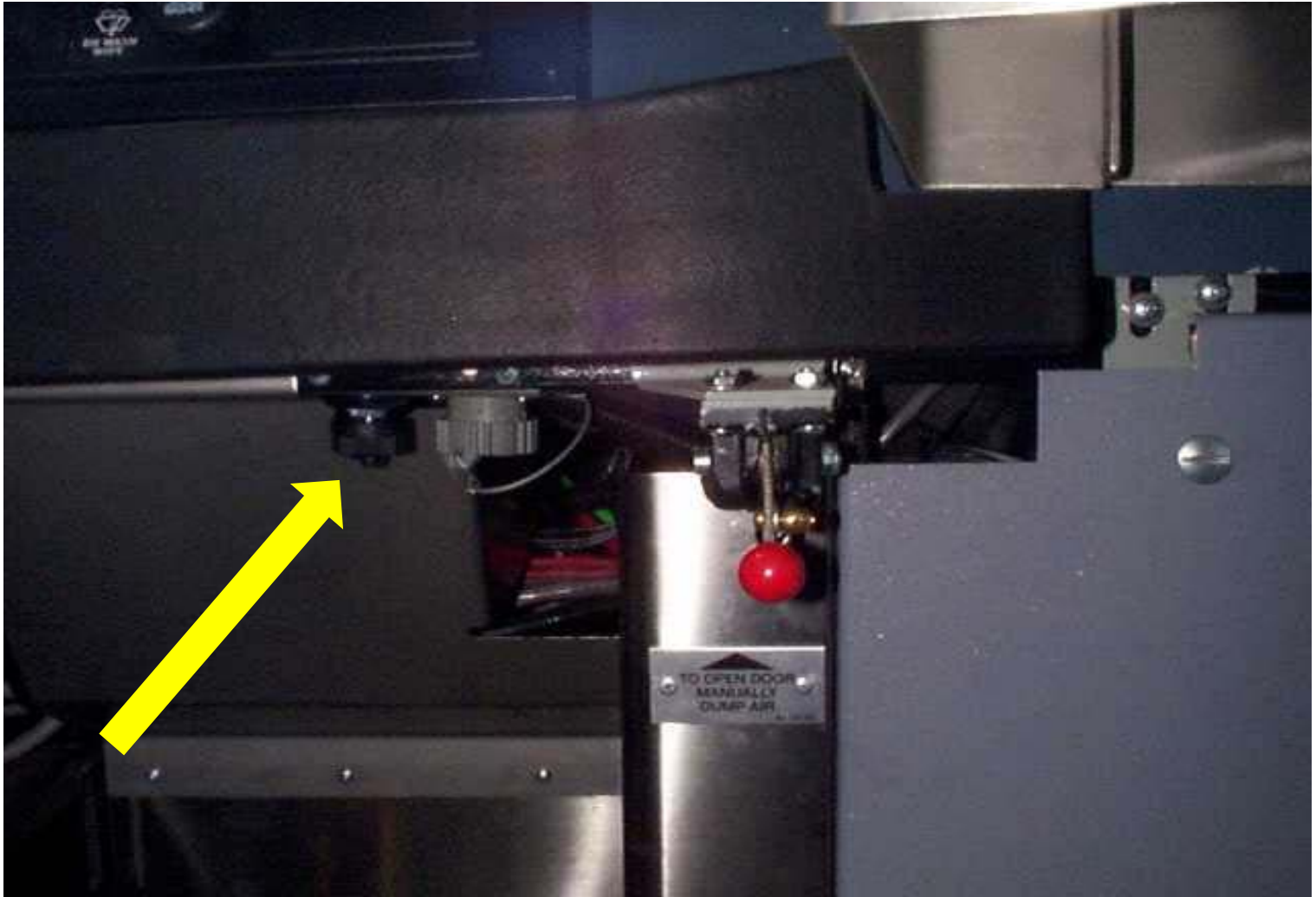
16-10-1854 Display
7L-12-5160 Cable Assembly





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Where to Connect Parameter Reader - D Coach





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Status Screen #1

Compressor suction pressure 44 psi, discharge pressure 92 psi
A: Outboard unloader-energized, B: Inboard unloader-energized
Evaporator fan; low speed Compressor clutch-energized
If 'Alarm' is displayed, press 'C° / F°' to silence





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Alarm Queue

Alarm Queue will hold a maximum of ten (10) active and /or historical faults





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Alarm 26 Load Shed, Inactive

Voltage on 12V buss bar inside of controller enclosure has fallen below 12.75vdc for 30 secs while unit was operating
System will begin activity to protect 12V buss bar - critical for ECMs
Only the driver's blower motor will function





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Alarm 24 Communication Loss, Inactive

Controller has lost communication with driver's dash display
Unit will continue to operate with the last set of inputs from
driver until problem is corrected or alarm is reset





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End of Fault List

Inactive faults can be cleared @ this time from display
Press & hold the 'Auto' key for 3-5 secs





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Quiz 2



Answers to Quiz 2

- Active and inactive alarms can be cleared from the memory queue using the Drivers Display / Parameter Reader

FALSE

- It is possible to determine suction & discharge pressure from the driver's seat on early E model coaches

TRUE

- On MCI Commuter Coach models, the Parameter Reader is connected @ the DDL connector in the rear baggage bay

FALSE

- Alarm fault codes are the same for ML2-I & Micromax systems

FALSE



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Troubleshooting System Operation Faults



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Coolant Modulator Valve Status





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Return Air Temps





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Additional Temperature Conditions & Relative Humidity





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Outputs Fan Speeds





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Outputs - Liquid Solenoid Valves





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Input Status-Motor Overloads





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Ram Air (Make-up Air) Conditions

On E coaches, toggling the driver & main zone controls manually operates the Fresh Air operation





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System Information

Useful information for maintenance purposes.
No maintenance alarms can be preset with this system-read only





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Controller Software Information





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Troubleshooting System Electrical Faults



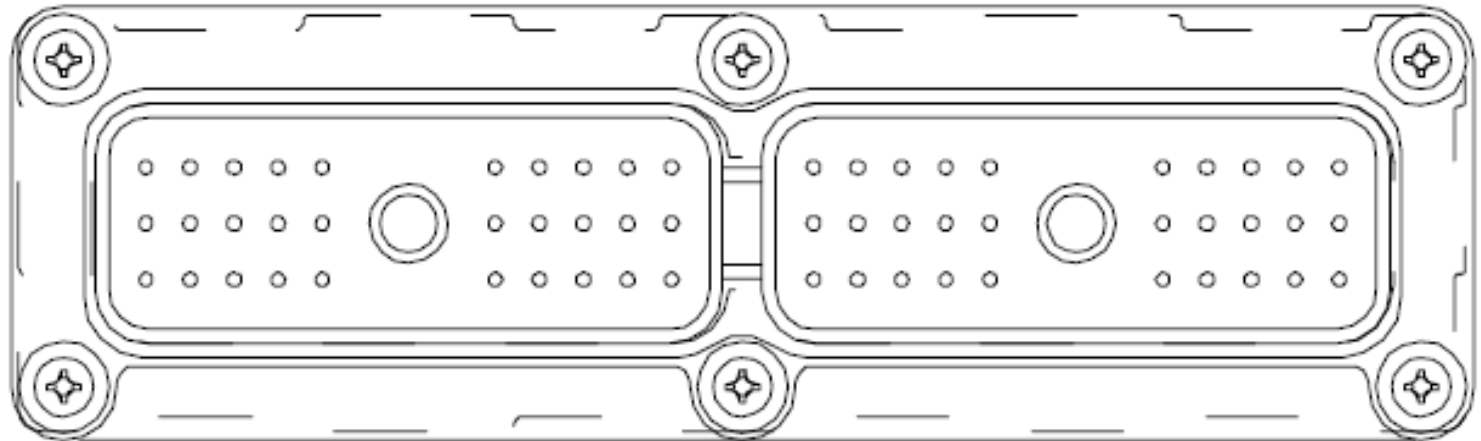
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Where to Test Input Sensors - Packard Connectors

Facing towards the front of Controller Enclosure

A THRU K L THRU Y

1
2
3



Facing towards rear of Controller Enclosure

Round Coach Interface Connector →

Examples

Suction Transducer; row N

Discharge Transducer ; row P

Curbside Return Air Temperature; row A

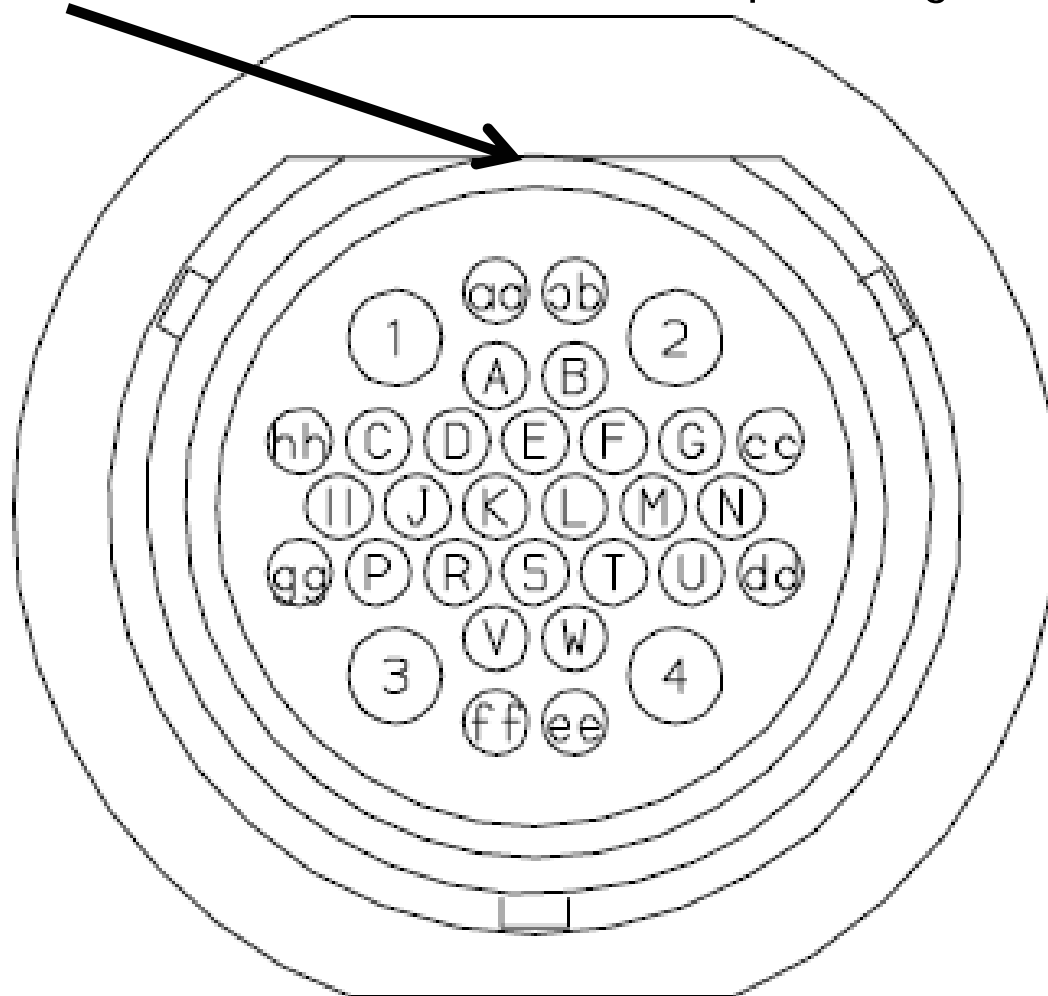
Roadside Return Air Temperature; row B



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Where to Test System Outputs-Coach Interface Connector

Flat side of connector usually faces away from Packard Connector
Use MCI schematics to determine pin assignments





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Quiz 3



Answers to Quiz 3

- The early E model coaches had a total of four (4) coolant modulator valves
TRUE
- The ML2-I is unique in that the driver's display allowed monitoring of the drivers & parcel rack components operation
FALSE
- The hour meters for the system and compressor are Read Only for diagnostics, no alarms or faults are activated
TRUE
- System input sensors and temperature sensors harness connections are located in the two (2) Packard connectors on the enclosure
TRUE



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Reference Materials Available

- <http://www.transportaircon.carrier.com>
 - Online manuals
 - Online bulletins
- [T312 Rev -](#), 68G5-105 Series MCI J4500 Coach
- [T279 Rev A](#), 68G5-101 Series MCI E Model Coach
- [62-03213 Rev J](#), Service Tool Catalog
- Tools
 - Parameter Reader 16L-10-163
 - 16-10-1854 Display (from coach)
 - 7L-12-5160 Cable



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Questions and Answers

Press the * on your phone to ask your question



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Thank you for your business