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 Current Language: English Last Modified: 6/26/2025  
 Other Languages: NONE Author: Josh Bowman  
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Coding Information

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Title: Servicing Air Conditioning Systems on Electric Vehicles

Applies To: IC Bus® Electric CE Series, International® eMV™ Series

## CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

6/26/2025 - Updated oil injector tool part number, also added new warning regarding dyes in EV systems.  
 3/25/2025 - Updated service part numbers and addressed typos  
 11/22/2024 - Updated tool information to reflect latest changes. Added eMV specifications w/addition of PVE oil notes.  
 11/03/2023 - Initial Article Release

## DESCRIPTION

This document will guide the user through information required to know before servicing air conditioning systems on an electric vehicle.

## SYMPTOMS

Diagnostic Trouble Codes & Dashboard Indicator Lights:

DTC/Light	Description
N/A	N/A

Customer Observations or Concerns:

During any service event of the A/C system


## SPECIAL TOOLS / SOFTWARE


Tool Description	Tool Number	Comments	Instructions	Notes
Hybrid R134a Refrigerant Handling System	ACX2180H	or equivalent: SAE J2788 and J2788H Compliant	See machines manual	SAE J2788 compliant machines do not have oil injection to avoid cross-contamination of oils. Hose Flushing Capability
Oil Injector 2oz w/sticker pack	2732	or equivalent	Specific for system oil type	Use <b>ONLY</b> on Electric Vehicles - <b>PVE Oils</b> , refer to vehicle label
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Oil Injector 2oz w/sticker pack	2732	or equivalent	Specific for system oil type	Use <b>ONLY</b> on Internal Combustion Engines (ICE) Vehicles - <b>PAG Oils</b>


## SERVICE PARTS INFORMATION


Kit Description	Part Number	Quantity Required	Notes
N/A	N/A	N/A	N/A


## Recommended Guidelines when servicing High-Voltage A/C Systems


 <b>WARNING:</b>
To prevent personal injury or death, <b>DO NOT</b> attempt to service the High Voltage A/C system without proper training.

 <b>WARNING:</b>
HV compressors require unique A/C refrigerant compressor oil that is non-conductive. The specific type of oil is identified by the vehicle maker. <b>All non-conductive POE oils are not the same.</b>

 <b>WARNING:</b>
HV compressors require unique A/C refrigerant compressor oil that is non-conductive. The specific type of oil is identified by the vehicle maker. <b>All non-conductive PVE oils are not the same.</b>

 <b>WARNING:</b>
As little as <b>1% standard PAG oil</b> can reduce the dielectric properties of the approved POE oils and damage the system.

 <b>WARNING:</b>
POE and PVE oils allow for 5% cross contamination

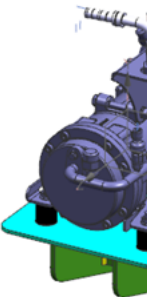
 <b>WARNING:</b>
Do not use dyes to diagnose leaks. EV AC systems have unique requirements due to the high voltage and sensitive electrical components. Standard dyes might have properties that could interfere with the system's electrical insulation or affect the lubricant

<b>CAUTION:</b>
Many of the A/C system parts will require replacement if the system is over contaminated.

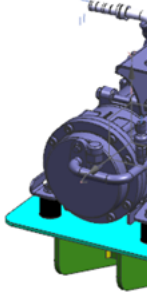
1. Use only SAE J2788 compliant machines and follow machine flushing procedures as per the A/C machine manufacturer **BEFORE** servicing an electric vehicle
2. Where possible use a dedicated A/C machine for all EV A/C systems that use POE/PVE oil to prevent cross contamination
3. It is best practice to empty the oil recovery bottle to understand how much oil is lost within the system during the recovery process for replacement purposes
4. **ALWAYS** use a dedicated oil injector for each type of oil to avoid contamination. Refer to the accessories listed above as an example for PAG, POE and PVE oil injectors
5. Refer to the proper service manual for recovery, evacuation and charge procedures

### IC Bus® Electric CE Series System Specifications


**Note:** Compressor pre-charge oil capacity plus additional oil fill = total oil fill capacity

VEHICLE MODEL	REFRIGERANT CHARGE R134a (WEIR134A)		OIL FILL (additional) POE 68		Compressor PN charged w/ 7
	FRONT (LB)	REAR (LB)	FRONT (OZ)	REAR (OZ)	
Short Wheel Base (SWB), Standard A/C System	4.1	3.1	1.6	2.8	
Short Wheel Base (SWB), High Performance A/C System	4.5	3	2.31	2.75	
Long Wheel Base (LWB), Standard A/C System	4	4.3	1.6	3.2	
Long Wheel Base (LWB), High Performance A/C System	4.4	4.3	2.3	3.2	

**PRO-AIR MODINE A/C SPECIFICATIONS | FEATURE 048CXZ | PRODUCTION 11/14/22 - 07/25/23**

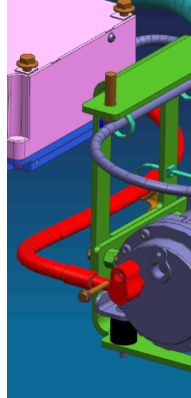
VEHICLE MODEL	REFRIGERANT CHARGE R134a (WEIR134A)		OIL FILL (additional) POE 68		Compressor PN charged w/ 7
	FRONT (LB)	REAR (LB)	FRONT (OZ)	REAR (OZ)	
Short Wheel Base (SWB), Standard A/C System	6	6.2	1.6	2.8	
Short Wheel Base (SWB), High Performance A/C System	6.5	6.2	2.31	2.75	
Long Wheel Base (LWB), Standard A/C System	6	6.5	1.6	3.2	
Long Wheel Base (LWB), High Performance A/C System	6.5	6.5	2.3	3.2	

**PRO-AIR EMERSON A/C SPECIFICATIONS | FEATURE 048CXZ | PRODUCTION 6/07/2021 - 10/18/2022**


VEHICLE MODEL	REFRIGERANT CHARGE R134a (WEIR134A)		OIL FILL POE 32		Compressor PN charged w/
	FRONT (LB)	REAR (LB)	FRONT (OZ)	REAR (OZ)	
Short Wheel Base (SWB), Standard A/C System	6	6.1	No Additional	No Additional	
Short Wheel Base (SWB), High Performance A/C System	6.5	6.1	No Additional	No Additional	
Long Wheel Base (LWB), Standard A/C System	6	7.1	No Additional	No Additional	
Long Wheel Base (LWB), High Performance A/C System	6.5	7.1	No Additional	No Additional	

# International® eMV™ Series System Specifications

## MODINE A/C SPECIFICATIONS | FEATURE 0016BAM | PRODUCTION 12/05/2023 - PRESENT

VEHICLE MODEL	REFRIGERANT CHARGE R134a (WEIR134A)	OIL FILL POE 68	Compressor PN 4: charged w/ 7.4
International eMV series w/horizontal compressor under front end module	2lbs (32oz)	No Additional	

## EMERSON A/C SPECIFICATIONS | FEATURE 0016BAM | PRODUCTION 12/08/2020 - 12/04/2023

VEHICLE MODEL	REFRIGERANT CHARGE R134a (WEIR134A)	OIL FILL POE 32	Compressor PN 2: charged w/ 44
International eMV series w/vertical compressor on passenger side front	2lbs (32oz)	No Additional	

## WARRANTY INFORMATION

### Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

### Standard Repair Times:

Refer to the [SRT Manual](#) for Repair Times

## OTHER RESOURCES

[Master Service Information Site](#)

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