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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:

3/25/2025 - Updated service part numbers and addressed typos
11/22/2024 - Updated tool information to reflect latest changes. Added eMV specfications 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 R134a 20z	FJC2732	or equivalent		Use **ONLY** on Electric Vehicles - POE Oils, refer to vehicle label
Oil Injector R134a 20z	FJC2732	or equivalent		Use **ONLY** on Electric Vehicles - PVE Oils, refer to vehicle label
Oil Injector R134a 20z	FJC2732	or equivalent		Use **ONLY** on Internal Combustion Engines (ICE) Vehicles - PAG Oils

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

WARNING:

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

WARNING:

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

WARNING:

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

WARNING:

As little as 1% standard PAG oil can reduce the dielectric properties of the approved POE oils and damage the system.

WARNING:

POE and PVE oils allow for 5% cross contamination

CAUTION:

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

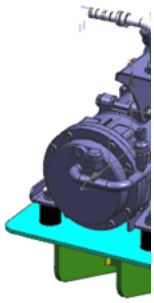
5. Refer to the proper sevice manual for recovery, evacuation and charge procedures

IC Bus® Electric CE Series System Specifications

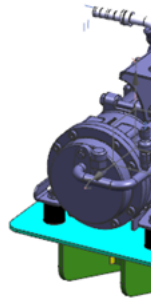
Note: *Compressor pre-charge oil capacity plus additional oil fill = total oil fill capacity*

TRANS-AIR A/C SPECIFICATIONS | FEATURE 048HEP | PRODUCTION 07/25/2023 TO PRESENT					
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	



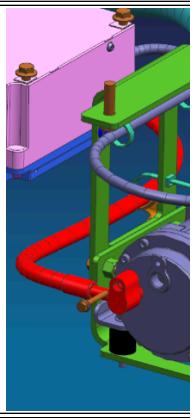
PRO-AIR MODINE A/C SPECIFICATIONS | FEATURE 048CXZ | PRODUCTION 11/14/22 - 07/25/23					
VEHICLE MODEL	REFRIGERANT CHARGE R134a (WEIR134A)		OIL FILL (additional) POE 68		Compressor PN charged w/ 7
	FRONT (LB)	REAR (LB)	FRONT (OZ)	REAR (OZ)	
Short Wheel Base (SWB), Standard A/C System	6	6.2	1.6	2.8	
Short 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 25 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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