eCoolPark 1.5

Service Manual

All Vehicles

Updated: 7/18/2025

Note (Not applicable for hard copies):

1. Phrases in blue are “**hyperlinks**” that allow user to jump directly to the respective section. Hold “**ctrl**” and click the link to use.
2. All section titles are “**hyperlinks**” allowing the user to jump back to the top of the document.

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Disclaimer:

WARNING!!

The technical information provided in this service guide is intended for use by properly trained HVAC service personnel, who can ensure a safe and properly operating system. It is assumed that the user of this guide is trained and experienced in basic refrigeration principles, in addition to being familiar with Bergstrom eCoolPark systems. Technicians who repair or service motor vehicle A/C systems must be certified by Section 609 (MACS) approved by the EPA.

Before any air conditioning service is started, it is the technician's responsibility to determine what type of refrigerant is contained in the system. Component marking and/or service port peculiarities are good places to start to identify the contents.

Bergstrom advises that the usual precautions associated with servicing a motor vehicle be exercised when servicing the HVAC system and assumes no liability regarding vehicle damage or personal injury. Additionally, Federal and any Local regulations regarding the handling and use of refrigerants should be always complied with.

NOTES:

TECHNICAL SUPPORT IS PROVIDED TO CERTIFIED TECHNICIANS ONLY.

THE AIR CONDITIONING SYSTEM CONTAINS REFRIGERANT R134A or 1234YF, UNDER HIGH PRESSURE, AND SHOULD BE SERVICED BY ONLY QUALIFIED PERSONNEL.

REPAIRS THAT ALTER THE DESIGN OF THE BERGSTROM SYSTEM, INCLUDING USE OF NON-BERGSTROM SUPPLIED PARTS, WILL VOID THE WARRANTY AND ANY BERGSTROM LIABILITY FOR THE HVAC SYSTEM.

THE BERGSTROM HVAC SYSTEM SHOULD BE SERVICED BY A FULLY TRAINED AND ENVIRONMENTALLY LICENSED TECHNICIAN. FAILURE TO AGREE TO ALL STATEMENTS COULD RESULT IN SERIOUS INJURIES, FINES AND POSSIBLE VOIDING OF ANY WARRANTIES.

Picture Symbol 

Caution: If installation care is not taken, damage to HVAC unit could occur. Please read all directions carefully!

Safety Precautions & Warnings

Servicing Refrigerant Systems:

1. Always wear the proper protective eyewear and clothing before working on any refrigeration system. Remember, refrigerant in the air conditioning system can reach pressures of over 500 PSI – if one of those lines bursts while you're working on the system, it can cause serious injury. If refrigerant gets in your eye, it can freeze your eyeball, causing permanent damage or blindness.

2. Always wear work gloves whenever you're working with condensers or evaporators. The aluminum edges are sharp and can cause serious cuts.

3. Always stay clear of the belts and fan blade and be careful revving the engine on a vehicle with a flex fan – damaged blades have been known to come flying off without a moment's warning.

4. Always use a DOT-approved tank for storing used and recycled refrigerants. Look for the Department of Transportation stamp: DOT 4BW or DOT 4BA.

5. Always provide plenty of ventilation when using any electrical testing, recycling, or recovery equipment. Avoid breathing any refrigerant vapor, lubricant vapor, or mist. Exposure to these (particularly PAG oil mist) may irritate your eyes, nose, and throat.

6. Always follow the instructions for your recycling equipment; failure to follow those directions could end up causing personal injury or damaging your equipment. Never perform any maintenance or service on your recycling equipment while the unit is plugged in (unless directed to do so) or without first consulting with authorized service personnel. Removing internal fittings and filters can release pressurized refrigerant. Use care and always wear appropriate safety wear.

7. Never use compressed air to leak test or pressure test an R-134a/1234yf system or service equipment. Under certain conditions, pressurized mixtures of R-134a/1234yf and air can be combustible. Always follow the proper procedures to prevent any safety hazards. In addition, shop air injects moisture into the system, and a pressure surge could damage the evaporator.

8. Microprocessors and computers are susceptible to damage from electrostatic discharge. Always use a static strap when working with these components and always take the necessary precautions to prevent damage to electronic components.

Note: To prevent cross contamination between refrigerants, verify that the A/C system has the correct label and unique service fittings designed for R134a/1234yf refrigerant. If you're ever in doubt, check the system with a refrigerant identifier.

Service

Contact Information

Address:

Bergstrom HQ

2390 Blackhawk Road

Rockford, IL 61109

USA

Bergstrom Technical Support Phone:

(866) 204-8570

Website:

https://bergstrominc.com/us/

NOTE: If you are looking for installation instructions, refer to the installation manual. It can be found here:

https://bergstrominc.com/us/manuals-and-support-installation-manuals/

Service

Request for Technical Support Questionnaire

DESCRIPTION OF COMPLAINT:

_____

_____

_____

DEALER:

_____

CONTACT/TECH:_____PHONE #:

_____

CHASSIS:_____MODEL YR:_____MODEL:

_____

VEHICLE MANUFACTURER: _____

PRESSURE GAUGE READINGS:

LOW_____PSIG @ HIGH BLOWER SPEED

HIGH_____PSIG @ HIGH BLOWER SPEED

AIR TEMPERATURE & HUMIDITY READINGS:

HUMIDITY LEVEL:_____%RH

RECIRCULATION INLET AIR TEMPERATURE:_____ºF

DISCHARGE AIR TEMPERATURE (VENT CLOSEST TO BASE UNIT):_____ºF

SUBTRACT THE TWO AIR TEMPERATURES =_____ºF DIFFERENTIAL

Service

Comments

eCoolPark System

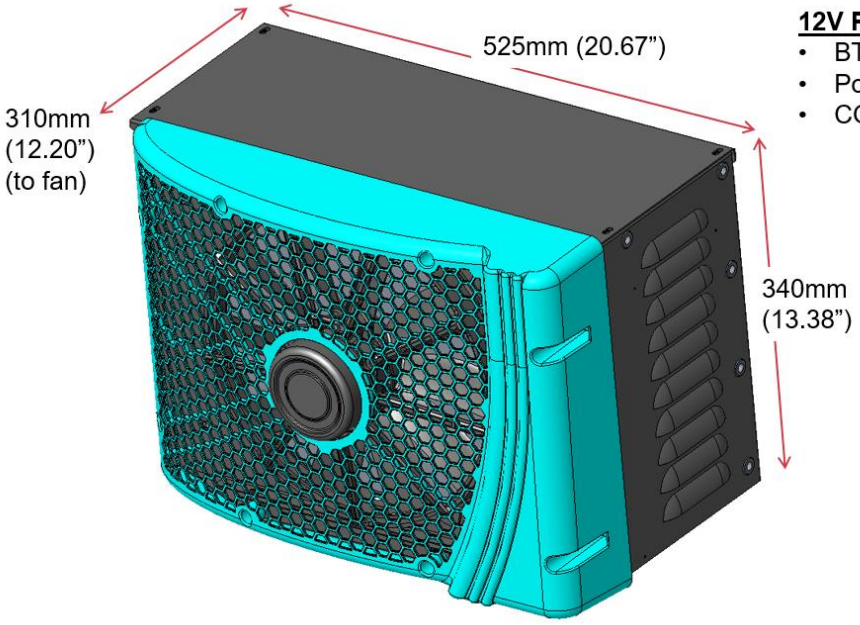
System Summary

The eCoolPark 1.5 is a powerful 12/24/48 VDC system that keeps the cab compartment cool in hot weather without having to idle the vehicle engine. This system is intended to provide no-idle cooling for the cab. The system consists of an electrified compressor/condenser unit installed generally on the headache rack or mounted behind the cab. The system integrates into the existing A/C refrigerant lines and utilizes the existing evaporator. Check valves and solenoid valves are used to isolate the eCoolPark system from the OEM refrigeration system. It not only dramatically reduces fuel burned but is also extremely environmentally friendly.

WARNING: The eCoolPark unit must remain upright at all times. DO NOT TILT. The refrigerant inlet/outlet at the bottom of the unit should be capped when not in use.

The eCoolPark unit is shipped under pressure. Use caution when removing shipping caps.

12 Volt System



12V Performance (Max)

- BTU/hr: 7600
- Power Watts: 790
- COP: 2.8

Weights

Unit: 55 lbs
Refrigerant Hoses: 5.4 lbs
Fittings & Check Valve: 1.5 lbs
Wire Harness: ~15 lbs
Total: 76.9 lbs

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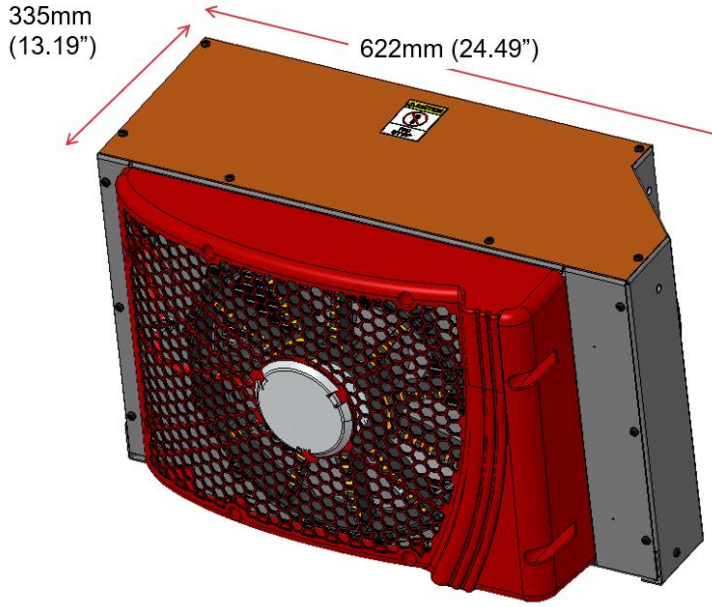
eCoolPark System

24/48 Volt System



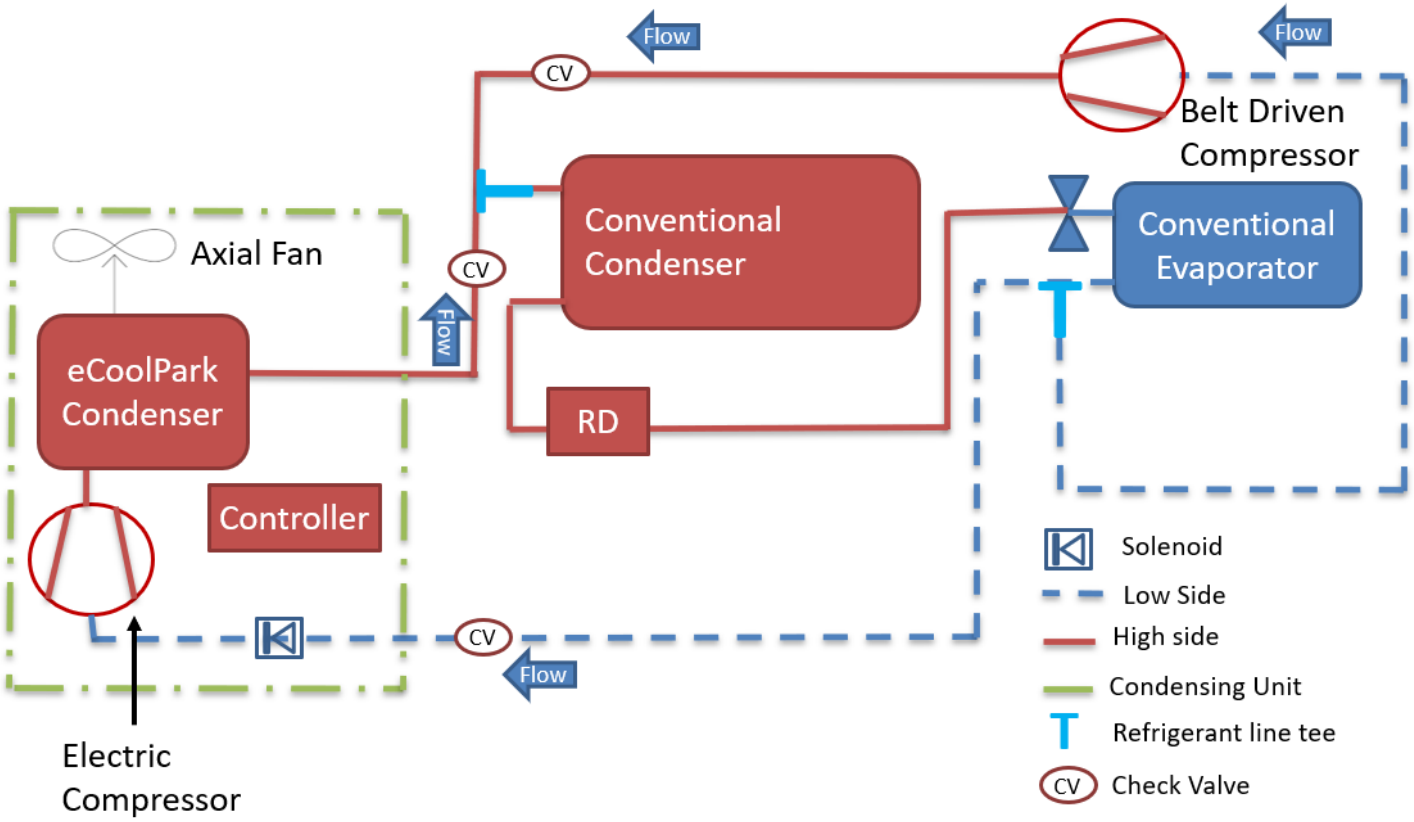
24V Performance (Max)
- BTU/hr: 11,250
- Power Watts: 970

48V Performance (Max)
- BTU/hr: 15,000
- Power Watts: 1740

Weights
Unit: 66 lbs
Refrigerant Hoses: 5.4 lbs
Fittings & Check Valve: 1.5 lbs
Wire Harness: ~15 lbs
Total: 87.9 lbs

Note: 24V and 48V units require 12V @1.5 amps (for the solenoid and ECU).

1.5 eCoolPark Schematic



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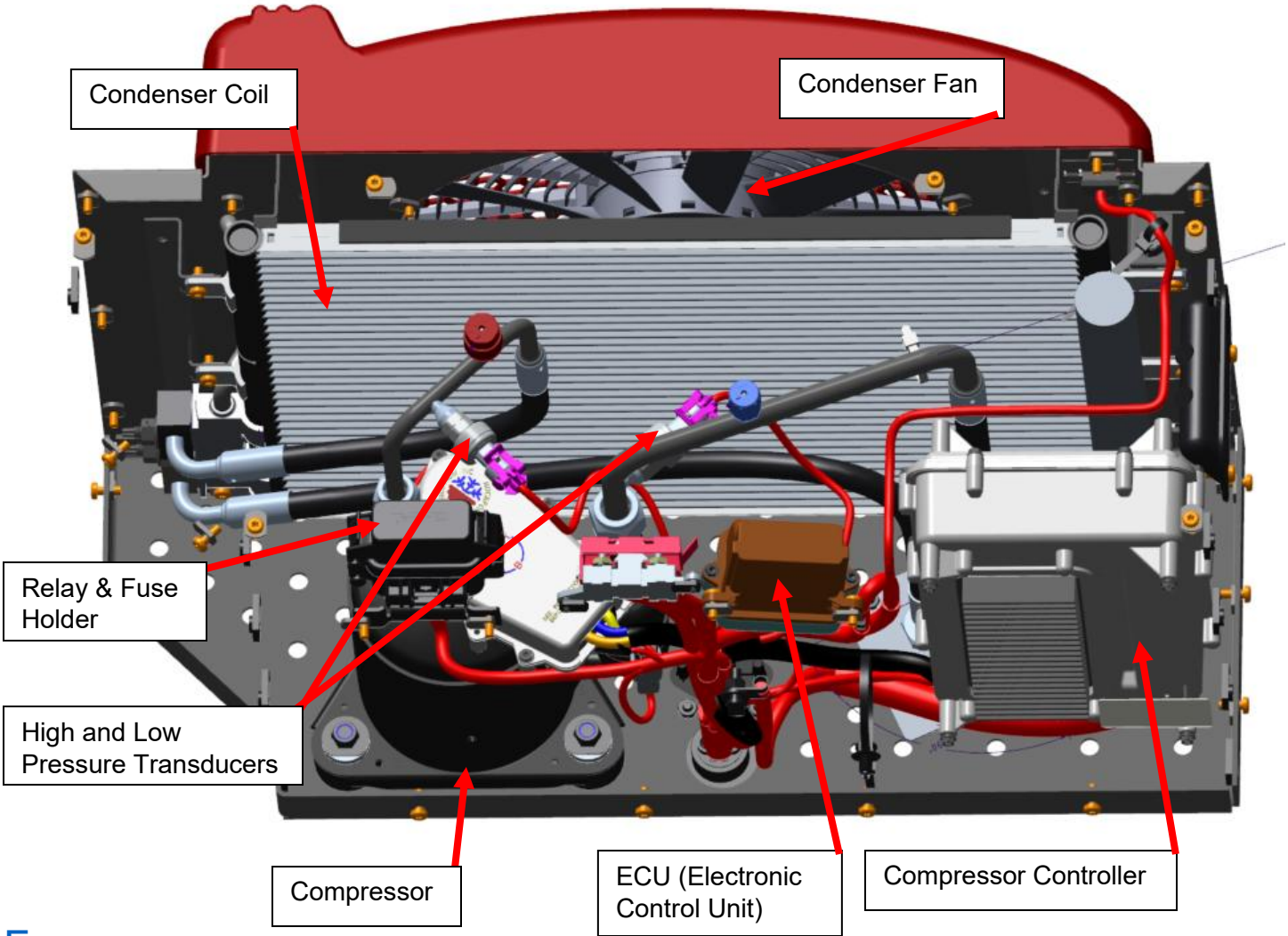
eCoolPark System

Internal Components



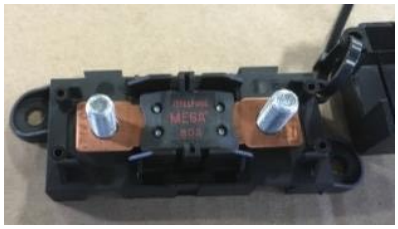
Fuses

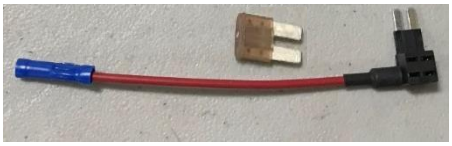
Internal

5 Amp – System Enable/Control (ECU)
15 Amp – Condneser Fan
60 Amp – Main Compressor Power

External

80 Amp – Main Power
Installed near power source
5 Amp – Vbat “add-a-fuse”
Installed near vehicle start battery (fuse box)
5 Amp – Battery Remote Voltage Sense
Optional – used when power source is a battery





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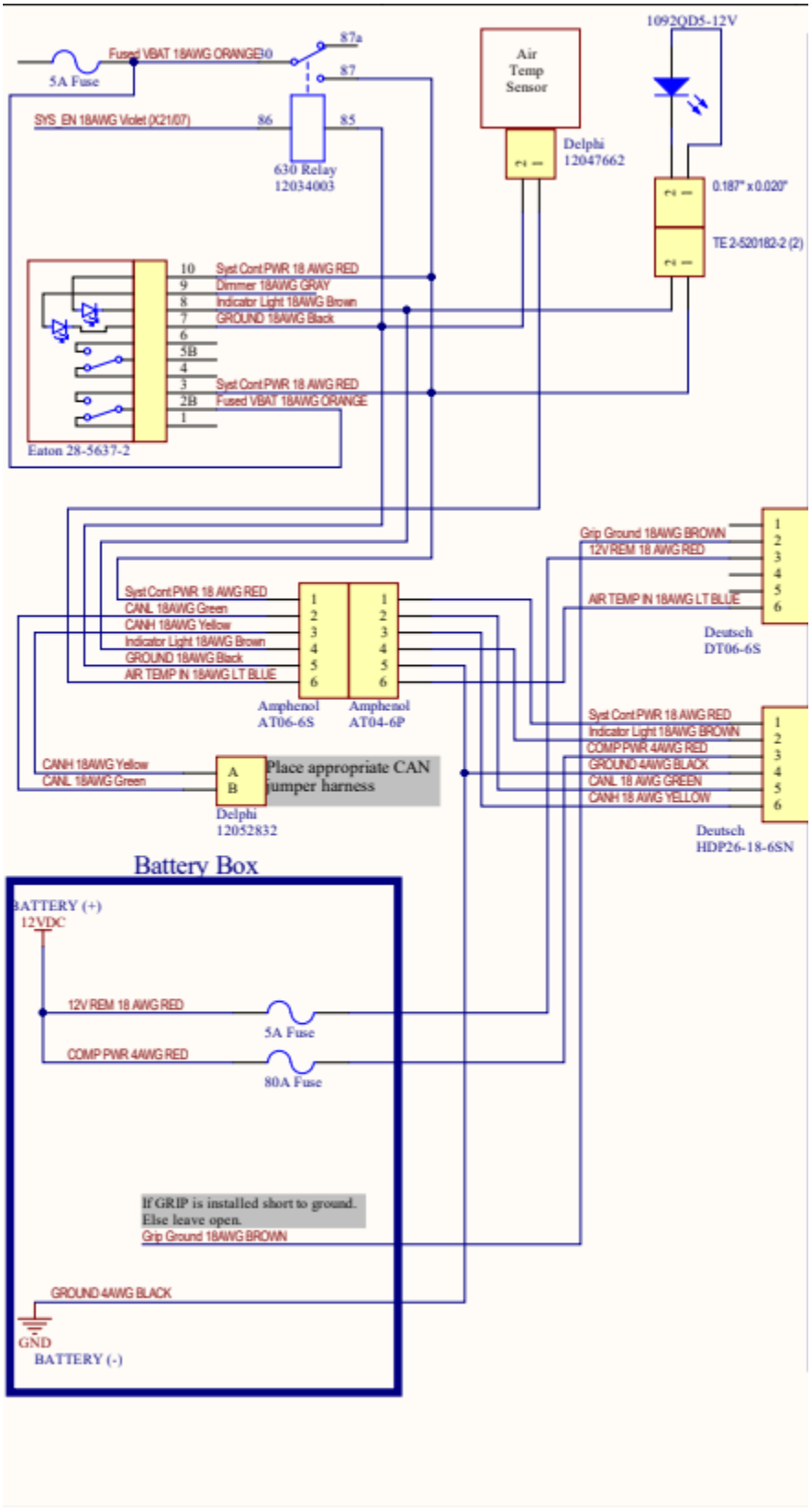
eCoolPark System

Electrical Schematics

External – eCoolPark 1.5 12 VDC



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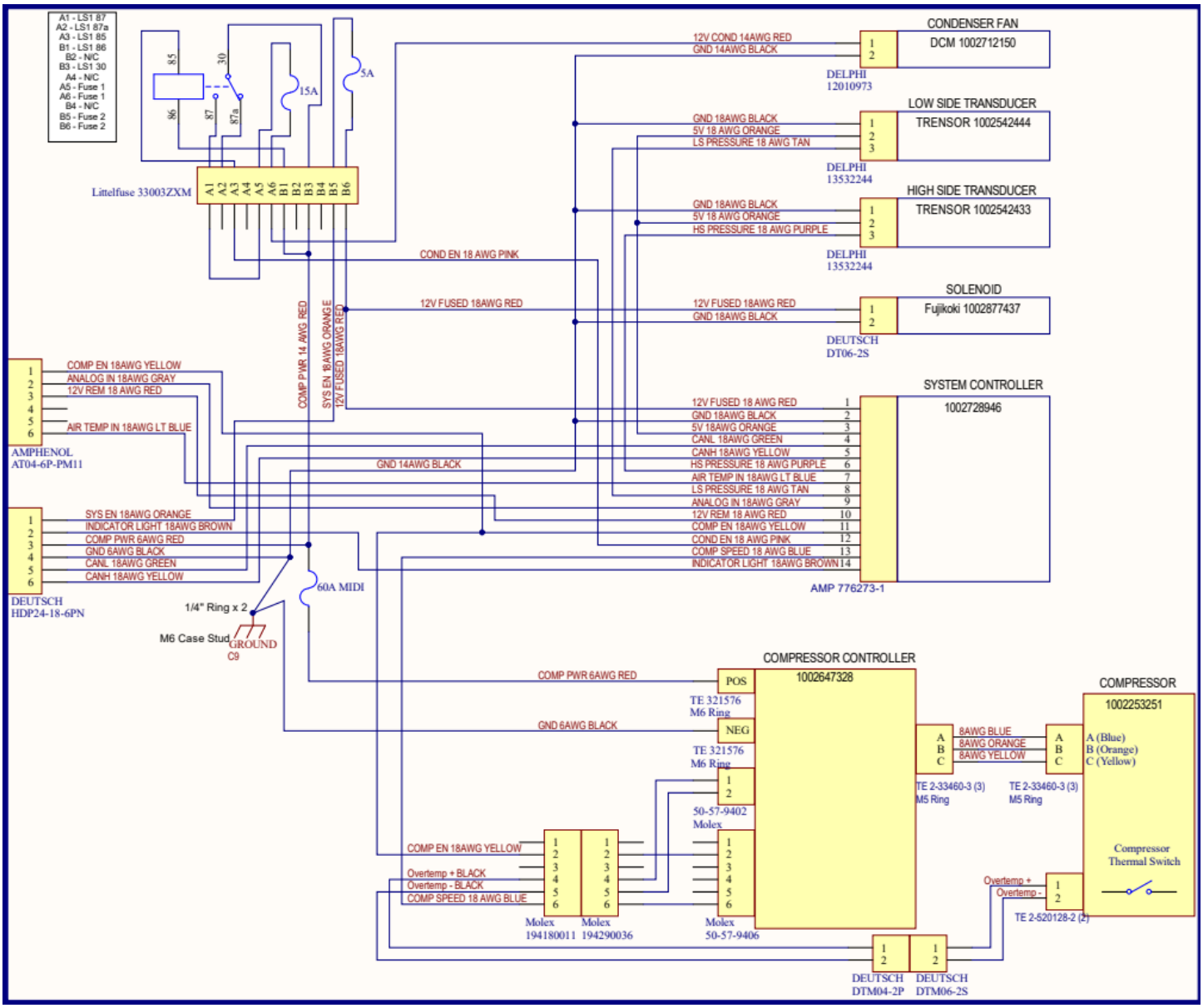
eCoolPark System

Internal – eCoolPark 1.5 12 VDC (Unit PN 1002725835)



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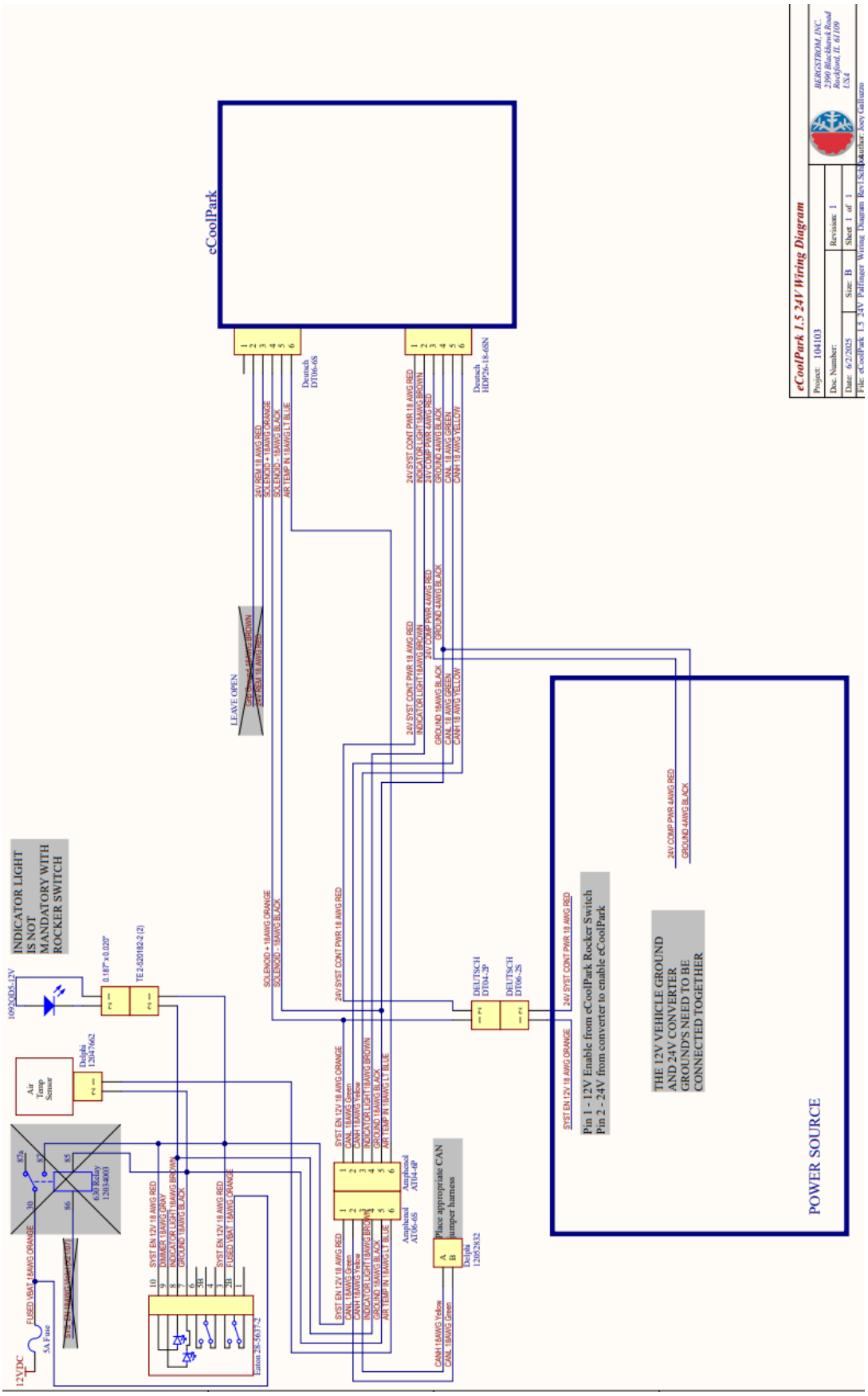
eCoolPark System

External – eCoolPark 1.5 24/48 VDC



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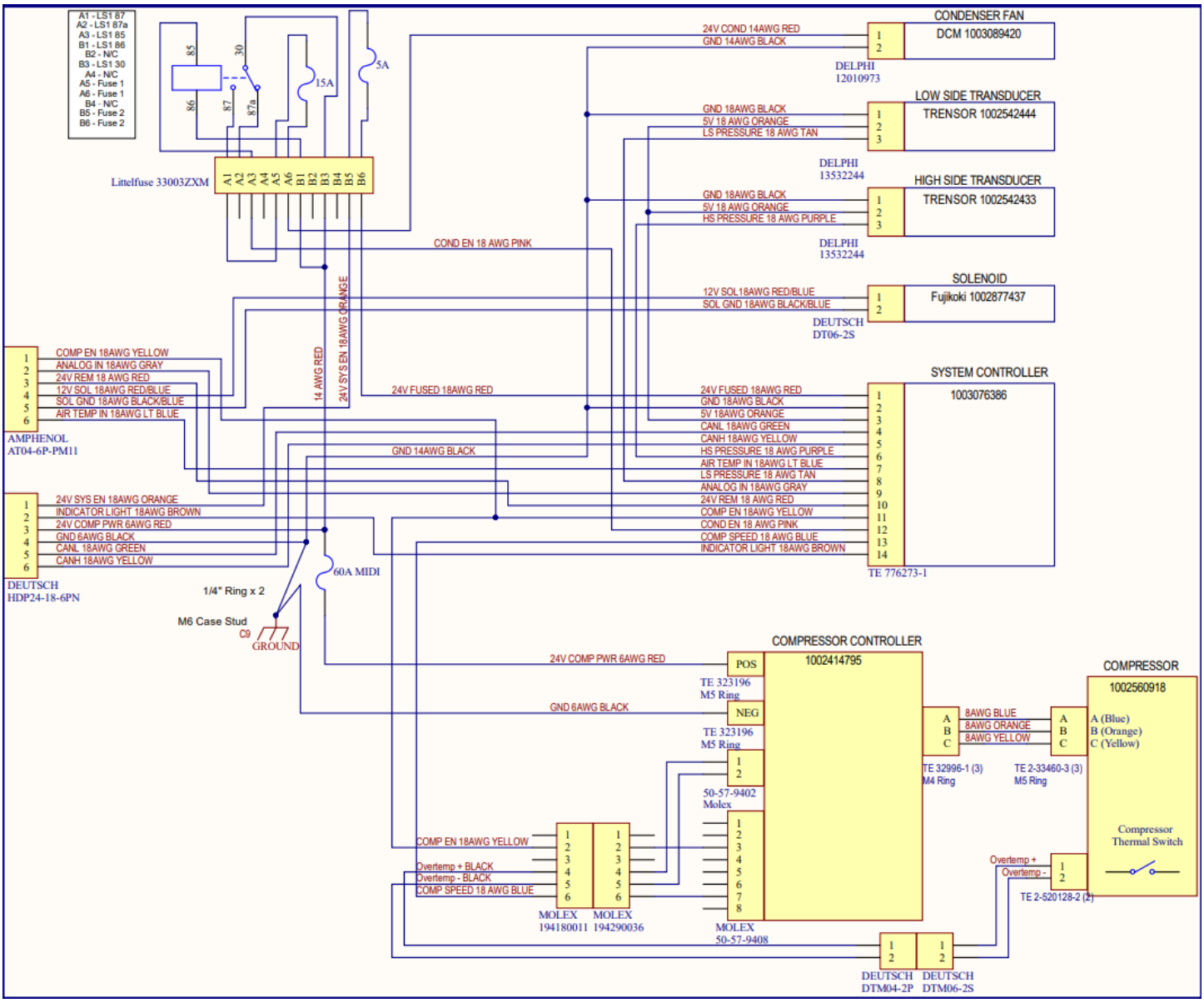
eCoolPark System

Internal – eCoolPark 1.5 24 VDC (Unit PN 1003098208)



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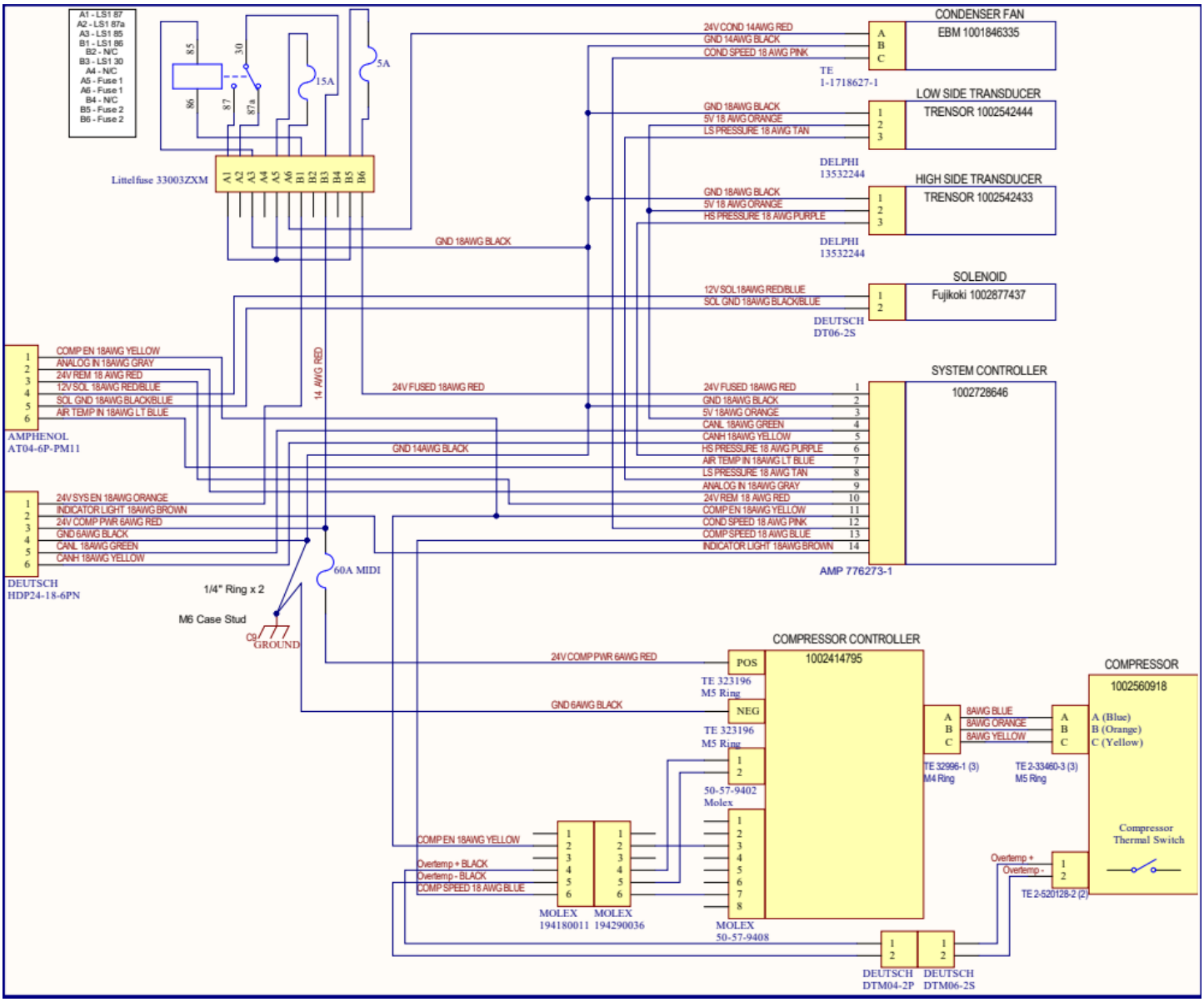
eCoolPark System

Internal – eCoolPark 1.5 24 VDC (Unit PN 1002904442 - older)



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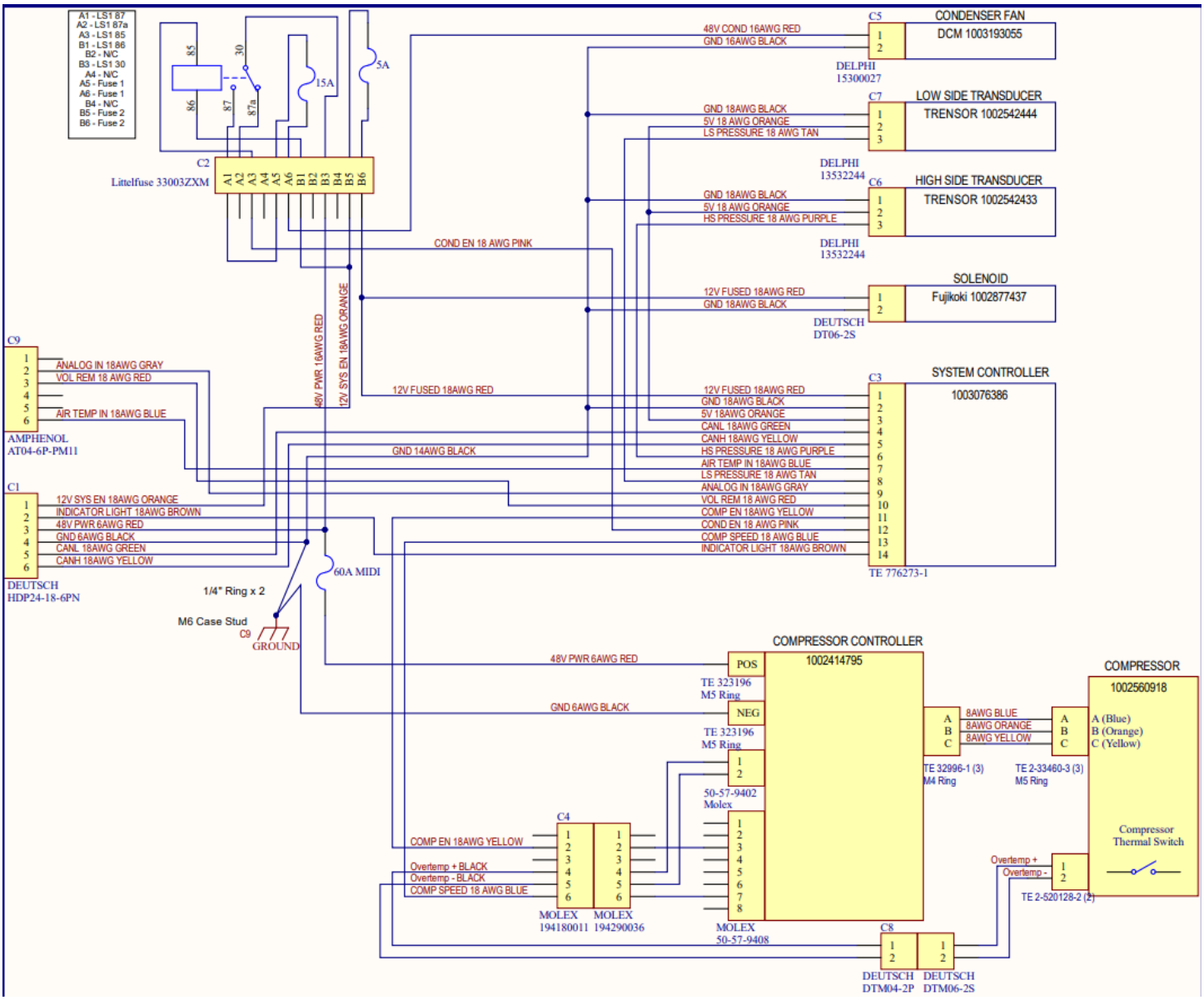
eCoolPark System

Internal – eCoolPark 1.5 48 VDC (Unit PN 1003193550)



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Diagnostics Guide

Problem	Possible Cause	Corrective Action
System Completely Inoperative – indicator light **not** ON, compressor not running, condenser fan not running	Power source inactive.	Verify power source is active and connected. Fix output of power source if needed. Refer to WIRING.
	Fuse blown	Check main 80 Amp mega-fuse. Check voltage remote 5 Amp fuse. Check Vbat add-a-fuse 5 Amp. Refer to WIRING.
	12 or 24 VDC system enable not received by ECU.	Verify vehicle harness is connected to ignition harness. Verify power source is outputting voltage to pin 1 on round connector at unit. If using Miller EnPack, check fuse F1 internal to Miller power supply box. If fuse blowing consistently, replace relay inside eCoolPark unit – refer to RELAY.
	Programming issue	Verify system ECU has been programmed if necessary. Verify the correct parameters have been selected for CAN data rate and CAN message type. Refer to PROGRAMMING.
Air out of vents warm or ambient temperature	Compressor inactive	Verify main power red & black 4-gauge wires are connected and secure. Verify system ECU has been programmed if necessary.

	Low refrigerant charge	Verify system has been charged with refrigerant. Refer to A/C System Operation Check or Expected A/C Performance. If not completed during installation, cycle between vehicle A/C and eCoolPark A/C 2 times to spread refrigerant.
System cycles quickly but blows cold when running.	Condenser fan inactive	Verify system ECU has been programmed correctly. Older units (PN ending in 4442) need to have condenser fan parameters programmed. Consult Bergstrom @ 866-204-8570. If condenser fan is receiving power but not running, replace fan. Refer to CONDENSER FAN.
Fault code 8 – Communication Issue	Wiring issue	Verify wiring in driver compartment. Jumper should be installed to connect vehicle CAN to eCoolPark CAN. Refer to WIRING.
	Programming issue	Verify system ECU has been programmed if necessary. Verify the correct parameters have been selected for CAN data rate and CAN message type. Refer to PROGRAMMING.
	Vehicle gateway issue	Some vehicles may have a gateway in between the CAN connection and the vehicle CAN controls. Consult Bergstrom @ 866-204-8570.

eCoolPark System

Fault code 6 – Compressor Malfunction	Refrigerant issue	Verify all check valves (3) are installed in the correct direction. Verify correct refrigerant charge has been inserted into system.
Indicator light inactive when system running normally	Electrical connection	Verify rear of light has blade terminals secured. Light does have a positive and negative side.
	Ground wiring issue	Verify light ground wire has no connection issues. Check 6-way connection between ignition harness & power harness and at underside of eCoolPark.
	Programming	ECU may be programmed to leave light off during normal operation. If needed, consult Bergstrom @ 866-204-8570.
	Failed Light	If 12VDC exits at rear light connection, light has failed. Rocker switch also has backlight for verification. Replace light.

If a problem still exists, please contact Bergstrom @ 866-204-8570

Component Servicing

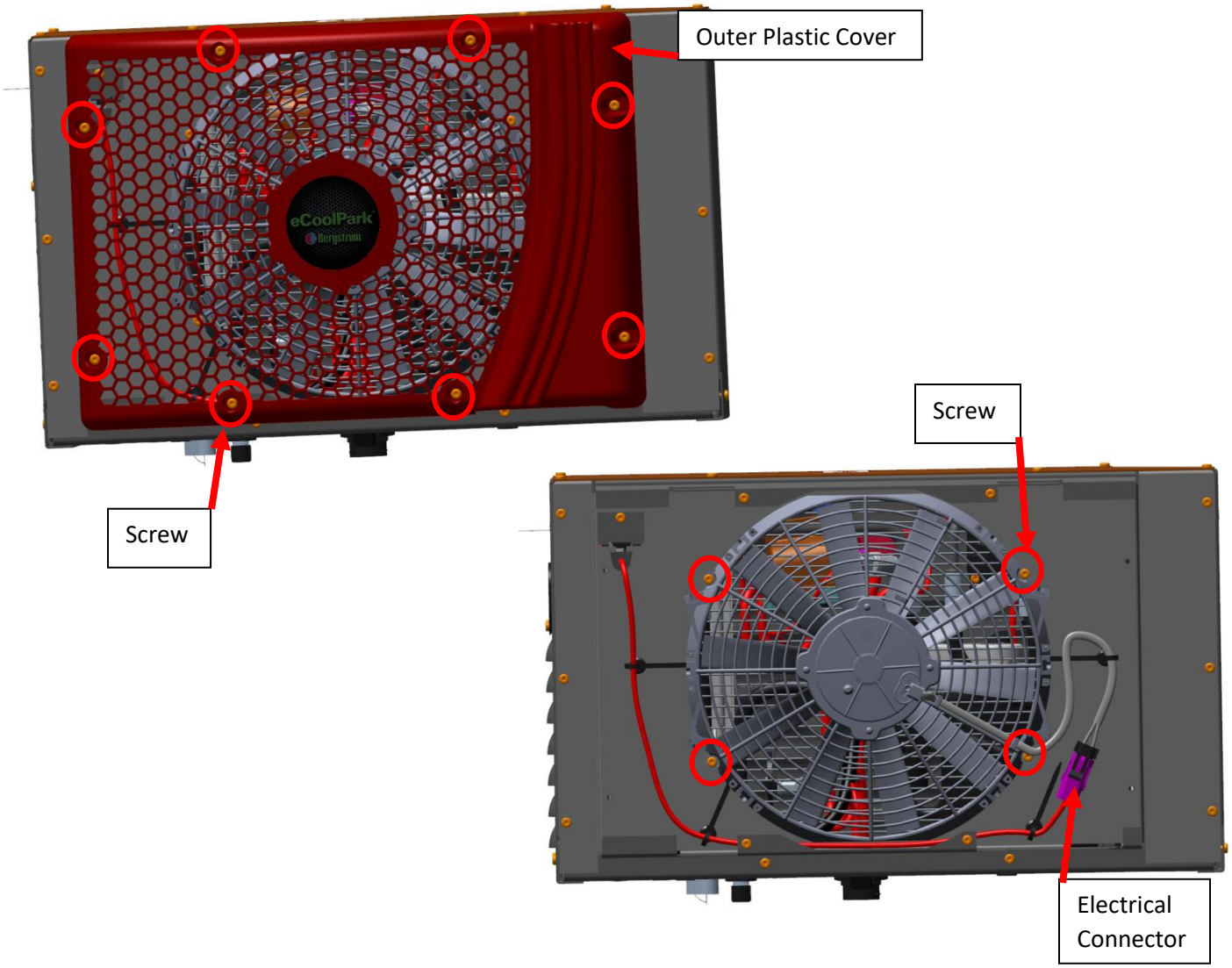
Condenser Fan

Condenser Fan Removal

1. Remove outer plastic cover with 8 T25 screws.
2. Unplug the electrical connector and cut zip tie if needed.
3. Remove the 4 T25 screws holding the fan to the sheet metal and slide out fan.

Condenser Fan Installation

1. Slide new fan into place and secure with 4 screws. Torque to 20 in. lbs.
2. Connect electrical connector and secure harness with zip ties if needed.
3. Install plastic cover and secure using 8 screws. Torque to 20 in. lbs.



Component Servicing

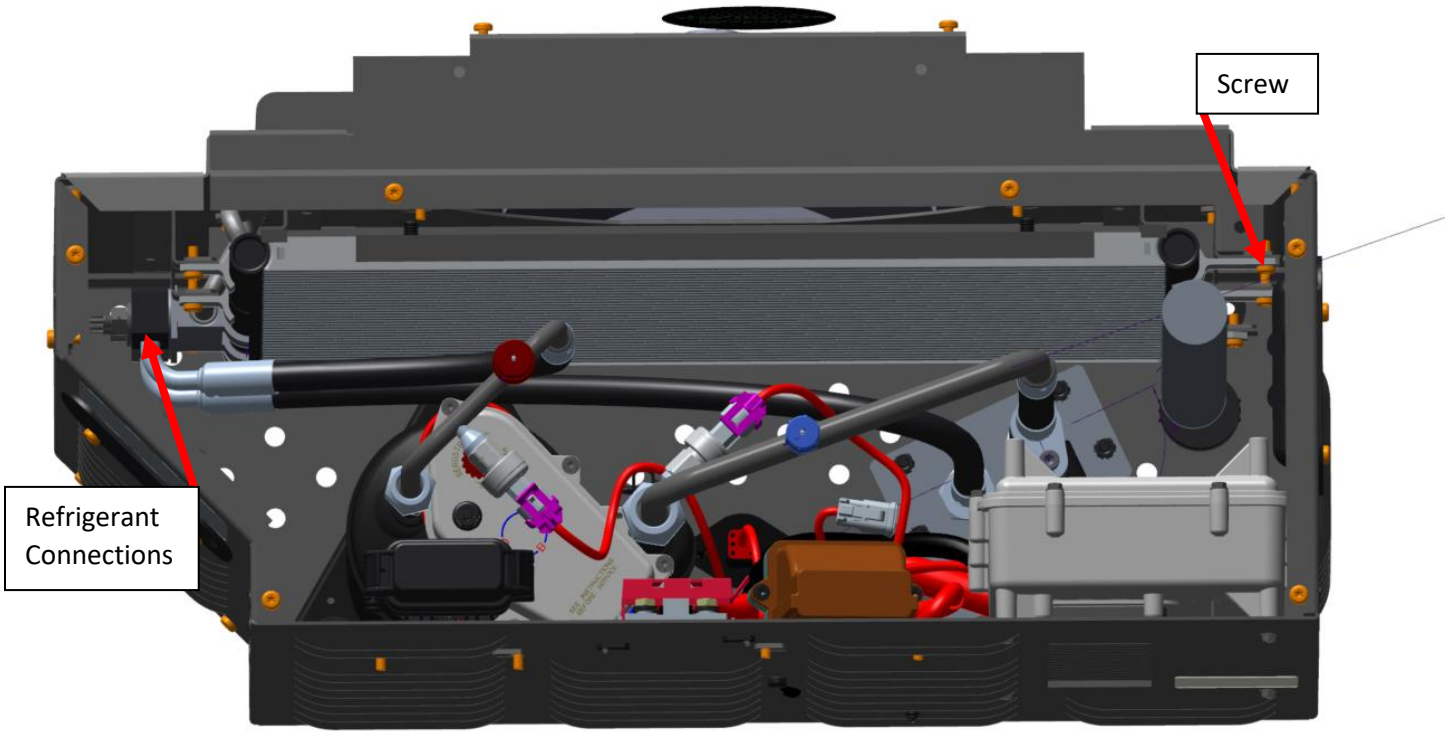
Condenser Coil

Condenser Coil Removal

1. Turn power off if needed and discharge A/C system. Refer to SERVICE TIPS
2. Remove the eCoolPark unit top sheet metal cover by removing 6 T25 screws.
3. Remove the condenser refrigerant connections by removing the 2 nuts using a 5/16” wrench or 90-degree socket.
4. Use a 90-degree T25 bit to remove 6 screws holding the coil to the sheet metal and pull the coil up and out of the unit.

Condenser Coil Installation

1. If needed, remove the old receiver dryer and secure it to the new condenser coil with the 2 nuts (5/16”).
2. Move the condenser coil back into position in the unit and secure using the 6 screws. Torque to 20 in. lbs.
3. Attach the refrigerant lines with the 2 nuts. Torque to 8.3 ft. lbs.
4. Secure the sheet metal cover using the 6 screws. Torque to 20 in. lbs.



Component Servicing

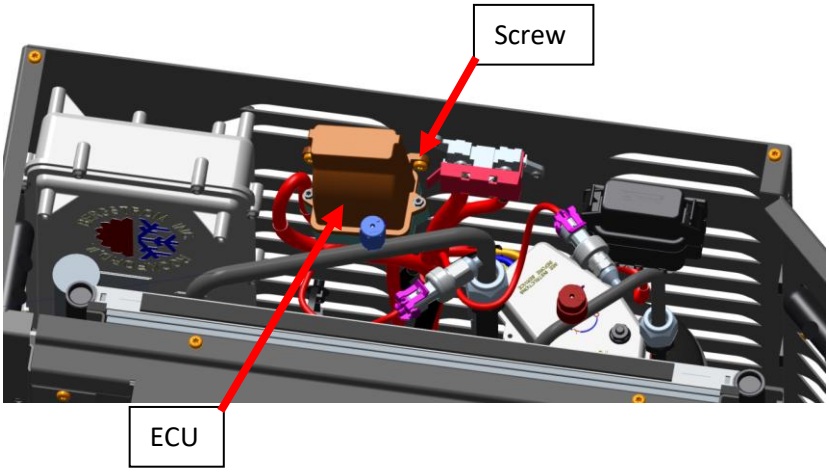
ECU (Electronic Control Unit)

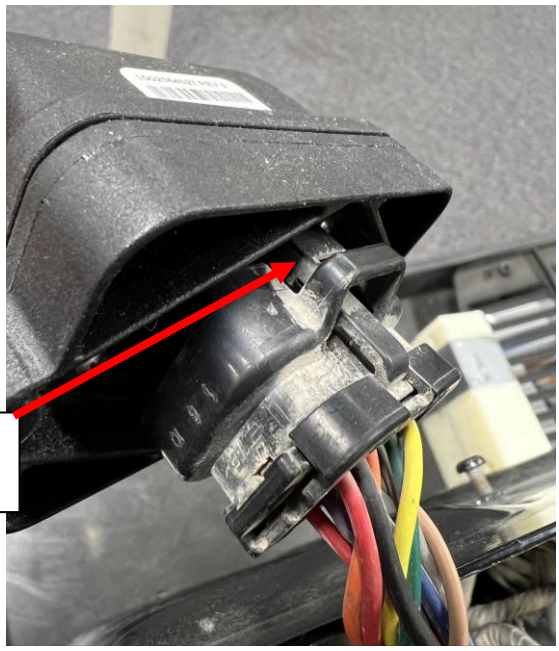
ECU Removal

1. Remove the eCoolPark unit top sheet metal cover by removing 6 T25 screws.
2. Remove the 2 T25 screws holding the ECU to the sheet metal.
3. Use a small dull tool to lift the locking tab of the electrical connector to remove the harness from the ECU.

ECU Installation

1. Connect the ECU to the harness via the electrical connector.
2. Secure the ECU to the sheet metal with the 2 screws. Torque to 20 in. lbs.
3. Secure the sheet metal cover using the 6 screws. Torque to 20 in. lbs.





Component Servicing

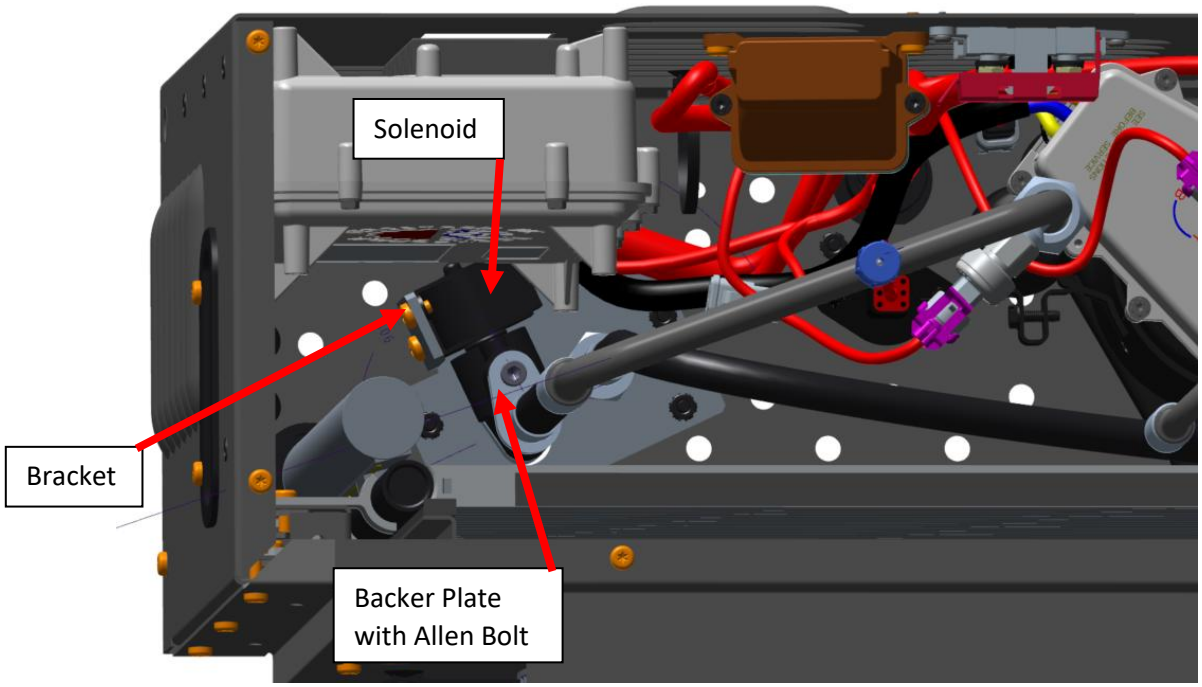
Solenoid

Solenoid Removal

1. Turn power off if needed and discharge A/C system. Refer to SERVICE TIPS
2. Remove the eCoolPark unit top sheet metal cover by removing 6 T25 screws.
3. Unplug the electrical connector for the solenoid.
4. Use a 90-degree T25 bit to remove the 2 screws holding the solenoid to the sheet metal.
5. Use a 3/16” Allen wrench to remove the refrigerant line backer plate on both sides of the solenoid.
6. Carefully remove the refrigerant fittings from both sides of the solenoid and pull it out of the unit. Tape the open refrigerant lines if there will be significant time before the new solenoid is installed.

Solenoid Installation

1. Verify both refrigerant fittings have an intact, clean, and oiled o-ring.
2. Get the solenoid into position so the mounting holes line up with the bracket.
3. Attached the refrigerant fitting inside the unit to the solenoid first, then the fitting on the outside. Secure using the Allen bolts. Torque to 60 in. lbs.
4. Secure the solenoid to the sheet metal bracket using the 2 screws. Torque to 20 in. lbs.
5. Connect the electrical connector to the harness.
6. Secure the sheet metal cover using the 6 screws. Torque to 20 in. lbs.



Component Servicing

Pressure Transducer

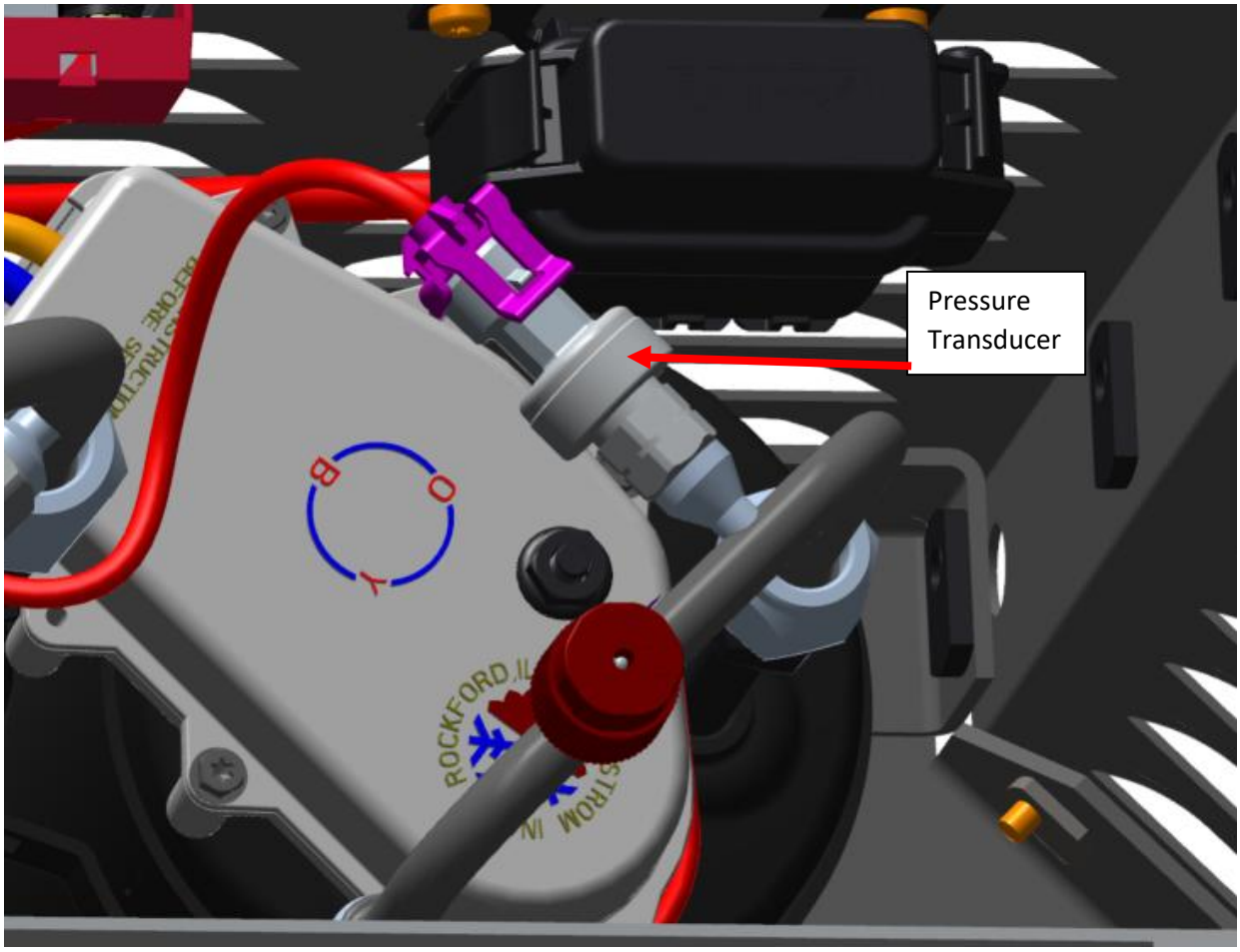
Pressure Transducer Removal

1. Remove the eCoolPark unit top sheet metal cover by removing 6 T25 screws.
2. Remove the electrical connector from the pressure transducer.
3. Quickly loosen the transducer fitting and remove.

NOTE: Due to internal Shrader valves, transducers can be removed without evacuating refrigerant, however, it must be done quickly to avoid losing excess refrigerant.

Pressure Transducer Installation

1. Screw the new transducer into the refrigerant fitting and tighten to 62 in. lbs.
2. Connect the electrical connector.
3. Secure the sheet metal cover using the 6 screws. Torque to 20 in. lbs.



Component Servicing

Relay

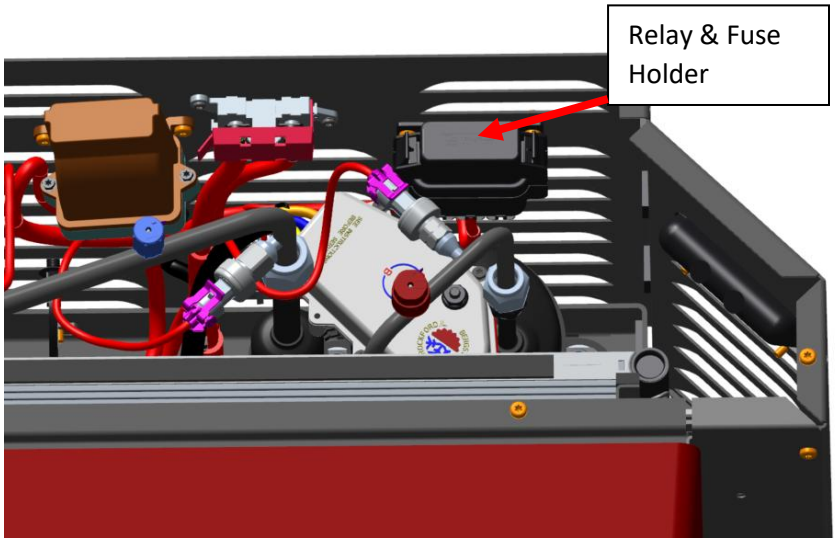
Note: On 24/48 VDC Unit, if Miller CoolPak (Power Supply) fuse F1 (5A) is failing consistently or eCoolPark internal relay is suspect: remove unit top and inspect relay part number. If part number lists a "D" (-**-*-D1), replace relay.***

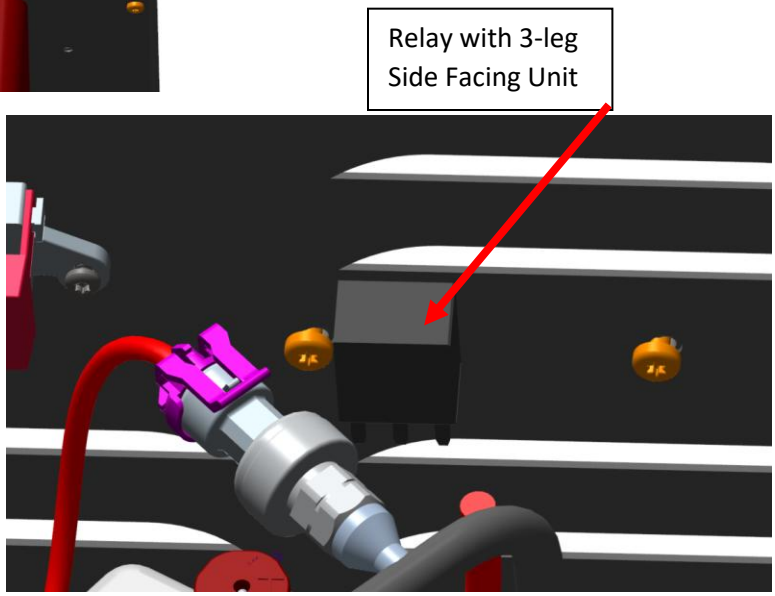
Relay Removal

1. Remove the eCoolPark unit top sheet metal cover by removing 6 T25 screws.
2. Remove the plastic relay & fuse holder top.
3. Remove relay.

Relay Installation

1. Insert new relay into the holder. The 3-leg side of the relay should face the unit, and the 2-leg side of the relay should face the sheet metal.
2. Secure the holder top.
3. Secure the sheet metal cover using the 6 screws. Torque to 20 in. lbs.





Component Servicing

Receiver Dryer

Note: Only the 24/48 VDC version of eCoolPark has a receiver dryer.

Receiver Dryer Removal

1. Evacuate the system refrigerant per the specifications of the vehicle manual.
2. Remove the hole plug located on the bottom of the eCoolPark unit below the dryer.

   Note: For models with PN 1002904442, there is no plug.

3. Through this hole, remove the 17mm hex cap at the bottom of the dryer and remove the internal desiccant.

Note: For models with PN 1002904442

Caution: Remove the 2 nuts with an 8mm socket. When loosening care must be taken to prevent the dryer base from moving. Use a large plier, hold the dryer base to prevent movement. Failure to secure the base during removal can result in a cracked or damaged coil.
Then remove the unit top sheet metal cover by removing 6 T25 screws. Loosen the clamp by loosening the 8mm screw. Pull the dryer up and out of the unit.

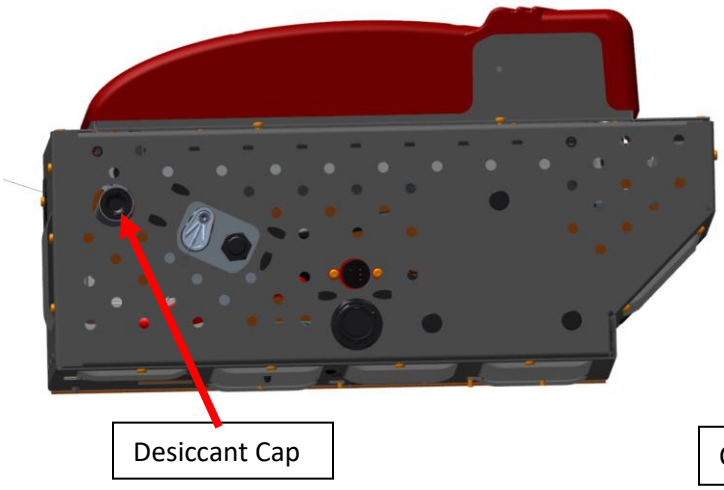
Receiver Dryer Installation

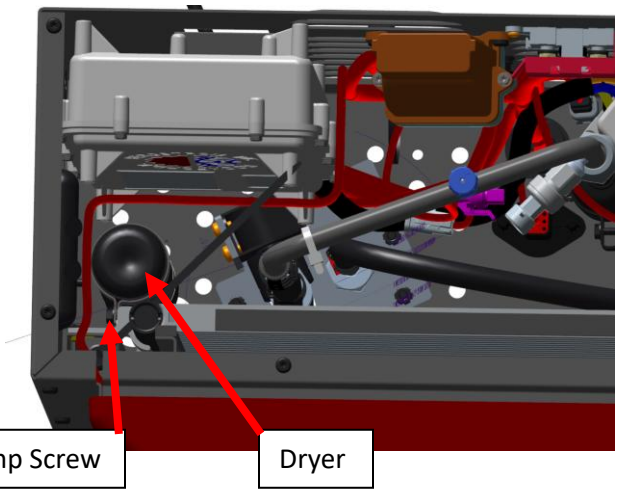
1. Lubricate the new o-ring. Insert the new desiccant into the dryer via the bottom hole. Secure the 17 mm nut with a torque of 5.9-7.3 ft. lbs.

Note: For models with PN 1002904442, insert the dryer in from the top of the unit.

Caution: Secure the dryer with 2 8mm nuts. Use a large plier to hold the base of the dryer to prevent it from moving. Torque to 11 ft. lbs.
Secure the clamp with the 8mm screw. Install the eCoolPark unit sheet metal top. Torque screws to 20 in. lbs.

2. Insert the hole plug into the bottom of the unit, if needed.
3. Charge the system with refrigerant. Refer to "Refrigerant Charge Information".





Air Conditioning System

A/C System Operation Check

The following is an A/C system **"Field Test" and Evaluation Procedure** to be used by service personnel. This procedure can be used to determine if a Bergstrom A/C system is performing properly and contains the correct refrigerant charge. The performance guidelines shown are approximate, and subject to many operational variables. Ambient temperature must be 65 degrees F or above to accurately test for A/C performance.

1. Run the vehicle engine A/C for some time so that the cab temperature is at or near the set point temperature. Park the vehicle, turn the engine off, and turn the ignition/ACC on.

2. Set the HVAC controls to A/C on, recirculation inlet air, blower at MED-HIGH speed, and the temperature control dial to the coldest setting.

3. Physically verify that the eCoolPark A/C compressor is operating by touching the unit and verifying it is vibrating. Verify the condenser fan turns on (condenser fan may start and stop, this is normal).

4. The suction hose fitting (larger fitting at the bottom of the eCoolPark unit) should be cold to the touch. This fitting may sweat or even frost slightly. The discharge hose fitting (smaller fitting at the bottom of the eCoolPark unit) should be warm to the touch.

5. Chilled air should be discharged from the supply louvers in the dash. After 3-5 minutes of A/C operation the system should begin to cool.

6. Air inlet / outlet temperature differentials are greatly affected by ambient temperature and relative humidity. In cool ambient conditions, differentials smaller than 15 degrees may be seen. Air can only be chilled to a certain level, and then the A/C compressor will cycle off to prevent evaporator freeze-up. High humidity may also result in smaller differentials; a large amount of cooling capacity is required to dehumidify the air, as well as cool it.

7. Measure and record the inlet air to the vehicle HVAC unit (near front passenger foot area) and vent discharge air temperature closest to the unit (usually center vent on the front passenger side) and calculate the differential of the two values. Record the humidity value for the day.

8. Measure and record the suction and discharge refrigerant pressures.

9. Refer to EXPECTED A/C PERFORMANCE

10. If the values fall within the guidelines, then the system is functioning properly. If the values don't meet the guidelines, then troubleshooting may be required.

Air Conditioning System

Expected A/C Performance

The following performance guidelines are based on test conditions outlined under A/C SYSTEM OPERATION CHECK. Variables such as engine speed, condenser airflow, sun load, and blower motor speed will all affect A/C system performance.

Air Temperature (F) Entering A/C Unit	Inlet - Outlet Air Temperature Differential**	
FRESH OR RECIRCULATED	LOW HUMIDITY	HIGH HUMIDITY
50	5-10	5-10
60	10-20	10-15
70	20-25	15-20
80	25-30	20-25
90	25-35	20-30
100	30-35	25-30
110	35-40	30-35

** The outlet louver closest to the A/C unit usually discharges the coldest air. The warmest inlet air temperature (fresh or recirculated) should also be used for the Differential calculation.

A/C System Operating Pressures		
Ambient Air Temp (F) Entering Condenser	Suction Pressure (PSIG) @ Evaporator Outlet	Discharge Pressure (PSIG) @ Compressor Outlet
50	5-15	75-125
60	5-15	100-150
70	10-20	125-175
80	10-20	150-225
90	15-25	175-250
100	15-25	200-275
110	15-30	225-325

Air Conditioning System

Refrigerant Charge Information

A correct refrigerant charge is necessary to achieve optimum performance from an A/C system. When servicing the refrigerant system, the only way to be certain of an exact charge is to fill an empty system with the specified amount of refrigerant. If the A/C system is operating and the amount of refrigerant within the system is not known, some simple checks can be performed to determine if the operating charge is adequate:

1. Compressor running.
2. Suction hose fitting (at evaporator outlet) cold to the touch. This fitting may sweat or even frost lightly.
3. Chilled discharge air at the dash louvers when the temperature control is set at the coolest setting.

Charge Procedure for eCoolPark 1.5 Systems:

1. Vacuum the system from **both** high pressure and low pressure charge ports.
2. Charge the system with factory charge (located on vehicle label) + 10 oz. of virgin R-134a/1234yf (consult vehicle refrigerant tag).
3. Insert 3 oz. of PAG 100 oil with the charge (most refrigerant machines have this ability).
4. Cycle the system between vehicle A/C (engine on) and eCoolPark A/C (engine off) 2-3 times to spread refrigerant throughout system.

Leak Checking Procedure:

1. Verify all nuts, bolts, clamps, etc. are torqued to specification.
2. Run a vacuum test after tightening and verify the leak is still present.
3. Charge the system with a small amount (1-2 oz.) of refrigerant.
4. Use a refrigerant sniffer tool to check all the possible leak points in the system. The most common locations for leaks are the compression T fittings (if applicable) and the connections at the eCoolPark unit (o-rings in particular).
5. Repeat the vacuum test to verify the leak has been found.

Air Conditioning System

Service Tips

1. Use only virgin (new, not reclaimed) R134a refrigerant.
2. Reclaiming refrigerant, evacuating the A/C system, and charging with the proper amount of refrigerant resolves many A/C issues.
3. Some refrigerant loss will occur in one year's time, and this is recognized as normal. Vibration, hose porosity, and general construction of the system make a leak proof system nearly impossible.
4. Bergstrom does not recommend or endorse the use of "Stop Leak" or "Leak Sealing" products.

R134a Temperature/Pressure Chart

Pressure	Temp		Pressure	Temp		Pressure	Temp		Pressure	Temp		Pressure	Temp		Pressure	Temp
psig/Hg"	Deg F		psig	Deg F		psig	Deg F		psig	Deg F		psig	Deg F		psig	Deg F
22	-62.38		13	11.77		37	42		61	62.75		145	109.4		265	150.6
20	-55.02		14	13.38		38	43		62	63.5		150	111.5		270	152
18	-48.85		15	14.94		39	43.98		63	64.24		155	113.6		275	153.4
16	-43.5		16	16.46		40	44.95		64	64.98		160	115.6		280	154.7
14	-38.76		17	17.95		41	45.91		65	65.71		165	117.6		285	156.1
12	-34.49		18	19.4		42	46.85		66	66.43		170	119.6		290	157.4
10	-30.6		19	20.81		43	47.78		67	67.14		175	121.5		295	158.7
8	-27.02		20	22.19		44	48.7		68	67.85		180	123.3		300	160
6	-23.7		21	23.55		45	49.61		69	68.55		185	125.2		305	161.3
4	-20.59		22	24.87		46	50.51		70	69.24		190	126.9		310	162.5
2	-17.67		23	26.16		47	51.39		75	72.62		195	128.7		315	163.8
0	-14.92		24	27.43		48	52.26		80	75.86		200	130.4		320	165
1	-12.31		25	28.68		49	53.13		85	78.98		205	132.1		325	166.2
2	-9.84		26	29.9		50	53.98		90	81.97		210	133.8		330	167.4
3	-7.47		27	31.1		51	54.82		95	84.87		215	135.5		335	168.6
4	-5.21		28	32.27		52	55.65		100	86.66		220	137.1		340	169.8
5	-3.04		29	33.43		53	56.48		105	90.37		225	138.7		345	171
6	-0.95		30	34.56		54	57.29		110	92.99		230	140.2		350	172.1
7	1.05		31	35.68		55	58.1		115	95.53		235	141.8		355	173.3
8	2.99		32	36.77		56	58.89		120	98		240	143.3		360	174.4
9	4.86		33	37.85		57	59.68		125	100.4		245	144.8		365	175.4
10	6.67		34	38.91		58	60.46		130	102.7		250	146.3		370	176.3
11	8.42		35	39.96		59	61.23		135	105		255	147.7		375	177.3
12	10.12		36	40.99		60	62		140	107.2		260	149.2		380	178.2

The numbers above represent the boiling points for R134a

Troubleshooting Electrical and Software Issues

Testing eCoolPark Normal Operation

1. Set the parking brake and turn the engine off – unit will only run if engine RPM is 0
2. Turn the key to the ignition ON position (do not start engine)
3. Set OEM control panel to: medium blower speed, recirculation, panel mode, and max cool. These initial settings will maximize system performance
4. Push the eCoolPark rocker switch to the ON position
5. Unit will run until any of the following conditions are met (default configurable parameters shown)
    a. Rocker switch is turned off
    b. Battery voltage drops below LVD (11.8 VDC for 12 V eCoolPark system)
        i. Restart at 12.5 VDC
    c. Cab air temperature sensor drops below 68 deg F (adjustable parameter)
        i. Restart at 70 deg F
    d. High side pressure goes above 275 psi
        i. Restart after 30 seconds, condenser fan will stay on
    e. Low side pressure drops below 20 psi
        i. Restart at 35 psi, condenser fan will stay on

Normal Operation:

- Indicator light solid green
- Compressor running
- Condenser fan running (or cycling)
- OE evaporator blower running
- Cold air coming from louvers in cab

If normal operation is not achieved consult the below troubleshooting sections. Specifically, if the indicator light is blinking, there is a fault in the system. Consult the fault code table.

Troubleshooting Electrical and Software Issues

Breakdown of eCoolPark Logic

1. ECU Operation – will verify proper conditions are set before running compressor/condenser
    a. Battery voltage
    b. Engine RPM
    c. Cab air temperature range
    d. Low pressure transducer range
    e. High pressure transducer range
2. Compressor Operation
    a. Cab air temp sensor – primary sensor to drive compressor
        i. Will ramp compressor based off cab temperatures
        ii. Once below cutout, a 2-degree F hysteresis is required before compressor enables again
        iii. High pressure transducer high cutout is 275 psi
    b. Low side pressure transducer – secondary sensor to drive compressor (will be primary if air temp sensor is disconnected or miss-wired)
        i. Ramps compressor between 30 and 40 psi
        ii. Low cutout is at 20 psi, compressor will restart at 35 psi

Note: Any time the compressor shuts off there is a minimum 30 seconds before the compressor will restart unless power is cycled.

3. Condenser Operation
    a. High side transducer – primary sensor to drive condenser
        i. Will ramp condenser based on high side pressure
        ii. Different ramping scheme based on which fan is in system
        iii. High pressure transducer low cutout is at 100 psi. Startup at 105 psi.
    b. Low side pressure transducer – secondary sensor to drive condenser (primary if fault in high side)
        i. Ramps condenser from 30 to 55 psi
        ii. Low pressure transducer low startup is at 35 psi

Troubleshooting Electrical and Software Issues

Voltage Checks

1. Start with the **ignition** harness and ensure power is being transmitted from the ignition harness into the main vehicle harness (from start battery add-a-fuse) – all steps should result in a reading of 12V.
    a. Check battery voltage on ignition harness relay across orange (pin 1) and black (pin 2).
        i. Possible Cause: add-a-fuse is not installed correctly, or system control ground is not connected to battery negative.
    b. If auto stop/start installed or there is an external enable, check battery voltage on ignition harness relay across purple (pin 5) and black (pin 2).
        i. Possible Cause: auto stop/start or external enable is not sending 12 V signal or system control ground is not connected to battery negative.
    c. If no auto stop/start or external enable, check battery voltage on ignition harness rocker switch across red (pin 3) and black (pin 7) – with rocker switch connected and latched to ON position.
        i. Possible Cause: wiring issue or failed rocker switch.
    d. Check battery voltage on the 6-way Deutsch connector across red (pin 1) and black (pin 5). This must be back probed while the ignition harness 6-way is mated to the main vehicle harness connector.
        i. Possible Cause: wiring issue.
2. Check the voltages at the unit by removing the connectors from the unit and probing directly into the connectors.
    a. Check for battery voltage on round Deutsch connector across small red (pin 1) and black (pin 4).
        i. Possible Cause: wiring issue.
    b. Check for power source voltage on round Deutsch connector across large red (pin 3) and black (pin 4).
        i. Possible Cause: power wires disconnected from battery or wiring issue.

Troubleshooting Electrical and Software Issues

Field Configuration Parameter Settings per System Setup

If without requested configuration file:

If the vehicle has any of the following, the configuration parameters must be changed as described below.

Vehicle has external Bergstrom enable (ex. Auto stop/start):

ConsiderEngRPM – “0 = No”
ConsiderRPMTimeout – “0 = No”
BlinkCodeEnable.Comm Timeout – “0 = No”

Vehicle has “Standard ID” CAN messaging (default is “1 = Extended ID”):

CANMessageType – “0 = Standard ID”

Vehicle CAN has 250k or 1M baud rate (default is “1 = 500K”):

CANDataRate – “0 = 250K” OR “2 = 1M”

If user does not want indicator light illuminated during vehicle engine ON (only if switch is left in ON position):

DisableIndEngOn – “1 = Disable indicator Light when engine is on”

Vehicle has older eCoolPark 24V unit (part number ending in 4442)

CondSpeedMin – “70”
CondSpeedMax – “100”
CondFanPolarity – “1 = Yes”

Troubleshooting Electrical and Software Issues

Fault Codes

Codes blink on green indicator light and rocker switch backlight

Code	Failure	Description
None	No faults – light solid green	System operation normal
1	LVD	Low Voltage Battery voltage fell below set low voltage disconnect parameter
2	Low Side Pressure Short Low/High Fault	Low side pressure transducer failure Inspect wiring or replace transducer
3	Air Temp Sensor Short Low/High Fault	Air temperature sensor short Inspect wiring or replace air temperature sensor
4	High Side Pressure Short Low/High Fault	High side pressure transducer failure Inspect wiring or replace transducer
5	Interior Cabin Temperature Too Low	Temperature in Cabin lower than setpoint temperature
6	Compressor Fault	Compressor malfunction Check refrigerant related connections and/or components (check valve direction) Call 866-204-8570
7	Condenser Fan Fault	Condenser malfunction Inspect wiring or replace fan
8	Engine Speed Timeout	Lost connection to CAN Inspect CAN jumper wiring Vehicle engine speed not reading
9	External Ambient Temperature Too Low	Ambient temperature too low
10	Compressor Lockout	Compressor seized Possible compressor failure Check refrigerant related connections and/or components (check valve direction)

Bergstrom Technical Service Line: 1-866-204-8570

Troubleshooting Electrical and Software Issues

BUSMASTER Diagnostics

If the unit still will not run after the previous steps have been completed, it may be necessary to connect to the system over the CAN-bus.

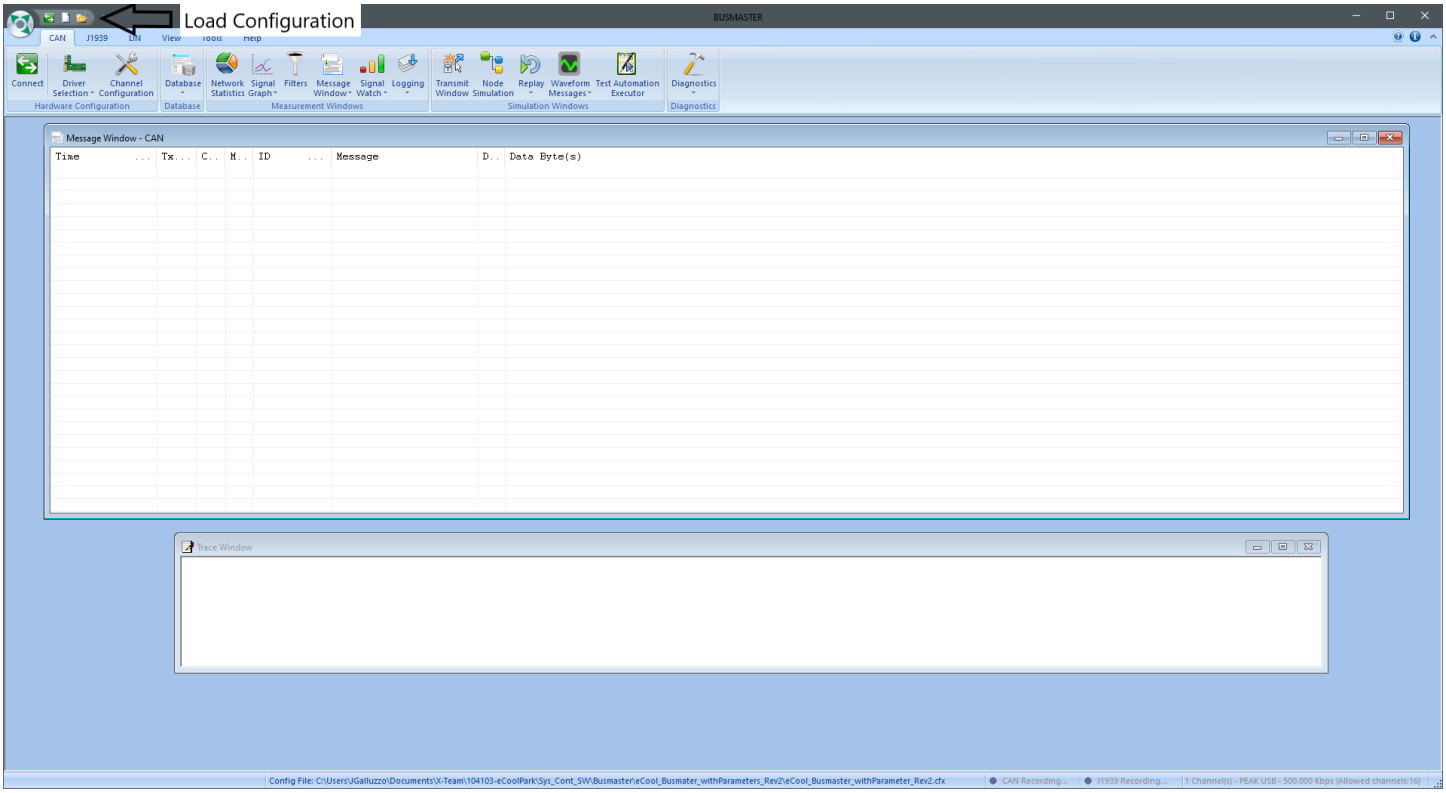
To connect to the system CAN-bus you will need the following:

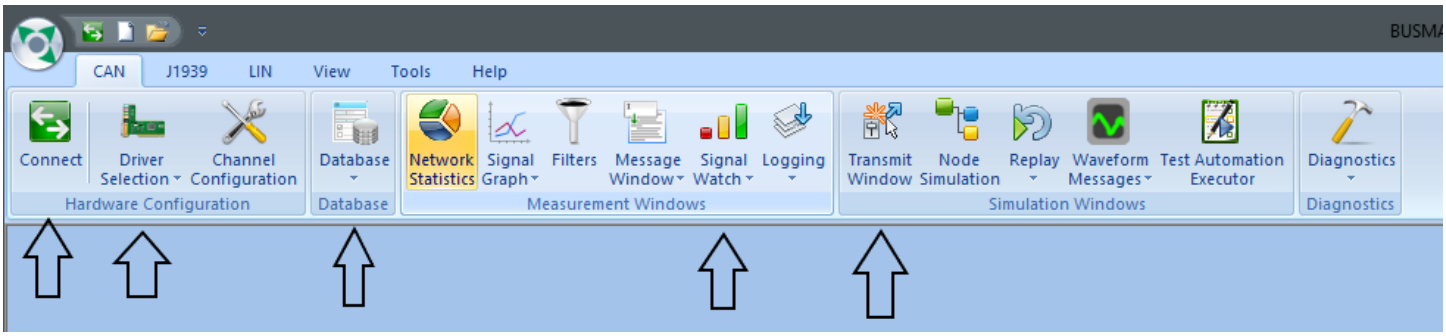
- Laptop
  - BUSMASTER installed – https://rbei-etas.github.io/busmaster/
  - PCAN-USB Drivers – https://www.peak-system.com/
- Peak PCAN-USB with termination resistors
- CAN service jumper – purchased from Bergstrom Inc.
- System power

Complete the following:

1. Connect the CAN service jumper in-between the ignition harness and the main vehicle harness
2. Connect the Peak PCAN to the service jumper and laptop
3. Open Busmaster
4. Close trace window
5. Select load
6. Select “no” on dialog window
7. Locate correct configuration file and open
8. In the ribbon, select “Driver Selection” and make sure “Peak USB” is selected
9. In the ribbon, select “Database” select “Associate”
10. Locate correct database file and open.
11. Open Signal Watch and Transmit Window
12. Signal watch will tell you everything the eCoolPark unit is monitoring and outputting
13. Use transmit window to test override of compressor and condenser

Troubleshooting Electrical and Software Issues





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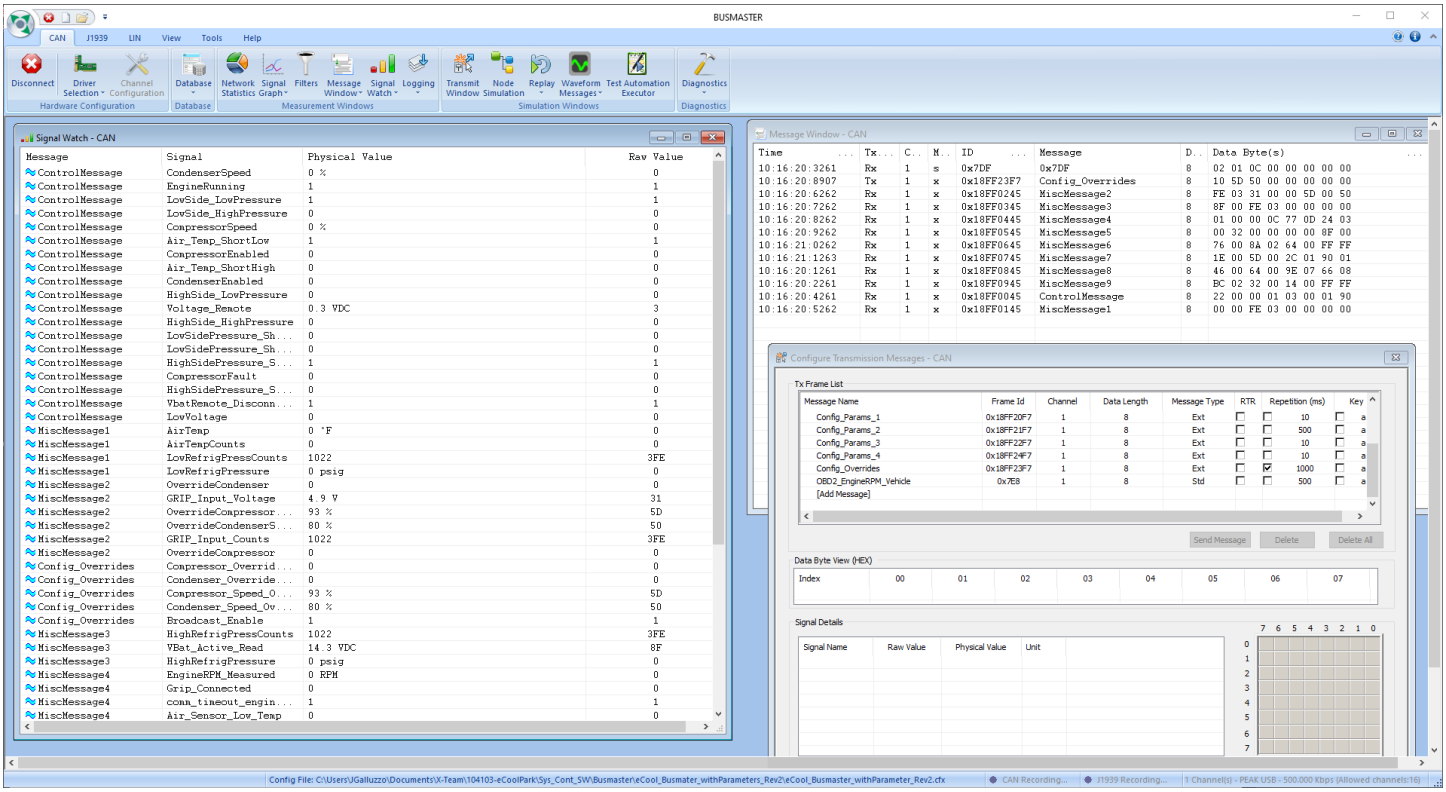
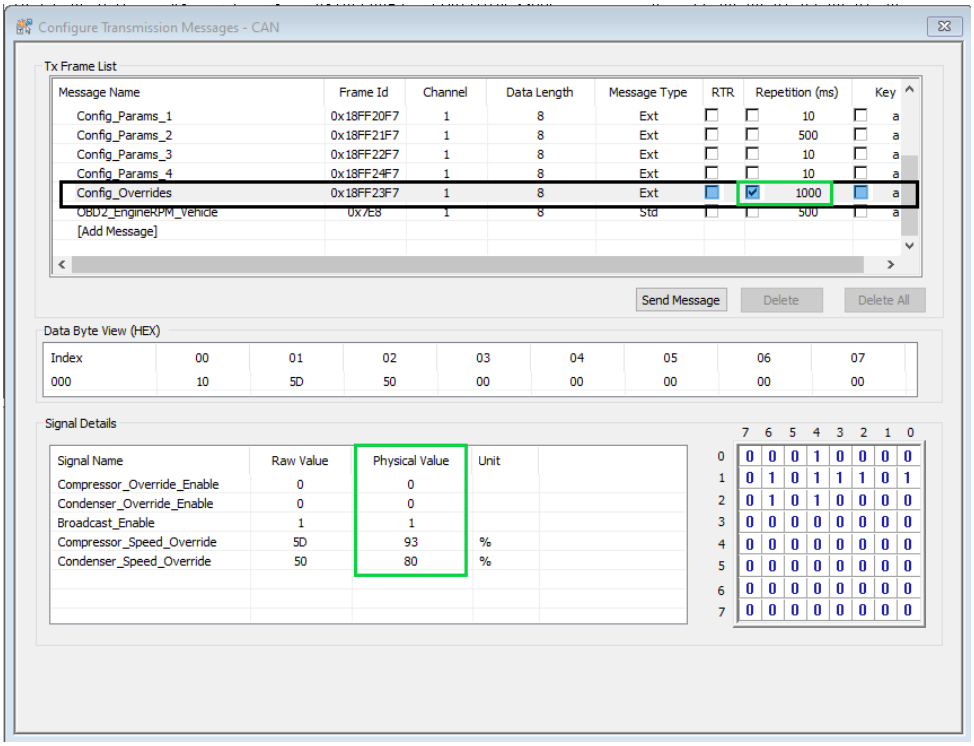
Troubleshooting Electrical and Software Issues



- Find the Config_Overrides row, select checkbox under “Repetition” column
- Under Signal Details, column “Physical Value”, change the corresponding row to a 1 to enable the compressor or condenser



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Operating Instructions

Operating instructions provided on the following pages to print and leave with driver of vehicle.

eCoolPark (engine off A/C) Operating Instructions

1. Turn vehicle engine OFF and key to RUN.
2. Set vehicle HVAC control panel to: medium blower speed, panel mode, recirculation mode, and max cool.
3. Activate eCoolPark with rocker switch (“Parked A/C”).
4. A/C system will run until:
    a. Rocker switch is turned OFF.
    b. Cab air temperature drops below set temperature (default: 68 F).
    c. Vehicle engine is turned ON.
    d. High or low side pressure cutoff is reached.

https://bergstrominc.com/us/ecoolpark-systems/ 1-866-204-8570

eCoolPark (engine off A/C) Operating Instructions

1. Turn vehicle engine OFF and key to RUN.
2. Set vehicle HVAC control panel to: medium blower speed, panel mode, recirculation mode, and max cool.
3. Activate Miller APU with “Master” rocker switch.
4. Activate eCoolPark with rocker switch (“Parked A/C”). Miller APU will go into high RPM and eCoolPark will turn on after 30 seconds.
5. AC system will run until:
    a. Rocker switch is turned OFF.
    b. Cab air temperature drops below set temperature (default: 68 F).
    c. Vehicle engine is turned ON.
    d. High or low side pressure cutoff is reached.

https://bergstrominc.com/us/ecoolpark-systems/ 1-866-204-8570