



Carter Machinery EMCP RETROFIT PROGRAM Standard Door-Box Kits & Accessories

FEB. 2019

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AGENDA

- Sales & Engineering Support
- Upgrade Kit Descriptions- STD/Custom
- Accessory Kit Options
- EMCP4 Part# update & supply issues
- Questions

RETROFITS

- Carter PSD Engineering- Generator control panel retrofit and engineering solutions since 2012.
- Major shift beginning in 2014
 - Production approach with a standard product, documentation, drawings, and processes
 - Currently supporting 37 Caterpillar dealers nationwide
 - Over 800 kits have been completed to date
- Carter Engineering Team Additions
 - 2 System Engineers (Matt Nolan & Tommy Coburn)
 - Administrator & logistics coordinator (Michelle Crowder)
 - College Engineering Intern (Mark Nuckols)
- Focus- CAT mechanical and electronic engine/generator applications with outdated or obsolete controls.

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RETROFITS CONT.


- Competitor Gensets- EMCP4.x solutions for Cummins, Kohler, Detroit Diesel, Katolight, etc....
- Other Control Platforms- Woodward, Basler, DEIF and Auto Maskin Marine
- Dealer friendly, plug & play style kits.
- EMCP4 Kits: Over 20 available options
 - EMCP 4.x door panel kits are available in various sizes and models.
 - EMCP 4.x complete box kits are available in the following standard sizes: 14x22, 14x27, 14x30, 17x28 & 17x11
 - EMCP4.x available in both local and remote configurations
 - Carter kits are compatible with all previous EMCP versions and with CAT Electro-mechanical controllers.
 - Custom configurations are available for anything ranging from a single generator to a paralleled system

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Site Survey

CAT Control Panel Retrofit Site Survey		Carter 	
Carter Machinery Co., Inc.			
Location			
Customer Name:		Site Name:	
Address:		City:	
State:		Zip Code:	
Main Contact:		Telephone No.:	
Alt. Contact:		Telephone No.:	
Product Information			
Package Serial No.:		Generator Model:	
Engine Serial No.:		Kilowatts:	
Engine Model:		KVA:	
Installation Type:		Voltage:	
Voltage Regulator Type:		Amps:	
Controls Info:			
Control Panel Installed:		CIM Module Installed:	
Control Panel Model:		CCM Module Installed:	
CP Box Measurements W x H:		Local Ann. Installed:	
CP Door Measure W x H:		Rem. Ann. Installed:	
Customer BAS Requirements:		Remote Ann. Qty:	
Fuel Level Sensor Type:		Rem. E-Stop Installed:	
SWGR/ATS Information			
Switchgear Manufacturer:		ATS Manufacturer:	
SWGR Closed/Open Transition:		ATS Controller Type:	
Does CP Communicate w/SWGR:		ATS Qty:	
Take pictures of control panel inside/outside, genset and any accessory modules.			
Comments & Recommendations			
Customer Acceptance			
<i>Start-up and commissioning is complete within factory standards.</i>			
Customer Rep. Signature:		Date:	
Technician Signature:		Date:	

Technicians or PSSR's complete our site survey to determine which kit and what accessories are needed to meet each customer's specific application.

Quotes and Budgets are then produced, based off of this information to provide you with the most accurate solution.

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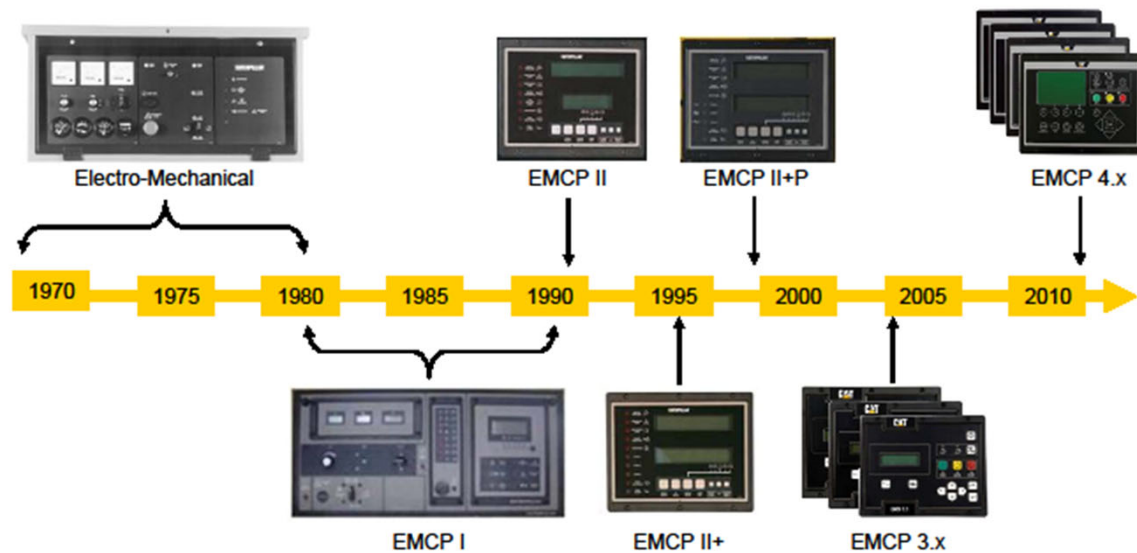


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CAT Genset Controls History

EMCP Evolution

One powerful future.



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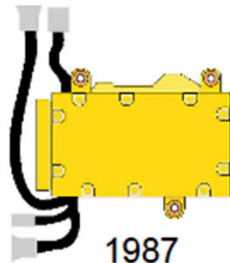


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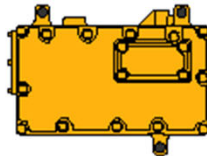
CAT Genset Engine ECM History

ADEM 4 Electronic Engine Control

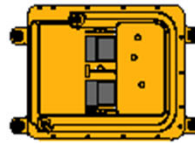
Generations of Experience



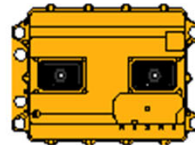
1987
8-bit
PEEC II



1991
Advanced
8-bit
PEEC III



1993
Two 8-bit
ADEM II



1998 32-bit
ADEM III



2004 32-bit
ADEM 4

Proven Reliability

CATERPILLAR®

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CARTER-EMCP 4.2b DOOR ASSEMBLY KIT

- EMCP 4.2b door kits are typically kept in stock and are available in the following sizes:
 - 12x27 (EMCP4B-KIT-12X27) Price starts at: \$5665.00
 - 14x30 (EMCP4B-KIT-14X30) Price starts at: \$5665.00
 - 12x38 (EMCP4B-KIT-12X38) Price starts at: \$5665.00
- Standard kit contents:
 - EMCP 4.2b, local annunciator, emergency shutoff switch, lights, voltage potentiometer, speed potentiometer, CDVR switch, and CAN plugs wired on door assembly with 6ft harness
- Loose parts:
 - Low coolant level sensor, water temp sensor, oil pressure sensor, terminal blocks, fuse holders, fuses, miscellaneous connectors, panduit, dinrail, relays, and drawings



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CARTER-EMCP 4.2b DOOR INSERT KIT

- EMCP 4.2b custom insert kits are typically kept in stock and are available in two styles: (Older 3208, 3406 and 3116 Gensets)
 - 12x27 (EMCP4-CUSTOM-12X27) Price starts at: \$5665.00
 - 12x27 Angled Price starts at: \$5665.00
- Standard kit contents:
 - EMCP 4.2b, local annunciator, emergency shutoff switch, lights, voltage potentiometer, speed potentiometer, CDVR switch, and CAN plugs wired on door assembly with 6ft harness
- Loose parts:
 - Low coolant level sensor, water temp sensor, oil pressure sensor, terminal blocks, fuse holders, fuses, miscellaneous connectors, panduit, dinrail, relays, and drawings



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CARTER-EMCP 4.3 DOOR ASSEMBLY KIT FOR EUI/MUI ENGINES

- EMCP 4.3 door kits are made to order with one week lead times and are available in the following sizes:
 - 12x27 (EMCP43-KIT-12X27) Price starts at: \$9300.00
 - 14x30 (EMCP43-KIT-14X30) Price starts at: \$9300.00
 - 12x38 (EMCP43-KIT-12X38) Price starts at: \$9300.00
- Standard kit contents:
 - EMCP 4.3, local annunciator, emergency shutoff switch, lights, voltage potentiometer, speed potentiometer, CDVR switch, and CAN plugs wired on door assembly with 6ft harness.
 - The EUI kits are usually paired with a CDL converter in order to read full engine telemetry via the engine's existing ECM, eliminating the need for installing new sensors
- Loose parts:
 - Low coolant level sensor, water temp sensor, oil pressure sensor, terminal blocks, fuse holders, fuses, miscellaneous connectors, panduit, dinrail, relays, RJ45 Ethernet port, and drawings.



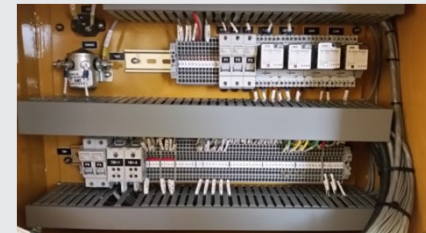
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CARTER- EMCP 4.2B 14X22 BOX KIT

- EMCP 4.2 / 4.2b 14x22 boxes are typically kept in stock
 - 14x22 (EMCP4-BOX-14X22) Price starts at: \$6000.00
- Standard kit contents:
 - EMCP 4.2 (4.2b), emergency shutoff switch, lights, voltage potentiometer, speed potentiometer, CDVR switch, SMMS solenoid, and CAN plugs fully wired to terminal blocks and fuse holders inside box
- Loose parts:
 - Low coolant level sensor, water temp sensor, oil pressure sensor, MPU, miscellaneous connectors, and drawings
- This kit provides a space sensitive solution without a local annunciator but retains an alarm function through the installed horn.



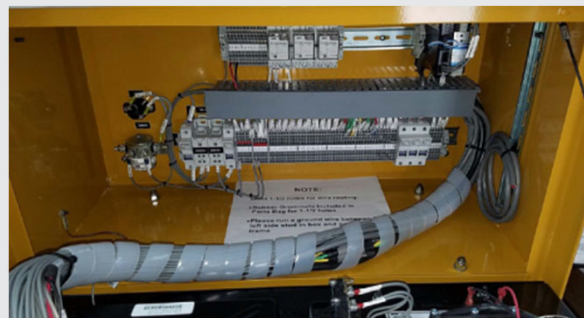
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CARTER- EMCP 4.2B 14X27 BOX KIT

- EMCP 4.2b 14x27 boxes are typically kept in stock
 - 14x27 (EMCP4-BOX-14X27) Price starts at: \$6625.00
- Standard kit contents:
 - EMCP 4.2 (4.2b), local annunciator, emergency shutoff switch, lights, voltage potentiometer, speed potentiometer, CDVR switch, and CAN plugs fully wired to terminal blocks and fuse holders inside box
- Loose parts:
 - Low coolant level sensor, water temp sensor, oil pressure sensor, MPU, miscellaneous connectors, and drawings



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CARTER- EMCP 4.2B 14X30 BOX KIT

- EMCP 4.2b 14x30 boxes are typically kept in stock
 - 14x30 (EMCP4B-BOX-14X30) Price starts at: \$6885.00
- Standard kit contents:
 - EMCP 4.2b, local annunciator, emergency shutoff switch, lights, voltage potentiometer, speed potentiometer, CDVR switch, and CAN plugs fully wired to terminal blocks and fuse holders inside box
- Loose parts:
 - Low coolant level sensor, water temp sensor, oil pressure sensor, MPU, miscellaneous connectors, and drawings



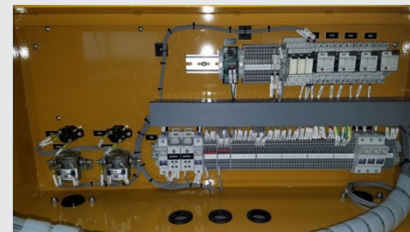
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CARTER- EMCP 4.3 14X30 BOX KIT (MUI AND EUI)

- EMCP 4.3 14x30 boxes are typically kept in stock
 - 14x30 (EMCP43-BOX-14X30) Price starts at: \$10,570.00
- Standard kit contents:
 - EMCP 4.3, local annunciator, emergency shutoff switch, lights, voltage potentiometer, speed potentiometer, CDVR switch, RJ485 Ethernet port, and CAN plugs fully wired to terminal blocks and fuse holders inside box
- Loose parts:
 - Low coolant level sensor, water temp sensor (MUI), oil pressure sensor (MUI), CDL booster (EUI), MPU, miscellaneous connectors, and drawings
- EUI kits are usually paired with a CDL converter in order to read full engine telemetry via the engine's existing ECM, eliminating the need for installing new sensors



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CARTER- EMCP 4.4 14X30 BOX KIT (MUI AND EUI)

- EMCP 4.4 14x30 boxes are typically kept in stock- Price starts at: \$11,570.00
 - EMCP44-BOX-14X30
 - EMCP44-BOX-18X28
- Standard kit contents:
 - EMCP 4.4, local annunciator, emergency shutoff switch, lights, voltage potentiometer, speed potentiometer, CDVR switch, RJ45 Ethernet port, and CAN plugs fully wired to terminal blocks and fuse holders inside box
- Loose parts:
 - Low coolant level sensor, water temp sensor (MUI), oil pressure sensor (MUI), CDL booster (EUI), MPU, miscellaneous connectors, and drawings
- EUI kits are usually paired with a CDL converter in order to read full engine telemetry via the engine's existing ECM, eliminating the need for installing new sensors



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CARTER- EMCP 4.2B UNIVERSAL BOX KIT

- EMCP 4.2b Universal boxes are typically kept in stock
 - (EMCP4-OLY-GNRC-KIT) Price starts at: \$3165.00
- Standard kit contents:
 - EMCP 4.2b, emergency shutoff switch, voltage potentiometer, and CAN plug fully wired to terminal blocks and fuse holders inside box
- Loose parts:
 - Water temp sensor, oil pressure sensor, MPU, miscellaneous connectors, and drawings
- This kit provides a space sensitive solution for CAT and competitor's generators (Kohler, Generac, Cummins, Katolight) without a local annunciator but retains an alarm function through the installed horn. Local annunciator options are available to pair with this kit.



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CARTER- EMCP 4.2B OLYMPIAN DOOR KIT

- EMCP 4.2b Olympian doors are typically kept in stock
 - 2001 door (EMCP4-KIT-OLY-2001) Price starts at: \$2800.00
 - 2001 plate (EMCP4-KIT-OLY-2001) Price starts at: \$2800.00
 - 4001E door (EMCP4-KIT-OLY-4001E) Price starts at: \$2800.00
- Standard kit contents:
 - EMCP 4.2B, emergency shutoff switch, voltage potentiometer, and CAN plug pre-wired on provided door
- Loose parts:
 - Water temp sensor, oil pressure sensor, MPU, miscellaneous connectors, and drawings



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CARTER- EMCP 4.2B 3406 AND 3456 DOOR KIT

- EMCP 4.2b 3406 and 3456 door kits are made to order with one week lead times:
 - 3406/3456 Price starts at: \$5665.00
- Standard kit contents:
 - EMCP 4.2b, emergency shutoff switch, voltage potentiometer, local annunciator, and CAN plugs pre-wired on provided door
- Loose parts:
 - Low coolant level sensor, water temp sensor, oil pressure sensor, terminal blocks, fuse holders, fuses, miscellaneous connectors, panduit, dinrail, relays, and drawings



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CARTER- EMCP 4.2B ONAN/CUMMIS POWER COMMAND KIT

- EMCP 4.2b Onan/Cummins box kits- Made to order with one-two week lead times
 - Cummins Retrofit Kit Price starts at: \$9250.00
- Standard kit contents:
 - EMCP 4.2b, emergency shutoff switch, voltage potentiometer, local annunciator, and CAN plugs pre-wired in a box assembly kit with Woodward PT Governor Board
- Loose parts:
 - VR6 Voltage Regulator, Low coolant level sensor, water temp sensor, oil pressure sensor, terminal blocks, fuse holders, fuses, miscellaneous connectors, panduit, dinrail, relays, 10ft harness to go between new panel and rear gen box and drawings.



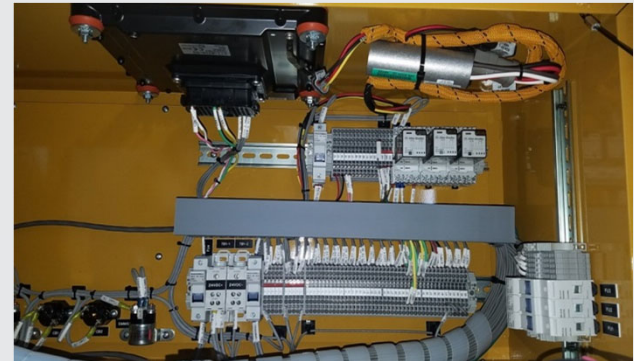
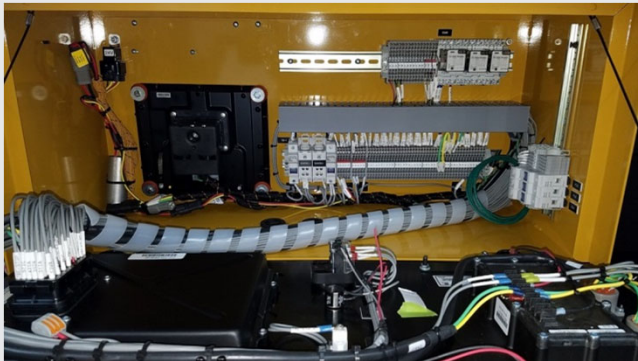
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CARTER - CAT A5 CDL-J1939 CONVERTER

- A5 ECM (CDL to J1939 converter option)
- Kit allows communication with an existing ADEM II engine ECM over the CAN network utilized by EMCP 4 series.
 - When ordered with a box kit, this option will be fully installed in one of two locations, depending on installed components.
 - Kit is also available with door kits as a loose part that has been flashed and tested to ensure proper communication.
 - Both options include VLPM harness, required fuses, relays, and surge suppressors.
 - Price of kit addition: \$1600.00



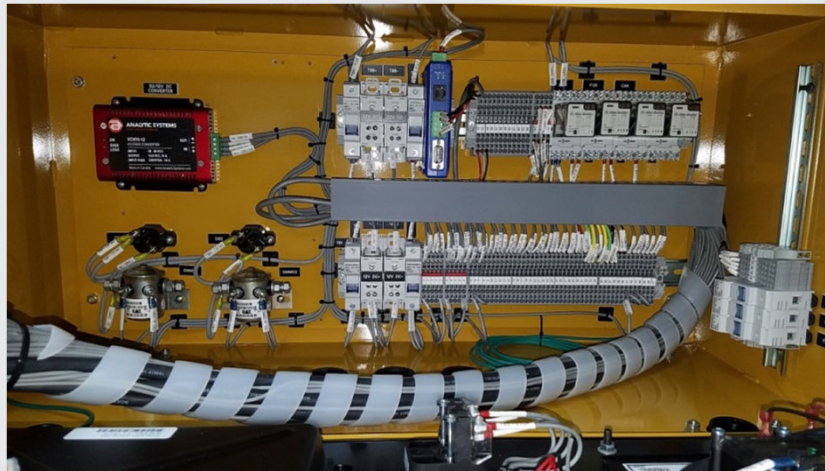
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CARTER – EMCP4 RETROFIT WITH 32V CONVERSION-D300 Series

- 32V Converter option for EMCP kits
 - This conversion provides a step down from 32V batteries for the EMCP kits ordered for D300 series engines.
 - Kit Pricing Starting at: \$7300.00



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CARTER – ANNUNCIATOR PLATE KIT

- Replacement annunciator plate kits
 - This kit provides a replacement for existing remote Modbus annunciators while utilizing the existing boxes from previous installations.
 - Price of kit addition: \$800.00



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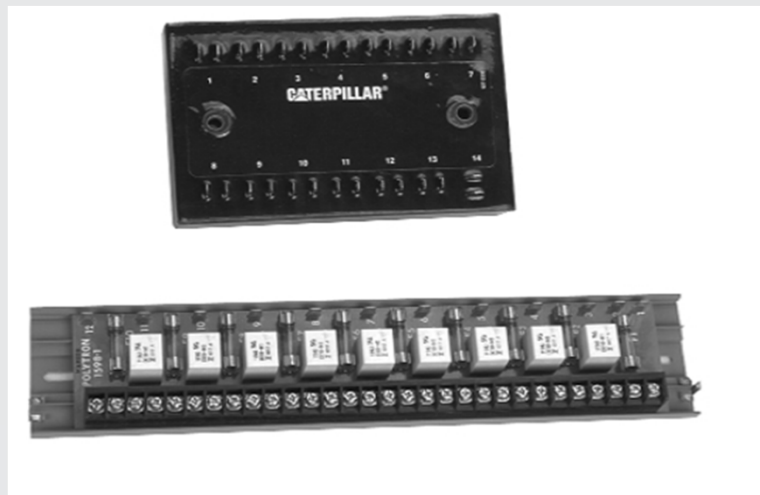
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CARTER – DIO MODULE KIT

- Complete DIO module kit
 - This kit provides the components for a DIO module and the required terminals for wires included on the provided harness. Drawing included as well.
 - Price of kit addition: \$1600.00



Existing (CIM) Customer Interface Module



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CARTER – CDVR Voltage Regulator KIT

- Complete CDVR kit
 - This kit provides the components for a CDVR module and the required terminals for wires included on the provided voltage regulator harness. Drawing included as well.
 - Price of kit addition: \$2450.00



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CARTER – RS485 TO ETHERNET CONVERTER KIT

- Ethernet gateway kit
 - This kit provides the components for a Modbus RS485 RTU to TCP/IP Ethernet.
 - The Gateway is programmed with a provided IP address during testing prior to shipment.
 - Price of kit addition: \$650.00



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CARTER – Accessory Kits

1. Starter Motor Mag Switches
2. Local Annunciator Panel Kits
3. Remote Annunciator Panel and Plate Kits
4. DIO Module Kit
5. RTD Module Kit
6. Thermocouple Module Kit
7. Modbus to Ethernet, Modbus to Bacnet, Modbus to SNMP Converter Kits
8. CDVR Voltage Regulator Kit
9. VR6 Voltage Regulator Kit
10. IVR EM10 & EM15 Voltage Regulator Kits
11. Woodward 2301A, 1724, 2301E, LSM, Easygen, DIEF, Etc...
12. CAT CDL to J1939 Protocol Converter
13. Wiring Harness Kits
14. Current Transformer
15. Potential transformer
16. CAT PL1000 Kits- custom communications
17. Carter- Comm-Connect Touchscreen Interface

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Questions?

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