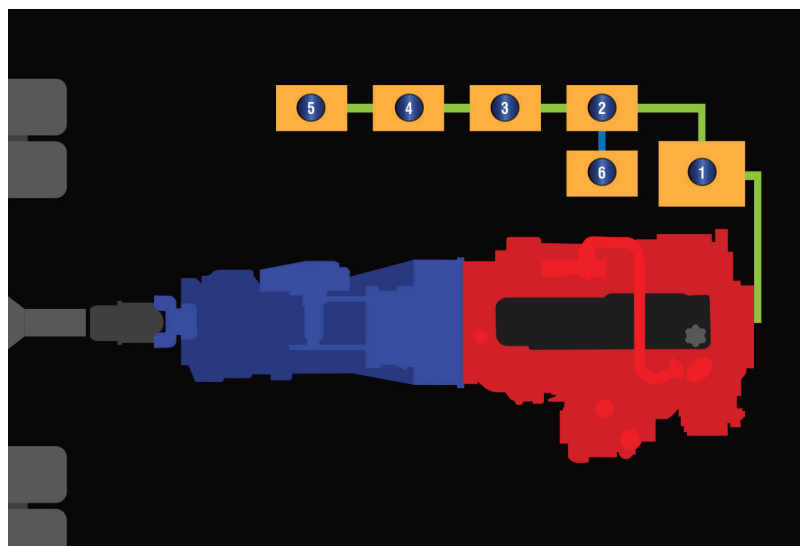


# Total Accessory Electrification

CNG and Clean-diesel buses can have electrical accessories with Vanner Inc.



## INDEPENDENCE SYSTEM OVERVIEW

- 1 **GENERATOR PRODUCES >45 kW OF POWER**
- 2 **EXPORTABLE POWER INVERTER-DUAL (VEPI-DUAL)**  
 Manages power to variable voltage and variable frequency accessories
- 3 **HYBRID BELTLESS ALTERNATORS (HBA's)**  
 Manages power to 28 Vdc accessories
- 4 **VANNER EQUALIZER WITH MBBM**
- 5 **CONTROLLER**
- 6 **WEG COOLING SYSTEM**

1984, when engine and transmission manufacturers introduced 12 volt electronic control on 24 volt buses, a device was needed to equalize the 12/24 volt batteries. Vanner invented and introduced the legendary Vanner Equalizer. Today it is on a majority of buses and coaches.

In 2010 Vanner introduced a 600VDC to 24VDC solid-state DC to DC Converter for hybrid and battery buses. It too is now legendary and has a nicknamed the Hybrid Beltless Alternator. It eliminates belt-driven alternators.

Today, we are delivering total accessory electrification on hundreds of buses with Allison Hybrids to SEPTA-Philadelphia.

Independence, by Vanner, is total accessory electrification for CNG and clean-diesel buses. We brought together a Team made up of legendary transmission and bus designers, major transit engineer along with the Vanner Team. Independence has successfully demonstrated total accessory power over 45 kW (enough for a 60-foot articulated bus) with efficiencies nearly equal to hybrids. Why is this important? Electrifying accessories removes them

from the engine and is the enabler to run accessories electrically at their optimum speed. Further, significant maintenance savings with high efficiency accessories, elimination of v-belts and eliminating hydraulic fluids from the engine compartment. Fuel economy improvement is also realized.

**Visit Vanner in booth 310 at the APTA 2018 Bus and Paratransit Conference May 6-9, 2018 and get your INDEPENDENCE.**

“It would be a game-changer if Vanner could offer total accessory electrification on CNG and clean-diesel buses.”

– Vanner’s Transit Partners

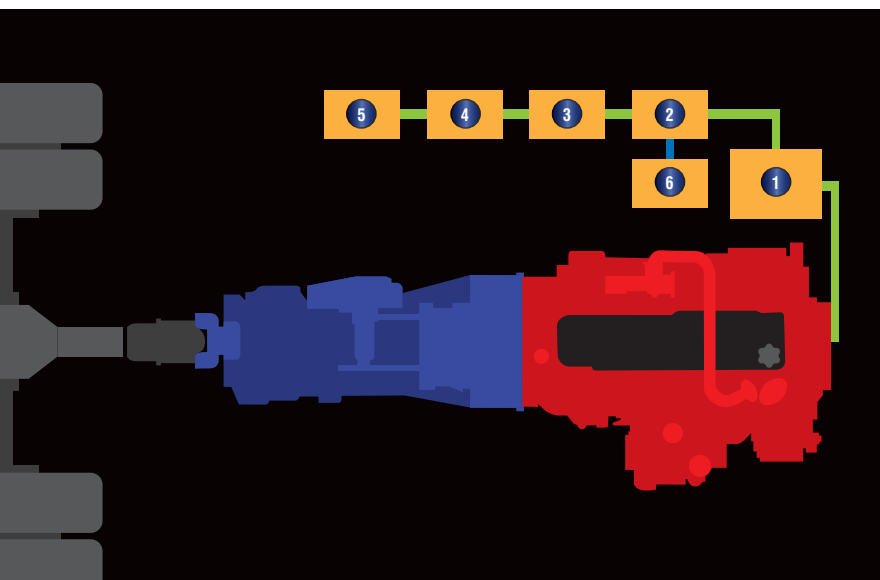
## INDEPENDENCE FEATURES

- >45 kW HD industrial generator
- Low tension, single-belt-drive system that eliminates multiple belts, pulleys and mechanical parasitic accessories
- Individual electrically powered components for simplified servicing
- Bi-directional DC to DC converter (foundation for stop-start and engine off)
- Up to 600 amps charging capacity
- Dynamic charging of house batteries based on SOC and SOH with Vanner’s proprietary Model Based Battery Monitoring
- Use with Allison Transmission’s FuelSense® 2.0 Max to save even more fuel

# ELECTRIFYING

THE WAY BUS AND COACH ACCESSORIES ARE POWERED

**INTRODUCING INDEPENDENCE FROM VANNER.** This simple, compact system designed for CNG and diesel-powered transit buses and coaches provides the majority of the benefits of hybrid and battery-powered buses without the upfront costs and expensive hybrid battery replacement, plus greatly reducing operational and maintenance costs. If you're ready to declare independence from conventionally driven accessories and transform your bottom line, contact us at 1.800.AC POWER (1.800.227.6937). To learn more, visit [vanner.com](http://vanner.com).



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VISIT US AT THE APTA SHOW IN BOOTH #310

[vanner.com](http://vanner.com) • [@VannerInc](https://twitter.com/VannerInc) • 800-AC POWER (800-227-6937)

For more information, visit [www.MassTransitmag.com/10066299](http://www.MassTransitmag.com/10066299)

**VANNER**<sup>®</sup>  
EXPERIENCE POWER. EXPERIENCE VANNER.