

Let Northwest Rail Electric help you with all your passenger railcar systems needs. Starting with power generating, hotel services, power distributing and power management, our extensive experience in passenger car systems can solve the most difficult problems. Allow us to show you how you can accomplish more with less generating and distribution capacity, saving fuel and capital.

We also excel at heating, ventilation and air conditioning systems: HVAC control systems to keep your passengers comfortable from Alaska and Canada in the winter to Arizona and Florida in the summer. In addition to temperature comfort our systems can also maintain humidity to keep your dome windows clear and provide further comfort for your passengers.

Our automation systems allow automatic transfer and control of critical systems when part of the power system shuts down.

# Northwest Rail Electric Generator and Power Controls For Providing HEP Trainline Power

## NW-GC155 series of Generator Controls

Designed to Provide a Headache-Free Control and Monitoring System for an Under-Car or other Railroad Car Mounted Generator.



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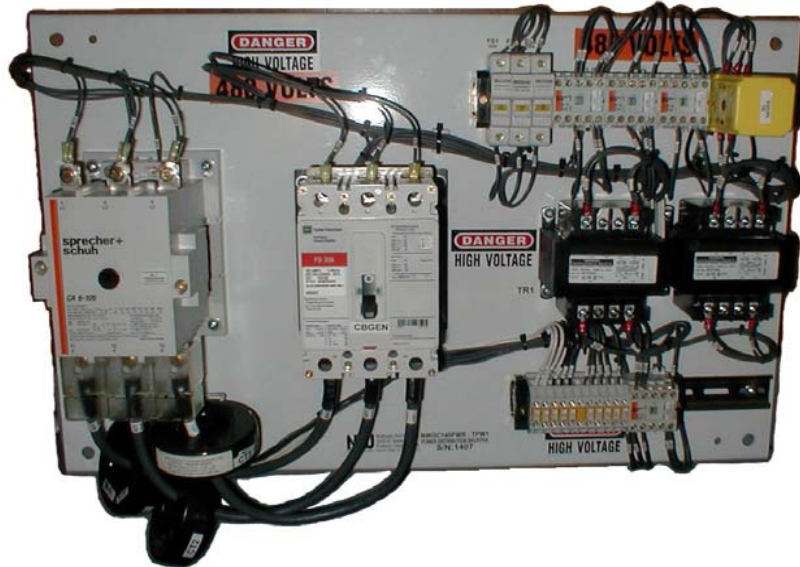
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## The NWGC 155 Series:

This series of generator controls is designed for a small power car. Unlike the NW-GC500 series the control system only provides power to the HEP system, so that if the car is operating by itself the HEP trainline must still be energized as the power is provided directly to the HEP system.

## Features of the NW-GC155 Series:

- **Components labeled to permit easy maintenance**



- **Generator Engine Controls:**
  - Generator Control Breaker, functions as the master on and off for the engine electrical system.
  - Engine Control switch for selecting on or off. The engine preheat system will automatically start and operate, and then the engine will automatically start and run. Engine cool-down is also automatic after operation.
- **Generator Engine Indicators:**
  - Hour Meter
  - 12 Volt Engine Alternator Meter
  - Coolant Water Temperature
  - Oil Pressure
  - Engine Preheat Indicator
  - Engine Started Indicator

- Engine Alternator Indicator
- Engine Overcrank Indicator - Indicates that an attempt to start the engine was made, but due to an engine or fuel related problem it would not start
- Generator will automatically shut down due to various faults:
  - Low Oil Level - Time Delay Controlled to Prevent Engine from shutting down due to sloshing caused by train motion
  - Low Coolant Level - Time Delay Controlled to Prevent Engine from shutting down due to sloshing caused by train motion



- Low Oil Pressure - Time Delay Controlled to Prevent Engine from shutting down due to sloshing caused by train motion
- High Water Temperature
- Engine Overspeed

Versions with electronic engine controllers (photo on cover) have the ability to record engine faults and display a wide variety of engine operating data.

Versions for engines with relay contacts only are available (left).

- **Generator Output:**
  - 0-600 volt AC Volt meter
  - 0-200 ampere AC Amp meter
  - Optional Frequency meter
  - Optional Ground Fault Detection and Trip System
  - Indicators for HEP Control Loop and Contactor Closed
- **HEP and HEP Feed:**
  - HEP "Feed Off", "Loop Test", and "Feed On" switch
  - "Trainline Loop Complete" Indicator light provided in most cases.
  - The HEP Feed switch is normally left in the "Feed Off" position. If it is desired to feed the HEP trainline with the on-car generator, the switch is turned to the "Loop Test" position. The loop test indicator will light if the control loop is complete between all the cars (that is, all of the car to car power cables are connected properly). The switch may then be turned to "Feed On", which will feed power from the generator to the other cars on the train.