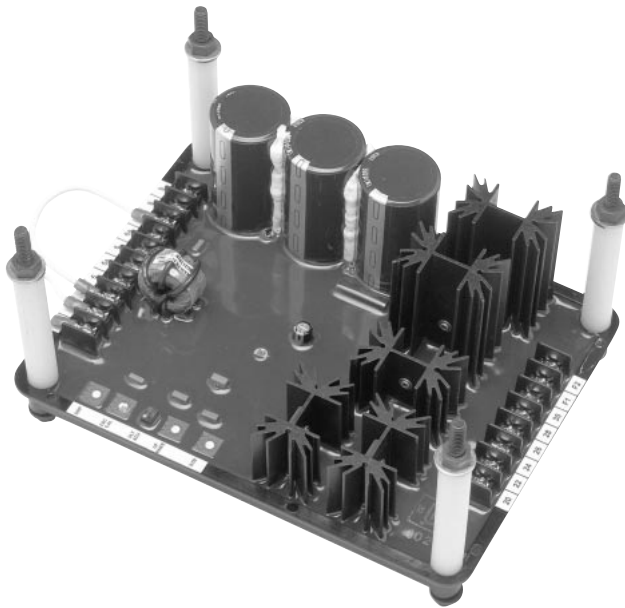


AUTOMATIC VOLTAGE REGULATOR VR6 - B

CATERPILLAR[®]



FEATURES

- For use with Self-Excited (SE) and Permanent Magnet Excited (PM) generators
- Regulation better than $\pm 1.0\%$
- V/Hz and 2 V/Hz frequency compensation
- Over excitation shutdown
- Solid state voltage buildup
- Three phase or single phase sensing — standard
- Compact package size
- Moisture proof assembly
- Mechanically rugged
- Fast response time
- Adjustable knee frequency (45 Hz to 65 Hz)
- Stability adjustment
- Complete line of accessories available

SPECIFICATIONS

- Regulation
Less than $\pm 1\%$ no load to full load
- Regulator drift
Less than $\pm 1/2\%$ steady state
- Temperature drift
Less than $\pm 1\%$ for any 40° C change over the operating temperature range
- Regulator response
Less than 4 milliseconds
- Regulator sensing
Three phase or single phase available on SE and PM generators
- Regulator stability
Regulator responds to the fundamental component of the sensed voltage and remains stable for total harmonic distortion of the generator output voltage waveform up to 20%.
- Regulator filtering
Telephone Influence Factor (TIF) less than 50. Optional filtering packages available to comply with MIL STD 461B Part 9 and VDE 85 level N.
- Harmonic tolerance
The AVR will maintain precise control of the generator output with up to 20% harmonic distortion in the generator output voltage.
- Voltage adjust range
-25% to 10% of nominal
- Regulator build-up voltage
Regulator will build up with the generator output voltage as low as 6 VAC when used with SE generators. No minimum requirement when used with PM generators.
- Regulator start-up voltage
Voltage overshoot at full throttle engine starting will not exceed 5% of rated value.
- Frequency compensation
Voltage is linearly proportional to frequency for 8 Volts/Hz or 16 Volts/Hz below knee frequency. Knee frequency is adjustable from 45 Hz to 65 Hz. This provides matched engine/generator performance for improved block load performance.
- Reactive droop adjustment
Adjustable from 0% to 10% at rated input current (1A or 5A)

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SPECIFICATIONS *(continued)*

- Over excitation protection
Shuts off generator output when excitation exceeds the nominal values:

Shutoff Valve	Shutoff Time
90 VDC	90 seconds
125 VDC	10 seconds

- Ambient operating temperature: -40° C to +70° C
- Storage temperature range: -40° C to +85° C
- Power dissipation: 50 watt (max)
- Shock: Withstands up to 20 g's
- Vibration: Withstands 0.5 g's at frequencies between 18 and 2000 Hz in three mutually perpendicular planes.
- Weight: 1.8 kg

SUMMARY OF OPERATING PARAMETERS

- Voltage rating: 240 VAC (480V and 120V sensing transformer kits available)
- Generator excitation: SE or PM
- Power input
SE: 180-264 VAC, single or three phase, 50/60 Hz
PM: 63-105 VAC, three phase,
PMG 3125 VA maximum
- Output rating: 12 ADC @ 65 VDC maximum continuous 25 VDC @ 125 VDC forcing for 10 seconds
- Reactive droop input: 1A or 5A. At maximum rated current droop is adjustable up to 10%. Maximum droop is proportional to current. Proper droop current transformer sizing is essential to correct operation of this feature.
- Exciter field resistance: 3 to 10Ω

STANDARD ACCESSORIES AVAILABLE

- Series boost
Able to sustain the generator output at 300% rated current for a minimum of ten seconds. Not required for PM.
- The voltage regulator can be used with an external device (KVAR/PF controller) to control either the generator output KVAR or PF.
- Remote voltage adjust
Controls voltage level with a 10 kΩ, 1 watt remotely mounted rheostat.
- Manual voltage control
Permits manual regulation of the generator output in the event of a regulator failure.
- Paralleling
A reactive droop network consisting of a current transformer, and wiring harness allows generator to be paralleled with other generators either in reactive droop or cross current compensation (zero droop) modes.
- Stability adjustment
Adjustment allows the quickest response time to block loading while maintaining steady state stability.
- UL508A: Recognized
- CSA Certified
- CE Conformity: See "Physical Specifications"

PHYSICAL SPECIFICATIONS

CE CONFORMITY

Conforms to:

Radiated emissions EN50081-2

Radiated Immunity:

Electric field..... EN61000-4-3 (10 v/m)

Conducted..... EN61000-4-6 (10 VRMS)

Conducted emissions..... EN50081-2 (EN55011, Class A)

ESD immunity EN50082-2 (4 KV contact, 8 KV air)

EFT immunity..... EN50082-2 (2 KV coupling clamp)

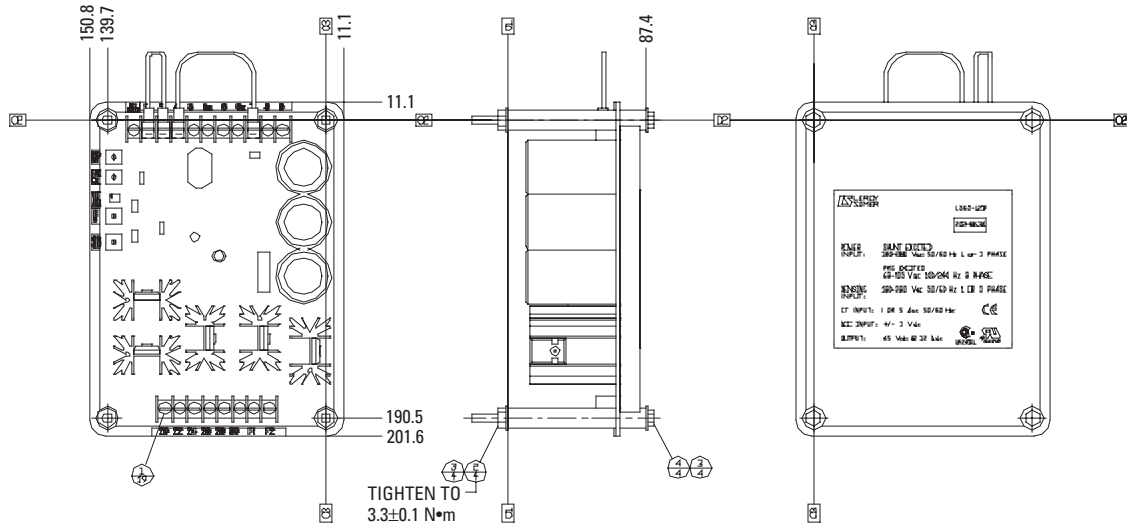
Magnetic immunity..... EN50082-2 (30ARMS, 50 Hz)

Safety..... EH61010-1

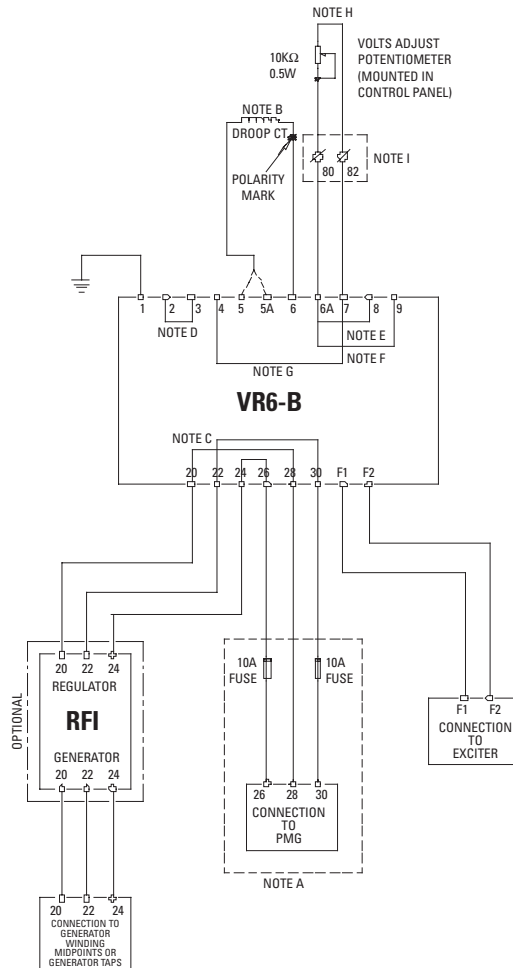
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OUTLINE DRAWING



CONNECTION DIAGRAMS



For a complete listing of connection diagrams, see VR6-B Service Manual.

**A U T O M A T I C V O L T A G E
R E G U L A T O R
V R 6 - B**



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Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.