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**INSTRUCTION MANUAL
FOR
VOLTAGE REGULATOR
Model: AVC63-2.5
Part Number: 9 3183 00 101**

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BASLER ELECTRIC,**BOX 269,****HIGHLAND, IL 62249****PHONE 618/654-2341****FAX 618/654-2351****INTRODUCTION**

The AVC63-2.5 Voltage Regulators are designed for use on 50/60 Hz brushless generators. The regulator includes frequency compensation, a solid-state build-up circuit, EMI filtering, and remote adjust capability.

Warning

To prevent personal injury or equipment damage, only qualified technicians or operators should install, operate, or service this device.

ELECTRICAL SPECIFICATIONS**Dc Output Power:**

2.5 Adc at 63 Vdc (157.5W) maximum continuous,
3.97 Adc at 100 Vdc (397W) forcing one minute
(at 240 Vac input).

Exciter Field Dc Resistance:

25.2 ohms minimum.

Ac Power Input:

Operating range: 171 to 264 Vac, $\pm 10\%$,
Single phase, 50/60 Hz, Burden: 350 VA.

Sensing Input:

171-264 Vac, $\pm 10\%$, Single phase, 50/60 Hz,
Burden: 350 VA.

Regulation Accuracy:

Better than $\pm 1.0\%$ no load to full load.

EMI Suppression:

Internal electromagnetic interference filter
(EMI filter).

Voltage Build-up:

Internal provisions for automatic voltage build-up from generator residual voltages as low as 10 Vac.

Terminations:

1/4 inch "Fast-On" terminals.

PHYSICAL SPECIFICATIONS**Operating Temperature:**

-40°C (-40°F) to $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$).

Storage Temperature:

-40°C (-40°F) to $+85^{\circ}\text{C}$ ($+185^{\circ}\text{F}$).

Vibration:

Withstands 1.5 Gs at 5 to 29 Hz; 0.036" double amplitude at 29 to 52 Hz; and 5 Gs at 52 to 500 Hz.

Shock:

Withstands up to 15 Gs in each of three mutually perpendicular axes.

Weight:

3.8 oz. (0.107 kg) Net.

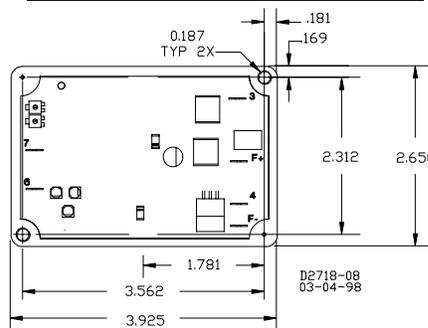
FUSES

It is recommended that fuses with high interruption capability be installed per the interconnection diagram to protect wiring from

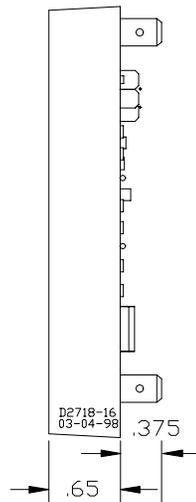
faults before the regulator. Refer to the *Interconnection Drawings*.

NOTE

Fuse must be installed per the interconnection diagrams to avoid interrupting the field current.



AVC63-2.5 Outline Diagram (Top View)

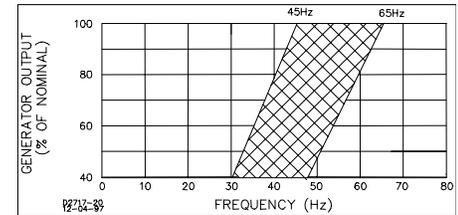


AVC63-2.5 Outline Diagram (Side View)

V/HZ "CORNER FREQUENCY" SELECTION AND ADJUSTMENT

The corner frequency can be adjusted by the **UF ADJ** rheostat on the AVR. Clockwise rotation results in raising the corner frequency (shifting the curve to the right). To set the UF rheostat:

1. Adjust the UF Rheostat fully CCW.
2. Start the generator and set at rated voltage.
3. Adjust the generator frequency to the desired kneepoint frequency.
4. Slowly adjust the **UF ADJ** rheostat clockwise (CW) until the generator voltage just begins to decrease.



Typical Frequency Compensation Curves

OPERATION

The following system operation procedures provide instructions for adjusting the AVC63-2.5 voltage regulator. Symptoms resulting from a faulty regulator and certain generator system problems are included, together with suggested remedies.

Complete the following steps before proceeding with the system start-up.

CAUTION

Meggers and high potential test equipment must not be used. Incorrect use of such equipment could damage the semiconductors contained in the regulator.

PRELIMINARY SET-UP

1. Verify that the voltage regulator specifications conform with the generator system requirements.
2. Ensure the voltage regulator is correctly connected to the generator system.
3. Install the fuses as described in *Fuses*.
4. Set the regulator **VOLT ADJ** and external **VOLT ADJ** (if used) as follows:

Regulator **VOLT ADJ**: Fully CCW

Remote **VOLT ADJ**: Centered

SYSTEM START-UP

1. Perform preliminary set-up as described in the above paragraphs.

NOTE

All voltage readings are to be taken with an average reading voltmeter.

2. Start prime mover and bring up to rated speed.

RESULT: Voltage should build up. If not, perform Field Flashing.

3. Slowly adjust the regulator **VOLT ADJ** CW until the generator output voltage reaches the nominal value. If used, adjust the remote **VOLT ADJ** to set the generator voltage to the exact value desired.

RESULT: Voltage should build up to rated value. If voltage does not build up to rated value, check generator for short or excessive load.

4. Check regulator under normal operating and loading conditions.

RESULT: Voltage regulation should be better than $\pm 1.0\%$ no-load to full-load. If regulation is not within this range, perform the following steps:

1. Voltage reduction under load may be due to speed change from no load to full load, causing the frequency compensation (V/Hz) circuit to reduce voltage at lower frequencies.

2. Replace voltage regulator.

OPERATIONAL TEST

1. Connect the test setup as shown in the following figure, *Operational Test*. Do not apply power. Ensure that the light bulb is rated for 120 V and is less than 100 W.

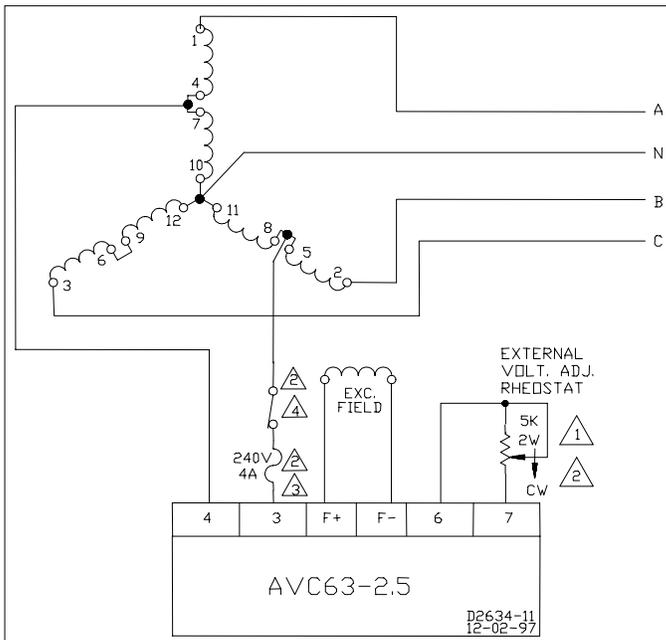
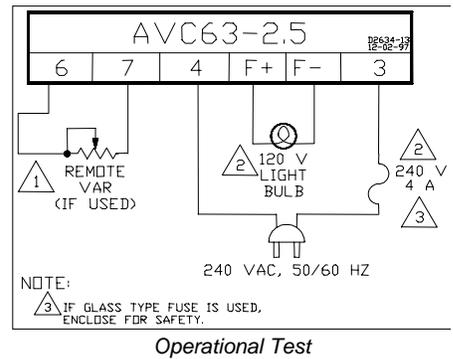
2. Adjust the regulator **VOLT ADJ** and/or remote **VOLT ADJ** to maximum CW.

3. Apply 240 V, 50/60 Hz power to the regulator. The light bulb should illuminate.

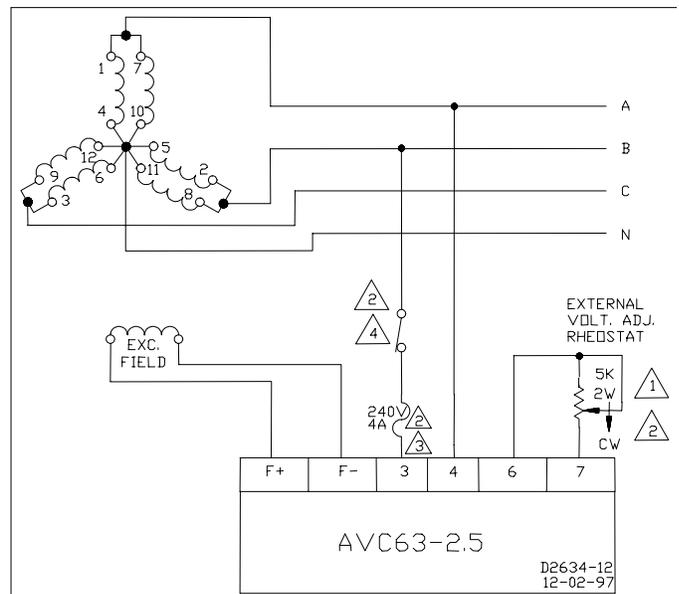
4. Slowly adjust the regulator **VOLT ADJ** control CCW. At the regulation point, the light bulb should extinguish.

The following notes (Δ) apply to the interconnection diagrams:

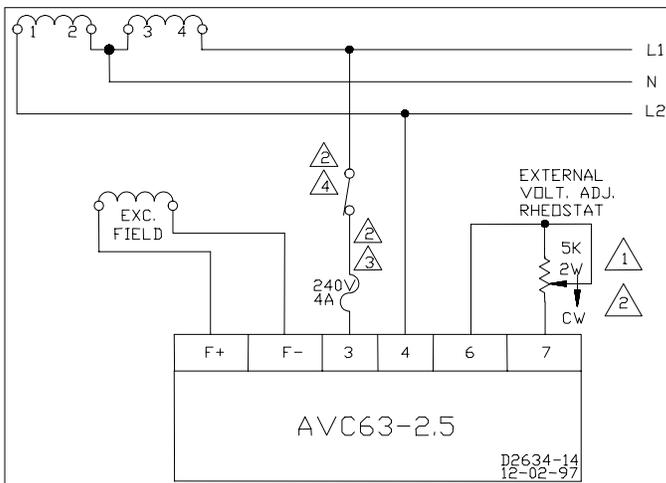
1. If external pot is not used, short terminals 6 and 7.
2. Item not supplied by Basler Electric.
3. Select fuses with high interrupting capacity.
4. Excitation On/Off Switch (If Used).



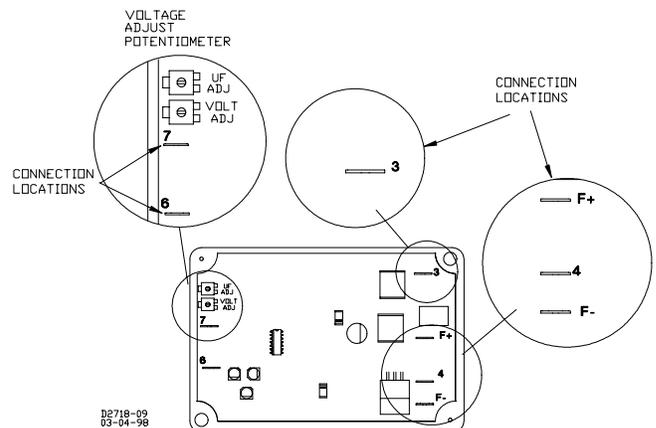
Interconnection Diagram, 277/480 V Nominal, 3-Phase, 4-Wire, Wye Connection



Interconnection Diagram, 120/208 V Nominal, 3-Phase, 4-Wire, Wye Connection



Interconnection Diagram, 120/240 V Nominal, 1-Phase, 3-Wire



Potentiometer and Connector Locations