REFLEX® MODEL 218 THREE PHASE PULSE GENERATOR

PART NUMBER 12M03-00112-02
APPLICATION NOTES

1. The rise time of output current can be modified by operating at different feedback levels. Decreasing the feedback level (and the reference level proportionately) will provide a slower rise time which may be necessary to prevent poor commutation on older motors. A feedback level of higher than 2 volts will provide a faster rise time but will also be accompanied by some overshoot which may be objectionable.

2. Insert a screw in the connecting terminal strip, position no. 35, to prevent inverting the assembly or interchanging it with the Model 219 Pulse Amplifier.

3. The control is designed for a current feedback of 2 volts at the current limited level. If the feedback is higher than 2 volts, unbalanced firing may result.

4. If an "open-loop" mode of operation (without current feedback) is desired, connect a 6.8K resistor between terminals 1 and 4.

   The control will then respond to a 0 to -6 volt signal (obtained from a 1K potentiometer between terminals 10 and 16) with wiper to terminal 3. Since there is a "dead band" until the input reaches approximately 2.5 volts (this permits regenerative operation) it may be desirable to add a separate 10K "Zero Bias" potentiometer between terminals 10 and 16 with a 10K resistor from the wiper to terminal 4.

5. Part number 12M03-00112-02 is suitable for operation on 600V AC. To use part number 12M03-00112-01 (earlier production) on 600V AC, add three 200K, 1% resistors-one each in series with terminals 28, 32 and 36.

6. A normally closed "Enable" relay contact should be connected between terminals 1 and 4 to clamp the Current Regulator in the "off" condition to avoid surges in starting or if the Jog circuit is "Telegraphed".

III. BENCH TEST

TEST MATERIAL REQUIRED

1 - 120V AC Line Cord
1 - 6.8K, ¼ Watt Resistor
6 - 1K, ¼ Watt Resistors
1 - 5K Potentiometer
14 - Clip leads
1 - Oscilloscope (Tektronix 2213 or equal)

1. Connect a 6.8K resistor from terminals 1 to 4, a jumper from terminals 1 to 15, and a 5K potentiometer to terminal 10 (CW), terminal 16 (CCW) and terminal 3 (wiper).
2. Connect 1K resistors from terminal 19, (common) to each of the following terminals: 20, 22, 23, 26, 30 and 34.
3. Apply 115V AC to terminals 17 and 18. Measure 115V AC at terminals 24 and 25.
4. With DIP test connector, use oscilloscope or frequency counter on pin 1 of 6IC, and with 5K potentiometer CCW read 15 to 26K HZ. Turn potentiometer full CW and read 145 to 190K HZ. Return potentiometer to CCW position.
5. Apply any 3 phase AC power to terminals 28, 32, and 36 — 100 to 600 volts.
6. Using a dual trace oscilloscope across any of the 1K resistors adjust channel "A" vertical and horizontal to read 2 groups of two pulses each, with horizontal spacing adjustment so that the 2nd group is displaced exactly 6 divisions from the first group.
7. Turn the 5K potentiometer CW until additional pulses just barely appear at each group.
8. Use channel "B" to observe the pulses on each of the remaining 1K resistors with the sync. set to channel "A." During this portion of testing, the leading edge of each group of pulses must fall directly on one of the separate vertical division lines between 1 and 6, and be the same magnitude and width.

IV. VOLTAGE CHECKS

1. The primary voltage of 1T, leads 1 and 2 (terminals 18 and 17), should be 120V AC.
2. The secondary voltage of 1T, leads 3 to 4 and leads 5 to 6, should be 10V AC. These can be measured between circuit common, terminal 16 (leads 4 and 5), and each AC input to the bridge rectifier 1REC (leads 3 and 6). Voltage at the AC input to the bridge rectifier 1REC (leads 3 to 6) should be 20V AC.
3. +15V DC nominal between the positive end of capacitor 1C and terminal 16.
4. -15V DC nominal between the negative end of capacitor 2C and terminal 16.
5. +6V DC nominal (5.5 to 6.5 volts) between terminals 9 and 16.
6. -6V DC nominal (5.5 to 6.5 volts) between terminals 10 and 16.
7. Measure 3 phase AC line voltage between terminals 28, 32 and 36.
8. Use an oscilloscope to verify that the waveforms are as shown on the schematic diagram.