

Instructions for FC6 (Rev.L) Test

12/2/2006

A). Board test without SCR and load using FC6 tester SG3.

First, make sure the 120VAC power cord on SG3 board is not plugged to a power outlet.

1. Connect 2 orange wires on SG3 board to pins 1 and 2 of P3 on FC6 board. This is to connect 20 VAC to FC6 board to supply power to the board.
2. Plug the 3 pin connector from SG3 board to JP7 of FC6 board to simulate 3 phase signals of 3 phase main powers. The phase A, B and C wires are colored as red blue and black. Plug the red wire to pin 1 of JP7 (left side).
3. Connect a potentiometer to P3 of FC6 board as shown in the Typical Connection Diagram. This is to provide the voltage command (SIG) to control SCR delay angle to control SCR output voltage.
4. Plug the power cord on SG3 board to 120 AC supply. The LED1 on FC6 board will change from red to green in about 2 seconds, the green LED that labeled as PWR on FC6 board.
5. Calibrate an oscilloscope to select channel 1 and triggered from channel 1. Set 5V/div. Connect probe ground to pin 8 or pin 11 on FC6 board.. Place the probe to a test points labeled as A, that is located just above U2. A 60 Hz square wave with 12 VDC amplitude will be shown on the scope. Adjust time base on the scope to make the square wave in 9 grids from the left side as shown in the Fig 1. It represents as a half cycle, 180 degreeed phase A of 60 Hz main powers. Then check test points B and C that should have the same wave form as phase A. They represente phase B and phase C. To see 120 degree shifted among the 3 phases, use both channel 1 and channel 2 probes to measure any 2 test points and set scope trigger from channel 2.

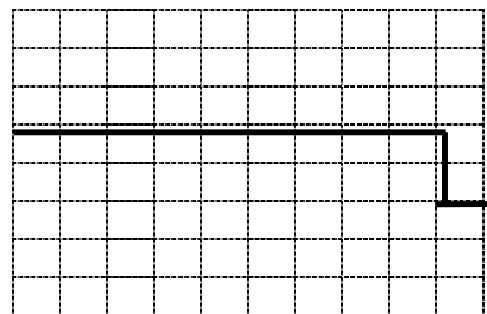


Fig. 1. Test point A.

6. Place channel 1 probe to TP3 (triggered from channel 1), and adjust the potentiometer to change the voltage of SIG, the TP3 angle will be changed. The angle range is about from 8 degree on left side to 170 degree on the right side. The Fig 2 to Fig 4 show different delay angles on the wave form. The angle change is respect with the output voltage change from maximum to minimum.

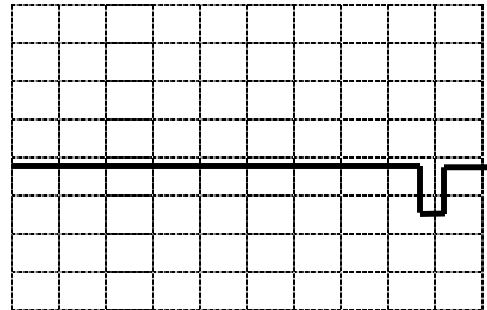


Fig. 2. Minimum Delay Angle.
8 degree at TP3

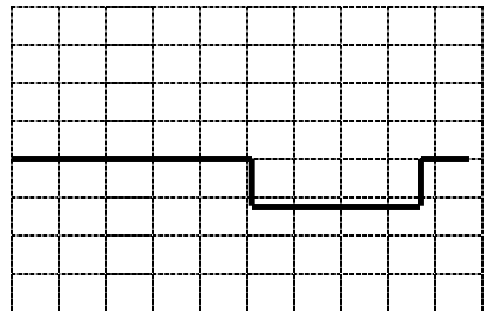


Fig. 3. 80 degree. At TP3.

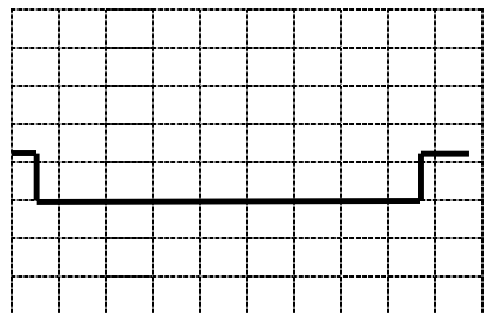


Fig. 4. Maximum Delay Angle
170 degree at TP3

7. To see the net delay angle change by placing probe channel 1 to TP6, probe channel 2 to test point A, and triggered from the channel 2. Adjust potentiometer to change the voltage of SIG, the pulse wave form on TP6 will be moved between the minimum to the maximum. If pins 2 and 3 are jumpered for DC converter, the net delay angle of the pulse is 30 degree shifted from phase A with 2-60 degree spaced pulses. See Fig 5.

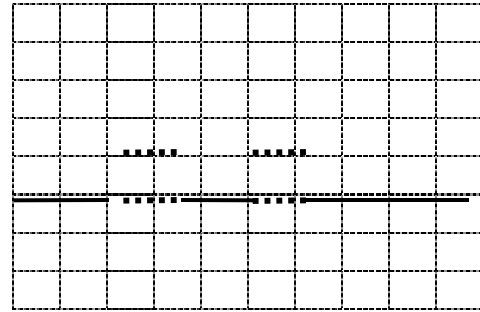


Fig. 5. Net Delay Angle at TP6.
DC Converter, pins 2 and 3
of JP2 jumpered, minimum
delay angle.

8. To see output pulses to the SCR by placing probe across green connectors with probe to G and ground to K for each output.

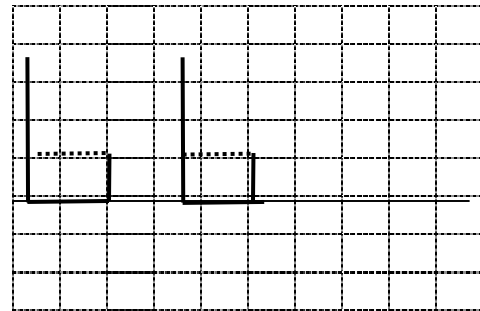


Fig. 6. Pulse at P1 and P2.

9. Fast and Slow Inhibit tests. In step 6 or 7, open SW1 to instant inhibit output. Close SW2 to ramp reduce output till inhibit in about 2 seconds
10. Verify phae sequence. The test point TP7 is low if 3 phase input sequence on JP7 is positive (A-B-C), or TP7 is high if the sequence is negtive.

B). Connect to SCR and main power shown as FC6 Quick Typical Connection Diagram and adjust the potentiometer to control the output voltage (Connector on JP7 must be removed).