INVERTER LOAD SHARING

The following procedure is outlined to aid in adjusting a system of redundant inverters using a master pulse generator. These adjustments and tests are performed during factory and/or on-site combination test by factory trained personnel. Once the system is completely adjusted, only a trimming will be necessary when a voltage regulator (S# 663C779) or synchronizing (S# 2055A50) circuit board is replaced in a specific inverter.

1. Using a digital DC voltmeter, measure the +20 at the test jacks of the logic drawer. All +20 voltages of all the inverters should be within .5 volts of each other (example: #1 - 20.2, #2 - 19.8, #3 - 20.1, #4 - 20.0).

2. Using an AC voltmeter, measure AC output voltage from each inverter Phase 1 to Phase 2, all voltages should be within 1 volt (use the same meter for all AC voltage measurements).

3. Energize the UPS bus and master pulse generator with one inverter. Connect the oscilloscope and adjust the synchronizing board of all the inverters at test point (TP2) to common per Fig. I.

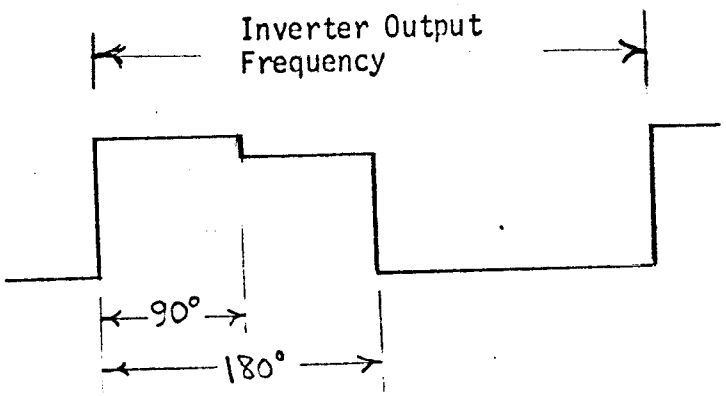

Fig. I

For additional synchronizing board information, refer to Service Manual (Section 5, Tab 6) and Trouble Shooting Guide (Section 6).

4. With the UPS bus energized by one of the inverters in the system, measure AC voltage across one of the other output contactors (or motor operated breaker); Phase 1 top of contactor to Phase 1 bottom of contactor for a voltage less than 15 volts (normally 5 to 10 volts) AC with the inverters being phase locked. Repeat measurement on remaining units. If required, adjust synchronizing board for a null voltage on unit being measured.

5. Close the output contactor (or motor operated breaker) of the second unit and compare the input DC current to each inverter; it should be balanced and approximately same as a single unit at no load. The synchronizing board may be adjusted to obtain a balance. (CAUTION: Never adjust more than 1/4 turn while units are paralleled and allow a few minutes between adjustments for units to stabilize.)

6. Repeat Step 5 with remaining inverters always using the same inverter for comparison (Example: Inverter #2 on UPS bus; Step 5 close output contactor of Inverter #3 and adjust #3, open contactor of #3 and close contactor #1 and adjust #1, etc.) After all units are adjusted, the test may be repeated by using two other inverters, (Example: Inverter #1 and #3, #3 and #4, etc.).

7. In performing test in Steps 5 and 6, observe the AC output current. It should be near zero at no load and within 10% with load. An inverter which is added to the UPS bus and contributes circulating AC current can be adjusted by turning the voltage regulator pot CW (increase AC volts) 1/4 turn. Repeat until AC amps are balanced. Adjust only the inverter which contributes to an AC or DC unbalance. After initial adjustments made in Step 4, a maximum of one turn CW or CCW will trim inverters in Step 5, 6, and 7 (Note trim pots are 20 turns each).

8. Close output contacts (or motor operated breakers) of all inverters in the system. Observe and make final trim, if necessary, with maximum load available as in Steps 6 and 7. Inverters will share load within 10% of each other at full load or overload conditions.

S.B.D.
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