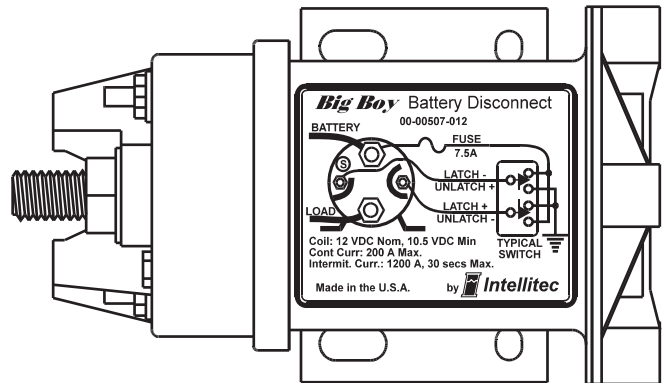


“BIG BOY RELAY” CYCLE TEST

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Date: 10/17/96

To perform the test, a 12 volt **BIG BOY** relay is operated by cycling through latch and unlatched operations. A relay is tested to determine if it can meet a 10,000 cycle life while maintaining a 100mV maximum contact voltage drop.



1.0 EQUIPMENT REQUIRED:

- 1.0 Pyramid PS-36K power supply
- 1.2 Lambda LT-801 power supply
- 1.3 Kepco JQE power supply
- 1.4 Fluke 75 multimeter

2.0 EQUIPMENT DESCRIPTION:

A custom test fixture, which cycles the relay once per second is used to cycle the relay. It energizes the coil to latch the relay. It checks the contact voltage at the contact terminals with a 100mA current flowing through the relay. If the contact voltage is above 100mv, the test stops automatically. If less than 100mv, the test proceeds, energizing the coil to unlatch the relay. The test fixture then checks the contact voltage to see that the contacts have opened. If the contacts are closed, the test stops automatically. If the contacts are open, the test fixture repeats the cycle. A counter keeps track of the number of cycles.

3.0 TEST 1

A relay id inserted in the above described test fixture and allowed to run. The test was discontinued after 122,250 cycles without a single failure.

4.0 TEST 2

The relay was periodically removed from the test fixture to verify voltage across the contacts with a 100A source.

5.0 TEST DATA

<u>CYCLES</u>	<u>mV@5sec</u>	<u>mV@60sec</u>	<u>mV@120sec</u>
00	14.2	12.6	11.9
34,767	16.4	15.4	15.0
46,682	40.7	33.9	33.6
72,200	21.8	18.9	17.5
85,144	14.7	13.2	13.1
110,932	71.7	46.9	42.1
122,250	14.7	13.8	13.7

Test discontinued at 122,250 cycles as relay well surpassed the 10,000 cycle goal.

6.0 CONCLUSION:

The testing has revealed that the relay has been conservatively designed in that it achieved an order of magnitude more cycles than life cycle requirements.

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