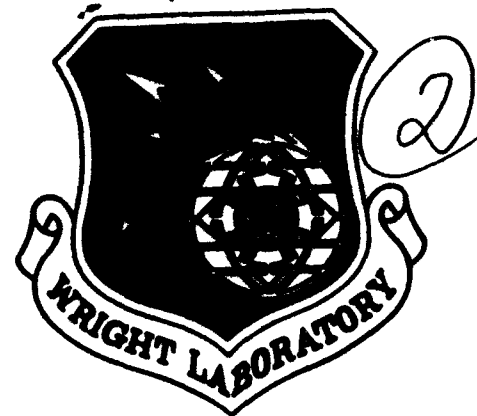


**AD-A274 814**



WL-TR-93-2104

EFFECTS OF REPEATING RESISTANCE  
TESTING ON FIRING ABILITY OF IGNITER EP360-3



**S** **DTIC**  
**ELECTE**  
**JAN 21 1994**  
**A**

GARY O'DAY

EAGLE-PICHER INDUSTRIES, INC  
PO BOX 47  
JOPLIN MO 64802

OCTOBER 1993

INTERIM REPORT FOR MARCH 1993 to SEPTEMBER 1993

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*548* **94-01806**

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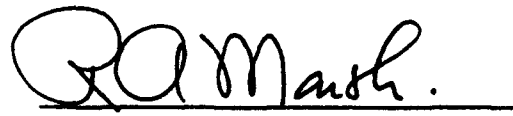
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DAVID M. RYAN  
PROJECT ENGINEER

  
RICHARD A. MARSH  
TECHNICAL AREA MANAGER  
BATTERIES AND FUEL CELLS  
POWER TECHNOLOGY BRANCH

  
MICHAEL D. BRAYDICH, Lt Col, USAF  
Deputy Chief  
Aerospace Power Division  
Aero Propulsion & Power Directorate

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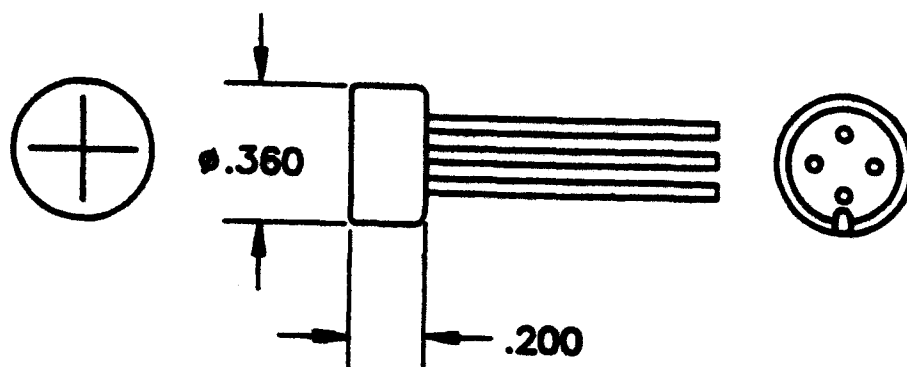
## Section 1

### INTRODUCTION

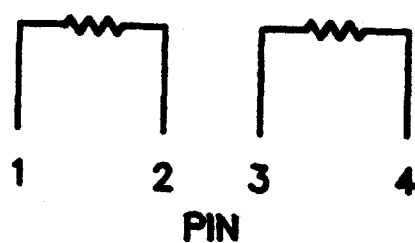
This report summarizes the work completed under U.S. Air Force contract F33601-93-P-7648, Data Item # 0002, issued 11 March 1993 and completed 8 September 1993.

The objective of the test was to determine if desensitization of an igniter occurs due to repeated resistance checks. An EP360-3 igniter (Eagle-Picher Industries, Inc., part number 31-32-026-0) was chosen for this test. This is a dual bridge igniter with only one bridge circuit used for testing.

The testing can be divided into three parts. First, 35 igniters were tested to determine the estimated test stimulus required to fire the igniter with a reliability of 99.99% and a confidence level of 95%. This first group was used as a control group. Second, 40 igniters taken from the same lot, had resistance readings taken every 2 minutes (1 milliamperere of current for 20 milliseconds) for a total of 10,001 resistance checks. Third, the group of igniters that had been resistance checked were then tested in the exact same manner as the first group to determine the estimated test stimulus required to fire the igniters with a reliability of 99.99% and a confidence level of 95%. The two estimated test stimuli were then compared to determine if the igniters ability to fire had been impaired.



# **SCHEMATIC DIAGRAM**



## **EP 360-3 IGNITER (PART NUMBER 31-32-026-0)**

**Figure 1 EP360-3 Igniter With Schematic**

## Section 2

### FIRING RELIABILITY TEST OF THE EP360-3 IGNITER

#### 2.1 OVERVIEW

A group of 40 EP360-3 igniters (part No. 31-32-026-0) from lot SPA-072 were randomly selected to have a reliability test performed per NAVORD Report 2101, "Statistical Methods Appropriate for Evaluation of Fuze Explosive-Train Safety and Reliability," Bruceton Method, and Eagle-Picher OP-QC-035, Bruceton Test Method.

#### 2.2 THE BRUCETON METHOD OF SENSITIVITY TESTING

The Bruceton Method of Sensitivity Testing provides results from which a statistical estimate of a high assurance of reliability can be established on the assumption that the percentage functioning is related to the test levels by means of a normal error function. In the first part of the test, five units are tested to determine an approximate 50% point of firing (denoted as letter "k"). In the second part of the test, the first unit of the second group is exposed to a pulse at this level and subsequent units are exposed to levels determined by the previous units ability to fire. An arbitrary level (denoted by letter "d") is set as the increment between test levels. If the first unit fires, the next unit is exposed to a pulse at a level of  $k-d$ . If the first unit does not fire, the next unit is exposed to a pulse at a level of  $k+d$ . Each succeeding unit will be tested at a level dependent on the firing behavior of the previous unit. (i.e., if the previous unit fired, the next unit will be tested at a level  $d$  less

than the previous level; and if the previous unit failed to fire, the next unit will be tested at a level  $d$  greater than the previous level.) Thus, the test results will be a sequence of fires (denoted by X) and failures (denoted by O) centered about the 50% firing level.

### 2.3 TESTING OF THE EP360-3 IGNITER BY THE BRUCETON METHOD

Using five units and knowledge gained by previous experience with these igniters the 50% firing level ( $k$ ) was determined to be 1.65 Amperes. All test pulses will be of a 20 millisecond duration. The EP360-3 igniter is designed to fire at a 3.5 Ampere pulse of a 20 millisecond duration. The distance between test levels ( $d$ ) was set at 0.05 Amperes.

The first test unit was exposed to a 1.65 Ampere pulse and is fired. This is shown as an "X" in the first column (see Figure 2). Therefore the next unit was tested at the  $k-d$  level ( $1.65-0.05=1.60$  Amperes). That unit did not fire which is shown as an "O" in the second column. The testing was completed in this fashion with a total of 35 units being tested. The table at the bottom of Figure 2 was then completed and entered into a computer program which calculated the estimated test stimulus, estimated error, etc. These calculated values can be seen in Figure 3. The formulas used in these calculations can be found in OP-QC-035 which is included in this report in Appendix B.

The estimated test stimulus required to fire the igniter with a reliability of 99.99 and a confidence level of 95% was found to be 2.1301 Amperes with an estimated error of 0.0870, which gives a range of 2.0431 to 2.2171 Amperes with a 20 millisecond pulse duration.

Igniter Type EP360-3  
 Lot Number SPA-072  
 Pulse Duration 20 msec  
 Remarks FIRIED WITH SINGLE BRIDGE CIRCUIT

Date 09/07/93  
 Operator GARY O'DAY

| Fire Count (amps) | X Datches Fire |   |   |   |   |   |   |   |   |    |    |    |    |    |    | O Datches Did Not Fire |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
|-------------------|----------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|
|                   | 1              | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16                     | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 |  |  |
| 1.75              |                |   |   |   | X |   | X |   |   |    |    |    |    |    |    |                        |    |    |    | X  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| 1.70              |                |   |   | O | O |   | X |   |   |    | X  | X  | X  |    | X  | O                      | O  |    | X  | O  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| 1.65              | X              | O |   |   |   |   |   | X |   |    |    | O  | O  | O  | O  |                        | O  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| 1.60              |                | O |   |   |   |   |   |   | X | O  | O  | O  | O  | O  |    |                        | O  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| 1.55              |                |   |   |   |   |   |   |   |   | O  |    |    |    |    |    |                        |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |

| Test Current | Fire | No Fire |
|--------------|------|---------|
| 1.75         | 0    | 0       |
| 1.70         | 0    | 0       |
| 1.65         | 1    | 1       |
| 1.60         | 0    | 1       |
| 1.55         | 0    | 1       |
| Total        | 17   | 18      |

Estimated Test Stimulus = 2.13 amps

Figure 2. Bruceton Test Data for Control Group

### Buceton Test Calculations and Results

Type of test: ALL FFE - SINGLE BRIDGE CIRCUIT

Description: EP 360-3

Pulse length: 0.02 seconds

| Stimulus | I   | F  | NF | A  | B   |
|----------|-----|----|----|----|-----|
| 1.75     | 4   | 6  | 0  | 24 | 96  |
| 1.70     | 3   | 7  | 6  | 21 | 63  |
| 1.65     | 2   | 3  | 8  | 6  | 12  |
| 1.60     | 1   | 1  | 3  | 1  | 1   |
| 1.55     | 0   | 0  | 1  | 0  | 0   |
|          | SUM | 17 | 18 | 52 | 172 |

| Reliability | $\sum F^2$ | IO   | D    | N  | A  | B   |
|-------------|------------|------|------|----|----|-----|
| 99.99       | 96.0       | 1.55 | 0.05 | 36 | 52 | 172 |

| $\sum X$ | $\sum F$ | $\sum A$ | $\sum B$ | $\sum$ | Standard Dev |
|----------|----------|----------|----------|--------|--------------|
| $\sum$   | M        | S        | $\sum m$ | $\sum$ | Z            |
| 1.6779   | 0.7612   | 0.0640   | 0.0160   | 0.0230 | 3.7200       |

| $\sum$      | $\sum$      | $\sum$ | $\sum$ |
|-------------|-------------|--------|--------|
| $\sum m+28$ | $\sum m+28$ | t      | f      |
| 1.9161      | 0.0870      | 1.7480 | 2.1301 |

Figure 3. Control Group Calculations

### **Section 3**

#### **RESISTANCE CYCLE TESTING**

##### **3.1 OVERVIEW**

A second group of 40 EP360-3 igniters were randomly selected from the same lot (SPA-072) and each had their resistance checked 10,001 times.

##### **3.2 RESISTANCE CYCLE TESTING OF THE EP360-3 IGNITER**

The 40 igniters were connected to a Hewlett-Packard 3497A data acquisition system and HP86B computer which sent 1 milliampere of current to each igniter every 2 minutes, continuously, until 10,001 resistance checks had been made. All testing was performed under ambient conditions. These readings were recorded every 100 checks and the resistance readings are included as Appendix A. A graph of the resistance readings for igniter number 1 can be seen in Figure 4.

##### **3.3 RESULTS**

Comparing the resistance values at the beginning and the end of the cycle test shows that all of the igniters had lower resistances at the end of the test but none were significantly lower. The maximum drop was 0.03 ohms. This data can be seen in Table I.

**Table 1. Resistance Readings at Start and Finish of Cycle Testing**

| <b>RESISTANCE CYCLE TESTING OF EP360-3 IGNITER</b> |                                |                              |                   |
|----------------------------------------------------|--------------------------------|------------------------------|-------------------|
| <b>No.</b>                                         | <b>Resistance at<br/>Start</b> | <b>Resistance at<br/>End</b> | <b>Net Change</b> |
| 1                                                  | 1.06                           | 1.03                         | -0.03             |
| 2                                                  | 1.05                           | 1.02                         | -0.03             |
| 3                                                  | 1.04                           | 1.01                         | -0.03             |
| 4                                                  | 1.05                           | 1.03                         | -0.02             |
| 5                                                  | 1.07                           | 1.04                         | -0.03             |
| 6                                                  | 1.09                           | 1.06                         | -0.03             |
| 7                                                  | 1.07                           | 1.04                         | -0.03             |
| 8                                                  | 1.03                           | 1.02                         | -0.01             |
| 9                                                  | 1.05                           | 1.04                         | -0.01             |
| 10                                                 | 1.05                           | 1.03                         | -0.02             |
| 11                                                 | 1.09                           | 1.06                         | -0.03             |
| 12                                                 | 1.08                           | 1.04                         | -0.04             |
| 13                                                 | 1.04                           | 1.01                         | -0.03             |
| 14                                                 | 1.07                           | 1.04                         | -0.03             |
| 15                                                 | 1.05                           | 1.03                         | -0.02             |
| 16                                                 | 1.05                           | 1.03                         | -0.02             |
| 17                                                 | 1.06                           | 1.04                         | -0.02             |
| 18                                                 | 1.06                           | 1.04                         | -0.02             |
| 19                                                 | 1.06                           | 1.03                         | -0.03             |
| 20                                                 | 1.04                           | 1.02                         | -0.02             |
| 21                                                 | 1.06                           | 1.04                         | -0.02             |
| 22                                                 | 1.05                           | 1.03                         | -0.02             |
| 23                                                 | 1.06                           | 1.05                         | -0.01             |
| 24                                                 | 1.07                           | 1.05                         | -0.02             |
| 25                                                 | 1.07                           | 1.06                         | -0.01             |
| 26                                                 | 1.08                           | 1.07                         | -0.01             |
| 27                                                 | 1.08                           | 1.06                         | -0.02             |
| 28                                                 | 1.08                           | 1.06                         | -0.02             |
| 29                                                 | 1.07                           | 1.05                         | -0.02             |

| RESISTANCE CYCLE TESTING OF EP360-3 IGNITER |                        |                      |            |
|---------------------------------------------|------------------------|----------------------|------------|
| No.                                         | Resistance at<br>Start | Resistance at<br>End | Net Change |
| 30                                          | 1.02                   | 1.00                 | -0.02      |
| 31                                          | 1.07                   | 1.04                 | -0.03      |
| 32                                          | 1.09                   | 1.06                 | -0.03      |
| 33                                          | 1.06                   | 1.03                 | -0.03      |
| 34                                          | 1.04                   | 1.01                 | -0.03      |
| 35                                          | 1.07                   | 1.05                 | -0.02      |
| 36                                          | 1.01                   | 0.98                 | -0.03      |
| 37                                          | 1.06                   | 1.03                 | -0.03      |
| 38                                          | 1.06                   | 1.04                 | -0.02      |
| 39                                          | 1.08                   | 1.06                 | -0.02      |
| 40                                          | 1.03                   | 1.01                 | -0.02      |

Table 1 continued.

# Resistance Readings

## Igniter number 1

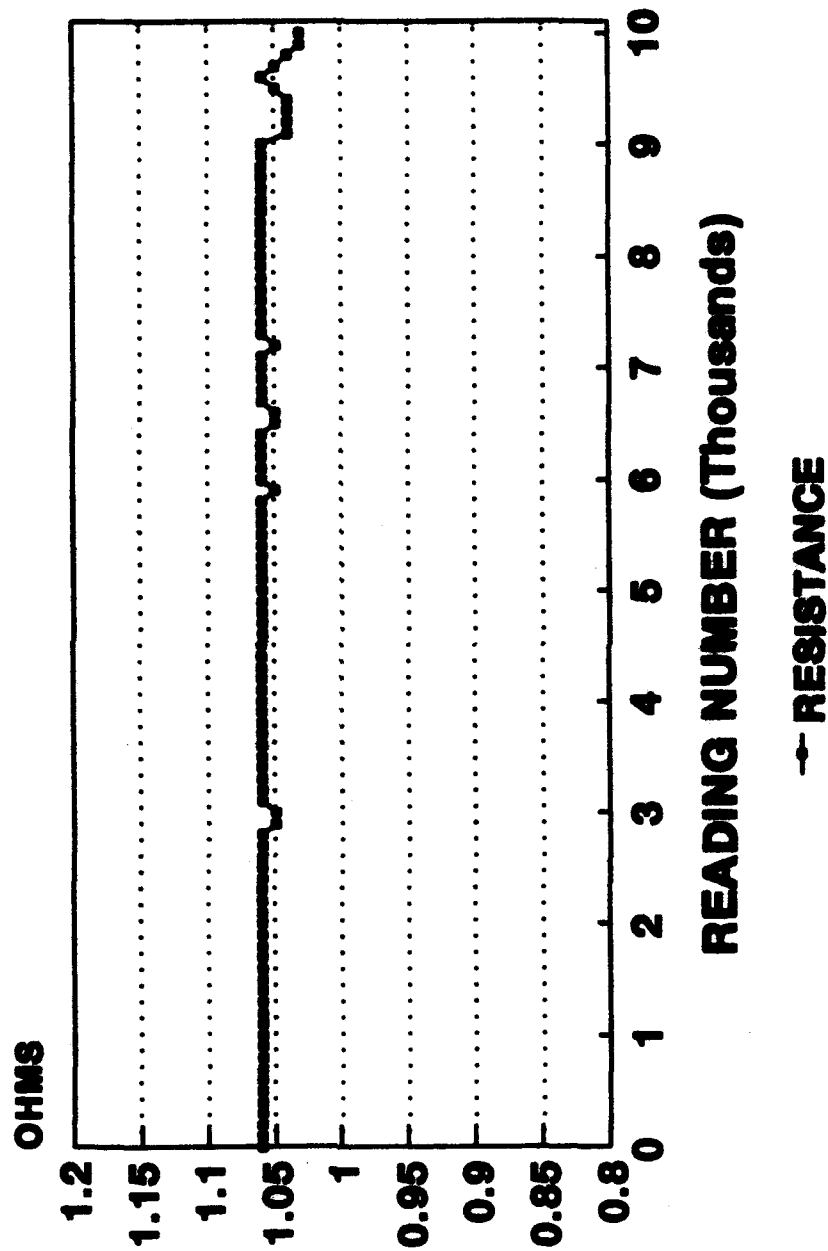


Figure 4. Resistance Readings of Igniter Number 1

## **Section 4**

### **FIRING RELIABILITY TEST OF RESISTANCE CYCLED EP360-3 IGNITERS**

#### **4.1 OVERVIEW**

The igniters that had been resistance cycle tested (Section 3) were then tested by the Bruceton Method of Sensitivity Testing in the exact same manner that the control group had been tested (Section 2).

#### **4.2 TESTING OF THE EP360-3 IGNITER BY THE BRUCETON METHOD OF SENSITIVITY TESTING**

Using the same procedure that was used with the control group sensitivity testing of paragraph 2.2, the resistance cycled igniters were tested. The test data are shown as Figure 5. The estimated test stimulus required to fire the igniter with a reliability of 99.99 and confidence level of 95% was found to be 1.8625 Amperes with an estimated error of 0.0324 which gives a range of 1.8301 to 1.8949 Amperes. The calculations and results can be seen in Figure 6.

Igniter Type EP360-3  
 Lot Number SPA-072  
 Pulse Duration 20 msec  
 Remarks FIRE WITH SINGLE BRIDGE CIRCUIT AFTER 10.001 RESISTANCE CHECKS

Date 09/07/93  
 Operator GARY O'DAY

| No<br>Current<br>(amps) | % Denotes Flo |   |   |   |   |   |   |   |   |    | % Denotes Did Not Flo |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------------------------|---------------|---|---|---|---|---|---|---|---|----|-----------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|                         | 1             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11                    | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 |
| 1.75                    |               |   |   |   |   |   |   |   |   |    |                       | X  |    |    |    |    |    |    |    |    |    |    |    | X  |    |    |    |    |    |    |    |    |    |    |    |
| 1.70                    | X             | X |   | X |   |   |   |   |   |    | O                     |    | X  |    |    | X  | X  |    | O  |    | X  |    |    | X  |    | X  |    |    |    |    | X  |    | X  |    |    |
| 1.65                    | O             | O |   | O | X | X | X |   |   | O  |                       |    | X  |    | O  | O  | O  |    | O  |    | O  |    |    | O  |    | O  |    |    |    | X  |    | O  |    | O  |    |
| 1.60                    |               |   |   |   |   |   | O |   | O |    |                       |    |    |    | O  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1.55                    |               |   |   |   |   |   |   |   |   |    |                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

| Test Current | Flo | No Flo |
|--------------|-----|--------|
| 1.75         | 2   | 0      |
| 1.70         | 12  | 2      |
| 1.65         | 4   | 11     |
| 1.60         | 0   | 4      |
| 1.55         | 0   | 0      |
| Total        | 18  | 17     |

Estimated Test Stimulus = 1.86 amps

Figure 5. Bruceton Test Data for Test Group

# **Bruceton Test Calculations and Results**

**After 10.001 Resistance  
Check of 1 mAmp**

**Type of test: ALL FIVE - SINGLE BRIDGE CIRCUIT**  
**Description: EP 360-S**  
**Pulse length: 0.02 seconds**

| Stimulus | I   | F  | NF | A  | B  |
|----------|-----|----|----|----|----|
| 1.75     | 4   | 2  | 0  | 6  | 18 |
| 1.70     | 3   | 12 | 2  | 24 | 48 |
| 1.65     | 2   | 4  | 11 | 4  | 4  |
| 1.60     | 1   | 0  | 4  | 0  | 0  |
| 1.55     | 0   | 0  | 0  | 0  | 0  |
|          | SUM | 18 | 17 | 34 | 70 |

| Reliability | SEP  | ID   | D    | N  | A  | B  |
|-------------|------|------|------|----|----|----|
| 99.99       | 95.0 | 1.00 | 0.05 | 35 | 34 | 70 |

| Mean   | SEP    | SD     | SE     | SE     | Standard Dev |
|--------|--------|--------|--------|--------|--------------|
| ln     | M      | s      | SEM    | SE     | Z            |
| 1.6094 | 0.0210 | 0.0089 | 0.0074 | 0.0085 | 3.7280       |

| Mean   | SE     | SEP    | SE     |
|--------|--------|--------|--------|
| ln+2S  | SE+2S  | ↑      | ↑      |
| 1.7749 | 0.0084 | 1.7400 | 1.8485 |

**Figure 6. Bruceton test Calculations and Results**

## **Section 5**

### **CONCLUSIONS**

#### **5.1 EFFECT OF RESISTANCE CYCLE TESTING ON IGNITER RESISTANCE**

After 10,001 resistance checks at 1 milliampere every 2 minutes, the resistance of the EP360-3 igniter changed a maximum of 3% (see Table I). This change is well within the normal 10% tolerance of the igniter's resistance. Therefore, resistance testing at 1 milliampere has no significant effect on the igniter's resistance.

#### **5.2 COMPARISON OF SENSITIVITY TESTS**

The Bruceton test on the control group yielded an estimated test stimulus of 2.1301 amperes with a 20 millisecond pulse. The Bruceton test of the test group of resistance cycled igniters yielded an estimated test stimulus of 1.8625 amperes at a 20 millisecond pulse. This is a difference of 13% with the control group firing at a higher current level than the test group (see Table II). If the resistance testing had desensitized the igniters one would expect to see the test group firing at a higher level than the control group. In this test we have seen just the opposite. This may be due to the inaccuracies of the statistical method which forms the basis for this test. Due to the estimated test stimulus of the test group not being significantly higher than that of the control group, we have determined that continual testing of resistance at 1 milliampere of current for 10,001 checks has no significant effect on the igniter's ability to fire.

**Table 2 Test Data Comparison**

| <b>TEST GROUP</b>   | <b>TEST DATA SUMMARY</b>           |                       |                            | <b>RANGE</b>  |
|---------------------|------------------------------------|-----------------------|----------------------------|---------------|
|                     | <b>ESTIMATES<br/>TEST STIMULUS</b> | <b>&amp;<br/>DIFF</b> | <b>ESTIMATED<br/>ERROR</b> |               |
| <b>CONTROL</b>      | 2.1301                             |                       | 0.0870                     | 2.0431-2.2171 |
| <b>EXPERIMENTAL</b> | 1.8625                             |                       | 0.0324                     | 1.8301-1.8949 |

## Section 6

### RECOMMENDATIONS FOR FURTHER TESTING

In an ideal case the estimated test stimulus, plus or minus the estimated error range, for each test should overlap if the resistance testing had absolutely no effect on the igniters ability to fire. The fact that it did not for this set of tests may be due to statistical inaccuracies. It is desirable to perform one or two more Bruceton tests on control groups to see if each estimated test stimulus found would fall into the range set by the first control group in this test.

All of these tests were performed under ambient conditions. Additional testing may include: resistance cycle testing at high and low temperature extremes, resistance cycle testing in conjunction with temperature cycle testing, Bruceton testing at high and low temperature extremes or any combination of the above.

Additional testing is recommended to determine what will cause a degradation in the igniters ability to fire. Possible tests include: a longer cycle of resistance testing or a higher level of current during resistance cycle testing.

## REFERENCES

- [1] NAVORD REPORT 2101, "Statistical Methods Appropriate for Evaluation of Fuze Explosive-Train Safety and Reliability," U.S. Naval Ordnance Laboratory, White Oak, Maryland, 13 October 1953.

**APPENDIX A**  
**Resistance Readings**

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 1 of test

TIME 8 : 0 Total Resistance Checks Complete : 1

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.08 | 1.04 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 11 : 20 Total Resistance Checks Complete : 101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.05 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.09 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.09 | 1.08 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 14 : 40 Total Resistance Checks Complete : 201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.08 | 1.09 | 1.07 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 18 : 0 Total Resistance Checks Complete : 301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.08 | 1.09 | 1.07 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.07 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.08 | 1.07 | 1.09 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.08 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

## Day 1 of test

TIME 21 : 20 Total Resistance Checks Complete : 401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.08 | 1.09 | 1.07 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

## Day 2 of test

TIME 0 : 40 Total Resistance Checks Complete : 501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.08 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 4 : 0 Total Resistance Checks Complete : 601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.08 | 1.08 | 1.08 | 1.03 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.05 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 7 : 20 Total Resistance Checks Complete : 701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.06 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.03 | 1.07 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 2 of test

TIME 10 : 40 Total Resistance Checks Complete : 801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.08 | 1.09 | 1.08 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.05 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 14 : 0 Total Resistance Checks Complete : 901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.08 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 17 : 20 Total Resistance Checks Complete : 1001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.07 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.09 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.08 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 20 : 40 Total Resistance Checks Complete : 1101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.08 | 1.09 | 1.07 | 1.04 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

## Day 3 of test

TIME 0 : 0 Total Resistance Checks Complete : 1201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 3 : 20 Total Resistance Checks Complete : 1301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 6 : 40 Total Resistance Checks Complete : 1401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.04 | 1.07 | 1.00 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 10 : 0 Total Resistance Checks Complete : 1501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.08 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.05 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 3 of test

TIME 13 : 20 Total Resistance Checks Complete : 1601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 16 : 40 Total Resistance Checks Complete : 1701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.07 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.09 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.08 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 20 : 0 Total Resistance Checks Complete : 1801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.05 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.07 | 1.06 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.08 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.08 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 23 : 20 Total Resistance Checks Complete : 1901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

## Day 4 of test

TIME 2 : 40 Total Resistance Checks Complete : 2001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 6 : 0 Total Resistance Checks Complete : 2101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 9 : 20 Total Resistance Checks Complete : 2201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 12 : 40 Total Resistance Checks Complete : 2301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 4 of test

TIME 16 : 0 Total Resistance Checks Complete : 2401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.08 | 1.07 | 1.08 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 19 : 20 Total Resistance Checks Complete : 2501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.04 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.08 | 1.07 | 1.08 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.08 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 22 : 40 Total Resistance Checks Complete : 2601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

Day 5 of test

TIME 2 : 0 Total Resistance Checks Complete : 2701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

## Day 5 of test

TIME 18 : 40 Total Resistance Checks Complete : 3201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 22 : 0 Total Resistance Checks Complete : 3301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

## Day 6 of test

TIME 1 : 20 Total Resistance Checks Complete : 3401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 4 : 40 Total Resistance Checks Complete : 3501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.02 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 5 of test

TIME 5 : 20 Total Resistance Checks Complete : 2801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.08 | 1.04 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.08 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 8 : 40 Total Resistance Checks Complete : 2901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.05 | 1.05 | 1.03 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.07 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.08 | 1.05 | 1.05 | 1.08 | 1.02 |

TIME 12 : 0 Total Resistance Checks Complete : 3001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.05 | 1.05 | 1.03 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.07 | 1.06 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.08 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 15 : 20 Total Resistance Checks Complete : 3101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.04 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.08 | 1.05 | 1.05 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 6 of test

TIME 8 : 0 Total Resistance Checks Complete : 3601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.08 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.04 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.08 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 11 : 20 Total Resistance Checks Complete : 3701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 14 : 40 Total Resistance Checks Complete : 3801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 18 : 0 Total Resistance Checks Complete : 3901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

## Day 6 of test

TIME 21 : 20 Total Resistance Checks Complete : 4001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

## Day 7 of test

TIME 0 : 40 Total Resistance Checks Complete : 4101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 4 : 0 Total Resistance Checks Complete : 4201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 7 : 20 Total Resistance Checks Complete : 4301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 7 of test

TIME 10 : 40 Total Resistance Checks Complete : 4401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.05 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.09 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 14 : 0 Total Resistance Checks Complete : 4501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 17 : 20 Total Resistance Checks Complete : 4601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.08 | 1.09 | 1.08 | 1.04 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 20 : 40 Total Resistance Checks Complete : 4701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.05 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 388-3 IGNITER

Day 8 of test

TIME 0 : 0 Total Resistance Checks Complete : 4801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 3 : 20 Total Resistance Checks Complete : 4901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.05 | 1.08 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.09 | 1.08 | 1.06 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 6 : 40 Total Resistance Checks Complete : 5001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 10 : 0 Total Resistance Checks Complete : 5101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.07 | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 8 of test

TIME 13 : 20 Total Resistance Checks Complete : 5201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.08 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.08 | 1.07 | 1.09 | 1.09 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 16 : 40 Total Resistance Checks Complete : 5301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.05 | 1.06 | 1.07 | 1.09 | 1.08 | 1.03 | 1.05 | 1.06 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 20 : 0 Total Resistance Checks Complete : 5401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.05 | 1.06 | 1.07 | 1.09 | 1.08 | 1.04 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.07 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.07 | 1.05 | 1.07 | 1.08 | 1.07 | 1.09 | 1.09 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.01 | 1.06 | 1.06 | 1.08 | 1.03 |

TIME 23 : 20 Total Resistance Checks Complete : 5501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.02 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 9 of test

TIME 2 : 40 Total Resistance Checks Complete : 5601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.02 |

TIME 6 : 0 Total Resistance Checks Complete : 5701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.06 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.04 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.07 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.02 |

TIME 9 : 20 Total Resistance Checks Complete : 5801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.06 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.07 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.02 |

TIME 12 : 40 Total Resistance Checks Complete : 5901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.05 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.04 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.02 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 9 of test

TIME 16 : 0 Total Resistance Checks Complete : 6001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.06 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 19 : 20 Total Resistance Checks Complete : 6101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.02 |

TIME 22 : 40 Total Resistance Checks Complete : 6201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.05 | 1.07 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

Day 10 of test

TIME 2 : 0 Total Resistance Checks Complete : 6301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.02 |

# RESISTANCE CYCLE TESTING OF EP 350-3 IGNITER

Day 10 of test

TIME 5 : 20 Total Resistance Checks Complete : 6401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.06 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.04 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.07 | 1.06 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.02 |

TIME 8 : 40 Total Resistance Checks Complete : 6501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.05 | 1.05 | 1.04 | 1.05 | 1.06 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.04 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 12 : 0 Total Resistance Checks Complete : 6601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.05 | 1.05 | 1.03 | 1.05 | 1.06 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.04 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.07 | 1.06 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.02 |

TIME 15 : 20 Total Resistance Checks Complete : 6701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.06 | 1.04 | 1.04 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 10 of test

TIME 18 : 40 Total Resistance Checks Complete : 6901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.06 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 22 : 0 Total Resistance Checks Complete : 6901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.05 | 1.07 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

Day 11 of test

TIME 1 : 20 Total Resistance Checks Complete : 7001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.04 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 4 : 40 Total Resistance Checks Complete : 7101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.08 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.07 | 1.05 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 11 of test

TIME 8 : 0 Total Resistance Checks Complete : 7201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.05 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.08 | 1.03 | 1.03 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.05 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.08 | 1.08 | 1.09 | 1.08 | 1.08 | 1.06 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.08 | 1.08 | 1.05 | 1.04 | 1.07 | .98  | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 11 : 20 Total Resistance Checks Complete : 7301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.05 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.09 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 14 : 40 Total Resistance Checks Complete : 7401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.06 | 1.04 | 1.06 | 1.08 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.06 | 1.05 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 18 : 0 Total Resistance Checks Complete : 7501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.04 | 1.08 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 11 of test

TIME 21 : 20 Total Resistance Checks Complete : 7601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.04 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

Day 12 of test

TIME 0 : 40 Total Resistance Checks Complete : 7701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.07 | 1.04 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 4 : 0 Total Resistance Checks Complete : 7801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.05 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 7 : 20 Total Resistance Checks Complete : 7901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.05 | 1.07 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.08 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.07 | 1.07 | 1.07 | 1.06 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 12 of test

TIME 10 : 40 Total Resistance Checks Complete : 8001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.08 | 1.04 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.08 | 1.03 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 14 : 0 Total Resistance Checks Complete : 8101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 17 : 20 Total Resistance Checks Complete : 8201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.07 | 1.05 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 20 : 40 Total Resistance Checks Complete : 8301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.08 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.05 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 13 of test

TIME 2 : 0 Total Resistance Checks Complete : 8401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.08 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.05 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 3 : 20 Total Resistance Checks Complete : 8501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 6 : 40 Total Resistance Checks Complete : 8601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.05 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 10 : 0 Total Resistance Checks Complete : 8701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 13 of test

TIME 13 : 20 Total Resistance Checks Complete : 8801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.05 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.09 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.06 | 1.08 | 1.03 |

TIME 16 : 40 Total Resistance Checks Complete : 8901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.08 | 1.05 | 1.05 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 20 : 0 Total Resistance Checks Complete : 9001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.05 | 1.07 | 1.09 | 1.06 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.04 | 1.04 | 1.06 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.06 | 1.08 | 1.06 | 1.03 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.02 |

TIME 23 : 20 Total Resistance Checks Complete : 9101

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.04 | 1.04 | 1.03 | 1.04 | 1.05 | 1.07 | 1.05 | 1.03 | 1.04 | 1.04 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.07 | 1.05 | 1.03 | 1.06 | 1.04 | 1.04 | 1.05 | 1.05 | 1.04 | 1.03 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.05 | 1.04 | 1.05 | 1.06 | 1.06 | 1.08 | 1.07 | 1.07 | 1.07 | 1.01 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.05 | 1.07 | 1.05 | 1.02 | 1.06 | .99  | 1.04 | 1.04 | 1.07 | 1.02 |

Day 14 of test

TIME 2 : 40 Total Resistance Checks Complete : 9201

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.04 | 1.03 | 1.02 | 1.03 | 1.05 | 1.07 | 1.05 | 1.02 | 1.04 | 1.04 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.06 | 1.05 | 1.02 | 1.05 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.02 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.04 | 1.04 | 1.05 | 1.06 | 1.06 | 1.07 | 1.07 | 1.06 | 1.06 | 1.01 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.05 | 1.07 | 1.04 | 1.02 | 1.05 | .99  | 1.03 | 1.04 | 1.07 | 1.02 |

TIME 6 : 0 Total Resistance Checks Complete : 9301

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.04 | 1.03 | 1.02 | 1.03 | 1.05 | 1.06 | 1.05 | 1.02 | 1.04 | 1.04 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.06 | 1.05 | 1.02 | 1.05 | 1.03 | 1.03 | 1.04 | 1.04 | 1.04 | 1.02 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.04 | 1.04 | 1.05 | 1.06 | 1.06 | 1.07 | 1.07 | 1.06 | 1.06 | 1.01 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.05 | 1.07 | 1.04 | 1.02 | 1.05 | .99  | 1.03 | 1.04 | 1.07 | 1.02 |

TIME 9 : 20 Total Resistance Checks Complete : 9401

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.04 | 1.04 | 1.03 | 1.04 | 1.06 | 1.07 | 1.06 | 1.03 | 1.04 | 1.04 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.07 | 1.06 | 1.03 | 1.06 | 1.04 | 1.04 | 1.05 | 1.05 | 1.04 | 1.03 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.05 | 1.05 | 1.05 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.06 | 1.01 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.06 | 1.07 | 1.04 | 1.02 | 1.06 | .99  | 1.04 | 1.05 | 1.07 | 1.02 |

TIME 12 : 40 Total Resistance Checks Complete : 9501

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.05 | 1.04 | 1.04 | 1.05 | 1.07 | 1.08 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.06 | 1.04 | 1.07 | 1.04 | 1.04 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.07 | 1.08 | 1.06 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.06 | 1.08 | 1.05 | 1.03 | 1.06 | 1.00 | 1.04 | 1.05 | 1.08 | 1.02 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 14 of test

TIME 16 : 0 Total Resistance Checks Complete : 9601

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.06 | 1.05 | 1.04 | 1.06 | 1.07 | 1.09 | 1.07 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.09 | 1.07 | 1.04 | 1.07 | 1.05 | 1.05 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.07 | 1.08 | 1.06 | 1.04 | 1.07 | 1.00 | 1.05 | 1.05 | 1.08 | 1.03 |

TIME 19 : 20 Total Resistance Checks Complete : 9701

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.05 | 1.05 | 1.04 | 1.05 | 1.07 | 1.08 | 1.06 | 1.03 | 1.05 | 1.05 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.08 | 1.07 | 1.04 | 1.07 | 1.04 | 1.04 | 1.05 | 1.06 | 1.05 | 1.04 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.06 | 1.05 | 1.06 | 1.07 | 1.07 | 1.08 | 1.07 | 1.08 | 1.07 | 1.02 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.06 | 1.08 | 1.05 | 1.03 | 1.07 | 1.00 | 1.04 | 1.05 | 1.08 | 1.02 |

TIME 22 : 40 Total Resistance Checks Complete : 9801

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.04 | 1.04 | 1.02 | 1.04 | 1.05 | 1.07 | 1.05 | 1.02 | 1.04 | 1.04 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.07 | 1.05 | 1.02 | 1.06 | 1.04 | 1.03 | 1.04 | 1.05 | 1.04 | 1.03 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.05 | 1.04 | 1.05 | 1.06 | 1.06 | 1.07 | 1.07 | 1.07 | 1.06 | 1.01 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.05 | 1.07 | 1.04 | 1.02 | 1.06 | .99  | 1.04 | 1.04 | 1.07 | 1.02 |

Day 15 of test

TIME 2 : 0 Total Resistance Checks Complete : 9901

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.03 | 1.03 | 1.02 | 1.03 | 1.04 | 1.05 | 1.04 | 1.02 | 1.04 | 1.03 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.05 | 1.04 | 1.02 | 1.05 | 1.03 | 1.03 | 1.04 | 1.04 | 1.03 | 1.02 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.04 | 1.04 | 1.05 | 1.06 | 1.06 | 1.07 | 1.07 | 1.06 | 1.06 | 1.00 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.05 | 1.06 | 1.04 | 1.02 | 1.05 | .99  | 1.03 | 1.04 | 1.06 | 1.01 |

# RESISTANCE CYCLE TESTING OF EP 360-3 IGNITER

Day 15 of test

TIME 5 : 20      Total Resistance Checks Complete : 10001

|         |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|
| ITEM    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Resist. | 1.03 | 1.02 | 1.01 | 1.03 | 1.04 | 1.06 | 1.04 | 1.02 | 1.04 | 1.03 |
| ITEM    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
| Resist. | 1.06 | 1.04 | 1.01 | 1.04 | 1.03 | 1.03 | 1.04 | 1.04 | 1.03 | 1.02 |
| ITEM    | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   |
| Resist. | 1.04 | 1.03 | 1.05 | 1.05 | 1.06 | 1.07 | 1.06 | 1.06 | 1.05 | 1.00 |
| ITEM    | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
| Resist. | 1.04 | 1.06 | 1.03 | 1.01 | 1.05 | .98  | 1.03 | 1.04 | 1.06 | 1.01 |

**APPENDIX B**

**OP-QC-035**

## DEFINITION OF SYMBOLS

The definitions herein pertain to those symbols utilized on Eagle-Picher form OP-QC-035 "Bruceton Test Calculations and Results."

- R = Reliability of parts. Normally expressed as a decimal quantity between 0 and 1.
- C = Confidence level (in %) specified in analysis.
- d = Test level stimulus difference between test levels.
- n = Sample Size.
- $I_0$  = The lowest level of test stimulus used in the test.
- F = The number of parts responding at each test level.
- NF = The number of parts not responding at each test level.
- A = Computational factor.
- B = Computational factor.
- M = Computational factor.
- $I_m$  = mean test stimulus derived from the analysis.
- S = Estimate of the standard deviation of the data about  $I_m$ .
- $S_m$  = Estimate of the error in the determination of  $I_m$ .
- $S_s$  = Estimate of the error in the determination of S.
- $Z_R$  = Normal deviate corresponding to R.
- $S(I_m \pm Z_R S)$  = Estimate of the error in the determination of  $(I_m \pm Z_R S)$ .
- $I_m + Z_R S$  = Estimate of ALL FIRE test stimulus assuming no sample error.
- $I_m - Z_R S$  = Estimate of NO FIRE test stimulus assuming no sampling error.
- $I_F$  = The ALL FIRE test stimulus for specified confidence and reliability levels.
- $I_{NF}$  = The NO FIRE test stimulus for specified confidence and reliability levels.

## Definition of Symbols

Page 2

### THE BRUCETON TEST METHOD - References

1. The NAVORD 3369 - NOTS 948, Reprinted as "Statistical Manual," Dover, 1960, par. 4.5.
2. NAVORD 2101, "Statistical Methods Appropriate for Evaluation of Fuze Explosive Train Safety and Reliability," 13 October 1953.
3. AMP Report No. 101.1R, SRGP No. 40, "Statistical Analysis for a New Procedure in Sensitivity Experiments," July, 1944.

# BRUCETON TEST CALCULATIONS & RESULTS

|               |     |               |     |    |                  |            |
|---------------|-----|---------------|-----|----|------------------|------------|
| REPORT NUMBER |     |               |     |    |                  | REMARKS    |
| NUMBER        |     | TYPE OF TEST  |     |    |                  |            |
| DESCRIPTION   |     | PULSE LENGTH  |     |    |                  |            |
| NUMBER        |     | CALCULATED BY |     |    |                  | CHECKED BY |
|               |     | F             | NF  | A  | B                |            |
| I             | 1   | (n)           | (n) | in | i <sup>2</sup> n |            |
|               | 8   |               |     |    |                  |            |
|               | 7   |               |     |    |                  |            |
|               | 6   |               |     |    |                  |            |
|               | 5   |               |     |    |                  |            |
|               | 4   |               |     |    |                  |            |
|               | 3   |               |     |    |                  |            |
|               | 2   |               |     |    |                  |            |
|               | 1   |               |     |    |                  |            |
|               | 0   |               |     |    |                  |            |
|               | Sum |               |     |    |                  |            |

R = \_\_\_\_\_ C = \_\_\_\_\_

d = \_\_\_\_\_ I<sub>o</sub> = \_\_\_\_\_

n = \_\_\_\_\_ B = \_\_\_\_\_

A = \_\_\_\_\_ I<sub>a</sub> = \_\_\_\_\_

\*\*M = \_\_\_\_\_

S = \_\_\_\_\_

S<sub>M</sub> = \_\_\_\_\_

S<sub>s</sub> = \_\_\_\_\_

Z<sub>r</sub> = \_\_\_\_\_

S(I<sub>a</sub> + Z<sub>r</sub>S) = \_\_\_\_\_

I<sub>a</sub> + Z<sub>r</sub>S = \_\_\_\_\_

I<sub>a</sub> - Z<sub>r</sub>S = \_\_\_\_\_

t = \_\_\_\_\_

I<sub>r</sub> = \_\_\_\_\_

I<sub>MF</sub> = \_\_\_\_\_

$$I_a = I_o + (d) [(A/n) \pm 0.500]$$

$$M = (nB - A^2) / (n^2)$$

$$S = 1.62d(M + 0.0290)$$

$$S_M = (6S + d) (7n^{1/2})$$

$$S_s = (S) (1.1d + 0.3S) / Dn^{1/2}$$

$$S(I_a + Z_r S) = (S_{I_a}^2 + Z_r^2 S_s^2)^{1/2}$$

$$I_r = (I_a + Z_r S) + (t) (S(I_a + Z_r S))$$

$$I_{MF} = (I_a - Z_r S) - (t) (S(I_a - Z_r S))$$

\* Use + if NF used; - if F used. N in formulas is either NF or F.  
Formulas taken from NAVORD 3369 and NAVORD 2101.

\*\* If M < 0.3 use larger value of n.

