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FINAL REPORT ON  
OPERATIONAL RELIABILITY STUDY  
OF  
M16A1 RIFLE  
BY  
ALLAN WILSON  
OCTOBER 1969

ABERDEEN PROVING GROUND  
ABERDEEN PROVING GROUND, MARYLAND

Digitized by:

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |            |            | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|------------|------------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR   | 7<br>FF1   |             |
| 1                      | 11.07         | 4.2<br>MNC | 52.94       | 20.0<br>MNC | 13.0<br>MNC | 4.81       | 0<br>MNC   | 11.18       |
| 2                      | 26.0<br>MNC   | 5.08       | 50.87       | 12.2<br>MNC | 6.44        | 5.44       | 28.37      | 13.49       |
| 3                      | 22.02         | 3.15       | 17.74       | 0<br>MNC    | 7.0<br>MNC  | 10.12      | 14.56      | 5.0         |
| 4                      | 19.28         | 2.38       | 47.0<br>MNC | 11.3<br>MNC | 9.23        | 9.10       | 3.0<br>MNC | 6.45        |
| 5                      | 6.22          | 1.91       | 39.23       | 9.2<br>MNC  | 15.0<br>MNC | 8.5<br>MNC | 14.88      | 7.92        |
| 6                      | 5.14          | 2.56       | 0<br>MNI    | 30.0<br>MNC | 14.0<br>MNC | 9.73       | 7.40       | 6.01        |
| 7                      | 29.94         | 3.54       | 38.64       | 0<br>MNI    | 17.04       | 11.36      | 6.0<br>MNC | 3.89        |
| 8                      | 39.0<br>MNC   | 5.31       | 53.0<br>MNC | 9.6<br>MNC  | 24.39       | 9.01       | 6.23       | 4.86        |
| TOTAL TIME<br>TO CLEAR | 158.67        | 28.13      | 299.42      | 92.30       | 106.10      | 68.07      | 79.64      | 58.8        |
| NUMBER<br>CLEARED      | 8             | 8          | 7           | 6           | 8           | 8          | 7          | 8           |
| AVG TIME<br>TO CLEAR   | 19.83         | 3.51       | 42.77       | 15.38       | 13.26       | 8.51       | 11.38      | 7.35        |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 23 Jan 69 Day Night  
Exercise Number 4  
Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2    | 3           | 4           | 5           | 6    | 7          | 8     | MALFUNCTION |
|------------------------|-------|------|-------------|-------------|-------------|------|------------|-------|-------------|
|                        | FJ    | FFR  | FX          | FF          | FF          | FBR  | FF1        | MF    |             |
| 1                      | 14.9  | 6.4  | 46.1        | 3.5<br>MNC  | 25.0<br>MNC | 8.9  | 1.2<br>MNI | 11.0  |             |
| 2                      | 29.0  | 6.5  | 5.1         | 13.4<br>MNC | 27.0<br>MNC | 13.9 | 15.0       | 9.9   |             |
| 3                      | 5.6   | 3.1  | 63.0<br>MNC | 21.6        | 26.0<br>MNC | 4.0  | 41.2       | -     |             |
| 4                      | 5.8   | 6.5  | 57.0<br>MNC | 11.0<br>MNC | 10.5        | 6.5  | 15.1       | 9.5   |             |
| 5                      | 19.2  | 8.8  | 0<br>MNI    | 25.2<br>MNC | 19.0<br>MNC | 21.1 | 12.2       | 9.4   |             |
| 6                      | 13.2  | 4.5  | 55.0<br>MNC | 0<br>MNC    | 17.0<br>MNC | 8.7  | 8.2        | 9.5   |             |
| 7                      | 13.0  | 3.9  | 47.3        | 7.2<br>MNC  | 7.9         | 7.4  | 15.5       | 12.2  |             |
| 8                      | 18.4  | 5.0  | 53.3        | 8.0<br>MNC  | 6.0<br>MNC  | 7.3  | 16.1       | 9.7   |             |
| TOTAL TIME<br>TO CLEAR | 119.1 | 44.7 | 326.8       | 89.9        | 138.4       | 77.8 | 124.5      | 71.2  |             |
| NUMBER<br>CLEARED      | 8     | 8    | 7           | 7           | 8           | 8    | 8          | 7     |             |
| AVG TIME<br>TO CLEAR   | 14.89 | 5.59 | 46.69       | 12.84       | 17.30       | 9.72 | 15.56      | 10.17 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 25 JAN 69 (Day) Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2    | 3           | 4           | 5           | 6    | 7     | 8    | MALFUNCTION |
|------------------------|-------|------|-------------|-------------|-------------|------|-------|------|-------------|
|                        | FJ    | FFR  | FX          | FF          | FF          | FBR  | FF1   | MF   |             |
| 1                      | 6.1   | 5.9  | 56.6<br>MNC | 3.4<br>MNC  | 6.0<br>MNC  | 7.8  | 9.3   | 7.8  |             |
| 2                      | 17.3  | 4.2  | 54.0<br>MNC | 14.0<br>MNC | 13.8        | 13.1 | 16.2  | 21.2 |             |
| 3                      | 28.1  | 3.7  | 55.0<br>MNC | 8.9         | 18.0<br>MNC | 10.0 | 10.5  | 10.5 |             |
| 4                      | 4.0   | 4.5  | 48.0<br>MNC | 3.6<br>MNC  | 4.2         | 8.6  | 13.8  | 8.1  |             |
| 5                      | 20.6  | 9.3  | 37.0<br>MNC | 0<br>MNC    | 13.0<br>MNC | 8.2  | 10.0  | 5.1  |             |
| 6                      | 28.3  | 3.9  | 27.7        | 4.0<br>MNC  | 18.0<br>MNC | 5.8  | 7.1   | 6.4  |             |
| 7                      | 16.2  | 14.1 | 48.1        | 18.2<br>MNC | 12.0<br>MNC | 6.5  | 25.8  | 6.3  |             |
| 8                      | 7.6   | 8.7  | 31.1        | 5.4<br>MNC  | 5.0<br>MNC  | 9.6  | 11.0  | 6.9  |             |
| TOTAL TIME<br>TO CLEAR | 128.2 | 54.3 | 357.5       | 57.5        | 90.0        | 67.6 | 103.7 | 72.3 |             |
| NUMBER<br>CLEARED      | 8     | 8    | 8           | 7           | 8           | 8    | 8     | 8    |             |
| AVG TIME<br>TO CLEAR   | 16.02 | 6.79 | 44.69       | 8.21        | 11.25       | 8.70 | 12.96 | 9.04 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 25 JAN 69 (Day) Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |                         |             |             |          |           |          | MALFUNCTION |
|------------------------|---------------|----------|-------------------------|-------------|-------------|----------|-----------|----------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX                 | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1  | 8<br>MF  |             |
| 1                      | x<br>14.3     | 11.0     | 29.7                    | 0<br>MNC    | 9.9         | 9.3      | 31.9      | 7.1      |             |
| 2                      | 14.2          | 4.0      | 18.1                    | 14.0<br>MNC | 26.8        | 6.2      | 9.3       | x<br>8.0 |             |
| 3                      | 6.0<br>MNC    | 5.3      | 52.0<br>MNC             | 8.3<br>—    | 15.0<br>MNC | 9.1      | x<br>16.9 | 10.6     |             |
| 4                      | 4.5           | 5.3      | 0<br>MNC                | 0<br>MNC    | 6.0<br>MNC  | x<br>7.5 | 10.7      | 7.6      |             |
| 5                      | 10.6          | 15.0     | 45.0<br>MNC             | 3.6<br>MNC  | 13.0<br>MNC | 8.5      | 9.6       | 6.2      |             |
| 6                      | 11.2          | 5.2      | 19.2                    | x<br>7.5    | 22.0<br>MNC | 5.7      | 9.3       | 16.3     |             |
| 7                      | 12.7          | 5.3      | x<br>MNC                | 8.4         | 12.0<br>MNC | 6.1      | 11.5      | 5.6      |             |
| 8                      | 13.2          | x<br>8.5 | 53.0<br><del>34.1</del> | 4.6<br>MNC  | 6.1         | 4.9      | 11.3      | 5.1      |             |
| TOTAL TIME<br>TO CLEAR | 86.7          | 59.6     | 217.0                   | 46.4        | 110.8       | 57.3     | 110.5     | 66.5     |             |
| NUMBER<br>CLEARED      | 8             | 8        | 6                       | 6           | 8           | 8        | 8         | 8        |             |
| AVG TIME<br>TO CLEAR   | 10.84         | 7.45     | 36.16                   | 7.73        | 13.85       | 7.16     | 13.81     | 8.31     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 25 JAN 69 Day Night

Exercise Number #3

Firing Position FOX HOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |           |           |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|-----------|-----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR  | 7<br>FF1  | 8<br>MF |             |
| 1                      | x<br>11.3     | 5.7      | 45.0<br>MNC | 0           | 12.8        | 6.5       | 18.3      | 4.8     |             |
| 2                      | 16.6          | 6.3      | 31.2        | 15.6        | 18.0<br>MNC | 7.6       | 16.6      | 9.8     | x           |
| 3                      | 10.9          | 3.4      | 50.0<br>MNC | 10.1<br>MNC | 9.0<br>MNI  | 14.2      | x<br>11.2 | 5.5     |             |
| 4                      | 5.0           | 5.8      | 34.0<br>MNC | 3.0<br>MNC  | 6.4         | x<br>29.6 | 15.9      | 5.1     |             |
| 5                      | 8.3           | 10.8     | 3.8         | 4.9<br>MNC  | x<br>6.0    | 7.4       | 0<br>MNC  | 8.3     |             |
| 6                      | 6.3           | 5.2      | 17.1        | x<br>9.4    | 16.0<br>MNC | 6.8       | 10.2      | 5.0     |             |
| 7                      | 5.1           | 4.3      | x<br>40.1   | 31.9<br>MNC | 5.2         | 13.3      | 13.3      | 5.2     |             |
| 8                      | 7.3           | x<br>8.0 | 0<br>MNI    | 0<br>MNC    | 6.3         | 6.3       | 9.2       | 5.8     |             |
| TOTAL TIME<br>TO CLEAR | 70.8          | 88.2     | 221.2       | 74.9        | 99.7        | 91.70     | 94.7      | 49.5    |             |
| NUMBER<br>CLEARED      | 8             | 8        | 7           | 6           | 8           | 8         | 7         | 8       |             |
| AVG TIME<br>TO CLEAR   | 8.85          | 11.02    | 31.60       | 12.48       | 9.96        | 11.46     | 13.53     | 6.19    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 25 JAN / Day Night

Exercise Number # 4

Firing Position Prone

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2    | 3           | 4           | 5           | 6    | 7          | 8     | MALFUNCTION |
|------------------------|-------|------|-------------|-------------|-------------|------|------------|-------|-------------|
|                        | FJ    | FFR  | FX          | FF          | FF          | FBR  | FFI        | MF    |             |
| 1                      | 8.1   | 6.4  | 0<br>MNI    | 11.0<br>MNC | 13.5        | 13.0 | 0<br>MNC   | 4.2   |             |
| 2                      | 11.0  | 17.3 | 8.0<br>MNC  | 0<br>MNC    | 12.0<br>MNC | 8.9  | 6.6        | 14.3  | x           |
| 3                      | 11.3  | 2.5  | 27.4        | 9.6<br>MNC  | 15.2        | 6.2  | 9.9        | 0     | x           |
| 4                      | 11.3  | 6.5  | 9.0         | 12.5        | 8.4         | 11.2 | 15.0       | 6.8   | x           |
| 5                      | 17.3  | 0    | 47.0<br>MNC | 14.2        | 5.0<br>MNC  | 12.6 | 6.0<br>MNC | 6.7   |             |
| 6                      | 7.8   | 1.9  | 19.0<br>MNC | x<br>25.6   | 7.0<br>MNC  | 7.8  | 0<br>MNC   | 6.6   |             |
| 7                      | 9.2   | 10.0 | 0<br>MNC    | 15.1<br>MNC | 12.0<br>MNC | 6.8  | 0<br>MNC   | 10.0  |             |
| 8                      | 9.2   | 5.5  | 36.1        | 0<br>MNC    | 6.0<br>MNC  | 11.4 | 0<br>MNC   | 6.5   |             |
| TOTAL TIME<br>TO CLEAR | 85.2  | 50.1 | 146.5       | 88.0        | 79.10       | 77.9 | 37.5       | 55.10 |             |
| NUMBER<br>CLEARED      | 8     | 7    | 6           | 6           | 8           | 8    | 4          | 7     |             |
| AVG TIME<br>TO CLEAR   | 10.65 | 7.16 | 24.42       | 14.67       | 9.89        | 9.74 | 9.38       | 7.87  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 25 JAN 69 Day Night

Exercise Number #1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |            |           |            |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|------------|-----------|------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF    | 6<br>FBR  | 7<br>FF1   | 8<br>MF |             |
| 1                      | 23.8          | 4.9      | 48.0<br>MNC | 11.2<br>MNC | 6.0<br>MNC | 6.6       | 0<br>MNC   | 3.8     |             |
| 2                      | 18.0<br>MNI   | 9.9      | 16.5        | 10.2        | 5.0<br>MNC | 7.7       | 15.5       | 7.6     | *           |
| 3                      | 5.2           | 2.8      | 42.0<br>MNC | 17.2<br>MNC | 8.0<br>MNC | 9.2       | 7.0<br>MNC | —       |             |
| 4                      | 5.0<br>MNC    | 29.6     | 48.0<br>MNC | 0<br>MNC    | 7.0<br>MNC | *<br>13.8 | 0<br>MNC   | 5.9     |             |
| 5                      | 41.5          | 7.2      | 35.0<br>MNC | 10.9<br>MNC | *<br>7.6   | 11.5      | 4.0<br>MNC | 7.3     |             |
| 6                      | 8.1           | 2.0      | 27.2        | 5.1         | 9.0<br>MNC | 5.6       | 3.2        | 10.2    |             |
| 7                      | 8.0           | 3.8      | 45.0<br>MNC | 8.8<br>MNC  | 5.0<br>MNC | 8.2       | 22.6       | 5.3     |             |
| 8                      | 11.3          | 4.6      | 35.3        | 7.0<br>MNC  | 4.0<br>MNC | 11.9      | 22.8       | 7.1     |             |
| TOTAL TIME<br>TO CLEAR | 120.9         | 64.8     | 317.0       | 70.4        | 51.6       | 74.5      | 75.10      | 47.2    |             |
| NUMBER<br>CLEARED      | 8             | 8        | 8           | 7           | 8          | 8         | 6          | 7       |             |
| AVG TIME<br>TO CLEAR   | 15.11         | 8.10     | 39.62       | 10.06       | 6.45       | 9.31      | 12.52      | 6.74    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 25 JAN 07 Day Night

Exercise Number #2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |            |          |            |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|------------|----------|------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF    | 6<br>FBR | 7<br>FFL   | 8<br>MF |             |
| 1                      | 7.5           | 6.0      | 0<br>MNC    | 23.5        | 7.0<br>MNC | 19.2     | 37.8       | 3.4     |             |
| 2                      | 13.6          | 7.2      | 39.6        | 12.4<br>MNC | 0<br>-     | 9.8      | 6.0        | 21.7    |             |
| 3                      | 25.0          | 2.5      | 25.7        | 11.4        | 5.0<br>MNC | 16.8     | 11.3       | 4.9     |             |
| 4                      | 12.2          | 3.8      | 48.0<br>MNC | 10.4        | 9.0<br>MNC | 32.3     | 0<br>MNC   | 6.9     |             |
| 5                      | 5.6<br>MNC    | 9.9      | 41.0<br>MNC | 13.2<br>MNC | 4.8        | 9.4      | 7.0<br>MNC | 6.1     |             |
| 6                      | 16.0          | 1.9      | 56.0<br>MNC | 15.2<br>MNC | 8.0<br>MNC | 8.8      | 21.0       | 9.8     |             |
| 7                      | 12.4          | 9.0      | 45.0<br>MNC | 13.5        | 9.0<br>MNC | 11.9     | 0<br>MNC   | 5.7     |             |
| 8                      | 9.1           | 7.2      | 65.0<br>MNC | 19.5        | 6.0<br>MNC | 8.6      | 33.7       | 4.4     |             |
| TOTAL TIME<br>TO CLEAR | 101.4         | 47.5     | 320.3       | 119.1       | 48.8       | 110.8    | 116.8      | 62.9    |             |
| NUMBER<br>CLEARED      | 8             | 8        | 7           | 8           | 7          | 8        | 6          | 8       |             |
| AVG TIME<br>TO CLEAR   | 12.68         | 5.94     | 45.76       | 14.89       | 6.97       | 13.85    | 19.46      | 7.86    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 25 JAN 67 Day Night

Exercise Number # 3

Firing Position FOX HOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |          |            |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|----------|------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FFI   | 8<br>MF |             |
| 1                      | 21.8          | 6.9      | 55.0<br>MNC | 5.0<br>MNC  | 10.0<br>MNC | 14.9     | 18.8       | 5.4     |             |
| 2                      | 12.9          | 5.9      | 56.0<br>MNC | 11.6<br>MNC | 6.0<br>MNC  | 13.1     | 11.4       | 7.9     |             |
| 3                      | 15.0          | 3.3      | 32.9        | 15.0<br>MNC | 6.0<br>MNC  | 11.6     | 7.6        | 10.5    |             |
| 4                      | 9.7           | 5.8      | 45.0<br>MNC | 7.1<br>MNC  | 9.0<br>MNC  | 18.5     | 29.6       | 6.7     |             |
| 5                      | 21.3          | 9.9      | 50.0<br>MNC | 9.6         | 6.6         | 12.0     | 0<br>MNC   | 9.4     |             |
| 6                      | 15.7          | 2.2      | 30.0<br>MNC | 18.3        | 8.0<br>MNC  | 8.0      | 3.0<br>MNC | 28.5    |             |
| 7                      | 19.1          | 3.9      | 36.9        | 11.3        | 9.0<br>MNC  | 11.7     | 10.8       | 8.1     |             |
| 8                      | 13.9          | 5.6      | 16.4        | 9.0<br>MNC  | 4.9         | 24.2     | 5.0<br>MNC | 4.8     |             |
| TOTAL TIME<br>TO CLEAR | 129.4         | 43.5     | 322.2       | 86.9        | 59.5        | 114.0    | 86.2       | 81.3    |             |
| NUMBER<br>CLEARED      | 8             | 8        | 8           | 8           | 8           | 8        | 7          | 8       |             |
| AVG TIME<br>TO CLEAR   | 16.18         | 5.44     | 40.28       | 10.86       | 7.44        | 14.25    | 12.31      | 10.16   |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 25 JAN 69 Day Night

Exercise Number - 4

Firing Position Prone

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1          | 2    | 3           | 4           | 5           | 6           | 7          | 8    | MALFUNCTION |
|------------------------|------------|------|-------------|-------------|-------------|-------------|------------|------|-------------|
|                        | FJ         | FFR  | FX          | FF          | FF          | FBR         | FF1        | MF   |             |
| 1                      | 10.5       | 4.2  | 24.2        | 6.7         | 8.0<br>MNC  | 12.3        | 12.5       | 6.5  |             |
| 2                      | 12.5       | 4.5  | 45.3        | 10.4<br>MNC | 20.3        | 18.5        | 0<br>MNC   | 9.4  |             |
| 3                      | 10.2       | 3.7  | 35.6        | 9.7<br>MNC  | 5.0<br>MNC  | 9.0         | 3.0<br>MNC | 10.0 |             |
| 4                      | 6.6        | 4.2  | 40.6        | 14.4<br>MNC | 5.0<br>MNC  | 8.4         | 0<br>MNC   | 8.0  |             |
| 5                      | 4.7        | 5.2  | 44.0<br>MNC | 0<br>MNC    | 9.0<br>MNC  | 18.7        | 28.8       | 12.3 |             |
| 6                      | 11.1       | 5.2  | 38.0<br>MNC | 0<br>MNI    | 13.0<br>MNC | 10.0        | 31.2       | 8.2  |             |
| 7                      | 9.4        | 3.3  | 21.5        | 8.7<br>MNI  | 6.0<br>MNC  | 10.0<br>MNC | 10.8       | 10.3 |             |
| 8                      | 3.0<br>MNC | 4.7  | 43.0<br>MNC | 8.9<br>MNC  | 13.0<br>MNC | 24.5        | 0<br>MNC   | 9.5  |             |
| TOTAL TIME<br>TO CLEAR | 68.0       | 35.0 | 292.2       | 58.8        | 79.3        | 111.40      | 86.30      | 74.2 |             |
| NUMBER<br>CLEARED      | 8          | 8    | 8           | 6           | 8           | 8           | 5          | 8    |             |
| AVG TIME<br>TO CLEAR   | 8.50       | 4.38 | 36.52       | 9.80        | 9.91        | 13.92       | 17.26      | 9.28 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 27 JAN 69 (Day) Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |          |          |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|----------|----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1 | 8<br>MF |             |
| 1                      | 9.8           | 7.0      | 46.3        | 6.5         | 15.0<br>MNC | 12.6     | 20.0     | 6.5     |             |
| 2                      | 24.0          | 3.9      | 63.0<br>MNC | 9.6         | 4.0<br>MNC  | 10.1     | 25.3     | 7.1     |             |
| 3                      | 5.9           | 5.3      | 27.4        | 9.4<br>MNC  | 7.0<br>MNC  | 10.6     | 17.3     | 7.2     |             |
| 4                      | 10.8          | 5.5      | 21.2        | 9.0         | 3.0<br>MNC  | 8.1      | 17.5     | 7.5     |             |
| 5                      | 4.2           | 3.9      | 31.5        | 12.8        | 5.0<br>MNC  | 8.8      | 29.9     | 7.7     |             |
| 6                      | 4.5           | 6.5      | 38.0<br>MNC | 10.3<br>MNC | 9.0<br>MNC  | 4.9      | 20.8     | 7.2     |             |
| 7                      | 7.7           | 0        | 12.5        | 7.3         | 4.4         | 10.9     | 18.9     | 7.4     |             |
| 8                      | 6.6           | 0        | 37.0<br>MNC | 7.0         | 9.0<br>MNC  | 9.9      | 13.3     | 7.5     |             |
| TOTAL TIME<br>TO CLEAR | 73.50         | 32.10    | 276.9       | 71.70       | 56.40       | 75.90    | 163.0    | 58.10   |             |
| NUMBER<br>CLEARED      | 8             | 6        | 8           | 8           | 8           | 8        | 8        | 8       |             |
| AVG TIME<br>TO CLEAR   | 9.19          | 5.35     | 34.61       | 8.96        | 7.05        | 9.49     | 20.38    | 7.26    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 27 JAN 69 (Day) Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2     | 3     | 4           | 5           | 6     | 7          | 8     | MALFUNCTION |
|------------------------|-------|-------|-------|-------------|-------------|-------|------------|-------|-------------|
|                        | FJ    | FFR   | FX    | FF          | FF          | FBR   | FF1        | MF    |             |
| 1                      | 13.4  | 9.4   | 15.5  | 10.9        | 7.0<br>MNC  | 8.2   | 14.2       | 9.0   |             |
| 2                      | 9.6   | 4.1   | 12.2  | 6.4<br>MNC  | 3.7         | 11.5  | 12.1       | 8.0   |             |
| 3                      | 5.4   | 6.2   | 35.9  | 10.0<br>MNC | 8.0<br>MNC  | 23.7  | 24.6       | 12.5  |             |
| 4                      | 4.5   | 3.7   | MNI   | 8.2<br>MNC  | 7.0<br>MNC  | 9.3   | 4.0<br>MNC | 7.6   |             |
| 5                      | 6.5   | 3.3   | 7.2   | 18.3        | 12.0<br>MNC | 12.3  | 0<br>MNC   | 6.9   |             |
| 6                      | 9.8   | 4.2   | MNI   | 8.2<br>MNC  | 9.0<br>MNC  | 8.5   | 17.4       | 8.2   |             |
| 7                      | 6.3   | 3.0   | MNC   | 14.6<br>MNC | 4.0<br>MNC  | 10.5  | 24.3       | 7.4   |             |
| 8                      | 6.2   | 4.9   | MNC   | 0<br>MNI    | 10.0<br>MNC | 11.4  | 28.8       | 7.2   |             |
| TOTAL TIME<br>TO CLEAR | 61.70 | 38.80 | 70.80 | 76.60       | 60.70       | 95.40 | 125.40     | 66.80 |             |
| NUMBER<br>CLEARED      | 8     | 8     | 4     | 7           | 8           | 8     | 7          | 8     |             |
| AVG TIME<br>TO CLEAR   | 7.71  | 4.85  | 17.70 | 10.94       | 7.59        | 11.92 | 17.91      | 8.35  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 27 JAN 64 (Day) Night

Exercise Number 3

Firing Position FOXHOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |          |             |             |          |          |         | MALFUNCTION |
|------------------------|---------------|----------|----------|-------------|-------------|----------|----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX  | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1 | 8<br>MF |             |
| 1                      | 14.3          | 3.8      | 21.3     | 4.9         | 13.0<br>MNC | 9.1      | 11.5     | 9.1     |             |
| 2                      | 11.0          | 4.7      | 8.8      | 13.5        | 8.0<br>MNC  | 10.6     | 20.0     | 7.7     |             |
| 3                      | 13.8          | 4.5      | 16.7     | 9.4         | 16.6        | 11.1     | 17.4     | 6.6     |             |
| 4                      | 8.1           | 4.7      | 0<br>MNC | 9.0<br>MNC  | 9.0<br>MNI  | 11.4     | 12.9     | 6.3     |             |
| 5                      | 10.3          | 4.7      | 26.1     | 14.8<br>MNC | 6.0<br>MNC  | 14.7     | 13.6     | 10.0    |             |
| 6                      | 9.9           | 6.5      | 0<br>MNI | 12.3        | 7.0<br>MNC  | 9.3      | 22.5     | 7.8     |             |
| 7                      | 7.0           | 3.6      | 22.3     | 3.7         | 8.9         | 13.1     | 24.2     | 6.9     |             |
| 8                      | 16.8          | 5.8      | 0<br>MNI | 7.2         | 4.0<br>MNC  | 8.4      | 7.4      | 6.5     |             |
| TOTAL TIME<br>TO CLEAR | 183.90        | 38.30    | 95.2     | 74.8        | 72.50       | 87.70    | 129.50   | 60.90   |             |
| NUMBER<br>CLEARED      | 8             | 8        | 5        | 8           | 8           | 8        | 8        | 8       |             |
| AVG TIME<br>TO CLEAR   | 22.99         | 4.79     | 19.04    | 9.35        | 9.06        | 10.96    | 16.19    | 7.61    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 27 JAN 69 Day Night

Exercise Number 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |           |             |             |             |           |            |         | MALFUNCTION |
|------------------------|---------------|-----------|-------------|-------------|-------------|-----------|------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR  | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR  | 7<br>FF1   | 8<br>MF |             |
| 1                      | ✓<br>10.0     | 12.0      | 8.6         | 12.4        | 9.0<br>MNC  | 10.0      | 3.0<br>MNC | 6.2     |             |
| 2                      | 11.3          | 2.2       | 37.1        | 13.9<br>MNC | 8.0<br>MNI  | 7.2       | 8.3        | 8.3     | ✓           |
| 3                      | 3.0<br>MNC    | 11.5      | 46.0<br>MNC | 10.3        | 13.0<br>MNC | 7.7       | ✓<br>9.6   | 5.8     |             |
| 4                      | 5.7           | 4.5       | 22.6        | 22.0<br>MNC | 8.9         | ✓<br>19.8 | 25.4       | 6.3     |             |
| 5                      | 8.0           | 44.5      | 25.1        | 5.3         | 10.0<br>MNC | 9.8       | 11.6       | 9.4     |             |
| 6                      | 14.3          | 7.3       | 43.0<br>MNC | ✓<br>MNI    | 7.0<br>MNC  | 6.1       | 16.6       | 9.0     |             |
| 7                      | 6.0           | 5.9       | ✓<br>MNI    | 8.3         | 5.0<br>MNC  | 12.5      | 7.0<br>MNC | 7.3     |             |
| 8                      | 10.7          | ✓<br>4.40 | 23.0<br>MNC | 18.2<br>MNC | 7.0<br>MNC  | 12.30     | 15.20      | 7.60    |             |
| TOTAL TIME<br>TO CLEAR | 69.00         | 92.30     | 205.40      | 90.40       | 67.90       | 85.40     | 96.70      | 59.90   |             |
| NUMBER<br>CLEARED      | 8             | 8         | 7           | 7           | 8           | 8         | 8          | 8       |             |
| AVG TIME<br>TO CLEAR   | 8.62          | 11.54     | 29.34       | 12.91       | 8.49        | 10.68     | 12.09      | 7.49    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 27 JAN 69 Day Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1           | 2        | 3           | 4           | 5           | 6     | 7          | 8     | MALFUNCTION |
|------------------------|-------------|----------|-------------|-------------|-------------|-------|------------|-------|-------------|
|                        | FJ          | FFR      | FX          | FF          | FF          | FBR   | FFI        | MF    |             |
| 1                      | MNC         | 10.90    | 43.0<br>MNC | 15.10       | 9.0<br>MNC  | 9.20  | 3.6<br>MNC | 5.50  |             |
| 2                      | 13.00       | 1.90     | 38.0<br>MNC | 10.8<br>MNC | 8.90        | 7.10  | 4.30       | 6.70  |             |
| 3                      | 5.10        | 4.20     | 43.0<br>MNC | 7.30        | 8.0<br>MNC  | 5.60  | 12.60      | 5.10  |             |
| 4                      | 6.90        | 5.30     | 3.80        | 23.80       | 16.70       | 10.70 | 12.00      | 8.10  |             |
| 5                      | 24.60       | 3.30     | 40.0<br>MNC | 11.2<br>MNI | 11.50       | 8.30  | 7.20       | 10.60 |             |
| 6                      | 18.90       | 13.00    | 13.0<br>MNC | 13.50       | 10.0<br>MNC | 9.40  | 19.90      | 8.80  |             |
| 7                      | 6.60        | 4.30     | 19.10       | 6.55        | 6.0<br>MNC  | 10.40 | 14.50      | 6.40  |             |
| 8                      | 29.0<br>MNC | 0<br>MNI | 0<br>MNC    | 9.30        | 16.55       | 9.30  | 11.65      | 12.70 |             |
| TOTAL TIME<br>TO CLEAR | 104.10      | 42.90    | 199.9       | 97.55       | 86.65       | 76.00 | 85.75      | 62.20 |             |
| NUMBER<br>CLEARED      | 7           | 7        | 7           | 8           | 8           | 8     | 8          | 8     |             |
| AVG TIME<br>TO CLEAR   | 14.87       | 6.13     | 28.56       | 12.19       | 10.83       | 8.75  | 10.72      | 7.78  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 27 JAN 69 Day (Night)

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2        | 3           | 4           | 5           | 6     | 7          | 8     | MALFUNCTION |
|------------------------|-------|----------|-------------|-------------|-------------|-------|------------|-------|-------------|
|                        | FJ    | FFR      | FX          | FF          | FF          | FBR   | FF1        | MF    |             |
| 1                      | 14.65 | 15.40    | 34.65       | 11.10       | 10.0<br>MNC | 6.95  | 7.90       | 16.95 |             |
| 2                      | 13.00 | 1.40     | 9.0<br>MNC  | 11.2<br>MNC | 10.75       | 7.50  | MNC        | 7.40  |             |
| 3                      | 11.85 | 0<br>MNI | 27.0<br>MNC | 6.50        | 9.0<br>MNC  | 10.00 | 13.50      | 7.30  |             |
| 4                      | 9.75  | 4.95     | 28.80       | 21.45       | 9.00        | 8.80  | 10.55      | 7.25  |             |
| 5                      | 5.30  | 3.05     | 4.0<br>MNI  | 23.65       | 11.0<br>MNC | 7.80  | 0<br>MNC   | 8.60  |             |
| 6                      | 12.20 | 7.65     | 9.30        | 10.95       | 4.0<br>MNC  | 6.60  | 6.0<br>MNC | 24.30 |             |
| 7                      | 16.60 | 3.00     | 33.0<br>MNC | 6.80        | 5.0<br>MNC  | 9.10  | 11.70      | 10.45 |             |
| 8                      | 6.50  | 4.30     | 35.0<br>MNC | 9.25        | 4.0<br>MNC  | 12.85 | 12.55      | 3.60  |             |
| TOTAL TIME<br>TO CLEAR | 89.85 | 39.75    | 178.75      | 100.9       | 62.75       | 69.60 | 62.2       | 85.85 |             |
| NUMBER<br>CLEARED      | 8     | 7        | 8           | 8           | 8           | 8     | 6          | 8     |             |
| AVG TIME<br>TO CLEAR   | 11.23 | 5.68     | 22.34       | 12.61       | 7.84        | 8.70  | 10.37      | 10.73 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 27 JAN 69 Day Night

Exercise Number 3

Firing Position FOXHOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |          |            | MALFUNCTION |         |
|------------------------|---------------|----------|-------------|-------------|-------------|----------|------------|-------------|---------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FFI   |             | 8<br>MF |
| 1                      | 12.70         | 19.30    | 28.0<br>MNC | 22.95       | 9.0<br>MNC  | 6.55     | 10.45      | 10.30       |         |
| 2                      | 10.90         | 2.45     | 49.0<br>MNC | 8.50        | 7.0<br>MNC  | 19.70    | 6<br>MNC   | 5.60        |         |
| 3                      | 5.50          | 3.20     | 35.0<br>MNC | 8.9<br>MNC  | 10.0<br>MNC | 30.15    | 2.0<br>MNC | 5.15        |         |
| 4                      | 14.75         | 5.80     | 0<br>MNC    | 8.35        | 8.0<br>MNC  | 9.80     | 6.80       | 7.10        |         |
| 5                      | 45.0<br>MNC   | 3.05     | 16.80       | 23.6<br>MNC | 9.0<br>MNC  | 8.70     | 16.85      | 7.65        |         |
| 6                      | 15.15         | 6.90     | 32.0<br>MNC | 14.80       | 5.0<br>MNC  | 5.25     | 17.65      | 9.50        |         |
| 7                      | 30.00         | 16.00    | 44.10       | 6.25        | 7.15        | 11.05    | 8.40       | 6.60        |         |
| 8                      | 30.0<br>MNC   | 5.35     | 45.0<br>MNC | 9.50        | 9.0<br>MNC  | 16.50    | 3.0<br>MNC | 7.30        |         |
| TOTAL TIME<br>TO CLEAR | 164.0         | 62.05    | 249.9       | 102.85      | 64.15       | 107.70   | 71.15      | 59.20       |         |
| NUMBER<br>CLEARED      | 8             | 8        | 7           | 8           | 8           | 8        | 8          | 8           |         |
| AVG TIME<br>TO CLEAR   | 20.50         | 7.76     | 35.70       | 12.86       | 8.02        | 13.46    | 8.89       | 7.40        |         |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 27 JAN 69 Day Night

Exercise Number 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |          |          |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|----------|----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1 | 8<br>MF |             |
| 1                      | x<br>6.5      | 5.8      | 34.0        | 12.7        | 10.0<br>MNC | 7.7      | 19.6     | 11.5    |             |
| 2                      | 7.7           | 3.7      | 28.0        | 12.0<br>MNC | 5.7         | 7.6      | 12.7     | 16.1    | x           |
| 3                      | 11.2          | 5.6      | 36<br>MNC   | 8.0         | 11.3        | 21.3     | 11.0     | 6.7     | x           |
| 4                      | 20.7          | 4.3      | 27.5        | 13.8        | 21.0<br>MNC | 10.2     | 5.8      | 6.3     | x           |
| 5                      | 13.8          | 2.7      | 28.7        | 10.4<br>MNC | 7.0<br>MNC  | 7.3      | 10.4     | 9.7     |             |
| 6                      | 5.3           | 0<br>MNC | 38.0<br>MNC | 11.0        | 7.3         | 7.5      | 16.1     | 7.1     |             |
| 7                      | 5.8           | 5.5      | 16.8        | 5.5<br>MNC  | 4.3         | 13.5     | 7.7      | 6.7     |             |
| 8                      | 8.0           | 3.5      | 30.0<br>MNC | 0<br>MNI    | 6.5         | 23.7     | 12.1     | 5.6     |             |
| TOTAL TIME<br>TO CLEAR | 79            | 31.1     | 239         | 73.4        | 73.1        | 98.8     | 95.4     | 69.7    |             |
| NUMBER<br>CLEARED      | 8             | 7        | 8           | 7           | 8           | 8        | 8        | 8       |             |
| AVG TIME<br>TO CLEAR   | 9.88          | 4.44     | 29.88       | 10.48       | 9.14        | 12.35    | 11.93    | 8.71    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 28 JAN 69 Day Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2    | 3          | 4           | 5          | 6    | 7     | 8    | MALFUNCTION |
|------------------------|-------|------|------------|-------------|------------|------|-------|------|-------------|
|                        | FJ    | FFR  | FX         | FF          | FF         | FBR  | FFI   | MF   |             |
| 1                      | 9.9   | 4.6  | 29.4       | 12.8        | 8.9        | 6.6  | 11.4  | 8.7  |             |
| 2                      | 10.0  | 2.7  | ⊙<br>MNI   | ⊙<br>MNI    | 5.0<br>MNC | 7.0  | 8.8   | 9.2  |             |
| 3                      | 29.7  | 5.2  | 39.5       | 3.6<br>MNC  | 9.0<br>MNC | 17.3 | 19.7  | 5.6  |             |
| 4                      | 5.1   | 3.5  | 35.3       | 13.3        | 7.0<br>MNC | 7.2  | 8.3   | 4.4  |             |
| 5                      | 13.3  | 12.7 | 14.8       | 12.3        | 6.2        | 9.7  | 10.3  | 10.5 |             |
| 6                      | 4.7   | 5.6  | 6.0<br>MNI | 11.3<br>MNI | 7.0<br>MNC | 4.7  | 9.3   | 6.5  |             |
| 7                      | 7.3   | 4.5  | ⊙<br>MNC   | 9.4         | 5.0<br>MNC | 10.9 | 11.6  | 5.9  |             |
| 8                      | 9.2   | 3.9  | 17.0       | 11.0<br>MNI | 8.7        | 9.3  | 7.3   | 6.1  |             |
| TOTAL TIME<br>TO CLEAR | 89.2  | 42.7 | 137        | 73.7        | 56.8       | 72.7 | 86.7  | 56.9 |             |
| NUMBER<br>CLEARED      | 8     | 8    | 6          | 7           | 8          | 8    | 8     | 8    |             |
| AVG TIME<br>TO CLEAR   | 11.15 | 5.34 | 22.83      | 10.53       | 7.1        | 9.09 | 10.84 | 7.11 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 28 JAN 69 Day Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |      |             |            |                 |      |          |      | MALFUNCTION |
|------------------------|---------------|------|-------------|------------|-----------------|------|----------|------|-------------|
|                        | 1             | 2    | 3           | 4          | 5               | 6    | 7        | 8    |             |
|                        | FJ            | FFR  | FX          | FF         | FF              | FBR  | FF1      | MF   |             |
| 1                      | x<br>12.1     | 4.5  | 29.1        | 6.8<br>MNC | 7.0<br>MNC      | 6.5  | 6.7      | 10.2 |             |
| 2                      | 9.2           | 3.8  | 4.0<br>MNC  | 6.8<br>MNC | 9.0<br>MNC      | 7.3  | 15.7     | 8.1  | x           |
| 3                      | 6.5           | 7.2  | 33.0<br>MNC | 9.2        | 8.2             | 10.7 | x<br>9.5 | 6.2  |             |
| 4                      | 11.3          | 4.7  | 15.6        | 7.8        | 8.0<br>MNC      | 6.9  | 12.5     | 6.7  |             |
| 5                      | 23.9          | 3.2  | 19.4        | 13.7       | x<br>9.0<br>MNC | 8.3  | 10.0     | 7.8  |             |
| 6                      | 6.6           | 2.0  | 36.5        | 0<br>MNI   | 6.0<br>MNC      | 8.3  | 13.2     | 8.1  |             |
| 7                      | 7.6           | 7.8  | 15.8        | 5.8        | 10.0<br>MNC     | 10.7 | 9.1      | 6.4  |             |
| 8                      | 8.4           | 4.8  | 20.5        | 7.4        | 9.0<br>MNC      | 10.1 | 10.4     | 4.5  |             |
| TOTAL TIME<br>TO CLEAR | 85.6          | 38   | 209.9       | 57.7       | 66.2            | 68.8 | 87.1     | 56.9 |             |
| NUMBER<br>CLEARED      | 8             | 8    | 8           | 7          | 8               | 8    | 8        | 8    |             |
| AVG TIME<br>TO CLEAR   | 10.7          | 4.75 | 26.24       | 8.24       | 8.28            | 8.6  | 10.89    | 7.11 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 28 JAN 69 Day Night

Exercise Number 3

Firing Position FOX HOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1         | 2        | 3           | 4     | 5           | 6    | 7        | 8    | MALFUNCTION |
|------------------------|-----------|----------|-------------|-------|-------------|------|----------|------|-------------|
|                        | FJ        | FFR      | FX          | FF    | FF          | FBR  | FF1      | MF   |             |
| 1                      | x<br>17.3 | 4.0      | 17.1        | 13.2  | 13.0<br>MNC | 7.8  | 10.3     | 10.7 |             |
| 2                      | 11.8      | 4.8      | 40.0<br>MNC | 13.0  | 9.0<br>MNC  | 8.6  | 20.7     | 9.8  | x           |
| 3                      | 9.5       | 4.3      | 33.0<br>MNC | 9.5   | 4.0<br>MNC  | 10.4 | 7.0      | 4.8  | x           |
| 4                      | 6.7       | 4.0      | 17.2        | 10.3  | 9.0<br>MNC  | 10.5 | 9.9      | 6.8  |             |
| 5                      | 14.8      | 2.5      | 18.2        | 13.8  | 10.2        | 6.9  | 11.8     | 7.7  |             |
| 6                      | 5.2       | 4.7      | 16.5        | 8.5   | 6.0         | 8.1  | ⊙<br>MNC | 6.4  |             |
| 7                      | 6.1       | 9.0      | 30.0<br>MNC | 11.3  | 8.0<br>MNC  | 14.5 | 8.9      | 6.2  |             |
| 8                      | 10.1      | x<br>3.7 | 39.8        | 8.0   | 8.8         | 11.2 | 10.0     | 7.6  |             |
| TOTAL TIME<br>TO CLEAR | 81.5      | 37       | 211.8       | 87.6  | 68.0        | 78   | 78.6     | 60   |             |
| NUMBER<br>CLEARED      | 8         | 8        | 8           | 8     | 8           | 8    | 7        | 8    |             |
| AVG TIME<br>TO CLEAR   | 10.19     | 4.63     | 26.48       | 10.95 | 8.55        | 9.75 | 9.83     | 7.5  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 28 JAN 69 Day Night

Exercise Number 4

Firing Position Prime

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |                  |           |            |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|------------------|-----------|------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF          | 6<br>FBR  | 7<br>FF1   | 8<br>MF |             |
| 1                      | x<br>10.5     | 9.4      | 4.0<br>MNI  | 3.5         | 4.5              | 7.4       | 11.3       | 12.8    |             |
| 2                      | 6.0<br>MNC    | 1.7      | 36.0<br>MNC | 19.2        | 7.0<br>MNC       | 8.5       | 7.0<br>MNC | 10.8    | x           |
| 3                      | 12.3          | 3.6      | 0<br>MNI    | 9.0<br>MNC  | 4.0<br>MNC       | 18.0      | x<br>17.5  | 24.3    |             |
| 4                      | 5.5           | 4.5      | 18.0        | 6.8         | 8.9              | x<br>10.5 | 3.0<br>MNC | 7.3     |             |
| 5                      | 19.3          | 2.2      | 20.8        | 6.8         | x<br>10.0<br>MNC | 13.9      | 12.8       | 9.0     |             |
| 6                      | 3.5           | 4.5      | 35.0<br>MNC | 8.0<br>MNC  | 7.0<br>MNC       | 10.5      | 13.8       | 8.3     |             |
| 7                      | 7.1           | 9.8      | x<br>33.3   | 13.8<br>MNC | 4.9              | 11.0      | 9.2        | 6.1     |             |
| 8                      | 7.8           | x<br>3.3 | 30.3        | 8.0<br>MNC  | 9.1              | 10.2      | 14.5       | 6.1     |             |
| TOTAL TIME<br>TO CLEAR | 72            | 39       | 177.4       | 75.1        | 55.4             | 90        | 89.1       | 84.7    |             |
| NUMBER<br>CLEARED      | 8             | 8        | 7           | 8           | 8                | 8         | 8          | 8       |             |
| AVG TIME<br>TO CLEAR   | 9             | 4.88     | 25.34       | 9.39        | 6.93             | 11.25     | 11.14      | 10.59   |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 28 JAN 69 Day Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |            |            |          |            | MALFUNCTION |
|------------------------|---------------|----------|-------------|------------|------------|----------|------------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF    | 5<br>FF    | 6<br>FBR | 7<br>FF1   |             |
| 1                      | 7.1           | 4.3      | 37.0<br>MNC | 13.5       | 8.5        | 16.7     | 10.1       | 7.3         |
| 2                      | 9.5           | 2.0      | 23.0<br>MNC | 8.0<br>MNC | 5.0<br>MNC | 5.2      | 13.6       | 12.0        |
| 3                      | 38.3          | 3.30     | 14.2        | 3.9        | 7.0<br>MNC | 9.5      | 15.8       | 4.7         |
| 4                      | 5.5           | 4.80     | 0<br>MNI    | 6.0<br>MNC | 6.0<br>MNC | 10.2     | 0<br>MNC   | 5.0         |
| 5                      | 14.7          | 2.1      | 0<br>MNI    | 0<br>MNI   | 4.0<br>MNC | 8.80     | 15.4       | MNI         |
| 6                      | 3.60          | 4.4      | 35.0<br>MNC | 0<br>MNC   | 7.0<br>MNC | 5.0      | 20.8       | 8.0         |
| 7                      | 13.30         | 2.50     | 12.5        | 2.4        | 5.0        | 14.1     | 15.9       | 5.70        |
| 8                      | 5.0<br>MNC    | 2.90     | 20.0<br>MNC | 4.30       | 8.80       | 7.50     | 4.0<br>MNC | 3.30        |
| TOTAL TIME<br>TO CLEAR | 97.           | 26.3     | 41.7        | 38.1       | 51.3       | 77       | 95.6       | 46          |
| NUMBER<br>CLEARED      | 8             | 8        | 6           | 6          | 8          | 8        | 7          | 7           |
| AVG TIME<br>TO CLEAR   | 12.13         | 3.29     | 23.62       | 6.35       | 6.41       | 9.63     | 13.66      | 6.57        |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 28 JAN 69 Day Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |            |            |            |         | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|------------|------------|------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF    | 6<br>FBR   | 7<br>FF1   | 8<br>MF |             |
| 1                      | 5.20          | 6.2<br>MNC | 22.80       | 9.1<br>MNC  | 7.0<br>MNC | 6.50       | 3.0<br>MNC | 7.50    |             |
| 2                      | 30.0<br>MNC   | 1.80       | 38.0<br>MNC | 11.0<br>MNC | 9.0<br>MNC | 4.80       | 6<br>MNC   | 7.40    | x           |
| 3                      | 0<br>MNI      | 4.50       | 33.0<br>MNC | 1.80        | 5.0<br>MNC | 22.0       | x<br>8.90  | 5.0     |             |
| 4                      | 10.55         | 3.80       | 0<br>MNI    | 13.0<br>MNC | 5.45       | x<br>8.10  | 5.0<br>MNC | 3.70    |             |
| 5                      | 11.0<br>MNC   | 2.40       | 12.50       | 10.0<br>MNC | 5.70       | 5.0<br>MNC | 13.70      | 5.80    |             |
| 6                      | 24.0<br>MNI   | 3.10       | 0<br>MNI    | 7.50        | 6.0<br>MNC | 6.10       | 6<br>MNC   | 8.30    |             |
| 7                      | 7.00          | 3.70       | 19.90       | 11.00       | 7.85       | 10.40      | 18.00      | 6.30    |             |
| 8                      | 26.00         | x<br>3.80  | 33.10       | 14.2<br>MNC | 9.75       | 8.20       | 3.0<br>MNC | 2.65    |             |
| TOTAL TIME<br>TO CLEAR | 113.75        | 29.6       | 159.3       | 77.6        | 55.75      | 71.1       | 63.6       | 46.65   |             |
| NUMBER<br>CLEARED      | 7             | 8          | 6           | 8           | 8          | 8          | 8          | 8       |             |
| AVG TIME<br>TO CLEAR   | 16.25         | 3.7        | 26.55       | 9.7         | 6.97       | 8.89       | 7.95       | 5.83    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 28 JAN 69 Day Night

Exercise Number 3

Firing Position FOX HOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2    | 3           | 4          | 5           | 6     | 7          | 8            | MALFUNCTION |
|------------------------|-------|------|-------------|------------|-------------|-------|------------|--------------|-------------|
|                        | FJ    | FFR  | FX          | FF         | FF          | FBR   | FFL        | MF           |             |
| 1                      | 17.85 | 2.50 | 20.70       | 0<br>MNC   | 5.40        | 5.70  | 9.80       | 10.90<br>MNI |             |
| 2                      | 10.05 | 2.70 | 37.45       | 11.45      | 4.05        | 5.85  | 7.15       | 7.15<br>MNI  |             |
| 3                      | 7.30  | 3.00 | 23.0<br>MNC | 8.4<br>MNC | 3.50        | 12.80 | 21.60      | 5.40<br>MNI  |             |
| 4                      | 6.45  | 5.50 | 29.70       | 9.2<br>MNC | 6.45        | 7.80  | 0<br>MNC   | 6.40<br>MNI  |             |
| 5                      | 19.20 | 2.90 | 20.0<br>MNC | 9.0<br>MNC | 11.0<br>MNC | 10.50 | 0<br>MNC   | 10.00<br>MNI |             |
| 6                      | 7.50  | 5.95 | 35.0<br>MNI | 6.2<br>MNC | 9.0<br>MNC  | 6.25  | 14.20      | 7.90<br>MNI  |             |
| 7                      | 15.40 | 7.85 | 14.90       | 6.0<br>MNC | 4.0<br>MNC  | 12.75 | 0<br>MNC   | 5.10<br>MNI  |             |
| 8                      | 6.10  | 3.30 | 38.0<br>MNC | 8.5<br>MNC | 10.0<br>MNC | 13.25 | 4.0<br>MNC | 3.70<br>MNI  |             |
| TOTAL TIME<br>TO CLEAR | 89.85 | 33.7 | 218.75      | 59.73      | 53.4        | 74.9  | 56.75      | 56.55        |             |
| NUMBER<br>CLEARED      | 8     | 8    | 8           | 7          | 8           | 8     | 5          | 8            |             |
| AVG TIME<br>TO CLEAR   | 11.23 | 4.21 | 27.34       | 8.39       | 6.68        | 9.36  | 11.35      | 7.07         |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 28 JAN 69 Day Night

Exercise Number 4

Firing Position Prone

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1    | 2    | 3           | 4          | 5           | 6    | 7     | 8    | MALFUNCTION |
|------------------------|------|------|-------------|------------|-------------|------|-------|------|-------------|
|                        | FJ   | FFR  | FX          | FF         | FF          | FBR  | FF1   | MF   |             |
| 1                      | 5.0  | 3.3  | 0<br>MNI    | 4.4<br>MNC | 6.0<br>MNC  | 6.8  | 12.1  | 13.2 |             |
| 2                      | 6.7  | 6.0  | 21.0<br>MNC | 0<br>MNI   | 11.0<br>MNC | 7.6  | 10.4  | 6.6  |             |
| 3                      | 10.2 | 2.9  | 36.0<br>MNC | 6.0<br>MNC | 9.0<br>MNC  | 9.9  | 8.8   | 7.1  |             |
| 4                      | 5.5  | 4.0  | 14.9        | 9.8        | 4.0<br>MNC  | 5.8  | 11.4  | 6.7  |             |
| 5                      | 3.2  | 2.1  | 18.7        | 0<br>MNC   | 9.0<br>MNC  | 15.2 | 19.3  | 7.8  |             |
| 6                      | 9.1  | 4.4  | 40.0<br>MNC | 7.9        | 7.0<br>MNI  | 11.5 | 14.0  | 7.1  |             |
| 7                      | 6.6  | 3.2  | 30.0<br>MNC | 7.3<br>MNC | 4.2         | 9.5  | 13.3  | 7.0  |             |
| 8                      | 6.4  | 2.4  | 31.6        | 0<br>MNI   | 5.0<br>MNC  | 9.4  | 10.2  | 3.0  |             |
| TOTAL TIME<br>TO CLEAR | 52.7 | 28.3 | 192.6       | 36.1       | 53.20       | 75.7 | 99.5  | 58.5 |             |
| NUMBER<br>CLEARED      | 8    | 8    | 7           | 5          | 8           | 8    | 8     | 8    |             |
| AVG TIME<br>TO CLEAR   | 6.59 | 3.54 | 27.46       | 7.22       | 6.90        | 9.46 | 12.44 | 7.31 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 29 JAN 69  Day  Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |            |             |          |          |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|------------|-------------|----------|----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF    | 5<br>FF     | 6<br>FBR | 7<br>FF1 | 8<br>MF |             |
| 1                      | 5.8           | 3.0      | 33.0<br>MNC | 4.3<br>MNC | 5.0<br>MNC  | 4.0      | 7.8      | 8.3     |             |
| 2                      | 7.1           | 2.7      | 8.5         | 4.0<br>MNC | 6.0<br>MNC  | 6.1      | 11.0     | 5.5     |             |
| 3                      | 12.5          | 2.8      | 32.0<br>MNC | 6.4<br>MNC | 4.0<br>MNC  | 10.9     | 11.0     | 9.1     |             |
| 4                      | 5.1           | 3.8      | 30.0<br>MNC | 8.3        | 4.0<br>MNC  | 11.0     | 12.2     | 8.5     |             |
| 5                      | 4.0           | 2.4      | 35.0<br>MNC | 5.2<br>MNC | 7.5         | 6.6      | 9.8      | 8.8     |             |
| 6                      | 3.3           | 25.1     | 40.0<br>MNC | 7.6<br>MNC | 10.9        | 8.9      | 12.5     | 7.3     |             |
| 7                      | 6.7           | 3.8      | 28.0<br>MNC | 0<br>MNI   | 14.0<br>MNC | 8.8      | 12.2     | 5.3     |             |
| 8                      | 3.7           | 2.4      | 31.1        | 11.2       | 10.4        | 8.7      | 7.6      | 3.2     |             |
| TOTAL TIME<br>TO CLEAR | 48.2          | 46.0     | 237.6       | 47.00      | 61.8        | 65.0     | 84.1     | 56.0    |             |
| NUMBER<br>CLEARED      | 8             | 8        | 8           | 7          | 8           | 8        | 8        | 8       |             |
| AVG TIME<br>TO CLEAR   | 6.02          | 5.75     | 29.70       | 6.71       | 7.73        | 8.12     | 10.51    | 7.00    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 29 JAN 69 (Day) Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |             |             |            |             |          |          |         | MALFUNCTION |
|------------------------|---------------|-------------|-------------|------------|-------------|----------|----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR    | 3<br>FX     | 4<br>FF    | 5<br>FF     | 6<br>FBR | 7<br>FF1 | 8<br>MF |             |
| 1                      | 4.8           | 4.1         | 37.0<br>MNC | 5.8        | 9.2         | 5.3      | 9.0      | 5.6     |             |
| 2                      | 9.5           | 10.0<br>MNC | 26.0<br>MNC | 8.3<br>MNC | 11.0<br>MNC | 4.5      | 8.6      | 2       |             |
| 3                      | 9.2           | 3.6         | 20.4        | 9.2        | 6.0<br>MNC  | 18.8     | 9.1      | 6.2     |             |
| 4                      | 4.1           | 4.4         | 15.7        | 9.8        | 7.0<br>MNC  | 6.0      | 8.1      | 6.4     |             |
| 5                      | 15.6          | 2.9         | 30.0<br>MNC | 7.8        | 6.0<br>MNC  | 8.7      | 10.6     | 7.3     |             |
| 6                      | 4.1           | 6.2         | 30.0<br>MNC | 8.9<br>MNC | 5.3         | 6.9      | 11.5     | 6.5     |             |
| 7                      | 6.5           | 3.7         | 12.0<br>MNC | 8.3        | 7.4         | 7.2      | 13.3     | 6.3     |             |
| 8                      | 4.2           | 3.3         | 37.0<br>MNC | 12.2       | 7.8         | 8.4      | 12.8     | 3.3     |             |
| TOTAL TIME<br>TO CLEAR | 58.0          | 38.3        | 208.1       | 70.3       | 59.7        | 65.8     | 83.0     | 41.6    |             |
| NUMBER<br>CLEARED      | 8             | 8           | 8           | 8          | 8           | 8        | 8        | 7       |             |
| AVG TIME<br>TO CLEAR   | 7.25          | 4.79        | 26.01       | 8.79       | 7.46        | 8.22     | 10.38    | 5.94    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 29 JAN 69 (Day) Night

Exercise Number 3

Firing Position FOXHOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | FIRING POINTS |          |             |             |             |          |          |         | MALFUNCTION   |
|---------------------|---------------|----------|-------------|-------------|-------------|----------|----------|---------|---|
|                     | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1 | 8<br>MF |   |
| 1                   | 5.4           | 3.3      | 14.5<br>MNC | 0<br>MNI    | 9.0<br>MNC  | 6.0      | 6.9      | 8.8     | * Malfunctions indicated — cannot measure a magazine change time. |
| 2                   | 8.2           | 4.6      | 38.0<br>MNC | 9.0<br>MNC  | 5.5         | 7.4      | 14.8     | —       |   |
| 3                   | 5.3           | 3.6      | 0<br>MNC    | 10.0<br>MNC | 8.2         | 13.2     | 8.6      | 5.9     |   |
| 4                   | 6.5           | 4.2      | 15.2        | 7.2<br>MNC  | 14.2        | 9.0      | 0<br>MNC | 8.0     |   |
| 5                   | 13.8          | 2.3      | 0<br>MNI    | 12.8<br>MNC | 10.0<br>MNC | 6.3      | 10.6     | 7.3     |   |
| 6                   | 4.8           | 5.9      | 38.0<br>MNC | 7.9<br>MNC  | 4.0<br>MNC  | 9.1      | 17.5     | —       |   |
| 7                   | 11.2          | 4.5      | 15.8        | 13.4<br>MNC | 4.1         | 8.9      | 12.7     | —       |   |
| 8                   | 6.0           | 3.5      | 24.9        | 11.0<br>MNC | 11.1        | 9.7      | 11.0     | —       |   |
| TOTAL TIME TO CLEAR | 61.2          | 31.9     | 166.9       | 71.50       | 57.10       | 69.6     | 82.1     | 30.0    |   |
| NUMBER CLEARED      | 8             | 8        | 6           | 7           | 7           | 8        | 7        | 4       |   |
| AVG TIME TO CLEAR   | 7.65          | 3.99     | 27.82       | 10.21       | 8.16        | 8.70     | 11.73    | 7.5     |   |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 29 JAN 69 (Day) Night

Exercise Number 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |      |          |      | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|------|----------|------|-------------|
|                        | 1             | 2          | 3           | 4           | 5           | 6    | 7        | 8    |             |
|                        | FJ            | FFR        | FX          | FF          | FF          | FBR  | FF1      | MF   |             |
| 1                      | 7.7           | 3.4        | 34.0<br>MNC | 8.2<br>MNC  | 9.0<br>MNI  | 10.2 | 14.9     | 8.7  |             |
| 2                      | 7.8           | 8.4        | 8.4         | 12.0<br>MNC | 12.0<br>MNC | 4.4  | 0<br>MNC | 9.0  |             |
| 3                      | 3.0<br>MNC    | 2.8        | 15.0        | 6.2<br>MNC  | 11.6        | 11.1 | 10.3     | 7.4  |             |
| 4                      | 4.4           | 3.6        | 14.5        | 13.2<br>MNC | 0<br>MNI    | 8.8  | 6.8      | 6.0  |             |
| 5                      | 11.1          | 2.1        | 12.3        | 7.2<br>MNC  | 0<br>MNC    | 11.3 | 7.8      | 9.3  |             |
| 6                      | 4.6           | 3.0<br>MNC | 35.0<br>MNC | 8.3<br>MNC  | 17.9        | 5.4  | 16.6     | 9.2  |             |
| 7                      | 4.3           | 2.7        | 18.2        | 10.4        | 0<br>MNC    | 9.2  | 10.3     | 6.6  |             |
| 8                      | 8.7           | 2.6        | 20.9        | 12.5        | 6.0<br>MNC  | 9.4  | 15.6     | 3.2  |             |
| TOTAL TIME<br>TO CLEAR | 51.6          | 28.6       | 158.3       | 78.9        | 56.5        | 69.8 | 82.3     | 59.4 |             |
| NUMBER<br>CLEARED      | 8             | 8          | 8           | 8           | 5           | 8    | 7        | 8    |             |
| AVG TIME<br>TO CLEAR   | 6.45          | 3.58       | 19.79       | 9.75        | 11.30       | 8.72 | 11.76    | 7.42 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 29 JAN 69 Day Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | FIRING POINTS |            |             |             |            |          |           |          | MALFUNCTION |
|---------------------|---------------|------------|-------------|-------------|------------|----------|-----------|----------|-------------|
|                     | 1             | 2          | 3           | 4           | 5          | 6        | 7         | 8        |             |
|                     | FJ            | FFR        | FX          | FF          | FF         | FBR      | FFI       | MF       |             |
| 1                   | X<br>7.0      | 9.3        | 30.0<br>MNC | 9.0         | 7.8        | 5.2      | 8.3       | 4.0      |             |
| 2                   | 10.1          | 300<br>MNC | 3.3         | 13.4        | 22.2       | 5.1      | 9.7       | X<br>6.7 |             |
| 3                   | 8.2           | 3.1        | 32.1        | 7.2<br>MNC  | 15.9       | 4.8      | X<br>13.3 | 16.9     |             |
| 4                   | 4.3           | 4.3        | 15.0        | 8.7         | 19.8       | X<br>9.1 | O<br>MNC  | 6.9      |             |
| 5                   | 4.0           | 2.0        | 17.4        | 17.0<br>MNC | 6.0<br>MNC | 6.0      | 10.5      | 6.7      |             |
| 6                   | 3.8           | 4.0        | 30.0<br>MNC | X<br>7.6    | 6.3        | 15.7     | 10.5      | 7.5      |             |
| 7                   | 7.1           | 3.4        | 28<br>MNC   | 8.4<br>MNC  | 23.5       | 16.8     | 10.0      | Q        |             |
| 8                   | 10.3          | X<br>2.4   | 38.0<br>MNC | 9.8<br>MNC  | 11.2       | 8.5      | 10.6      | 2.8      |             |
| TOTAL TIME TO CLEAR | 54.8          | 58.5       | 193.8       | 81.1        | 112.7      | 117.1    | 72.9      | 51.5     |             |
| NUMBER CLEARED      | 8             | 8          | 8           | 8           | 8          | 8        | 7         | 7        |             |
| AVG TIME TO CLEAR   | 6.85          | 7.31       | 24.23       | 10.14       | 14.09      | 14.64    | 10.41     | 7.36     |             |

LEGEND:

- FO - Firing Order
- MNC - Malfunction Not Cleared
- MNI - Malfunction Not Indicated
- Time is given in seconds.

Date 29 JAN 69 Day Night  
 Exercise Number 2  
 Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1    | 2        | 3           | 4           | 5           | 6    | 7        | 8    | MALFUNCTION |
|------------------------|------|----------|-------------|-------------|-------------|------|----------|------|-------------|
|                        | FJ   | FFR      | FX          | FF          | FF          | FBR  | FF1      | MF   |             |
| 1                      | 8.8  | 10.6     | 33.5        | 11.4        | 3.9         | 9.7  | 18.3     | 10.6 |             |
| 2                      | 4.8  | 2.9      | 42.0<br>MNC | 12.0<br>MNC | 8.5         | 3.3  | 12.4     | 7.4  | *           |
| 3                      | 14.0 | 3.4      | 32.0<br>MNC | 8.0<br>MNC  | 5.3         | 12.4 | 8.2      | 5.0  | *           |
| 4                      | 4.6  | 4.3      | 0<br>-      | 4.9         | 11.0<br>MNC | 9.1  | 0<br>MNC | 6.5  |             |
| 5                      | 7.7  | 2.3      | 12.6        | 16.5        | 17.2        | 9.5  | 12.6     | 8.0  |             |
| 6                      | 4.4  | 2.8      | 28.0<br>MNC | 9.0<br>MNC  | 21.5        | 11.5 | 0<br>MNC | 9.6  |             |
| 7                      | 6.2  | 4.0      | *<br>16.5   | 8.4<br>MNC  | 8.3         | 7.6  | 10.4     | 6.2  |             |
| 8                      | 4.7  | *<br>2.3 | 14.8        | 13.7        | 10.5        | 10.9 | 9.8      | 2.4  |             |
| TOTAL TIME<br>TO CLEAR | 55.2 | 32.6     | 179.4       | 83.9        | 83.5        | 72.0 | 71.7     | 55.7 |             |
| NUMBER<br>CLEARED      | 8    | 8        | 7           | 8           | 8           | 8    | 6        | 8    |             |
| AVG TIME<br>TO CLEAR   | 6.90 | 4.08     | 25.62       | 10.49       | 10.43       | 9.00 | 11.95    | 6.96 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 29 JAN 69 Day Night

Exercise Number 3

Firing Position FOXHOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |          |          |         | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|----------|----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FFL | 8<br>MF |             |
| 1                      | 10.3          | 2.8        | 23.0<br>MNC | 10.4<br>MNC | 11.1        | 8.2      | 10.4     | 9.0     |             |
| 2                      | 12.5          | 3.5        | 35.0<br>MNC | 7.5<br>MNC  | 9.6         | 9.3      | 0<br>MNC | 7.5     |             |
| 3                      | 15.4          | 3.6        | 32.3        | 10.1        | 10.2        | 13.5     | 7.6      | 10.3    |             |
| 4                      | 4.3           | 1.9<br>MNC | 17.0        | 9.6<br>MNC  | 24.1        | 11.0     | 0        | 17.4    |             |
| 5                      | 14.1          | 1.8        | 15.7        | 7.2<br>MNC  | 0<br>MNI    | 6.9      | 0<br>MNC | 9.2     |             |
| 6                      | 7.5           | 3.7        | 24.5        | 7.3<br>MNC  | 9.2         | 8.8      | 14.5     | -       |             |
| 7                      | 0             | 6.0        | 13.0        | 12.2        | 11.0<br>MNC | 9.7      | 21.8     | 4.9     |             |
| 8                      | 8.6           | 3.4        | 15.5        | 11.3<br>MNC | 13.0<br>MNC | 7.3      | 12.2     | 2.7     |             |
| TOTAL TIME<br>TO CLEAR | 72.7          | 26.7       | 176.0       | 75.60       | 64.2        | 74.0     | 66.5     | 4.0     |             |
| NUMBER<br>CLEARED      | 7             | 8          | 8           | 8           | 7           | 8        | 5        | 7       |             |
| AVG TIME<br>TO CLEAR   | 10.38         | 3.34       | 22.00       | 9.45        | 12.60       | 9.25     | 13.30    | 8.71    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 29 JAN 69 Day (Night)

Exercise Number 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2    | 3           | 4           | 5           | 6     | 7          | 8           | MALFUNCTION |
|------------------------|-------|------|-------------|-------------|-------------|-------|------------|-------------|-------------|
|                        | FJ    | FFR  | FX          | FF          | FF          | FBR   | FF1        | MF          |             |
| 1                      | 22.2  | 3.5  | 27.5        | 15.1<br>MNC | 9.3         | 12.9  | 23.8       | 9.3         |             |
| 2                      | 14.5  | 6.4  | 8.0<br>MNC  | 16.4        | 16.0<br>MNC | 23.1  | 0<br>MNC   | 10.3        |             |
| 3                      | 10.7  | 9.3  | 40.0<br>MNC | 24.1        | 10.1        | 9.4   | 6.0<br>MNC | 12.6        |             |
| 4                      | 15.7  | 4.4  | 31.0<br>MNC | 15.5<br>MNC | 12.2        | 15.0  | 0<br>MNC   | 20.4        |             |
| 5                      | 6.9   | 13.2 | 14.2        | 0<br>MNI    | 7.3         | 12.7  | 7.8        | 9.3         |             |
| 6                      | 31.5  | 4.5  | 21.0<br>*   | 8.0<br>MNC  | 6.0         | 13.4  | 0<br>MNC   | 10.4<br>MNC |             |
| 7                      | 19.9  | 5.3  | 12.0<br>MNC | 6.9         | 9.3         | 14.7  | 10.1       | 11.4        |             |
| 8                      | 10.3  | 2.7  | 37.8        | 12.0        | 15.0<br>MNC | 9.9   | 31.2       | 18.9        |             |
| TOTAL TIME<br>TO CLEAR | 131.7 | 49.3 | 191.5       | 98.0        | 85.2        | 111.1 | 78.9       | 102.6       |             |
| NUMBER<br>CLEARED      | 8     | 8    | 8           | 7           | 8           | 8     | 5          | 8           |             |
| AVG TIME<br>TO CLEAR   | 16.5  | 6.2  | 23.9        | 14.0        | 10.7        | 13.9  | 15.8       | 12.8        |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 5 Feb. 69 (Day) Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |            |             |           |            |          | MALFUNCTION |
|------------------------|---------------|------------|-------------|------------|-------------|-----------|------------|----------|-------------|
|                        | 1             | 2          | 3           | 4          | 5           | 6         | 7          | 8        |             |
|                        | FJ            | FFR        | FX          | FF         | FF          | FBR       | FF1        | MF       |             |
| 1                      | 10.3          | 4.4        | 23.4        | 12.4       | 13.5        | 19.5      | 38.9       | 12.1     |             |
| 2                      | 34.0<br>MNC   | 8.3        | 13.2        | 4.4<br>MNC | 26.4        | 12.5      | 0<br>MNC   | 6.8      |             |
| 3                      | 9.0           | 10.3       | 47.0<br>MNC | 16.7       | 19.0        | 7.8<br>*  | 15.0       | 8.8      |             |
| 4                      | 12.7          | 4.4        | 27.0<br>MNC | 10.2       | 10.0<br>MNC | 13.9<br>* | 8.0<br>MNC | 11.1     |             |
| 5                      | 16.6          | 6.2<br>MNC | 7.7         | 8.7<br>*   | 4.4         | 13.7      | 22.3       | 7.8      |             |
| 6                      | 10.3          | 13.3       | 20.0<br>*   | 14.8       | 10.0<br>MNI | 11.1      | 23.7       | 7.2      |             |
| 7                      | 13.0<br>MNC   | 3.6<br>*   | 23.9        | 13.9       | 20.0<br>MNC | 15.5      | 8.0<br>MNC | 0<br>MNI |             |
| 8                      | 0<br>MNI      | 6.3<br>*   | 20.0<br>MNC | 14.0       | 15.2        | 11.4      | 24.2       | 9.3      |             |
| TOTAL TIME<br>TO CLEAR | 105.9         | 56.8       | 182.2       | 95.1       | 118.5       | 105.4     | 140.1      | 63.1     |             |
| NUMBER<br>CLEARED      | 7             | 8          | 8           | 8          | 8           | 8         | 7          | 7        |             |
| AVG TIME<br>TO CLEAR   | 15.1          | 7.1        | 22.8        | 11.9       | 14.8        | 13.2      | 20.0       | 9.0      |             |

DATA FROM INSTRUMENTATION

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 5 Feb 69 Day Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |               |                  |           |            | MALFUNCTION |
|------------------------|---------------|----------|-------------|---------------|------------------|-----------|------------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF       | 5<br>FF          | 6<br>FBR  | 7<br>FF1   |             |
| 1                      | 33.8          | 0<br>-   | 14.0<br>MNC | 23.2          | 14.9             | 31.3      | 14.0       | 6.5<br>*    |
| 2                      | 17.1          | 0<br>MNI | 60.0<br>MNC | 9.7           | 10.9             | 9.6       | 8.7        | 8.1         |
| 3                      | 0<br>MNI      | 13.0     | 23.0<br>MNC | 0<br>-        | 9.1              | 10.1<br>* | 2.0<br>MNC | 9.3         |
| 4                      | 15.3          | 5.5      | 26.0<br>MNC | 6.6           | 10.0<br>MNC<br>* | 11.3      | 16.7       | 13.7        |
| 5                      | 4.4           | 9.9      | 35.0<br>MNC | 0<br>MNI<br>* | 10.0<br>MNC      | 13.5      | 20.7       | 8.8         |
| 6                      | 12.8          | 16.4     | 16.1<br>*   | 8.9<br>MNC    | 18.0<br>MNC      | 10.7      | 23.0       | 6.3         |
| 7                      | 14.3          | 4.3<br>* | 23.1        | 10.3<br>MNC   | 22.4             | 17.8      | 22.0       | 8.6         |
| 8                      | 13.3          | 4.3      | 15.0<br>MNC | 9.7<br>MNC    | 10.4             | 8.4       | 17.2       | 8.2         |
| TOTAL TIME<br>TO CLEAR | 111.0         | 53.4     | 212.2       | 68.4          | 105.7            | 112.7     | 124.3      | 69.5        |
| NUMBER<br>CLEARED      | 7             | 6        | 8           | 6             | 8                | 8         | 8          | 8           |
| AVG TIME<br>TO CLEAR   | 15.9          | 8.9      | 26.5        | 11.4          | 13.2             | 14.1      | 15.6       | 8.7         |

DATA FROM INSTRUMENTATION

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 5 Feb. Day Night

Exercise Number 3

Firing Position F-ohole

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |      |             |             |             |             |          |      | MALFUNCTION |
|------------------------|---------------|------|-------------|-------------|-------------|-------------|----------|------|-------------|
|                        | 1             | 2    | 3           | 4           | 5           | 6           | 7        | 8    |             |
|                        | FJ            | FFR  | FX          | FF          | FF          | FBR         | FF1      | MF   |             |
| 1                      | 10.4          | 4.6  | 14.0<br>MNC | 13.3<br>MNC | 15.0        | 22.9        | 21.0     | 7.5  |             |
| 2                      | 11.1          | 12.0 | 9.0<br>MNC  | 4.9<br>MNC  | 20.0<br>MNC | 16.3        | 7.2      | 6.3  |             |
| 3                      | 10.3          | 10.5 | 14.0<br>MNC | 14.3        | 15.2        | 11.6        | 0<br>MNC | 9.0  |             |
| 4                      | 13.7          | 3.6  | 18.2        | 10.4<br>MNC | 26.6        | 7.7         | 20.8     | MNC  |             |
| 5                      | 4.7           | 8.3  | 6.0<br>MNC  | 5.0<br>MNC  | 21.6        | 10.0<br>MNC | 32.2     | 10.6 |             |
| 6                      | 15.7          | 11.3 | 9.0<br>MNC  | 0<br>MNI    | 13.1        | 8.2         | 0<br>MNC | 11.1 |             |
| 7                      | 19.6          | 4.3  | 11.2        | 10.1        | 11.9        | 12.9        | 16.3     | 10.8 |             |
| 8                      | 11.7          | 8.1  | 25.0<br>MNC | 10.6        | 15.0<br>MNC | 10.4        | 20.2     | 10.3 |             |
| TOTAL TIME<br>TO CLEAR | 97.2          | 62.7 | 186.4       | 68.6        | 138.4       | 100.0       | 117.7    | 65.6 |             |
| NUMBER<br>CLEARED      | 8             | 8    | 8           | 7           | 8           | 8           | 6        | 7    |             |
| AVG TIME<br>TO CLEAR   | 12.2          | 7.8  | 23.30       | 9.80        | 17.30       | 12.50       | 19.6     | 9.4  |             |

DATA FROM INSTRUMENTATION

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 5 Feb 69 Day Night

Exercise Number 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS    |          |             |             |             |       |            |      | MALFUNCTION |
|------------------------|------------------|----------|-------------|-------------|-------------|-------|------------|------|-------------|
|                        | 1                | 2        | 3           | 4           | 5           | 6     | 7          | 8    |             |
|                        | FJ               | FFR      | FX          | FF          | FF          | FBR   | FFI        | MF   |             |
| 1                      | 17.0<br>MNC<br>x | 5.0      | 40.0<br>MNC | 19.7        | 14.6        | 12.7  | 0<br>MNC   | 7.3  | x           |
| 2                      | 12.1             | 29.9     | 26.0<br>MNC | 18.0<br>MNC | 25.5        | 19.2  | 12.7       | 7.1  | x           |
| 3                      | 10.0<br>MNC      | 20.2     | 51.0        | 13.5        | 10.0<br>MNC | 15.4  | 15.5       | 9.1  | x           |
| 4                      | 18.0             | 5.2      | 33.0<br>MNC | 0<br>MNI    | 25.0<br>MNC | 8.2   | 12.0       | 12.6 | x           |
| 5                      | 17.3             | 3.5      | 30.5        | 15.0<br>MNC | 9.1         | 13.7  | 14.5       | 5.5  | x           |
| 6                      | 9.4              | 8.6      | 24.0<br>MNC | 0<br>MNC    | 19.8        | -     | 7.0<br>MNC | 9.7  | x           |
| 7                      | 29.2             | 0<br>MNC | 12.2        | 10.5        | 25.8        | 18.1  | 27.5       | 12.3 | x           |
| 8                      | 9.8              | 6.6      | 20.7        | 21.6<br>MNC | 17.6        | 21.2  | 12.9       | 10.7 |             |
| TOTAL TIME<br>TO CLEAR | 114.8            | 79.0     | 237.4       | 83.3        | 161.3       | 108.5 | 102.1      | 74.3 |             |
| NUMBER<br>CLEARED      | 8                | 7        | 8           | 6           | 8           | 7     | 7          | 8    |             |
| AVG TIME<br>TO CLEAR   | 14.3             | 11.3     | 29.7        | 13.9        | 20.2        | 15.5  | 14.6       | 9.3  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 5 Feb. 69 Day Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |          |           |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|----------|-----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1  | 8<br>MF |             |
| 1                      | 11.3          | 4.1      | 34.0<br>MNC | 10.0        | 16.8        | 8.3      | 9.8       | 5.0     |             |
| 2                      | 8.8           | 23.9     | 25.5        | 9.4<br>MNI  | 25.0        | 13.3     | 8.0       | 7.9     |             |
| 3                      | 28.9          | 0        | 40.0        | 0<br>MNC    | 15.0<br>MNC | 9.8      | 15.5      | 5.2     |             |
| 4                      | 15.3          | 5.5      | 19.0<br>MNC | 19.4<br>MNC | 9.5         | 8.3      | 12.3      | 11.2    |             |
| 5                      | 8.9           | 3.6      | 10.3        | 8.7         | 8.5         | 8.2      | 16.5      | —       |             |
| 6                      | 23.9          | 3.7      | 16.4        | 12.5        | 15.0<br>MNC | 13.3     | 14.1      | —       |             |
| 7                      | 20.0<br>MNC   | 0        | 10.1        | 0<br>MNC    | 14.7        | 10.0     | 13.0      | 9.6     |             |
| 8                      | 10.0          | 5.2      | 48.2        | 9.8<br>MNC  | 14.6        | 10.4     | 30<br>MNI | —       |             |
| TOTAL TIME<br>TO CLEAR | 107.1         | 46.0     | 203.5       | 69.8        | 119.1       | 81.6     | 92.2      | 38.9    |             |
| NUMBER<br>CLEARED      | 7             | 6        | 8           | 6           | 8           | 8        | 8         | 5       |             |
| AVG TIME<br>TO CLEAR   | 15.3          | 7.7      | 25.4        | 11.63       | 14.9        | 10.2     | 11.5      | 7.8     |             |

DATA FROM INSTRUMENTATION

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 5 FEB. 69 Day Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | 1           | 2           | 3           | 4           | 5           | 6          | 7          | 8    | MALFUNCTION |
|---------------------|-------------|-------------|-------------|-------------|-------------|------------|------------|------|-------------|
|                     | FJ          | FFR         | FX          | FF          | FF          | FBR        | FF1        | MF   |             |
| 1                   | 21.5        | 4.8         | 24.8        | 9.5         | 10.9        | 34.6       | 0          | 5.3  |             |
| 2                   | 16.1        | 22.9        | 8.4         | 6.9         | 21.2        | 8.0<br>MNC | 0<br>MNI   | 4.4  |             |
| 3                   | 16.0<br>MNC | 19.5        | 22.6        | 11.5        | 15.0<br>MNC | 7.3        | 6.7        | —    |             |
| 4                   | 12.4        | 6.7         | 33.8        | 14.3<br>MNC | 16.0<br>MNC | 9.1        | 7.3        | 8.5  |             |
| 5                   | 7.9         | 10.0<br>MNC | 30.0<br>MNC | 13.0<br>MNC | 20.0<br>MNC | 8.1        | 5.0        | 5.7  |             |
| 6                   | 6.8         | 18.0<br>MNC | 24.3        | 13.4        | 8.3         | 13.2       | 3.0<br>MNC | 5.7  |             |
| 7                   | 25.0<br>MNC | 2.7         | 22.0<br>MNC | 14.3        | 16.0        | 9.5        | 2.4        | —    |             |
| 8                   | 17.4        | 4.8         | 21.5        | 10.6        | 16.7        | 10.6       | 14.5       | —    |             |
| TOTAL TIME TO CLEAR | 123.1       | 89.4        | 190.4       | 93.5        | 124.1       | 100.4      | 38.9       | 29.6 |             |
| NUMBER CLEARED      | 8           | 6           | 8           | 8           | 8           | 8          | 6          | 5    |             |
| AVG TIME TO CLEAR   | 15.4        | 11.2        | 23.8        | 11.7        | 15.5        | 12.6       | 6.5        | 5.9  |             |

DATA FROM INSTRUMENTATION

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 5 Feb Day Night

Exercise Number 3

Firing Position Fophole

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS     |             |             |             |             |            |            | MALFUNCTION      |
|------------------------|-------------------|-------------|-------------|-------------|-------------|------------|------------|------------------|
|                        | 1<br>FJ           | 2<br>FFR    | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR   | 7<br>FF1   |                  |
| 1                      | 22.8 <sup>*</sup> | 15.1        | 41.0        | 16.2<br>MNC | 6.1         | 14.2       | 5.0<br>MNC | 6.5 <sup>*</sup> |
| 2                      | 20.5              | 17.6        | 18.8        | 0<br>MNC    | 23.0        | 7.0<br>MNC | 8.4        | 7.0              |
| 3                      | 6.9               | 5.1         | 43.0        | 13.6<br>MNC | 17.0<br>MNC | 27.4       | 6.0<br>MNI | MNI              |
| 4                      | 5.3               | 11.4        | 34.7        | 15.0<br>MNC | 18.6        | 7.5        | 14.7       | 9.9              |
| 5                      | 8.6               | 14.7        | 27.0<br>MNC | 13.8        | 3.6         | 10.2       | 3.0        | 5.3              |
| 6                      | 28.4              | 15.5<br>MNC | 44.0<br>MNC | 13.2        | 8.8         | 12.0       | 4.0<br>MNC | 7.1              |
| 7                      | 10.6              | 0           | 49.6        | 0<br>MNI    | 21.3        | 15.7       | 6.7        | 22.7             |
| 8                      | 26.2              | 5.3         | 32.5        | 9.2         | 15.0<br>MNC | 15.1       | 6.0<br>MNI | —                |
| TOTAL TIME<br>TO CLEAR | 129.3             | 84.7        | 290.6       | 81.0        | 113.4       | 109.1      | 53.8       | 58.5             |
| NUMBER<br>CLEARED      | 8                 | 7           | 8           | 6           | 8           | 8          | 8          | 6                |
| AVG TIME<br>TO CLEAR   | 16.2              | 12.1        | 36.3        | 13.5        | 14.2        | 13.6       | 6.7        | 9.8              |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 5 FEB Day Night

Exercise Number 4

Firing Position Prone

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS       |                     |                     |                     |             |          |          |         | MALFUNCTION |
|------------------------|---------------------|---------------------|---------------------|---------------------|-------------|----------|----------|---------|-------------|
|                        | 1<br>FJ             | 2<br>FFR            | 3<br>FX             | 4<br>FF             | 5<br>FF     | 6<br>FBR | 7<br>FF1 | 8<br>MF |             |
| 1                      | 13.6                | 4.4                 | 13.5                | 12.5                | 11.0<br>MNC | 28.5     | 24.6     | 13.7    |             |
| 2                      | 18.2                | 8.0                 | <sup>D</sup><br>MNI | 21.6                | 13.0<br>MNI | 13.3     | 15.9     | 12.3    |             |
| 3                      | 7.0                 | 13.2                | <sup>D</sup><br>MNI | 36.7                | 8.0<br>MNI  | 27.5     | 22.1     | 9.6     |             |
| 4                      | <sup>D</sup><br>MNC | 7.7                 | <sup>D</sup><br>MNI | 4.5                 | 14.5        | 18.4     | 14.7     | 9.6     |             |
| 5                      | 15.1                | <sup>D</sup><br>MNI | <sup>D</sup><br>MNI | 20.0                | 7.0<br>MNC  | 17.6     | 3.4      | 11.1    |             |
| 6                      | 9.8                 | 4.3                 | 80.4                | 13.0                | 10.3        | 18.8     | 9.0      | 9.2     |             |
| 7                      | 25.2                | 18.3                | <sup>D</sup><br>MNC | 10.5                | 3.0<br>MNC  | 22.5     | 20.1     | 11.6    |             |
| 8                      | <sup>D</sup><br>MNC | 14.5                | 67.5<br>MNI         | <sup>D</sup><br>MNI | 16.7        | 15.4     | 18.4     | 7.5     |             |
| TOTAL TIME<br>TO CLEAR | 148.9               | 77.4                | 220.4               | 118.8               | 83.5        | 162.0    | 128.2    | 84.6    |             |
| NUMBER<br>CLEARED      | 8                   | 8                   | 4                   | 7                   | 8           | 8        | 8        | 8       |             |
| AVG TIME<br>TO CLEAR   | 18.6                | 9.7                 | 55.1                | 17.0                | 10.4        | 20.3     | 16.0     | 10.6    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 3 MAR 69 Day Night

Exercise Number 1

Firing Position Standing

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |            |            |         | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|------------|------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR   | 7<br>FFL   | 8<br>MF |             |
| 1                      | 11.9          | 4.5        | 70.0        | 16.0        | 12.7        | 18.2       | 4.0<br>MNC | 8.5     |             |
| 2                      | 9.7           | 14.4       | 75.0<br>MNI | 5.0<br>MNC  | 21.0<br>MNC | 10.3       | 22.1       | 7.6     |             |
| 3                      | 35.2          | 7.9        | 85.3        | 6.0<br>MNC  | 6.8         | 13.6       | 10.3       | 13.4    |             |
| 4                      | 8.8           | 5.0<br>MNI | 0<br>MNI    | 17.0<br>MNC | 8.0<br>MNC  | 5.0<br>MNC | 16.2       | 5.7     |             |
| 5                      | 12.0<br>MNI   | 6.7        | 70.0<br>MNC | 6.0<br>MNC  | 6.0<br>MNC  | 9.6        | 9.1        | 7.6     |             |
| 6                      | 8.8           | 22.1       | 60.0<br>MNC | 10.7        | 9.0<br>MNC  | 5.7        | 0<br>MNC   | 6.3     |             |
| 7                      | 9.3           | 19.0       | 0<br>MNI    | 0<br>MNI    | 7.5         | 13.0       | 10.3       | 15.3    |             |
| 8                      | 7.5           | 9.6        | 58.0<br>MNC | 12.8        | 8.0<br>MNI  | 8.4        | 10.6       | 9.3     |             |
| TOTAL TIME<br>TO CLEAR | 103.2         | 89.2       | 418.3       | 73.5        | 79.0        | 83.8       | 82.6       | 73.7    |             |
| NUMBER<br>CLEARED      | 8             | 8          | 6           | 7           | 8           | 8          | 7          | 8       |             |
| AVG TIME<br>TO CLEAR   | 12.9          | 11.2       | 69.7        | 10.5        | 9.9         | 10.5       | 11.8       | 9.2     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 3 MAR 69 Day Night

Exercise Number 2

Firing Position knocking

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1           | 2           | 3           | 4           | 5          | 6    | 7        | 8    | MALFUNCTION |
|------------------------|-------------|-------------|-------------|-------------|------------|------|----------|------|-------------|
|                        | FJ          | FFR         | FX          | FF          | FF         | FBR  | FF1      | MF   |             |
| 1                      | 10.0        | 4.6         | 11.7        | 12.3        | 8.0<br>MNC | 21.0 | 0<br>MNC | 13.4 |             |
| 2                      | 14.0<br>MNI | 10.0<br>MNI | 0<br>MNI    | 7.0<br>MNI  | 6.1        | 6.1  | 28.8     | 29.0 |             |
| 3                      | 9.7         | 4.6         | 62.1        | 7.8         | 8.4        | 14.6 | 14.7     | 11.0 |             |
| 4                      | 7.6         | 5.4         | 77.5        | 11.2        | 8.5        | 11.3 | 0<br>MNC | 8.7  |             |
| 5                      | 19.8        | 19.1        | 36.7        | 20.3        | 7.4        | 8.8  | 10.9     | 10.9 |             |
| 6                      | 10.1        | 6.3         | 43.0<br>MNC | 10.4<br>MNC | 8.0<br>MNC | 9.6  | 7.4      | 9.0  |             |
| 7                      | 23.8        | 11.1        | 11.4        | 0<br>MNI    | 8.9        | 3.7  | 7.1      | 5.0  |             |
| 8                      | 9.4         | 2.0<br>MNC  | 0<br>MNI    | 10.0        | 4.3        | 16.9 | 7.3      | 5.0  |             |
| TOTAL TIME<br>TO CLEAR | 104.4       | 68.1        | 242.4       | 79.0        | 59.6       | 92.0 | 76.2     | 92.0 |             |
| NUMBER<br>CLEARED      | 8           | 8           | 6           | 7           | 8          | 8    | 6        | 8    |             |
| AVG TIME<br>TO CLEAR   | 13.1        | 8.5         | 40.4        | 11.3        | 7.5        | 11.5 | 12.7     | 11.5 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 3 MAR 69 Day Night

Exercise Number 3

Firing Position Fophole

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |            |             |          |          |         |             |
|------------------------|---------------|------------|-------------|------------|-------------|----------|----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF    | 5<br>FF     | 6<br>FBR | 7<br>FF1 | 8<br>MF | MALFUNCTION |
| 1                      | 9.2           | 6.3        | 0<br>MNI    | 4.9        | 5.0<br>MNC  | 14.8     | 6.5      | 7.5     |             |
| 2                      | 10.7          | 21.5       | 5.0<br>MNC  | 6.2        | 9.6         | 7.8      | 6.4      | 8.7     |             |
| 3                      | 10.6          | 5.0<br>MNI | 45.0<br>MNC | 5.5<br>MNC | 7.0<br>MNC  | 10.7     | 0<br>MNC | 9.4     |             |
| 4                      | 7.7           | 4.8        | 57.4        | 15.0       | 8.0<br>MNC  | 11.5     | 43.3     | 10.6    |             |
| 5                      | 27.0<br>MNC   | 8.2        | 61.3        | 22.0       | 7.0         | 17.7     | 6.3      | 12.5    |             |
| 6                      | 9.1           | 7.5        | 0<br>MNI    | 0<br>MNC   | 18.1        | 10.7     | 18.3     | 14.3    |             |
| 7                      | 15.0          | 24.1       | 0<br>MNI    | 3.6<br>MNC | 11.0<br>MNC | 14.1     | 45.5     | 25.0    |             |
| 8                      | 19.0          | 20.7       | 6<br>MNI    | 13.0       | 5.0<br>MNC  | 10.2     | 20.3     | 25.3    |             |
| TOTAL TIME<br>TO CLEAR | 108.3         | 98.1       | 213.7       | 70.2       | 70.7        | 97.5     | 146.6    | 113.3   |             |
| NUMBER<br>CLEARED      | 8             | 8          | 4.0         | 7          | 8           | 8        | 7        | 8       |             |
| AVG TIME<br>TO CLEAR   | 13.5          | 12.3       | 53.4        | 10.0       | 8.8         | 12.2     | 20.9     | 14.2    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 3 MAR. 69 Day Night

Exercise Number 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |           |            |            |             |            |             | MALFUNCTION |
|------------------------|---------------|-----------|------------|------------|-------------|------------|-------------|-------------|
|                        | 1<br>FJ       | 2<br>FFR  | 3<br>FX    | 4<br>FF    | 5<br>FF     | 6<br>FBR   | 7<br>FF1    |             |
| 1                      | 9.9           | 7.5       | 3.0<br>MNI | 5.5<br>-   | 28.2        | 12.0       | 9.0<br>MNI  | 10.0<br>+   |
| 2                      | 12.3          | 5.2       | 0<br>MNI   | 4.3<br>MNI | 10.0<br>MNC | 11.4       | 8.0<br>MNC  | 7.2         |
| 3                      | 7.6           | 5.5       | 0<br>MNI   | 4.0<br>MNI | 8.6         | 5.0<br>MNC | 7.0<br>MNI  | 9.3         |
| 4                      | 8.3<br>MNC    | 5.3       | 6.1        | 23.0       | 8.0<br>MNC  | 10.2       | 10.0<br>MNI | 10.5        |
| 5                      | 6.2           | 5.6       | 0<br>MNI   | 12.3<br>+  | 11.1        | 11.1       | 11.0<br>MNC | 21.5        |
| 6                      | 0<br>MNI      | 5.7       | 7.8<br>+   | 4.0<br>MNI | 10.0<br>MNC | 12.3       | 10.0<br>MNI | 9.3         |
| 7                      | 8<br>MNI      | 13.5<br>+ | 0<br>MNI   | 5.6<br>MNC | 11.8        | 16.7       | 20.0<br>MNI | 11.5        |
| 8                      | 0<br>MNI      | 9.3       | 11.4       | 11.7       | 7.0<br>MNC  | 20.6       | 9.0<br>MNI  | 8.3         |
| TOTAL TIME<br>TO CLEAR | 44.3          | 57.6      | 28.3       | 70.4       | 94.7        | 99.3       | 84.0        | 87.6        |
| NUMBER<br>CLEARED      | 5             | 8         | 4          | 8          | 8           | 8          | 8           | 8           |
| AVG TIME<br>TO CLEAR   | 8.9           | 7.2       | 7.1        | 8.8        | 11.8        | 12.4       | 10.5        | 11.0        |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 6 MAR 69 Day Night

Exercise Number \_\_\_\_\_

Firing Position Standing

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |          |         |             |          |             | MALFUNCTION |         |
|------------------------|---------------|------------|----------|---------|-------------|----------|-------------|-------------|---------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX  | 4<br>FF | 5<br>FF     | 6<br>FBR | 7<br>FF1    |             | 8<br>MF |
| 1                      | 0<br>MNE      | 6.0        | 12.5     | 8.1     | 12.0<br>MNC | 18.7     | 6.0<br>MNI  | 7.2         |         |
| 2                      | 10.0<br>MNC   | 4.8        | 30.6     | 7.9     | 10.0<br>MNI | 10.5     | 7.0<br>MNI  | 10.0        |         |
| 3                      | 8.9           | 5.0<br>MNC | 26.5     | 26.5    | 7.0<br>MNC  | 13.7     | 24.0<br>MNC | 11.0        |         |
| 4                      | 6.3           | 5.5        | 0<br>MNE | 12.7    | 13.0<br>MNC | 11.7     | 19.0<br>MNI | 26.7        |         |
| 5                      | 9.3           | 6.6        | 18.1     | 9.1     | 20.3        | 13.5     | 8.0<br>MNI  | 8.3         |         |
| 6                      | 8.1           | 7.7        | 45.4     | 8.1     | 33.0        | 12.4     | 8.0<br>MNI  | 8.3         |         |
| 7                      | 10.7          | 8.3        | 7.5      | 10.3    | 9.1         | 12.6     | 10.0<br>MNI | 11.6        |         |
| 8                      | 9.9           | 5.3        | 11.4     | 7.6     | 5.0<br>MNC  | 10.0     | 7.0<br>MNC  | 10.0        |         |
| TOTAL TIME<br>TO CLEAR | 63.2          | 49.2       | 152.0    | 90.3    | 109.4       | 103.1    | 82.0        | 93.1        |         |
| NUMBER<br>CLEARED      | 7             | 8          | 7        | 8       | 8           | 8        | 8           | 8           |         |
| AVG TIME<br>TO CLEAR   | 9.0           | 6.2        | 21.7     | 11.3    | 13.7        | 12.9     | 10.3        | 11.6        |         |

LEGEND:

- FO - Firing Order
- MNC - Malfunction Not Cleared
- MNI - Malfunction Not Indicated
- Time is given in seconds.

Date 6 MAR 69 (Day) Night

Exercise Number 2

Firing Position Penning

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1          | 2          | 3        | 4          | 5           | 6          | 7           | 8    | MALFUNCTION |
|------------------------|------------|------------|----------|------------|-------------|------------|-------------|------|-------------|
|                        | FJ         | FFR        | FX       | FF         | FF          | FBR        | FF1         | MF   |             |
| 1                      | 8.4<br>MNC | 5.3        | 11.9     | 18.0       | 22.1        | 0<br>MNC   | 2.7         | 9.1  |             |
| 2                      | 14.1       | 9.0        | 5.7      | 22.3       | 8.3         | 4.4        | 12.0        | 13.1 |             |
| 3                      | 6.0        | 5.0        | 0        | 6.10       | 5.0         | 7.0        | 10.0        | 8.0  |             |
| 4                      | 7.7        | 5.3        | 0<br>MNI | 12.3       | 22.3        | 5.0<br>MNC | 15.0<br>MNI | 6.4  |             |
| 5                      | 22.0       | 7.2        | 8.5      | 8.5        | 6.1         | 23.1       | 7.0<br>MNI  | 5.5  |             |
| 6                      | 10.8       | 15.0       | 15.8     | 7.5        | 6.0<br>MNC  | 4.0<br>MNI | 6.0<br>MNI  | 6.8  |             |
| 7                      | 7.7        | 6.2<br>MNC | 14.6     | 7.2        | 18.0<br>MNC | 16.3       | 7.5         | 5.3  |             |
| 8                      | 6.4        | 7.2        | 3.2      | 6.5<br>MNC | 16.0        | 9.7        | 30.0<br>MNI | 7.1  |             |
| TOTAL TIME<br>TO CLEAR | 83.1       | 60.2       | 59.7     | 88.4       | 103.8       | 69.5       | 80.2        | 61.3 |             |
| NUMBER<br>CLEARED      | 8          | 8          | 6        | 8          | 8           | 7          | 8           | 8    |             |
| AVG TIME<br>TO CLEAR   | 10.4       | 7.5        | 10.0     | 11.1       | 13.0        | 9.9        | 10.0        | 7.7  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 6 MAR 69 Day Night

Exercise Number 3

Firing Position Foothole

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |         |             |             |             |         | MALFUNCTION |
|------------------------|---------------|------------|-------------|---------|-------------|-------------|-------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF | 5<br>FF     | 6<br>FBR    | 7<br>FFI    | 8<br>MF |             |
| 1                      | 17.2          | 7.0<br>MNC | 34.0<br>MNC | 11.1    | 17.0<br>MNC | 13.6        | 17.0<br>MNC | 9.3     |             |
| 2                      | 13.3          | 5.0        | 0<br>MNI    | 9.9     | 7.2         | 4.6         | 9.0<br>MNI  | 7.3     |             |
| 3                      | 12.0          | 5.4<br>MNC | 0<br>MNC    | 9.9     | 17.5        | 21.3        | 15.9        | 8.5     |             |
| 4                      | 10.9          | 13.0       | 9.8         | 10.9    | 10.6        | 10.0<br>MNI | 25.0<br>MNI | 24.7    |             |
| 5                      | 9.0           | 5.2<br>-   | 25.0<br>MNI | 9.2     | 15.0<br>MNC | 7.0<br>MNC  | 12.2        | 6.7     |             |
| 6                      | 10.1          | 3.9        | 0<br>MNI    | 19.0    | 12.5        | 16.1        | 15.0<br>MNI | 10.7    |             |
| 7                      | 10.6          | 1.4        | 14.6        | 5.3     | 3.4         | 19.0        | 14.0<br>MNI | 9.6     |             |
| 8                      | 12.7          | 3.0<br>MNC | 0<br>MNI    | 9.6     | 20.3        | 1.7         | 7.0<br>MNI  | 11.7    |             |
| TOTAL TIME<br>TO CLEAR | 95.8          | 43.9       | 83.4        | 84.9    | 103.5       | 93.3        | 115.1       | 88.5    |             |
| NUMBER<br>CLEARED      | 8             | 8          | 4           | 8       | 8           | 8           | 8           | 8       |             |
| AVG TIME<br>TO CLEAR   | 12.0          | 5.5        | 20.9        | 10.6    | 12.9        | 11.7        | 14.4        | 11.1    |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 6 MAR 69 Day Night

Exercise Number 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1        | 2        | 3           | 4           | 5           | 6          | 7           | 8    | MALFUNCTION |
|------------------------|----------|----------|-------------|-------------|-------------|------------|-------------|------|-------------|
|                        | FJ       | FFR      | FX          | FF          | FF          | FBR        | FFI         | MF   |             |
| 1                      | 40.1     | 19.2     | 0<br>MNC    | 6.6         | 10.4        | 8.0<br>MNC | 31.7        | 10.0 |             |
| 2                      | 15.3     | 0<br>MNI | 34.5        | 26.0        | 14.0<br>MNC | 7.9        | 28.0        | 5.0  |             |
| 3                      | 11.8     | 22.3     | 22.3        | 19.0        | 16.8        | 18.5       | 8.0<br>MNI  | 11.0 |             |
| 4                      | 24.6     | 11.4     | 70.0<br>MNC | 27.2        | 11.6        | 0.0<br>MNC | 15.0<br>MNI | 6.9  |             |
| 5                      | 23.9     | 15.7     | 0<br>MNC    | 9.0         | 12.0        | 8.0<br>MNC | 10.0<br>MNC | 14.3 |             |
| 6                      | 0<br>MNI | 6.6      | 0<br>MNI    | 12.4        | 11.0<br>MNI | 15.7       | 16.3        | 10.4 |             |
| 7                      | 14.0     | 13.1     | 0<br>MNC    | 18.7<br>MNI | 5.3         | 10.8       | 10.0<br>MNI | 4.0  |             |
| 8                      | 23.7     | 0<br>MNC | 0<br>MNI    | 26.3        | 11.0<br>MNC | 6.0<br>MNC | 0<br>MNI    | 21.3 |             |
| TOTAL TIME<br>TO CLEAR | 153.4    | 88.3     | 116.8       | 145.2       | 92.1        | 83.9       | 119.0       | 82.9 |             |
| NUMBER<br>CLEARED      | 7        | 6        | 3           | 8           | 8           | 8          | 7           | 8    |             |
| AVG TIME<br>TO CLEAR   | 21.9     | 14.7     | 38.9        | 18.2        | 11.5        | 10.5       | 17.0        | 10.4 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 10 MAR 69 Day Night

Exercise Number 1

Firing Position standing

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |            |             | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|------------|-------------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR   | 7<br>FFL    |             |
| 1                      | 0<br>MNI      | 13.7     | 20.5        | 23.0<br>MNC | 12.8        | 9.7        | 10.0<br>MNE | 8.9         |
| 2                      | 8.2           | 44.7     | 0<br>MNE    | 11.9        | 14.0<br>MNC | 11.4       | 0<br>MNI    | 13.7        |
| 3                      | 8.1           | 26.5     | 37.0<br>MNC | 17.3        | 4.0<br>MNC  | 7.0<br>MNC | 8.0<br>MNI  | 8.8         |
| 4                      | 21.7          | 35.1     | 65.0<br>MNC | 8.5         | 14.0        | 9.3        | 0<br>MNI    | 9.3         |
| 5                      | 0<br>MNI      | 13.8     | 34.0<br>MNC | 16.7        | 7.8         | 7.7        | 12.6        | 10.8        |
| 6                      | 16.5          | 0<br>MNC | 0<br>MNI    | 8.9         | 7.8         | 9.4        | 10.5<br>MNI | 14.7        |
| 7                      | 5.3           | 7.0      | 0<br>MNI    | 8.7         | 8.4         | 14.6       | 13.2<br>MNI | 8.5         |
| 8                      | 13.1<br>MNC   | 6<br>MNC | 40<br>MNC   | 3.3         | 9.1         | 8.4        | 15.3        | 9.2         |
| TOTAL TIME<br>TO CLEAR | 72.9          | 140.8    | 196.5       | 98.3        | 82.9        | 77.5       | 69.6        | 83.9        |
| NUMBER<br>CLEARED      | 6             | 6        | 5           | 8           | 8           | 8          | 6           | 8           |
| AVG TIME<br>TO CLEAR   | 12.2          | 23.5     | 39.3        | 12.3        | 10.3        | 9.7        | 11.6        | 10.5        |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 10 MAR 69 Day Night

Exercise Number 2

Firing Position  kneeling

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |      |             |       | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|------|-------------|-------|-------------|
|                        | 1             | 2        | 3           | 4           | 5           | 6    | 7           | 8     |             |
|                        | FJ            | FFR      | FX          | FF          | FF          | FBR  | FF1         | MF    |             |
| 1                      | 17.4          | 23.8     | 11.7        | 9.9         | 8.6         | 12.4 | 0<br>MNI    | 15.0  |             |
| 2                      | 25.7          | 20.7     | 49.0<br>MNC | 10.2        | 33.0<br>MNC | 9.6  | 10.<br>MNI  | 9.3   |             |
| 3                      | 9.9           | 11.0     | 14.0        | 12.0        | 9.0<br>MNC  | 7.7  | 0<br>MNI    | 11.5  |             |
| 4                      | 7.0<br>MNC    | 10.5     | 45.0<br>MNI | 11.6<br>MNC | 34.2        | 11.7 | 16.0        | 9.5   |             |
| 5                      | 0<br>MNC      | 9.0      | 0<br>MNC    | 20.3        | 7.0         | 12.5 | 19.0<br>MNI | 10.0  |             |
| 6                      | 5.7           | 8.2      | 47.0<br>MNI | 18.0        | 7.0<br>MNC  | 5.0  | 14.0<br>MNI | 6.0   |             |
| 7                      | 6.5           | 11.1     | 65.0<br>MNC | 9.1         | 7.1         | 10.4 | 19.8        | 25.8  |             |
| 8                      | 0<br>MNI      | 0<br>MNC | 34.0<br>MNC | 0<br>MNI    | 8.4         | 8.2  | 0<br>MNI    | 21.7  |             |
| TOTAL TIME<br>TO CLEAR | 72.2          | 94.3     | 263.7       | 91.1        | 114.3       | 79.5 | 71.8        | 108.8 |             |
| NUMBER<br>CLEARED      | 6             | 7        | 7           | 7           | 8           | 8    | 5           | 8     |             |
| AVG TIME<br>TO CLEAR   | 12.0          | 13.5     | 37.7        | 13.0        | 14.3        | 9.7  | 14.4        | 13.6  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 10-MAR-69 Day (Night)

Exercise Number 3

Firing Position Edge

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |            |             | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|------------|-------------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR   | 7<br>FFI    |             |
| 1                      | 10.0          | 0<br>MNI | 3.1         | 7.3         | 14.0<br>MNC | 9.5        | 15.0<br>MNI | 0           |
| 2                      | 0<br>MNC      | 13.5     | 0<br>MNI    | 20.2        | 9.0<br>MNC  | 8.0<br>MNC | 15.3        | 15.7        |
| 3                      | 7.4           | 5.2      | 41.0<br>MNC | 20.1<br>MNC | 12.0<br>MNC | 5.0<br>MNC | 0<br>MNI    | 8.6         |
| 4                      | 16.7          | 9.2      | 32.0<br>MNI | 0<br>MNI    | 13.0<br>MNC | 8.4        | 22.3        | 9.4         |
| 5                      | 8.4           | 8.6      | 57.0<br>MNC | 8.6         | 9.0<br>MNC  | 11.6       | 0<br>MNI    | 7.8         |
| 6                      | 0<br>MNC      | 9.3      | 0<br>MNI    | 14.4<br>MNC | 10.0        | 7.0<br>MNC | 10.0<br>MNI | 12.0        |
| 7                      | 15.3          | 6.7      | 50.0<br>MNC | 24.0        | 9.0<br>MNC  | 9.5        | 15.0<br>MNC | 12.6        |
| 8                      | 3.1<br>MNC    | 16.6     | 32.0<br>MNC | 5.4<br>MNC  | 22.3        | 7.2        | 8.0<br>MNI  | 17.3        |
| TOTAL TIME<br>TO CLEAR | 60.9          | 69.1     | 215.1       | 100.0       | 98.3        | 66.2       | 85.6        | 83.4        |
| NUMBER<br>CLEARED      | 6             | 7        | 6           | 7           | 8           | 8          | 6           | 7           |
| AVG TIME<br>TO CLEAR   | 10.2          | 9.9      | 35.9        | 14.3        | 12.3        | 8.3        | 14.3        | 11.9        |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 10 MAR 69 Day Night

Exercise Number 4

Firing Position Prone

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1           | 2           | 3           | 4           | 5           | 6    | 7           | 8    | MALFUNCTION |
|------------------------|-------------|-------------|-------------|-------------|-------------|------|-------------|------|-------------|
|                        | FJ          | FFR         | FX          | FF          | FF          | FBR  | FF1         | MF   |             |
| 1                      | 0<br>MNI    | 5.0<br>MNI  | 35.4        | 0<br>MNC    | 23.0<br>MNC | 9.3  | 10.0<br>MNC | 11.5 |             |
| 2                      | 0<br>MNI    | 5.0<br>MNI  | 0<br>MNI    | 29.7        | 14.7        | 6.6  | 0<br>MNC    | 10.3 |             |
| 3                      | 12.3<br>MNI | 5.0<br>MNI  | 21.8        | 14.1<br>MNC | 17.5        | 13.4 | 0<br>MNI    | 6.5  |             |
| 4                      | 0<br>MNI    | 5.3<br>MNI  | 45.0<br>MNC | 16.6        | 9.0<br>MNC  | 18.0 | 0<br>MNI    | 13.5 |             |
| 5                      | 4.0<br>MNI  | 7.8<br>MNI  | 23.4        | 10.3<br>MNC | 33.1        | 6.4  | 10.0<br>MNI | 9.0  |             |
| 6                      | 16.4        | 10.6<br>MNI | 55.0<br>MNC | 0<br>MNI    | 10.0<br>MNC | 9.9  | 0<br>MNC    | 10.5 |             |
| 7                      | 20.0<br>MNC | 5.0<br>MNI  | 18.2        | 0<br>MNI    | 4.5         | 11.1 | 8.0<br>MNI  | 6.4  |             |
| 8                      | 6.5         | 10.0<br>MNC | 22.0        | 3.5<br>MNC  | 10.0<br>MNC | 9.9  | 5.1         | 5.3  |             |
| TOTAL TIME<br>TO CLEAR | 64.2        | 53.7        | 220.8       | 74.2        | 121.8       | 84.6 | 33.1        | 75.0 |             |
| NUMBER<br>CLEARED      | 5           | 8           | 7           | 5           | 8           | 8    | 4           | 8    |             |
| AVG TIME<br>TO CLEAR   | 12.8        | 6.7         | 31.5        | 14.8        | 15.2        | 10.6 | 8.3         | 9.4  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 10 MAR 69 (Day) Night

Exercise Number 1

Firing Position standing

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |          |             |         | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|----------|-------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1    | 8<br>MF |             |
| 1                      | 25.3          | 5.0<br>MNI | 30.5        | 24.4        | 5.0<br>MNC  | 8.7      | 13.0<br>MNI | 11.6    |             |
| 2                      | 10.7          | 5.0<br>MNI | 0<br>MNI    | 12.4        | 10.0<br>MNC | 9.3      | 12.0<br>MNI | 9.5     |             |
| 3                      | 11.8          | 5.5        | 0<br>MNI    | 11.3        | 8.0<br>MNC  | 10.0     | 7.0<br>MNI  | 8.9     |             |
| 4                      | 6.3           | 6.3        | 55.0<br>MNC | 17.2<br>MNC | 0<br>MNI    | 7.6      | 0<br>MNI    | 7.8     |             |
| 5                      | 9.3           | 25.4       | 23.2        | 16.0        | 14.0<br>MNC | 5.3      | 10.0<br>MNI | 9.2     |             |
| 6                      | 15.3          | 22.9       | 60.0<br>MNC | 14.3<br>MNC | 12.0<br>MNC | 7.3      | 20.5        | 8.3     |             |
| 7                      | 21.4          | 13.0       | 40.0<br>MNC | 0<br>MNI    | 0<br>MNI    | 10.0     | 7.0         | 6.5     |             |
| 8                      | 7.7           | 8.5        | 0<br>MNI    | 6.8         | 0<br>MNI    | 7.5      | 8.6<br>MNI  | 8.3     |             |
| TOTAL TIME<br>TO CLEAR | 107.8         | 91.6       | 208.7       | 102.4       | 49.0        | 65.7     | 78.7        | 70.1    |             |
| NUMBER<br>CLEARED      | 8             | 8          | 5           | 7           | 5           | 8        | 7           | 8       |             |
| AVG TIME<br>TO CLEAR   | 13.5          | 11.5       | 41.7        | 14.6        | 9.8         | 8.2      | 11.2        | 8.8     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 10 MAR 69 (Day) Night

Exercise Number 2

Firing Position Knocking

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1           | 2          | 3           | 4        | 5           | 6    | 7        | 8    | MALFUNCTION |
|------------------------|-------------|------------|-------------|----------|-------------|------|----------|------|-------------|
|                        | FJ          | FFR        | FX          | FF       | FF          | FBR  | FF1      | MF   |             |
| 1                      | 17.0        | 20.5       | 54.1        | 4.3      | 8.7         | 7.9  | 6.7      | 8.9  |             |
| 2                      | 11.1        | 5.5        | 20.8        | 19.6     | 6.0<br>MNC  | 11.6 | 0<br>MNI | 9.3  |             |
| 3                      | 9.3         | 6.1        | 0<br>MNI    | 15.0     | 5.0<br>MNI  | 6.8  | 8.7      | 9.0  |             |
| 4                      | 20.0<br>MNC | 20.2       | 57<br>MNC   | 0<br>MNC | 12.0<br>MNC | 7.4  | 0<br>MNI | 9.8  |             |
| 5                      | 25.5        | 16.3       | 27.1        | 12.0     | 5.0<br>MNC  | 18.0 | 0<br>MNI | 8.2  |             |
| 6                      | 15.3        | 42.7       | 41.0<br>MNC | 0<br>MNI | 5.0<br>MNC  | 7.8  | 27.0     | 8.5  |             |
| 7                      | 5.1         | 30.0       | 36.0<br>MNC | 18.2     | 16.6        | 11.6 | 0<br>MNI | 18.0 |             |
| 8                      | 17.0<br>MNC | 5.0<br>MNC | 26.8        | 14.9     | 23.0<br>MNC | 9.2  | 24.1     | 4.6  |             |
| TOTAL TIME<br>TO CLEAR | 120.3       | 146.3      | 262.8       | 84.0     | 81.3        | 73.3 | 66.5     | 76.3 |             |
| NUMBER<br>CLEARED      | 8           | 8          | 7           | 6        | 8           | 8    | 4        | 8    |             |
| AVG TIME<br>TO CLEAR   | 15.0        | 18.3       | 37.5        | 14.0     | 10.2        | 9.2  | 16.6     | 9.5  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 10 MAR 69  Day  Night

Exercise Number 3

Firing Position Foxhole

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |          |             |            |             | MALFUNCTION |
|------------------------|---------------|----------|-------------|----------|-------------|------------|-------------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF  | 5<br>FF     | 6<br>FBR   | 7<br>FF1    |             |
| 1                      | 10.0<br>MNI   | 18.5     | 19.6        | 8.1      | 8.0<br>MNC  | 7.4        | 22.6        | 14.7        |
| 2                      | 18.8          | 22.7     | 34.1        | 16.3     | 7.1         | 8.0<br>MNC | 0<br>MNI    | 12.5        |
| 3                      | 9.6           | 7.3      | 36.8        | 24.3     | 5.8         | 20.0       | 15.0<br>MNI | 5.6         |
| 4                      | 14.7          | 5.7      | 35.6        | 0<br>MNI | 10.0<br>MNC | 9.7        | 0<br>MNI    | 6.4         |
| 5                      | 13.0          | 37.6     | 41.7        | 14.8     | 6.1         | 6.3        | 9.1         | 8.0         |
| 6                      | 11.7          | 10.1     | 22.0<br>MNC | 0<br>MNI | 4.0<br>MNC  | 6.3        | 16.4        | 6.2         |
| 7                      | 8.7           | 30.2     | 0<br>MNC    | 7.7      | 15.0<br>MNI | 6.6        | 12.0<br>MNC | 5.8         |
| 8                      | 9.5           | 8.5      | 25.6        | 20.7     | 9.0<br>MNC  | 6.9        | 9.3         | 5.1         |
| TOTAL TIME<br>TO CLEAR | 92.0          | 140.6    | 215.4       | 91.9     | 70.0        | 71.2       | 84.4        | 64.3        |
| NUMBER<br>CLEARED      | 8             | 8        | 7           | 6        | 8           | 8          | 6           | 8           |
| AVG TIME<br>TO CLEAR   | 11.5          | 17.6     | 30.8        | 15.3     | 8.75        | 8.9        | 14.1        | 8.0         |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 10 MAR 69 (Day) Night

Exercise Number 4

Firing Position Prone

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |             |             |      | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|-------------|-------------|------|-------------|
|                        | 1             | 2          | 3           | 4           | 5           | 6           | 7           | 8    |             |
|                        | FJ            | FFR        | FX          | FF          | FF          | FBR         | FFI         | MF   |             |
| 1                      | 12.0<br>MNC   | 5.0<br>MNC | 48.0<br>MNC | 20.0<br>MNI | 19.2        | 11.8        | 0<br>MNI    | 4.8  |             |
| 2                      | 15.7          | 5.0<br>MNC | 39.3        | 16.0<br>MNI | 17.0<br>MNC | 8.9         | 7.4         | 5.0  | x           |
| 3                      | 8.2           | 3.4        | 46.0<br>MNC | 14.0<br>MNI | 33.7        | 4.0         | 12.0<br>MNC | 7.4  | x           |
| 4                      | 15.0          | 5.0<br>MNC | 27.0        | 4.0<br>MNI  | 13.4        | 10.0<br>MNC | 8.0<br>MNI  | 8.6  | x           |
| 5                      | 0<br>MNI      | 7.6        | 42.0<br>MNC | 5.0<br>MNI  | 25.0<br>MNC | 5.8         | 7.4         | 7.3  | x           |
| 6                      | 8.6           | 5.1        | 17.8        | 20.0<br>MNI | 29.3        | 7.7         | 7.4         | 8.4  |             |
| 7                      | 15.6          | 31.8       | 0<br>MNI    | 15.0<br>MNI | 35.0<br>MNC | 14.4        | 0<br>MNI    | 9.2  |             |
| 8                      | 0<br>MNI      | 5.0<br>MNC | 53.0<br>MNC | 8.0<br>MNI  | 18.6        | 8.3         | 15.3        | 7.5  |             |
| TOTAL TIME<br>TO CLEAR | 75.1          | 67.9       | 222.4       | 102.0       | 191.2       | 70.9        | 57.5        | 58.2 |             |
| NUMBER<br>CLEARED      | 6             | 8          | 7           | 8           | 8           | 8           | 6           | 8    |             |
| AVG TIME<br>TO CLEAR   | 12.5          | 8.5        | 39.1        | 12.8        | 23.9        | 8.9         | 9.6         | 7.3  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 11 MAR 69 Day Night

Exercise Number #1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | FIRING POINTS |            |            |             |             |          |           |            | MALFUNCTION |
|---------------------|---------------|------------|------------|-------------|-------------|----------|-----------|------------|-------------|
|                     | 1<br>FJ       | 2<br>FFR   | 3<br>FX    | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1  | 8<br>MF    |             |
| 1                   | x<br>12.3     | 20.8       | 15.3       | 5.0<br>MNI  | 32.0<br>MNC | 8.4      | 11.5      | 6.0<br>MNI |             |
| 2                   | 0<br>MNI      | 6.1        | 4.8        | 20.0<br>MNI | 20.3        | 7.0      | 13.5<br>x | 7.6        | x           |
| 3                   | 0<br>MNI      | 9.4        | 30.7       | 6.0<br>MNI  | 29.3        | 5.0<br>x | 14.6      | 4.8        |             |
| 4                   | 9.4           | 5.0<br>MNC | 0<br>MNI   | 7.0<br>MNI  | 14.1        | 8.2      | 0<br>MNI  | 7.1        |             |
| 5                   | 0<br>MNI      | 5.0<br>MNC | 33.6       | 20.0<br>MNI | 9.2         | 5.6      | 7.1       | 5.5        |             |
| 6                   | 10.0<br>MNC   | 5.0<br>MNC | 8.0<br>MNC | 20.0<br>MNI | 15.5        | 7.4      | 12.1      | 6.8        |             |
| 7                   | 14.6          | 5.8        | 10.4       | 20.0<br>MNI | 11.7        | 5.6      | 0<br>MNI  | 9.8        |             |
| 8                   | 15.0<br>MNC   | 5.0<br>MNC | 21.2       | 28.0<br>MNI | 7.8         | 10.0     | 9.3       | 7.6        |             |
| TOTAL TIME TO CLEAR | 61.3          | 62.1       | 124.0      | 106.0       | 139.9       | 57.2     | 68.1      | 55.2       |             |
| NUMBER CLEARED      | 5             | 8          | 7          | 8           | 8           | 8        | 6         | 8          |             |
| AVG TIME TO CLEAR   | 12.3          | 7.8        | 17.7       | 13.3        | 17.5        | 7.2      | 11.4      | 6.9        |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 11 MAR 69 Day Night

Exercise Number # 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1     | 2           | 3           | 4           | 5           | 6          | 7           | 8    | MALFUNCTION |
|------------------------|-------|-------------|-------------|-------------|-------------|------------|-------------|------|-------------|
|                        | FJ    | FFR         | FX          | FF          | FF          | FBR        | FF1         | MF   |             |
| 1                      | 16.5  | 2.0         | 45.0<br>MNC | 5.0<br>MNI  | 11.4        | 16.6       | 8.9         | 3.8  |             |
| 2                      | 23.3  | 5.0<br>MNC  | 46.0<br>MNC | 6.0<br>MNI  | 29.4        | 8.6        | 14.4        | 7.4  |             |
| 3                      | 9.5   | 5.0<br>MNC  | 23.7        | 10.0<br>MNI | 7.2         | 4.8        | 0<br>MNI    | 10.0 |             |
| 4                      | 11.3  | 20.2        | 10.8        | 8.5<br>MNI  | 11.4        | 7.6        | 7.9         | 10.5 |             |
| 5                      | 11.9  | 5.0<br>MNC  | 12.8        | 5.0<br>MNI  | 17.5        | 6.7        | 46.7        | 5.7  |             |
| 6                      | 20.2  | 31.3        | 0<br>MNC    | 15.0<br>MNI | 6.0         | 7.7        | 0<br>MNI    | 7.4  |             |
| 7                      | 13.4  | 15.0<br>MNC | 8.8         | 5.5<br>MNI  | 7.3         | 9.0        | 10.0<br>MNC | 7.0  |             |
| 8                      | 26.4  | 5.2         | 0<br>MNC    | 14.5<br>MNI | 19.2<br>MNC | 8.0<br>MNC | 8.4         | 18.0 |             |
| TOTAL TIME<br>TO CLEAR | 132.5 | 88.7        | 147.1       | 69.5        | 109.4       | 69.0       | 96.3        | 69.8 |             |
| NUMBER<br>CLEARED      | 8     | 8           | 6           | 8           | 8           | 8          | 6           | 8    |             |
| AVG TIME<br>TO CLEAR   | 16.6  | 11.1        | 24.5        | 8.7         | 13.7        | 8.6        | 16.1        | 8.7  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 11 MAR 69 Day Night

Exercise Number # 3

Firing Position FOX HOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |      |      |             |      | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|------|------|-------------|------|-------------|
|                        | 1             | 2          | 3           | 4           | 5    | 6    | 7           | 8    |             |
|                        | FJ            | FFR        | FX          | FF          | FF   | FBR  | FF1         | MF   |             |
| 1                      | 12.0          |            | 30.0<br>MNC | 7.5<br>MNI  | 7.9  | 9.2  | 8.0<br>MNC  | 5.9  |             |
| 2                      | 16.8          | 4.8        | 24.6        | 18.0<br>MNI | 8.8  | 7.3  | 10.0<br>MNC | 6.4  | *           |
| 3                      | 10.0<br>MNI   | 5.0<br>MNI | 0<br>MNC    | 8.5<br>MNI  | 7.3  | 8.6  | 0<br>MNI    | 6.8  |             |
| 4                      | 10.0<br>MNI   | 7.0        | 42.0<br>MNC | 6.5<br>MNI  | 16.2 | 5.1  | 5.2         | 18.5 |             |
| 5                      | 8.5           | 5.0<br>MNC | 13.0        | 6.0<br>MNI  | 15.7 | 8.9  | 8.5         | 7.9  |             |
| 6                      | 0<br>MNI      | 5.0<br>MNC | 21.7        | 5.5<br>MNI  | 4.2  | 9.3  | 6.8         | 8.2  |             |
| 7                      | 15.5<br>MNC   | 11.9       | 4.7         | 10.0<br>MNI | 10.6 | 8.0  | 0<br>MNI    | 8.3  |             |
| 8                      | 15.0<br>MNC   | 19.0       | 19.0        | 8.5<br>MNI  | 8.7  | 10.1 | 8.8         | —    |             |
| TOTAL TIME<br>TO CLEAR | 87.8          | 72.2       | 155.0       | 70.5        | 79.4 | 66.5 | 47.3        | 62.0 |             |
| NUMBER<br>CLEARED      | 7             | 8          | 7           | 8           | 8    | 8    | 6           | 7    |             |
| AVG TIME<br>TO CLEAR   | 12.5          | 9.0        | 22.1        | 8.8         | 9.9  | 8.3  | 7.9         | 8.9  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 11 MAR 69 Day (Night)

Exercise Number #4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS               |      |       |      |       |       |      |      | MALFUNCTION |
|------------------------|-----------------------------|------|-------|------|-------|-------|------|------|-------------|
|                        | 1                           | 2    | 3     | 4    | 5     | 6     | 7    | 8    |             |
|                        | FJ                          | FFR  | FX    | FF   | FF    | FBR   | FF1  | MF   |             |
| 1                      | <sup>x</sup><br>25.0<br>MNC |      | 0     | 7.0  | 37.0  |       |      |      |             |
|                        |                             | 30.4 | MNI   | MNI  | MNI   | 15.7  | 12.8 | 10.0 |             |
| 2                      |                             | 5.0  | 0     |      | 30.0  | 9.0   |      |      |             |
|                        | 16.1                        | MNC  | MNI   | 8.2  | MNC   | MNC   | 6.0  | 9.3  |             |
| 3                      | 21.0                        | 15.0 |       | 10.5 | 35.0  |       |      |      |             |
|                        | MNC                         | MNI  | 27.4  | MNI  | MNI   | 8.1   | 6.7  | 8.0  |             |
| 4                      |                             | 5.0  | 0     | 17.5 | 31.0  |       |      |      |             |
|                        | 9.3                         | MNI  | MNI   | MNI  | MNC   | 7.0   | 8.3  | 13.6 |             |
| 5                      |                             | 5.0  | 0     | 7.5  |       |       |      |      |             |
|                        | 7.2                         | MNC  | MNI   | MNI  | 8.6   | 14.4  | 15.3 | 10.0 |             |
| 6                      |                             | 5.0  |       | 6.0  | 25.0  |       |      |      |             |
|                        | 15.4                        | MNC  | 12.3  | MNI  | MNC   | 14.3  | 6.0  | 9.3  |             |
| 7                      |                             | 5.0  | 20.0  | 4.0  | 18.0  |       |      |      |             |
|                        | 15.4                        | MNC  | MNC   | MNI  | MNI   | 52.9  | 18.5 | 9.0  |             |
| 8                      | 0                           | 5.0  | 48.0  | 14.0 | 0     | 8.0   | 10.0 |      |             |
|                        | MNI                         | MNC  | MNC   | MNI  | MNC   | MNI   | MNC  | 7.5  |             |
| TOTAL TIME<br>TO CLEAR | 109.4                       | 75.4 | 157.7 | 74.7 | 186.6 | 129.4 | 88.6 | 76.7 |             |
| NUMBER<br>CLEARED      | 7                           | 8    | 4     | 8    | 7     | 8     | 8    | 8    |             |
| AVG TIME<br>TO CLEAR   | 15.6                        | 9.4  | 39.4  | 9.3  | 26.7  | 16.2  | 11.1 | 9.6  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 11 MAR 69 Day Night

Exercise Number # 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |             |             |             |             |            |             |          | MALFUNCTION |
|------------------------|---------------|-------------|-------------|-------------|-------------|------------|-------------|----------|-------------|
|                        | 1<br>FJ       | 2<br>FFR    | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR   | 7<br>FF1    | 8<br>MF  |             |
| 1                      | x<br>12.3     | 5.0<br>MNC  | 10.0<br>MNI | 15.0<br>MNI | 42.0<br>MNC | 5.0<br>MNI | 10.0<br>MNC | 5.6<br>x |             |
| 2                      | 47.0          | 5.0<br>MNC  | 35.4        | 7.5         | 7.4<br>MNC  | 4.0<br>MNI | 0<br>MNI    | 10.2     |             |
| 3                      | 0<br>MNI      | 5.0<br>MNC  | 21.8        | 9.0<br>MNI  | 11.0<br>MNC | 11.8       | x<br>7.8    | 8.8      |             |
| 4                      | 20.5          | 6.2<br>MNI  | 26.3        | 7.5<br>MNI  | 7.2<br>MNI  | x<br>39.5  | 7.5         | 21.7     |             |
| 5                      | 13.0<br>MNI   | 22.6        | 45.0<br>MNC | 6.0<br>MNI  | x<br>12.9   | 13.4       | 8.0<br>MNI  | 16.4     |             |
| 6                      | 18.4          | 15.0<br>MNC | 17.5        | 10.0<br>MNI | 13.2        | 15.3       | 8.2         | 7.3      |             |
| 7                      | 6<br>MNI      | 5.0<br>MNC  | x<br>28.7   | 7.0<br>MNI  | 9.0         | 10.9       | 0<br>MNI    | 11.6     |             |
| 8                      | 8.4           | 16.3        | 43.0<br>MNC | 5.0<br>MNI  | 27.0<br>MNC | 16.5       | 9.1         | 8.9      |             |
| TOTAL TIME<br>TO CLEAR | 119.6         | 80.1        | 227.7       | 67.0        | 129.7       | 116.4      | 50.6        | 80.5     |             |
| NUMBER<br>CLEARED      | 6             | 8           | 8           | 8           | 8           | 8          | 6           | 8        |             |
| AVG TIME<br>TO CLEAR   | 19.9          | 10.0        | 28.5        | 8.4         | 16.2        | 14.6       | 8.4         | 10.1     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 11 MAR 69 Day Night

Exercise Number # 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS            |                      |             |                            |             |       |                             |          | MALFUNCTION |
|------------------------|--------------------------|----------------------|-------------|----------------------------|-------------|-------|-----------------------------|----------|-------------|
|                        | 1                        | 2                    | 3           | 4                          | 5           | 6     | 7                           | 8        |             |
|                        | FJ                       | FFR                  | FX          | FF                         | FF          | FBR   | FF1                         | MF       |             |
| 1                      | <sup>x</sup><br>0<br>MNI | 5.0<br>MNC           | 18.6        | 5.0<br>MNI                 | 9.0<br>MNC  | 18.0  | 10.0<br>MNC                 | 13.4     |             |
| 2                      | 0<br>MNI                 | 5.0<br>MNC           | 28.2        | 5.5<br>MNI                 | 0<br>MNI    | 6.9   | 5.0                         | 11.5     |             |
| 3                      | 34.5                     | 5.0<br>MNC           | 17.0<br>MNI | 10.0<br>MNI                | 10.0<br>MNC | 16.1  | <sup>x</sup><br>10.0<br>MNI | 9.0<br>- |             |
| 4                      | 8.0                      | 5.0<br>MNI           | 8.8         | 19.0<br>MNI                | 10.9        | 17.0  | 8.8                         | 8.5      |             |
| 5                      | 22.0                     | 8.2                  | 13.4        | 4.0<br>MNI                 | 15.6        | 12.5  | 0<br>MNI                    | 11.1     |             |
| 6                      | 12.5                     | 5.0<br>MNC           | 0<br>MNI    | <sup>x</sup><br>5.0<br>MNI | 8.0<br>MNC  | 13.6  | 18.8                        | 9.9      |             |
| 7                      | 0<br>MNC                 | 5.0<br>MNC           | 29.4        | 8.0<br>MNI                 | 7.1         | 16.1  | 0<br>MNI                    | 15.6     |             |
| 8                      | 8.6                      | <sup>x</sup><br>19.2 | 16.3        | 10<br>MNI                  | 6.4<br>-    | 10.4  | 14.3                        | 6.0<br>- |             |
| TOTAL TIME<br>TO CLEAR | 85.6                     | 57.4                 | 131.7       | 66.5                       | 67.0        | 110.6 | 66.9                        | 85.0     |             |
| NUMBER<br>CLEARED      | 5                        | 8                    | 7           | 8                          | 7           | 8     | 6                           | 8        |             |
| AVG TIME<br>TO CLEAR   | 17.1                     | 7.2                  | 18.8        | 8.3                        | 9.6         | 13.8  | 11.2                        | 10.6     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 11 MAR 69 (Day) Night

Exercise Number # 3

Firing Position FOX HOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | FIRING POINTS |             |             |             |            |       |          |      | MALFUNCTION |
|---------------------|---------------|-------------|-------------|-------------|------------|-------|----------|------|-------------|
|                     | 1             | 2           | 3           | 4           | 5          | 6     | 7        | 8    |             |
|                     | FJ            | FFR         | FX          | FF          | FF         | FBR   | FF1      | MF   |             |
| 1                   | X<br>13.6     | 37.0        | 32.0<br>MNC | 11.5<br>MNI | 19.3       | 20.0  | 0<br>MNI | 10.4 |             |
| 2                   | 15.0<br>MNC   | 44.1        | 24.2        | 17.0<br>MNC | 0<br>MNI   | 44.3  | 8.4      | 8.5  | X           |
| 3                   | 10.2          | 16.1        | 0<br>MNC    | 18.0<br>MNI | 20<br>MNC  | 19.0  | 22.9     | 18.4 | X           |
| 4                   | 18.9          | 5.0<br>MNC  | 0<br>MNI    | 5.0<br>MNI  | 13.5       | 4.2   | 7.3      | 10.0 |             |
| 5                   | 0<br>MNI      | 5.0<br>MNC  | 26.2        | 10.0<br>MNI | 9.8<br>MNC | 25.6  | 10.2     | 10.0 |             |
| 6                   | 13.0          | 18.3        | 23.0<br>MNC | 5.0<br>MNI  | 18.4       | 26.0  | 9.5      | 0    |             |
| 7                   | 18.0          | 15.0<br>MNC | 15.8        | 10.0<br>MNI | 10.0       | 9.8   | 8.4      | 19.0 |             |
| 8                   | 10.7          | 5.2         | 26.0<br>MNC | 5.0<br>MNI  | 19.5       | 29.6  | 7.0      | 8.0  |             |
| TOTAL TIME TO CLEAR | 99.4          | 145.7       | 147.2       | 81.5        | 97.5       | 178.5 | 73.7     | 84.3 |             |
| NUMBER CLEARED      | 7             | 8           | 6           | 8           | 7          | 8     | 7        | 7    |             |
| AVG TIME TO CLEAR   | 14.2          | 18.2        | 24.5        | 10.2        | 13.9       | 22.3  | 10.5     | 12.1 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 11 MAR 69 (Day) Night

Exercise Number # 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1           | 2    | 3           | 4           | 5          | 6          | 7           | 8          | MALFUNCTION |
|------------------------|-------------|------|-------------|-------------|------------|------------|-------------|------------|-------------|
|                        | FJ          | FFR  | FX          | FF          | FF         | FBR        | FFI         | MF         |             |
| 1                      | 8.6         | 8.7  | 28.7        | 24.0<br>MNI | 3.5        | 30.4       | 6.3         | 5.4<br>MNI |             |
| 2                      | 23.7        | 5.2  | 19.6        | 21.0<br>MNI | 14.4       | 6.5        | 8.4         | 8.5        |             |
| 3                      | 21.6        | 3.6  | 15.8        | 18.5<br>MNI | 22.8       | 11.5       | 15.3        | 12.4       |             |
| 4                      | 11.0<br>MNC | 5.4  | 27.0<br>MNC | 15.0<br>MNI | 8.0<br>MNC | 13.7       | 21.0<br>MNI | 6.5<br>MNI |             |
| 5                      | 6.7         | 3.8  | 19.0        | 5.0<br>MNI  | 4.7        | 15.6       | 8.0<br>MNC  | 9.3        |             |
| 6                      | 25.7        | 25.6 | 44.3        | 6.5<br>MNI  | 8.5        | 6.0<br>MNC | 17.0<br>MNI | 8.5        |             |
| 7                      | 24.6        | 11.1 | 36.5        | 10.5<br>MNI | 35.2       | 14.1       | 8.0<br>MNI  | 14.9       |             |
| 8                      | 11.0<br>MNC | 4.7  | 6<br>MNC    | 16.1        | 26.3       | 13.3       | 45.4        | 10.6       |             |
| TOTAL TIME<br>TO CLEAR | 132.9       | 68.1 | 198.9       | 116.6       | 154.9      | 111.1      | 129.4       | 76.1       |             |
| NUMBER<br>CLEARED      | 8           | 8    | 7           | 8           | 8          | 8.0        | 8           | 8          |             |
| AVG TIME<br>TO CLEAR   | 16.6        | 8.5  | 27.3        | 14.6        | 19.4       | 13.9       | 16.2        | 9.5        |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 12 MAR 69 Day Night

Exercise Number 1

Firing Position standing

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |      |             |             |             |       |             |            | MALFUNCTION |
|------------------------|---------------|------|-------------|-------------|-------------|-------|-------------|------------|-------------|
|                        | 1             | 2    | 3           | 4           | 5           | 6     | 7           | 8          |             |
|                        | FJ            | FFR  | FX          | FF          | FF          | FBR   | FF1         | MF         |             |
| 1                      | 10.8          | 7.4  | 30.4        | 10.0<br>MNI | 8.4<br>MNC  | 11.7  | 10.0<br>MNI | 8.6        |             |
| 2                      | 6.6           | 7.7  | 42.0<br>MNC | 5.5<br>MNI  | 11.6<br>MNC | 6.4   | 9.1         | 5.8        |             |
| 3                      | 6.7           | 5.5  | 0<br>MNC    | 10.5<br>MNI | 3.7         | 31.4  | 8.0         | 7.5        |             |
| 4                      | 11.9          | 8.8  | 35.0        | 5.0<br>MNI  | 3.3         | 11.4  | 0<br>MNI    | 5.0<br>MNI |             |
| 5                      | 10.4          | 8.7  | 0<br>MNI    | 8.0<br>MNI  | 19.7        | 7.7   | 16.1        | 8.8        |             |
| 6                      | 8.8           | 3.5  | 52.0<br>MNC | 5.5<br>MNI  | 8.7         | 25.9  | 10.0<br>MNI | 7.4        |             |
| 7                      | 6.4           | 3.3  | 45.0<br>MNC | 10.0<br>MNI | 21.0<br>MNC | 10.0  | 20.5        | 13.5       |             |
| 8                      | 10.2          | 4.0  | 0<br>MNI    | 24.0<br>MNI | 2.8         | 11.2  | 12.0<br>MNI | 5.8        |             |
| TOTAL TIME<br>TO CLEAR | 71.0          | 48.9 | 204.4       | 78.5        | 79.2        | 115.7 | 85.7        | 62.4       |             |
| NUMBER<br>CLEARED      | 8             | 8    | 5           | 8           | 8           | 8     | 7           | 8          |             |
| AVG TIME<br>TO CLEAR   | 8.9           | 6.1  | 40.9        | 9.8         | 9.9         | 14.5  | 12.2        | 7.8        |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 12 M Day Night

Exercise Number 2

Firing Position  kneeling

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |           |             | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|-----------|-------------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR  | 7<br>FF1    |             |
| 1                      | 14.2          | 5.1        | 0<br>MNC    | 20.0<br>MNI | 9.2<br>MNC  | 11.7      | 7.3         | 9.9<br>*    |
| 2                      | 11.6          | 14.2       | 22.0        | 5.5<br>MNI  | 9.0         | 6.6       | 9.0<br>MNI  | 8.1<br>*    |
| 3                      | 11.5          | 3.0        | 15.0<br>MNC | 24.0<br>MNI | 3.2<br>MNC  | 14.5<br>* | 7.1         | 13.2        |
| 4                      | 17.0          | 14.7       | 22.3        | 18.0<br>MNI | 16.8<br>MNI | 14.0      | 71.0<br>MNI | 6.5         |
| 5                      | 8.6           | 8.7        | 24.2        | 5.5<br>MNI  | 10.0<br>MNC | 8.4       | 5.0<br>MNC  | 8.0         |
| 6                      | 4.8           | 6.6        | 18.2<br>*   | 13.0<br>MNI | 7.7         | 8.8       | 11.8        | 7.0         |
| 7                      | 27.3          | 5.0<br>MNC | 42.7        | 3.5<br>MNI  | 8.8<br>MNC  | 10.0      | 12.0<br>MNI | 8.3         |
| 8                      | 17.3          | 13.3       | 25.0<br>MNC | 5.5<br>MNI  | 28.0        | 9.7       | 6.0         | 5.7         |
| TOTAL TIME<br>TO CLEAR | 112.3         | 70.6       | 169.4       | 95.0        | 85.7        | 83.7      | 69.2        | 66.7        |
| NUMBER<br>CLEARED      | 8             | 8          | 7.0         | 8           | 8           | 8         | 8           | 8.0         |
| AVG TIME<br>TO CLEAR   | 14.0          | 8.8        | 24.2        | 11.9        | 10.7        | 10.5      | 8.7         | 8.3         |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 12 MAR. 69 Day Night

Exercise Number 3

Firing Position for hole

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | FIRING POINTS |            |             |             |             |          |            | MALFUNCTION |   |
|---------------------|---------------|------------|-------------|-------------|-------------|----------|------------|-------------|---|
|                     | 1             | 2          | 3           | 4           | 5           | 6        | 7          |             | 8 |
|                     | FJ            | FFR        | FX          | FF          | FF          | FBR      | FF1        | MF          |   |
| 1                   | 8.1           | 8.1        | 25.0<br>MNI | 25.5<br>MNI | 5.6         | 13.5     | 6.3        | 6.4         |   |
| 2                   | 22.4          | 5.0<br>MNC | 31.3        | 10.5<br>MNI | 13.8<br>MNC | 10.2     | 10.7       | 5.7         |   |
| 3                   | 7.3           | 9.4        | 14.0<br>MNC | 6.5<br>MNI  | 13.6        | 13.1     | 1.0<br>MNI | 7.4         |   |
| 4                   | 15.0<br>MNC   | 22.5       | 36.7        | 5.5<br>MNI  | 3.2<br>MNC  | 9.5      | 9.7        | 6.3         |   |
| 5                   | 4.5           | 3.2        | 16.4        | 7.0<br>MNI  | 15.5<br>MNC | 8<br>MNC | 0<br>MNI   | 6.0<br>MNI  |   |
| 6                   | 7.5           | 5.0<br>MNC | 3.8<br>MNC  | 9.0<br>MNI  | 8.0<br>MNI  | 8.3      | 8.0        | 6.2         |   |
| 7                   | 5.3           | 21.3       | 27.0<br>MNC | 21.0<br>MNI | 10.4        | 7.3      | 0<br>MNI   | 7.4         |   |
| 8                   | 20.4          | 7.2        | 38.0<br>MNI | 5.5<br>MNI  | 8.3         | 8.1      | 5.9        | 6.5         |   |
| TOTAL TIME TO CLEAR | 90.5          | 81.7       | 226.4       | 165.5       | 78.4        | 78.0     | 50.6       | 51.6        |   |
| NUMBER CLEARED      | 8             | 8          | 8.0         | 8           | 8           | 8        | 6          | 8           |   |
| AVG TIME TO CLEAR   | 11.3          | 10.2       | 28.3        | 20.7        | 9.8         | 9.8      | 8.4        | 6.5         |   |

LEGEND:

- FO - Firing Order
- MNC - Malfunction Not Cleared
- MNI - Malfunction Not Indicated
- Time is given in seconds.

Date 12 MAR. 69 Day (Night)

Exercise Number 4

Firing Position prone

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |            |          |         |             |
|------------------------|---------------|------------|-------------|-------------|-------------|------------|----------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR   | 7<br>FF1 | 8<br>MF | MALFUNCTION |
| 1                      | 0<br>MNI      | 16.2       | 27.8        | 4.5<br>MNI  | 16.0        | 15.4       | 0<br>MNI | 9.6     |             |
| 2                      | 0<br>MNI      | 5.0        | 20.0<br>MNI | 15.0<br>MNI | 28.7        | 11.0       | 8.1      | 7.4     |             |
| 3                      | 0<br>MNI      | 5.0<br>MNI | 0<br>MNI    | 29.7        | 30.8        | 8.0        | 27.0     | 6.3     |             |
| 4                      | 0<br>MNI      | 3.1        | 11.2        | 12.0<br>MNI | 33.2<br>MNC | 7.3        | 15.0     | 5.1     |             |
| 5                      | 21.8          | 5.0<br>MNC | 28.5        | 5.0<br>MNI  | 10.0        | 10.9       | 20.6     | 7.8     |             |
| 6                      | 9.1           | 29.0       | 51.9        | 4.5<br>MNI  | 29.0        | 7.9        | 0<br>MNI | 6.3     |             |
| 7                      | 5.9           | 13.7       | 15.2        | 3.5<br>MNI  | 18.4        | 8.0<br>MNI | 5.3      | 11.6    |             |
| 8                      | 12.0<br>MNC   | 12.2       | 49.0<br>MNC | 10<br>MNI   | 17.4<br>MNI | 9.3        | 0<br>MNI | 23.7    |             |
| TOTAL TIME<br>TO CLEAR | 48.8          | 89.2       | 203.6       | 84.2        | 183.5       | 77.8       | 76.0     | 77.8    |             |
| NUMBER<br>CLEARED      | 4.0           | 8          | 7           | 8           | 8           | 8          | 5        | 8       |             |
| AVG TIME<br>TO CLEAR   | 12.2          | 11.2       | 29.1        | 10.5        | 22.9        | 9.7        | 15.2     | 9.7     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 12 MAR 69 (Day) Night

Exercise Number 1

Firing Position standing

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |            |             |         | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|------------|-------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR   | 7<br>FF1    | 8<br>MF |             |
| 1                      | 4.9           | 6.1        | 18.2        | 15.5<br>MNI | 6.3         | 14.2       | 0<br>MNI    | 11.3    |             |
| 2                      | 6.9           | 17.0       | 9.0<br>MNI  | 17.0<br>MNI | 21.6        | 9.5        | 21.0        | 6.8     |             |
| 3                      | 5.7           | 5.0<br>MNI | 0<br>MNI    | 5.5<br>MNI  | 8.0         | 12.5       | 3.7         | 4.0     |             |
| 4                      | 14.0          | 3.6        | 23.0        | 7.5<br>MNI  | 25.0        | 7.3        | 15.0<br>MNI | 7.8     |             |
| 5                      | 5.3           | 14.4       | 16.0<br>MNC | 5.5<br>MNI  | 54.4<br>MNC | 11.0       | 5.0<br>MNI  | 6.1     |             |
| 6                      | 4.0           | 4.8        | 4.0<br>MNC  | 17.5<br>MNI | 5.0         | 24.0       | 21.0<br>MNI | 6.3     |             |
| 7                      | 8.9           | 4.3        | 5.0         | 14.5<br>MNI | 6.0         | 7.0<br>MNI | 13.0<br>MNI | 5.6     |             |
| 8                      | 0<br>MNI      | 5.7        | 23.0<br>MNC | 4.5<br>MNI  | 31.5        | 10.4       | 17.0<br>MNI | 6.0     |             |
| TOTAL TIME<br>TO CLEAR | 49.7          | 60.9       | 141.2       | 87.5        | 159.8       | 95.9       | 105.7       | 53.9    |             |
| NUMBER<br>CLEARED      | 7             | 8          | 7           | 8           | 8           | 8          | 7           | 8       |             |
| AVG TIME<br>TO CLEAR   | 7.1           | 7.6        | 20.2        | 10.9        | 19.7        | 12.0       | 15.1        | 6.7     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 12 MAR 69 (Day) Night

Exercise Number 2

Firing Position  kneeling

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |          |             |             |             |          |             |         | MALFUNCTION |
|------------------------|---------------|----------|-------------|-------------|-------------|----------|-------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1    | 8<br>MF |             |
| 1                      | 7.4           | 11.3     | 17.4        | 7.0<br>MNC  | 14.7        | 6.3      | 8.0         | 11.0    |             |
| 2                      | 11.7          | 4.7      | 29.7        | 8.0<br>MNI  | 16.0<br>MNC | 10.0     | 10.7        | 5.6     |             |
| 3                      | 9.8           | 4.2      | 26.6        | 15.5<br>MNI | 23.6        | 12.3     | 14.1        | 7.9     |             |
| 4                      | 16.1          | 4.3      | 22.6        | 17.5<br>MNI | 18.7        | 13.9     | 7.8         | 5.5     |             |
| 5                      | 0<br>MNI      | 7.7      | 22.0<br>MNC | 14.5<br>MNI | 19.8        | 13.5     | 27.0<br>MNI | 5.6     |             |
| 6                      | 12.0<br>MNC   | 5.5      | 4.5         | 7.5<br>MNC  | 21.0        | 8.5      | 28.0        | 8.5     |             |
| 7                      | 12.0<br>MNC   | 3.8      | 29.5        | 15.0<br>MNI | 9.6         | 13.4     | 0<br>MNI    | 8.4     |             |
| 8                      | 17.3          | 10.0     | 25.6        | 5.0<br>MNI  | 31.0<br>MNC | 7.8      | 9.0<br>MNI  | 5.8     |             |
| TOTAL TIME<br>TO CLEAR | 86.3          | 57.5     | 177.9       | 90.0        | 144.4       | 85.7     | 164.6       | 58.3    |             |
| NUMBER<br>CLEARED      | 7             | 8        | 8           | 8           | 8           | 8        | 7           | 8       |             |
| AVG TIME<br>TO CLEAR   | 12.3          | 6.4      | 22.2        | 11.3        | 18.1        | 10.7     | 14.9        | 7.3     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 12 MAR 69 (Day) Night

Exercise Number 3

Firing Position Joshua

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | FIRING POINTS |            |             |             |             |          |             |         | MALFUNCTION |
|------------------------|---------------|------------|-------------|-------------|-------------|----------|-------------|---------|-------------|
|                        | 1<br>FJ       | 2<br>FFR   | 3<br>FX     | 4<br>FF     | 5<br>FF     | 6<br>FBR | 7<br>FF1    | 8<br>MF |             |
| 1                      | 18.4          | 4.9        | 23.0        | 23.5<br>MNI | 4.7         | 14.8     | 7.0         | 11.6    | x           |
| 2                      | 5.6           | 4.5        | 29.7        | 19.5<br>MNI | 12.6<br>MNC | 5.3      | 9.0<br>MNI  | 8.4     | x           |
| 3                      | 14.3          | 3.0        | 41.0<br>MNC | 29.0<br>MNI | 14.8<br>MNC | 13.3     | 11.4        | 7.0     | x           |
| 4                      | 15.0          | 8.6        | 13.0<br>MNC | 34.0<br>MNI | 16.8<br>MNC | 15.7     | 9.4         | 9.8     |             |
| 5                      | 6.4           | 4.4        | 21.0        | 32.0<br>MNI | 11<br>MNC   | 13.6     | 11.0<br>MNI | 8.4     |             |
| 6                      | 16.6          | 5.0<br>MNI | 46.0<br>MNC | 5.5<br>MNI  | 15.0<br>MNC | 8.7      | 29.0<br>MNI | 6.0     |             |
| 7                      | 0<br>MNI      | 5.4        | 34.3        | 3.5<br>28.3 | 17.6        | 9.5      | 14.6<br>MNI | 6.6     |             |
| 8                      | 23.1          | 5.1        | 19.0        | 5.5<br>MNI  | 29.3        | 4.8      | 6.1         | 6.5     |             |
| TOTAL TIME<br>TO CLEAR | 99.4          | 40.9       | 227.0       | 145.5       | 116.8       | 85.7     | 97.5        | 64.3    |             |
| NUMBER<br>CLEARED      | 7             | 8          | 8           | 8.0         | 8           | 8        | 8           | 8       |             |
| AVG TIME<br>TO CLEAR   | 14.2          | 5.1        | 28.4        | 18.2        | 14.6        | 10.7     | 12.2        | 8.0     |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 12 MAR 69 (Day) Night

Exercise Number 4

Firing Position prone

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | 1           | 2          | 3           | 4           | 5           | 6          | 7           | 8    | MALFUNCTION |
|---------------------|-------------|------------|-------------|-------------|-------------|------------|-------------|------|-------------|
|                     | FJ          | FFR        | FX          | FF          | FF          | FBR        | FF1         | MF   |             |
| 1                   | 10.4        | 3.1        | 16.0        | 4.5<br>MNI  | 23.8        | 11.0       | 8.0<br>MNI  | 6.7  |             |
| 2                   | 10.0        | 33.0       | 36.8        | 15.0<br>MNI | 28.8<br>MNC | 7.0<br>MNI | 6.7         | 9.0  |             |
| 3                   | 6.1         | 14.3       | 0<br>MNC    | 10.0<br>MNI | 25<br>MNI   | 5.5        | 22.5        | 8.0  |             |
| 4                   | 9.3         | 6.8        | 36.6        | 12.0<br>MNI | 10.7        | 6.8        | 7.6         | 5.6  |             |
| 5                   | 18.9        | 8.8        | 20.0<br>MNI | 5.0<br>MNI  | 10.5        | 29.0       | 15.1        | 9.1  |             |
| 6                   | 12.7        | 5.0<br>MNI | 35.0<br>MNC | 4.5<br>MNI  | 28.0<br>MNC | 5.2        | 14.4<br>MNI | 9.4  |             |
| 7                   | 10.0<br>MNI | 7.5        | 31.8        | 3.5<br>MNI  | 4.2         | 7.0        | 21.2        | 9.3  |             |
| 8                   | 12.0<br>MNC | 6.2        | 49.0<br>MNC | 10.0<br>MNI | 11.5        | 10.7       | 0<br>MNI    | 8.3  |             |
| TOTAL TIME TO CLEAR | 89.2        | 84.7       | 225.2       | 64.5        | 142.5       | 82.2       | 95.5        | 65.4 |             |
| NUMBER CLEARED      | 8           | 8          | 7           | 8           | 8           | 8          | 7           | 8    |             |
| AVG TIME TO CLEAR   | 11.2        | 10.6       | 32.2        | 8.1         | 17.8        | 10.3       | 13.6        | 8.2  |             |

LEGEND:

- FO - Firing Order
- MNC - Malfunction Not Cleared
- MNI - Malfunction Not Indicated
- Time is given in seconds.

Date 13 MAR 69 (Day) Night

Exercise Number 1

Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | 1          | 2          | 3           | 4           | 5          | 6          | 7        | 8    | MALFUNCTION |
|---------------------|------------|------------|-------------|-------------|------------|------------|----------|------|-------------|
|                     | FJ         | FFR        | FX          | FF          | FF         | FBR        | FFI      | MF   |             |
| 1                   | 14.7       | 2.6        | 15.0<br>MNC | 15.5<br>MNC | 7.5        | 14.1       | 0<br>MNI | 8.7  |             |
| 2                   | 13.1       | 3.0        | 22.3        | 17.0<br>MNI | 10.3       | 5.0<br>MNI | 10.2     | 9.7  |             |
| 3                   | 4.5        | 4.1        | 0<br>MNC    | 5.5<br>MNI  | 7.0<br>MNI | 6.7        | 7.2      | 7.2  |             |
| 4                   | 13.3       | 4.9        | 23.8        | 7.5<br>MNI  | 7.7        | 4.7        | 21.5     | 15.7 |             |
| 5                   | 22.4       | 6.3        | 49.0<br>MNI | 5.5<br>MNI  | 6.7        | 8.6        | 7.0      | 6.5  |             |
| 6                   | 6.4        | 5.0<br>MNI | 35.0<br>MNC | 17.5<br>MNI | 4.8<br>MNC | 5.4        | 24.6     | 11.2 |             |
| 7                   | 9.0<br>MNI | 5.7        | 30.1        | 14.5<br>MNI | 4.8        | 4.5        | 18.1     | 10.1 |             |
| 8                   | 7.4        | 6.3        | 27.2        | 4.5<br>MNI  | 6.6        | 10.2       | 10.6     | 5.3  |             |
| TOTAL TIME TO CLEAR | 90.8       | 37.9       | 202.4       | 87.5        | 55.4       | 59.2       | 99.2     | 74.4 |             |
| NUMBER CLEARED      | 8          | 8          | 7           | 8           | 8          | 8          | 7        | 8    |             |
| AVG TIME TO CLEAR   | 11.4       | 4.7        | 28.9        | 10.9        | 6.9        | 7.4        | 14.2     | 9.3  |             |

DATA FROM INSTRUMENTATION

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 13 MAR 69 (Day) Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | 1)   | 2)   | 3)          | 4)          | 5)          | 6)   | 7)          | 8)   | MALFUNCTION |
|---------------------|------|------|-------------|-------------|-------------|------|-------------|------|-------------|
|                     | FJ   | FFR  | FX          | FF          | FF          | FBR  | FF1         | MF   |             |
| 1                   | 7.8  | 3.3  | 12.0<br>MNC | 7.0<br>MNI  | 14.2<br>MNC | 15.7 | 6.6         | 5.0  |             |
| 2                   | 15.7 | 7.3  | 20.4        | 8.0<br>MNC  | 13.5        | 6.0  | 12.2        | 20.2 |             |
| 3                   | 5.3  | 5.7  | 36.6        | 15.5<br>MNC | 23.0<br>MNC | 10.7 | 7.2         | 5.0  |             |
| 4                   | 18.1 | 6.0  | 17.6        | 15.7        | 7.3         | 5.3  | 9.2         | 9.6  |             |
| 5                   | 18.7 | 5.7  | 26.3        | 14.5<br>MNI | 7.6         | 6.6  | 9.8         | 5.7  |             |
| 6                   | 14.1 | 3.4  | 13.5        | 7.5<br>MNC  | 24.7        | 15.7 | 26.4<br>MNI | 9.4  |             |
| 7                   | 10.8 | 5.9  | 24.0<br>MNC | 15.5<br>MNI | 5.8         | 5.7  | 0<br>MNI    | 4.6  |             |
| 8                   | 25.5 | 4.5  | 19.0<br>MNC | 57.0<br>MNI | 21.0<br>MNC | 9.0  | 7.5         | 30.6 |             |
| TOTAL TIME TO CLEAR | 116  | 41.8 | 169.4       | 88.7        | 117.1       | 74.7 | 78.9        | 90.1 |             |
| NUMBER CLEARED      | 8    | 8    | 8           | 8           | 8           | 8    | 7           | 8    |             |
| AVG TIME TO CLEAR   | 14.5 | 5.2  | 21.2        | 11.1        | 14.6        | 9.3  | 11.3        | 11.3 |             |

DATA FROM INSTRUMENTATION

LEGEND:

- FO - Firing Order
- MNC - Malfunction Not Cleared
- MNI - Malfunction Not Indicated
- Time is given in seconds.

Date 13 MAR 69 (Day) Night

Exercise Number 3

Firing Position FOXHOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | 1           | 2    | 3           | 4           | 5           | 6    | 7           | 8    | MALFUNCTION |
|---------------------|-------------|------|-------------|-------------|-------------|------|-------------|------|-------------|
|                     | FJ          | FFR  | FX          | FF          | FF          | FBR  | FF1         | MF   |             |
| 1                   | 10.1        | 12.4 | 11.0<br>MNI | 93.5<br>MNC | 18.5        | 6.6  | 5.0         | 5.4  |             |
| 2                   | 10.5        | 4.5  | 25.5        | 19.5<br>MNC | 4.8         | 5.7  | 11.3        | 6.1  |             |
| 3                   | 3.4         | 3.7  | 18.8        | 22.0<br>MNI | 14.8<br>MNC | 7.2  | 16.4        | 11.0 |             |
| 4                   | 13.7        | 13.6 | 41.0<br>MNC | 34.0<br>MNI | 16.8<br>MNC | 4.2  | 8.0<br>MNI  | 7.7  |             |
| 5                   | 22.5        | 8.8  | 13.2        | 35.0<br>MNI | 6.3         | 8.0  | 11.0<br>MNI | 5.3  |             |
| 6                   | 15.0<br>MNI | 14.3 | 46.0<br>MNC | 5.5<br>MNI  | 6.2         | 6.2  | 29.0<br>MNI | 7.1  |             |
| 7                   | 9.2         | 36.0 | 31.5        | 3.5<br>MNI  | 17.2<br>MNC | 7.7  | 22.4        | 5.3  |             |
| 8                   | 21.0        | 3.6  | 14.0<br>MNC | 5.5<br>MNI  | 5.7         | 7.6  | 8.0<br>MNC  | 6.6  |             |
| TOTAL TIME TO CLEAR | 105.4       | 96.9 | 201.0       | 145.5       | 90.3        | 53.2 | 111.1       | 54.5 |             |
| NUMBER CLEARED      | 8           | 8    | 8           | 8           | 8           | 8    | 8           | 8    |             |
| AVG TIME TO CLEAR   | 13.2        | 12.1 | 25.1        | 18.2        | 11.3        | 6.7  | 13.9        | 6.8  |             |

DATA FROM INSTRUMENTATION

LEGEND:

- FO - Firing Order
- MNC - Malfunction Not Cleared
- MNI - Malfunction Not Indicated
- Time is given in seconds.

Date 13 MAR 69 (Day) (Night)

Exercise Number 4

Firing Position PRONE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO NUMBER           | 1           | 2                    | 3                      | 4           | 5           | 6    | 7           | 8    | MALFUNCTION |
|---------------------|-------------|----------------------|------------------------|-------------|-------------|------|-------------|------|-------------|
|                     | FJ          | FFR                  | FX                     | FF          | FF          | FBR  | FF1         | MF   |             |
| 1                   | 30.4        | 9.3                  | 29.8<br>MNC            | 5.0<br>MNI  | 23.0<br>MNC | 8.3  | 11.0<br>MNI | 12.3 |             |
| 2                   | 18.0<br>MNC | 5.0<br>MNC           | 33.2<br>MNC            | 8.5<br>MNC  | 27.8<br>MNC | 5.7  | 9.0         | 14.0 |             |
| 3                   | 6.3         | 15.0<br>MNC          | 34.0<br>MNC            | 21.5<br>MNI | 8.4         | 5.7  | 6.6         | 16.4 |             |
| 4                   | 25.0<br>MNC | 5.0<br>MNC           | 36.3<br>MNI            | 3.5<br>MNI  | 16.0        | 8.3  | 7.0<br>MNI  | 12.4 |             |
| 5<br>50.            | 8.3         | 19.0                 | 31.1<br>MNC            | 12.5<br>MNI | 11.9        | 6.5  | 7.8         | 7.9  |             |
| 6                   | 18.9        | 5.0<br>MNI           | 30.0<br>MNI            | 3.5<br>MNI  | 9.4         | 10.6 | 6.6         | 10.3 |             |
| 7                   | 14.0<br>MNC | 5.0<br>MNI           | 28.0<br>MNC            | 15.0<br>MNC | 7.6<br>MNC  | 6.5  | 0<br>MNI    | 6.3  |             |
| 8                   | 25.0<br>MNC | 5.0<br>MNI           | 35.2<br>MNC            | 14.5<br>MNI | 13.6<br>MNC | 37.2 | 6.4         | 6.0  |             |
| TOTAL TIME TO CLEAR | 145.7       | <del>77.3</del> 68.3 | <del>257.6</del> 257.6 | 84.0        | 117.7       | 88.8 | 54.4        | 85.6 |             |
| NUMBER CLEARED      | 8           | 8                    | 8                      | 8           | 8           | 8    | 7           | 8    |             |
| AVG TIME TO CLEAR   | 18.2        | <del>9.7</del> 8.5   | 32.2                   | 10.5        | 14.7        | 11.1 | 7.8         | 10.7 |             |

DATA FROM INSTRUMENTATION

LEGEND:

- FO - Firing Order
- MNC - Malfunction Not Cleared
- MNI - Malfunction Not Indicated
- Time is given in seconds.

Date 13 MAR 69 Day Night  
 Exercise Number 1  
 Firing Position STANDING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1           | 2          | 3           | 4           | 5          | 6    | 7           | 8    | MALFUNCTION |
|------------------------|-------------|------------|-------------|-------------|------------|------|-------------|------|-------------|
|                        | FJ          | FFR        | FX          | FF          | FF         | FBR  | FF1         | MF   |             |
| 1                      | 15.3        | 5.0<br>MNC | 3.6<br>MNC  | 3.5<br>MNI  | 9.0<br>MNC | 26.2 | 8.0<br>MNI  | 15.0 |             |
| 2                      | 12.0<br>MNI | 14.0       | 34.3<br>MNC | 13.0<br>MNI | 31.7       | 8.8  | 10.0<br>MNI | 8.6  |             |
| 3                      | 5.3<br>MNC  | 7.5        | 55.0<br>MNC | 4.5<br>MNI  | 4.7        | 4.2  | 7.8         | 16.5 |             |
| 4                      | 11.0        | 5.0<br>MNI | 29.6<br>MNC | 17.0<br>MNI | 21.7       | 7.2  | 7.1         | 6.8  |             |
| 5                      | 6.2         | 5.3        | 31.0<br>MNC | 3.5<br>MNI  | 7.3        | 6.7  | 45.4        | 8.1  |             |
| 6                      | 5.2         | 3.6        | 33.2<br>MNC | 5.0<br>MNI  | 11.0       | 5.6  | 5.7         | 10.3 |             |
| 7                      | 7.4         | 5.5        | 30.1<br>MNC | 10.5<br>MNC | 10.2       | 9.5  | 28.3        | 9.1  |             |
| 8                      | 4.9         | 2.7        | 29.8<br>MNC | 11.0<br>MNI | 7.8        | 10.2 | 4.9         | 14.4 |             |
| TOTAL TIME<br>TO CLEAR | 67.3        | 48.6       | 279.0       | 68.5        | 103.4      | 78.4 | 117.2       | 88.8 |             |
| NUMBER<br>CLEARED      | 8           | 8          | 8           | 8           | 8          | 8    | 8           | 8    |             |
| AVG TIME<br>TO CLEAR   | 8.4         | 6.1        | 34.9        | 8.6         | 12.9       | 9.8  | 14.7        | 11.1 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 13 MAR 69 Day Night

Exercise Number 2

Firing Position KNEELING

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1           | 2    | 3           | 4           | 5    | 6    | 7     | 8    | MALFUNCTION |
|------------------------|-------------|------|-------------|-------------|------|------|-------|------|-------------|
|                        | FJ          | FFR  | FX          | FF          | FF   | FBR  | FF1   | MF   |             |
| 1                      | 15.0<br>MNI | 3.0  | 22.3        | 27.0        | 9.7  | 4.8  | 7.5   | 5.7  |             |
| 2                      | 10.0<br>MNI | 3.2  | 28.4        | 7.5<br>MNI  | 7.1  | 6.2  | 11.4  | 8.5  |             |
| 3                      | 12.1        | 3.5  | 29.5<br>MNC | 12.0<br>MNI | 3.3  | 3.9  | 14.2  | 7.9  |             |
| 4                      | 25.5        | 3.7  | 36.3<br>MNC | 3.5<br>MNI  | 5.6  | 7.0  | 26.6  | 8.0  |             |
| 5                      | 15.3        | 5.6  | 37.0<br>MNC | 15.0<br>MNI | 5.6  | 8.4  | 8.8   | 22.1 |             |
| 6                      | 13.7        | 6.1  | 31.0<br>MNC | 3.5<br>MNI  | 6.6  | 6.3  | 15.3  | 15.2 |             |
| 7                      | 4.2         | 4.3  | 13.2        | 3.0<br>MNF  | 4.7  | 9.8  | 11.0  | 10.0 |             |
| 8                      | 0<br>MNI    | 3.2  | 30.7<br>MNC | 4.0<br>MNI  | 7.0  | 13.7 | 8.8   | 10.4 |             |
| TOTAL TIME<br>TO CLEAR | 95.8        | 32.6 | 228.4       | 80.5        | 49.6 | 60.1 | 103.6 | 87.8 |             |
| NUMBER<br>CLEARED      | 7           | 8    | 8           | 8           | 8    | 8    | 8     | 8    |             |
| AVG TIME<br>TO CLEAR   | 13.7        | 4.1  | 28.6        | 10.1        | 6.2  | 7.5  | 13.0  | 11.0 |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 13 MAR 69 Day Night

Exercise Number 3

Firing Position FOXHOLE

M16A1 RELIABILITY STUDY DATA REDUCTION SHEET

FIRING POINTS

| FO<br>NUMBER           | 1           | 2          | 3           | 4           | 5          | 6    | 7          | 8    | MALFUNCTION |
|------------------------|-------------|------------|-------------|-------------|------------|------|------------|------|-------------|
|                        | FJ          | FFR        | FX          | FF          | FF         | FBR  | FF1        | MF   |             |
| 1                      | 21.4        | 2.6        | 24.0<br>MNC | 14.5<br>MNC | 16.0       | 8.7  | 4.5        | 4.6  |             |
| 2                      | 20.0<br>MNC | 3.2        | 29.3<br>MNC | 13.5<br>MNI | 7.7        | 4.5  | 8.0<br>MNI | 14.2 |             |
| 3                      | 13.5        | 12.5       | 30.1<br>MNC | 17.0<br>MNC | 18.1       | 7.4  | 6.9        | 9.8  |             |
| 4                      | 20.8        | 2.7        | 36.0<br>MNC | 3.5<br>MNI  | 21.5       | 8.2  | 0<br>MNI   | 9.8  |             |
| 5                      | 15.4        | 5.3        | 28.7<br>MNC | 2.5<br>MNI  | 7.0        | 7.3  | 7.0        | 5.6  |             |
| 6                      | 30.0<br>MNC | 4.2        | 35.7<br>MNC | 4.0<br>MNI  | 5.0<br>MNI | 5.9  | 17.4       | 6.0  |             |
| 7                      | 8.8         | 7.2        | 34.5<br>MNC | 4.5<br>MNI  | 4.8        | 11.1 | 0<br>MNI   | 12.0 |             |
| 8                      | 5.2         | 5.0<br>MNI | 30.5<br>MNC | 11.2<br>MNI | 10.3       | 8.9  | 5.3        | 5.4  |             |
| TOTAL TIME<br>TO CLEAR | 135.1       | 42.7       | 245.8       | 70.7        | 90.4       | 62.0 | 49.1       | 67.4 |             |
| NUMBER<br>CLEARED      | 8           | 8          | 8           | 8           | 8          | 8    | 6          | 8    |             |
| AVG TIME<br>TO CLEAR   | 16.9        | 5.3        | 30.7        | 8.8         | 11.3       | 7.8  | 8.2        | 8.4  |             |

LEGEND:

FO - Firing Order  
MNC - Malfunction Not Cleared  
MNI - Malfunction Not Indicated  
Time is given in seconds.

Date 13 MARCH 69 Day Night

Exercise Number K4

Firing Position PRONE

APPENDIX II - CORRESPONDENCE



DEPARTMENT OF THE ARMY  
HEADQUARTERS, U. S. ARMY TEST AND EVALUATION COMMAND  
ABERDEEN PROVING GROUND, MARYLAND 21005

AMSTE-BC

SUBJECT: M16 Rifle System Operational Reliability

TO: Commanding Officer, Aberdeen Proving Ground, ATTN: STEAP-DS  
President, US Army Infantry Board

1. References:

- a. Minutes of M16 Executive Committee, dated 1 Mar 68, copy inclosed.
- b. Letter, 2 Mar 68, subject: M16 Rifle Advisory Group Task Assignments, copy inclosed.
- c. Letter, 4 Mar 68, subject: Malfunctions of Chrome-Plated Chamber Rifle, M16A1.
- d. TECP 700-700, Interim Pamphlet 20-20, Hand and Shoulder Fired Weapons.
- e. APG Report, Product Improvement Tests of Redesigned Buffer, USATECOM Project No. 8-7-0230-04.
- f. Report, Feb 68, Operational Reliability Tests of M16A1 Rifle, WSEG 124. (Copies being provided under separate cover).
- g. Letter, AMSTE-BC, 23 Feb 68, subject: Reporting of Malfunction Data for Individual Infantry Weapons.

2. Background:

- a. An inadequate basis exists for establishing operational reliability (hereafter defined) and trade-offs for both ammunition and weapons in assessing product improvements and acceptability of existing rifles, as well as for evaluating follow-on weapons.

13 MAR 1968

SUBJECT: M16 Rifle System Operational Reliability

b. By references 1a and 1b, TECOM was assigned the responsibility for developing the plans and approaches that might permit subject accomplishment.

c. Reference 1b formally directs assignment of tasks to AMC organizations and requests plans and estimates by 14 March 1968.

d. References 1d and 1e discuss the nature of and expand definitions of malfunctions associated with hand and shoulder weapons and the M16 Rifle specifically.

e. Reference 1f provides comprehensive data and analysis relative to reliability of the M16A1 Rifle.

f. Reference 1b requests immediate accumulations of down-time in relation to malfunctions.

3. Definitions - For mutual understanding the following definitions are provided:

a. System - The combination of weapon, ammunition and man acting in concert that is intended to permit launching of projectiles in a pre-selected mode and in a manner dictated by the operator. (It is not to be confused with system "effectiveness" which includes hitting and killing).

b. Operational Reliability - The probability of achieving system operation, measured in terms of down-time when a stoppage or inability to accomplish a task occurs, in relation to specific malfunctions or inherent limitations (i.e., magazine change times).

c. Down-Time - The lapsed time during which the system fails to operate as intended, and ending when function is restored.

4. Objectives - Two preliminary objectives must be addressed prior to establishing or applying reliability criteria as a final objective, namely:

a. Uniform definitions of malfunctions.

b. Times to clear or correct stoppages in relation to specific malfunctions.

5. Responsibilities - It is requested that implementation or preparation of plans for fulfilling preliminary objectives be initiated immediately as follows:

13 MAR 1968

## a. CO, APG will -

(1) Prepare a uniform listing of definitions of malfunctions with photographs, if necessary, in addition to or in extension of references ld, le, in coordination with President, USAIB. Thereafter, CO, APG will solicit comment from USMC, Navy and Air Force through this headquarters.

(2) Accumulate down-times in relation to defined malfunctions in format suitable for analysis using current tests as sources (reference lg).

(3) Prepare plans for special tests as necessary to generate, supplement or refine down-time data.

(4) Accumulate and analyze down-time data from all sources to include any pertinent past data. This analysis will have as its eventual objective the establishment of a reliability weighting factor for each malfunction, with emphasis on the service operated down-time as a "true" value and the technical testing down-time as a source of relative values for increased statistical confidence and precision. Statistical analysis must be continuous, and additional engineering or service types of exercises should be imposed if necessary. If such exercises requires participation or input from the service board, the requirement should be addressed through this headquarters.

## b. Pres, USAIB will -

(1) Review and comment on definitions provided by CO, APG after informal coordination with CDCIA and USAIS.

(2) Accumulate down-time and generate plans for additional tests in the same manner as outlined in para 5a(2) and (3) and in support of additional tests that may be an outgrowth of activities outlined in para 5a(4).

(3) Consider the feasibility of test and analytical support from the COMBATEST Range and associated contract personnel.

6. Coordination: Addressees will effect active and continual coordination to include data accumulation, interchange, and experimental design without further direction from this headquarters.

7. Special Instructions: It is not intended that malfunction times be accumulated at the expense of biasing either current or future tests (reference lb) i.e., the need to analyze the cause of malfunction during an engineering test should not be sacrificed merely to measure a valid operational down-time. Similarly, if a specific and critical service test

13 MAR 1968

SUBJECT: M16 Rifle System Operational Reliability

scenario would be negated by imposing a down-time measurement, it should be omitted. However, to assure that data is accumulated promptly and in sufficient quantity for each potential malfunction, specific exercises should be considered with built-in malfunctions. For example, dents might be imposed on cartridge cases and faulty extractors installed to generate chambering and/or extraction failures; a weak ejector spring might generate ejection failures, and inert primers can be interposed to create failures to fire.

#### 8. Test Plans:

a. It is required that this activity be planned for completion to the degree that usable weighting factors for the M16 Rifle can be proposed to the Project Manager, Rifles no later than 31 July 1968. Continuation of test and/or analysis beyond this date is dependent on acceptability of the results, its need for refinement, and its further applicability to other weapons. Monthly progress reports to this headquarters are required.

b. It is requested that tentative approaches be drafted in anticipation of a meeting to be held at this headquarters the week of 25 March to discuss and/or amplify implementation. Addressees will be notified of exact date.

9. Project Number and Priority - For planning and identification purposes USATECOM Project Numbers are assigned as follows:

a. APG - 8-8-0070-05.

b. USAIB - 8-8-0070-06.

c. Priority 01 for this activity is based on M16 Rifle production SEA.

10. Funding: Verbal inputs relative to funding requirements and support i.e., PEMA or RDT&E, FY 68 and FY 69 have been requested. Confirmation in writing is required.

FOR THE COMMANDER:

*Robert B. Tully*  
ROBERT B. TULLY  
Colonel, GS  
Dir, Inf Mat Test

2 Incl w/d  
as



DEPARTMENT OF THE ARMY  
HEADQUARTERS, U. S. ARMY TEST AND EVALUATION COMMAND  
ABERDEEN PROVING GROUND, MARYLAND 21005

AMSTE-BC

11 JUN 1968

SUBJECT: Establishment of System Operational Reliability Criteria Using  
the M16A1 Rifle, USATECCOM Project No. 8-8-0070-05/06

✓ Commanding Officer, Aberdeen Proving Ground, ATTN: STEAP-CO-P  
President, US Army Infantry Board, ATTN: STEBC-SA

1. References:

a. Letter, AMSTE-BC, dated 13 March 68, Subject: M16 Rifle System Operational Reliability.

b. Letter, AMSTE-BC, dated 6 May 68, Subject: Proposed Definitions and Identifications of Malfunctions for 5.56mm Weapons M16/M1177.

2. Reference 1a is amended as follows:

a. Revise subject to read: Test Directive for Establishment of System Operation Reliability Criteria Using the M16A1 Rifle.

b. The actions directed in Paragraph 5a(1) have been initiated by this headquarters. Addressees are directed to proceed in translating the planning directive into task activity.

c. Change Paragraph 5b(1) to read as follows: Review and correct on definitions provided by this command after informal coordination with CDCIA and USAIS.

d. Add the following sentence to Paragraph 5b(2): Inputs are to be provided to CO, APG ATTN: STEAP-DS-TI for consolidation into final report.

3. Additionally, the following actions are directed to CO, APG. Funds under PRON 45-8-76343-(01)-45-K2 in the amount of \$10,000 are available.

a. Review and consolidate response comments to ref 1b which will be provided by this headquarters; generate photos to illustrate malfunctions and deliver 60 copies to this headquarters. Distribution list is restricted to those addressees checked in red, inclosure 1, and is to be included

AMSTE-BC

11 JUN 1968

SUBJECT: Establishment of System Operational Reliability Criteria Using the M16A1 Rifle, USATECOM Project No. 8-8-0070-05/06

as part of the report. Total distribution will be made by this command.

b. In coordination with USAIB, provide malfunction production techniques and/or ammunition to yield specific malfunctions, and on-site advice as mutually agreed.

c. Develop plans and methods in coordination with USAIB to generate statistical distributions of down times for each malfunction. This activity is necessary prior to initiation of tests at USAIB.

d. Final report is to be published in accordance with schedule outlined in inclosure 2.

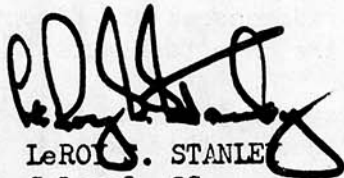
4. The firing at APG to accomplish 3c is to be initiated to the degree possible with funds on hand. Additional funding will be requested directly to Project Manager, Rifles by Aberdeen Proving Ground at any time when expenditure levels reach within 75 percent of available funds. Prompt response by Project Manager, Rifles has been assured.

5. This activity is committed to DA by the schedule attached as inclosure 2 and will be adhered to.

6. It is reiterated that maximum use of overtime is authorized. Any problems in obtaining overtime will be brought to the immediate attention of this command.

7. Distribution list for final report is attached as inclosure 3. Include only those addressees marked in red.

FOR THE COMMANDER:



LEROY S. STANLEY  
Colonel, GS  
Dir, Inf Mat Test Dir

4 Incl w/d

- 1. Dist list (APG only)
- 2. Chart
- 3. Dist list (APG only)
- 4. TSMS

Copies furnished: (w/o incls)  
CG USAMC ATTN: AMCPM-RS  
CO APG ATTN: STEAP-DS-TI



### APPENDIX III - REFERENCES

1. Wilson, Allan, USATECOM Pamphlet on Definitions and Identifications of Malfunctions for 5.56-MM Weapons, M16A1/XM177E2, November 1968.
2. Wilson, Major Bruce, USAIB Test Plan on Special Study for Establishment of System Operation Reliability Criteria Using the M16A1 Rifle, September 1968.
3. Letter, STEBC-SA to AMSTE-BC, 27 May 1969, Special Study for Establishment of System Operation Reliability Criteria Using the M16A1 Rifle.

APPENDIX IV - DISTRIBUTION LIST

USATECOM Project No. 8-WE-600-016-001

| <u>Addressee</u>  | <u>Final Report</u> |
|---|---------------------|
| Commanding General<br>US Army Test and Evaluation Command<br>Aberdeen Proving Ground, Maryland 21005<br>ATTN: AMSTE-BC                            | 30                  |
| Commanding General<br>US Army Materiel Command<br>Washington, D.C. 20315<br>ATTN: AMCPMSO-RS  | 5*                  |
| AMCRD-WI  | 2*                  |
| AMCSF   | 1                   |
| AMCMR-CP  | 1                   |
| AMCQA-E   | 1                   |
| AMCMA-R   | 1                   |
| AMCRD-R   | 1                   |
| AMCRD-ET  | 1*                  |
| Commanding General<br>US Army Materiel Command<br>Rock Island, Illinois 61202<br>ATTN: AMCPM-RS   | 5*                  |
| Commanding General<br>US Army Combat Developments Command<br>Liaison Officer<br>Aberdeen Proving Ground, Maryland 21005<br>ATTN: USACDC, USATECOM | 12                  |
| Commanding General<br>US Continental Army Command<br>Fort Monroe, Virginia 23351<br>ATTN: ATIT-RD-MD  | 4                   |
| Commanding General<br>US Army Weapons Command<br>Rock Island, Illinois 61201<br>ATTN: AMSWE-RES   | 3*                  |

\*Distribution denoted by an asterisk (\*) will be made from those copies forwarded to Headquarters, USATECOM.

Addressee

Final Report

Commanding General  
US Army Munitions Command  
Dover, New Jersey 07801  
ATTN: AMSMU-RE

3

Chief of Research and Development  
Department of the Army  
Washington, D.C. 20315  
ATTN: CRDPES  
CRDME-1

1\*  
7\*

Assistant Chief of Staff for Force Development  
Department of the Army Systems Staff Officers  
Pentagon  
Washington, D.C. 20310

1

Commandant  
US Army Infantry School  
Fort Benning, Georgia 31905  
ATTN: AJIIS-M

1

Commandant  
US Marine Corps  
Washington, D.C. 20380

1

Commanding Officer  
US Army Logistics Doctrine Systems and  
Readiness Agency  
New Cumberland Depot, PO Box 2947  
Harrisburg, Pennsylvania 17105  
ATTN: LDSRA-ME

1

Commanding Officer  
US Army Frankford Arsenal  
Philadelphia, Pennsylvania 19137  
ATTN: SMUFA-J1000  
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SMUFA-B2000  
SMUFA-Q1000

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| AMXBR-ID  | 1                   |
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| Commanding Officer<br>US Army Human Engineering Laboratories<br>Aberdeen Proving Ground, Maryland 21005<br>ATTN: AMXHE-SYS  | 3                   |
| Commanding Officer<br>Rock Island Arsenal<br>Rock Island, Illinois 61201  | 3                   |
| Commanding Officer<br>US Army Arctic Test Center<br>APO Seattle, Washington 98733   | 1                   |
| Commanding Officer<br>Crane Naval Ammunition Depot<br>Crane, Indiana 47522<br>ATTN: WPECNAD                                 | 2                   |
| Commanding Officer<br>Yuma Proving Ground<br>Yuma, Arizona 85364  | 1                   |
| Commanding Officer<br>US Army Small Arms Systems Agency<br>Aberdeen Proving Ground, Maryland 21005<br>ATTN: AMXAA           | 3                   |
| President<br>US Army Maintenance Board<br>Fort Knox, Kentucky 40121   | 1                   |
| President<br>US Army Infantry Board<br>Fort Benning, Georgia 31905  | 1                   |

| <u>Addressee</u>  | <u>Final Report</u> |
|---|---------------------|
| US Marine Corps LtnO, USATECOM<br>Aberdeen Proving Ground<br>Aberdeen Proving Ground, Maryland 21005  | 1                   |
| Director<br>Development Center<br>Marine Corps Development and Education<br>Command<br>Quantico, Virginia 22134   | 1                   |
| US Army Standardization Group, UK<br>Box 65<br>FPO New York, New York 09510   | 1                   |
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| Commander<br>Hq, Defense Documentation Center for Scientific<br>and Technical Information<br>Cameron Station<br>Alexandria, Virginia 22314<br>ATTN: Document Service Center | 20                  |

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Aberdeen Proving Ground, Maryland 21005

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Allan Wilson

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10. DISTRIBUTION STATEMENT

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11. SUPPLEMENTARY NOTES

None

12. SPONSORING MILITARY ACTIVITY

USAWECOM

13. ABSTRACT

A study of the operational reliability characteristics of the M16A1 rifle was conducted at Aberdeen Proving Ground and at Fort Benning, Georgia from July 1968 through July 1969. Modifications to the M16A1 rifle and M193 ammunition, which would cause specific malfunctions to occur on a scheduled basis, were developed at Aberdeen Proving Ground and limited firing tests were conducted with experienced civilian firers. Troop tests were then conducted by the US Army Infantry Board at Fort Benning employing rifles and ammunition modified by Aberdeen Proving Ground. As a result of the study, recommendations were made to change the present limitations on malfunctions in M16A1 rifle acceptance tests, to amend technical publications with changes to the weapon loading technique and also to the immediate-action instructions, and to incorporate a more useful rifle training procedure in the present program of instruction for the M16A1 rifle. In addition to this report, a Pamphlet on Definitions and Identifications of Malfunctions for 5.56-MM Weapons was published by Aberdeen Proving Ground.

**DD FORM 1473**  
1 NOV 65

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

| 14. KEY WORDS  | LINK A |    | LINK B |    | LINK C |    |
|--|--------|----|--------|----|--------|----|
|  | ROLE   | WT | ROLE   | WT | ROLE   | WT |
| Operational reliability<br>Rifle, M16A1<br>Malfunction down times<br>Malfunction definitions |        |    |        |    |        |    |