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PENETRATION AND CUTTING EFFECTS OF LEAD-SHEATHED FLEXIBLE LINEAR SHAPED CHARGES AND EXPLOSIVE-FILLED LINEAR SHAPED-CHARGE CONTAINERS (MARK 7 MODS 1 THROUGH 8 AND MARK 8 MOD 2).

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Flexible Linear	Mk 8
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The Naval Explosive Ordnance Disposal Facility conducted tests to determine the cutting and penetration effects of 20-, 30-, 40-, 60-, 75-, 125-, 225-, 300-, 400-, 500-, and 600-grain-per-foot lead-sheathed flexible linear shaped charges (FLSC's) filled with CH-6 explosive, for use as a general-purpose tool by joint-service explosive ordnance disposal personnel.

Tests were conducted on 25-millimeter-thick (1-inch-thick) aluminum (2024-T4), 51-millimeter-thick (2-inch-thick) aluminum (2024-T351), and 25- and 51-millimeter (1- and 2-inch-thick) mild steel (1018) witness plates, both with and without standoff material.

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In addition to the FLSC tests, tests were conducted on the same type of witness plates using Mk 8 Mod 2 and Mk 7 Mods 1 through 8 linear shaped-charge containers, hand packed with composition C-4 explosive, to document and compare their cutting and penetration effects with those of the FLSC's.

The results of the tests indicate the flexible linear shaped charges filled with CH-6 explosive are superior to comparable Mk 7 linear shaped charges due to their wider range in sizes. Also, the Mk 7 linear shaped-charge containers suffer from problems encountered in hand packing explosive in cold weather; inconsistency between individual packers, and rigid construction, which causes problems in placement on curved or bent surfaces.

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INTRODUCTION

Flexible linear shaped charges (FLSC's) are manufactured by independent companies specializing in the development and production of explosives and explosive devices. The FLSC's utilized in these tests differ from commercially available FLSC's in the explosive filler. Government-purchased FLSC's are filled with CH-6 explosive in lieu of the RDX or PETN used in industry.

Linear shaped-charge containers presently in government supply systems consist of the Mk 8 Mod 2, a nonmagnetic container used mainly underwater, and the Mk 7 Mods 1 through 8, used strictly for surface applications. The containers are hand packed with composition C-4 explosive, and inconsistent cutting and penetration often occurs because of various problems. For example, the consistency of the explosive can change with varying temperatures (stiff when cold or sticky when hot), human error can result in varying amounts of explosive being used, and the individual size of the different mods can produce different results. Also, the rigid construction of the containers makes them unsuitable for use on curved or bent surfaces unless field modified.

Acceptance of the FLSC's will eliminate the problems inherent with the Mk 7 and Mk 8 linear shaped-charge containers, and, in addition, provide a shaped charge with a field-selectable length and capable of being formed to the curvature of the target. The dimensions of the Mk 7 linear shaped-charge containers are illustrated in figure 1.

Testing was conducted at the Naval Explosive Ordnance Disposal Facility, Indian Head, Maryland, during September and October 1978.

MATERIALS USED IN TESTS

The FLSC's are lead sheathed and come in a variety of sizes. Each size is based on the number of grains of explosive per foot of shaped charge. Sixteen meters (52 feet) of each of the following sizes were obtained for the tests: 20, 30, 40, 60, 75, 125, 225, 300, 400, 500, and 600 grains per foot. Also, 1.32 meters (52 inches) of FLSC holding strips, commonly called standoff material, were acquired for each size of the FLSC.

Nine different linear shaped-charge containers were used in the tests. As mentioned earlier, they were the Mk 8 Mod 2 and the Mk 7 Mods 1 through 8. Twenty-six of each size were obtained, for a total of 234 containers. The explosives used consisted of 4.5 kilograms (10 pounds) of composition C-4 and 806 special electric blasting caps.

Witness plates were used to document the cutting and penetration of the FLSC's and linear shaped-charge containers. The following tabulation presents the pertinent data on the witness plates:

Material	Size		Amount
	Millimeters	Inches	
Aluminum (2024-T4)	25 by 305 by 457	1 by 12 by 18	20
Aluminum (2024-T351)	51 by 305 by 457	2 by 12 by 18	32
Steel 1018	25 by 305 by 457	1 by 12 by 18	23
	51 by 305 by 457	2 by 12 by 18	18

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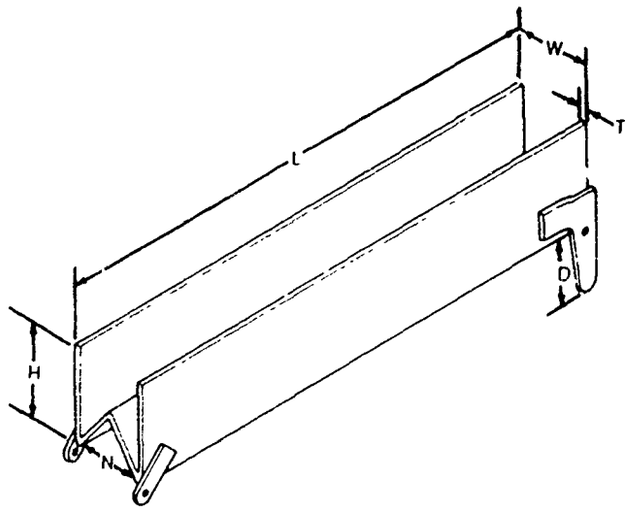

Designation	Angle (N)	Dimensions									
		W		T		H		L		D	
		in	mm	in	mm	in.	mm	in	mm	in	mm
Mark 7 Mod 1	120°	0.22	5.59	0.014	0.36	0.44	11.18	6	152	0.33	8.38
Mark 7 Mod 2	120°	0.25	6.35	0.016	0.41	0.38	9.65	6	152	0.88	22.35
Mark 7 Mod 3	80°	0.19	4.83	0.013	0.33	0.75	19.05	6	152	0.19	4.33
Mark 7 Mod 4	80°	0.40	10.16	0.021	0.53	0.81	20.57	3	76	0.38	9.65
Mark 7 Mod 5	80°	0.40	10.16	0.021	0.53	0.81	20.57	6	152	0.38	9.65
Mark 7 Mod 6	80°	0.50	12.70	0.030	0.76	0.94	23.88	6	152	0.50	12.70
Mark 7 Mod 7	80°	0.75	19.05	0.041	1.04	1.06	26.92	6	152	0.75	19.05
Mark 7 Mod 8	80°	1.00	25.40	0.053	1.35	1.12	28.45	6	152	1.06	26.92

Figure 1. Dimensions of Mk 7 Linear Shaped-Charge Containers

TEST PROCEDURES AND RESULTS

The tests were conducted in accordance with the NAVEODFAC Test Plan for Project 0883, dated 8 May 1978 (appendix A), with the following deviations:

1. Steel witness plates were handled by one person, in lieu of two, due to their relative small size and the short distance each plate was moved.

2. The FLSC's were broken by hand after a deep line was scribed around the lead sheath. This deviation was authorized by the Range Safety Supervisor, based on the numerous times this had been performed in the past, and concurrence by NAVSEASYSCOM ltr (04H3/EAD) Ser 859 of 22 September 1976.

Tests conducted with the Mk 8 Mod 2 linear shaped charge were included in this test plan to provide data for use in a separate NAVEODFAC project involved in an underwater program. Therefore, a comparison will not be made in this report between the Mk 8 and other shaped charges.

All tests were conducted in the same manner. Each FLSC was 305 millimeters (1 foot) long. The blasting cap was placed in the chevron of the FLSC, approximately 13 millimeters (1/2 inch), and taped securely in place. The FLSC was positioned on the witness plate as shown in figures 2 and 3, and initiated. The Mk 7 and Mk 8 linear shaped charges were positioned as shown in figures 4 and 5.

After the tests were completed, the witness plates, shown in figure 6, were placed on a Penetrator 50 machine, and the depth of penetration was obtained using a digital readout, as shown in tables B-1 through B-62. The results of every test, except those of the Mk 7 Mod 4 shaped-charge container, were measured at six points. The results of the Mk 7 Mod 4 container were measured at four points because of the short length (figure 1) of the container. Blasting cap initiation of the FLSC's occurred approximately 25 millimeters (1 inch) beyond point 6.

The average penetration, standard deviation, and probability factors for each size FLSC and linear shaped charge container are shown in the notes at the bottom of each table.

Tables 1 and 2 give an overview of the minimum, average, and maximum penetration of the FLSC's and linear shaped charges. From these tables it is evident the FLSC's used in these tests are capable of duplicating the penetration characteristics of the Mk 7 Mods 1 through 5 linear shaped charges.

Figures 7 through 12 graphically illustrate the size of FLSC's and Mk 7 linear shaped charges required to penetrate different thicknesses of steel and aluminum.

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TABLE 1. MINIMUM, AVERAGE, AND MAXIMUM PENETRATION CHARACTERISTICS OF FLEXIBLE LINEAR SHAPED CHARGES

Grains per foot	Aluminum witness plates with no standoff mm (in.)			Aluminum witness plates with standoff mm (in.)		
	1%	Average	99%	1%	Average	99%
20	1.219 (0.048)	2.184 (0.086)	3.160 (0.124)	1.168 (0.046)	1.880 (0.074)	2.591 (0.102)
30	2.159 (0.085)	2.184 (0.111)	3.480 (0.137)	2.870 (0.113)	3.404 (0.134)	3.988 (0.157)
40	3.200 (0.126)	3.581 (0.141)	3.963 (0.156)	3.327 (0.131)	3.912 (0.154)	4.496 (0.177)
60	3.480 (0.137)	3.988 (0.157)	4.521 (0.178)	2.667 (0.105)	4.293 (0.169)	5.918 (0.233)
75	3.556 (0.140)	4.216 (0.166)	4.877 (0.192)	3.327 (0.131)	4.826 (0.190)	6.325 (0.249)
125	4.597 (0.181)	5.309 (0.209)	6.025 (0.237)	3.277 (0.129)	5.867 (0.231)	8.458 (0.333)
225	6.020 (0.237)	7.899 (0.311)	9.779 (0.385)	5.385 (0.212)	7.264 (0.286)	9.144 (0.360)
300	7.366 (0.290)	8.789 (0.346)	10.211 (0.402)	7.569 (0.298)	9.271 (0.365)	10.973 (0.432)
400	8.407 (0.331)	10.490 (0.413)	12.573 (0.495)	7.036 (0.277)	9.906 (0.390)	12.776 (0.503)
500	9.017 (0.355)	10.643 (0.419)	12.268 (0.483)	5.156 (0.203)	8.992 (0.354)	12.827 (0.505)
600	9.322 (0.367)	11.608 (0.457)	13.894 (0.547)	7.0[illegible]0 (0.2[illegible]6)	9.296 (0.366)	11.582 (0.456)
	Steel witness plates with no standoff mm (in.)			Steel witness plates with standoff mm (in.)		
20	0.864 (0.034)	1.143 (0.045)	1.397 (0.055)	0.457 (0.018)	0.914 (0.036)	1.372 (0.054)
30	1.372 (0.054)	1.626 (0.064)	1.880 (0.074)	0.991 (0.039)	1.651 (0.065)	2.311 (0.091)
40	1.676 (0.066)	1.930 (0.076)	2.184 (0.086)	1.499 (0.059)	1.829 (0.072)	2.159 (0.085)
60	1.981 (0.078)	2.311 (0.091)	2.642 (0.104)	1.676 (0.066)	2.337 (0.092)	3.000 (0.118)
75	2.210 (0.087)	2.540 (0.100)	2.870 (0.113)	2.216 (0.089)	2.794 (0.110)	3.378 (0.133)
125	2.819 (0.111)	3.200 (0.126)	3.581 (0.141)	2.286 (0.090)	3.327 (0.131)	4.369 (0.172)
225	3.708 (0.146)	4.496 (0.177)	5.283 (0.208)	2.794 (0.110)	4.039 (0.159)	5.283 (0.208)
300	4.039 (0.159)	4.877 (0.192)	5.715 (0.225)	3.781 (0.149)	5.029 (0.198)	6.401 (0.252)
400	4.140 (0.163)	5.309 (0.209)	6.477 (0.255)	4.978 (0.196)	6.096 (0.240)	7.214 (0.284)
500	4.521 (0.178)	6.477 (0.255)	8.433 (0.332)	4.496 (0.177)	5.918 (0.233)	7.341 (0.289)
600	5.055 (0.199)	6.655 (0.262)	8.407 (0.331)	4.648 (0.183)	5.817 (0.229)	7.000 (0.275)

TABLE 2. MINIMUM, AVERAGE, AND MAXIMUM PENETRATION CHARACTERISTICS OF MARK 7 AND MARK 8 LINEAR SHAPED CHARGES

Shaped charge	Aluminum witness plates mm (in.)			Steel witness plates mm (in.)		
	1%	Average	99%	1%	Average	99%
Mk 7						
Mod 1	4.496 (0.177)	6.248 (0.246)	8.001 (0.315)	2.642 (0.104)	3.556 (0.140)	4.470 (0.176)
Mod 2	4.750 (0.187)	6.756 (0.266)	8.763 (0.345)	2.388 (0.094)	3.556 (0.140)	4.724 (0.186)
Mod 3	3.226 (0.127)	4.521 (0.178)	5.817 (0.229)	1.422 (0.056)	2.337 (0.092)	3.251 (0.128)
Mod 4	6.121 (0.241)	11.201 (0.441)	16.281 (0.641)	3.912 (0.154)	7.239 (0.285)	10.566 (0.416)
Mod 5	7.010 (0.276)	11.760 (0.463)	16.510 (0.650)	3.962 (0.156)	6.756 (0.266)	9.550 (0.376)
Mod 6	12.852 (0.506)	14.859 (0.585)	17.069 (0.672)	6.706 (0.264)	8.915 (0.351)	11.125 (0.438)
Mod 7	18.364 (0.723)	23.444 (0.923)	28.524 (1.123)	10.566 (0.416)	14.783 (0.582)	18.999 (0.748)
Mod 8	21.666 (0.853)	27.254 (1.073)	32.842 (1.293)	15.723 (0.619)	17.551 (0.691)	19.355 (0.762)
Mk 8						
Mod 2	15.138 (0.596)	33.350 (1.313)	51.562 (2.030)	12.065 (0.475)	19.863 (0.782)	27.661 (1.089)

Figure 2. Typical Setup for FLSC Tests Without Standoff Material

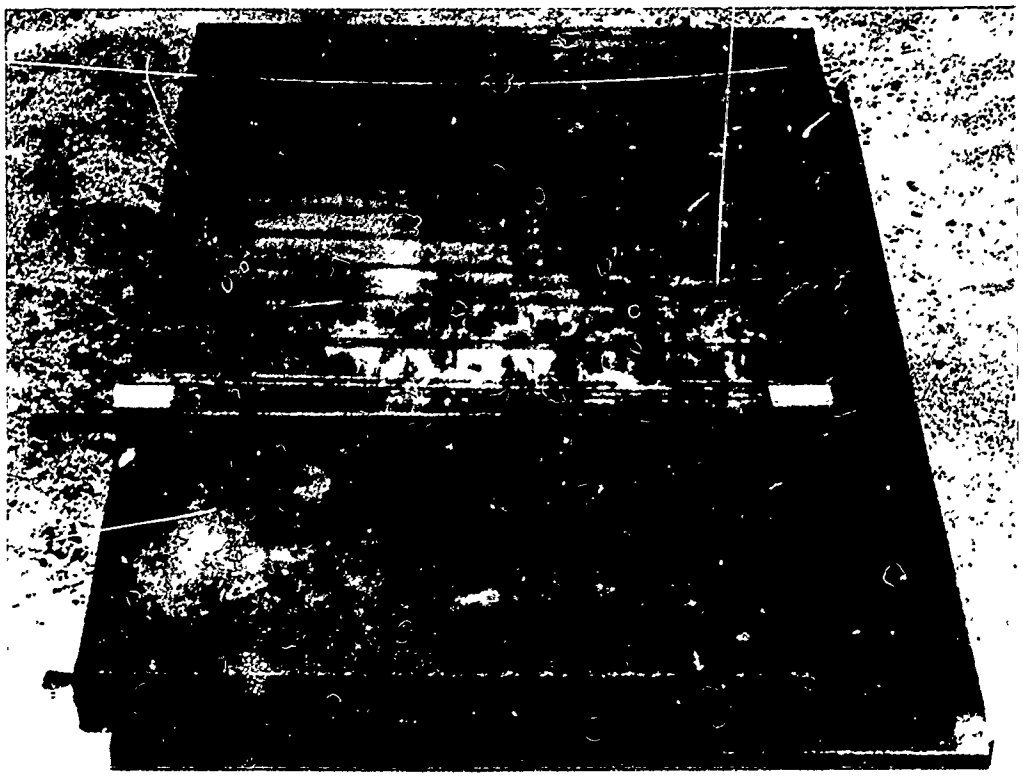

Figure 3. Typical Setup for FLSC Tests With Standoff Material

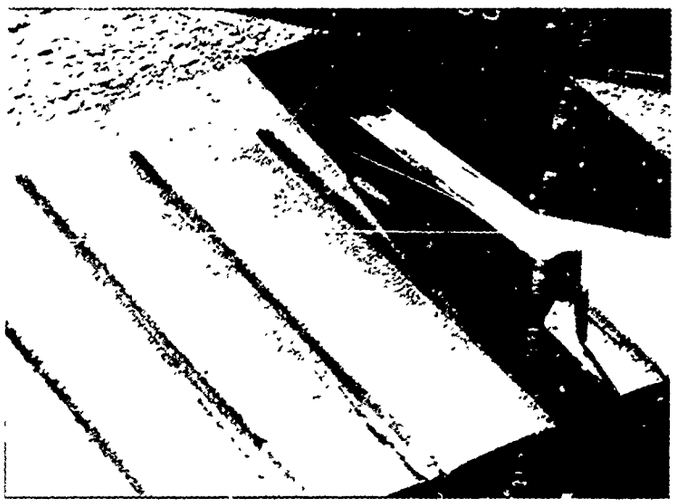

Figure 4. Typical Setup for Mk 7 Linear Shaped Charges

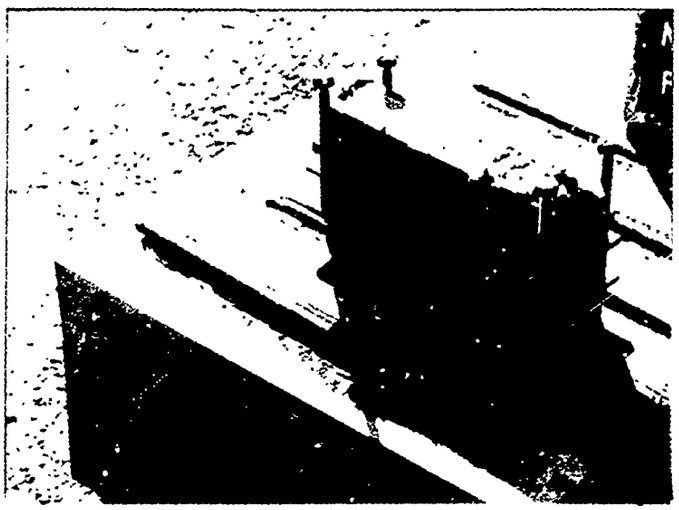

Figure 5. Typical Setup for Mk 8 Linear Shaped Charge

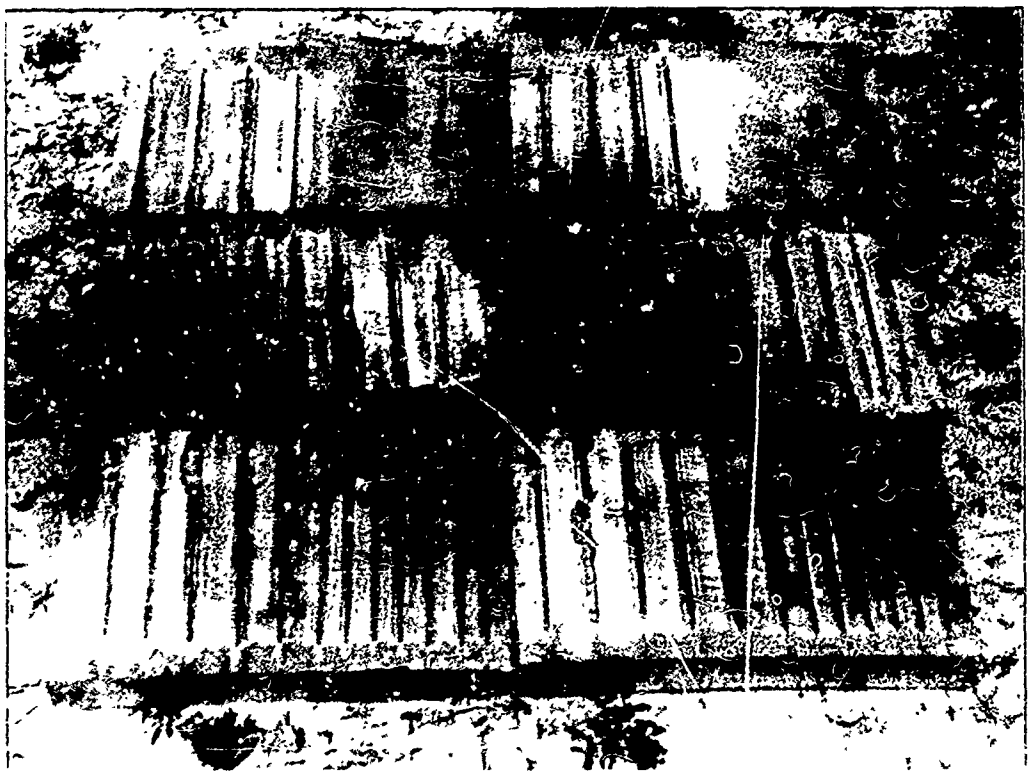

Figure 6 Typical Results of FLSC Tests

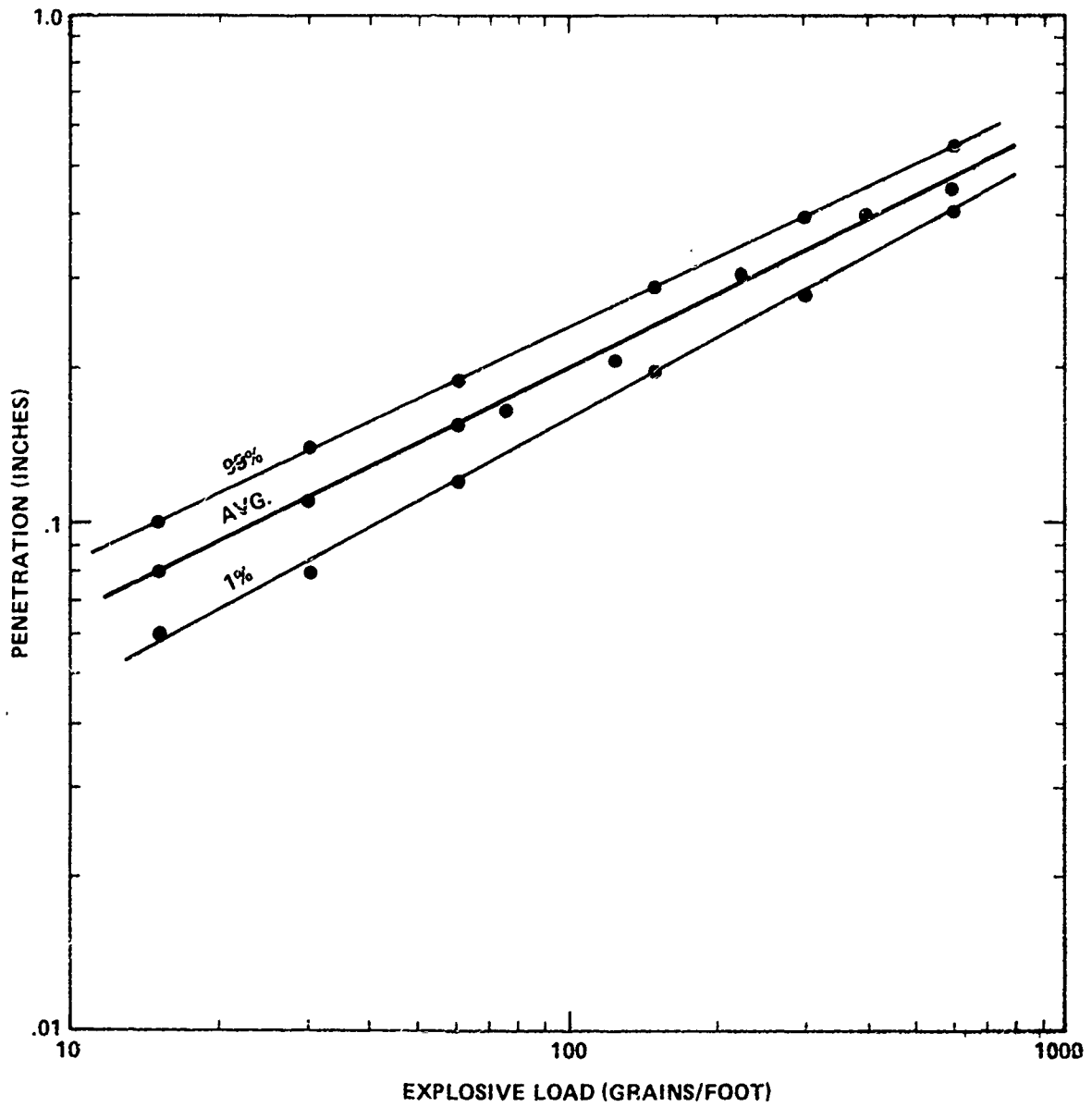

Figure 7. Average, Minimum, and Maximum Penetration Characteristics of FLSC's With No Standoff on Aluminum Witness Plates

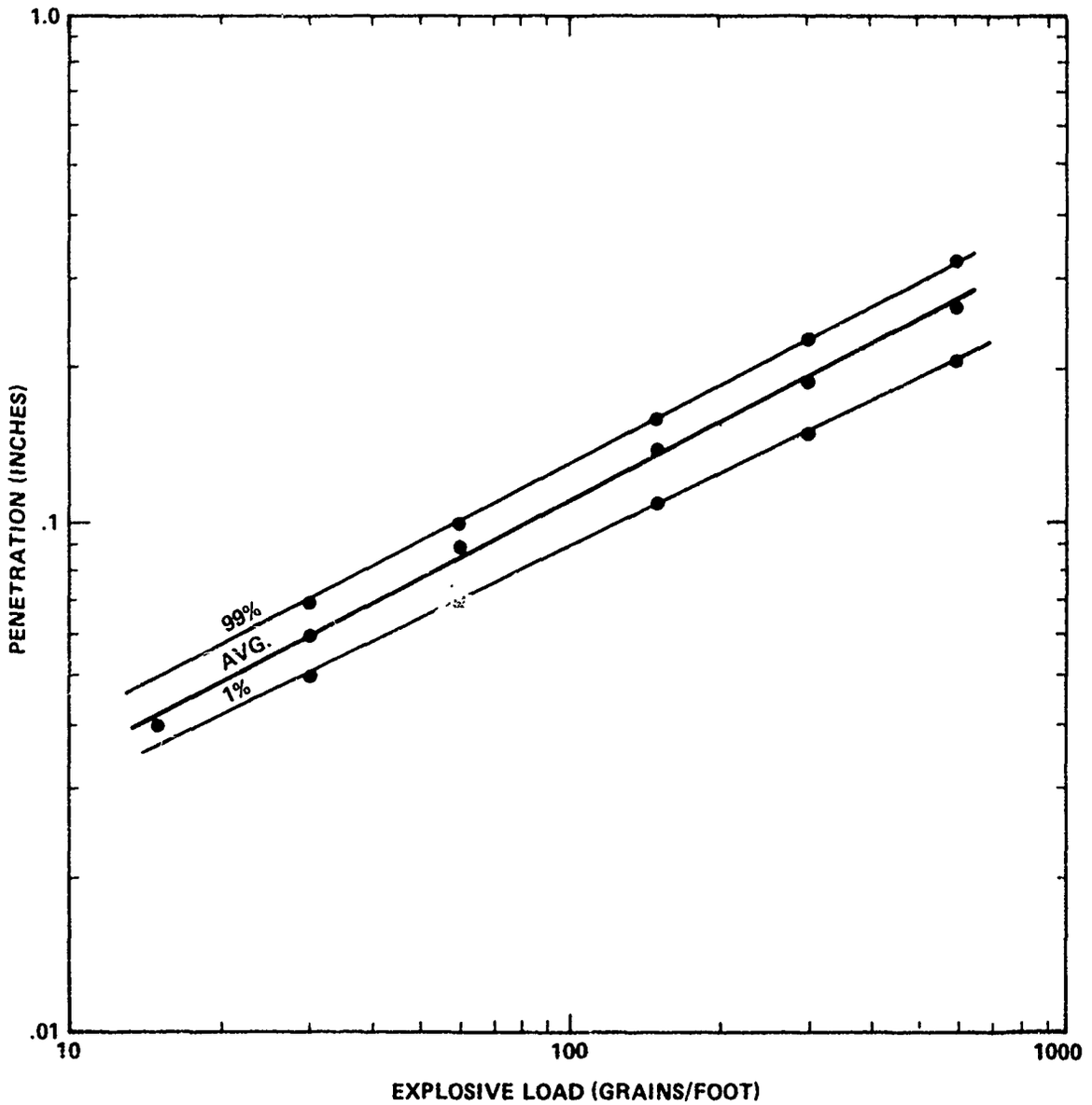

Figure 8. Average, Minimum, and Maximum Penetration Characteristics of FLSC's With No Standoff on Steel Witness Plates

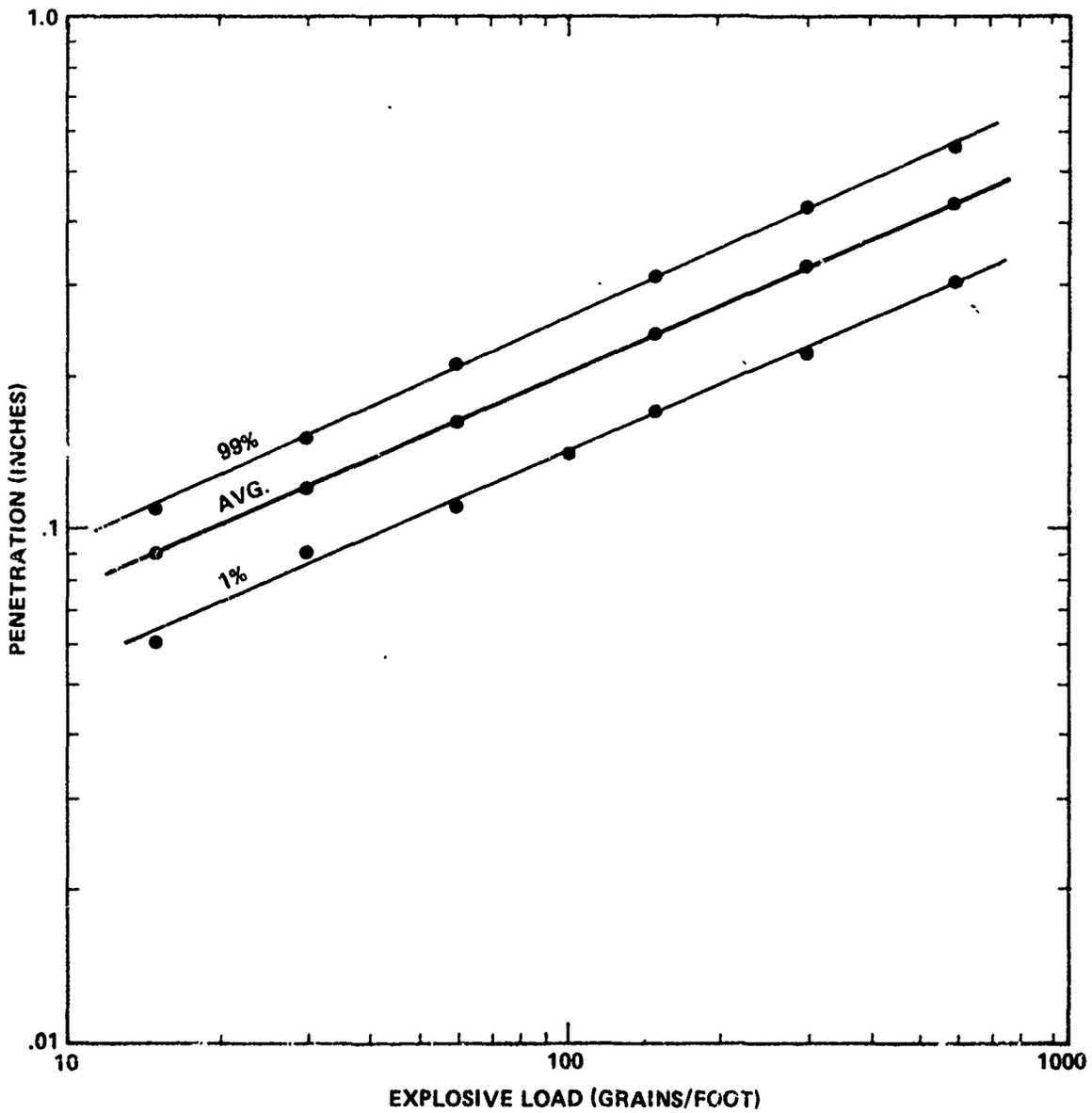

Figure 9. Average, Minimum, and Maximum Penetration Characteristics of FLSC's With Standoff on Aluminum Witness Plates

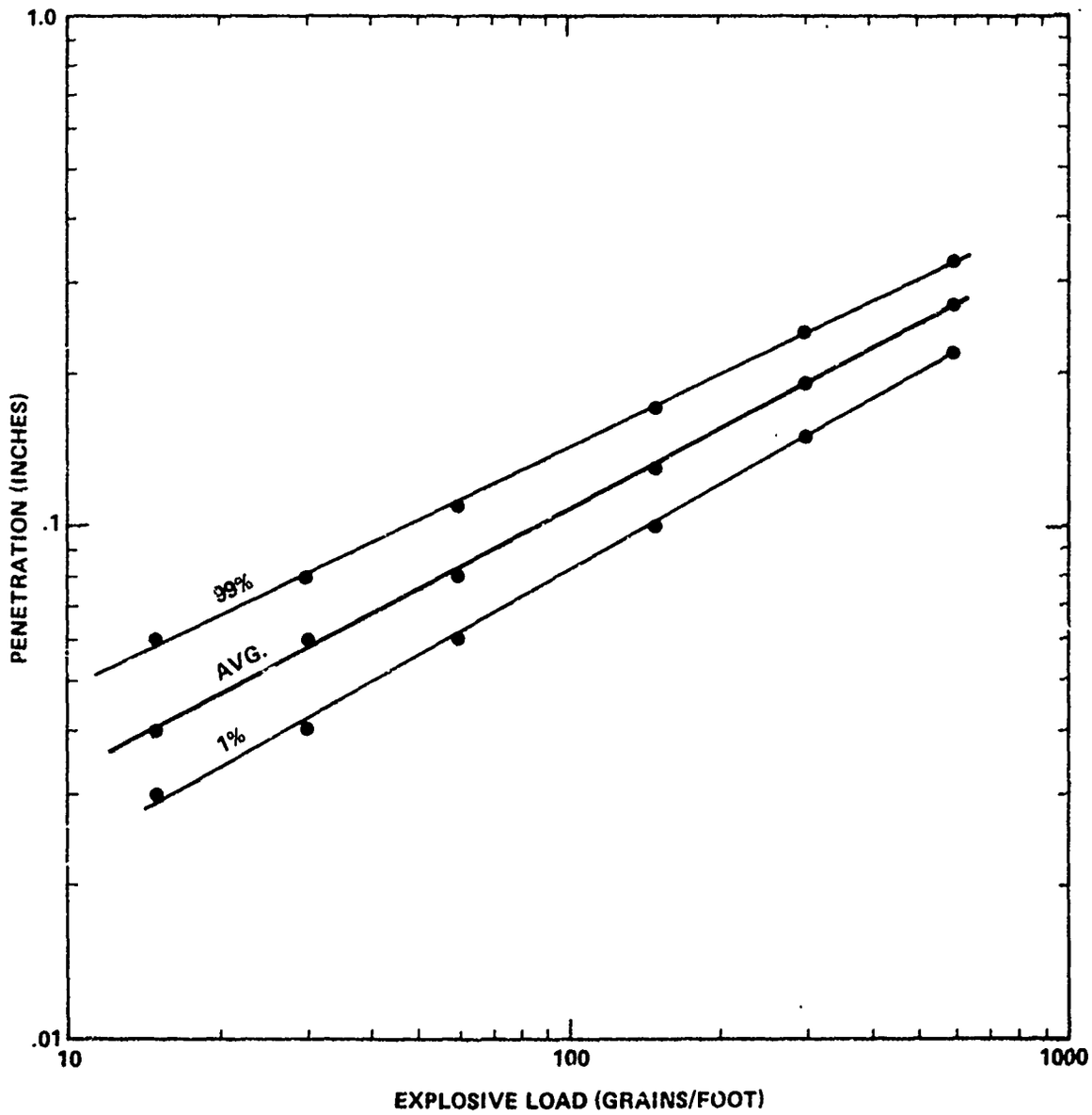

Figure 10. Average, Minimum, and Maximum Penetration Characteristics of FLSC's With Standoff on Steel Witness Plates

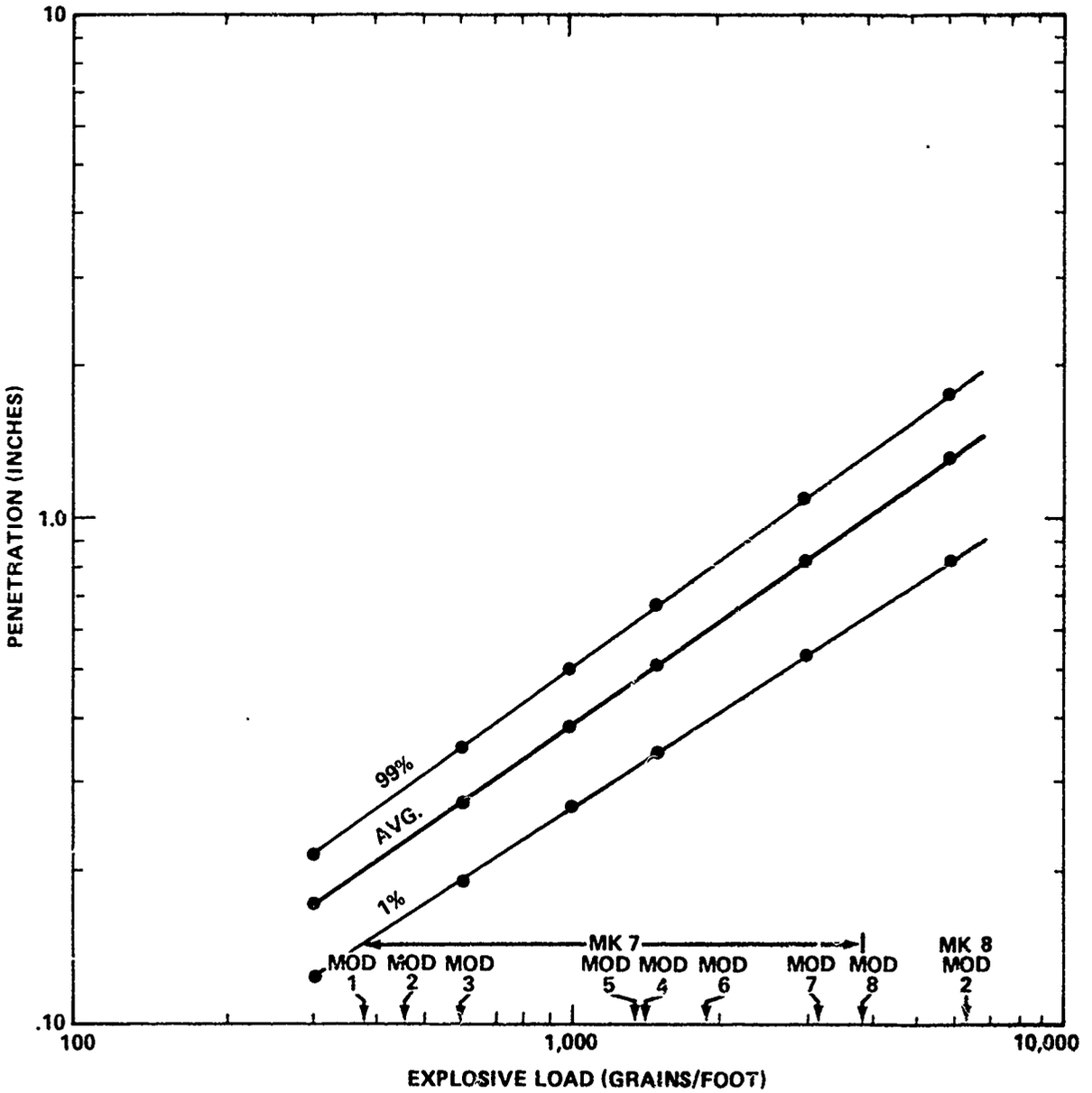

Figure 11. Average, Minimum, and Maximum Penetration Characteristics of Mk 7 Linear Shaped Charges With Standoff on Aluminum Witness Plates

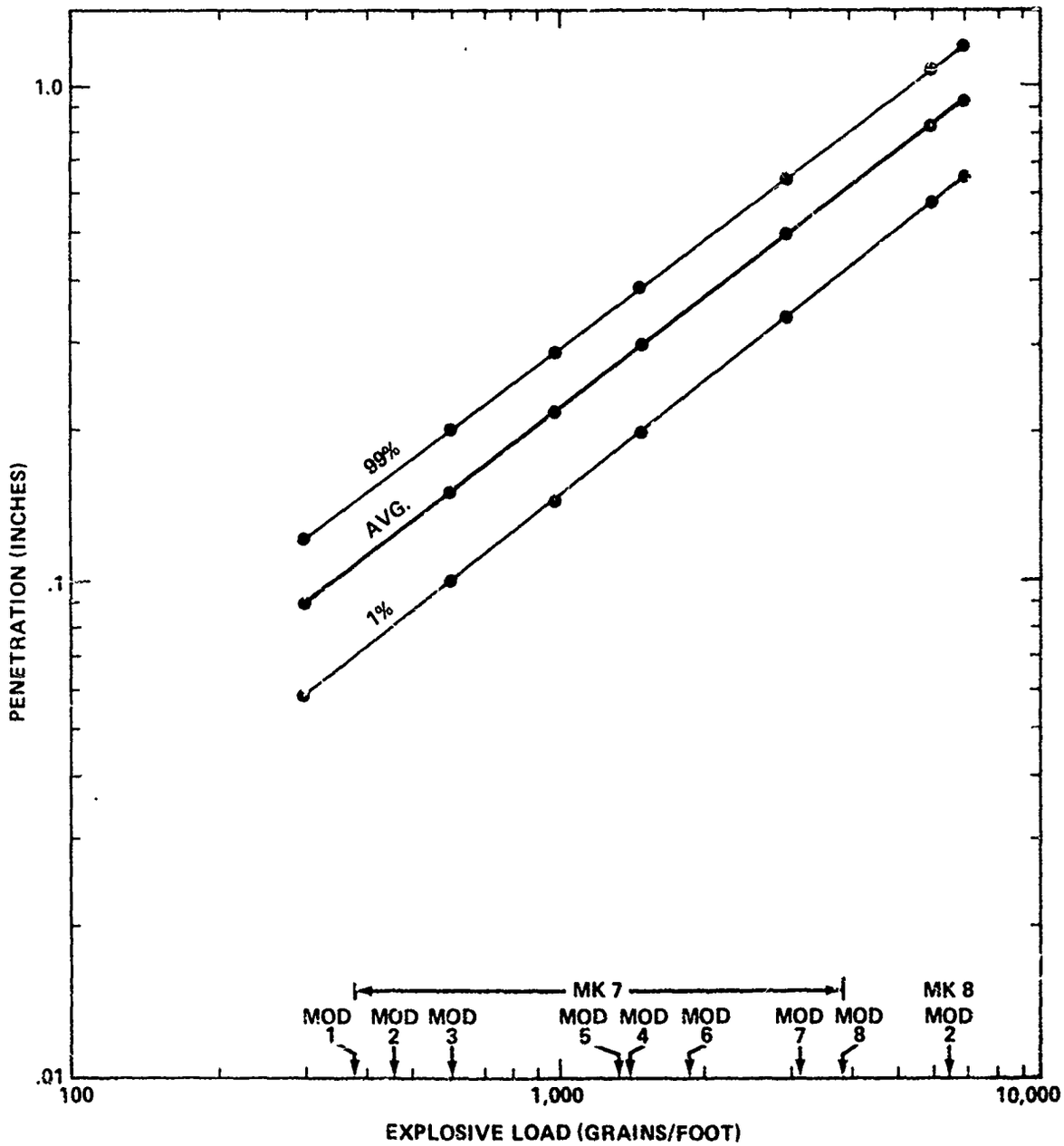

Figure 12. Average, Minimum, and Maximum Penetration of Characteristics of Mk 7 Linear Shaped Charges With Standoff on Steel Witness Plates

CONCLUSIONS

The flexible linear shaped charges (FLSC's) tested in this program without standoff material proved satisfactory in preparation, penetration, and cutting of target materials.

As shown in tables B-1 through B-44, the use of commercially manufactured FLSC holding strips as standoff material does not enhance the penetration capability of the FLSC's in all cases, and in fact can be detrimental. Since the requirements levied upon NAVEODFAC by the Department of Defense Explosive Ordnance Disposal Military Acceptance Board do not require standoff material, further testing to establish the optimum standoff will not be performed.

Comparison of the FLSC's with the Mk 7 linear shaped charges indicate the FLSC's are superior for the following reasons.

1. Target penetration can be achieved using less explosive (see pages 31 and 32 of appendix A). This will reduce the probability of ignition or detonation of target fillers.

2. Less fragmentation is produced by the FLSC lead sheath. Fragmentation that is produced will be of smaller grain size, reducing the fragmentation range.

3. The length of the FLSC being used can range from a few centimeters (inches) to an indefinite number of meters (feet) without the probability of a break in the explosive train.

4. The FLSC's can be easily bent to conform to the curvature of a target surface without time-consuming field modifications.

5. Since the FLSC's are prefilled with explosive, they are always ready for use. This eliminates the problems of hand packing the Mk 7 containers with composition C-4 explosive in cold weather, and maintaining the blasting cap in the explosive in hot weather.

The safety of scribing the lead sheath, then breaking the FLSC by hand was adequately demonstrated during these tests. With a minimum of 572 breaks required to reduce the FLSC to 305-millimeter (1-foot) lengths for the tests, a 99 percent reliability with a 98 percent confidence level was achieved.

RECOMMENDATIONS

As a result of these tests, it is recommended that:

1. Naval Ordnance Systems Command approve of the FLSC's tested in NAVEODFAC Technical Project 0833 for use by joint-service explosive ordnance disposal personnel.

2. A follow-on project be initiated by the Department of Defense Explosive Ordnance Disposal Military Acceptance Board to procure and test additional sizes of FLSC's capable of performing the same penetration and cutting effect as Mk 7 and Mk 8 linear shaped charges not duplicated by these tests, i.e. Mk 7 Mods 6 through 8 and Mk 8 Mod 2.

3. The Mk 7 linear shaped-charge containers remain in the government supply systems until FLSC's are in the system to replace them, and stocks of the Mk 7 containers are depleted.

APPENDIX A

TEST PLAN FOR PROJECT 0883

TECHNICAL INFORMATION DEPARTMENT

MUNITIONS TECHNOLOGY AND MANAGEMENT

INFORMATION DIVISION

TEST PLAN

FOR

PROJECT 0883

FLEXIBLE LINEAR SHAPED CHARGES

APPROVED:

W. A. Humphrey 8 May 1978
Project Officer

R. H. Brown 8 May 1978
601 Division Head

8 MAY 78
Safety Manager

5/9/78
Explosive Operations Division

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1. Objectives

a. Determine the cutting and penetration effects of 20, 30, 40, 60, 75, 125, 225, 300, 400, 500, and 600 grain-per-foot lead sheathed flexible linear shaped charges on aluminum and steel witness plates, with and without standoff material.

b. Determine the cutting and penetration effects of Mark 7 Mods 1 through 8 shaped charges on aluminum and steel witness plates using appropriate standoff.

c. Determine the cutting and penetration effects of Mark 8 Mod 2 shaped charges on aluminum and steel witness plates, using a standoff of 2.75 inches.

d. Determine reliability and safety of the flexible linear shaped charge for applications under field conditions.

2. References

a. Project 0883 Assignment dated 23 September 1973.

b. EODB/TM/TO 60A-1-1-21.

c. NAVEODFACINST 5100.1C.

3. Period of Test. To be established by T&E Division.

DATE:_____ TIME:_____ LOCATION:_____

4. Requirements

a. Equipment and Materials**:

(1)	Flexible linear shaped charges, lead sheathed, 20 gr/ft	52 Feet
(2)	Flexible linear shaped charges, lead sheathed, 30 gr/ft	52 Feet
(3)	Flexible linear shaped charges, lead sheathed, 40 gr/ft	52 Feet
(4)	Flexible linear shaped charges, lead sheathed, 60 gr/ft	52 Feet
(5)	Flexible linear shaped charges, lead sheathed, 75 gr/ft	52 Feet
(6)	Flexible linear shaped charges, lead sheathed, 125 gr/ft	52 Feet
(7)	Flexible linear shaped charges, lead sheathed, 225 gr/ft	52 Feet

**Indicates project officer supplied.

(8)	Flexible linear shaped charges, lead sheathed, 300 gr/ft	52 Feet
(9)	Flexible linear shaped charges, lead sheathed, 400 gr/ft	52 Feet
(10)	Flexible linear shaped charges, lead sheathed, 500 gr/ft	52 Feet
(11)	Flexible linear shaped charges, lead sheathed, 600 gr/ft	52 Feet

NOTE: Items 1 through 11 are to be used in 1-Foot lengths.

**(12)	FLSC holding strip for 20 gr/ft shaped charges	52 inches
**(13)	FLSC holding strip for 30 gr/ft shaped charges	52 inches
**(14)	FLSC holding strip for 40 gr/ft shaped charges	52 inches
**(15)	FLSC holding strip for 60 gr/ft shaped charges	52 inches
**(16)	FLSC holding strip for 75 gr/ft shaped charges	52 inches
**(17)	FLSC holding strip for 125 gr/ft shaped charges	52 inches
**(18)	FLSC holding strip for 225 gr/ft shaped charges	52 inches
**(19)	FLSC holding strip for 300 gr/ft shaped charges	52 inches
**(20)	FLSC holding strip for 400 gr/ft shaped charges	52 inches
**(21)	FLSC holding strip for 500 gr/ft shaped charges	52 inches
**(22)	FLSC holding strip for 600 gr/ft shaped charges	52 inches

NOTE: Items 12 through 22 are to be in 1-Inch lengths.

(23)	MK 7 Mod 1 shaped charge container	26 each
**(24)	MK 7 Mod 2 shaped charge container	26 each
**(25)	MK 7 Mod 3 shaped charge container	26 each
**(26)	MK 7 Mod 4 shaped charge container	26 each
**(27)	MK 7 Mod 5 shaped charge container	26 each
**(28)	MK 7 Mod 6 shaped charge container	26 each

**(29)	MK 7 Mod 7 shaped charge container	26 each
**(30)	MK 7 Mod 8 shaped charge container	26 each
**(31)	MK 8 Mod 2 shaped charge container	26 each
(32)	Cap, blasting, electric, (Herculese) special	806 each
(33)	Knife, pocket	1 each
(34)	Tape, electrical, 1-inch width	6 rolls
(35)	Crimper, Cap	1 each
**(36)	Holder, blasting cap	200 each
(37)	Machine, blasting, 10-cap	1 each
(38)	Cable, firing, demolition	3 each
(39)	Galvanometer, silversell	1 each
(40)	Pliers, lineman's	1 each
(41)	Explosive, demolition, composition 4, 2.5 lb. block	7 each
**(42)	Test box, height 10", width 24", length 36"	3 each
(43)	Sand	1 Ton
**(44)	Witness Plate, 1" x 12" x 18", 2024-T4 Aluminum	44 each
**(45)	Witness Plate, 2" x 12" x 18", 2024-T351 Aluminum	47 each
**(46)	Witness Plate, 1" x 12" x 18", 1018 Steel	44 each
**(47)	Witness Plate, 2" x 12" x 18", 1018 Steel	47 each
**(48)	Metal Stamp Set	1 each
(49)	Ruler, 12-inch	1 each
(50)	Electric wire brush	1 each

NOTE: Length of the demolition firing cable to be determined by the Range Safety Supervisor.

**(51)	Flexible linear shaped charge holding block	21 each
(52)	Parachute cord	1 roll

NOTE: Length of parachute cord to be determined by the Range Safety Supervisor.

(53) Bench mounted vise 1 each

b. Support Services:

(1) Fork Truck, rough terrain Code 113
Pickup, 1/2 Ton
Trailer, 1/2 Ton

(2) Photography (Black and White) Code 713

(3) Ultrasonic Thickness Tester Code 501

c. Personnel:

(1) Project Officer - Mr. W. A. Humphrey, Code 601A, ext. 1596.

(2) Mechanical Engineer - Mr. J. J. DeSautelle, Code 601G, ext. 1596.

(3) Range Operations Supervisor - As assigned by Code 192.

(4) EOD Technician - As assigned by Code 192.

(5) Photographer - As assigned by Code 713.

(6) Fork Truck Operator - As assigned by Code 113.

Note: Fork Truck Operator will be required approximately one hour each day during tests when steel plates are being utilized.

5. Preliminary Preparations

a. Position the three test boxes on the demolition range approximately 15 feet apart and fill the boxes with sand.

b. Pack the MK 7 Mods and MK 8 Mod 2 shaped charge containers with Composition C-4 explosive. All shaped charges are to be weighed to insure uniform loading.

c. Position three steel or aluminum witness plates on the sand in the test boxes, in accordance with specific tests to be conducted during one work day.

d. expended witness plates are to be removed from the range, and cutting and penetration effects measured electronically using an ultrasonic thickness tester.

6. Safety Precautions

a. Do not bend flexible linear shaped charges backward after the initial break is completed. Bending the shaped charge backward can exert a force of approximately 5,000 foot-pounds, to explosive cristals lying in the break.

b. Steel witness plates are to be handled by two personnel during placement on the sand in the test boxes. One hundred percent contact is to be maintained between the plates and the sand to prevent warpage.

7. Transportation/Handling Hazards

a. Normal hazard associated with Class A explosive materials will exist.

b. Weight of an individual witness plate is:

(1) 1" x 12" x 18", 2024-T4 Aluminum - 22 lbs.

(2) 2" x 12" x 18", 2024-T351 Aluminum - 44 lbs.

(3) 1" x 12" x 18", 1018 Steel - 62 lbs.

(4) 2" x 12" x 18", 1018 Steel - 123 lbs.

8. Explosive Weights

a. FLSC, Lead Sheathed, 20 gr/ft, CH-6 explosive

b. FLSC, Lead Sheathed, 30 gr/ft, CH-6 explosive

c. FLSC, Lead Sheathed, 40 gr/ft, CH-6 explosive

d. FLSC, Lead Sheathed, 60 gr/ft, CH-6 explosive

e. FLSC, Lead Sheathed, 75 gr/ft, CH-6 explosive

f. FLSC, Lead Sheathed, 125 gr/ft, CH-6 explosive

g. FLSC, Lead Sheathed, 225 gr/ft, CH-6 explosive

h. FLSC, Lead Sheathed, 300 gr/ft, CH-6 explosive

i. FLSC, Lead Sheathed, 400 gr/ft, CH-6 explosive

j. FLSC, Lead Sheathed, 500 gr/ft, CH-6 explosive

k. FLSC, Lead Sheathed, 600 gr/ft, CH-6 explosive

l. MK 7 Mod 1 Shaped Charge, 12.2 grams, C-4 explosive

m. MK 7 Mod 2 Shaped Charge, 14.7 grams, C-4 explosive

n. MK 7 Mod 3 Shaped Charge, 19.2 grams, C-4 explosive

o. MK 7 Mod 4 Shaped Charge, 22.5 grams, C-4 explosive

p. MK 7 Mod 5 Shaped Charge, 43.5 grams, C-4 explosive

q. MK 7 Mod 6 Shaped Charge, 60.4 grams, C-4 explosive

r. MK 7 Mod 7 Shaped Charge, 100.8 grams, C-4 explosive

s. MK 7 Mod 8 Shaped Charge, 123.8 grams, C-4 explosive

t. MK 8 Mod 2 Shaped Charge, 204.1 grams, C-4 explosive

9. Success/Failure Criteria. This criteria does not apply. The purpose of these tests is to establish a data base for future application on specific munitions.

10. Test Procedures

NOTE

All tests are to be set up 3 at a time and initiated consecutively.

Test # 1. Item to be tested is 20 gr/ft lead sheathed flexible linear shaped charge (FLSC), CH-6 explosive loaded, without standoff material, positioned on a 1-inch thick aluminum witness plate.

a. Using a pocket knife and ruler, scribe a deep line around the lead sheath of the FLSC, 12 inches from one end.

b. Position the FLSC in a holding block with the scribed line extending approximately 1/16-inch from the holding block.

WARNING

Do not bend flexible linear shaped charge material backward after the initial break is completed.

c. Secure the holding block in a bench-mounted vise.

CAUTION

Do not apply excessive force to the holding block while tightening the vise. Excessive force will change the angle of the FLSC chevron.

d. Attach parachute cord to the end of the FLSC, and from a safe distance pull on the parachute cord to break the FLSC.

e. Using a pocket knife, cut the lead sheath, as necessary, to separate the FLSC at the break.

f. Position the 12-inch length of FLSC on the witness plate parallel to, and approximately 1 inch from, the end of the witness plate.

g. Using a blasting cap holder and tape, secure an electric blasting cap to the end of the FLSC.

h. Photograph the test set up.

i. Follow standard hook-up procedures and detonate the FLSC.

NOTE

After the range has been certified safe, the project officer will inspect all test related items with the Range Operations Supervisor.

j. Using a metal stamp set, mark the witness plate adjacent to the cut to identify the test.

NOTE

Photographs of the test results will only be required after the witness plate is expended.

Test # 2 through Test # 13. Repeat Test # 1.

NOTE

The Project Officer is authorized to alter the test procedure after consulting with the Range Safety Supervisor.

Test # 14 through Test # 26. Same as Test # 1 except Item to be tested is 30 gr/ft lead sheathed FLSC.

Test # 27 through Test # 39. Same as Test # 1 except Item to be tested is 40 gr/ft lead sheathed FLSC.

Test # 40 through Test # 52. Same as Test # 1 except Item to be tested is 60 gr/ft lead sheathed FLSC.

Test # 53 through Test # 65. Same as Test # 1 except Item to be tested is 75 gr/ft lead sheathed FLSC.

Test # 66 through Test # 78. Same as Test # 1 except Item to be tested is 125 gr/ft lead sheathed FLSC.

Test # 79 through Test # 91. Same as Test # 1 except Item to be tested is 225 gr/ft lead sheathed FLSC.

Test # 92 through Test # 104. Same as Test # 1 except Item to be tested is 300 gr/ft lead sheathed FLSC, positioned on a 2-inch thick aluminum witness plate.

Test # 105 through Test # 117. Same as Test # 1 except Item to be tested is 400 gr/ft lead sheathed FLSC, positioned on a 2-inch thick aluminum witness plate.

Test # 118 through Test # 130. Same as Test # 1 except Item to be tested is 500 gr/ft lead sheathed FLSC, positioned on a 2-inch thick aluminum witness plate.

Test # 131 through Test # 143. Same as Test # 1 except Item to be tested is 600 gr/ft lead sheathed FLSC, positioned on a 2-inch thick aluminum witness plate.

Test # 144 through Test # 286. Repeat Test # 1 through Test # 143. Witness plate material is to be changed from aluminum to steel.

Test # 287 through Test # 299. Same as Test # 1 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.045 inches.

Test # 300 through Test # 312. Same as Tests # 14 through # 26 except 1-inch standoff material is attached to each end of the FLSC. Standoff will be 0.052 inches.

Test # 313 through Test # 325. Same as Tests # 27 through # 39 except 1-inch standoff material is attached to each end of the FLSC. Standoff will be 0.065 inches.

Test # 326 through Test # 338. Same as Tests # 40 through # 52 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.06 inches.

Test # 339 through Test # 351. Same as Tests # 53 through # 65 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.09 inches.

Test # 352 through Test # 364. Same as Tests # 66 through # 78 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.20 inches.

Test # 365 through Test # 377. Same as Tests # 79 through # 91 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.25 inches.

Test # 378 through Test # 390. Same as Tests # 92 through # 104 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.37 inches.

Test # 39. through Test # 403. Same as Tests # 105 through # 117 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.37 inches.

Test # 404 through Test # 416. Same as Tests # 118 through # 130 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.37 inches.

Test # 417 through Test # 429. Same as Tests # 131 through # 143 except 1-inch of standoff material is attached to each end of the FLSC. Standoff will be 0.60 inches.

Test # 430 through Test # 572. Repeat Tests # 287 through # 429. Witness plate material to be changed from Aluminum to Steel.

Test # 573. Item to be tested is a MK 7 Mod 1 linear shaped charge container, loaded with C-4 explosive. Standoff to be 0.33 inches. Shaped charge to be positioned on a 1-inch thick aluminum witness plate.

a. Prime the shaped charge with a blasting cap inserted slightly into the center of the length of the main explosive charge. A small mound of C-4 explosive is to be placed around the end of the blasting cap to act as a booster. A blasting cap holder is to be used to maintain the blasting cap perpendicular to the surface of the explosive.

b. Photograph the test set-up.

c. Follow standard hook-up procedures and detonate the shaped charge.

NOTE

After the range has been certified safe, the project officer will inspect all test related items with the range operations supervisor.

d. Using a metal stamp set, mark the witness plate adjacent to the cut to identify the test.

NOTE

Photographs of the test results will only be required after the witness plate is expended.

Test # 574 through Test # 585. Repeat Test # 573.

NOTE

The project officer is authorized to alter the test procedure after consulting with the range safety supervisor.

Test # 586 through Test # 598. Same as Test # 573 except Item to be tested is MK 7 Mod 2 linear shaped charge container with a standoff of 0.33 inches.

Test # 599 through Test # 611. Same as Test # 573 except Item to be tested is MK 7 Mod 3 linear shaped charge container with a standoff of 0.19 inches.

Test # 612 through Test # 624. Same as Test # 573 except Item to be tested is MK 7 Mod 4 linear shaped charge container with a standoff of 0.38 inches.

Test # 625 through Test # 637. Same as Test # 573 except Item to be tested is MK 7 Mod 5 linear shaped charge container with a standoff of 0.38 inches. Shaped charge to be positioned on a 2-inch thick aluminum witness plate.

Test # 638 through Test # 650. Same as Test # 573 except Item to be tested is MK 7 Mod 6 linear shaped charge container with a standoff of 0.50 inches. Shaped charge to be positioned on a 2-inch thick aluminum witness plate.

Test # 651 through Test # 663. Same as Test # 573 except Item to be tested is MK 7 Mod 7 linear shaped charge container with a standoff of 0.75 inches. Shaped charge to be positioned on a 2-inch thick aluminum witness plate.

Test # 664 through Test # 676. Same as Test # 573 except Item to be tested is MK 7 Mod 8 linear shaped charge container with a standoff of 1.06 inches. Shaped charge to be positioned on a 2-inch thick aluminum witness plate.

Test # 677 through Test # 780. Repeat Test # 573 through Test # 676. Witness plate material to be changed from Aluminum to Steel.

Test # 781 through Test # 793. Same as Test # 573 except Item to be tested is MK 8 Mod 2 linear shaped charge container with a standoff of 2.75 inches. Shaped charge to be positioned on a 2-inch thick aluminum witness plate.

Test # 794 through Test # 806. Repeat Test # 781 through Test # 793. Witness plate material to be changed from Aluminum to Steel.

11. Disposal:

Expended witness plates will be removed from the test site for further testing to determine depth of shaped charge penetration and documentation.

Upon completion of final test report, all expended witness plates will be turned in to scrap metal salvage.

APPENDIX B

PENETRATION DEPTHS FOR VARIOUS FLSC'S AND LINEAR SHAPED-CHARGE CONTAINERS

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TABLE B-1. PENETRATION DEPTHS FOR 20-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
1	1.702 (0.067)	1.778 (0.070)	1.803 (0.071)	1.626 (0.064)	1.651 (0.065)	1.880 (0.074)	1.753 (0.067)
2	3.124 (0.123)	3.048 (0.120)	2.743 (0.108)	3.200 (0.126)	3.886 (0.153)	3.480 (0.137)	3.251 (0.128)
3	1.600 (0.063)	1.753 (0.069)	1.702 (0.067)	1.549 (0.061)	1.524 (0.060)	1.575 (0.062)	1.626 (0.064)
4	2.159 (0.085)	2.083 (0.082)	2.210 (0.087)	2.108 (0.083)	2.235 (0.088)	2.286 (0.090)	2.184 (0.086)
5	2.311 (0.091)	2.362 (0.093)	2.159 (0.085)	2.515 (0.099)	2.388 (0.094)	2.337 (0.092)	2.337 (0.092)
6	2.083 (0.082)	1.956 (0.077)	1.930 (0.076)	2.438 (0.096)	1.956 (0.077)	1.905 (0.075)	2.057 (0.081)
7	1.956 (0.077)	2.083 (0.082)	2.134 (0.084)	2.311 (0.091)	2.184 (0.086)	2.134 (0.084)	2.134 (0.084)
8	2.032 (0.080)	2.108 (0.083)	2.134 (0.084)	2.311 (0.091)	2.235 (0.088)	2.235 (0.088)	2.184 (0.086)
9	2.083 (0.082)	2.362 (0.093)	2.388 (0.094)	2.108 (0.083)	2.261 (0.089)	2.261 (0.089)	2.108 (0.088)
10	2.261 (0.089)	2.032 (0.080)	2.159 (0.085)	2.134 (0.084)	2.083 (0.082)	2.210 (0.087)	2.159 (0.085)
11	2.216 (0.089)	2.413 (0.095)	2.083 (0.082)	1.930 (0.076)	2.134 (0.084)	1.600 (0.063)	2.083 (0.082)
12	2.108 (0.083)	2.286 (0.090)	2.261 (0.089)	2.642 (0.104)	2.210 (0.087)	1.880 (0.074)	2.235 (0.088)
13	2.083 (0.082)	2.108 (0.083)	2.311 (0.091)	2.235 (0.088)	1.981 (0.078)	1.981 (0.078)	2.108 (0.083)

Notes

1. Average penetration for all tests: 2.181 mm (0.086 in.)
2. Standard deviation: 0.381 mm (0.015 in.)
3. Probability of cutting greater than

1.930 mm (0.076 in.)	is	75%
1.702 mm (0.067 in.)		90%
1.549 mm (0.061 in.)		95%
1.300 mm (0.051 in.)		99%

4. Probability of cutting between

1.746 mm (0.069 in.)	and	2.623 mm (0.103 in.)	is	75%
1.560 mm (0.061 in.)		2.809 mm (0.110 in.)		90%
1.441 mm (0.057 in.)		2.921 mm (0.115 in.)		95%
1.209 mm (0.048 in.)		3.160 mm (0.124 in.)		99%

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TABLE B-2. PENETRATION DEPTHS FOR 30-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
14	3.429 (0.135)	3.683 (0.145)	3.353 (0.132)	2.845 (0.112)	2.794 (0.110)	3.048 (0.120)	3.200 (0.126)
15	2.210 (0.087)	1.930 (0.076)	2.134 (0.084)	2.159 (0.085)	1.981 (0.078)	2.108 (0.083)	2.083 (0.082)
16	2.921 (0.115)	3.073 (0.121)	2.743 (0.108)	2.692 (0.106)	2.870 (0.113)	2.718 (0.107)	2.891 (0.111)
17	2.972 (0.117)	2.743 (0.108)	2.718 (0.107)	3.124 (0.123)	3.023 (0.119)	2.769 (0.109)	2.896 (0.114)
18	2.845 (0.112)	2.769 (0.109)	3.150 (0.124)	3.429 (0.135)	3.226 (0.127)	2.743 (0.108)	3.023 (0.119)
19	2.946 (0.116)	2.642 (0.104)	2.540 (0.100)	2.997 (0.118)	2.845 (0.112)	2.743 (0.108)	2.794 (0.110)
20	2.997 (0.118)	2.946 (0.116)	2.997 (0.118)	2.870 (0.113)	2.946 (0.116)	2.845 (0.112)	3.048 (0.120)
21	2.972 (0.117)	2.946 (0.116)	2.616 (0.103)	2.489 (0.097)	2.692 (0.106)	2.794 (0.110)	2.743 (0.108)
22	2.692 (0.106)	2.667 (0.105)	2.794 (0.110)	2.692 (0.106)	2.718 (0.107)	3.302 (0.130)	2.819 (0.111)
23	2.616 (0.103)	2.692 (0.106)	2.718 (0.107)	3.124 (0.123)	3.150 (0.124)	2.972 (0.117)	2.870 (0.113)
24	3.454 (0.136)	2.896 (0.114)	2.794 (0.110)	2.540 (0.100)	2.718 (0.107)	2.591 (0.102)	2.845 (0.112)
25	2.921 (0.115)	2.718 (0.107)	2.261 (0.098)	2.845 (0.112)	2.743 (0.108)	2.997 (0.118)	2.794 (0.110)
26	2.642 (0.104)	2.794 (0.110)	2.540 (0.100)	2.413 (0.095)	2.692 (0.106)	2.769 (0.109)	2.642 (0.104)

Notes

1. Average penetration for all tests 2.814 mm (0.111 in.)
2. Standard deviation 0.254 mm (0.010 in.)
3. Probability of cutting greater than

2.642 mm (0.104 in.)	is	75%
2.489 mm (0.098 in.)		90%
2.388 mm (0.094 in.)		95%
2.235 mm (0.088 in.)		99%

4. Probability of cutting between

2.515 mm (0.099 in.)	and	3.124 mm (0.123 in.)	is	75%
2.413 mm (0.095 in.)		3.226 mm (0.127 in.)		90%
2.337 mm (0.092 in.)		3.327 mm (0.131 in.)		95%
2.159 mm (0.085 in.)		3.480 mm (0.137 in.)		99%

TABLE B-3. PENETRATION DEPTHS FOR 40-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
27	3.937 (0.155)	3.429 (0.135)	3.734 (0.147)	3.581 (0.141)	3.708 (0.146)	3.708 (0.146)	3.683 (0.145)
28	4.140 (0.163)	3.683 (0.145)	3 607 (0.142)	3.607 (0.142)	3.658 (0.144)	3.734 (0.147)	3.734 (0.147)
29	3.708 (0.146)	3.404 (0.134)	3.531 (0.139)	3.759 (0.148)	3.683 (0.145)	3.607 (0.142)	3.607 (0.142)
30	3.734 (0 147)	3.607 (0.142)	2.972 (0 117)	3 53[illegible] (0 139)	3.556 (0 140)	3.683 (0.145)	3.505 (0.138)
31	3.607 (0.142)	3.734 (0.147)	3.861 (0 152)	3.55[illegible] (0 [illegible]40)	3.658 (0 144)	3.734 (0.147)	3.683 (0.145)
32	3.835 (0.151)	3.683 (0.145)	3 835 (0 151)	4 191 (0 165)	3.835 (0.151)	3.480 (0.137)	3.810 (0.150)
33	3.658 (0.144)	3.986 (0.157)	3.404 (0.134)	3.683 (0 145)	3.378 (0.133)	2.794 (0.110)	3.480 (0.137)
34	3 429 (0.135)	3.734 (0 147)	3.480 (0.137)	3 454 (0.136)	3.404 (0.134)	3.124 (0.123)	3.429 (0.135)
35	3.277 (0.129)	3.251 (0 128)	3.531 (0 139)	3 175 (0.125)	3.708 (0 146)	3.607 (0.142)	3.429 (0.135)
36	3.759 (0.148)	4.115 (0.162)	3 531 (0.139)	3.759 (0.148)	3.454 (0.136)	3.454 (0.136)	3.683 (0.145)
37	3.658 (0.144)	3.683 (0.145)	3.886 (0.153)	3 658 (0.144)	3.378 (0.133)	3.658 (0.144)	3.658 (0.144)
38	3 658 (0.144)	3.607 (0.142)	3.785 (0.149)	3.708 (0.146)	3.556 (0.140)	3.531 (0.139)	3.632 (0.143)
39	3.099 (0.122)	2.946 (0.116)	3.099 (0.122)	3.454 (0.136)	3.581 (0.141)	3.226 (0.127)	3.226 (0.127)

Notes

1 Average penetration for all tests 3.581 mm (0 141 in.)

2 Standard deviation 0 152 mm (0.006 in.)

3 Probability of cutting greater than

3.480 mm (0.137 in.)	is	75%
3.378 mm (0.133 in.)		90%
3.327 mm (0.131 in.)		95%
3 226 mm (0.127 in.)		99%

4. Probability of cutting between

3.404 mm (0.134 in.)	and	3.759 mm (0.148 in.)	is	75%
3.327 mm (0.131 in.)		3.835 mm (0.151 in.)		90%
3.277 mm (0.129 in.)		3.886 mm (0.153 in.)		95%
3.200 mm (0.126 in.)		3.963 mm (0.156 in.)		99%

TABLE B-4. PENETRATION DEPTHS FOR 60-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
40	3.785 (0.149)	4.267 (0.168)	4.013 (0.158)	4.369 (0.172)	4.394 (0.173)	4.064 (0.160)	4.166 (0.164)
41	4.039 (0.159)	3.937 (0.155)	4.013 (0.158)	3.607 (0.142)	4.013 (0.158)	3.912 (0.154)	3.912 (0.154)
42	4.013 (0.158)	4.293 (0.169)	4.216 (0.166)	4.394 (0.173)	4.140 (0.163)	4.064 (0.160)	4.191 (0.165)
43	3.988 (0.157)	4.242 (0.167)	4.013 (0.158)	4.343 (0.171)	4.064 (0.160)	3.708 (0.146)	4.064 (0.160)
44	4.140 (0.163)	4.369 (0.172)	4.369 (0.172)	4.572 (0.180)	4.039 (0.159)	4.166 (0.164)	4.267 (0.168)
45	4.216 (0.166)	4.394 (0.173)	4.496 (0.177)	4.191 (0.165)	4.367 (0.172)	4.115 (0.162)	4.293 (0.169)
46	3.708 (0.146)	3.988 (0.157)	3.353 (0.132)	3.937 (0.155)	3.378 (0.133)	4.445 (0.175)	3.810 (0.150)
47	3.912 (0.154)	4.166 (0.164)	4.242 (0.167)	3.556 (0.140)	3.556 (0.140)	3.861 (0.152)	3.886 (0.153)
48	4.039 (0.159)	4.267 (0.168)	4.343 (0.171)	4.115 (0.162)	4.166 (0.164)	3.886 (0.153)	4.140 (0.163)
49	4.064 (0.160)	4.267 (0.168)	4.013 (0.158)	3.886 (0.153)	3.861 (0.152)	3.607 (0.142)	3.962 (0.156)
50	3.378 (0.133)	3.810 (0.150)	3.835 (0.151)	3.607 (0.142)	3.708 (0.146)	3.632 (0.143)	3.658 (0.144)
51	3.607 (0.142)	3.632 (0.143)	3.759 (0.148)	3.759 (0.148)	4.013 (0.158)	4.039 (0.149)	3.759 (0.148)
52	3.886 (0.153)	3.353 (0.132)	3.937 (0.155)	3.912 (0.154)	4.064 (0.160)	3.683 (0.145)	3.810 (0.150)

Notes

1. Average penetration for all tests: 3.998 mm (0.157 in.)
2. Standard deviation: 0.203 mm (0.008 in.)
3. Probability of cutting greater than

3.861 mm (0.152 in.)		75%
3.734 mm (0.147 in.)		90%
3.658 mm (0.144 in.)	is	95%
3.531 mm (0.139 in.)		99%

4. Probability of cutting between

3.759 mm (0.148 in.)		4.216 mm (0.166 in.)		75%
3.658 mm (0.144 in.)	and	4.318 mm (0.170 in.)	is	90%
3.581 mm (0.141 in.)		4.394 mm (0.173 in.)		95%
3.480 mm (0.137 in.)		4.521 mm (0.178 in.)		99%

TABLE B-5. PENETRATION DEPTHS FOR 75-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
53	4.064 (0.160)	4.267 (0.168)	4.115 (0.162)	4.318 (0.170)	4.039 (0.159)	4.140 (0.163)	4.140 (0.163)
54	4.801 (0.189)	4.623 (0.182)	4.572 (0.180)	4.572 (0.180)	4.699 (0.185)	4.597 (0.181)	4.648 (0.183)
55	4.318 (0.170)	4.445 (0.175)	4.267 (0.168)	4.521 (0.178)	4.115 (0.162)	4.572 (0.180)	4.369 (0.172)
56	4.369 (0.172)	4.572 (0.180)	4.496 (0.177)	4.369 (0.172)	4.267 (0.168)	4.369 (0.172)	4.420 (0.174)
57	4.166 (0.164)	4.343 (0.171)	4.140 (0.163)	4.420 (0.174)	4.343 (0.171)	3.886 (0.153)	4.216 (0.166)
58	3.556 (0.140)	3.683 (0.145)	3.937 (0.155)	4.166 (0.164)	3.912 (0.154)	3.703 (0.146)	3.835 (0.151)
59	4.089 (0.161)	4.267 (0.168)	4.216 (0.166)	4.115 (0.162)	4.140 (0.163)	4.496 (0.177)	4.216 (0.166)
60	3.912 (0.154)	3.785 (0.149)	3.708 (0.146)	3.785 (0.149)	3.658 (0.144)	3.912 (0.154)	3.785 (0.149)
61	3.962 (0.156)	4.242 (0.167)	4.242 (0.167)	4.115 (0.162)	4.420 (0.174)	4.877 (0.192)	4.318 (0.170)
62	4.166 (0.164)	4.318 (0.170)	4.293 (0.169)	3.759 (0.148)	3.734 (0.147)	3.988 (0.157)	4.039 (0.159)
63	4.699 (0.185)	4.445 (0.175)	4.064 (0.160)	4.166 (0.164)	3.658 (0.144)	4.674 (0.184)	4.293 (0.169)
64	4.775 (0.188)	4.674 (0.184)	4.623 (0.182)	4.572 (0.180)	4.724 (0.186)	4.191 (0.165)	4.597 (0.181)
65	4.166 (0.164)	4.166 (0.164)	4.140 (0.163)	4.115 (0.162)	4.115 (0.162)	3.734 (0.147)	4.064 (0.160)

Notes

1 Average penetration for all tests: 4.216 mm (0.166 in.)

2 Standard deviation: 0.254 mm (0.010 in.)

3 Probability of cutting greater than

4.039 mm (0.159 in.)	is	75%
3.886 mm (0.153 in.)		90%
3.810 mm (0.150 in.)		95%
3.632 mm (0.143 in.)		99%

4 Probability of cutting between

3.937 mm (0.155 in.)	and	4.521 mm (0.178 in.)	is	75%
3.810 mm (0.150 in.)		4.623 mm (0.182 in.)		70%
3.734 mm (0.147 in.)		4.724 mm (0.186 in.)		95%
3.556 mm (0.140 in.)		4.877 mm (0.192 in.)		99%

TABLE B-6. PENETRATION DEPTHS FOR 125-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
66	5.817 (0.229)	5.740 (0.226)	5.740 (0.226)	5.588 (0.220)	5.334 (0.210)	4.953 (0.195)	5.537 (0.218)
67	5.283 (0.208)	4.801 (0.189)	4.724 (0.186)	4.674 (0.184)	5.182 (0.204)	4.801 (0.189)	4.902 (0.193)
68	5.283 (0.208)	5.461 (0.215)	5.715 (0.225)	6.020 (0.237)	5.283 (0.208)	4.623 (0.182)	5.385 (0.212)
69	5.105 (0.201)	5.512 (0.217)	5.436 (0.214)	5.563 (0.219)	5.842 (0.230)	5.537 (0.218)	5.486 (0.216)
70	5.486 (0.216)	5.817 (0.229)	5.867 (0.231)	6.147 (0.242)	5.969 (0.235)	4.928 (0.194)	5.690 (0.224)
71	5.232 (0.206)	4.674 (0.184)	5.131 (0.202)	5.486 (0.216)	5.386 (0.212)	5.156 (0.203)	5.182 (0.204)
72	5.182 (0.204)	6.172 (0.243)	5.613 (0.221)	5.817 (0.229)	5.766 (0.227)	5.232 (0.206)	5.639 (0.222)
73	5.232 (0.206)	5.309 (0.209)	5.258 (0.207)	5.207 (0.205)	5.512 (0.217)	5.537 (0.218)	5.334 (0.210)
74	5.715 (0.225)	5.232 (0.206)	5.410 (0.213)	5.131 (0.202)	5.512 (0.217)	4.978 (0.196)	5.334 (0.210)
75	4.064 (0.160)	5.029 (0.198)	4.750 (0.187)	4.572 (0.180)	5.156 (0.203)	4.648 (0.183)	4.699 (0.185)
76	5.664 (0.223)	5.080 (0.200)	5.309 (0.209)	5.461 (0.215)	5.715 (0.225)	4.978 (0.196)	5.359 (0.211)
77	5.385 (0.212)	5.994 (0.236)	5.613 (0.221)	4.928 (0.194)	5.309 (0.209)	5.004 (0.197)	5.385 (0.212)
78	4.851 (0.191)	5.588 (0.220)	4.928 (0.194)	5.766 (0.227)	5.156 (0.203)	3.937 (0.155)	5.029 (0.198)

Notes

1. Average penetration for all tests 5.309 mm (0.209 in.)
2. Standard deviation 0.279 mm (0.011 in.)
3. Probability of cutting greater than

5.131 mm (0.202 in.)	is	75%
4.953 mm (0.195 in.)		90%
4.851 mm (0.191 in.)		95%
4.674 mm (0.184 in.)		99%

4. Probability of cutting between

4.978 mm (0.196 in.)	and	5.631 mm (0.223 in.)	is	75%
4.851 mm (0.191 in.)		5.766 mm (0.227 in.)		90%
4.775 mm (0.188 in.)		5.855 mm (0.231 in.)		95%
4.597 mm (0.181 in.)		6.025 mm (0.237 in.)		99%

TABLE B-7. PENETRATION DEPTHS FOR 225-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
79	7.925 (0.312)	8.433 (0.332)	7.849 (0.309)	8.407 (0.331)	7.518 (0.296)	5.918 (0.233)	7.672 (0.302)
80	6.401 (0.252)	6.452 (0.254)	4.877 (0.192)	5.918 (0.233)	6.045 (0.238)	6.426 (0.253)	6.020 (0.237)
81	7.061 (0.278)	6.477 (0.255)	6.604 (0.260)	7.518 (0.296)	8.204 (0.323)	7.087 (0.279)	7.163 (0.282)
82	8.763 (0.345)	8.890 (0.350)	9.500 (0.374)	9.017 (0.355)	7.874 (0.310)	7.468 (0.294)	8.585 (0.338)
83	7.442 (0.293)	8.509 (0.335)	8.839 (0.348)	8.992 (0.354)	8.611 (0.339)	7.874 (0.310)	8.382 (0.330)
84	8.484 (0.334)	9.601 (0.378)	8.763 (0.345)	9.169 (0.361)	8.814 (0.347)	7.823 (0.308)	8.788 (0.346)
85	6.960 (0.274)	8.001 (0.315)	7.874 (0.310)	7.849 (0.309)	7.544 (0.297)	7.442 (0.293)	7.620 (0.300)
86	6.706 (0.264)	8.890 (0.350)	9.017 (0.355)	8.992 (0.354)	8.661 (0.341)	7.214 (0.284)	8.255 (0.325)
87	8.179 (0.322)	8.255 (0.325)	7.849 (0.309)	7.899 (0.311)	7.290 (0.287)	6.934 (0.273)	7.722 (0.304)
88	8.001 (0.315)	8.001 (0.315)	7.772 (0.306)	8.153 (0.321)	7.188 (0.283)	6.934 (0.273)	7.672 (0.302)
89	7.341 (0.289)	7.976 (0.314)	8.077 (0.318)	8.179 (0.322)	8.052 (0.317)	7.417 (0.292)	7.849 (0.309)
90	8.560 (0.337)	8.865 (0.349)	9.041 (0.356)	8.966 (0.353)	7.569 (0.298)	7.188 (0.283)	8.357 (0.329)
91	8.560 (0.337)	9.068 (0.357)	8.941 (0.352)	7.899 (0.311)	8.433 (0.332)	8.204 (0.323)	8.509 (0.335)

Notes

1. Average penetration for all tests 7.899 mm (0.311 in.)
2. Standard deviation 0.737 mm (0.029 in.)
3. Probability of cutting greater than

7.417 mm (0.292 in.)	is	75%
6.960 mm (0.274 in.)		90%
6.680 mm (0.263 in.)		95%
6.200 mm (0.244 in.)		99%

4. Probability of cutting between

7.061 mm (0.278 in.)	and	8.738 mm (0.344 in.)	is	75%
6.680 mm (0.263 in.)		9.119 mm (0.359 in.)		90%
6.452 mm (0.254 in.)		9.347 mm (0.368 in.)		95%
6.020 mm (0.237 in.)		9.779 mm (0.385 in.)		99%

TABLE B-8. PENETRATION DEPTHS FOR 300-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
92	9.347 (0.368)	10.795 (0.425)	9.804 (0.386)	9.703 (0.382)	9.246 (0.364)	9.601 (0.378)	9.728 (0.383)
93	10.185 (0.401)	9.677 (0.381)	9.423 (0.371)	9.906 (0.390)	9.500 (0.374)	8.433 (0.332)	9.525 (0.375)
94	7.696 (0.303)	7.417 (0.292)	8.026 (0.316)	9.042 (0.356)	9.246 (0.364)	8.560 (0.337)	8.331 (0.323)
95	7.671 (0.302)	8.865 (0.349)	9.703 (0.382)	8.611 (0.339)	8.382 (0.330)	7.569 (0.298)	8.458 (0.333)
96	8.306 (0.327)	8.255 (0.325)	8.788 (0.346)	8.560 (0.337)	8.306 (0.327)	8.992 (0.354)	8.534 (0.336)
97	7.620 (0.300)	8.611 (0.339)	8.255 (0.325)	8.661 (0.341)	8.306 (0.327)	7.569 (0.298)	8.179 (0.322)
98	8.738 (0.344)	8.179 (0.322)	9.068 (0.357)	9.195 (0.362)	8.865 (0.349)	7.112 (0.280)	8.534 (0.336)
99	8.230 (0.324)	8.484 (0.334)	8.585 (0.338)	8.433 (0.332)	9.119 (0.359)	7.798 (0.307)	8.433 (0.332)
100	10.084 (0.397)	9.906 (0.390)	7.754 (0.384)	10.236 (0.403)	9.754 (0.384)	8.407 (0.331)	9.703 (0.382)
101	8.458 (0.333)	8.915 (0.351)	9.220 (0.363)	9.271 (0.365)	8.788 (0.346)	8.280 (0.326)	8.814 (0.347)
102	8.280 (0.326)	8.788 (0.346)	9.017 (0.355)	8.814 (0.347)	7.087 (0.279)	7.239 (0.285)	8.204 (0.323)
103	8.433 (0.332)	9.500 (0.374)	9.830 (0.387)	8.941 (0.352)	8.611 (0.339)	7.391 (0.291)	8.788 (0.346)
104	9.119 (0.359)	8.966 (0.353)	9.093 (0.358)	9.195 (0.362)	9.500 (0.374)	8.128 (0.320)	8.992 (0.354)

Notes

1. Average penetration for all tests 8.788 mm (0.346 in.)
2. Standard deviation 0.559 mm (0.022 in.)
3. Probability of cutting greater than

9.407 mm (0.331 in.)	is	75%
8.077 mm (0.318 in.)		90%
7.874 mm (0.310 in.)		95%
7.493 mm (0.295 in.)		99%

4. Probability of cutting between

8.153 mm (0.321 in.)		9.423 mm (0.371 in.)		75%
7.874 mm (0.310 in.)	and	9.703 mm (0.382 in.)	is	90%
7.696 mm (0.303 in.)		9.906 mm (0.390 in.)		95%
7.366 mm (0.290 in.)		10.211 mm (0.402 in.)		99%

TABLE B-9. PENETRATION DEPTHS FOR 400-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
105	10.643 (0.419)	11.557 (0.455)	12.141 (0.478)	11.201 (0.441)	11.506 (0.453)	7.042 (0.356)	11.024 (0.434)
106	9.246 (0.364)	11.862 (0.467)	11.024 (0.434)	11.684 (0.460)	10.490 (0.413)	11.659 (0.459)	10.998 (0.433)
107	10.871 (0.428)	10.947 (0.431)	10.998 (0.433)	11.811 (0.465)	11.811 (0.465)	10.008 (0.394)	11.074 (0.436)
108	10.592 (0.417)	12.548 (0.494)	13.411 (0.528)	12.141 (0.478)	13.005 (0.512)	11.709 (0.461)	12.243 (0.482)
109	8.865 (0.349)	11.049 (0.435)	10.236 (0.403)	9.576 (0.377)	10.287 (0.405)	9.652 (0.380)	9.957 (0.392)
110	9.500 (0.374)	11.201 (0.441)	11.074 (0.436)	10.922 (0.430)	10.795 (0.425)	10.871 (0.428)	10.719 (0.422)
111	9.931 (0.391)	9.982 (0.393)	9.982 (0.393)	10.160 (0.400)	8.585 (0.338)	10.160 (0.400)	9.804 (0.386)
112	9.982 (0.393)	10.820 (0.426)	10.312 (0.406)	9.576 (0.377)	10.338 (0.407)	11.582 (0.456)	10.439 (0.411)
113	9.830 (0.387)	10.820 (0.426)	10.033 (0.395)	9.931 (0.391)	10.287 (0.405)	9.627 (0.379)	10.084 (0.397)
114	9.957 (0.392)	10.566 (0.416)	11.760 (0.463)	11.227 (0.442)	11.409 (0.449)	11.557 (0.455)	11.074 (0.436)
115	10.135 (0.399)	10.262 (0.404)	10.592 (0.417)	9.347 (0.368)	10.871 (0.428)	7.950 (0.313)	9.855 (0.388)
116	10.160 (0.400)	10.592 (0.417)	10.770 (0.424)	10.490 (0.413)	10.541 (0.415)	6.858 (0.270)	9.906 (0.390)
117	9.117 (0.359)	9.754 (0.384)	9.931 (0.391)	10.439 (0.411)	10.135 (0.399)	5.740 (0.226)	9.195 (0.362)

Notes

1 Average penetration for all tests 10.490 mm (0.413 in.)

2 Standard deviation 0.813 mm (0.032 in.)

3 Probability of cutting greater than

9.957 mm (0.392 in.)	is	75%
9.449 mm (0.372 in.)		90%
9.144 mm (0.360 in.)		95%
8.611 mm (0.339 in.)		99%

4 Probability of cutting between

9.550 mm (0.376 in.)	and	11.430 mm (0.450 in.)	is	75%
9.144 mm (0.360 in.)		11.836 mm (0.466 in.)		90%
8.915 mm (0.351 in.)		12.065 mm (0.475 in.)		95%
8.407 mm (0.331 in.)		12.573 mm (0.495 in.)		99%

TABLE B-10. PENETRATION DEPTHS FOR 500-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
118	10.846 (0.427)	11.303 (0.445)	11.582 (0.456)	11.633 (0.458)	10.414 (0.410)	10.719 (0.422)	11.074 (0.436)
119	10.744 (0.423)	11.176 (0.440)	11.760 (0.463)	12.344 (0.486)	10.744 (0.423)	8.255 (0.325)	10.846 (0.427)
120	11.176 (0.440)	11.125 (0.438)	11.024 (0.434)	12.294 (0.484)	12.040 (0.474)	12.446 (0.490)	11.684 (0.460)
121	9.830 (0.387)	11.354 (0.447)	11.557 (0.455)	10.668 (0.420)	11.455 (0.451)	9.550 (0.376)	10.744 (0.423)
122	10.846 (0.427)	11.481 (0.452)	11.938 (0.470)	11.862 (0.467)	11.430 (0.450)	9.677 (0.381)	11.201 (0.441)
123	9.754 (0.394)	11.227 (0.442)	10.719 (0.422)	11.125 (0.438)	12.446 (0.490)	11.557 (0.455)	11.151 (0.439)
124	11.379 (0.448)	10.795 (0.425)	10.998 (0.433)	11.201 (0.441)	11.176 (0.440)	7.595 (0.299)	10.516 (0.414)
125	10.643 (0.419)	11.049 (0.435)	10.973 (0.432)	10.770 (0.424)	10.795 (0.425)	9.957 (0.392)	10.693 (0.421)
126	9.474 (0.373)	10.287 (0.405)	10.185 (0.401)	10.262 (0.404)	10.592 (0.417)	11.151 (0.439)	10.338 (0.407)
127	9.855 (0.388)	10.262 (0.404)	10.592 (0.417)	10.668 (0.420)	10 [illegible] (0 [illegible])	6.401 (0.252)	9.804 (0.386)
128	10.033 (0.395)	9.576 (0.377)	9.881 (0.389)	10.770 (0.424)	11.303 (0.445)	10.033 (0.395)	10.262 (0.404)
129	9.754 (0.384)	10.033 (0.395)	10.135 (0.399)	10.008 (0.394)	9.576 (0.377)	6.274 (0.247)	9.296 (0.366)
130	10.109 (0.398)	10.668 (0.420)	10.058 (0.396)	12.700 (0.500)	10.668 (0.420)	10.414 (0.410)	10.770 (0.424)

Notes

1. Average penetration for all tests 10.643 mm (0.419 in.)
2. Standard deviation 0.635 mm (0.025 in.)
3. Probability of cutting greater than

10.211 mm (0.402 in.)	is	75%
9.830 mm (0.387 in.)		90%
9.601 mm (0.378 in.)		95%
9.169 mm (0.361 in.)		99%

4. Probability of cutting between

9.906 mm (0.390 in.)	and	11.379 mm (0.448 in.)	is	75%
9.601 mm (0.378 in.)		11.684 mm (0.460 in.)		90%
9.398 mm (0.370 in.)		11.887 mm (0.468 in.)		95%
9.017 mm (0.355 in.)		12.268 mm (0.483 in.)		99%

TABLE B-11. PENETRATION DEPTHS FOR 600-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
131	11 049 (0 435)	12.573 (0.495)	12.395 (0 488)	12.649 (0.498)	13.157 (0.518)	12 979 (0 511)	12.471 (0.491)
132	9.576 (0 377)	10.566 (0 416)	10.283 (0.405)	10.643 (0.419)	11.557 (0.455)	10.058 (0.396)	10.439 (0.411)
133	10.922 (0.430)	11.836 (0.466)	10 973 (0.432)	11.405 (0.449)	9 246 (0.364)	10.566 (0.416)	10.820 (0.426)
134	10.414 (0.410)	12 395 (0.488)	12.725 (0.501)	13.284 (0.523)	13.360 (0.526)	9.500 (0.374)	11.938 (0.470)
135	12.344 (0 486)	13.284 (0.523)	12.954 (0.510)	12.268 (0.483)	12.090 (0.476)	9.195 (0.362)	12.014 (0.473)
136	12.802 (0.504)	13.462 (0.530)	13.437 (0.529)	13.284 (0.523)	13.487 (0 531)	11.532 (0.454)	13.005 (0.512)
137	10.490 (0.413)	10 744 (0.423)	10.922 (0 430)	10 490 (0 413)	10.770 (0.424)	10 414 (0.410)	10.643 (0.419)
138	8.763 (0.345)	12.167 (0.479)	12 675 (0 499)	12.954 (0.510)	12.014 (0.473)	9 550 (0.376)	11.354 (0.447)
139	12.192 (0.480)	12 903 (0.508)	12.522 (0 493)	14 173 (0.558)	11.608 (0.457)	9.957 (0.392)	10.610 (0.481)
140	13.157 (0.518)	13 259 (0.522)	13 665 (0.538)	12.878 (0.507)	12.675 (0.499)	7.798 (0 307)	12.243 (0.482)
141	10.033 (0.395)	8.560 (0 337)	10.922 (0 430)	10.846 (0.427)	10.236 (0.403)	9.144 (0 360)	9.957 (0.392)
142	10.236 (0.403)	11.989 (0.472)	13.005 (0.512)	12.370 (0.487)	13.183 (0.519)	10.262 (0.404)	11.836 (0.466)
143	11.328 (0.446)	12.319 (0.485)	12.598 (0.496)	12.319 (0.485)	12.649 (0.498)	10.008 (0.394)	11.862 (0.467)

Notes

1. Average penetration for all tests 11 608 mm (0.457 in.)
2. Standard deviation 0 889 mm (0.035 in.)
3. Probability of cutting greater than 11.024 mm (0.434 in.) is 75%; 10.490 mm (0.413 in.) is 90%; 10.135 mm (0.399 in.) is 95%; 9.550 mm (0.376 in.) is 99%
4. Probability of cutting between 10.592 mm (0.417 in.) and 12.624 mm (0.497 in.) is 75%; 10.160 mm (0.400 in.) and 13.056 mm (0.514 in.) is 90%; 9.881 mm (0.389 in.) and 13.335 mm (0.525 in.) is 95%; 9.322 mm (0.367 in.) and 13.894 mm (0 547 in.) is 99%

TABLE B-12. PENETRATION DEPTHS FOR 20-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at:						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
144	1 194 (0.047)	1 270 (0.050)	1.372 (0.054)	1.499 (0.059)	1 473 (0.058)	1.219 (0.048)	1.346 (0.053)
145	1.143 (0 045)	1 245 (0.049)	1.016 (0 040)	1 041 (0.041)	1.016 (0.040)	1.118 (0.044)	1.092 (0.043)
146	0.991 (0.039)	1.295 (0 051)	1 194 (0.047)	1.346 (0.053)	1.219 (0.048)	1.168 (0.046)	1.194 (0.047)
147	1.219 (0 048)	0.940 (0.037)	1.473 (0.058)	1.270 (0.050)	1.219 (0.048)	1 143 (0 045)	1.219 (0.048)
148	1.270 (0.050)	0.991 (0 039)	1.067 (0.042)	1.194 (0.047)	1 295 (0.051)	1.245 (0.049)	1.168 (0.046)
149	1 016 (0.040)	0 914 (0.036)	0.940 (0.037)	0.914 (0.036)	0.940 (0.037)	0.965 (0.038)	0.940 (0.037)
150	1 118 (0.044)	1.219 (0 048)	1.143 (0 045)	1.219 (0 048)	1.016 (0.040)	1.397 (0.055)	1.194 (0.047)
151	1.092 (0 043)	1.219 (0.048)	1.092 (0.043)	1.118 (0.044)	1.041 (0.041)	1.092 (0.043)	1.118 (0.044)
152	0 889 (0.035)	1.194 (0.047)	1 118 (0.044)	0 914 (0 036)	1.067 (0.042)	1.245 (0.049)	1.067 (0.042)
153	1 422 (0.056)	1.092 (0.043)	1.093 (0.043)	1.194 (0.047)	1 143 (0.045)	1.270 (0.050)	1.194 (0.047)
154	0.965 (0.038)	1.093 (0.043)	1.194 (0 047)	1.118 (0 044)	1.067 (0.042)	0.965 (0.038)	1.067 (0.042)
155	1.143 (0.045)	1.168 (0.046)	1.067 (0.042)	1.016 (0.040)	1.245 (0.049)	1.067 (0.042)	1.118 (0.044)
156	1.118 (0.044)	1 143 (0.045)	1.118 (0.044)	0.813 (0.032)	1.093 (0.043)	1.143 (0.045)	1.067 (0.042)

Notes

1 Average penetration for all tests 1 143 mm (0.045 in)

2 Standard deviation 0.102 mm (0.004 in.)

3 Probability of cutting greater than

1 067 mm (0.042 in.)		75%
1.016 mm (0.040 in.)	is	90%
0.965 mm (0.038 in)		95%
0.914 mm (0 036 in.)		99%

4 Probability of cutting between

1.016 mm (0.040 in.)		1 270 mm (0.050 in.)		75%
0.965 mm (0.038 in.)	and	1 321 mm (0.052 in.)	is	90%
0.940 mm (0.037 in.)		1.346 mm (0.053 in.)		95%
0.864 mm (0.034 in.)		1.397 mm (0.055 in.)		99%

TABLE B-13. PENETRATION DEPTHS FOR 30-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
157	1 727 (0.068)	2.547 (0.074)	1 702 (0.067)	1.626 (0.064)	1 727 (0.068)	1.651 (0.065)	1.727 (0.068)
158	1.422 (0.056)	1.524 (0.060)	1 524 (0 060)	1.422 (0.056)	1.57[illegible] (0.062)	1.575 (0.062)	1.499 (0.059)
159	1 702 (0.067)	1.829 (0 072)	1.778 (0.070)	2.083 (0.082)	1.524 (0.060)	1.524 (0.060)	1.753 (0.069)
160	1.702 (0 067)	1.651 (0.065)	1.651 (0.065)	1.397 (0.055)	1.778 (0.070)	1.600 (0.063)	1.626 (0.064)
161	1.295 (0.051)	1.524 (0.060)	1.422 (0 056)	1.448 (0.057)	1.727 (0.068)	1.676 (0.066)	1.524 (0.060)
162	1.397 (0.055)	2.007 (0 079)	1.651 (0 065)	1.194 (0.047)	1.956 (0.077)	1 600 (0.063)	1.626 (0.064)
163	1.600 (0 063)	1.194 (0.047)	1.727 (0.068)	1.829 (0.072)	1.550 (0.061)	1.524 (0.060)	1.575 (0 062)
164	1.702 (0.067)	1.753 (0.069)	1 778 (0.070)	1.676 (0.066)	1.626 (0 064)	1.499 (0.059)	1.676 (0.066)
165	1.702 (0.067)	1.803 (0.071)	1.778 (0 070)	1.905 (0.075)	1.753 (0.069)	1.550 (0.061)	1.753 (0.069)
166	1.651 (0.065)	1.473 (0.058)	1.778 (0 070)	1 626 (0.064)	1.550 (0.061)	1.499 (0.059)	1.600 (0.063)
167	1.346 (0.053)	1.448 (0.057)	1 676 (0.066)	1.321 (0.052)	1.295 (0.051)	1.575 (0.062)	1.448 (0.057)
168	1.550 (0.061)	1.803 (0.071)	1.753 (0 069)	1.702) (0.067)	1.524 (0.060)	1.422 (0.056)	1.626 (0.064)
169	1.676 (0.066)	1.575 (0.062)	1.473 (0.058)	1.727 (0.068)	1.524 (0.060)	1.803 (0.071)	1.626 (0.064)

Notes

1. Average penetration for all tests 1.626 mm (0 064 in.)
2. Standard deviation. 0.102 mm (0.004 in)
3. Probability of cutting greater than

1.549 mm (0 061 in.)	is	75%
1.500 mm (0.059 in.)		90%
1 448 mm (0.057 in.)		95%
1.397 mm (0.055 in.)		99%

4 Probability of cutting between

1.499 mm (0.059 in.)	and	1.753 mm (0.069 in.)	is	75%
1 448 mm (0.057 in.)		1.803 mm (0.071 in)		90%
1.422 mm (0.056 in.)		1.829 mm (0.072 in.)		95%
1 372 mm (0.054 in.)		1.880 mm (0 074 in.)		99%

TABLE B-14. PENETRATION DEPTHS FOR 40-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
170	2.032 (0 080)	1.981 (0.078)	1.956 (0.077)	1 930 (0.076)	2.083 (0.082)	1.702 (0.067)	1.956 (0.077)
171	1 321 (0 052)	1.854 (0.073)	1 880 (0 074)	1.803 (0.071)	1.930 (0.076)	1.930 (0.076)	1.778 (0.070)
172	2.108 (0 083)	2.032 (0.080)	2.286 (0.090)	2.083 (0.082)	2.515 (0.099)	1.981 (0.078)	2.159 (0.085)
173	1.651 (0.065)	2.032 (0.080)	2.108 (0.083)	1.854 (0.073)	2.083 (0 082)	1.702 (0.067)	1.905 (0.075)
174	1.930 (0.076)	2.057 (0.081)	2.103 (0.083)	1.778 (0.070)	1 880 (0.074)	2.159 (0.085)	1.981 (0.078)
175	1.626 (0.064)	1.981 (0.078)	1.905 (0.075)	2.057 (0.081)	2.032 (0 080)	1.422 (0.056)	1.829 (0.072)
176	1.956 (0.077)	1 778 (0 070)	2 032 (0.080)	2.032 (0.080)	2 083 (0 082)	2.083 (0.082)	2.007 (0.079)
177	1.930 (0.076)	1.829 (0.072)	1 981 (0.078)	1.854 (0.073)	1.753 (0.069)	2.235 (0.088)	1.930 (0.076)
178	2 210 (0.087)	1.905 (0.075)	1.676 (0.066)	1.956 (0.077)	1.930 (0.076)	1.422 (0.056)	1.854 (0.073)
179	1.905 (0.075)	1.854 (0.073)	1 905 (0 075)	1.930 (0.076)	1.981 (0.078)	2.159 (0.085)	1.956 (0.077)
180	1.880 (0.074)	1.930 (0.076)	2.007 (0.079)	2.083 (0.082)	1.930 (0.076)	1.753 (0.069)	1.930 (0.076)
181	1.626 (0.064)	2.210 (0.087)	2.083 (0.082)	1.702 (0.067)	2.032 (0.080)	1.778 (0.070)	1.905 (0.075)
182	1.930 (0.076)	1.981 0.078	1.905 0.075	2.083 0.082	1.702 0.067	2.083 0.082	1 956 0.077

Notes

1. Average penetration for all tests 1.930 mm (0.076 in.)
2. Standard deviation. 0 102 mm (0.004 in)
3. Probability of cutting greater than

1.854 mm (0.073 in.)	is	75%
1.803 mm (0.071 in.)		90%
1.753 mm (0.069 in.)		95%
1.727 mm (0.068 in.)		99%

4. Probability of cutting between

1.803 mm (0.071 in.)	and	2.057 mm (0.081 in.)	is	75%
1.753 mm (0.069 in.)		2.108 mm (0.083 in.)		90%
1.727 mm (0.068 in.)		2.134 mm (0.084 in.)		95%
1.676 mm (0.066 in.)		2.184 mm (0.086 in.)		99%

TABLE B-15. PENETRATION DEPTHS FOR 60-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
183	2 184 (0.086)	2.337 (0.092)	2 489 (0 098)	2 413 (0.095)	2.235 (0.088)	1 981 (0.078)	2.286 (0.090)
184	2 210 (0 087)	2 438 (0.096)	2.311 (0.091)	2 438 (0.096)	2 235 (0 088)	2.362 (0 093)	2.337 (0.092)
185	2 286 (0.090)	2.489 (0 098)	2.667 (0.105)	2 286 (0.090)	2.667 (0 105)	2.540 (0.100)	2.489 (0.098)
186	2.184 (0.086)	2.413 (0.095)	2.261 (0.089)	2.083 (0.082)	2.184 (0.086)	2.007 (0.079)	2.184 (0.086)
187	2 413 (0 095)	2 311 (0.091)	2.489 (0.098)	2 489 (0.098)	2.261 (0.089)	2.438 (0.096)	2.413 (0.095)
188	2.184 (0.086)	2.438 (0.096)	2.261 (0 089)	2.413 (0 095)	2.362 (0 093)	2 134 (0.084)	2.311 (0.091)
189	2.413 (0 095)	2.540 (0.100)	2.413 (0.095)	2.311 (0.091)	2.362 (0.093)	2.032 (0.080)	2.337 (0.092)
190	2 210 (0 087)	2.438 (0.096)	2.413 (0 095)	2.184 (0.086)	2.286 (0 090)	2.184 (0.086)	2.286 (0.090)
191	2.692 (0 106)	2.337 (0.092)	2.438 (0 096)	2 311 (0.091)	2 489 (0.098)	2.337 (0.092)	2.438 (0 096)
192	2 388 (0.094)	2 388 (0 094)	2 184 (0.086)	2.210 (0.087)	2 261 (0.089)	2.235 (0 088)	2.286 (0.090)
193	2.515 (0 099)	2 489 (0.098)	2.362 (0.093)	2.388 (0.094)	2.616 (0.103)	2.184 (0.086)	2.438 (0.096)
194	2.261 (0.089)	2.286 (0.090)	2.311 (0.091)	2.083 (0 082)	2.337 (0.092)	2.007 (0.079)	2.210 (0.087)
195	2.032 (0 080)	2.108 (0.083)	2.057 (0.081)	1.854 (0.073)	2.261 (0.089)	1.956 (0.077)	2.057 (0.081)

Notes

1 Average penetration for all tests 2 311 mm (0.091 in)

2 Standard deviation 0.127 mm (0.005 in)

3 Probability of cutting greater than

2.235 mm (0.088 in.)	is	75%
2.159 mm (0.085 in.)		90%
2.108 mm (0.083 in.)		95%
2.007 mm (0 079 in.)		99%

4 Probability of cutting between

2.159 mm (0 085 in.)	and	2.464 mm (0.097 in.)	is	75%
2.108 mm (0.083 in.)		2.515 mm (0 099 in)		90%
2.057 mm (0.081 in.)		2.565 mm (0 101 in)		95%
1.981 mm (0.078 in.)		2.642 mm (0 104 in.)		99%

TABLE B-16. PENETRATION DEPTHS FOR 75-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
196	2.489 (0.098)	2.616 (0.103)	2.819 (0.111)	2.565 (0.101)	2.692 (0.106)	2.540 (0.100)	2.616 (0.103)
197	2.540 (0.100)	2.464 (0.097)	2.591 (0.102)	2.083 (0.082)	2.464 (0.097)	2.388 (0.094)	2.413 (0.095)
198	2.540 (0.100)	2.261 (0.089)	2.565 (0.101)	2.540 (0.100)	2.591 (0.102)	2.769 (0.109)	2.540 (0.100)
199	3.150 (0.124)	3.175 (0.125)	2.565 (0.101)	2.667 (0.105)	2.540 (0.100)	2.311 (0.091)	2.743 (0.108)
200	2.489 (0.098)	2.464 (0.097)	2.540 (0.100)	2.591 (0.102)	2.616 (0.103)	2.718 (0.107)	2.565 (0.101)
201	2.515 (0.099)	2.769 (0.109)	2.540 (0.100)	2.667 (0.105)	2.565 (0.101)	2.311 (0.091)	2.540 (0.100)
202	2.540 (0.100)	2.743 (0.108)	2.921 (0.115)	2.921 (0.115)	2.718 (0.107)	2.616 (0.103)	2.743 (0.108)
203	2.794 (0.110)	2.743 (0.108)	2.692 (0.106)	2.794 (0.110)	2.667 (0.105)	2.769 (0.109)	2.743 (0.108)
204	2.362 (0.093)	2.540 (0.100)	2.311 (0.091)	2.515 (0.099)	1.803 (0.071)	2.515 (0.099)	2.337 (0.092)
205	2.413 (0.095)	2.413 (0.095)	2.692 (0.106)	2.235 (0.088)	2.515 (0.099)	2.413 (0.095)	2.438 (0.096)
206	2.464 (0.097)	2.591 (0.102)	2.591 (0.102)	2.667 (0.105)	2.489 (0.098)	1.930 (0.076)	2.464 (0.097)
207	2.591 (0.102)	2.565 (0.101)	2.667 (0.105)	2.540 (0.100)	2.286 (0.090)	2.159 (0.085)	2.464 (0.097)
208	2.337 (0.092)	2.515 (0.099)	2.667 (0.105)	2.540 (0.100)	2.540 (0.100)	2.032 (0.080)	2.438 (0.096)

Notes

1. Average penetration for all tests 2.540 mm (0.100 in.)
2. Standard deviation: 0.127 mm (0.005 in.)
3. Probability of cutting greater than

2.464 mm (0.097 in.)	is	75%
2.388 mm (0.094 in.)		90%
2.337 mm (0.092 in.)		95%
2.235 mm (0.088 in.)		99%

4. Probability of cutting between

2.388 mm (0.094 in.)	and	2.692 mm (0.106 in.)	is	75%
2.337 mm (0.092 in.)		2.743 mm (0.108 in.)		90%
2.286 mm (0.090 in.)		2.794 mm (0.110 in.)		95%
2.210 mm (0.087 in.)		2.870 mm (0.113 in.)		99%

TABLE B-17. PENETRATION DEPTHS FOR 125-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
209	3.073 (0.121)	2.616 (0.103)	3.099 (0.122)	2.972 (0.117)	3.302 (0.130)	3.023 (0.119)	3.023 (0.119)
210	2.972 (0.117)	3.150 (0.124)	2.896 (0.114)	3.200 (0.126)	3.708 (0.146)	3.150 (0.124)	3.175 (0.125)
211	2.870 (0.113)	2.870 (0.113)	2.769 (0.109)	2.616 (0.103)	3.200 (0.126)	3.277 (0.129)	2.946 (0.116)
212	3.454 (0.136)	3.454 (0.136)	3.200 (0.126)	3.200 (0.126)	3.251 (0.128)	3.353 (0.132)	3.327 (0.131)
213	3.683 (0.145)	2.553 (0.134)	3.531 (0.139)	3.277 (0.129)	3.251 (0.128)	3.226 (0.127)	3.404 (0.134)
214	3.531 (0.139)	3.505 (0.138)	3.200 (0.126)	3.226 (0.127)	3.023 (0.119)	3.378 (0.133)	3.302 (0.130)
215	3.327 (0.131)	3.251 (0.128)	3.327 (0.131)	3.099 (0.122)	3.353 (0.132)	3.302 (0.130)	3.277 (0.129)
216	2.692 (0.106)	3.073 (0.121)	3.175 (0.125)	3.226 (0.127)	3.327 (0.131)	3.277 (0.129)	3.124 (0.123)
217	3.048 (0.120)	2.845 (0.112)	3.353 (0.132)	3.200 (0.126)	3.505 (0.138)	3.327 (0.131)	3.226 (0.127)
218	3.099 (0.122)	2.997 (0.118)	3.048 (0.120)	2.845 (0.112)	3.150 (0.124)	3.200 (0.126)	3.048 (0.120)
219	3.175 (0.125)	3.302 (0.130)	3.378 (0.133)	3.150 (0.124)	3.251 (0.128)	3.277 (0.129)	3.251 (0.128)
220	3.127 (0.123)	3.480 (0.137)	3.861 (0.152)	3.658 (0.144)	3.658 (0.144)	3.150 (0.124)	3.480 (0.137)
221	3.353 (0.132)	3.251 (0.128)	3.251 (0.128)	3.073 (0.121)	3.175 (0.125)	2.997 (0.118)	3.175 (0.125)

Notes

1 Average penetration for all tests 3.200 mm (0.126 in.)

2 Standard deviation 0.152 mm (0.006 in.)

3 Probability of cutting greater than

3.124 mm (0.123 in.)	is	75%
2.997 mm (0.118 in.)		90%
2.946 mm (0.116 in.)		95%
2.845 mm (0.112 in.)		99%

4 Probability of cutting between

3.023 mm (0.119 in.)	and	3.378 mm (0.133 in.)	is	75%
2.946 mm (0.116 in.)		3.454 mm (0.136 in.)		90%
2.896 mm (0.114 in.)		3.505 mm (0.138 in.)		95%
2.819 mm (0.111 in.)		3.581 mm (0.141 in.)		99%

TABLE B-18. PENETRATION DEPTHS FOR 225-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
222	5.131 (0.202)	5.410 (0.213)	5.613 (0.221)	5.131 (0.202)	5.283 (0.208)	4.445 (0.175)	5.182 (0.204)
223	4.140 (0.163)	4.699 (0.185)	4.547 (0.179)	4.648 (0.183)	4.166 (0.164)	3.734 (0.147)	4.318 (0.170)
224	4.445 (0.175)	4.953 (0.195)	4.953 (0.195)	4.902 (0.193)	4.877 (0.192)	3.912 (0.154)	4.674 (0.184)
225	4.648 (0.183)	4.140 (0.163)	4.521 (0.178)	4.623 (0.182)	4.293 (0.169)	3.378 (0.133)	4.267 (0.168)
226	3.734 (0.147)	3.988 (0.157)	4.293 (0.169)	4.547 (0.179)	4.039 (0.159)	4.521 (0.178)	4.191 (0.165)
227	3.378 (0.133)	4.496 (0.177)	4.953 (0.195)	5.055 (0.199)	4.851 (0.191)	4.623 (0.182)	4.572 (0.180)
228	4.140 (0.163)	4.394 (0.173)	4.826 (0.190)	4.191 (0.165)	4.293 (0.169)	3.327 (0.131)	4.191 (0.165)
229	4.674 (0.184)	5.182 (0.204)	4.851 (0.191)	4.877 (0.192)	4.826 (0.190)	4.369 (0.172)	4.801 (0.189)
230	3.683 (0.145)	4.521 (0.178)	4.724 (0.186)	4.724 (0.186)	3.937 (0.155)	4.216 (0.166)	4.293 (0.169)
231	4.039 (0.159)	3.734 (0.147)	4.724 (0.186)	4.369 (0.172)	4.674 (0.184)	4.293 (0.169)	4.318 (0.170)
232	4.547 (0.179)	3.937 (0.155)	4.216 (0.166)	4.394 (0.173)	4.394 (0.173)	4.191 (0.165)	4.293 (0.169)
233	4.877 (0.192)	4.928 (0.194)	4.953 (0.195)	5.258 (0.207)	4.826 (0.190)	4.369 (0.172)	4.877 (0.192)
234	4.089 (0.161)	4.699 (0.185)	4.699 (0.185)	4.699 (0.185)	3.962 (0.156)	4.801 (0.189)	4.496 (0.177)

Notes

1. Average penetration for all tests 4.496 mm (0.177 in.)
2. Standard deviation 0.305 mm (0.012 in.)
3. Probability of cutting greater than
   - 4.292 mm (0.169 in.) is 75%
   - 4.115 mm (0.162 in.) is 90%
   - 3.988 mm (0.157 in.) is 95%
   - 3.785 mm (0.149 in.) is 99%
4. Probability of cutting between

4.140 mm (0.163 in.)	and	4.851 mm (0.191 in.)	75%
3.988 mm (0.157 in.)	and	5.003 mm (0.197 in.)	90%
3.9[illegible]2 mm (0.154 in.)	and	5.080 mm (0.200 in.)	95%
[illegible] mm (0.146 in.)	and	5.283 mm (0.208 in.)	99%

TABLE B-19. PENETRATION DEPTHS FOR 300-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
235	4.191 (0.165)	4 674 (0 184)	4 394 (0 173)	4.623 (0.182)	4.394 (0.173)	4.470 (0.176)	4.470 (0.176)
236	4 775 (0 188)	5 334 (0 210)	5 690 (0 224)	5 385 (0 212)	5 105 (0 201)	4.953 (0.195)	5.207 (0.205)
237	5.080 (0.200)	5 029 (0 198)	5 131 (0.202)	5 359 (0.211)	5.232 (0.206)	4.318 (0.170)	5.055 (0.199)
238	4 724 (0 186)	4 851 (0 191)	4.902 (0 193)	4.572 (0.180)	5.537 (0 218)	4.369 (0.172)	4.826 (0.190)
239	4 572 (0 180)	5 283 (0 208)	5 029 (0.198)	5 309 (0.209)	5 359 (0 211)	4.877 (0.192)	5.080 (0 200)
240	5 410 (0 213)	5 156 (0 203)	5 055 (0 199)	5 004 (0.197)	4 953 (0.195)	4.928 (0.194)	5.080 (0.200)
241	6 020 (0 237)	5 334 (0 210)	5.486 (0 216)	5 309 (0.209)	5 359 (0.211)	5.156 (0.203)	5.436 (0.214)
242	4 724 (0 186)	5 029 (0 198)	5 994 (0 236)	5 512 (0.217)	5 207 (0.205)	5 182 (0.204)	5.283 (0 208)
243	4 293 (0 169)	4 648 (0 183)	4.166 (0 164)	4.547 (0 179)	4.496 (0 177)	4.241 (0.167)	4.394 (0.173)
244	4 877 (0 192)	4 750 (0 187)	4 140 (0 163)	4 902 (0 193)	4 826 (0 190)	4.547 (0.179)	4.674 (0.184)
245	4 470 (0 176)	4 750 (0 187)	4.293 (0.169)	4 928 (0 194)	5 050 (0 199)	4.547 (0.197)	4 750 (0.187)
246	3 708 (0.146)	5.182 (0.204)	5 461 (0.215)	5.182 (0.204)	4.470 (0 176)	4.039 (0.159)	4.674 (0.184)
247	4 216 (0.166)	4.648 (0.183)	5.080 (0.200)	4.597 (0.181)	4.521 (0.178)	4.115 (0.162)	4.521 (0.178)

Notes

1 Average penetration for all tests 4 877 mm (0 192 in)

2 Standard deviation 0.330 mm (0 013 in)

3 Probability of cutting greater than

4.648 mm (0.183 in)	is	75%
4 445 mm (0 175 in.)		90%
4 343 mm (0 171 in)		95%
4 115 mm (0 162 in.)		99%

4 Probability of cutting between

4.496 mm (0 177 in.)	and	5 258 mm (0 207 in)	is	75%
4.343 mm (0 171 in.)		5 410 mm (0 213 in)		90%
4.242 mm (0 167 in)		5 512 mm (0 217 in.)		95%
4.039 mm (0.159 in)		5.715 mm (0 225 in.)		99%

TABLE B-20. PENETRATION DEPTHS FOR 400-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
248	6 147 (0 242)	6 655 (0.262)	4 572 (0 180)	7 163 (0.282)	6 629 (0 261)	5.613 (0.221)	6.121 (0.241)
249	4 623 (0 182)	5 436 (0 214)	5 334 (0.210)	4 724 (0 186)	4 674 (0 184)	4.801 (0.189)	4.928 (0.194)
250	5 588 (0 220)	5 791 (0.228)	5 664 (0 223)	5.207 (0 205)	5 004 (0 197)	5.131 (0.202)	5.410 (0.213)
251	4 978 (0 196)	5 080 (0.200)	5 664 (0.223)	4.902 (0 193)	4 902 (0 193)	4.851 (0.191)	5.055 (0.199)
252	4 496 (0 177)	5.791 (0 228)	5 156 (0 203)	5 969 (0 235)	5 664 (0 223)	5.080 (0.200)	5.359 (0.211)
253	4 394 (0 173)	4 496 (0 177)	4 547 (0 179)	5.029 (0 198)	4 750 (0 187)	4.445 (0.175)	4.623 (0.182)
254	4 420 (0 174)	4 953 (0 195)	4 902 (0 193)	5.055 (0 199)	4.572 (0 180)	4.775 (0.188)	4.775 (0.188)
255	5 867 (0 231)	6 172 (0 243)	6 071 (0.239)	5 867 (0 231)	5 588 (0.220)	5.537 (0.218)	5.842 (0.230)
256	5 410 (0 213)	4 902 (0 193)	5 791 (0 228)	4 674 (0.184)	5 664 (0 223)	5.080 (0.200)	5.258 (0.207)
257	4 420 (0 174)	5 969 (0.235)	5 639 (0 222)	5 182 (0.204)	4 877 (0 192)	4.547 (0.179)	5.105 (0.201)
258	5 512 (0 217)	6.451 (0 254)	6 325 (0.249)	6 020 (0 237)	5 410 (0 213)	5.283 (0.208)	5.842 (0.230)
259	5 436 (0 214)	4.750 (0 187)	5 918 (0 233)	4.394 (0 173)	5 080 (0 200)	4.826 (0.190)	5.080 (0.200)
260	5.563 (0.219)	5.918 (0.233)	5 105 (0.201)	5.715 (0.225)	5 944 (0.234)	5.664 (0.223)	5.664 (0.223)

Notes

1. Average penetration for all tests 5 309 mm (0.209 in)

2 Standard deviation 0 457 mm (0 018 in.)

3 Probability of cutting greater than

5.004 mm (0.197 in.)	is	75%
4 724 mm (0.186 in.)		90%
4.547 mm (0.179 in)		95%
4 242 mm (0 167 in)		99%

4 Probability of cutting between

4.775 mm (0 188 in)	and	5 842 mm (0.230 in)	is	75%
4.547 mm (0 179 in)		6 071 mm (0.239 in.)		90%
4 420 mm (0 174 in)		6.198 mm (0.244 in.)		95%
4.140 mm (0 163 in.)		6 477 mm (0 255 in)		99%

TABLE B-21. PENETRATION DEPTHS FOR 500-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
261	6 985 (0.275)	7 721 (0.304)	7 798 (0 307)	8.128 (0.320)	7 925 (0.312)	7.696 (0.303)	7.721 (0.304)
262	5.639 (0 222)	5.918 (0 233)	6 172 (0 243)	6 020 (0 237)	7.823 (0.308)	7.696 (0 303)	6.553 (0.258)
263	6.655 (0.262)	6 781 (0 267)	6.960 (0.274)	6.375 (0.251)	6 883 (0.271)	7.264 (0.286)	6.833 (0.269)
264	5.842 (0.230)	6 426 (0 253)	6 629 (0.261)	6.096 (0.240)	5 893 (0.232)	6.781 (0.267)	6.274 (0.247)
265	6.807 (0.268)	7 061 (0.278)	7.264 (0.286)	7.264 (0.286)	7 772 (0.306)	7.163 (0.282)	7.214 (0.284)
266	6.604 (0.260)	7.264 (0 286)	7.899 (0.311)	8.103 (0.319)	7.290 (0 287)	8 103 (0.319)	7.544 (0.297)
267	5 817 (0.229)	5 486 (0.216)	5.182 (0.204)	6.020 (0.237)	6.045 (0.238)	4.928 (0 194)	5.588 (0.220)
268	5.563 (0.219)	5.410 (0 213)	5.436 (0.214)	5 690 (0.224)	5.817 (0.229)	6.731 (0.265)	5.766 (0.227)
269	5.840 (0 230)	5.563 (0.219)	6 096 (0.240)	6.147 (0 242)	6.502 (0 256)	5.232 (0.206)	5.893 (0.232)
270	5.537 (0 218)	6 071 (0 239)	5.817 (0.229)	6.172 (0.243)	5.639 (0.222)	5.944 (0.234)	5.867 (0.231)
271	6 477 (0.255)	6 325 (0.249)	5.385 (0 212)	6 147 (0 242)	5.893 (0.232)	5.283 (0 208)	5.918 (0.233)
272	5.791 (0.228)	5 486 (0 216)	5.994 (0.236)	5.588 (0.220)	5.461 (0.215)	6 020 (0.237)	5.715 (0.225)
273	6 680 (0.263)	7.112 (0 280)	7.214 (0.284)	7.239 (0.285)	7 798 (0.307)	6.706 (0.264)	7.137 (0.281)

Notes

1 Average penetration for all tests 6 477 mm (0.255 in.)

2 Standard deviation 0.762 mm (0 030 in.)

3 Probability of cutting greater than

5.969 mm (0.235 in.)	is	75%
5.512 mm (0 217 in.)		90%
5.232 mm (0.206 in.)		95%
4.699 mm (0.185 in.)		99%

4. Probability of cutting between

5.613 mm (0.221 in.)	and	7.366 mm (0.290 in.)	is	75%
5.232 mm (0.206 in.)		7.722 mm (0.304 in.)		90%
5.004 mm (0 197 in.)		7.976 mm (0.314 in.)		95%
4.521 mm (0.178 in.)		8 433 mm (0 332 in.)		99%

TABLE B-22. PENETRATION DEPTHS FOR 600-GRAIN PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH NO STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
274	6.020 (0.237)	5.740 (0.226)	6.071 (0.239)	4.724 (0.186)	6.350 (0.250)	4.039 (0.159)	5.486 (0.216)
275	7.569 (0.298)	7.061 (0.278)	7.493 (0.295)	7.112 (0.280)	7.721 (0.304)	5.359 (0.211)	7.061 (0.278)
276	6.375 (0.251)	6.248 (0.246)	6.426 (0.253)	7.188 (0.283)	5.359 (0.211)	4.978 (0.196)	6.096 (0.240)
277	6.579 (0.259)	7.696 (0.303)	7.087 (0.279)	7.010 (0.276)	7.417 (0.292)	7.036 (0.277)	7.137 (0.281)
278	6.477 (0.255)	6.629 (0.261)	6.680 (0.263)	6.680 (0.263)	5.512 (0.217)	6.198 (0.244)	6.375 (0.251)
279	5.410 (0.213)	5.851 (0.231)	6.096 (0.240)	4.978 (0.196)	6.172 (0.243)	5.512 (0.217)	5.512 (0.217)
280	7.264 (0.286)	7.823 (0.308)	7.747 (0.305)	8.001 (0.315)	8.153 (0.321)	6.426 (0.253)	7.569 (0.298)
281	6.096 (0.240)	5.055 (0.199)	6.833 (0.269)	7.087 (0.279)	5.156 (0.203)	6.045 (0.238)	6.045 (0.238)
282	7.137 (0.281)	7.341 (0.289)	7.925 (0.312)	6.807 (0.268)	7.595 (0.299)	7.036 (0.277)	7.315 (0.288)
283	6.426 (0.253)	6.579 (0.259)	7.087 (0.279)	6.604 (0.260)	6.553 (0.258)	6.452 (0.254)	6.629 (0.261)
284	6.858 (0.270)	7.290 (0.287)	7.239 (0.285)	7.137 (0.281)	7.137 (0.281)	6.731 (0.265)	7.061 (0.278)
285	6.502 (0.256)	6.756 (0.266)	6.934 (0.273)	6.858 (0.270)	6.934 (0.273)	6.985 (0.275)	6.833 (0.269)
286	6.579 (0.259)	6.858 (0.270)	7.468 (0.294)	7.366 (0.290)	7.595 (0.299)	7.366 (0.290)	7.214 (0.284)

Notes:

1. Average penetration for all tests: 6.655 mm (0.262 in.)
2. Standard deviation: 0.686 mm (0.027 in.)
3. Probability of cutting greater than

6.198 mm (0.244 in.)	is	75%
5.791 mm (0.228 in.)		90%
5.512 mm (0.217 in.)		95%
5.055 mm (0.199 in.)		99%

4. Probability of cutting between

5.867 mm (0.231 in.)	and	7.442 mm (0.293 in.)	is	75%
5.791 mm (0.228 in.)		7.772 mm (0.306 in.)		90%
5.512 mm (0.217 in.)		8.001 mm (0.315 in.)		95%
5.055 mm (0.199 in.)		8.407 mm (0.331 in.)		99%

TABLE B-23. PENETRATION DEPTHS FOR 20-GRAIN PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 1.321-MM (0.052-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
287	2.159 (0.085)	2.515 (0.099)	2.413 (0.095)	2.235 (0.088)	2.413 (0.095)	2.261 (0.089)	2.337 (0.092)
288	2.438 (0.096)	2.159 (0.085)	2.464 (0.097)	2.362 (0.093)	2.286 (0.090)	2.337 (0.092)	2.337 (0.092)
289	1.549 (0.061)	1.854 (0.073)	1.702 (0.067)	1.727 (0.068)	1.778 (0.070)	1.778 (0.070)	1.727 (0.068)
290	1.981 (0.078)	2.286 (0.090)	2.210 (0.087)	1.880 (0.074)	2.007 (0.079)	2.438 (0.096)	2.134 (0.084)
291	1.651 (0.065)	1.676 (0.066)	1.575 (0.062)	1.473 (0.058)	1.549 (0.061)	1.854 (0.073)	1.626 (0.064)
292	1.727 (0.068)	2.057 (0.081)	2.108 (0.083)	1.981 (0.078)	2.108 (0.083)	2.464 (0.097)	2.083 (0.082)
293	2.489 (0.098)	2.082 (0.082)	2.134 (0.034)	1.956 (0.077)	1.930 (0.076)	1.981 (0.078)	2.108 (0.083)
294	1.829 (0.072)	1.727 (0.068)	1.753 (0.069)	1.702 (0.067)	1.575 (0.062)	1.727 (0.068)	1.727 (0.068)
295	2.159 (0.085)	1.803 (0.071)	1.524 (0.060)	1.499 (0.059)	1.600 (0.063)	2.184 (0.086)	1.803 (0.071)
296	1.854 (0.073)	1.829 (0.072)	1.803 (0.071)	1.803 (0.071)	1.930 (0.076)	1.956 (0.077)	1.854 (0.073)
297	1.880 (0.074)	1.422 (0.056)	1.092 (0.043)	1.067 (0.042)	1.422 (0.056)	2.032 (0.080)	1.499 (0.059)
298	1.270 (0.050)	1.270 (0.050)	1.803 (0.071)	1.753 (0.069)	1.575 (0.062)	1.880 (0.074)	1.600 (0.063)
299	1.118 (0.044)	1.778 (0.070)	1.753 (0.069)	1.829 (0.072)	1.854 (0.073)	1.626 (0.064)	1.651 (0.065)

Notes

1. Average penetration for all tests 1.880 mm (0.074 in.)
2. Standard deviation 0.279 mm (0.011 in.)
3. Probability of cutting greater than

1.702 mm (0.067 in.)	is	75%
1.524 mm (0.060 in.)		90%
1.422 mm (0.056 in.)		95%
1.219 mm (0.048 in.)		99%

4. Probability of cutting between

1.549 mm (0.061 in.)	and	2.210 mm (0.087 in.)	is	75%
1.422 mm (0.056 in.)		2.337 mm (0.092 in.)		90%
1.346 mm (0.053 in.)		2.413 mm (0.095 in.)		95%
1.168 mm (0.046 in.)		2.591 mm (0.102 in.)		99%

TABLE B-24. PENETRATION DEPTHS FOR 30-GRAIN-PER FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 1.321-MM (0.052-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration, in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
300	2 946 (0 116)	3.327 (0 131)	3 759 (0 148)	3.251 (0 128)	3 302 (0 130)	3 150 (0 124)	3.302 (0.130)
301	3 708 (0 146)	3 734 (0 147)	3 302 (0 130)	3 353 (0 132)	3 378 (0 133)	2.845 (0.112)	3.378 (0.133)
302	3 251 (0 128)	3 988 (0 157)	3 454 (0 136)	3.658 (0 144)	2 692 (0 106)	2.794 (0.110)	3.302 (0.130)
303	3 607 (0 142)	3 708 (0 146)	3 531 (0 139)	3.429 (0 135)	3 810 (0 150)	3.988 (0 157)	3.683 (0.145)
304	3 175 (0 125)	3 556 (0 140)	3 505 (0 138)	3.454 (0.136)	3 912 (0 154)	3 200 (0 126)	3.480 (0 137)
305	4 216 (0 166)	3 886 (0 153)	3 937 (0 155)	3 734 (0.147)	3.835 (0 151)	3.632 (0.143)	3.886 (0.153)
306	2 819 (0 111)	2 896 (0 114)	3.073 (0 121)	3 226 (0 127)	3 175 (0 125)	3 099 (0 122)	3.048 (0.120)
307	3 378 (0 133)	3 581 (0 141)	3 023 (0 119)	3 404 (0 134)	3 581 (0 141)	2.946 (0 116)	3.327 (0.131)
308	3 099 (0 122)	3 327 (0 131)	3 175 (0 125)	3 454 (0 136)	2 616 (0 103)	3.124 (0 123)	3.124 (0.123)
309	2 946 (0 116)	3 962 (0 156)	3 912 (0 154)	3 937 (0.155)	3 835 (0 151)	3 556 (0.140)	2.683 (0.145)
310	3 607 (0 142)	3 556 (0 140)	3 226 (0 127)	3.886 (0 153)	3 734 (0 147)	3.302 (0.130)	3.556 (0.140)
311	3.023 (0 119)	2 845 (0 112)	3 200 (0.126)	3 632 (0.143)	4 039 (0 159)	2.946 (0 116)	3.277 (0.129)
312	3.658 (0.144)	3.531 (0.139)	2 794 (0.110)	3.607 (0 142)	3.124 (0 123)	3.200 (0.126)	3 327 (0.131)

Notes

1 Average penetration for all tests 3 404 mm (0 134 in)

2 Standard deviation 0 229 mm (0 009 in)

3 Probability of cutting greater than

3 251 mm (0 128 in)	is	75%
3 124 mm (0 123 in)		90%
3.025 mm (0 119 in)		95%
2 870 mm (0.113 in.)		99%

4 Probability of cutting between

3 150 mm (0 124 in.)	and	3 658 mm (0 144 in)	is	75%
3.023 mm (0 119 in)		3 785 mm (0 149 in)		90%
2 946 mm (0 116 in)		3.861 mm (0 152 in.)		95%
2 870 mm (0 113 in)		3.988 mm (0 157 in)		99%

TABLE B-25. PENETRATION DEPTHS FOR 40-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 1.651-MM (0.065-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
313	4 115 (0 162)	4 039 (0.159)	4 293 (0 169)	4 293 (0 169)	4 216 (0 166)	4 343 (0 171)	4 216 (0 166)
314	3 861 (0.152)	4 318 (0 170)	4 01[illegible] (0 158)	3 886 (0 153)	4 420 (0 174)	4 089 (0 161)	4.089 (0 161)
315	3 759 (0.148)	4 521 (0 178)	4 267 (0 168)	4.140 (0.163)	4 420 (0 174)	4 420 (0 174)	4.267 (0 168)
316	3 658 (0.144)	3.632 (0 143)	3 988 (0 157)	3.277 (0 129)	3.302 (0 130)	4.369 (0.172)	3.708 (0.146)
317	3 581 (0.141)	4 039 (0 159)	4 293 (0 169)	3 810 (0.150)	3 810 (0.150)	3.150 (0 [illegible]21)	3.785 (0.149)
318	4 064 (0 160)	3 937 (0 155)	3.785 (0 149)	3.632 (0.143)	3.556 (0 140)	4.369 (0 172)	3 886 (0.153)
319	3.251 (0 128)	3.886 (0 153)	4 521 (0 178)	3.759 (0 148)	3 785 (0 149)	4.216 (0 166)	3.912 (0.154)
320	3 556 (0 140)	4 013 (0 158)	3 785 (0 149)	4 089 (0 161)	4 064 (0 160)	4 242 (0.167)	3.962 (0.156)
321	3 683 (0 145)	4 115 (0 162)	4 293 (0 169)	4 013 (0.158)	3 708 (0 146)	4 013 (0 158)	3.962 (0.156)
322	3 759 (0 148)	3 175 (0 125)	3.353 (0 132)	2 565 (0 101)	4 039 (0.159)	3 378 (0.133)	3.378 (0.133)
323	3.962 (0 156)	3.556 (0 140)	3.886 (0.153)	4 394 (0 173)	3.785 (0 149)	3.810 (0 150)	3.912 (0.154)
324	3 404 (0 134)	3 810 (0 150)	3 378 (0.133)	4.496 (0 177)	4.267 (0.168)	4 547 (0.179)	3.988 (0.157)
325	3.429 (0.135)	3.886 (0.153)	4.318 (0.170)	3.556 (0.140)	3.708 (0 146)	3.937 (0 155)	3.810 (0.150)

Notes

1 Average penetration for all tests 3 912 mm (0.154 in)

2 Standard deviation 0.229 mm (0 009 in.)

3 Probability of cutting greater than

3.759 mm (0.148 in.)	is	75%
3.632 mm (0 143 in.)		90%
3.531 mm (0.139 in.)		95%
3 378 mm (0 133 in)		99%

4 Probability of cutting between

3 658 mm (0 144 in.)	and	4.166 mm (0.164 in.)	is	75%
3.531 mm (0 139 in.)		4.293 mm (0.169 in.)		90%
3.454 mm (0 136 in)		4 369 mm (0.172 in.)		95%
3 327 mm (0 131 in.)		4 496 mm (0.177 in.)		99%

TABLE B-26. PENETRATION DEPTHS FOR 60-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 2.235-MM (0.088-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
326	3.912 (0.154)	4.775 (0.188)	3 912 (0 154)	5.029 (0.198)	4 318 (0.170)	5.283 (0.208)	4 547 (0.179)
327	4 775 (0 188)	3 658 (0.144)	4 267 (0 168)	5 004 (0.197)	4 293 (0 169)	5.715 (0 225)	4.623 (0 182)
328	3.785 (0.149)	3 277 (0.129)	3 073 (0.121)	4 089 (0.161)	3 200 (0 126)	2.540 (0.100)	3.327 (0.131)
329	5.283 (0.208)	4 216 (0 166)	5.004 (0 197)	5.105 (0.201)	4 242 (0.167)	4.191 (0 165)	4 674 (0.184)
330	4.674 (0 184)	5.486 (0.216)	5 817 (0.229)	5.232 (0.206)	5.537 (0 218)	4 420 (0.174)	5.207 (0.205)
331	4.394 (0 173)	3 607 (0.142)	4.293 (0.169)	3.810 (0.150)	3 505 (0.138)	4 140 (0 163)	3 962 (0.156)
332	5.029 (0 198)	4 242 (0.167)	4 420 (0 174)	5.207 (0.205)	5 410 (0.213)	4 394 (0.173)	4.775 (0 188)
333	4.343 (0 171)	3 200 (0 126)	3 277 (0.129)	3.429 (0.135)	3 962 (0.156)	3.073 (0 121)	3 556 (0.140)
334	5.131 (0 202)	4.394 (0.173)	5.309 (0.209)	5.410 (0.213)	5 690 (0.224)	5 131 (0.202)	5.182 (0.204)
335	4.420 (0.174)	4.801 (0.189)	3.988 (0 157)	3.759 (0.148)	3 785 (0 149)	4.394 (0.173)	4 191 (0.165)
336	3.861 (0.152)	3.810 (0.150)	3 531 (0.139)	2.921 (0 115)	5.055 (0.199)	4.623 (0 182)	3.962 (0.156)
337	3 480 (0.137)	3.429 (0.135)	4 191 (0.165)	3.277 (0.129)	3.226 (0 127)	3.581 (0.141)	3.531 (0.139)
338	4.293 (0.169)	4.293 (0.169)	4.191 (0.165)	3.607 (0 142)	4.902 (0.193)	5.029 (0.198)	4.394 (0.173)

Notes

1 Average penetration for all tests 4.293 mm (0 169 in.)

2 Standard deviation 0.635 mm (0.025 in)

3 Probability of cutting greater than

3.861 mm (0.152 in.)	is	75%
3.480 mm (0.137 in.)		90%
3.251 mm (0.128 in.)		95%
2 819 mm (0.111 in)		99%

4 Probability of cutting between

3 556 mm (0.140 in)	and	5.029 mm (0.198 in.)	is	75%
3 251 mm (0.128 in.)		5.334 mm (0.210 in.)		90%
3.048 mm (0.120 in)		5.537 mm (0.218 in.)		95%
2.667 mm (0.105 in.)		5.918 mm (0.233 in.)		99%

TABLE B-27. PENETRATION DEPTHS FOR 75-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 2.438-MM (0.096-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
339	4 470 (0 176)	5 131 (0.202)	4 623 (0 182)	4.851 (0 191)	4 775 (0 18[illegible])	4 343 (0.171)	4.699 (0.185)
340	3 835 (0 151)	4 318 (0 170)	3.810 (0 150)	3 810 (0.150)	3.581 (0.141)	3 835 (0.151)	3.861 (0.152)
341	5 131 (0.202)	4.953 (0.195)	6 121 (0 241)	4.801 (0 189)	3.886 (0 153)	3.734 (0.147)	4 775 (0.188)
342	4 928 (0.194)	4 547 (0 179)	4.978 (0 196)	4.216 (0 166)	4 547 (0.179)	4.369 (0.172)	4.597 (0.181)
343	4 826 (0 190)	5.080 (0.200)	5.334 (0 210)	5.613 (0 221)	5.588 (0.220)	5 613 (0.221)	5.334 (0.210)
344	5 588 (0 220)	5 461 (0.215)	5.232 (0 206)	5 232 (0.206)	4.775 (0.188)	4 445 (0.175)	5.131 (0.202)
345	4.039 (0.159)	5 131 (0.202)	5.309 (0 209)	5.410 (0 213)	4 470 (0 176)	5 055 (0 199)	4.902 (0.193)
346	5 080 (0 200)	6.223 (0 245)	4 724 (0.186)	5.486 (0.216)	5.537 (0.218)	5.639 (0 222)	5.461 (0.215)
347	4 978 (0 196)	5.207 (0.205)	4.953 (0 195)	5 080 (0 200)	5.156 (0.203)	5 410 (0.213)	5.131 (0.202)
348	3 912 (0 154)	3 607 (0 142)	3.327 (0 131)	3.454 (0.136)	3.327 (0 131)	3 835 (0.151)	3.581 (0.141)
349	4 775 (0 188)	4 547 (0.179)	4 674 (0.184)	4 978 (0 196)	4.801 (0.189)	5.055 (0.199)	4.801 (0.189)
350	5.461 (0.215)	5.283 (0.208)	5.817 (0.229)	5.486 (0.216)	5.588 (0.220)	6.223 (0.245)	5.639 (0.222)
351	4.572 (0.180)	5.055 (0.199)	4.775 (0.188)	4.851 (0.191)	4.801 (0.189)	4.470 (0 176)	4.750 (0.187)

Notes

1 Average penetration for all tests 4 826 mm (0 190 in.)

2 Standard deviation 0.584 mm (0.023 in.)

3. Probability of cutting greater than

4.445 mm (0.175 in.)	is	75%
4.089 mm (0.161 in.)		90%
3.861 mm (0.152 in.)		95%
3.480 mm (0.137 in.)		99%

4 Probability of cutting between

4.166 mm (0.164 in.)	and	5.486 mm (0.216 in.)	is	75%
3 861 mm (0.152 in.)		5.791 mm (0.228 in.)		90%
3 663 mm (0.145 in)		5.969 mm (0.235 in.)		95%
3.327 mm (0.131 in.)		6.325 mm (0 249 in)		99%

TABLE B-28. PENETRATION DEPTHS FOR 125-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 1.981-MM (0.078-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
352	5.004 (0.197)	4.166 (0.164)	3.835 (0.151)	5.004 (0.197)	3.658 (0.144)	4.166 (0.164)	4.318 (0.170)
353	4.826 (0.191)	4.293 (0.169)	4.674 (0.184)	5.004 (0.197)	4.115 (0.162)	4.750 (0.187)	4.623 (0.182)
354	5.283 (0.208)	6.375 (0.251)	6.833 (0.269)	6.706 (0.264)	6.198 (0.244)	6.096 (0.240)	6.248 (0.246)
355	3.708 (0.146)	5.055 (0.199)	4.978 (0.196)	5.105 (0.201)	4.674 (0.184)	4.191 (0.165)	4.623 (0.182)
356	7.645 (0.301)	6.579 (0.259)	6.528 (0.257)	6.426 (0.253)	6.375 (0.251)	4.801 (0.198)	6.426 (0.253)
357	7.417 (0.292)	6.985 (0.275)	6.782 (0.267)	6.756 (0.266)	6.629 (0.261)	5.461 (0.215)	6.680 (0.263)
358	7.239 (0.285)	8.026 (0.316)	8.052 (0.317)	7.823 (0.308)	7.442 (0.293)	7.823 (0.308)	7.747 (0.305)
359	4.089 (0.161)	6.934 (0.273)	6.960 (0.274)	5.664 (0.223)	6.198 (0.244)	6.553 (0.258)	6.071 (0.239)
360	6.452 (0.254)	7.010 (0.276)	4.978 (0.196)	6.909 (0.272)	7.137 (0.281)	7.976 (0.314)	6.756 (0.266)
361	4.623 (0.182)	4.242 (0.167)	4.547 (0.179)	4.953 (0.195)	4.902 (0.193)	5.283 (0.208)	4.750 (0.187)
362	6.172 (0.243)	6.096 (0.240)	6.833 (0.269)	5.969 (0.235)	5.690 (0.224)	5.461 (0.215)	6.045 (0.238)
363	6.325 (0.249)	5.613 (0.221)	5.639 (0.222)	6.350 (0.250)	5.969 (0.235)	6.934 (0.273)	6.147 (0.242)
364	5.664 (0.223)	6.096 (0.240)	5.842 (0.230)	5.715 (0.225)	5.944 (0.234)	5.690 (0.224)	5.817 (0.229)

Notes

1 Average penetration for all tests 5.867 mm (0.231 in.)

2 Standard deviation 1.016 mm (0.040 in.)

3 Probability of cutting greater than

5.182 mm (0.204 in.)	75%
4.572 mm (0.180 in.)	90%
4.191 mm (0.165 in.)	95%
3.505 mm (0.138 in.)	99%

4 Probability of cutting between

4.699 mm (0.185 in.)		7.036 mm (0.277 in.)	75%
4.191 mm (0.165 in.)	and	7.544 mm (0.297 in.)	90%
3.886 mm (0.153 in.)		7.849 mm (0.309 in.)	95%
3.277 mm (0.129 in.)		8.458 mm (0.333 in.)	99%

TABLE B-29. PENETRATION DEPTHS FOR 225-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 3.607-MM (0.142-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
365	7.899 (0.311)	6.934 (0.273)	7.874 (0.310)	8.128 (0.320)	8 890 (0.350)	6 375 (0 251)	7.696 (0.303)
366	8 280 (0.326)	8.890 (0.350)	9.728 (0.383)	7.518 (0.296)	7 518 (0.296)	5 918 (0.233)	7.976 (0.314)
367	6.375 (0.251)	7 163 (0 282)	6 528 (0.257)	7 036 (0.277)	6 858 (0.270)	5 182 (0.204)	6.528 (0.257)
368	5 512 (0.217)	5 055 (0.199)	6.426 (0 253)	6 731 (0.265)	6 452 (0.254)	5 639 (0.222)	5.969 (0.235)
369	8.230 (0.324)	7 137 (0.281)	8.103 (0 319)	6 553 (0.258)	9.347 (0.368)	8 687 (0.342)	8 001 (0.315)
370	7.645 (0.301)	8.382 (0.330)	9.398 (0.370)	8.611 (0.339)	9 296 (0.366)	7.214 (0.284)	8.433 (0.332)
371	6.325 (0.249)	7.214 (0.284)	6.020 (0.237)	9.347 (0.368)	7 442 (0.293)	6.706 (0.264)	7.188 (0.283)
372	5.055 (0.199)	5.232 (0.206)	7.468 (0.294)	7.442 (0 293)	6.553 (0.258)	6.909 (0.272)	6.452 (0.254)
373	7 417 (0 292)	7.315 (0.288)	7.366 (0.290)	7.341 (0.289)	7 315 (0.288)	7.925 (0.312)	7.442 (0.293)
374	8 230 (0.324)	8.992 (0 354)	8 738 (0 344)	6.401 (0.252)	7.595 (0.299)	6.502 (0.256)	7.747 (0.305)
375	8.687 (0.342)	8.001 (0 315)	7 544 (0.297)	6.223 (0.245)	6.325 (0.249)	8.052 (0.317)	7.468 (0.294)
376	7.010 (0.276)	6.223 (0.245)	6.858 (0.270)	5.864 (0.231)	7.493 (0.295)	6.071 (0.239)	6.579 (0 259)
377	6.655 (0.262)	7.417 (0.292)	7.925 (0 312)	7.417 (0.292)	7.620 (0 300)	5.232 (0.206)	7.036 (0.277)

Notes

1 Average penetration for all tests 7.264 mm (0.286 in.)

2 Standard deviation 0 737 mm (0.029 in.)

3 Probability of cutting greater than

6.782 mm (0.267 in)	is	75%
6.325 mm (0.249 in.)		90%
6 045 mm (0.238 in.)		95%
5.486 mm (0.216 in)		99%

4 Probability of cutting between

6.426 mm (0.253 in.)	and	8.103 mm (0.319 in.)	is	75%
6.045 mm (0.238 in)		8.484 mm (0.334 in.)		90%
5.817 mm (0.229 in.)		8.712 mm (0.343 in.)		95%
5.385 mm (0.212 in.)		9.144 mm (0.360 in.)		99%

TABLE B-30. PENETRATION DEPTHS FOR 300-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 3.302 MM (0.130-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
378	7.442 (0.293)	11.328 (0.446)	11.684 (0.460)	10.668 (0.420)	10.973 (0.432)	7.976 (0.314)	10.008 (0.394)
379	7.925 (0.312)	10.363 (0.408)	9.982 (0.393)	8.763 (0.345)	9.855 (0.388)	7.239 (0.285)	9.017 (0.355)
380	10.947 (0.431)	10.049 (0.413)	10.029 (0.405)	10.059 (0.417)	10.617 (0.418)	6.960 (0.274)	9.982 (0.393)
381	10.566 (0.416)	9.957 (0.392)	9.855 (0.388)	9.754 (0.384)	10.135 (0.399)	7.645 (0.301)	9.652 (0.380)
382	9.017 (0.355)	9.754 (0.384)	10.389 (0.409)	9.754 (0.384)	9.703 (0.382)	7.239 (0.285)	9.322 (0.367)
383	8.509 (0.335)	7.976 (0.314)	8.611 (0.339)	7.798 (0.307)	7.722 (0.304)	8.992 (0.354)	8.280 (0.326)
384	9.931 (0.391)	11.227 (0.442)	9.119 (0.359)	10.026 (0.404)	9.957 (0.392)	8.687 (0.342)	9.855 (0.388)
385	9.906 (0.390)	10.592 (0.417)	10.516 (0.414)	9.982 (0.393)	10.109 (0.398)	7.645 (0.301)	9.804 (0.386)
386	8.534 (0.336)	10.541 (0.415)	10.414 (0.410)	10.211 (0.402)	9.982 (0.393)	9.423 (0.371)	9.855 (0.388)
387	9.144 (0.360)	8.230 (0.324)	8.534 (0.336)	9.296 (0.366)	7.798 (0.307)	8.890 (0.350)	8.661 (0.341)
388	8.458 (0.333)	8.839 (0.348)	9.779 (0.385)	8.103 (0.319)	8.255 (0.325)	7.315 (0.288)	8.458 (0.333)
389	8.661 (0.341)	8.306 (0.327)	8.636 (0.340)	7.772 (0.306)	7.696 (0.303)	8.103 (0.319)	8.204 (0.323)
390	9.373 (0.369)	9.450 (0.372)	10.236 (0.403)	9.398 (0.370)	9.652 (0.380)	7.772 (0.306)	9.322 (0.367)

Notes

1. Average penetration for all tests 9.271 mm (0.365 in.)
2. Standard deviation 0.660 mm (0.026 in.)
3. Probability of cutting greater than

8.839 mm (0.348 in.)	is	75%
8.433 mm (0.332 in.)		90%
8.179 mm (0.322 in.)		95%
7.747 mm (0.305 in.)		99%

4. Probability of cutting between

8.509 mm (0.335 in.)	and	10.033 mm (0.395 in.)	is	75%
8.179 mm (0.322 in.)		10.363 mm (0.408 in.)		90%
7.976 mm (0.314 in.)		10.566 mm (0.416 in.)		95%
7.569 mm (0.298 in.)		10.973 mm (0.432 in.)		99%

TABLE B-31. PENETRATION DEPTHS FOR 400-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 3.175-MM (0.125-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at.						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
391	7.366 (0 290)	8 992 (0 354)	8 814 (0.347)	9.195 (0 362)	3.890 (0.365)	10.211 (0.402)	8.966 (0 353)
392	9 322 (0 367)	9.169 (0.361)	7.723 (0.304)	8 357 (0 329)	8.890 (0.350)	9.144 (0 360)	8.763 (0.345)
393	8 966 (0.353)	8 712 (0 343)	9.754 (0.384)	9.576 (0.377)	9.296 (0.366)	9 906 (0.390)	9.373 (0.369)
394	8.179 (0.322)	8 763 (0.345)	8.611 (0 339)	9.119 (0 359)	10.160 (0.400)	8.941 (0.352)	8.966 (0.353)
395	8 661 (0 341)	8.687 (0.342)	8 103 (0 319)	8.433 (0 332)	8.788 (0.346)	9.144 (0.360)	8 636 (0.340)
396	8 839 (0.348)	10 262 (0 404)	9.322 (0 367)	11.328 (0.446)	10.465 (0.412)	10.363 (0 408)	10.109 (0.398)
397	8 865 (0 349)	9 906 (0.390)	10.236 (0.403)	10.211 (0.402)	8 712 (0.343)	9.931 (0.391)	9.652 (0.380)
398	8 839 (0 348)	9 576 (0 377)	10.262 (0.404)	9.677 (0 381)	8.052 (0.317)	11.303 (0.445)	9.627 (0.379)
399	8 915 (0 351)	12 192 (0 480)	12.700 (0.500)	12.725 (0.501)	10.363 (0 408)	11.735 (0.462)	11.430 (0 450)
400	11 379 (0 448)	13.437 (0.529)	12 344 (0.486)	12 700 (0 500)	13.538 (0.533)	12.014 (0.473)	12 573 (0.495)
401	10 058 (0 396)	8.738 (0.344)	10.617 (0 418)	11.354 (0.447)	11.303 (0.445)	9.652 (0.380)	10.287 (0.405)
402	10.033 (0.395)	10.770 (0 424)	11.049 (0.435)	10.897 (0.429)	9.804 (0.386)	9.957 (0 392)	10.414 (0.410)
403	9 017 (0.355)	9.525 (0 375)	10.922 (0.430)	10.897 (0.429)	10.744 (0.423)	8.407 (0.331)	9.931 (0.391)

Notes

1. Average penetration for all tests 9.906 mm (0.390 in)

2 Standard deviation 1.118 mm (0 044 in)

3 Probability of cutting greater than

9.169 mm (0.361 in.)	is	75%
8.484 mm (0 334 in.)		90%
8.052 mm (0.317 in)		95%
7.315 mm (0.288 in.)		99%

4 Probability of cutting between

8.611 mm (0 339 in.)	and	11.201 mm (0 441 in.)	is	75%
8 077 mm (0.318 in.)		11.735 mm (0 462 in)		90%
7 722 mm (0.304 in.)		12 090 mm (0 476 in.)		95%
7.036 mm (0.277 in.)		12 776 mm (0.503 in.)		99%

TABLE B-32. PENETRATION DEPTHS FOR 500-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 4.953-MM (0.195-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
404	12.421 (0.489)	10.617 (0.418)	13.284 (0.523)	11.684 (0.460)	10.262 (0.404)	10.003 (0.394)	11.379 (0.448)
405	9.906 (0.390)	8.306 (0.327)	9.525 (0.375)	8.890 (0.350)	9.627 (0.379)	8.763 (0.345)	9.169 (0.361)
406	8.153 (0.321)	8.331 (0.328)	9.246 (0.364)	8.382 (0.330)	7.772 (0.306)	11.887 (0.468)	8.966 (0.353)
407	8.585 (0.388)	9.601 (0.378)	9.881 (0.389)	10.160 (0.400)	9.652 (0.380)	8.382 (0.330)	9.601 (0.378)
408	7.112 (0.280)	8.230 (0.324)	8.103 (0.319)	8.280 (0.326)	8.306 (0.327)	7.417 (0.292)	7.899 (0.311)
409	9.576 (0.377)	9.677 (0.381)	9.449 (0.372)	9.855 (0.388)	10.185 (0.401)	8.382 (0.330)	9.525 (0.375)
[illegible]	7.849 (0.309)	11.049 (0.435)	9.017 (0.355)	9.906 (0.390)	10.389 (0.409)	8.484 (0.334)	9.449 (0.372)
411	7.518 (0.296)	8.560 (0.337)	9.119 (0.359)	8.966 (0.353)	8.865 (0.349)	9.271 (0.365)	8.712 (0.343)
412	8.636 (0.340)	8.763 (0.345)	8.788 (0.346)	9.500 (0.374)	9.144 (0.360)	7.518 (0.296)	8.738 (0.344)
413	7.366 (0.290)	8.763 (0.345)	9.906 (0.390)	9.703 (0.382)	10.846 (0.427)	9.601 (0.378)	9.373 (0.369)
414	7.518 (0.296)	8.890 (0.350)	9.449 (0.372)	9.271 (0.365)	10.414 (0.410)	9.322 (0.367)	9.144 (0.360)
415	4.267 (0.168)	3.962 (0.156)	3.378 (0.133)	5.944 (0.234)	5.461 (0.215)	5.639 (0.222)	4.775 (0.188)
416	9.474 (0.373)	9.652 (0.380)	10.643 (0.419)	10.897 (0.429)	10.077 (0.424)	9.449 (0.372)	10.160 (0.400)

Notes

1. Average penetration for all tests 8.992 mm (0.354 in.)
2. Standard deviation 1.500 mm (0.059 in.)
3. Probability of cutting greater than

7.976 mm (0.314 in.)	is	75%
7.087 mm (0.279 in.)		90%
6.528 mm (0.257 in.)		95%
5.512 mm (0.217 in.)		99%

4. Probability of cutting between

7.264 mm (0.286 in.)	and	10.719 mm (0.422 in.)	is	75%
6.528 mm (0.257 in.)		11.455 mm (0.451 in.)		90%
6.071 mm (0.239 in.)		11.913 mm (0.469 in.)		95%
5.156 mm (0.203 in.)		12.827 mm (0.505 in.)		99%

TABLE B-33. PENETRATION DEPTHS FOR 600-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 6.096-MM (0.240-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
417	8 255 (0.325)	9.779 (0.385)	10 109 (0.398)	9 982 (0 393)	9 957 (0 392)	8 712 (0 343)	9.474 (0 373)
418	8.484 (0 334)	8.687 (0 342)	7 747 (0.305)	8 484 (0.334)	9 322 (0 367)	9 042 (0 356)	8 636 (0.340)
419	8.001 (0 315)	7.925 (0 312)	7.671 (0 302)	8.966 (0.353)	8.687 (0 342)	9 093 (0 358)	8.382 (0.330)
420	7 692 (0.303)	8 534 (0 336)	8.077 (0.318)	8.230 (0.324)	9 042 (0.356)	8.890 (0.350)	8.407 (0.331)
421	7 747 (0 305)	8.636 (0.340)	9.271 (0 365)	10 871 (0 428)	9 017 (0 355)	11 151 (0.439)	9 449 (0 372)
422	8 382 (0 330)	8 407 (0.331)	10.008 (0 397)	8 712 (0.343)	8 941 (0 352)	8.407 (0.331)	8 814 (0 347)
423	8 611 (0.399)	10 820 (0.426)	10.033 (0.395)	10.262 (0.404)	9 423 (0 371)	6.375 (0 251)	9 500 (0 374)
424	10 312 (0 406)	10.236 (0 403)	10 236 (0.403)	11.557 (0 455)	9 347 (0 368)	10.338 (0.407)	10 338 (0 407)
425	9 271 (0 365)	10.719 (0.422)	10.490 (0.413)	10.937 (0 432)	10 922 (0.430)	9 093 (0.358)	10 236 (0 403)
426	8 306 (0 327)	8 738 (0.344)	9 906 (0 390)	8.992 (0.354)	8 611 (0.339)	7.188 (0.283)	8 636 (0.340)
427	9 855 (0.388)	9.500 (0 374)	9.550 (0.376)	10.770 (0 424)	9 017 (0 355)	11 557 (0 455)	10 033 (0 395)
428	10 998 (0 433)	10.236 (0.403)	11 633 (0.458)	10.439 (0.411)	10 566 (0.416)	11 328 (0.446)	10.871 (0 428)
429	6 833 (0.269)	7.692 (0.303)	7.645 (0.301)	6.985 (0.275)	9.119 (0.359)	9.906 (0.390)	8.026 (0 316)

Notes

1. Average penetration for all tests 9.296 mm (0.366 in.)
2. Standard deviation: 0.889 mm (0.035 in.)
3. Probability of cutting greater than

8 687 mm (0.342 in.)	is	75%
8.179 mm (0.322 in.)		90%
7.823 mm (0.308 in.)		95%
7.239 mm (0.285 in.)		99%

4. Probability of cutting between

8 280 mm (0.326 in.)	and	10.312 mm (0.406 in.)	is	75%
7.849 mm (0.309 in.)		10.744 mm (0 423 in.)		90%
7.569 mm (0.298 in.)		11.024 mm (0.434 in.)		95%
7.010 mm (0.276 in.)		11.582 mm (0.456 in.)		99%

TABLE B-34. PENETRATION DEPTHS FOR 20-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 1.321-MM (0.052-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
430	0.813 (0.032)	0.432 (0.017)	0.559 (0.022)	0.457 (0.018)	0.635 (0.025)	0.686 (0.027)	0.610 (0.024)
431	0.914 (0.036)	0.787 (0.031)	0.762 (0.030)	0.813 (0.032)	0.813 (0.032)	1.168 (0.046)	0.889 (0.035)
432	1.397 (0.055)	0.889 (0.035)	1.295 (0.051)	1.092 (0.043)	1.321 (0.052)	1.422 (0.056)	1.245 (0.049)
433	0.965 (0.038)	1.067 (0.042)	1.143 (0.045)	0.889 (0.035)	0.610 (0.024)	0.838 (0.033)	0.914 (0.036)
434	0.635 (0.025)	0.889 (0.035)	0.991 (0.039)	1.041 (0.041)	0.762 (0.030)	0.838 (0.033)	0.864 (0.034)
435	1.346 (0.053)	1.372 (0.054)	1.067 (0.042)	1.067 (0.042)	1.245 (0.049)	1.194 (0.047)	1.219 (0.048)
436	0.914 (0.036)	0.737 (0.029)	0.635 (0.025)	0.660 (0.026)	0.559 (0.022)	0.787 (0.031)	0.711 (0.028)
437	1.016 (0.040)	1.143 (0.045)	1.067 (0.042)	0.965 (0.038)	0.864 (0.034)	1.295 (0.051)	1.067 (0.042)
438	1.016 (0.040)	0.813 (0.032)	0.762 (0.030)	0.838 (0.033)	0.762 (0.030)	1.067 (0.042)	0.889 (0.035)
439	1.092 (0.043)	1.041 (0.041)	0.838 (0.033)	0.737 (0.029)	0.737 (0.029)	1.194 (0.047)	0.940 (0.037)
440	1.016 (0.040)	0.838 (0.033)	0.991 (0.039)	0.838 (0.033)	0.635 (0.025)	0.889 (0.035)	0.864 (0.034)
441	1.016 (0.040)	0.838 (0.033)	0.762 (0.030)	0.762 (0.030)	1.067 (0.042)	1.118 (0.044)	0.940 (0.037)
442	0.991 (0.039)	0.889 (0.035)	0.914 (0.036)	0.737 (0.029)	1.016 (0.040)	0.762 (0.030)	0.889 (0.035)

Notes

1. Average penetration for all tests 0.914 mm (0.036 in.)
2. Standard deviation 0.178 mm (0.007 in.)
3. Probability of cutting greater than

0.787 mm (0.031 in.)	is	75%
0.686 mm (0.027 in.)		90%
0.635 mm (0.025 in.)		95%
0.508 mm (0.020 in.)		99%

4. Probability of cutting between

0.711 mm (0.028 in.)	and	1.118 mm (0.044 in.)	is	75%
0.635 mm (0.025 in.)		1.192 mm (0.047 in.)		90%
0.559 mm (0.022 in.)		1.270 mm (0.050 in.)		95%
0.457 mm (0.018 in.)		1.372 mm (0.054 in.)		99%

TABLE B-35. PENETRATION DEPTHS FOR 30-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 1.321-MM (0.052-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
443	1.676 (0.066)	1 676 (0.066)	1 346 (0.053)	1 422 (0 056)	1 727 (0 068)	1.778 (0 070)	1 600 (0 063)
444	1 702 (0.067)	1 473 (0 058)	1 448 (0.057)	1 422 (0.056)	1 346 (0 053)	1.778 (0.070)	1 524 (0.060)
445	2.134 (0.084)	2.134 (0.084)	2 134 (0 084)	2.362 (0 093)	2.083 (0.082)	1.702 (0.067)	2.083 (0.082)
446	1.803 (0.071)	1.956 (0.077)	1.778 (0.070)	1 676 (0 066)	1.829 (0.072)	1 422 (0 056)	1.753 (0 069)
447	1.854 (0.073)	1.549 (0 061)	1.727 (0 068)	1 626 (0.064)	1 676 (0 066)	1.880 (0.074)	1 727 (0 068)
448	1 422 (0.056)	1.905 (0.075)	1 727 (0 068)	1 422 (0 056)	1.600 (0 063)	1 524 (0 060)	1 600 (0 063)
449	1 981 (0.078)	1.651 (0.065)	1 575 (0.062)	1 829 (0.072)	1.651 (0.065)	1 575 (0 062)	1 702 (0 067)
450	1.778 (0.070)	1.727 (0.068)	1.600 (0 063)	1 702 (0.067)	2 057 (0 081)	1.778 (0.070)	1.778 (0 070)
451	1 270 (0.050)	1.676 (0 066)	1 778 (0.070)	1.651 (0 065)	1.727 (0.068)	1.905 (0 075)	1 676 (0.066)
452	1.245 (0.049)	1 676 (0 066)	1 626 (0.064)	1.134 (0.053)	1 727 (0.068)	1.626 (0.064)	1.549 (0 061)
453	1 930 (0 076)	1.499 (0.059)	1.854 (0.073)	1.753 (0.069)	1.651 (0.065)	1.854 (0 073)	1 753 (0 069)
454	1 778 (0.070)	2.159 (0.085)	1 295 (0.051)	1.981 (0.078)	1.803 (0.071)	1.753 (0.069)	1.803 (0.071)
455	0.991 (0.039)	0.914 (0 036)	0.838 (0.033)	1.041 (0 041)	0.889 (0.035)	1.092 (0.043)	0.965 (0 038)

Notes

1 Average penetration for all tests 1.651 mm (0.065 in.)

2 Standard deviation 0 254 mm (0.010 in.)

3. Probability of cutting greater than

1.473 mm (0.058 in.)	is	75%
1.321 mm (0.052 in.)		90%
1.245 mm (0.049 in.)		95%
1.067 mm (0.042 in.)		99%

4 Probability of cutting between

1 372 mm (0 054 in.)	and	1.956 mm (0.077 in.)	is	75%
1.245 mm (0.049 in.)		2.057 mm (0.081 in.)		90%
1.168 mm (0 046 in.)		2.159 mm (0.085 in.)		95%
0.991 mm (0.039 in.)		2.311 mm (0.091 in.)		99%

TABLE B-36. PENETRATION DEPTHS FOR 40-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 1.651-MM (0.065-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
456	2 083 (0.082)	1 829 (0 072)	1 702 (0 067)	2.235 (0 088)	1 727 (0 068)	2 515 (0 099)	2 007 (0.079)
457	1 727 (0 068)	1 854 (0 073)	1 651 (0 065)	1 956 (0 077)	1 549 (0 061)	1 753 (0.069)	1 753 (0 069)
458	1 803 (0.071)	1.956 (0 077)	1 930 (0 076)	1 626 (0.064)	2.007 (0 079)	2 159 (0 085)	1.905 (0.075)
459	1.600 (0 063)	1 422 (0 056)	1.422 (0.056)	2.540 (0.062)	1 803 (0.071)	1.676 (0.066)	2.540 (0.062)
460	1.473 (0 058)	1 854 (0 073)	1 956 (0.077)	2.032 (0.080)	2 286 (0 090)	1 880 (0 074)	1.905 (0.075)
461	1 219 (0 048)	2.540 (0 062)	1 981 (0 078)	1 702 (0 067)	1 499 (0.059)	1.753 (0.069)	1.778 (0 070)
462	1 778 (0.070)	1 905 (0.075)	2.032 (0.080)	1 905 (0 075)	1 880 (0 074)	1 930 (0 076)	1.905 (0.075)
463	1 600 (0.063)	1 245 (0.049)	1 880 (0.074)	1 626 (0 064)	1 600 (0.063)	1.930 (0 076)	1.651 (0.065)
464	1 651 (0.065)	2 235 (0 088)	1.295 (0 051)	2.007 (0.079)	2 261 (0 089)	1.524 (0 060)	1 829 (0 072)
465	1 753 (0.069)	1 626 (0.064)	1 702 (0.067)	1.727 (0.068)	2 032 (0 080)	1.854 (0.073)	1 803 (0 071)
466	1 626 (0.064)	1.981 (0 078)	1.600 (0.063)	1.727 (0.068)	1 219 (0 048)	2.362 (0 093)	1.753 (0 069)
467	1.626 (0.064)	1.981 (0.078)	1 778 (0.070)	1.956 (0.077)	1 702 (0.067)	2.032 (0.080)	1.854 (0.073)
468	2.108 (0.083)	2.007 (0.079)	1 829 (0.072)	1.930 (0.076)	1 448 (0 057)	2.261 (0.089)	1.930 (0 076)

Notes

1 Average penetration for all tests 1.829 mm (0.072 in.)

2 Standard deviation 0 127 mm (0 005 in)

3 Probability of cutting greater than

1.753 mm (0.069 in.)	is	75%
1.676 mm (0 066 in.)		90%
1 626 mm (0.064 in)		95%
1.524 mm (0.060 in.)		99%

4 Probability of cutting between

1 676 mm (0.066 in)	and	1.981 mm (0.078 in.)	is	75%
1 626 mm (0.064 in.)		2 032 mm (0.080 in.)		90%
1 575 mm (0.062 in.)		2 083 mm (0.082 in.)		95%
1.499 mm (0.059 in.)		2 159 mm (0 085 in)		99%

TABLE B-37. PENETRATION DEPTHS FOR 60-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 2.235-MM (0.088-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
469	2.134 (0.084)	2.235 (0.088)	2.388 (0.094)	2.007 (0.079)	2.515 (0.099)	2.210 (0.087)	2.261 (0.089)
470	2.438 (0.096)	2.870 (0.113)	2.565 (0.101)	2.972 (0.117)	3.124 (0.123)	2.870 (0.113)	2.819 (0.111)
471	2.159 (0.085)	2.083 (0.082)	2.438 (0.096)	2.667 (0.105)	2.591 (0.102)	2.489 (0.098)	2.413 (0.095)
472	1.880 (0.074)	2.413 (0.095)	2.438 (0.096)	2.515 (0.099)	2.464 (0.097)	2.184 (0.086)	2.311 (0.091)
473	2.184 (0.086)	2.616 (0.103)	2.794 (0.110)	2.870 (0.113)	2.210 (0.087)	1.829 (0.072)	2.413 (0.095)
474	2.591 (0.102)	2.464 (0.097)	2.413 (0.095)	2.337 (0.092)	2.311 (0.091)	2.921 (0.115)	2.515 (0.099)
475	2.515 (0.099)	2.692 (0.106)	2.388 (0.094)	2.464 (0.097)	2.718 (0.107)	2.692 (0.106)	2.591 (0.102)
476	2.515 (0.099)	1.930 (0.076)	1.930 (0.076)	2.388 (0.094)	2.108 (0.083)	2.337 (0.092)	2.210 (0.087)
477	1.905 (0.075)	1.981 (0.078)	1.803 (0.071)	1.778 (0.070)	1.674 (0.066)	1.829 (0.072)	1.829 (0.072)
478	2.057 (0.081)	2.184 (0.086)	1.702 (0.067)	2.032 (0.080)	2.108 (0.083)	2.032 (0.080)	2.032 (0.080)
479	2.997 (0.118)	2.743 (0.108)	2.540 (0.100)	2.413 (0.095)	2.083 (0.082)	2.489 (0.098)	2.540 (0.100)
480	2.565 (0.101)	2.311 (0.091)	2.134 (0.084)	2.032 (0.080)	2.311 (0.091)	2.311 (0.091)	2.286 (0.090)
481	2.286 (0.090)	2.007 (0.079)	2.184 (0.086)	1.674 (0.066)	2.286 (0.090)	2.235 (0.088)	2.108 (0.083)

Notes

1. Average penetration for all tests 2.337 mm (0.092 in.)
2. Standard deviation 0.254 mm (0.010 in.)
3. Probability of cutting greater than

2.159 mm (0.085 in.)	is	75%
2.007 mm (0.079 in.)		90%
1.930 mm (0.076 in.)		95%
1.753 mm (0.069 in.)		99%

4. Probability of cutting between

2.057 mm (0.081 in.)	and	2.642 mm (0.104 in.)	is	75%
1.930 mm (0.076 in.)		2.743 mm (0.108 in.)		90%
1.854 mm (0.073 in.)		2.845 mm (0.112 in.)		95%
1.676 mm (0.066 in.)		3.000 mm (0.118 in.)		99%

TABLE B-38. PENETRATION DEPTHS FOR 75-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 2.438-MM (0.096-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
482	2.438 (0.096)	2.362 (0.093)	2.794 (0.110)	3.150 (0.124)	2.819 (0.111)	3.327 (0.131)	2.819 (0.111)
483	2.413 (0.095)	2.642 (0.104)	2.667 (0.105)	1.524 (0.060)	2.769 (0.109)	2.642 (0.104)	2.438 (0.096)
484	3.023 (0.119)	3.124 (0.123)	2.591 (0.102)	3.201 (0.126)	3.429 (0.135)	3.302 (0.130)	3.124 (0.123)
485	3.277 (0.129)	2.551 (0.128)	3.454 (0.136)	3.454 (0.136)	3.277 (0.129)	3.302 (0.130)	3.327 (0.131)
486	2.515 (0.099)	2.718 (0.107)	2.819 (0.111)	2.819 (0.111)	2.308 (0.086)	2.946 (0.116)	2.667 (0.105)
487	2.718 (0.107)	3.048 (0.120)	2.997 (0.118)	2.769 (0.109)	2.794 (0.110)	2.676 (0.103)	2.819 (0.111)
488	2.515 (0.099)	2.642 (0.104)	2.667 (0.105)	2.540 (0.100)	2.311 (0.091)	2.667 (0.105)	2.565 (0.101)
489	2.438 (0.096)	2.642 (0.104)	2.667 (0.105)	2.591 (0.102)	2.946 (0.116)	2.565 (0.101)	2.642 (0.104)
490	2.743 (0.108)	2.616 (0.103)	2.616 (0.113)	2.743 (0.108)	2.692 (0.106)	3.073 (0.121)	2.794 (0.110)
491	2.743 (0.108)	2.743 (0.108)	2.616 (0.103)	2.946 (0.116)	3.175 (0.125)	2.616 (0.103)	2.819 (0.111)
492	2.692 (0.106)	2.845 (0.112)	2.819 (0.111)	2.540 (0.103)	2.972 (0.117)	2.845 (0.112)	2.794 (0.110)
493	2.616 (0.103)	2.540 (0.100)	2.515 (0.099)	2.642 (0.104)	2.743 (0.108)	3.201 (0.126)	2.718 (0.107)
494	2.845 (0.112)	2.743 (0.108)	2.972 (0.117)	2.616 (0.113)	3.023 (0.119)	2.769 (0.109)	2.616 (0.113)

Notes

1. Average penetration for all tests 2.794 mm (0.110 in.)
2. Standard deviation 0.229 mm (0.009 in.)
3. Probability of cutting greater than

2.642 mm (0.104 in.)	is	75%
2.515 mm (0.099 in.)		90%
2.413 mm (0.095 in.)		95%
2.261 mm (0.089 in.)		99%

4. Probability of cutting between

2.540 mm (0.100 in.)	and	3.048 mm (0.120 in.)	is	75%
2.413 mm (0.095 in.)		3.175 mm (0.125 in.)		90%
2.337 mm (0.092 in.)		3.251 mm (0.128 in.)		95%
2.261 mm (0.089 in.)		3.378 mm (0.133 in.)		99%

TABLE B-39. PENETRATION DEPTHS FOR 125-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 1.981-MM (0.078-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
495	3.352 (0.132)	3.505 (0.138)	3.734 (0.147)	3.454 (0.136)	3.581 (0.141)	4.013 (0.158)	3.607 (0.142)
496	2.870 (0.113)	2.896 (0.114)	2.997 (0.118)	3.099 (0.122)	2.261 (0.089)	1.956 (0.077)	2.692 (0.106)
497	2.388 (0.094)	3.454 (0.136)	2.292 (0.115)	3.226 (0.127)	2.565 (0.101)	3.759 (0.148)	3.048 (0.120)
498	3.708 (0.146)	3.683 (0.145)	2.896 (0.144)	3.302 (0.130)	3.277 (0.129)	3.607 (0.142)	3.531 (0.139)
499	2.972 (0.117)	3.531 (0.139)	2.769 (0.109)	3.835 (0.151)	2.743 (0.108)	3.048 (0.120)	3.150 (0.124)
500	2.845 (0.112)	2.388 (0.094)	3.378 (0.133)	3.480 (0.137)	2.235 (0.088)	3.556 (0.140)	2.972 (0.117)
501	3.632 (0.143)	3.556 (0.140)	3.861 (0.152)	3.810 (0.150)	4.242 (0.167)	3.505 (0.138)	3.759 (0.148)
502	2.896 (0.144)	3.706 (0.146)	2.327 (0.162)	3.708 (0.146)	3.785 (0.149)	2.642 (0.104)	3.607 (0.142)
503	2.997 (0.118)	3.988 (0.157)	3.912 (0.154)	3.886 (0.153)	3.531 (0.139)	3.505 (0.138)	3.632 (0.143)
504	3.505 (0.138)	4.242 (0.167)	3.683 (0.145)	3.429 (0.135)	3.124 (0.123)	3.632 (0.143)	3.607 (0.142)
505	2.845 (0.112)	2.794 (0.110)	2.896 (0.114)	2.896 (0.114)	3.378 (0.133)	3.785 (0.149)	3.099 (0.122)
506	3.023 (0.119)	2.235 (0.088)	3.124 (0.123)	3.429 (0.135)	3.023 (0.119)	1.753 (0.069)	2.769 (0.109)
507	3.835 (0.151)	3.759 (0.148)	3.785 (0.149)	3.810 (0.150)	3.886 (0.153)	4.267 (0.168)	3.886 (0.153)

Notes

1. Average penetration for all tests 3.327 mm (0.131 in.)
2. Standard deviation: 0.406 mm (0.016 in.)
3. Probability of cutting greater than

	3.048 mm (0.120 in.)		75%
	2.819 mm (0.111 in.)	is	90%
	2.667 mm (0.105 in.)		95%
	2.337 mm (0.092 in.)		99%

4. Probability of cutting between

2.870 mm (0.113 in.)		3.785 mm (0.149 in.)		75%
2.667 mm (0.105 in.)	and	3.988 mm (0.157 in.)	is	90%
2.535 mm (0.998 in.)		4.115 mm (0.162 in.)		95%
2.286 mm (0.900 in.)		4.369 mm (0.172 in.)		99%

TABLE B-40. PENETRATION DEPTHS FOR 225-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 3.607-MM (0.142-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
508	4.064 (0.160)	4.394 (0.173)	4.216 (0.166)	4.191 (0.165)	3.835 (0.151)	3.632 (0.143)	4.064 (0.160)
509	4.445 (0.175)	3.861 (0.152)	4.039 (0.159)	3.658 (0.144)	3.835 (0.151)	3.988 (0.157)	3.962 (0.156)
510	3.277 (0.129)	3.962 (0.156)	4.623 (0.182)	5.232 (0.206)	5.156 (0.203)	4.039 (0.159)	4.394 (0.173)
511	3.810 (0.150)	4.293 (0.169)	3.785 (0.149)	3.632 (0.143)	2.921 (0.115)	3.429 (0.135)	3.658 (0.144)
512	4.851 (0.191)	4.674 (0.184)	3.607 (0.142)	4.801 (0.189)	4.877 (0.192)	3.454 (0.136)	4.369 (0.172)
513	3.810 (0.150)	3.531 (0.139)	3.708 (0.146)	4.445 (0.175)	4.674 (0.148)	4.089 (0.161)	3.886 (0.153)
514	5.232 (0.206)	5.385 (0.212)	4.572 (0.180)	3.251 (0.128)	5.029 (0.198)	4.343 (0.171)	4.648 (0.183)
515	3.962 (0.156)	5.664 (0.223)	5.080 (0.200)	5.563 (0.219)	5.207 (0.205)	3.531 (0.139)	4.826 (0.190)
516	4.470 (0.176)	4.191 (0.165)	3.302 (0.130)	3.302 (0.130)	2.896 (0.114)	3.226 (0.127)	3.556 (0.140)
517	2.972 (0.117)	3.353 (0.132)	4.013 (0.158)	4.369 (0.172)	4.623 (0.182)	4.547 (0.179)	3.988 (0.157)
518	3.556 (0.140)	3.886 (0.153)	3.175 (0.125)	3.988 (0.157)	3.734 (0.147)	3.505 (0.138)	3.632 (0.143)
519	4.039 (0.159)	5.131 (0.202)	4.851 (0.191)	3.861 (0.152)	3.683 (0.145)	4.140 (0.163)	4.293 (0.169)
520	2.692 (0.106)	4.496 (0.177)	3.353 (0.132)	2.921 (0.115)	2.769 (0.109)	2.388 (0.094)	3.099 (0.122)

Notes

1. Average penetration for all tests 4.039 mm (0.159 in.)
2. Standard deviation. 0.483 mm (0.019 in.)
3. Probability of cutting greater than

3.708 mm (0.146 in.)	is	75%
3.429 mm (0.135 in.)		90%
3.251 mm (0.128 in.)		95%
2.921 mm (0.115 in.)		99%

4. Probability of cutting between

3.480 mm (0.137 in.)	and	4.572 mm (0.180 in.)	is	75%
3.251 mm (0.128 in.)		4.826 mm (0.190 in.)		90%
3.100 mm (0.122 in.)		4.978 mm (0.196 in.)		95%
2.794 mm (0.110 in.)		5.283 mm (0.208 in.)		99%

TABLE B-41. PENETRATION DEPTHS FOR 300-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 3.302-MM (0.130-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
521	4.064 (0.160)	3.556 (0.140)	5.055 (0.199)	5.309 (0.209)	5.080 (0.200)	5.359 (0.211)	4.750 (0 187)
522	5.029 (0.198)	5.410 (0.213)	5.791 (0.228)	5.867 (0.231)	5.639 (0.222)	5.588 (0 220)	5.563 (0.219)
523	4.674 (0.184)	5.156 (0.203)	5.664 (0.223)	5.969 (0.235)	5.563 (0.219)	5.004 (0.197)	5.334 (0.210)
524	5.055 (0.199)	4.623 (0.182)	4.877 (0 192)	5.385 (0.212)	4.978 (0.196)	4.191 (0.165)	4.851 (0.191)
525	5.334 (0.210)	4.699 (0 185)	5.334 (0.210)	5.105 (0.201)	5.766 (0.227)	4.496 (0.177)	5.131 (0.202)
526	4.572 (0.180)	4.191 (0.165)	3.683 (0.145)	4.368 (0.172)	3.480 (0.137)	3.988 (0.157)	4.851 (0.191)
527	5.309 (0.209)	6.629 (0.261)	6.782 (0.267)	6.350 (0.250)	5.207 (0.205)	4.699 (0.185)	5.842 (0 230)
528	4.140 (0.163)	4.826 (0.190)	4.496 (0.177)	4.039 (0.159)	3.835 (0 151)	3.505 (0.138)	4.140 (0.163)
529	5.232 (0.206)	5.766 (0.227)	5 664 (0.223)	5.842 (0.230)	5.512 (0 217)	4.013 (0.158)	5.334 (0.210)
530	3.759 (0.148)	3.454 (0.136)	5.029 (0.198)	5.309 (0.209)	5 156 (0.203)	4.166 (0.164)	4.470 (0.176)
531	5.029 (0.198)	4.953 (0.195)	3.658 (0.144)	3.785 (0.149)	5.436 (0.214)	4.445 (0.175)	4.547 (0.179)
532	3.886 (0.153)	4.445 (0.175)	4.775 (0.188)	6.045 (0.238)	5.613 (0.221)	4.216 (0.166)	4 826 (0.190)
533	5.563 (0.219)	6.223 (0.245)	6.426 (0.253)	5.944 (0.234)	7.061 (0.278)	4.674 (0.184)	5.994 (0.236

Notes

1. Average penetration for all tests 5.029 mm (0.198 in.)
2. Standard deviation: 0.533 mm (0.021 in.)
3. Probability of cutting greater than

4.674 mm (0.184 in.)		75%
4.343 mm (0.171 in.)	is	90%
4.140 mm (0.163 in.)		95%
3.785 mm (0.149 in.)		99%

4. Probability of cutting between

4.394 mm (0.173 in.)		5.639 mm (0.222 in.)		75%
4.166 mm (0.164 in.)	and	5.893 mm (0.232 in.)	is	90%
3.988 mm (0.157 in.)		6.071 mm (0.239 in.)		95%
3.781 mm (0.149 in.)		6.401 mm (0.252 in.)		99%

TABLE B-42. PENETRATION DEPTHS FOR 400-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 3.175-MM (0.125-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
534	5.537 (0.218)	5.385 (0.212)	5.258 (0.207)	5.232 (0.206)	5.969 (0.235)	5.664 (0.223)	5.512 (0.217)
535	4.648 (0.183)	5.867 (0.231)	6.452 (0.254)	5.893 (0.232)	6.350 (0.250)	6.020 (0.237)	5.867 (0.231)
536	4.801 (0.189)	5.283 (0.208)	4.597 (0.181)	5.486 (0.216)	6.782 (0.267)	7.087 (0.279)	5.664 (0.223)
537	6.477 (0.255)	7.214 (0.284)	7.976 (0.314)	7.620 (0.300)	7.341 (0.289)	6.172 (0.243)	7.137 (0.281)
538	5.410 (0.213)	5.715 (0.225)	5.588 (0.220)	5.207 (0.205)	5.994 (0.236)	6.121 (0.241)	5.664 (0.223)
539	6.629 (0.261)	6.629 (0.261)	6.553 (0.258)	6.553 (0.258)	6.553 (0.258)	5.766 (0.227)	6.452 (0.254)
540	4.978 (0.196)	7.214 (0.284)	6.223 (0.245)	6.121 (0.241)	5.942 (0.234)	5.994 (0.236)	6.071 (0.239)
541	5.842 (0.230)	6.147 (0.242)	6.426 (0.253)	5.817 (0.229)	5.131 (0.202)	5.842 (0.230)	5.867 (0.231)
542	6.629 (0.261)	6.198 (0.244)	6.577 (0.259)	5.817 (0.229)	5.766 (0.227)	5.944 (0.234)	6.147 (0.242)
543	5.486 (0.216)	6.782 (0.267)	6.147 (0.242)	6.477 (0.255)	6.299 (0.248)	5.309 (0.209)	6.096 (0.240)
544	4.775 (0.188)	6.274 (0.247)	6.325 (0.249)	7.518 (0.296)	7.264 (0.286)	6.477 (0.255)	6.452 (0.254)
545	5.055 (0.199)	5.359 (0.211)	6.706 (0.264)	5.842 (0.230)	6.223 (0.245)	6.629 (0.261)	5.969 (0.235)
546	5.918 (0.233)	6.731 (0.265)	6.426 (0.253)	6.020 (0.237)	6.071 (0.239)	6.172 (0.243)	6.223 (0.245)

Notes

1. Average penetration for all tests 6.096 mm (0.240 in.)
2. Standard deviation 0.432 mm (0.017 in.)
3. Probability of cutting greater than

5.317 mm (0.229 in.)	is	75%
5.537 mm (0.218 in.)		90%
5.385 mm (0.212 in.)		95%
5.105 mm (0.201 in.)		99%

4. Probability of cutting between

5.588 mm (0.220 in.)	and	6.640 mm (0.260 in.)	is	75%
5.385 mm (0.212 in.)		6.807 mm (0.268 in.)		90%
5.512 mm (0.217 in.)		6.934 mm (0.273 in.)		95%
4.978 mm (0.196 in.)		7.214 mm (0.284 in.)		99%

TABLE B-43. PENETRATION DEPTHS FOR 500-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 4.953-MM (0.195-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
547	5.309 (0.209)	6.655 (0.262)	6.299 (0.248)	6.655 (0.262)	6.248 (0.246)	6.071 (0.239)	6.198 (0.244)
548	4.801 (0.189)	5.715 (0.225)	5.969 (0.235)	6.477 (0.255)	5.817 (0.229)	5.969 (0.235)	5.791 (0.228)
549	5.563 (0.219)	6.909 (0.272)	7.315 (0.288)	6.782 (0.267)	6.553 (0.253)	6.502 (0.256)	6.604 (0.260)
550	5.766 (0.227)	6.604 (0.260)	6.172 (0.243)	6.096 (0.240)	6.299 (0.248)	6.629 (0.261)	6.274 (0.247)
551	6.502 (0.256)	6.274 (0.247)	6.172 (0.243)	6.401 (0.252)	6.045 (0.238)	5.842 (0.230)	6.198 (0.244)
552	6.147 (0.242)	5.588 (0.220)	6.223 (0.245)	6.502 (0.256)	6.350 (0.250)	5.918 (0.233)	6.121 (0.241)
553	5.258 (0.207)	5.817 (0.229)	5.258 (0.207)	6.096 (0.240)	5.613 (0.221)	5.588 (0.220)	5.613 (0.221)
554	6.553 (0.258)	6.858 (0.270)	6.375 (0.251)	5.994 (0.236)	6.452 (0.254)	4.394 (0.173)	6.096 (0.240)
555	6.350 (0.250)	5.994 (0.236)	6.274 (0.247)	6.172 (0.243)	5.994 (0.236)	5.664 (0.223)	6.071 (0.239)
556	7.290 (0.287)	7.620 (0.300)	5.486 (0.216)	6.350 (0.250)	6.706 (0.264)	5.893 (0.232)	6.553 (0.258)
557	5.715 (0.225)	6.248 (0.246)	6.147 (0.242)	6.045 (0.238)	6.096 (0.240)	4.318 (0.170)	5.766 (0.227)
558	4.318 (0.170)	4.902 (0.193)	5.105 (0.201)	4.978 (0.196)	5.740 (0.226)	5.156 (0.203)	5.029 (0.198)
559	3.759 (0.148)	4.191 (0.165)	4.420 (0.174)	4.902 (0.193)	5.537 (0.218)	5.588 (0.220)	4.724 (0.186)

Notes

1. Average penetration for all tests: 5.918 mm (0.233 in.)
2. Standard deviation 0.559 mm (0.022 in.)
3. Probability of cutting greater than

5.537 mm (0.218 in.)		75%
5.207 mm (0.205 in.)	is	90%
5.004 mm (0.197 in.)		95%
4.623 mm (0.182 in.)		99%

4. Probability of cutting between

5.283 mm (0.208 in.)		6.553 mm (0.258 in.)		75%
5.004 mm (0.197 in.)	and	6.833 mm (0.269 in.)	is	90%
4.826 mm (0.190 in.)		7.010 mm (0.276 in.)		95%
4.496 mm (0.177 in.)		7.341 mm (0.289 in.)		99%

TABLE B-44. PENETRATION DEPTHS FOR 600-GRAIN-PER-FOOT FLEXIBLE LINEAR SHAPED CHARGES USED WITH A 6.096-MM (0.240-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
560	5.690 (0.224)	5.537 (0.218)	6.020 (0.237)	5.486 (0.216)	5.486 (0.216)	5.817 (0.229)	5.664 (0.223)
561	6.604 (0.260)	6.045 (0.238)	5.918 (0.233)	5.893 (0.232)	6.096 (0.240)	6.934 (0.273)	6.248 (0.246)
562	5.639 (0.222)	6.579 (0.259)	6.604 (0.260)	5.867 (0.231)	6.756 (0.266)	6.071 (0.239)	6.248 (0.246)
563	5.944 (0.234)	6.553 (0.258)	6.782 (0.267)	6.553 (0.258)	5.969 (0.235)	5.740 (0.226)	6.248 (0.246)
564	5.461 (0.215)	6.045 (0.238)	6.452 (0.254)	6.807 (0.268)	6.502 (0.256)	6.248 (0.246)	6.248 (0.246)
565	5.080 (0.200)	5.537 (0.218)	5.410 (0.213)	4.801 (0.189)	3.480 (0.137)	3.200 (0.126)	4.597 (0.181)
566	5.817 (0.229)	5.867 (0.231)	6.071 (0.239)	5.690 (0.224)	5.969 (0.235)	5.436 (0.214)	5.817 (0.229)
567	4.750 (0.187)	5.715 (0.225)	5.080 (0.200)	5.969 (0.235)	5.563 (0.219)	5.207 (0.205)	5.410 (0.213)
568	5.842 (0.230)	5.791 (0.228)	6.020 (0.237)	5.817 (0.229)	6.172 (0.243)	6.299 (0.248)	5.994 (0.236)
569	4.953 (0.195)	5.740 (0.226)	5.537 (0.218)	5.715 (0.225)	6.756 (0.266)	5.029 (0.198)	5.613 (0.221)
570	5.461 (0.215)	6.020 (0.237)	5.639 (0.222)	6.274 (0.247)	5.842 (0.230)	6.096 (0.240)	5.893 (0.232)
571	6.198 (0.244)	5.639 (0.222)	5.156 (0.203)	5.309 (0.209)	4.953 (0.195)	6.045 (0.238)	5.563 (0.219)
572	5.969 (0.235)	5.715 (0.225)	6.401 (0.252)	6.629 (0.261)	6.680 (0.263)	4.293 (0.169)	5.944 (0.234)

Notes

1. Average penetration for all tests 5.877 mm (0.229 in.)
2. Standard deviation 0.457 mm (0.018 in.)
3. Probability of cutting greater than

5.512 mm (0.217 in.)	is	75%
5.232 mm (0.206 in.)		90%
5.055 mm (0.199 in.)		95%
4.750 mm (0.187 in.)		99%

4. Probability of cutting between

5.283 mm (0.208 in.)	and	6.350 mm (0.250 in.)	is	75%
5.055 mm (0.199 in.)		6.579 mm (0.259 in.)		90%
4.923 mm (0.194 in.)		6.706 mm (0.264 in.)		95%
4.648 mm (0.183 in.)		7.000 mm (0.275 in.)		99%

TABLE B-45. PENETRATION DEPTHS FOR MARK 7 MOD 1 LINEAR SHAPED CHARGES USED WITH A 8.382-MM (0.330-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
573	5.486 (0.216)	6.731 (0.265)	6.477 (0.255)	6.528 (0.257)	6.655 (0.262)	3.200 (0.126)	5.840 (0.230)
574	8.153 (0.321)	7.747 (0.305)	6.020 (0.237)	7.849 (0.309)	5.867 (0.231)	3.048 (0.120)	6.452 (0.254)
575	6.528 (0.257)	6.909 (0.272)	7.112 (0.280)	7.671 (0.302)	4.648 (0.183)	3.327 (0.131)	6.045 (0.238)
576	7.798 (0.307)	8.103 (0.319)	7.518 (0.296)	8.128 (0.320)	8.560 (0.337)	5.486 (0.216)	7.595 (0.299)
577	6.858 (0.270)	7.976 (0.314)	7.518 (0.296)	7.645 (0.301)	8.153 (0.321)	7.010 (0.276)	7.518 (0.296)
578	5.740 (0.226)	5.766 (0.227)	5.182 (0.204)	5.156 (0.203)	6.401 (0.252)	3.251 (0.128)	5.258 (0.207)
579	6.325 (0.249)	6.198 (0.244)	6.223 (0.245)	5.740 (0.226)	7.010 (0.276)	2.743 (0.108)	5.715 (0.225)
580	4.648 (0.183)	6.350 (0.250)	7.518 (0.296)	6.579 (0.259)	5.613 (0.221)	5.918 (0.233)	6.096 (0.240)
581	5.182 (0.204)	6.756 (0.266)	5.893 (0.232)	6.909 (0.272)	5.156 (0.203)	3.200 (0.126)	5.512 (0.217)
582	6.502 (0.256)	6.629 (0.261)	7.137 (0.281)	6.223 (0.245)	6.071 (0.239)	3.556 (0.140)	6.020 (0.237)
583	7.214 (0.284)	7.061 (0.278)	7.163 (0.282)	6.248 (0.246)	7.264 (0.286)	3.302 (0.130)	6.375 (0.251)
584	7.671 (0.302)	7.036 (0.277)	5.944 (0.234)	7.874 (0.310)	7.087 (0.279)	4.367 (0.172)	6.655 (0.262)
585	5.969 (0.235)	7.061 (0.278)	7.239 (0.285)	7.417 (0.292)	4.953 (0.195)	3.454 (0.136)	6.020 (0.237)

Notes

1. Average penetration for all tests 6.248 mm (0.246 in.)
2. Standard deviation 0.686 mm (0.027 in.)
3. Probability of cutting greater than

5.791 mm (0.228 in.)	is	75%
5.385 mm (0.212 in.)		90%
5.105 mm (0.201 in.)		95%
4.648 mm (0.183 in.)		99%

4. Probability of cutting between

5.461 mm (0.215 in.)	and	7.036 mm (0.277 in.)	is	75%
5.131 mm (0.202 in.)		7.366 mm (0.290 in.)		90%
4.902 mm (0.193 in.)		7.595 mm (0.299 in.)		95%
4.496 mm (0.177 in.)		8.001 mm (0.315 in.)		99%

TABLE B-46. PENETRATION DEPTHS FOR MARK 7 MOD 2 LINEAR SHAPED CHARGES USED WITH A 8.382-MM (0.330-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
586	4.699 (0.185)	4.953 (0.195)	4.775 (0.188)	5.588 (0.220)	7.950 (0.313)	2.642 (0.104)	5.105 (0.201)
587	7.645 (0.301)	7.696 (0.303)	8.153 (0.321)	7.899 (0.311)	8.712 (0.343)	7.544 (0.297)	7.950 (0.313)
588	8.661 (0.341)	8.255 (0.325)	6.655 (0.262)	7.569 (0.298)	9.093 (0.358)	4.877 (0.192)	7.518 (0.296)
589	7.468 (0.294)	5.080 (0.200)	7.899 (0.311)	6.604 (0.260)	8.484 (0.334)	5.867 (0.231)	6.909 (0.272)
590	7.315 (0.288)	8.407 (0.331)	8.509 (0.335)	8.636 (0.340)	8.560 (0.337)	5.588 (0.220)	7.840 (0.309)
591	7.620 (0.300)	7.620 (0.300)	7.442 (0.293)	8.052 (0.317)	7.290 (0.287)	5.334 (0.210)	7.239 (0.285)
592	2.032 (0.280)	5.385 (0.212)	7.569 (0.298)	7.772 (0.306)	7.493 (0.295)	4.902 (0.193)	6.706 (0.264)
593	5.258 (0.207)	8.280 (0.326)	8.636 (0.340)	7.620 (0.300)	6.528 (0.257)	5.359 (0.211)	6.960 (0.274)
594	4.521 (0.178)	6.858 (0.270)	6.223 (0.245)	6.096 (0.240)	6.121 (0.241)	5.994 (0.236)	5.969 (0.235)
595	7.823 (0.308)	7.723 (0.304)	6.071 (0.239)	8.179 (0.322)	5.867 (0.231)	2.845 (0.112)	6.426 (0.253)
596	5.944 (0.234)	6.985 (0.275)	7.671 (0.302)	7.518 (0.296)	6.401 (0.252)	5.283 (0.208)	6.629 (0.261)
597	7.264 (0.286)	6.096 (0.240)	6.248 (0.246)	7.239 (0.285)	7.569 (0.298)	2.921 (0.115)	6.223 (0.245)
598	3.962 (0.156)	5.309 (0.209)	7.087 (0.279)	7.264 (0.286)	7.518 (0.296)	6.198 (0.244)	6.223 (0.245)

Notes

1. Average penetration for all tests 6.756 mm (0.266 in.)
2. Standard deviation 0.787 mm (0.031 in.)
3. Probability of cutting greater than

6.223 mm (0.245 in.)	is	75%
5.766 mm (0.227 in.)		90%
5.461 mm (0.215 in.)		95%
4.928 mm (0.194 in.)		99%

4. Probability of cutting between

5.842 mm (0.230 in.)		7.670 mm (0.302 in.)		75%
5.461 mm (0.215 in.)	and	8.052 mm (0.317 in.)	is	90%
5.232 mm (0.206 in.)		8.280 mm (0.326 in.)		95%
4.750 mm (0.187 in.)		8.763 mm (0.345 in.)		99%

TABLE B-47. PENETRATION DEPTHS FOR MARK 7 MOD 3 LINEAR SHAPED CHARGES USED WITH A 4.826-MM (0.190-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
599	4.242 (0.167)	4.242 (0.167)	4.039 (0.159)	4.064 (0.160)	3.658 (0.144)	4.699 (0.185)	4.166 (0.164)
600	3.124 (0.123)	4.343 (0.171)	3.277 (0.129)	4.623 (0.182)	4.902 (0.193)	3.962 (0.156)	4.039 (0.159)
601	5.232 (0.206)	4.674 (0.184)	5.259 (0.207)	6.553 (0.258)	5.359 (0.211)	3.531 (0.139)	5.105 (0.201)
602	4.293 (0.169)	4.851 (0.191)	4.521 (0.178)	3.734 (0.147)	5.055 (0.199)	3.531 (0.139)	4.343 (0.171)
603	3.962 (0.156)	3.912 (0.154)	3.912 (0.154)	4.775 (0.188)	5.486 (0.216)	4.496 (0.177)	4.420 (0.174)
604	5.893 (0.232)	5.055 (0.199)	5.156 (0.203)	5.105 (0.201)	5.486 (0.216)	2.845 (0.112)	4.928 (0.194)
605	4.039 (0.159)	4.699 (0.185)	4.343 (0.171)	5.080 (0.200)	4.013 (0.158)	3.556 (0.140)	4.293 (0.169)
606	6.426 (0.253)	4.496 (0.177)	4.826 (0.190)	5.309 (0.209)	4.801 (0.189)	4.293 (0.169)	5.029 (0.198)
607	5.156 (0.203)	4.521 (0.178)	5.207 (0.205)	5.486 (0.216)	7.061 (0.278)	5.461 (0.215)	5.486 (0.216)
608	3.658 (0.144)	6.045 (0.238)	4.978 (0.196)	4.978 (0.196)	5.436 (0.214)	4.191 (0.165)	4.877 (0.192)
609	4.724 (0.186)	5.385 (0.212)	3.201 (0.126)	4.623 (0.182)	3.556 (0.140)	2.616 (0.103)	4.013 (0.158)
610	4.115 (0.162)	4.394 (0.173)	4.470 (0.176)	6.401 (0.252)	4.572 (0.180)	2.515 (0.099)	4.420 (0.174)
611	3.912 (0.154)	3.073 (0.121)	3.785 (0.149)	4.547 (0.179)	4.623 (0.182)	2.337 (0.092)	3.708 (0.146)

Notes

1. Average penetration for all tests 4.521 mm (0.178 in.)
2. Standard deviation 0.508 mm (0.020 in.)
3. Probability of cutting greater than

4.191 mm (0.165 in.)	is	75%
3.886 mm (0.153 in.)		90%
3.683 mm (0.145 in.)		95%
3.353 mm (0.132 in.)		99%

4. Probability of cutting between

3.937 mm (0.155 in.)	and	5.105 mm (0.201 in.)	is	75%
3.683 mm (0.145 in.)		5.359 mm (0.211 in.)		90%
3.531 mm (0.139 in.)		5.512 mm (0.217 in.)		95%
3.226 mm (0.127 in.)		5.817 mm (0.229 in.)		99%

TABLE B-48. PENETRATION DEPTHS FOR MARK 7 MOD 4 LINEAR SHAPED CHARGES USED WITH A 9.652-MM (0.380-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at				Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	
612	10.693 (0 421)	16.053 (0.632)	15 723 (0 619)	4.775 (0 188)	11.811 (0.465)
613	12.700 (0 500)	12.573 (0 495)	14.529 (0.572)	7 493 (0 295)	11 836 (0 466)
614	13 614 (0 536)	14 021 (0 552)	12.090 (0.476)	8 306 (0.327)	12 014 (0.473)
615	14.199 (0.559)	13.767 (0.542)	12.827 (0.505)	7.645 (0 301)	12 116 (0 477)
616	15.469 (0.609)	11 049 (0 435)	8.763 (0.345)	5 842 (0.230)	10.287 (0.405)
617	15.951 (0.628)	15 875 (0.625)	16 078 (0.633)	8 458 (0.333)	14.097 (0 555
618	7 341 (0 289)	10 160 (0.400)	7.823 (0.308)	8 636 (0.340)	8.484 (0 334)
619	15.672 (0 617)	13 868 (0.546)	17.755 (0.699)	(11.024 (0.434)	14.580 (0.574)
620	8.103 (0 319)	11.024 (0 434)	6.325 (0.249)	8 331 (0 328)	8 458 (0.333)
621	10 693 (0 421)	14.224 (0 560)	13.487 (0.531)	8 509 (0 335)	11 735 (0 462)
622	14 122 (0.556)	17 043 (0.671)	11.100 (0.437)	5.664 (0.223)	11 989 (0.472)
623	10.135 (0.399)	8.280 (0.326)	11.252 (0.443)	8 484 (0.334)	9.550 (0.376)
624	8.611 (0.339)	12.344 (0.486)	10.058 (0.396)	6.553 (0.258)	8.636 (0.340)

Notes

1. Average penetration for all tests. 11.201 mm (0 441 in.)
2. Standard deviation. 1 981 mm (0.078 in)
3. Probability of cutting greater than

9 881 mm (0.389 in.)	is	75%
8.687 mm (0.342 in.)		90%
7.925 mm (0.312 in.)		95%
6 604 mm (0.260 in.)		99%

4. Probability of cutting between

8.915 mm (0.351 in)	and	13.487 mm (0.531 in.)	is	75%
7.950 mm (0.313 in.)		14 453 mm (0.569 in.)		90%
7.341 mm (0.289 in)		15.062 mm (0.593 in.)		95%
6.121 mm (0.241 in)		16.281 mm (0.641 in.)		99%

TABLE B-49. PENETRATION DEPTHS FOR MARK 7 MOD 5 LINEAR SHAPED CHARGES USED WITH A 9.652-MM (0.380-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
625	7.772 (0.306)	12.116 (0.477)	11.760 (0.463)	7.569 (0.298)	6.071 (0.239)	9.474 (0.373)	9.119 (0.359)
626	9.144 (0.360)	13.030 (0.513)	9.169 (0.361)	10.033 (0.395)	10.160 (0.400)	10.058 (0.396)	10.262 (0.404)
627	11.100 (0.437)	14.326 (0.564)	12.598 (0.496)	13.056 (0.514)	14.148 (0.557)	5.080 (0.200)	11.709 (0.461)
628	15.545 (0.612)	17.577 (0.692)	16.739 (0.659)	16.815 (0.662)	15.621 (0.615)	11.684 (0.460)	15.672 (0.617)
629	12.243 (0.482)	12.573 (0.495)	10.338 (0.407)	18.669 (0.735)	12.954 (0.510)	11.633 (0.458)	13.081 (0.515)
630	10.211 (0.402)	15.011 (0.591)	14.046 (0.553)	14.376 (0.566)	11.176 (0.440)	10.871 (0.428)	12.624 (0.497)
631	5.461 (0.215)	11.481 (0.452)	14.326 (0.564)	15.773 (0.621)	9.982 (0.393)	8.560 (0.337)	10.922 (0.430)
632	7.112 (0.280)	9.169 (0.361)	13.056 (0.514)	12.116 (0.477)	13.487 (0.531)	10.693 (0.421)	10.947 (0.431)
633	10.363 (0.408)	10.795 (0.425)	13.208 (0.520)	15.240 (0.600)	8.712 (0.343)	7.823 (0.308)	11.024 (0.434)
634	7.849 (0.309)	10.363 (0.408)	10.744 (0.423)	12.979 (0.511)	12.675 (0.499)	7.417 (0.292)	10.338 (0.407)
635	15.926 (0.627)	13.513 (0.532)	10.008 (0.394)	11.100 (0.437)	10.643 (0.419)	8.788 (0.346)	11.659 (0.459)
636	13.640 (0.537)	14.732 (0.580)	14.402 (0.567)	15.824 (0.623)	14.961 (0.589)	15.316 (0.603)	14.808 (0.583)
637	11.913 (0.469)	15.037 (0.592)	13.284 (0.523)	8.509 (0.335)	8.890 (0.350)	6.325 (0.249)	10.668 (0.420)

Notes

1. Average penetration for all tests 11.760 mm (0.463 in.)
2. Standard deviation 1.854 mm (0.073 in.)
3. Probability of cutting greater than

10.516 mm (0.414 in.)	is	75%
9.398 mm (0.370 in.)		90%
8.738 mm (0.344 in.)		95%
7.468 mm (0.294 in.)		99%

4. Probability of cutting between

9.627 mm (0.379 in.)	and	13.894 mm (0.547 in.)	is	75%
8.712 mm (0.343 in.)		14.808 mm (0.583 in.)		90%
8.153 mm (0.321 in.)		15.367 mm (0.605 in.)		95%
7.010 mm (0.276 in.)		16.510 mm (0.650 in.)		99%

TABLE B-50. PENETRATION DEPTHS FOR MARK 7 MOD 6 LINEAR SHAPED CHARGES USED WITH A 12.700-MM (0.500-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
638	18.059 (0 711)	11.354 (0.447)	15.570 (0 613)	20.117 (0.792)	17.526 (0.690)	9.804 (0 386)	15.481 (0.607)
639	17.450 (0.687)	18.136 (0.714)	18.440 (0.726)	14.478 (0.570)	16.104 (0 634)	8.763 (0.345)	15.570 (0.613)
640	13 208 (0.520)	17.475 (0.688)	18.847 (0.742)	18.034 (0.710)	14 097 (0.555)	14.275 (0 562)	16.002 (0.630)
641	13.513 (0 532)	19.126 (0.753)	20.523 (0 808)	16.231 (0.639)	10.871 (0.428)	8.788 (0.346)	14.834 (0.584)
642	12.878 (0.507)	18.923 (0.745)	16 561 (0.652)	16.713 (0.658)	15.926 (0.627)	9.627 (0.379)	15.113 (0.595)
643	19.101 (0.752)	17.856 (0.703)	13 767 (0.542)	17.704 (0.697)	14.148 (0.557)	8.814 (0.347)	15 240 (0.600)
644	15.011 (0.591)	18.669 (0.735)	19.634 (0 773)	13.614 (0.536)	12.116 (0.477)	11.811 (0.465)	15.138 (0.596)
645	18.796 (0.740)	13.310 (0.524)	19.202 (0.756)	16.866 (0.664)	14 097 (0.555)	10 719 (0.422)	15.494 (0.610)
646	8.611 (0.339)	16.916 (0.666)	13.843 (0 545)	18.390 (0.724)	12.268 (0 483)	14.376 (0.566)	14 072 (0.554)
647	7.569 (0.298)	17.729 (0.698)	16.510 (0.650)	15.748 (0.620)	16.688 (0.657)	16.510 (0.650)	15.138 (0.596)
648	5.715 (0.225)	12.573 (0.495)	15.189 (0.598)	15.164 (0.597)	10.922 (0.430)	16.866 (0.664)	12.751 (0.502)
649	10.719 (0.422)	13.513 (0.532)	15.723 (0.619)	14.148 (0.557)	16.688 (0.647)	12.370 (0.487)	13.868 (0.546)
650	6.629 (0.261)	16.586 (0.653)	14.529 (0.572)	18.339 (0.722)	15 672 (0.617)	15.723 (0 619)	14.580 (0.574)

Notes

1. Average penetration for all tests 14.859 mm (0 585 in.)
2. Standard deviation 0.864 mm (0.034 in.)
3. Probability of cutting greater than

14.275 mm (0.562 in.)		75%
13.767 mm (0.542 in.)	is	90%
13.411 mm (0.528 in.)		95%
12.852 mm (0 506 in.)		99%

4. Probability of cutting between

13.868 mm (0.546 in.)		15.850 mm (0 624 in.)		75%
13.437 mm (0.529 in.)	and	16.281 mm (0 641 in.)	is	90%
13.183 mm (0.519 in.)		16 535 mm (0.651 in.)		95%
12 852 mm (0.506 in.)		17.069 mm (0.672 in.)		99%

TABLE B-51. PENETRATION DEPTHS FOR MARK 7 MOD 7 LINEAR SHAPED CHARGES USED WITH A 19.050-MM (0.750-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
651	31.801 (1.252)	33.223 (1.308)	30.074 (1.184)	26.111 (1.028)	23.851 (0.939)	17.424 (0.686)	27.076 (1.066)
652	29.032 (1.143)	24.638 (0.970)	30.302 (1.193)	22.657 (0.892)	19.710 (0.776)	21.615 (0.851)	24.663 (0.971)
653	27.915 (1.099)	20.599 (0.811)	32.[illegible]5 ([illegible].5)	24.536 (0.966)	19.050 (0.750)	17.831 (0.702)	23.724 (0.934)
654	31.852 (1.254)	32.967 (1.298)	31.750 (1.250)	27.813 (1.095)	14.935 (0.588)	13.335 (0.525)	25.451 (1.002)
655	23.317 (0.918)	26.492 (1.043)	30.277 (1.192)	27.737 (1.092)	22.555 (0.888)	13.386 (0.527)	23.952 (0.943)
656	20.117 (0.792)	27.915 (1.099)	30.048 (1.183)	23.673 (0.932)	18.694 (0.736)	12.700 (0.500)	22.200 (0.874)
657	21.413 (0.843)	26.264 (1.034)	18.796 (0.740)	21.844 (0.860)	24.282 (0.956)	15.469 (0.609)	21.336 (0.840)
658	25.248 (0.994)	23.749 (0.935)	22.962 (0.904)	21.742 (0.856)	15.367 (0.605)	17.907 (0.705)	21.158 (0.833)
659	25.857 (1.018)	23.673 (0.932)	34.061 (1.341)	28.194 (1.110)	18.669 (0.735)	20.549 (0.809)	25.171 (0.991)
660	15.773 (0.621)	23.368 (0.920)	21.133 (0.832)	19.304 (0.760)	26.441 (1.041)	14.453 (0.569)	26.195 (0.795)
661	18.821 (0.741)	35.052 (1.380)	29.108 (1.146)	20.168 (0.794)	16.053 (0.632)	13.005 (0.512)	22.047 (0.868)
662	25.324 (0.997)	23.597 (0.929)	28.651 (1.128)	31.623 (1.245)	14.986 (0.590)	14.580 (0.574)	23.139 (0.911)
663	24.079 (0.948)	20.549 (0.809)	21.488 (0.846)	33.706 (1.327)	30.632 (1.206)	17.374 (0.684)	24.638 (0.970)

Notes

1. Average penetration for all tests 23.444 mm (0.923 in.)
2. Standard deviation. 1.981 mm (0.078 in.)
3. Probability of cutting greater than

22.098 mm (0.870 in.)	is	75%
20.930 mm (0.824 in.)		90%
20.168 mm (0.794 in.)		95%
18.847 mm (0.742 in.)		99%

4. Probability of cutting between

21.158 mm (0.833 in.)	and	25.730 mm (1.013 in.)	is	75%
20.193 mm (0.795 in.)		26.675 mm (1.051 in.)		90%
19.583 mm (0.771 in.)		27.305 mm (1.075 in.)		95%
18.364 mm (0.723 in.)		28.524 mm (1.123 in.)		99%

TABLE B-52. PENETRATION DEPTHS FOR MARK 7 MOD 8 LINEAR SHAPED CHARGES USED WITH A 26.924-MM (1.060-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
664	30.734 (1.210)	35.611 (1.402)	33.503 (1.319)	33.960 (1.337)	15.519 (0.611)	17.729 (0.698)	27.838 (1.096)
665	35.077 (1.381)	29.591 (1.165)	27.762 (1.093)	31.344 (1 234)	21.971 (0.865)	19.863 (0.782)	27.610 (1.087)
666	16.027 (0 631)	20.295 (0.799)	30.455 (1.199)	36.373 (1.432)	34.112 (1.343)	26 619 (1.048)	27.305 (1.075)
667	14.199 (0 559)	21.488 (0.846)	33 172 (1.306)	36.551 (1.439)	29.667 (1.168)	31.445 (1.238)	27.762 (1.093)
668	16.332 (0.643)	24.689 (0.972)	32.410 (1.276)	34.366 (1.353)	22.784 (0.897)	36.068 (1.420)	27.788 (1.094)
669	14 961 (0.589)	17.704 (0.697)	37.846 (1.490)	37.643 (1.482)	29.437 (1.159)	36 068 (1 420)	28.956 (1.140)
670	12.497 (0 492)	19 914 (0 784)	33.731 (1.328)	24.790 (0.976)	32.766 (1.290)	25.502 (1.004)	24.867 (0.979)
671	13 437 (0 529)	20.295 (0.799)	39.243 (1.545)	33.376 (1.314)	42.545 (1.675)	23.546 (0.927)	28.753 (1.132)
672	17.094 (0 673)	15.443 (0.608)	20.904 (0.823)	24.282 (0.956)	33.325 (1.312)	23.241 (0.915)	22.377 (0.881)
673	16.180 (0 637)	23.622 (0.930)	32.868 (1.294)	39.243 (1 545)	41.935 (1.651)	32.106 (1.264)	30.988 (1.220)
674	16.713 (0 658)	22.377 (0.881)	20.701 (0.815)	38.100 (1.500)	29.210 (1.150)	32.741 (1.289)	26.645 (1 049)
675	15.240 (0 600)	19.634 (0.773)	22.327 (0.879)	31.598 (1.244)	27.381 (1.078)	30.886 (1.216)	24.511 (0 965)
676	20.422 (0.804)	24.257 (0.955)	30.124 (1.186)	36.585 (1.401)	23.444 (0.923)	39.827 (1.568)	28.956 (1.140)

Notes

1. Average penetration for all tests 27.254 mm (1.073 in.)
2. Standard deviation (0.086 in.)
3. Probability of cutting greater than

25.781 mm (1.015 in.)	is	75%
24.486 mm (0.964 in.)		90%
23.647 mm (0.931 in.)		95%
22 174 mm (0.873 in.)		99%

4. Probability of cutting between

24.740 mm (0.974 in.)	and	29.769 mm (1.172 in.)	is	75%
23.673 mm (0.932 in.)		30.836 mm (1.214 in.)		90%
22.987 mm (0.905 in.)		31.521 mm (1 241 in.)		95%
21.666 mm (0.853 in.)		32.842 mm (1 293 in.)		99%

TABLE B-53. PENETRATION DEPTHS FOR MARK 7 MOD 1 LINEAR SHAPED CHARGES USED WITH A 8.382-MM (0.330-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
677	4.496 (0 177)	4.115 (0.162)	4.215 (0.166)	3.810 (0.150)	3.023 (0 119)	2.057 (0.081)	3.632 (0.143)
678	3 708 (0.146)	4.369 (0.172)	3.124 (0 123)	4.089 (0.161)	4.166 (0.164)	2.921 (0.115)	3.734 (0.147)
679	3.912 (0.154)	4.597 (0.181)	4.191 (0.165)	4 216 (0.166)	4.191 (0.165)	2.388 (0.094)	3.912 (0.154)
680	4 140 (01.63)	4.013 (0.158)	3.785 (0.149)	3.734 (0.147)	3.404 (0.134)	2.870 (0.113)	3.658 (0 144)
681	4.775 (0.188)	4.064 (0.160)	3.759 (0.148)	3.810 (0.150)	3.861 (0.152)	2.540 (0.100)	3.810 (0.150)
682	3.480 (0.137)	3.277 (0.129)	3.835 (0.151)	3.759 (0.148)	2.718 (0.107)	2.032 (0.080)	3.175 (0.125)
683	4 191 (0 165)	3.962 (0.156)	4.262 (0.168)	3.810 (0.150)	3.937 (0.155)	3.480 (0.137)	3.937 (0.155)
684	1.854 (0.073)	3.099 (0.122)	3.607 (0.142)	3.023 (0.119)	2.413 (0.095)	2.972 (0.117)	2.819 (0.111)
685	3.988 (0.157)	3.810 (0.150)	2.616 (0.103)	3.607 (0.142)	3.810 (0 150)	2.235 (0.088)	3.353 (0.132)
686	4.521 (0.178)	4.369 (0.172)	2.743 (0.108)	4.191 (0.165)	4.140 (0.163)	2.718 (0.107)	3.785 (0.149)
687	3.708 (0.146)	3.861 (0.152)	3.302 (0.130)	3.683 (0.145)	2.896 (0.114)	2.134 (0.084)	3.277 (0.129)
688	4 420 (0.174)	4.115 (0.162)	3 962 (0.156)	4.191 (0.165)	3.861 (0.152)	2.896 (0.114)	3 912 (0.154)
689	2.667 (0.105)	3.658 (0.144)	3.556 (0 140)	3.327 (0.131)	3.759 (0.148)	2.235 (0.088)	3.200 (0.126)

Notes

1. Average penetration for all tests 3.556 mm (0.140 in.)
2. Standard deviation (0.014 in.)
3. Probability of cutting greater than

3.327 mm (0.131 in.)	is	75%
3.100 mm (0.122 in.)		90%
2.972 mm (0 117 in.)		95%
2.743 mm (0.108 in.)		99%

4 Probability of cutting between

3.150 mm (0 124 in.)	and	3.962 mm (0.156 in.)	is	75%
2.972 mm (0.117 in.)		4.140 mm (0 163 in.)		90%
2 870 mm (0.113 in.)		4.242 mm (0.167 in.)		95%
2.642 mm (0.104 in.)		4.470 mm (0 176 in.)		99%

TABLE B-54. PENETRATION DEPTHS FOR MARK 7 MOD 2 LINEAR SHAPED CHARGES USED WITH A 8.382-MM (0.330-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at.						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
690	4.293 (0.169)	3.810 (0.150)	3.556 (0.140)	4.953 (0 195)	3.937 (0.155)	3.353 (0.132)	3.988 (0.157)
691	3.023 (0.119)	3.454 (0.136)	3 302 (0.130)	3.429 (0.135)	2 210 (0.087)	2.210 (0.087)	2.946 (0.116)
692	4.420 (0.174)	2.921 (0.115)	4.216 (0.166)	4.318 (0 170)	4 445 (0.175)	1 981 (0.078)	3.708 (0.146)
693	3.531 (0.139)	4.597 (0.181)	4.801 (0.189)	4.369 (0.172)	4 572 (0.180)	4.394 (0 173)	4.369 (0.172)
694	3.861 (0.152)	2.946 (0.116)	2.540 (0 100)	2.972 (0.117)	2.616 (0.103)	1.600 (0 063)	2.769 (0.109)
695	4.597 (0.181)	4.547 (0.179)	4.470 (0.176)	4.343 (0.171)	2.896 (0 114)	2.261 (0.089)	3.861 (0.152)
696	3.327 (0.131)	4.242 (0.167)	4.623 (0.182)	4.826 (0.190)	3.835 (0.151)	2.997 (0.118)	3.988 (0.157)
697	4.140 (0 163)	3.912 (0.154)	4.724 (0.186)	4 013 (0.158)	4 445 (0.175)	1 575 (0.062)	3.810 (0.150)
698	2.769 (0.109)	3.302 (0 130)	3.810 (0.150)	3 556 (0.140)	3.302 (0.130)	2.083 (0 082)	3.150 (0.124)
699	3.302 (0.130)	3.175 (0.125)	3.150 (0.124)	3.962 (0.156)	2.515 (0.099)	2.972 (0.117)	3.175 (0.125)
700	2.438 (0 096)	196 (0.177)	4.293 (0.169)	3.937 (0.155)	4.242 (0.167)	1.245 (0.049)	3.454 (0.136)
701	4.470 (0.176)	3.150 (0.124)	3.886 (0.153)	4.140 (0.163)	3 429 (0.135)	2.769 (0.109)	3.632 (0.143)
702	3 785 (0.149)	3.658 (0.144)	3.785 (0 149)	3.632 (0.143)	2.591 (0.102)	2.870 (0.113)	3.378 (0.133)

Notes

1. Average penetration for all tests 3 556 (0 140 in.)
2. Standard deviation (0.018 in.)
3. Probability of cutting greater than

3.251 mm (0.128 in.)		75%
2.972 mm (0.117 in.)	is	90%
2.794 mm (0.110 in.)		95%
2.489 mm (0.098 in.)		99%

4. Probability of cutting between

3.023 mm (0.119 in.)		4.089 mm (0 161 in.)		75%
2.819 mm (0.111 in.)	and	4.318 mm (0.170 in.)	is	90%
2.667 mm (0.105 in.)		4.445 mm (0.175 in)		95%
2.388 mm (0 094 in.)		4.724 mm (0 186 in.)		99%

TABLE B-55. PENETRATION DEPTHS FOR MARK 7 MOD 3 LINEAR SHAPED CHARGES USED WITH A 4.826-MM (0.190-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at.						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
703	1.829 (0.072)	1.524 (0.060)	2.540 (0.100)	2.007 (0.079)	2.438 (0.096)	2.743 (0.108)	2.184 (0.086)
704	2.032 (0.080)	2.083 (0.082)	2.337 (0.092)	2.692 (0.106)	1.956 (0.077)	2.134 (0.084)	2.210 (0.087)
705	2.032 (0.080)	2.819 (0.111)	2.896 (0.114)	2.946 (0.116)	2.489 (0.098)	2.540 (0.100)	2.616 (0.103)
706	2.184 (0.086)	2.591 (0.102)	1.295 (0.051)	2.540 (0.100)	3.277 (0.129)	3.607 (0.142)	2.591 (0.102)
707	2.489 (0.098)	2.805 (0.112)	3.023 (0.119)	3.302 (0.130)	3.327 (0.131)	3.632 (0.143)	3.099 (0.122)
708	2.362 (0.093)	1.473 (0.058)	1.727 (0.068)	1.981 (0.078)	2.235 (0.088)	2.184 (0.086)	2.007 (0.079)
709	1.803 (0.071)	2.210 (0.087)	2.767 (0.109)	2.767 (0.109)	2.083 (0.082)	3.429 (0.135)	2.515 (0.099)
710	2.986 (0.114)	2.311 (0.091)	1.956 (0.077)	2.413 (0.095)	2.184 (0.086)	3.226 (0.127)	2.489 (0.098)
711	1.829 (0.072)	1.956 (0.077)	2.870 (0.113)	2.767 (0.109)	2.946 (0.116)	2.667 (0.105)	2.515 (0.099)
712	1.930 (0.076)	1.321 (0.052)	1.651 (0.065)	1.981 (0.078)	2.997 (0.118)	3.023 (0.119)	2.159 (0.085)
713	2.032 (0.080)	1.448 (0.057)	1.500 (0.059)	2.007 (0.079)	1.880 (0.074)	3.175 (0.125)	2.007 (0.079)
714	1.549 (0.061)	2.337 (0.092)	1.956 (0.077)	1.651 (0.065)	4.191 (0.165)	3.226 (0.127)	2.489 (0.098)
715	1.676 (0.066)	1.981 (0.078)	1.549 (0.061)	1.753 (0.069)	1.626 (0.064)	1.321 (0.052)	1.651 (0.065)

Notes

1. Average penetration for all tests 2.337 mm (0.092 in.)
2. Standard deviation 0.356 mm (0.014 in.)
3. Probability of cutting greater than

2.108 mm (0.083 in.)	is	75%
1.880 mm (0.074 in.)		90%
1.753 mm (0.069 in.)		95%
1.524 mm (0.060 in.)		99%

4. Probability of cutting between

1.930 mm (0.076 in.)	and	2.743 mm (0.108 in.)	is	75%
1.753 mm (0.069 in.)		2.921 mm (0.115 in.)		90%
1.651 mm (0.065 in.)		3.023 mm (0.119 in.)		95%
1.422 mm (0.056 in.)		3.251 mm (0.128 in.)		99%

TABLE B-56. PENETRATION DEPTHS FOR MARK 7 MOD 4 LINEAR SHAPED CHARGES USED WITH A 9.652-MM (0.380-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at				Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	
716	7.595 (0 299)	9 373 (0.369)	7.645 (0 301)	5.385 (0.212)	7 493 (0.295)
717	5 588 (0.220)	7 950 (0.313)	11 049 (0.435)	6.401 (0.252)	7.747 (0 305)
718	6.477 (0 255)	6.350 (0 250)	6.579 (0.259)	4 115 (0.162)	5 893 (0 232)
719	9.474 (0 373)	9.119 (0.359)	9.525 (0.375)	4.775 (0.188)	8 230 (0 324)
720	5.283 (0 208)	5.791 (0.228)	5 055 (0.199)	3.785 (0.149)	4.978 (0.196)
721	6 553 (0.258)	9.906 (0 390)	7.518 (0 296)	5.740 (0 226)	7.442 (0.293)
722	8 280 (0.326)	6.782 (0 267)	6 375 (0.251)	2 718 (0.107)	6.045 (0 238)
723	6.071 (0 239)	6 528 (0.257)	9 906 (0.390)	6.299 (0.248)	7 214 (0 284)
724	8 915 (0 351)	7 544 (0 297)	5.080 (0 200)	3.556 (0 140)	6.274 (0 247)
725	5.156 (0.203)	8 484 (0.334)	10 795 (0.425)	8.814 (0 347)	8 306 (0 327)
726	7.772 (0.306)	10 643 (0.419)	7.671 (0.302)	4.877 (0 192)	7.747 (0 305)
727	9.169 (0.361)	10.846 (0.427)	9.830 (0.387)	10.236 (0.403)	10 033 (0 395)
728	9.017 (0.355)	8.636 (0.340)	5.994 (0.236)	2.946 (0.116)	6.629 (0.261)

Notes

1. Average penetration for all tests: 7.239 mm (0 285 in.)
2. Standard deviation: 1.295 mm (0.051 in.)
3. Probability of cutting greater than

6.350 mm (0.251 in.)	is	75%
5 583 mm (0.220 in.)		90%
5.105 mm (0.201 in.)		95%
4.234 mm (1.667 in.)		99%

4. Probability of cutting between

5.740 mm (0.226 in.)	and	8.738 mm (0.344 in.)	is	75%
5.105 mm (0.201 in.)		9.347 mm (0.368 in.)		90%
4.724 mm (0.186 in.)		9.754 mm (0.384 in.)		95%
3.912 mm (0 154 in.)		10.566 mm (0.416 in.)		99%

TABLE B-57. PENETRATION DEPTHS FOR MARK 7 MOD 5 LINEAR SHAPED CHARGES USED WITH A 9.652-MM (0.380-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
729	6.477 (0.255)	5.207 (0.205)	9.728 (0.383)	8.611 (0.339)	5.512 (0.217)	3.378 (0.133)	6.477 (0.255)
730	5.690 (0.224)	7.442 (0.293)	7.696 (0.303)	8.230 (0.324)	7.823 (0.308)	3.048 (0.120)	6.655 (0.262)
731	5.994 (0.236)	8.001 (0.315)	8.992 (0.354)	9.296 (0.366)	8.331 (0.328)	5.486 (0.216)	7.696 (0.303)
732	6.401 (0.252)	8.738 (0.344)	7.188 (0.283)	7.163 (0.282)	7.315 (0.288)	3.988 (0.157)	6.807 (0.268)
733	6.045 (0.238)	8.179 (0.322)	5.029 (0.198)	8.357 (0.329)	8.153 (0.321)	4.597 (0.181)	6.731 (0.265)
734	6.960 (0.274)	9.601 (0.378)	6.960 (0.274)	8.331 (0.328)	7.188 (0.283)	4.267 (0.168)	7.214 (0.284)
735	9.195 (0.362)	7.341 (0.289)	10.262 (0.404)	5.334 (0.210)	6.604 (0.260)	6.020 (0.237)	7.468 (0.294)
736	5.791 (0.228)	3.734 (0.147)	4.521 (0.178)	2.616 (0.103)	3.505 (0.138)	4.851 (0.191)	4.166 (0.164)
737	8.179 (0.322)	8.433 (0.332)	9.500 (0.374)	5.385 (0.212)	9.322 (0.367)	5.436 (0.214)	7.722 (0.304)
738	8.865 (0.349)	5.791 (0.228)	5.436 (0.214)	9.042 (0.356)	7.772 (0.306)	4.775 (0.188)	6.960 (0.274)
739	8.611 (0.339)	6.325 (0.249)	9.271 (0.365)	9.627 (0.379)	5.588 (0.220)	2.667 (0.105)	7.010 (0.276)
740	3.810 (0.150)	3.480 (0.137)	4.775 (0.188)	7.468 (0.294)	7.137 (0.281)	2.946 (0.116)	4.928 (0.194)
741	6.528 (0.257)	8.687 (0.342)	9.474 (0.373)	9.601 (0.378)	6.350 (0.250)	7.315 (0.288)	8.001 (0.315)

Notes

1. Average penetration for all tests 6.756 mm (0.266 in.)
2. Standard deviation 1.092 mm (0.043 in.)
3. Probability of cutting greater than

6.020 mm (0.237 in.)	is	75%
5.359 mm (0.211 in.)		90%
4.953 mm (0.195 in.)		95%
4.216 mm (0.166 in.)		99%

4. Probability of cutting between

5.512 mm (0.217 in.)	and	8.001 mm (0.315 in.)	is	75%
4.953 mm (0.195 in.)		8.560 mm (0.337 in.)		90%
4.623 mm (0.182 in.)		8.890 mm (0.350 in.)		95%
3.962 mm (0.156 in.)		9.550 mm (0.376 in.)		99%

TABLE B-58. PENETRATION DEPTHS FOR MARK 7 MOD 6 LINEAR SHAPED CHARGES USED WITH A 12.700-MM (0.500-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
742	6.401 (0.252)	9.220 (0.363)	11.151 (0.439)	10 033 (0.395)	10 363 (0.408)	6.706 (0.264)	8.992 (0.354)
743	7.214 (0.284)	10.846 (0 427)	11.176 (0.440)	10.236 (0.403)	7.925 (0.312)	6.477 (0.255)	8.992 (0.354)
744	7.214 (0.284)	9.906 (0.390)	7 137 (0.281)	7.976 (0 314)	6.045 (0.238)	4.064 (0.160)	7.061 (0.278)
745	10.770 (0.424)	9.931 (0.391)	10.846 (0.427)	9.119 (0.359)	9.474 (0.373)	6.680 (0.263)	9.474 (0.373)
746	8.839 (0.348)	9.881 (0.389)	9.881 (0.389)	11.227 (0.442)	7.696 (0.303)	5.867 (0.231)	8.890 (0.350)
747	10.744 (0.423)	10.008 (0.394)	8.585 (0.338)	11.582 (0.456)	6.426 (0.253)	7.137 (0.281)	9.093 (0.358)
748	7.747 (0.305)	8.306 (0.327)	11.328 (0.446)	11.760 (0.463)	7.722 (0.304)	11.989 (0.472)	9.804 (0.386)
749	5.588 (0.220)	7.264 (0.286)	9.728 (0.383)	7.366 (0.290)	5 563 (0.291)	[illegible] (0.[illegible]3)	7.366 (0.290)
750	8.966 (0.353)	12.624 (0.497)	9.830 (0.387)	11.354 (0.447)	9.322 (0.367)	8.077 (0.381)	10.033 (0.395)
751	8.331 (0.328)	10.719 (0.422)	11 17[illegible] (0.440)	8.280 (0.326)	10.058 (0.396)	7.341 (0.289)	9.322 (0.367)
752	7.137 (0.281)	8.103 (0.319)	8.687 (0.342)	8.230 (0.324)	9.347 (0.368)	6.553 (0.258)	8.001 (0.315)
753	8.077 (0.318)	11.049 (0.435)	10.033 (0.395)	11.201 (0.441)	9.728 (0.383)	6.045 (0.238)	9 347 (0.368)
754	8.611 (0.339)	10.211 (0.402)	10.541 (0.415)	11.125 (0.438)	8.077 (0.318)	8.484 (0.334)	9.500 (0.374)

Notes

1. Average penetration for all tests 8.915 mm (0.351 in.)
2. Standard deviation: 8.636 mm (0.034 in.)
3. Probability of cutting greater than

	8.331 mm (0.328 in.)		75%
	7.823 mm (0.308 in.)		90%
	7.493 mm (0.295 in.)	is	95%
	6.909 mm (0.272 in.)		99%

4. Probability of cutting between

.925 mm (0.312 in.)		9.906 mm (0.390 in.)		75%
7.493 mm (0.295 in.)	and	10.338 mm (0.407 in.)	is	90%
7.239 mm (0.285 in.)		10.592 mm (0.417 in.)		95%
6.706 mm (0.264 in.)		11.125 mm (0.438 in.)		99%

TABLE B-59. PENETRATION DEPTHS FOR MARK 7 MOD 7 LINEAR SHAPED CHARGES USED WITH A 19.050-MM (0.750-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at						Average penetration mm (in.)
	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	
755	15.748 (0.620)	18.415 (0.725)	13.716 (0.540)	17.069 (0.672)	10.338 (0.407)	11.074 (0.436)	14.402 (0.567)
756	14.249 (0.561)	20.447 (0.805)	14.122 (0.556)	18.974 (0.747)	13.437 (0.529)	8.382 (0.330)	14.935 (0.588)
757	8.814 (0.347)	19.660 (0.774)	20.676 (0.814)	18.415 (0.725)	15.418 (0.607)	8.509 (0.335)	15.240 (0.600)
758	13.564 (0.534)	13.691 (0.539)	9.830 (0.387)	8.407 (0.331)	12.497 (0.492)	11.532 (0.454)	11.582 (0.456)
759	13.081 (0.515)	16.256 (0.640)	8.255 (0.325)	12.624 (0.497)	9.754 (0.384)	10.008 (0.394)	11.659 (0.459)
760	9.779 (0.385)	20.066 (0.790)	21.184 (0.834)	18.821 (0.741)	15.316 (0.603)	12.395 (0.488)	16.258 (0.640)
761	16.815 (0.662)	12.268 (0.483)	22.555 (0.888)	18.618 (0.733)	11.278 (0.444)	12.522 (0.493)	15.672 (0.617)
762	14.834 (0.584)	16.002 (0.630)	14.529 (0.572)	14.275 (0.562)	19.126 (0.753)	12.090 (0.476)	15.138 (0.596)
763	17.196 (0.677)	13.411 (0.528)	14.732 (0.580)	19.101 (0.752)	9.804 (0.386)	8.230 (0.324)	13.741 (0.541)
764	13.919 (0.548)	18.771 (0.739)	23.978 (0.944)	17.399 (0.685)	14.529 (0.572)	13.030 (0.513)	16.942 (0.667)
765	13.970 (0.550)	17.678 (0.696)	21.311 (0.839)	16.942 (0.667)	14.146 (0.557)	10.846 (0.427)	15.824 (0.623)
766	16.840 (0.663)	15.545 (0.612)	21.971 (0.865)	19.507 (0.768)	17.272 (0.680)	6.807 (0.268)	16.332 (0.643)
767	10.465 (0.412)	18.186 (0.716)	15.926 (0.627)	16.358 (0.644)	14.478 (0.570)	11.379 (0.448)	14.478 (0.570)

Notes

1. Average penetration for all tests: 14.783 mm (0.582 in.)
2. Standard deviation. 1.651 mm (0.065 in.)
3. Probability of cutting greater than

13.665 mm (0.538 in.)	is	75%
12.675 mm (0.499 in.)		90%
12.065 mm (0.475 in.)		95%
10.947 mm (0.431 in.)		99%

4. Probability of cutting between

12.878 mm (0.507 in.)	and	16.662 mm (0.656 in.)	is	75%
12.065 mm (0.475 in.)		17.501 mm (0.689 in.)		90%
11.557 mm (0.455 in.)		18.009 mm (0.709 in.)		95%
10.566 mm (0.416 in.)		18.999 mm (0.748 in.)		99%

TABLE B-60. PENETRATION DEPTHS FOR MARK 7 MOD 8 LINEAR SHAPED CHARGES USED WITH A 26.924-MM (1.060-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
768	20.218 (0.796)	19.939 (0.785)	22.098 (0.870)	18.999 (0.748)	16.053 (0.632)	7.366 (0.290)	17.450 (0.687
769	20.904 (0.823)	19.812 (0.780)	20.574 (0.810)	12.751 (0.502)	12.145 (0.675)	13.462 (0.530)	17.450 (0.687)
770	16.383 (0.645)	20.066 (0.790)	25.095 (0.988)	22.310 (0.878)	15.799 (0.622)	8.357 (0.329)	18.009 (0.709)
771	19.558 (0.770)	24.232 (0.954)	20.269 (0.789)	17.094 (0.673)	15.240 (0.600)	7.722 (0.304)	17.323 (0.682)
772	12.192 (0.480)	23.673 (0.832)	23.038 (0.907)	21.234 (0.836)	17.805 (0.701)	11.074 (0.436)	18.161 (0.715)
773	19.355 (0.762)	22.911 (0.902)	23.139 (0.911)	20.447 (0.805)	17.424 (0.686)	6.477 (0.255)	18.288 (0.720)
774	13.030 (0.513)	20.752 (0.817)	17.805 (0.701)	18.542 (0.730)	17.882 (0.704)	9.652 (0.380)	16.281 (0.641)
775	20.701 (0.815)	19.583 (0.771)	23.622 (0.930)	16.128 (0.635)	15.265 (0.601)	8.179 (0.322)	17.247 (0.679)
776	17.069 (0.672)	18.618 (0.733)	19.888 (0.783)	21.260 (0.837)	18.161 (0.715)	7.569 (0.298)	17.094 (0.673)
777	17.602 (0.693)	23.317 (0.918)	22.301 (0.878)	18.999 (0.748)	13.462 (0.530)	16.053 (0.632)	18.618 (0.733)
778	15.951 (0.628)	21.285 (0.838)	22.123 (0.871)	19.736 (0.777)	19.228 (0.757)	10.592 (0.417)	18.161 (0.715)
779	17.831 (0.702)	16.535 (0.651)	21.260 (0.837)	20.041 (0.789)	14.046 (0.553)	8.407 (0.331)	16.358 (0.644)
780	22.149 (0.872)	23.622 (0.930)	20.091 (0.791)	12.903 (0.508)	15.316 (0.603)	12.573 (0.495)	17.780 (0.700)

Notes

1. Average penetration for all tests: 17.551 mm (0.691 in.)
2. Standard deviation. 7.112 mm (0.028 in.)
3. Probability of cutting greater than

17.069 mm (0.672 in.)		75%
16.637 mm (0.655 in.)	is	90%
16.383 mm (0.645 in.)		95%
15.900 mm (0.626 in.)		99%

4. Probability of cutting between

16.739 mm (0.659 in.)		18.364 mm (0.723 in.)		75%
16.383 mm (0.645 in.)	and	18.720 mm (0.737 in.)	is	90%
16.154 mm (0.636 in.)		18.948 mm (0.746 in.)		95%
15.723 mm (0.619 in.)		19.355 mm (0.762 in.)		99%

TABLE B-61. PENETRATION DEPTHS FOR MARK 8 MOD 2 LINEAR SHAPED CHARGES USED WITH A 69.850-MM (2.750-IN.) STANDOFF ON ALUMINUM WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
781	50.800 (2.000)	50.800 (2.000)	50.800 (2.000)	50.800 (2.000)	50.800 (2.000)	50.800 (2.000)	50.800 (2.000)
782	23.774 (0.936)	22.768 (0.896)	23.927 (0.942)	43.764 (1.723)	40.310 (1.587)	43.866 (1.727)	33.071 (1.302)
783	42.062 (1.656)	46.101 (1.815)	32.156 (1.266)	30.861 (1.215)	22.733 (0.895)	19.152 (0.754)	32.182 (1.267)
784	45.847 (1.805)	33.807 (1.331)	32.664 (1.280)	31.826 (1.253)	27.889 (1.098)	20.168 (0.794)	32.029 (1.261)
785	39.929 (1.572)	47.727 (1.879)	38.684 (1.523)	37.744 (1.486)	28.397 (1.118)	21.057 (0.829)	35.585 (1.401)
786	30.378 (1.196)	50.343 (1.982)	48.971 (1.928)	34.976 (1.377)	32.004 (1.260)	21.946 (0.864)	36.449 (1.435)
787	32.643 (1.482)	50.114 (1.973)	36.144 (1.423)	33.757 (1.329)	34.493 (1.358)	23.012 (0.906)	35.865 (1.412)
788	37.567 (1.479)	39.599 (1.559)	38.989 (1.535)	31.572 (1.243)	27.076 (1.066)	12.421 (0.489)	31.217 (1.229)
789	25.629 (1.009)	22.428 (0.883)	20.320 (0.800)	14.224 (0.560)	22.098 (0.870)	17.196 (0.677)	20.320 (0.800)
790	30.531 (1.202)	30.328 (1.194)	24.816 (0.977)	22.936 (0.903)	12.243 (0.482)	16.510 (0.650)	22.885 (0.901)
791	22.047 (0.868)	32.715 (1.288)	43.764 (1.723)	48.895 (1.925)	41.199 (1.622)	39.548 (1.557)	38.024 (1.497)
792	23.495 (0.925)	27.610 (1.087)	29.591 (1.165)	38.430 (1.513)	42.062 (1.656)	40.716 (1.603)	33.655 (1.325)
793	27.153 (1.069)	24.639 (0.972)	33.122 (1.304)	37.262 (1.467)	31.242 (1.230)	35.839 (1.411)	31.547 (1.242)

Notes

1. Average penetration for all tests 33.350 mm (1.313 in.)
2. Standard deviation: 7.112 mm (0.28 in.)
3. Probability of cutting greater than

28.575 mm (1.125 in.)	is	75%
24.308 mm (0.957 in.)		90%
21.615 mm (0.851 in.)		95%
16.840 mm (0.663 in.)		99%

4. Probability of cutting between

25.171 mm (0.991 in.)	and	41.529 mm (1.635 in.)	is	75%
21.692 mm (0.854 in.)		45.009 mm (1.772 in.)		90%
19.482 mm (0.767 in.)		47.219 mm (1.859 in.)		95%
15.138 mm (0.596 in.)		51.562 mm (2.030 in.)		99%

TABLE B-62. PENETRATION DEPTHS FOR MARK 8 MOD 2 LINEAR SHAPED CHARGES USED WITH A 69.850-MM (2.750-IN.) STANDOFF ON STEEL WITNESS PLATES

Test number	Penetration in mm (in.) measured at: Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average penetration mm (in.)
794	27.788 (1.094)	24.282 (0.956)	27.889 (1.098)	26.238 (1.033)	20.879 (0.832)	16.383 (0.645)	23.952 (0.943)
795	15.875 (0.625)	26.975 (1.062)	22.809 (0.898)	12.725 (0.501)	12.040 (0.474)	12.827 (0.505)	17.221 (0.678)
796	22.733 (0.895)	30.150 (1.187)	26.670 (1.050)	17.729 (0.698)	22.225 (0.875)	16.612 (0.654)	22.682 (0.893)
797	21.946 (0.864)	28.423 (1.119)	26.289 (1.035)	22.479 (0.885)	16.866 (0.664)	14.148 (0.557)	21.692 (0.854)
798	25.248 (0.994)	22.123 (0.871)	24.562 (0.967)	25.603 (1.008)	14.656 (0.577)	10.719 (0.422)	20.498 (0.807)
799	24.917 (0.981)	22.454 (0.884)	25.527 (1.005)	23.825 (0.938)	23.444 (0.923)	17.907 (0.705)	23.012 (0.906)
800	19.355 (0.762)	17.882 (0.704)	13.894 (0.547)	9.957 (0.392)	7.874 (0.310)	8.433 (0.332)	12.903 (0.508)
801	21.666 (0.853)	28.169 (1.109)	21.768 (0.857)	23.419 (0.922)	18.644 (0.734)	11.938 (0.470)	20.930 (0.824)
802	23.444 (0.923)	27.610 (1.087)	27.661 (1.089)	16.281 (0.641)	14.453 (0.569)	11.303 (0.445)	20.117 (0.792)
803	29.693 (1.169)	28.829 (1.135)	29.108 (1.146)	23.876 (0.940)	10.820 (0.426)	11.430 (0.450)	23.301 (0.878)
804	22.631 (0.819)	22.987 (0.905)	20.599 (0.811)	19.761 (0.778)	9.220 (0.363)	11.684 (0.460)	17.501 (0.689)
805	16.383 (0.645)	21.920 (0.863)	15.062 (0.593)	22.428 (0.883)	13.284 (0.523)	8.637 (0.342)	16.307 (0.642)
806	18.847 (0.742)	24.638 (0.970)	22.174 (0.873)	17.577 (0.692)	19.431 (0.765)	12.192 (0.480)	19.152 (0.754)

Notes

1. Average penetration for all tests 19.863 mm (0.782 in.)
2. Standard deviation 3.048 mm (0.12 in.)
3. Probability of cutting greater than

17.831 mm (0.702 in.)	is	75%
16.002 mm (0.630 in.)		90%
14.834 mm (0.584 in.)		95%
12.802 mm (0.504 in.)		99%

4. Probability of cutting between

16.358 mm (0.644 in.)	and	23.368 mm (0.920 in.)	is	75%
14.859 mm (0.585 in.)		24.867 mm (0.979 in.)		90%
13.919 mm (0.548 in.)		25.806 mm (1.016 in.)		95%
12.065 mm (0.475 in.)		27.661 mm (1.089 in.)		99%

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