

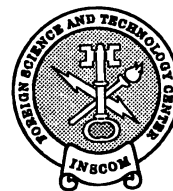
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# **Projectile and Warhead Identification Guide— Foreign (U)**

**A Defense S&T Intelligence Special-Purpose Document**



**Defense Intelligence Agency**



**US Army Foreign Science  
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## PROJECTILE AND WARHEAD IDENTIFICATION GUIDE—FOREIGN (U)

### AUTHOR

Jeffrey H. Morgan

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## PREFACE

This unclassified guide presents a collection of data on current foreign antipersonnel and antitank rockets, grenades, and mortar and artillery projectiles and warheads. Army requirements addressed in this product included TRADOC Requirements R90-041, R90-054, and R90-080.

This guide is an aid in the identification of foreign projectiles and projectile fragments. Most projectiles covered in this guide are in the high-explosive category; however, due to their fragmenting against armor, some are in the armor-piercing category also. These projectiles range from 37 through 240 mm. Recovered live and dud projectiles, including components, may vary slightly in weights and dimensions from those reported herein due primarily to variances in manufacture and quality control. The usual manufacturing practice is to mark those projectiles using explosive or chemical fillers that are above or below the nominal weight zone. Russia and some other countries do this by using + or - symbols. These are explained in section I, paragraph 3e.

Russian high-explosive projectiles covered in this guide include those categorized by the Russians for the specific role in which each type is employed; i.e., fragmentation, fragmentation-high-explosive, fragmentation-tracer, and high explosive. All of these are basically high-explosive types but possess varying fragmentation effects.

This guide is recommended for use by field commanders, technical intelligence analysts, field collectors, ammunition research and development technicians, and explosive ordnance disposal personnel. Data contained herein have been collected and compiled from many sources, including intelligence reports and foreign documents but primarily stem from the results of arsenal examination of foreign hardware. The drawings contained in this guide were prepared by this Center and Headquarters, US Army Munitions Command at Dover, NJ. As this guide is intended primarily for field use, it has been produced at the unclassified level. In some cases not enough details about a munition were available at the unclassified level to produce a drawing. In these cases, a picture was used instead. In other cases, projectiles have not been included because no unclassified graphics are available. A classified supplement to this document will be produced on an as needed basis.

The terms Russian, Russia, and Former Soviet are used in this product to reflect the dissolution of the Soviet Union. The bulk of the munitions in stock were produced before the breakup, and a high percentage of production facilities are in Russian territory. The term Czechoslovakia is still used because that breakup was relatively recent, and it is too early to determine what items will be produced where in Slovakia and the Czech Republic.

Requests for information (classified or unclassified) concerning foreign projectiles not listed in this guide may be forwarded through channels to the Commander, US Army Foreign Science and Technology Center, 220 Seventh Street, NE., Charlottesville, Virginia 22901-5396. Shipments of classified or unclassified items to be examined or identified should be forwarded to the Commander, US Army Foreign Science and Technology Center, Foreign Systems Division, ATTN: IAFSTC-IF, Aberdeen Proving Ground, Maryland 21001-5001.

Constructive criticisms, comments, or suggested changes are encouraged and should be forwarded to the Commander, US Army Foreign Science and Technology Center, Charlottesville, VA 22901-5396 (ATTN: IAFSTC-PO).

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## SUMMARY

### ORGANIZATION

This guide is organized into two sections to assist the user in the positive identification of foreign projectiles and fragments. The technical data contained herein, when coupled with the identification methodology, offer a valuable tool for both field and R&D use. The sections are briefly described as follows:

### SECTION I. IDENTIFICATION OF PROJECTILES AND FRAGMENTS

This section covers the tools and methodology of fragment identification. Marking systems are explained and analyzed, various rotating bands and seats are described, and several illustrations of typical fragments are depicted. Measuring tools to assist in identification are also described.

### SECTION II. PROJECTILE DATA AND ILLUSTRATIONS

This section consists primarily of munitions illustrations. The projectile drawings shown in this section are made on the basis of actual exploitation of hardware and provide the user with critical dimensions. In the cases where drawings were not available, the munitions are represented by pictures. The illustrations are complemented with additional technical data such as model designation, type, weight, fuzing, bursting charge, and using weapon.

### CONFIDENCE LEVEL STATEMENT

The data presented in this guide are considered to be 99% reliable, in the cases of the scale drawings. This is because they are extracted from arsenal examination and testing of acquired projectiles. Virtually none of the dimensional data in the drawings is derived from other sources. Data on the pictured pages are considered to be 80% reliable and are derived from other sources. All weights are nominal and are expected to vary slightly from projectile to projectile. Markings, to include model designations, explosive filler compositions, and production data, were obtained from hardware exploitation whenever possible or from pictures of the actual munitions.

### INFORMATION GAPS

Some gaps still exist in this guide. In the case of older hardware, minor gaps exist on projectiles that were either lost through destructive testing or were not examined thoroughly enough for purposes of inclusion in this product. These items are no longer available for examination.

In the case of major gaps, these refer primarily to the newer projectiles. Most of these are threat-country items and cannot be listed herein for security reasons; however, they can be found in DIA products DST-1160Z-126-92 and DST-1160Z-014-89 Ammunition Data and Terminal Effects Guides—ECC and FW, respectively and DST-1120S-309-92 Kinetic-Energy Penetrators Launched From Armored Fighting Vehicles-Foreign.

### CONCLUSIONS

The following conclusions may be drawn from data contained in this guide:

- Former Communist country projectiles employ proven materials for fragmentation effect. These are explosive fillers of TNT, amatol, HMX, and RDX. High-explosive and fragmentation shell bodies are of forged steel and cast iron.
- During the 1960s, the USSR revised its system of projectile marking. The newer system can be observed on items of late manufacture. Model designations are specifically affected.

- China has introduced armor-piercing, fin-stabilized, discarding-sabot-tracer kinetic-energy penetrators in its traditional calibers (100 and 125 mm) and traditionally Western calibers (105 and 120 mm).
- Eastern European countries are using state-of-the-art technologies in high-explosive antitank projectile design, e.g., fin-stabilization, sintered iron rotating bands, wave shapers, piezoelectric fuzing, tapered-thickness fine-grain copper liners, and pressed HMX and RDX explosive fillers.
- Projectiles can be most readily identified by model designation or, in the case of a fragment, by a portion of the rotating band seat. Each rotating band or band seat, like a fingerprint, is designed and tailored to fit a specific projectile.

## SECTION I

## IDENTIFICATION OF PROJECTILES AND PROJECTILE FRAGMENTS

## A. GENERAL BASIS OF FRAGMENT ANALYSIS

1. Introduction

The caliber of a projectile, as well as the model of weapon from which it was fired, can be determined in the majority of cases by a visual and dimensional analysis of recovered duds or fragments. The accuracy of such an identification, however, is largely dependent upon the investigator's technical experience and the source of production; i.e., whether the item was produced in a country using standard manufacturing procedures. The internal and external dimensions of projectiles and such basic elements as rotating bands and the band seats vary sufficiently among calibers and types to form the basis for an accurate method of identification. The probability of error in this method of identification is negligible. Artillery projectiles of major foreign countries that are well made and within the same caliber and type group are almost invariably uniform in their dimensions. These criteria are not observed in projectiles manufactured by some of the less-developed foreign countries (for example, projectiles manufactured by China in the early 1950s).

2. Fragment Analyses

Undeformed or slightly deformed fragments from low-order bursts are valuable in determining the projectile caliber. High-order detonation tends to distort and stretch fragments; therefore, thick base sections, particularly those including rotating bands, are most informative and permit the speediest identification. With experience, caliber can be accurately determined from small fragments or high-order bursts.

a. Rotating Bands and Band Seats. The number, type, and dimensions of rotating bands and the pattern and dimension of the keying design on either the band seat or the inner surface of the rotating band give important evidence about the caliber and type of projectile. The key design is also generally indicative of the country of origin.

b. Engraving of Band by Gun Tube Rifling. The width of the imprint of the land plus that of the groove engraved in the rotating band by the gun tube rifling is a good indication of projectile caliber. This width (land plus groove) is termed "r" in the following formula for determining the caliber of a projectile where C = caliber of projectile, N = number of lands or grooves, and  $\pi = 3.1416$ :

$$C = \frac{rN}{\pi}$$

Example: A recovered projectile has 32 grooves; each groove measures 4.418 mm, and each land measures 4.418 mm. The "r" factor is therefore equal to 8.836 mm. Thus:

$$C = \frac{8.836 \times 32}{3.1416} = 90 \text{ mm}$$

c. Markings and Components. On the body of the projectile or on projectile fragments, bits of paint, stenciling, and stampings, provide an indication of identity. In addition, design dimensions of openings, threadings, fuze adapters, and base plugs also provide identification information; these clues are important to the trained investigator.

d. Fuzes. Fuzes and fuze fragments must be considered with caution, since the same fuze can be used with projectiles of several different calibers. For example, the Russian RGM series of fuzes is used with 100-, 122-, and 152-mm high-explosive (HE) projectiles. Fuzes can be made of different materials (aluminum, copper, brass, plastics, iron, steel, etc.) and may be identified by differences in shapes, details, openings, and stampings.

e. Craters. The size of craters where fragments are recovered is an indicator of the projectile caliber. Crater size alone, however, is an unreliable indication, because it depends on too many variable factors. For example, a 76-mm HE projectile fuze for short delay will produce a larger and deeper crater in loose earth than an

85-mm HE projectile fuzed for instantaneous action. Crater size also varies with the type of soil encountered, even though identical projectiles and fuze settings are used.

### 3. Marking Systems

Each country has a system of marking projectiles for identification. Some systems are uniform; others are not. Projectiles designed, developed, and manufactured by the major foreign countries, with the exceptions of China, North Korea, and Vietnam, are well marked for identification. These latter countries often use coding that hinders identification of the country of origin.

a. Symbols representing the models, calibers, and weight zones of the projectiles of the former

Soviet Union and other Eurasian countries were usually stenciled on the projectiles in black paint between the bourrelet and the rotating band. Above the leading bourrelet is the identification number of the factory, lot number, and year of manufacture, also stenciled in black paint. The Russians use a short model designation consisting of Cyrillic letters (prefixes and suffixes) and numbers that identify the projectile type, the series of using weapons, and changes or modifications to the basic projectile. For instance, "A" followed by "412" indicates that the projectile type is propaganda and that the projectile can be used in all 100-mm weapons bearing the 412-series number. A "B" following the 412 means the second model of that series. An explanation of some of the letters included in Russian model designations for ammunition are:

#### Prefixes

<u>Russian</u>	<u>English</u>	<u>Meaning</u>
A	A	Propaganda or fragmentation
B	B	Armor-piercing
BP	BR	Armor-piercing tracer
B3A	BZA	Armor-piercing incendiary (improved)
B3P	BZR	Armor-piercing incendiary tracer
BM	BM	Armor-piercing discarding sabot (fin or spin stabilized)
BП	BP	High-explosive antitank (spin stabilized)
BK	BK	High-explosive antitank (fin stabilized)
B3	BZ	Armor-piercing incendiary
Д	D	Smoke
ДЦ	DTs	Target marker smoke
Ф	F	High explosive
Г	G	Concrete piercing
О	O	Fragmentation
ОФ	OF	Fragmentation high explosive
ОГ	OG	Fragmentation (pertaining to launched grenades)
ОФР	OFR	Fragmentation high-explosive tracer
ОФ3Т	OFZT	High-explosive incendiary tracer (improved)
ОР	OR	Fragmentation tracer
О3	OZ	Fragmentation incendiary
ОХ	OKh	Fragmentation gas
ПБР	PBR	Armor-piercing target practice
ПГ	PG	High-explosive antitank (pertaining to launched grenades)
Пу	PU	Target practice
P	R	Tracer
РПО	RPO	Infantry rocket flamethrower
C	S	Illuminating
СП	SP	Solid shot armor piercing
Ш	Sh	Shrapnel
Ш	Shch	Canister

<u>Russian</u>	<u>English</u>	<u>Meaning</u>
Х	Kh	Gas
З	Z	Incendiary
ИНЕРТ	INERT	Inert (contains no explosive, pyrotechnic, or chemical)
МАКЕТ	MAKET	Model (used for training)
ОСКОЛ	OSKOL	Fragmentation
ПРАКТ	PRACT	Practice

Suffixes

<u>Russian</u>	<u>English</u>	<u>Meaning</u>
А	A	Cast iron
Б	B	Improved projectile - mostly AP types
Д	D	Improved projectile - mostly AP types
ДУ	DU	Improved projectile - mostly Frag types
Ж	Zh	Sintered iron rotating band
К	K	Improved projectile - mostly AP types
М	M	Usually HEAT projectile - copper liner
Н	N	Improved projectile - mostly Frag
П	P	Usually improved HVAP projectile
ПК	PK	Usually improved HVAP projectile
С	S	Improved HEAT projectile
СП	SP	Improved AP projectile
У	U	Usually improved AP projectile
УМ	UM	Improved HEAT projectile

b. In general, projectiles manufactured by the countries other than former or present communist nations are marked with the same type of information as indicated above. Most of these countries use abbreviations such as HEAT, for high-explosive antitank, and HE, for high explosive, to indicate projectile type.

c. Most of these countries use symbols such as TNT, RDX, and Comp B to identify the explosive filler of a projectile; Russia and most other former or present Eurasian Communist countries use similar symbols. Russian symbols and their meanings are indicated below.

<u>Russian</u>	<u>English</u>	<u>Explosive or Chemical</u>
А	A	Amatol (100% ammonium nitrate)
А-40	A-40	Amatol (40% ammonium nitrate, 60% TNT)
АТ-40	AT-40	Amatol (40% ammonium nitrate, 60% TNT pressed)
А-80	A-80	Amatol (80% ammonium nitrate, 20% TNT)
АТ-90	AT-90	Amatol (90% ammonium nitrate, 10% TNT pressed)
АТФ-40	ATF-40	TNT (40% ammonium nitrate, 60% TNT pressed)
А-ИХ-1	A-9-1	RDX 94% and wax 6%
А-ИХ-2	A-9-2	RDX 73%, aluminum 23%, wax 4%
А-ИХ-20	A-9-20	RDX 78%, aluminum 19%, wax 3%
А-ИХ-П	A-9-P	RDX with unknown suffix "P"
ДБ	DB	Dinitrobenzol
ДБТ	DBT	Dinitrobenzene and TNT
Г	G	Hexogen (cyclonite, RDX)
ГАИ-30	GAI-30	RDX 30%
З	Z	Incendiary

<u>Russian</u>	<u>English</u>	<u>Explosive or Chemical</u>
М	M	Picric acid
МС	MS	TNT/AL/RDX
К-1	K-1	TNT 70%, dinitrobenzene 30%
К-2	K-2	TNT 80%, dinitrobenzene 20%
ОКТОГЕН	Octogen	HMX
ОКФОЛ	OKFOL	HMX 95%, wax 5% (normal composition)
ОКТОЛ	OKTOL	HMX and TNT
ОЛ	OL	HMX 95%, wax 5% (normal composition)
ПВВ-5А	PVV-5A	RDX 85%, mineral oil 10%, poly-isobutylene 5% (plastic explosive)
Т	T	Trotyl (TNT)
Т-80	T-80	TNT 80%, RDX 20%
ТГ	TG	TNT and RDX
ТГ-30	TG-30	TNT 30%, hexogen (RDX) 70%
ТАГ-50	TG-50	TNT 50%, hexogen (RDX) 50%
ТГАФ-5	TGAF-5	TNT 40%, RDX 40%, aluminum 20%
ТГАГ-5	TGAG-5	TNT 60%, RDX 20%, aluminum 15%, wax 5%
ТД-42	TD-42	TNT 42%, dinitronaphthalene 58%
ТД-50	TD-50	TNT 50%, dinitronaphthalene 50%
ТДу	TDU	TNT with spotting charge
ТС	TS	TNT sulfite
Ш	Sh	Schneiderite (ammonium nitrate 88%, dinitronaphthalene 12%)
ШТ	ShT	Schneiderite and TNT
Р-4	R-4	White and yellow phosphorus
Р-5	R-5	Mustard gas
РС	RS	Lewisite gas
РЮ	RYu	Phosgene gas
Р-15	R-15	Adamsite gas

d. Some foreign countries employ a system for identifying projectiles by color markings, especially on ammunition manufactured during nonwar periods. Bands, portions of ogive, or entire projectiles are painted. This system can be relied on only to a limited degree, because of the wide divergence and various methods among countries and among different categories of ammunition

within a country. Frequently, the same color is found on both HE and armor-piercing projectiles. Current data on the color-marking systems of foreign countries on this method of identifying foreign projectiles are not available.

e. Russian projectile weight classifications follow:

<u>Symbol</u>	<u>Meaning</u>
ПГ	Greater than 3% below standard
----	2.33% to 3% below standard
---	1.66% to 2.33% below standard
--	1% to 1.66% below standard
-	0.33% to 1% below standard
Н	0.33% below to 0.33% above standard
+	0.33% to 1% above standard
++	1% to 1.66% above standard
+++	1.66% to 2.33% above standard
++++	2.33% to 3% above standard
ТЛ	Greater than 3% above standard



## B. FRAGMENT TYPES, ILLUSTRATIONS, AND TESTING

### 4. General

a. Foreign countries are currently using a variety of projectile designs to achieve increased fragmentation effectiveness against personnel and materiel. These designs fall into two broad categories: uncontrolled and controlled fragments.

b. Uncontrolled fragments are produced when the warhead casing or wall is ruptured by the detonation of the HE filler. Segments of the casing are propelled outwards at high velocity and may vary in size and shape, because no attempt was made to control the size and shape. The well-known forged steel, gray cast iron, high-fragmentation steel, modular iron, and pearlitic malleable iron (PMI) projectiles are being improved metallurgically to increase their fragmentation effectiveness (smaller and more uniform fragments). A normal gray cast iron 82-mm mortar projectile will produce more than 5000 fragments, of which approximately 3600 are very small (less than 0.39 gram). These fragments are formed by detonation of the explosive filler into a variety of shapes; few, if any, are identical (fig 1-1 thru 1-4).

c. Controlled fragments, conversely, are produced when the warhead casing has been specifically designed to break up into predetermined fragment size and shape. The fragment takes its final shape during detonation of the explosive charge. For this reason, the controlled fragment is often referred to as a fire-formed fragment. Some design methods employed include: Multiple wall casings, ringed casings, helically wrapped wire (notched or unnotched), scored casings, and fluted liners.

d. Preformed fragments are a variation of the controlled-fragment technique. They are precut and formed into their final shapes before detonation of the explosive charge. The fragments are mechanically held in place around the charge. Typical shapes are cubes, rods, spheres, and flechettes. Use of preformed fragments dates back to the Civil War, when pieces of metal were embedded in the explosive fillers of cannonballs. Preformed fragments can be held in place by cementing or embedding in a plastic or frangible substance (fig 1-5).

e. A newer variant of fragment control was conceived and developed by the US Naval

Weapons Center. It is called the shear-control method. The name derives from the ability to control both the initiation locations of shear fractures in the warhead casing and the orientation of the planes along which the fractures propagate. This method uses the families of mechanical stress raisers in the form of a grid system which is machined or formed into the inner surface of the warhead case. The elements of the grid system control the initiation of shear fractures at the root of each grid element. The shear fractures then propagate along fracture paths established by the stress field existing in the warhead case during the initial phase of case expansion. The control grid is designed to match the geometry of this stress field and use the principal strains in the metal to activate only specific families of fracture paths and thus produce fragments of a desired size and shape. This method can be used with cylindrical, spherical, and ogival warheads.

### 5. Typical Projectile Fragments and Arena Testing

a. Figures 1-1 through 1-4 show various types and sizes of fragments produced by exploding a highly explosive projectile in a test arena at Aberdeen Proving Ground, MD, to determine fragment mass, velocity, spray density, and drag factor. These data are used to calculate lethal areas against troops and equipment in a tactical environment.

b. The arena test setup includes cellotex panels and instrumentation for checking, gathering, and recording the foregoing data. The fragments are collected from the panels and sorted by size and weight. All data are then reduced to assess lethality. Similar results can also be obtained theoretically by computer programs using raw data on the projectile design and physical characteristics.

## C. READY-REFERENCE PROJECTILE IDENTIFICATION SYSTEM

### 6. Basis for Identification

Fragments that contain a part of the rotating band seat provide noteworthy information on the caliber of a projectile and the country of origin. Caliber determination is discussed in paragraph 9. Examples of typical spin- and fin-stabilized projectiles produced in the Former Soviet Union are shown in fig 1-6.

7. Tools and Instruments Required

a. Metric Tape Measure or Rule. Should be the flexible steel type to measure curved as well as straight surfaces.

b. Metric Micrometer Set. At least 1 through 150 mm.

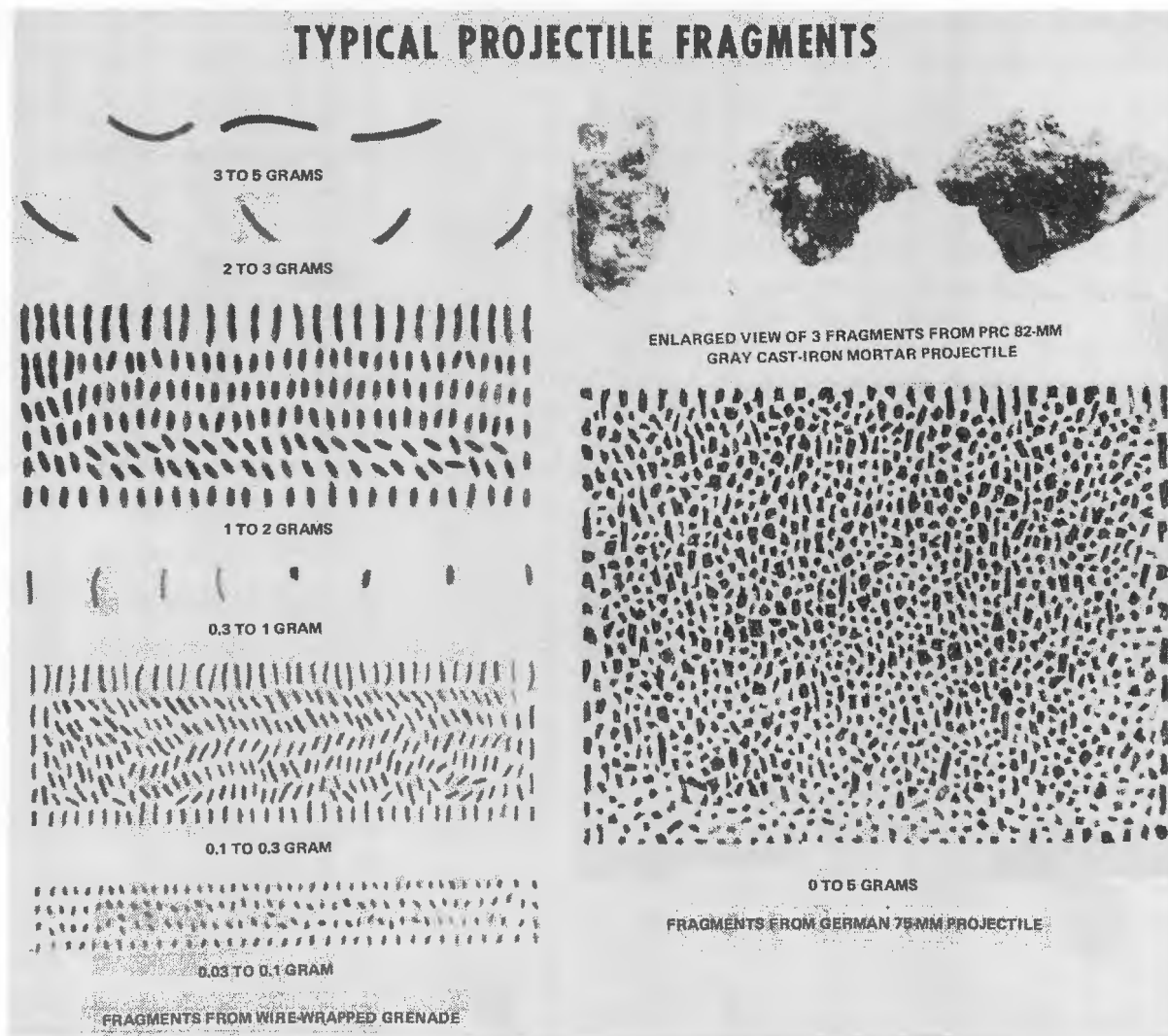
c. Dividers, Drawing. At least two sizes of ranges.

d. Compass, Drawing. At least two sizes of ranges.

e. Template. Can be locally fabricated from sheet steel or aluminum stock. The template is issued for quick field identification of projectile radii. Such identification is less accurate than diameter measurements.

f. Screw Pitch Gage. Used to measure all threaded and serrated surfaces.

g. Other Miscellaneous Tools and Instruments. Protractors, calipers, and magnifying glasses (fig 1-7).



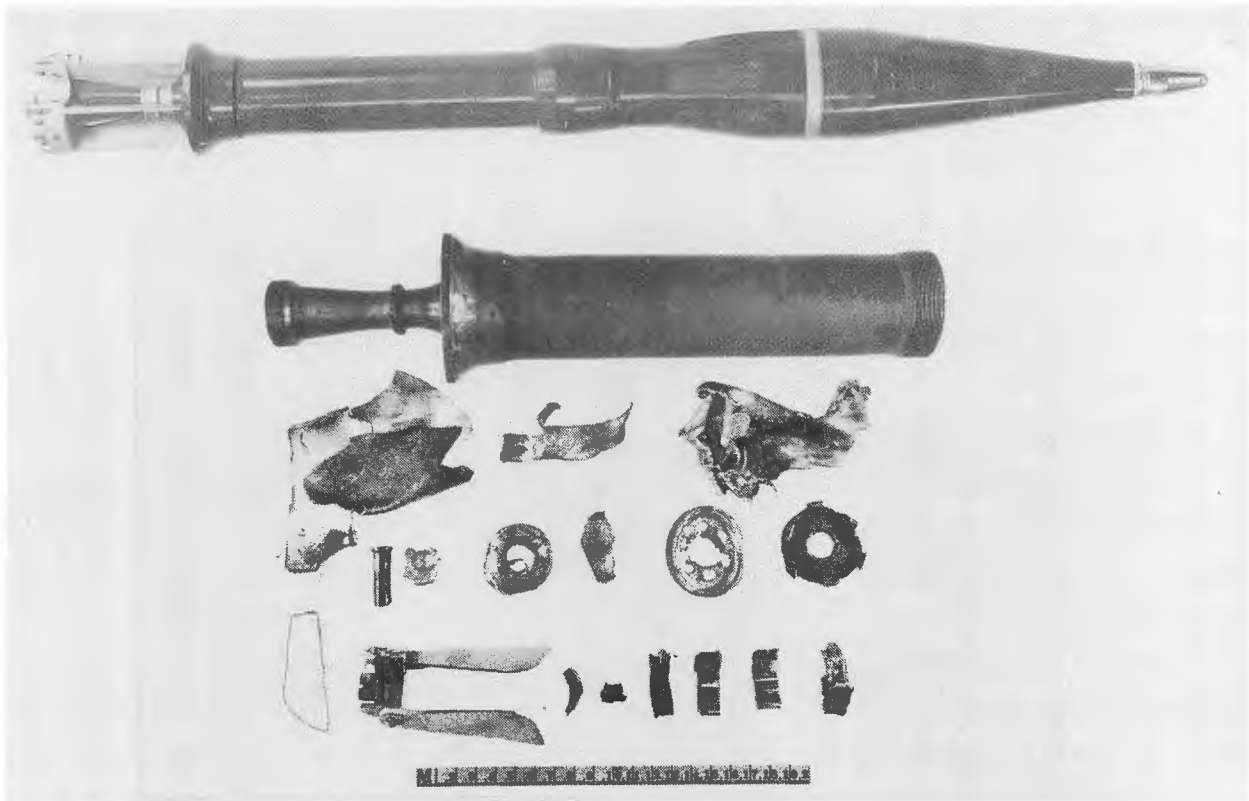
Neg. 502801

Figure 1-1. Typical Projectile Fragments



Neg. 502802

Figure 1-2. Soviet 27-mm Fragments From Model OR-167 Frag-T Projectile



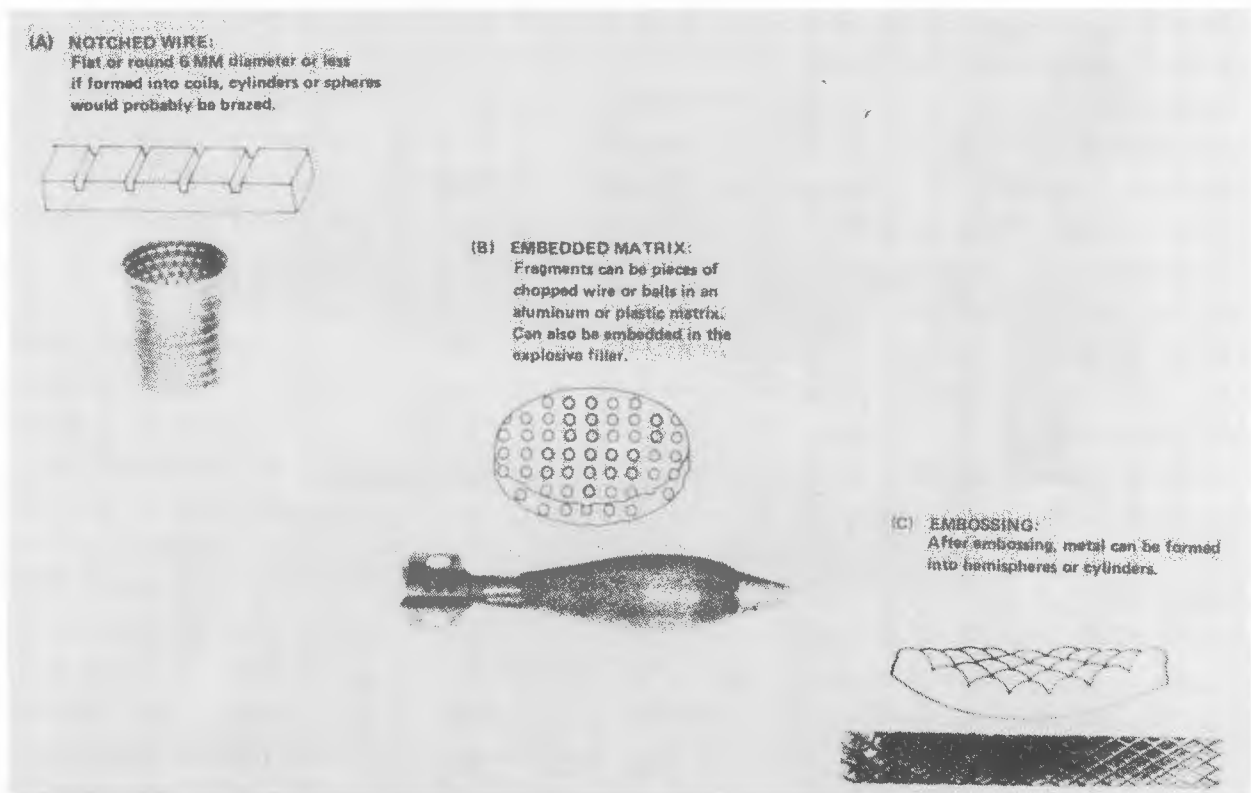
Neg. 520621

Figure 1-3. Russian 73-mm Fragments From Model P6-9 HEAT-FS Projectile



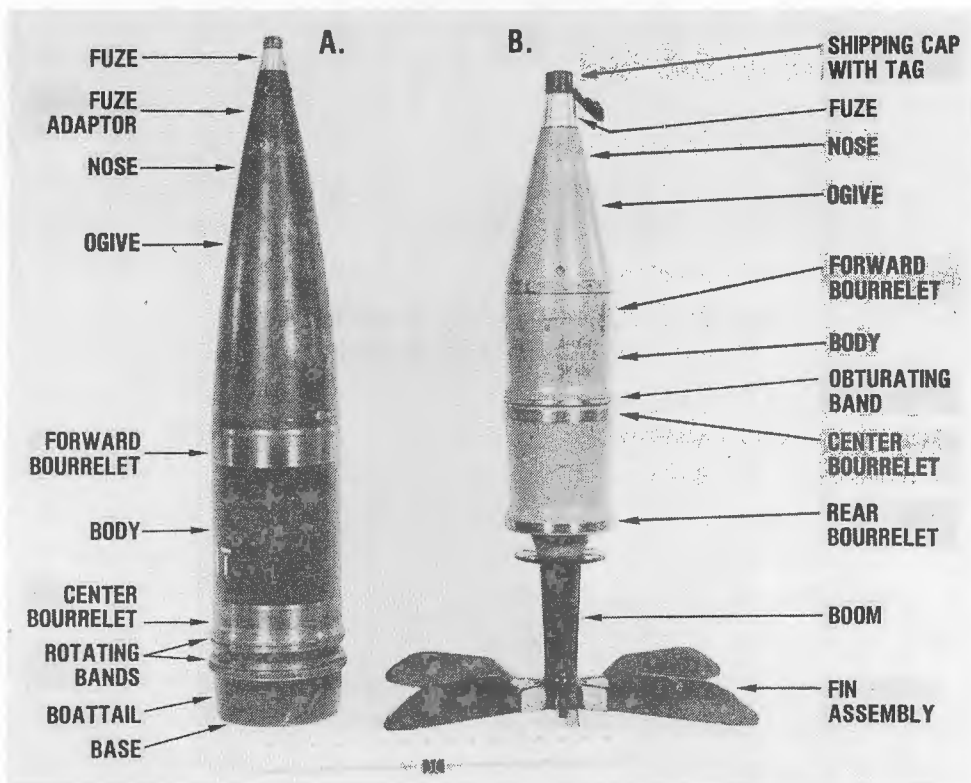
Neg. 525264

Figure 1-4. Russian 115-mm Fragments From  
Model OF-18 Frag-HE Projectile



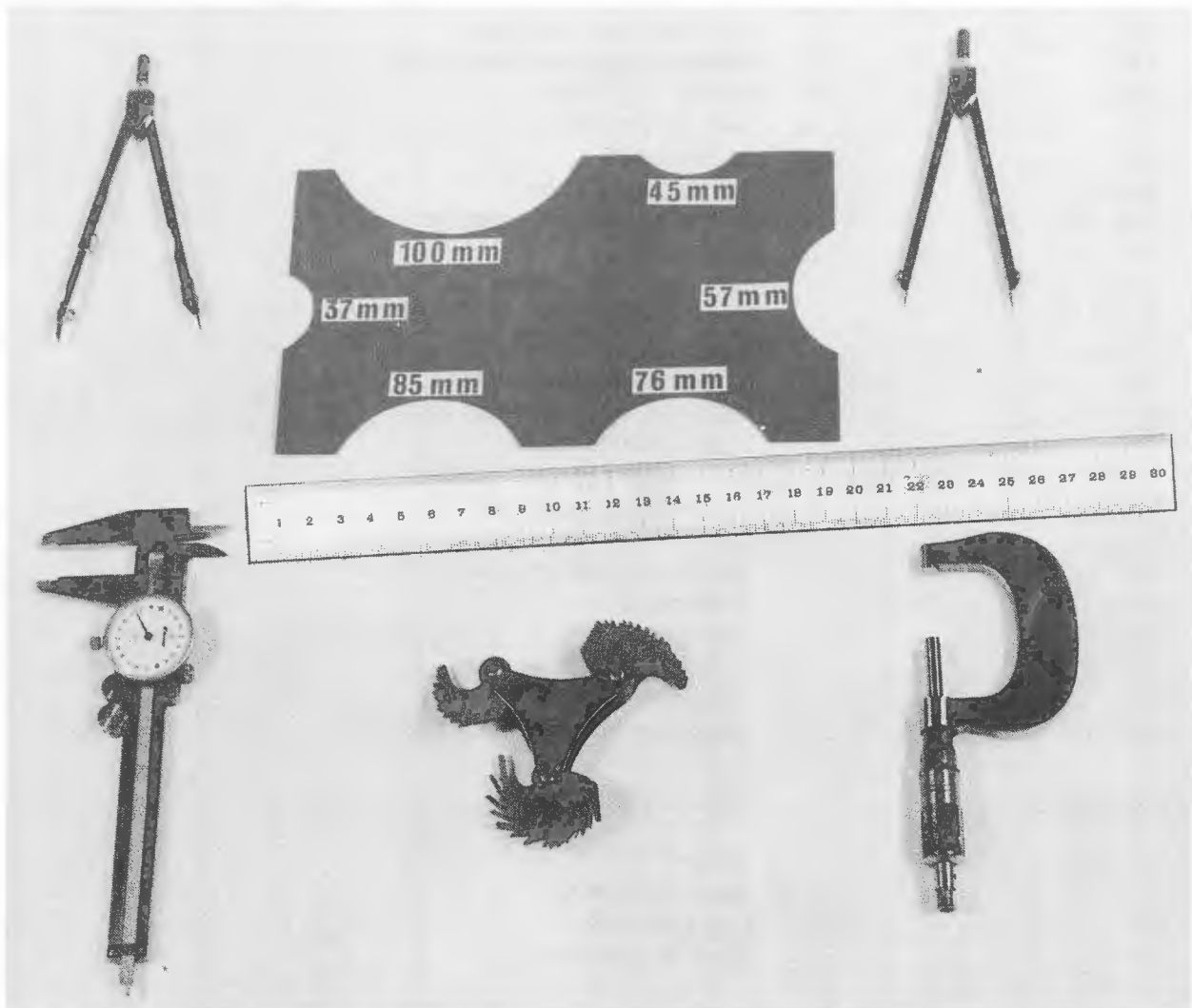
Neg. 502804

Figure 1-5. Preformed Fragments



Neg. 533586

Figure 1-6. Examples of Typical Russian HE Projectiles



Neg. 502806

Fig 1-7. Measuring Instruments for Projectiles Identification

## 8. Description of Projectile Drawing Arrangement

a. General. Projectile drawings in Section II are arranged by caliber and type. The following abbreviations denoting projectile and fuzing types are used in these drawings.

b. Projectile Types. See list below:

<u>Abbreviation</u>	<u>Type of projectile</u>
AP .....	armor-piercing
APC .....	armor-piercing capped
APC-T .....	armor-piercing capped tracer
APDS .....	armor-piercing discarding sabot
APERS .....	antipersonnel
APFSDS-T .....	armor-piercing fin-stabilized discarding sabot
AP-T .....	armor-piercing tracer

API .....	armor-piercing incendiary
API-T .....	armor-piercing incendiary tracer
cstr .....	canister
CP .....	concrete-piercing
Frag .....	fragmentation
Frag-T .....	fragmentation tracer
Frag-HE .....	fragmentation high-explosive
HE .....	high-explosive
HEAT .....	high-explosive antitank (shaped-charge)
HEAT-FS .....	high-explosive antitank fin stabilized
HE-gas .....	high-explosive gas
HEI .....	high-explosive incendiary
HEI-T .....	high-explosive incendiary tracer
HEP .....	high-explosive plastic
HESH .....	high-explosive squash-head
HVAP .....	hypervelocity armor-piercing
HVAP-T .....	hypervelocity armor-piercing tracer
HVTP .....	hypervelocity target-practice
illum .....	illuminating
prop .....	propaganda
RAP .....	rocket-assisted projectile
SAP .....	semiarmor piercing
SAP-HE .....	semiarmor piercing high explosive

<u>Abbreviation</u>	<u>Type of projectile</u>
---------------------	---------------------------

SHRAP .....	shrapnel
TM .....	target-marking
TP .....	target-practice
WP .....	white phosphorous

c. Fuze Types.

<u>Abbreviation</u>	<u>Type of fuze</u>
BD .....	base-detonating
MT .....	mechanical time
MTSQ .....	mechanical time superquick
PD .....	point-detonating
PDSQ .....	point-detonating self-destruct
PIBD .....	point-initiating base-detonating
SQ .....	superquick
T .....	time
VT .....	variable time (proximity)

9. Determination of Caliber by Analysis of Rotating Band Seat Fragments

a. General. Experience has shown that the most readily identified type of fragment is that which includes a portion of the rotating band seat. Frequently, a fragment of this type can be identified by direct comparison with the detailed drawings in section II. The keying design of the

rotating band seat will also be impressed on the inner surface of the rotating bands; however, consideration must be given to the likelihood of distortion of rotating bands that are made of soft metal. Also, consider that projectiles of different calibers often have the same type of keying design on the band seat, although the dimensions of the design and the seat will vary in the different calibers. Additionally, some band seats are undercut,



calibers often have the same type of keying design on the band seat, although the dimensions of the design and the seat will vary in the different calibers. Additionally, some band seats are undercut, and the soft-metal rotating band fits into the seat to form a dovetail joint. Thus, the width of such a band seat is greater at the base (toward the interior of the projectile body) than at the surface of the projectile body. Finally, there are many projectiles that have no keying. Rotating bands for these projectiles are simply bonded or pressed onto the seat.

b. Country of Origin. The rotating band seat and the method of keying the rotating band to the seat frequently indicate the country of origin and the weapon firing the projectile. But this should not be interpreted to mean that only the country designated uses that particular band seat and keying method. The same types are often used by more than one country, particularly among the Former Soviet bloc countries.

c. Russian Rotating Band Seats. An examination of Russian artillery projectiles indicates

that the vertically indented band seat predominates. This is a simple, reliable, and relatively easy method of seating rotating bands. The number of rotating bands may vary from one or two for light and medium caliber projectiles to triple and quadruple bands for heavy caliber projectiles. The number of vertical indentations per centimeter may vary from 4 to 11. The arrangement of the indentation varies from single rows under small caliber projectile bands to double rows under medium and large caliber bands. Russian projectiles with one wide and one narrow rotating band have been examined; the seat of the wide banded projectile has a double row of indentations.

d. Rotating Band Seats on High-Velocity Projectiles. Observe closely the design of band seats on Russian 57-, 85-, and 100-mm projectile drawings shown in section II. These projectiles are used in modern high-velocity antitank, tank, and self-propelled guns, and rotating bands are seated in a manner that enables them to withstand high initial velocities without being stripped from the projectile.

## SECTION II

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**PROJECTILE DATA AND DRAWINGS**

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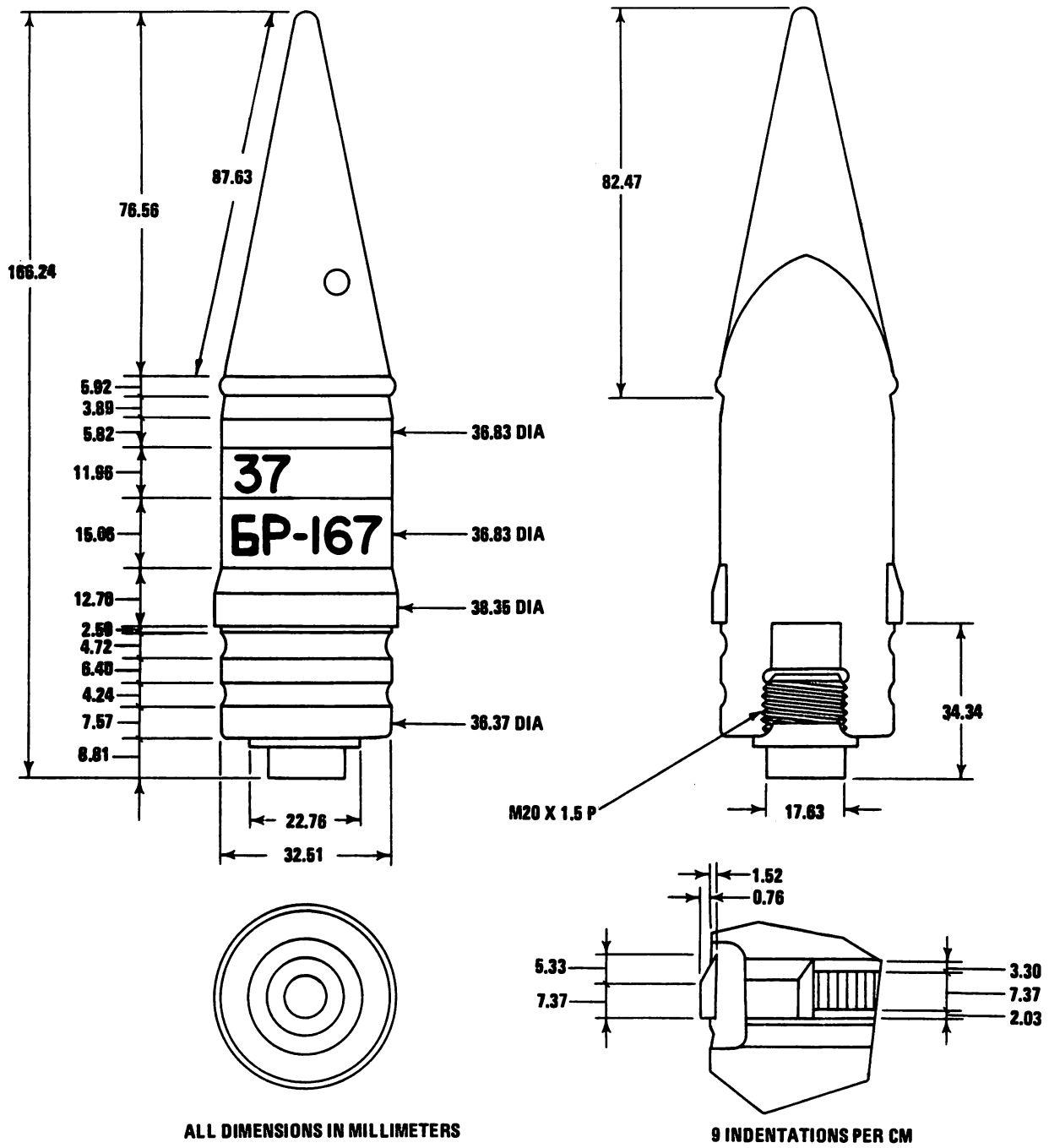
**1. Projectile Drawings**

Many of the illustrations in this section are drawings showing enlarged cutaway views of rotating band seats and side, sectional, and base views of the projectiles. Appropriate critical dimensions are given when possible, with the exception of rotating band seats which are measured in indentations per centimeter. All dimensions are shown in millimeters. The drawings were prepared only after careful examination of the actual projectile. Data appearing on the drawings are sufficiently accurate to permit identification of projectiles from their fragments, provided the recommended procedure for analyzing fragments is

closely followed. In some cases, enlarged cutaway views are not available, and photographs are provided to depict the item.

**2. Projectile Data**

With each projectile illustration, additional information is given on the projectile, and the weapon or weapons in which it is known to be used are identified. Weapons are identified only when there is evidence that they fire the illustrated projectile, and the actual model designation of the projectile is shown if available. Detailed coverage of significant characteristics and performance of firing weapons can be found in appendix I.



Neg. 502814

Projectile fuze wt: 0.77 kg

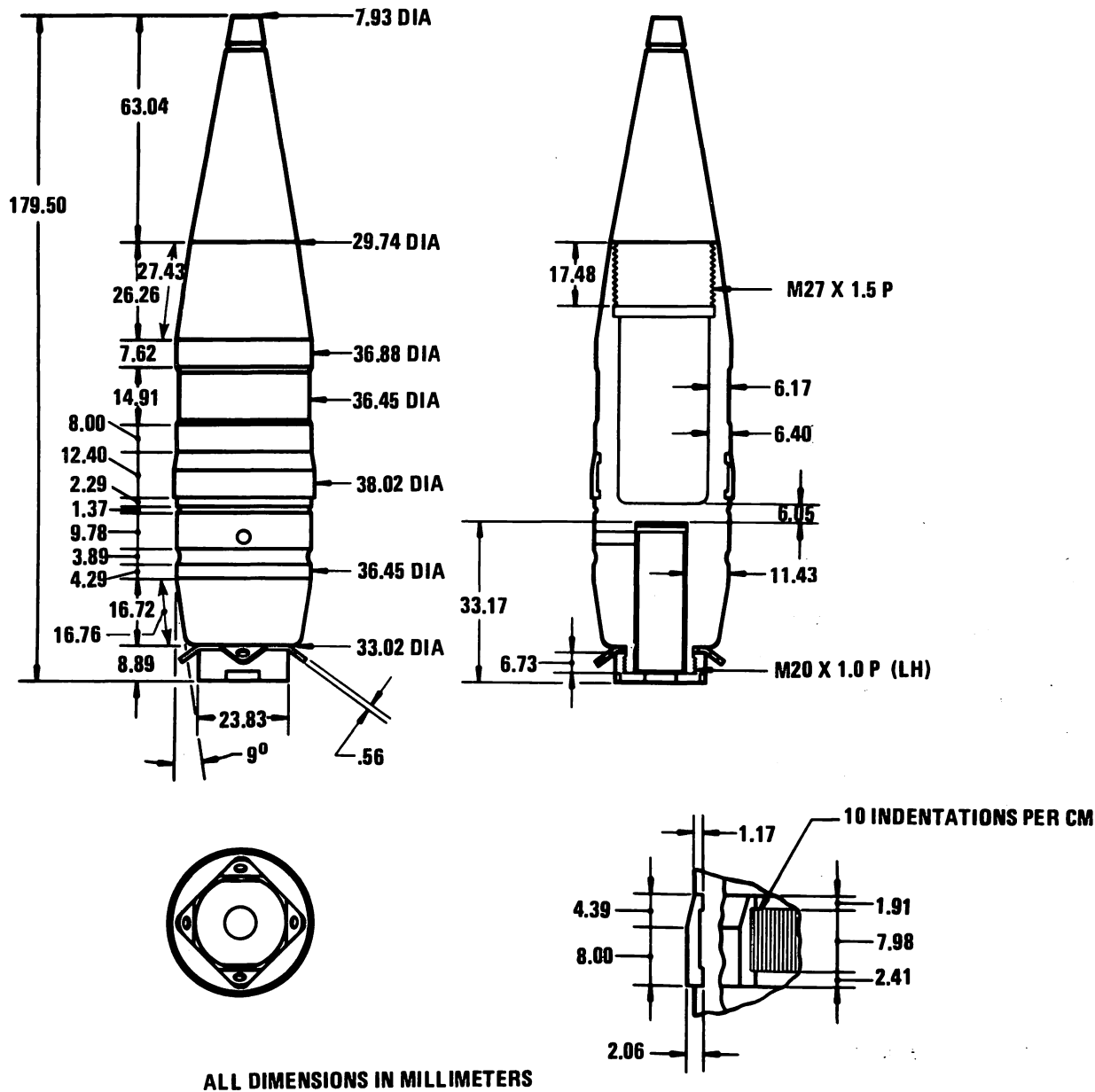
Fuze: None

Filler type & wt: None

Using weapon(s): AA gun M1939 and SP AA gun SU-37

Remarks: A variation exists with two breakoff grooves and a boat-tail

Figure 2-1. Russian 37-mm AP-T Projectile Model BR-167



Neg. 502815

Projectile fuze wt: 0.74 kg

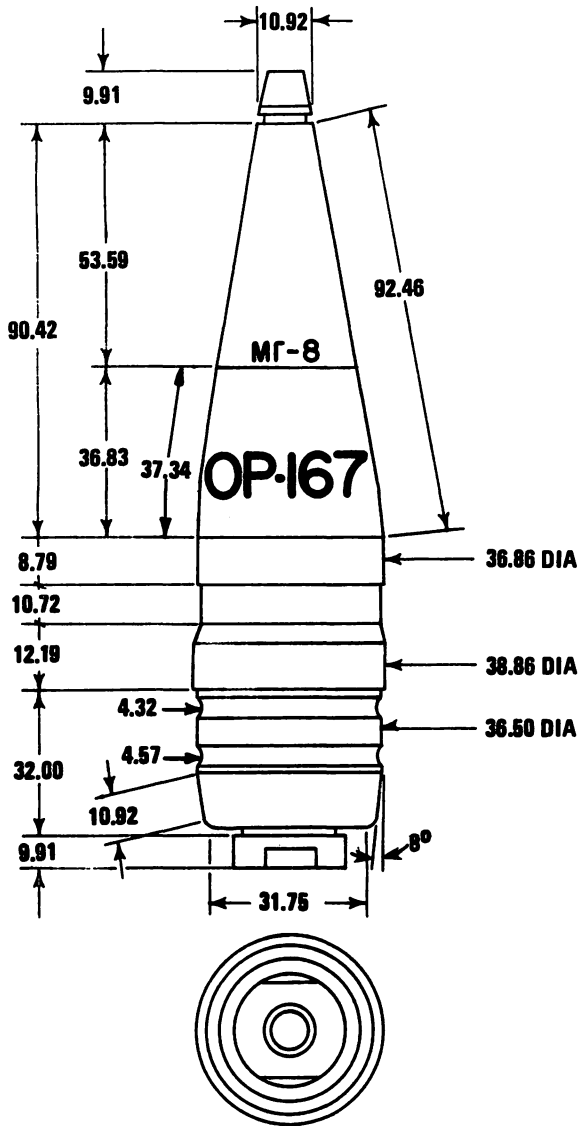
Fuze: A-37U PDS

Filler type & wt: RDX/aluminum, 0.04 kg

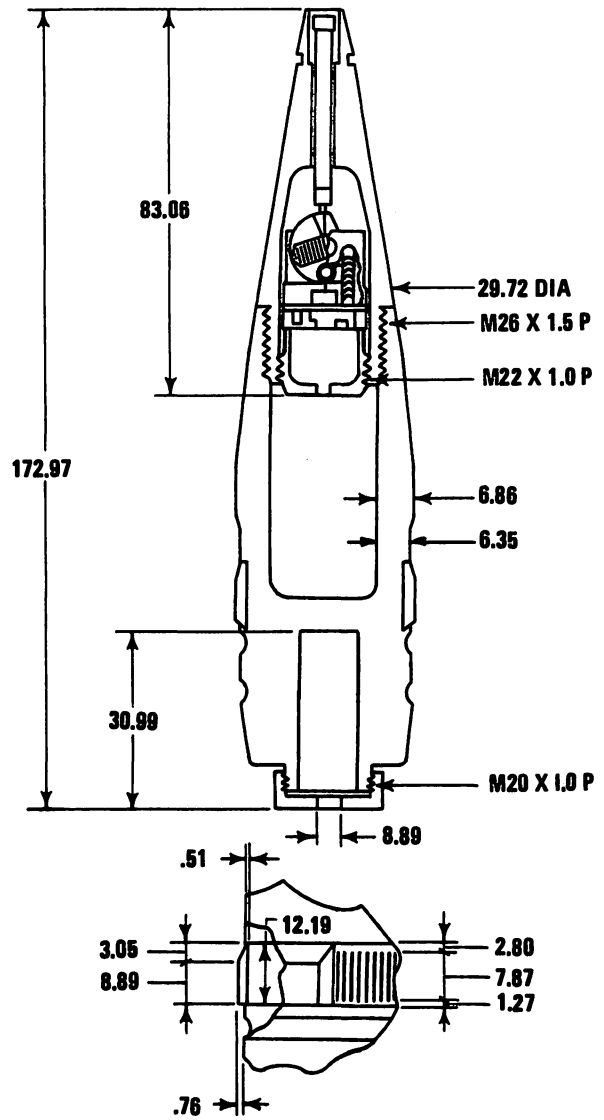
Using weapon(s): Aircraft cannon Model N

Remarks: None

Figure 2-2. Russian 37-mm HEI-T Projectile Model OZT



ALL DIMENSIONS IN MILLIMETERS



11 INDENTATIONS PER CM

Neg. 502812

Projectile fuze wt: 0.73 kg

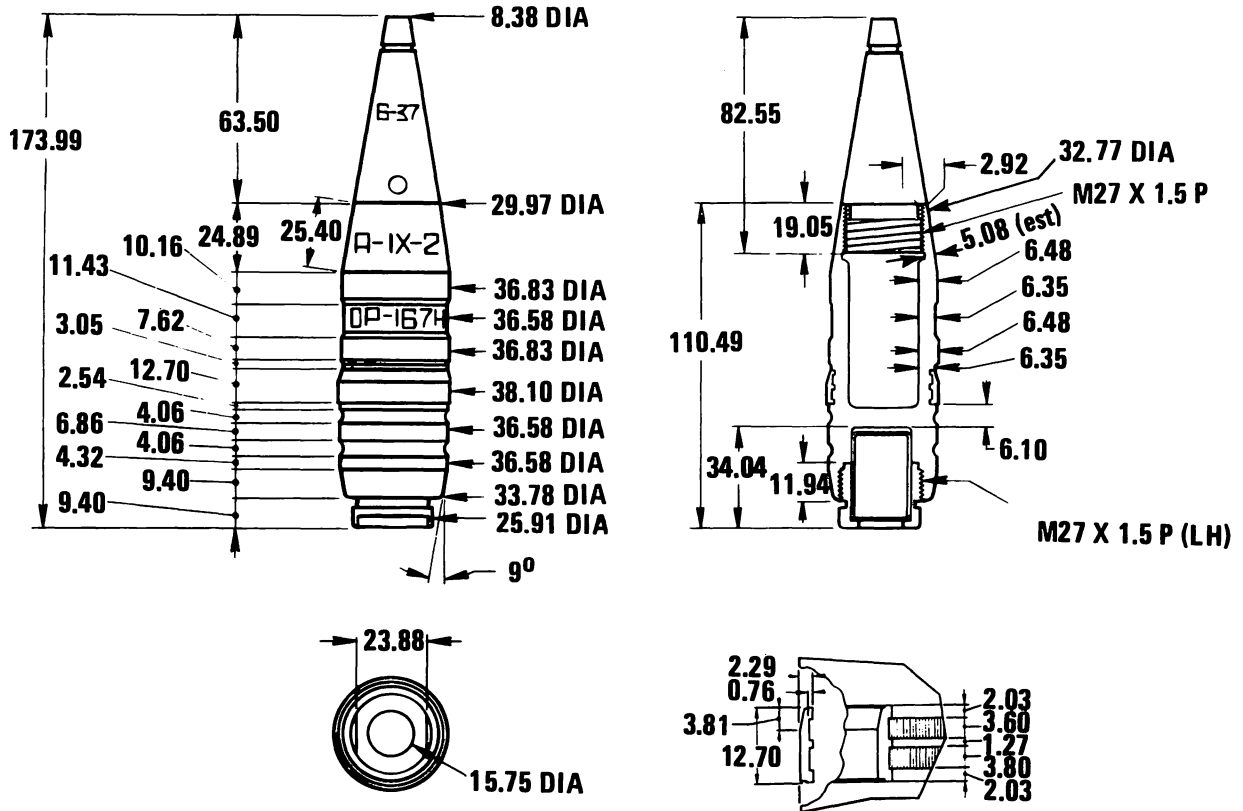
Fuze: MG-8 PDS

Filler type & wt: RDX/aluminum, 0.04 kg

Using weapon(s): AA gun M1939 and SP AA gun SU-37

Remarks: Also uses MG-37 PDS fuze

Figure 2-3. Russian 37-mm Frag-T Projectile Model OR-167



ALL DIMENSIONS IN MILLIMETERS

11 INDENTATIONS PER CM

Neg. 502813

Projectile fuzed wt: 0.71 kg

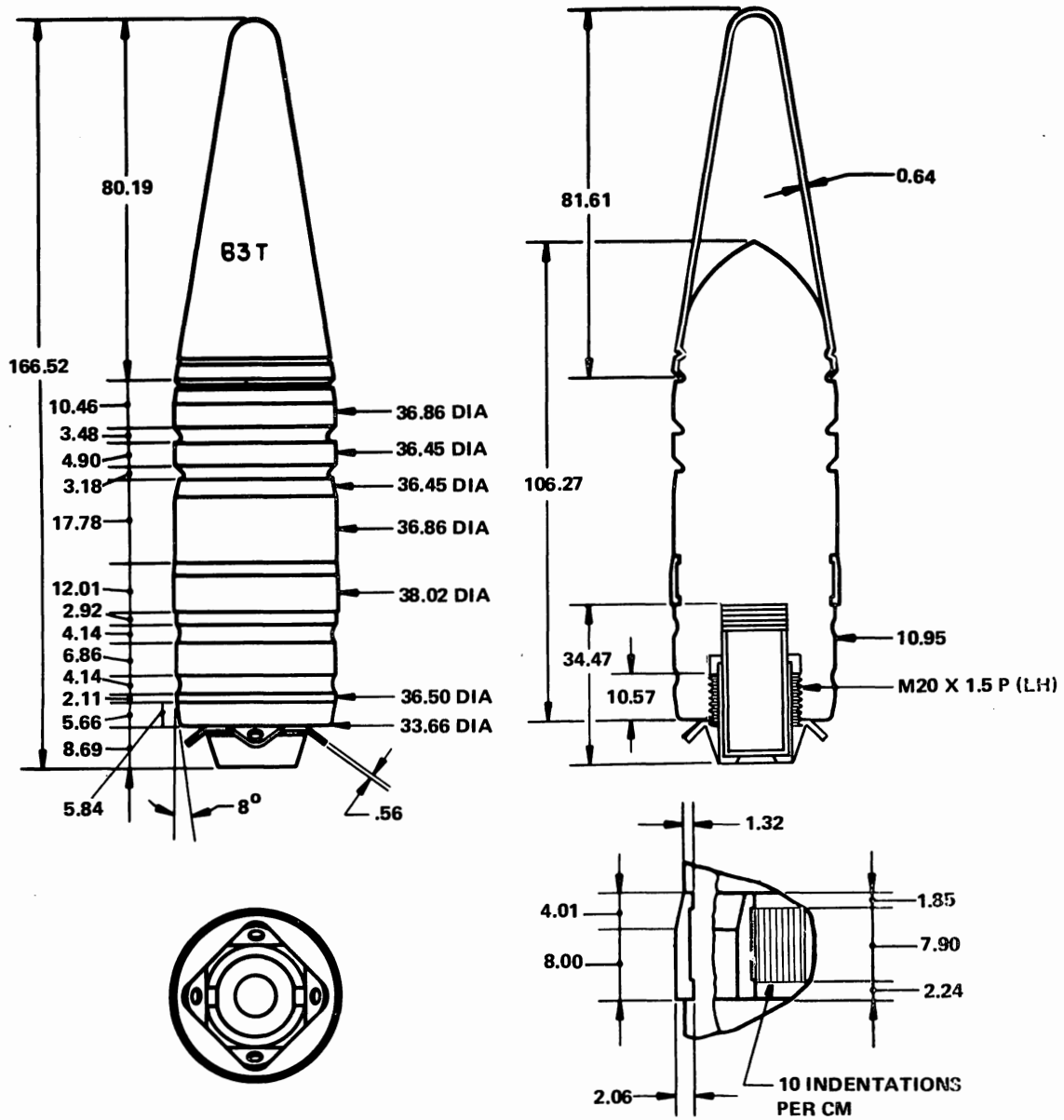
Fuze: B-37 PD

Filler type & wt: RDX/aluminum, 0.04 kg

Using weapon(s): AA gun M1939 and SP AA gun SU-37

Remarks: Fuze is same as MG-37 except for function of rotor lock pin

Figure 2-4. Russian 37-mm Frag-T Projectile Model OR-167N



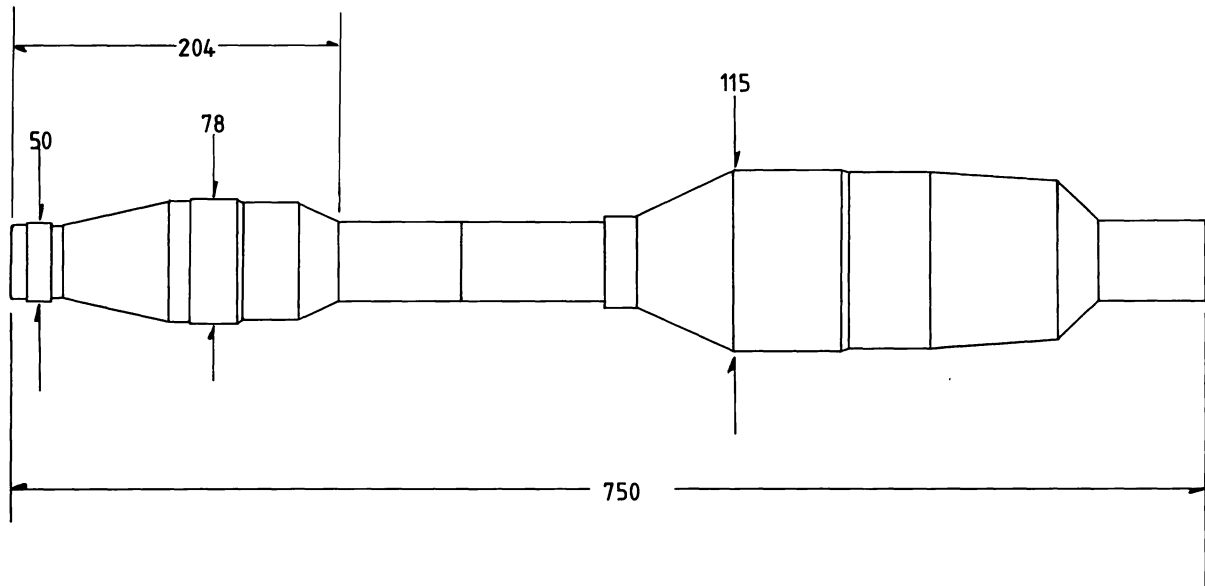
ALL DIMENSIONS IN MILLIMETERS

Neg. 502816

Projectile fuze wt: 0.76 kg  
 Fuze: None  
 Filler type & wt: None

Using weapon(s): Aircraft cannon Model N  
 Remarks: None

Figure 2-5. Russian 37-mm AP-T Projectile Model BZT



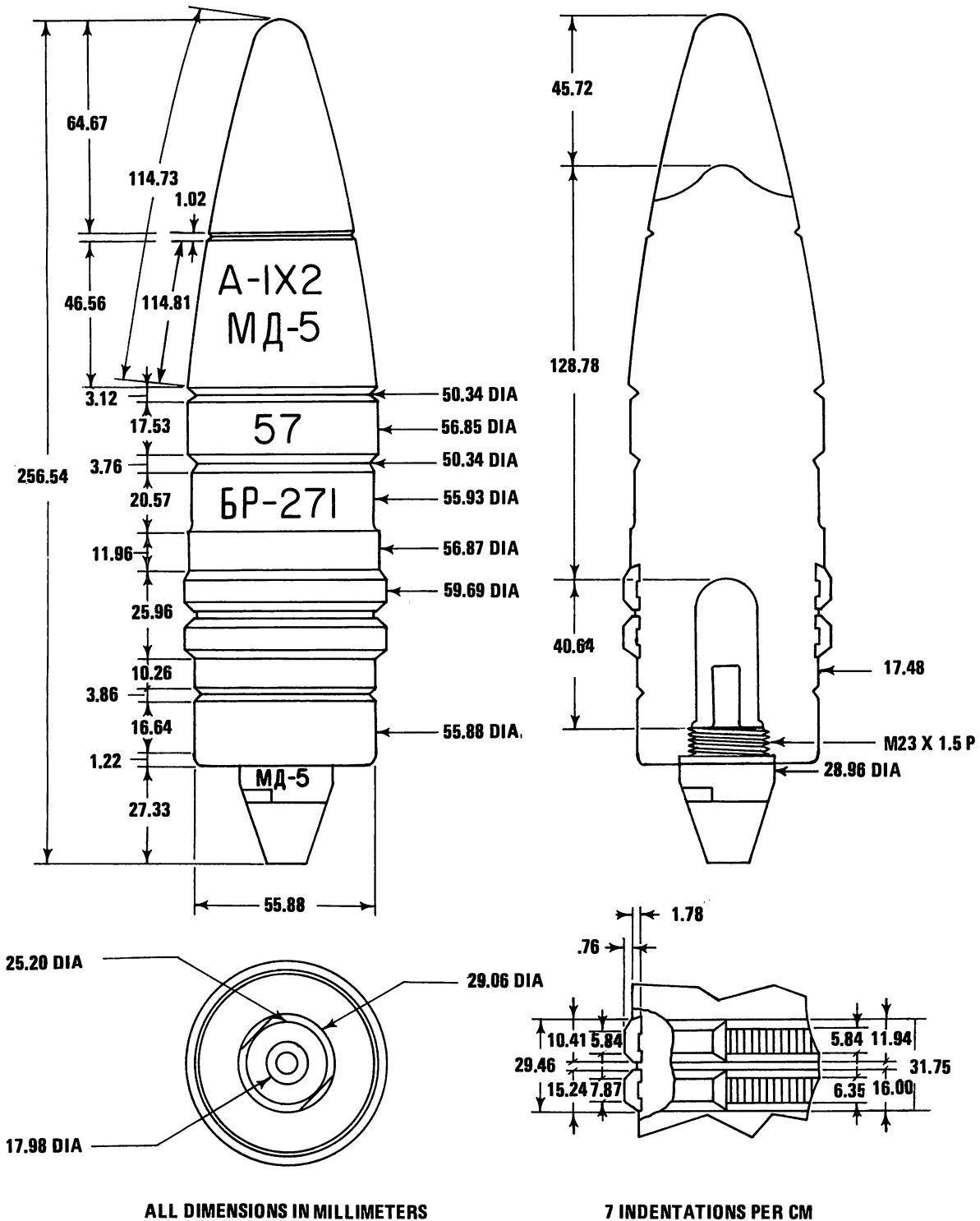
Projectile mass: 2.6 kg

Using weapons: RPG-7V type antitank grenade launchers

Remarks: Tandem HEAT warhead. Same warhead is used in two other developmental systems

Figure 2-6. Russian 40/105-mm HEAT Projectile Model PG-7VR





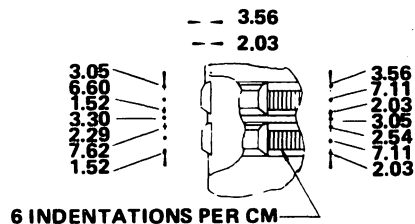
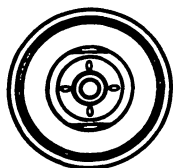
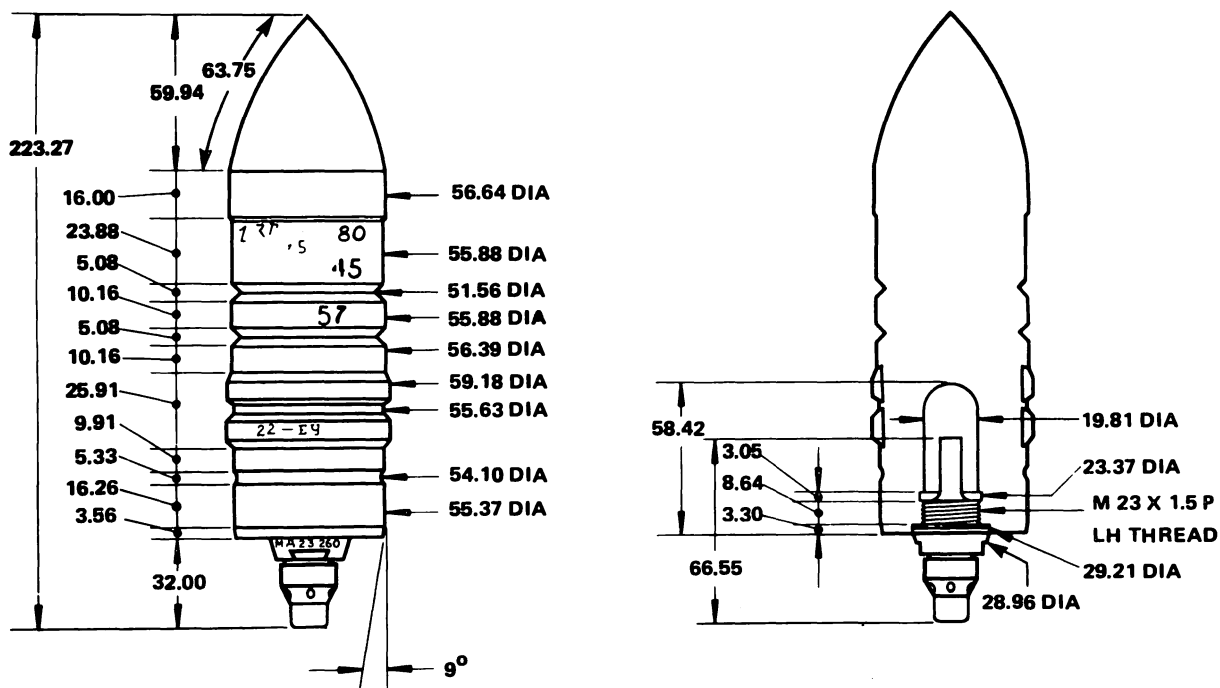
Neg. 502827

Projectile fuze wt: 3.14 kg  
Fuze: MD-5 BD  
Filler type & wt: RDX/aluminum, 0.04 kg

Using weapon(s): AT gun ZIS-2, APAT gun Ch-26, and ASU guns Ch-51 and Ch-51M

Remarks: Red color band on projectile body

Figure 2-7. Russian 57-mm AP-T Projectile Model BR-271



ALL DIMENSIONS IN MILLIMETERS

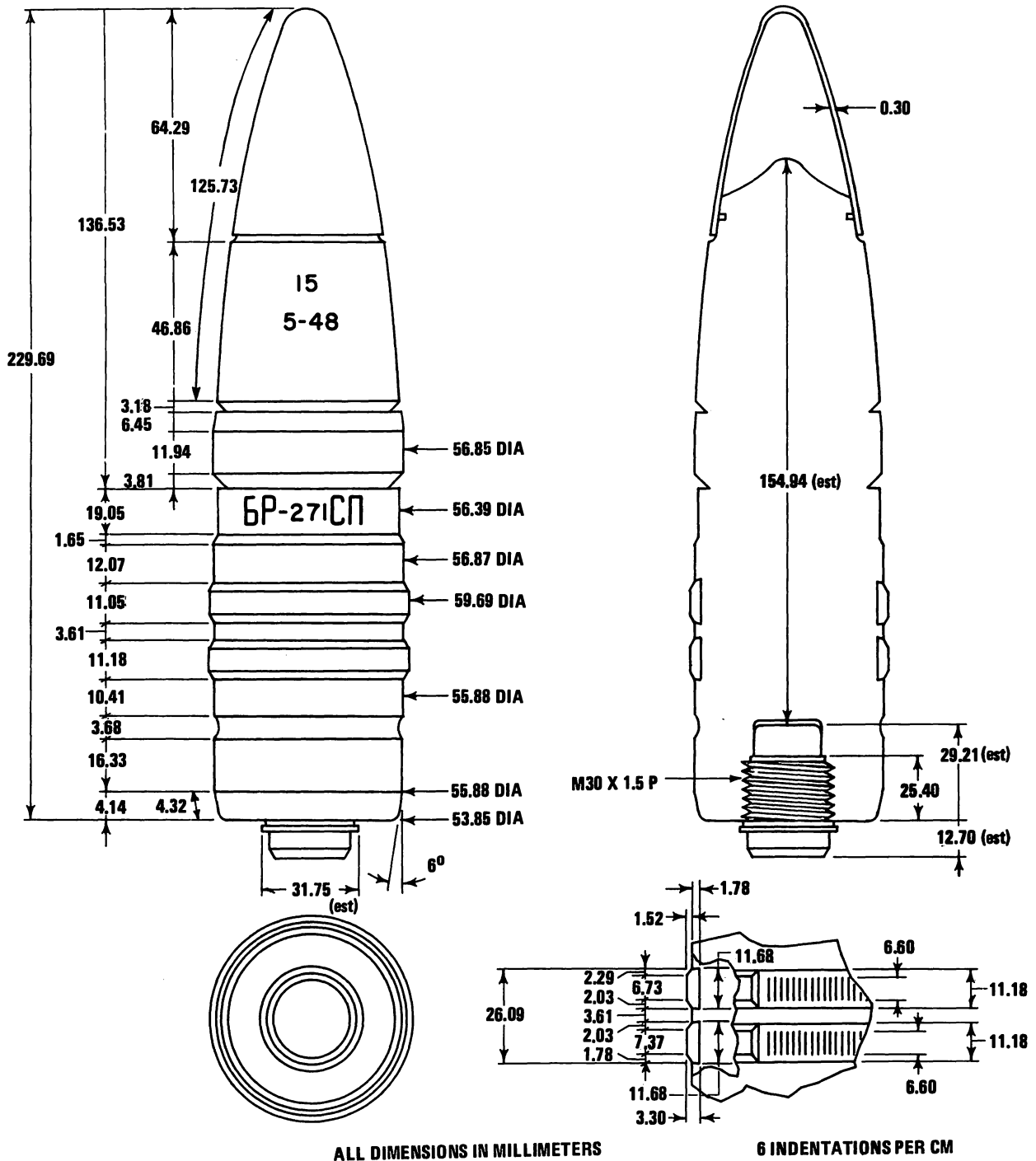
Neg. 502828

Projectile fuzed wt: 3.19 kg  
 Fuze: MD-7 BD  
 Filler type & wt: RDX/aluminum, 0.02 kg

Using weapon(s): AT gun ZIS-2, APAT gun  
 Ch-56, and ASU-57 guns  
 Ch-51 and Ch-51M

Remarks: Also uses MD-10 fuze

Figure 2-8. Russian 57-mm AP-T Projectile Model BR-271K



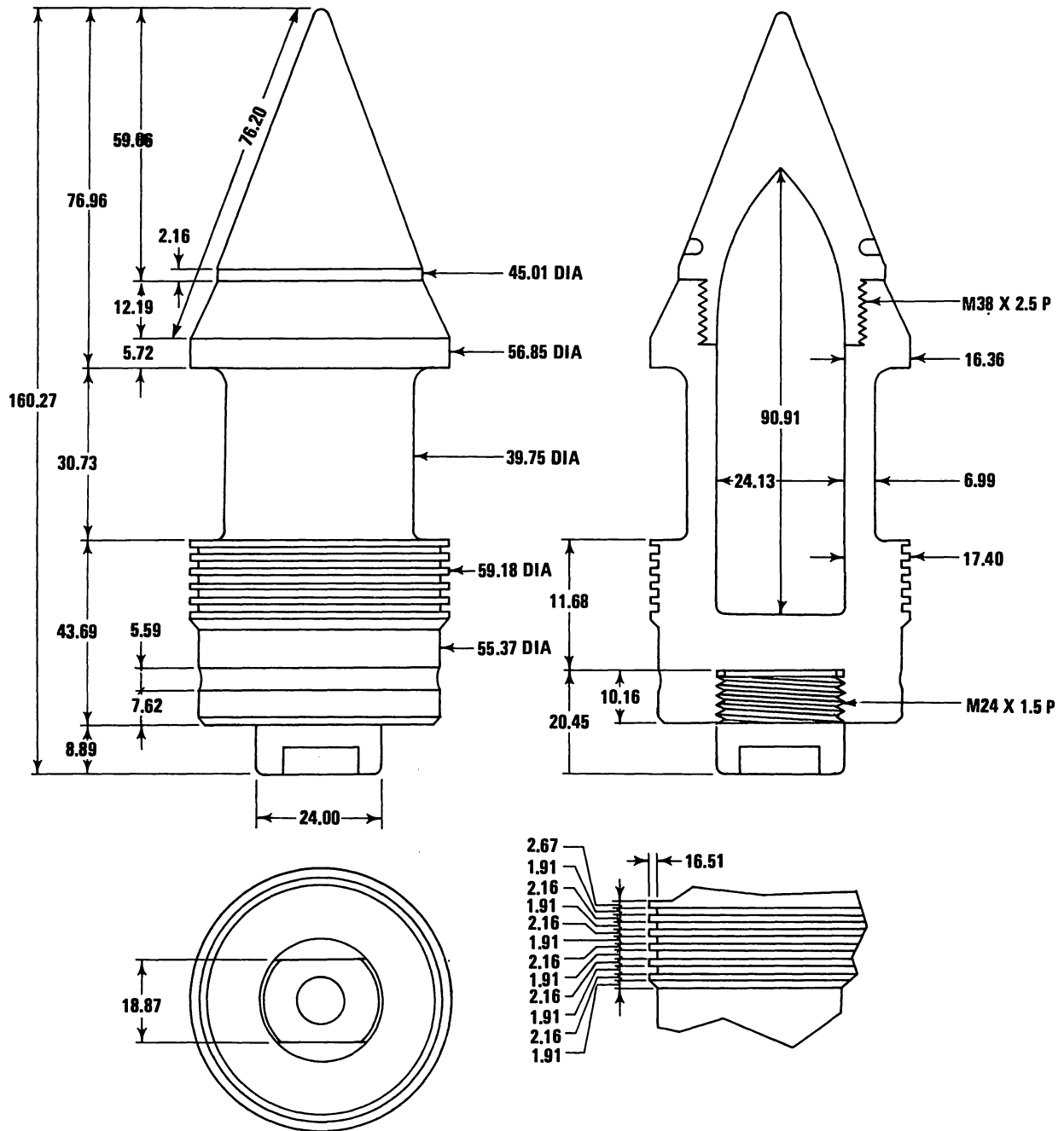
Neg. 502829

Projectile fuzed wt: 3.14 kg  
 Fuze: None  
 Filler type & wt: None

Using weapon(s): AT gun ZIS-2, APAT gun  
 Ch-26, and ASU-57 guns  
 Ch-51 and Ch-51M

Remarks: None

Figure 2-9. Russian 57-mm AP-T Projectile Model BR-271SP



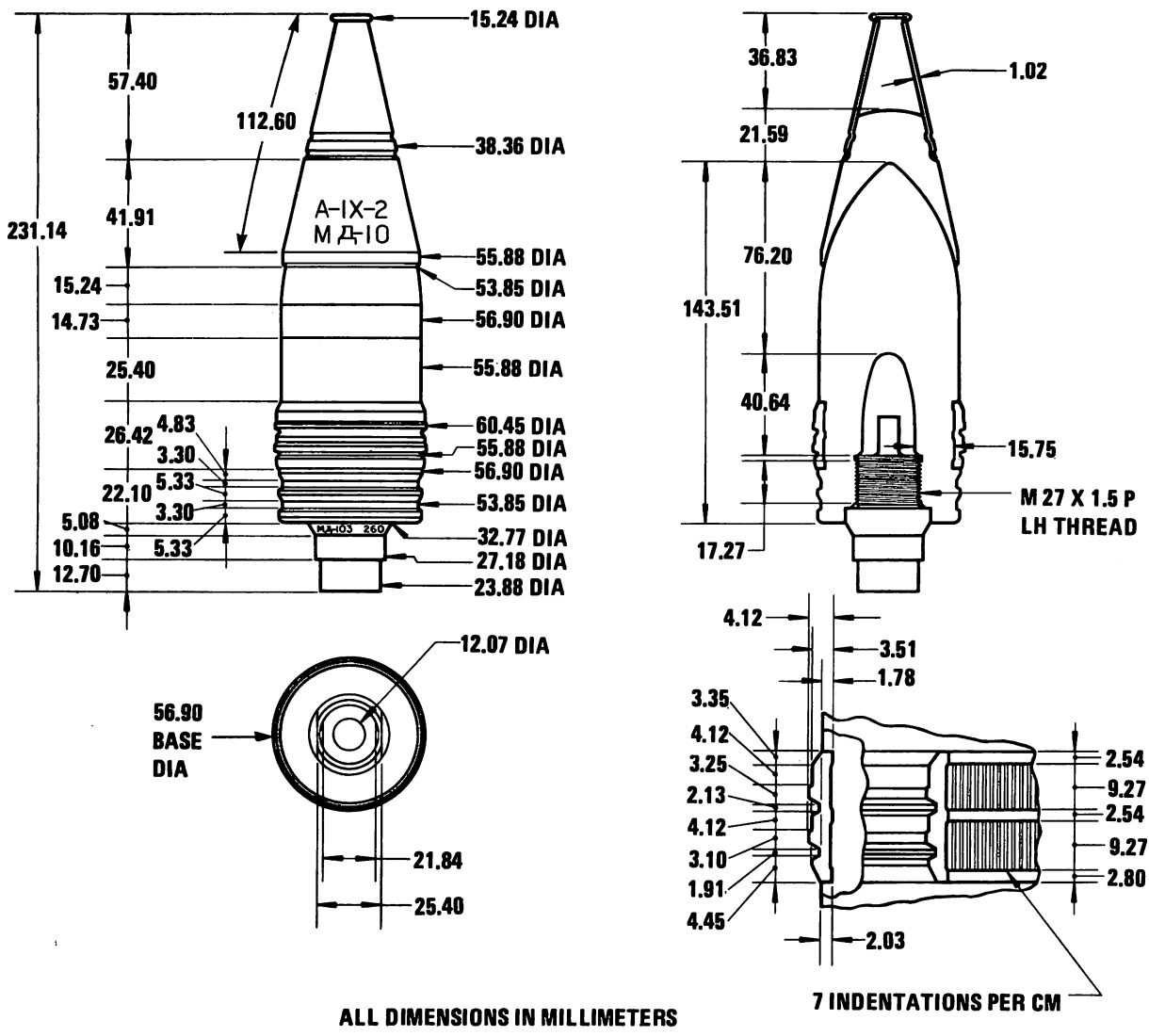
ALL DIMENSIONS IN MILLIMETERS

Neg. 502830

Projectile fuzed wt: 1.76 kg  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten carbide, 0.51 kg

Using weapon(s): AT gun ZIS-2 APAT gun  
 Ch-26 and ASU-57 guns  
 Ch-51 and Ch-51M

Figure 2-10. Russian 57-mm HVAP-T Projectile Model BR-271P



Neg. 502832

Projectile fuzed wt: 2.82 kg

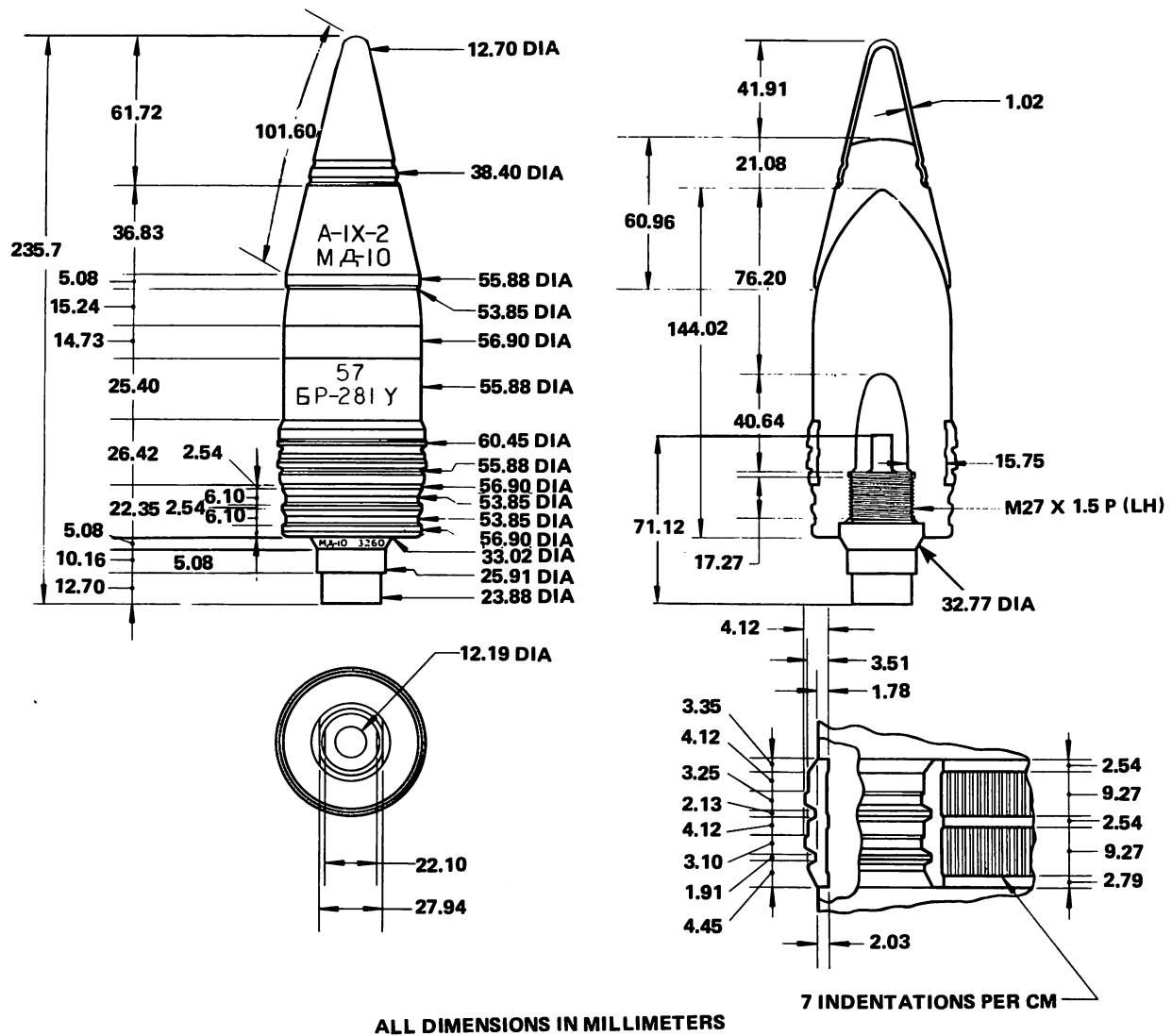
Fuze: MD-10 BD

Filler type & wt: RDX/aluminum, 0.02 kg

Using weapon(s): AA gun S-60 and SP AA gun  
ZSU-57-2

Remarks: None

Figure 2-11. Russian 57-mm APC-T Projectile Model BR-281



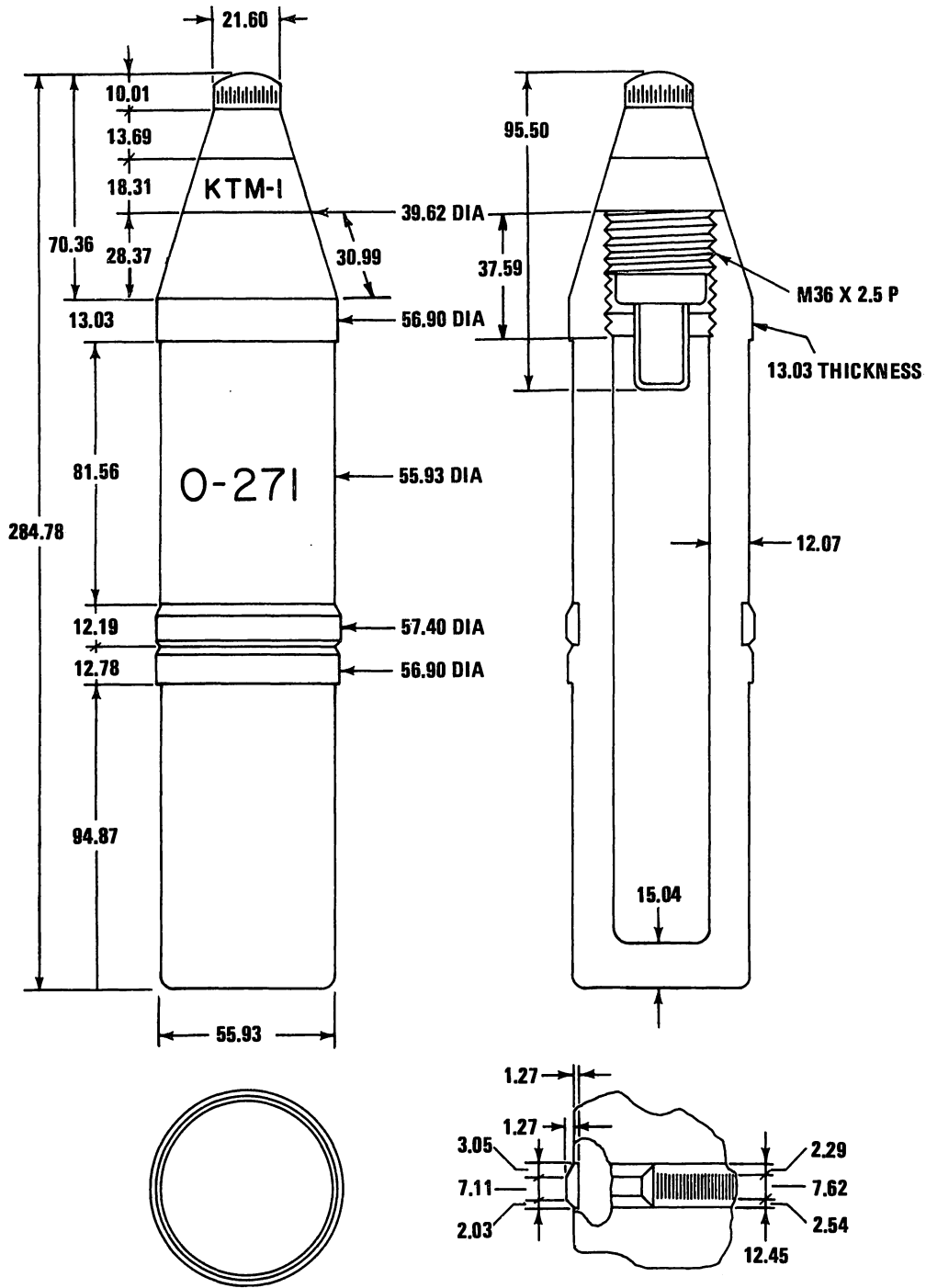
Neg. 502833

Projectile fuzed wt: 2.82 kg  
 Fuze: MD-10 BD  
 Filler type & wt: RDX/aluminum, 0.02 kg

Using weapon(s): AA gun S-60 and SP AA gun ZSU-57-2

Remarks: Metallurgical composition differs from BR-281 projectile

Figure 2-12. Russian 57-mm APC-T Projectile Model BR-281U



ALL DIMENSIONS IN MILLIMETERS

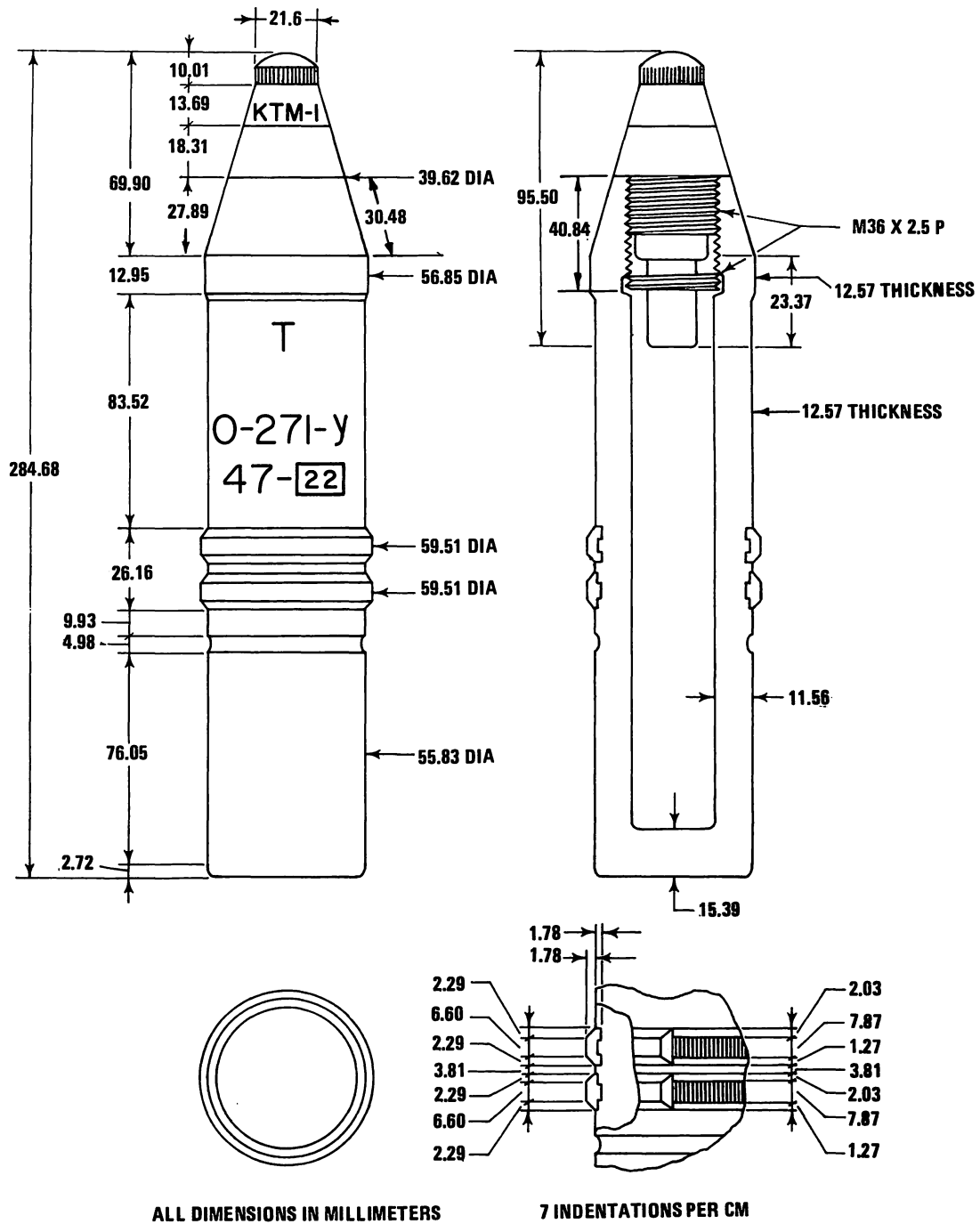
7 INDENTATIONS PER CM

Neg. 502824

Projectile fuzed wt: 3.68 kg  
 Fuze: KTM-1 PD  
 Filler type & wt: TNT, 0.22 kg

Using weapon(s): AT gun M1943 ZIS-2, APAT  
 gun Ch-26, and ASU-57 guns  
 Ch-51 and -51M  
 Remarks: Also uses KT-1 PD fuze

Figure 2-13. Russian 57-mm Frag Projectile Model 0-271



Neg. 502825

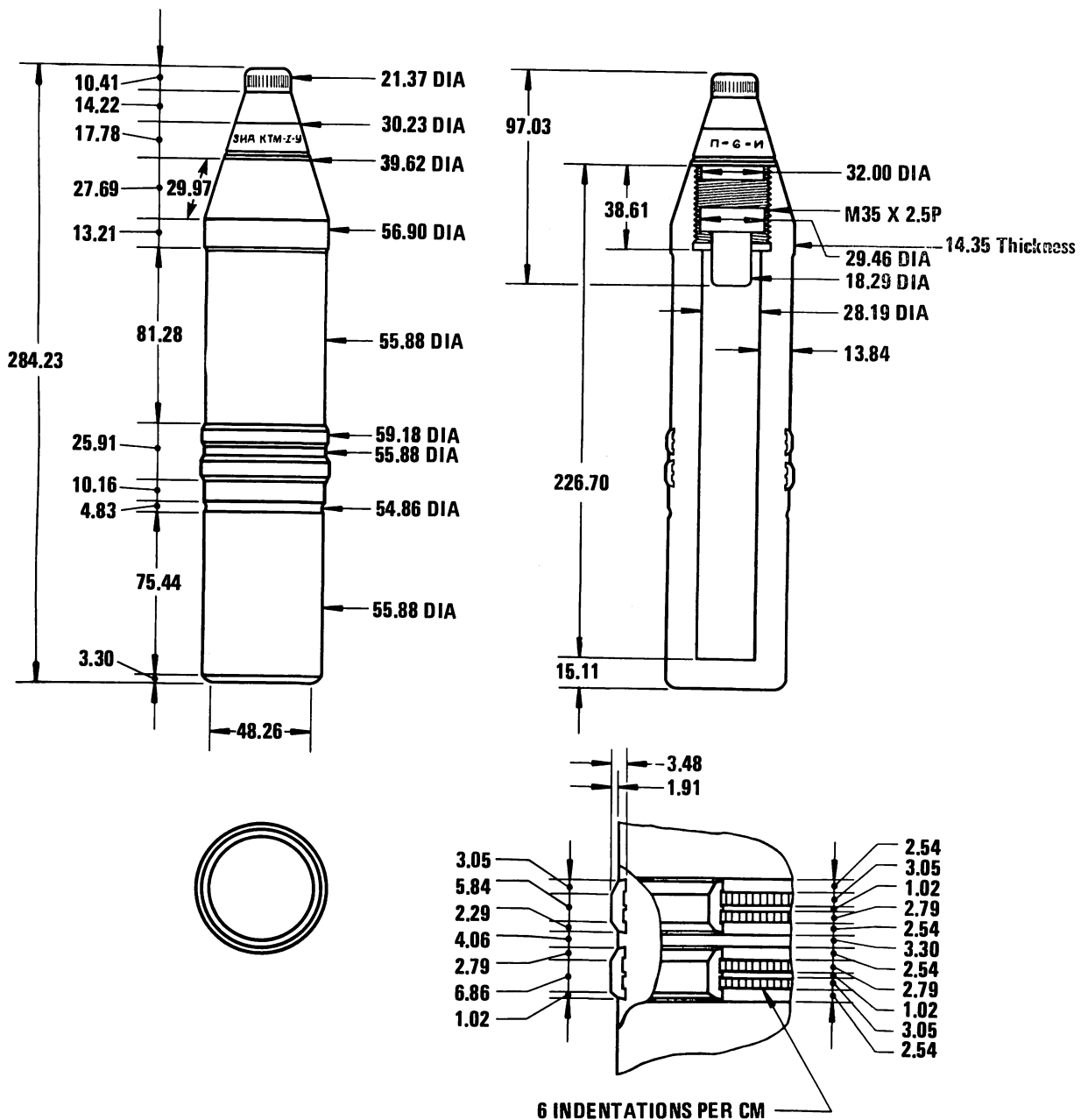
Projectile fuze wt: 3.75 kg  
 Fuze: KTM-1 PD  
 Filler type & wt: TNT, 0.22 kg

Using weapon(s): AT gun ZIS-2, APAT gun  
 Ch-26, and ASU-57 guns  
 Ch-51 and Ch-51M

Remarks: None

Figure 2-14. Russian 57-mm Frag Projectile Model 0-271U





ALL DIMENSIONS IN MILLIMETERS

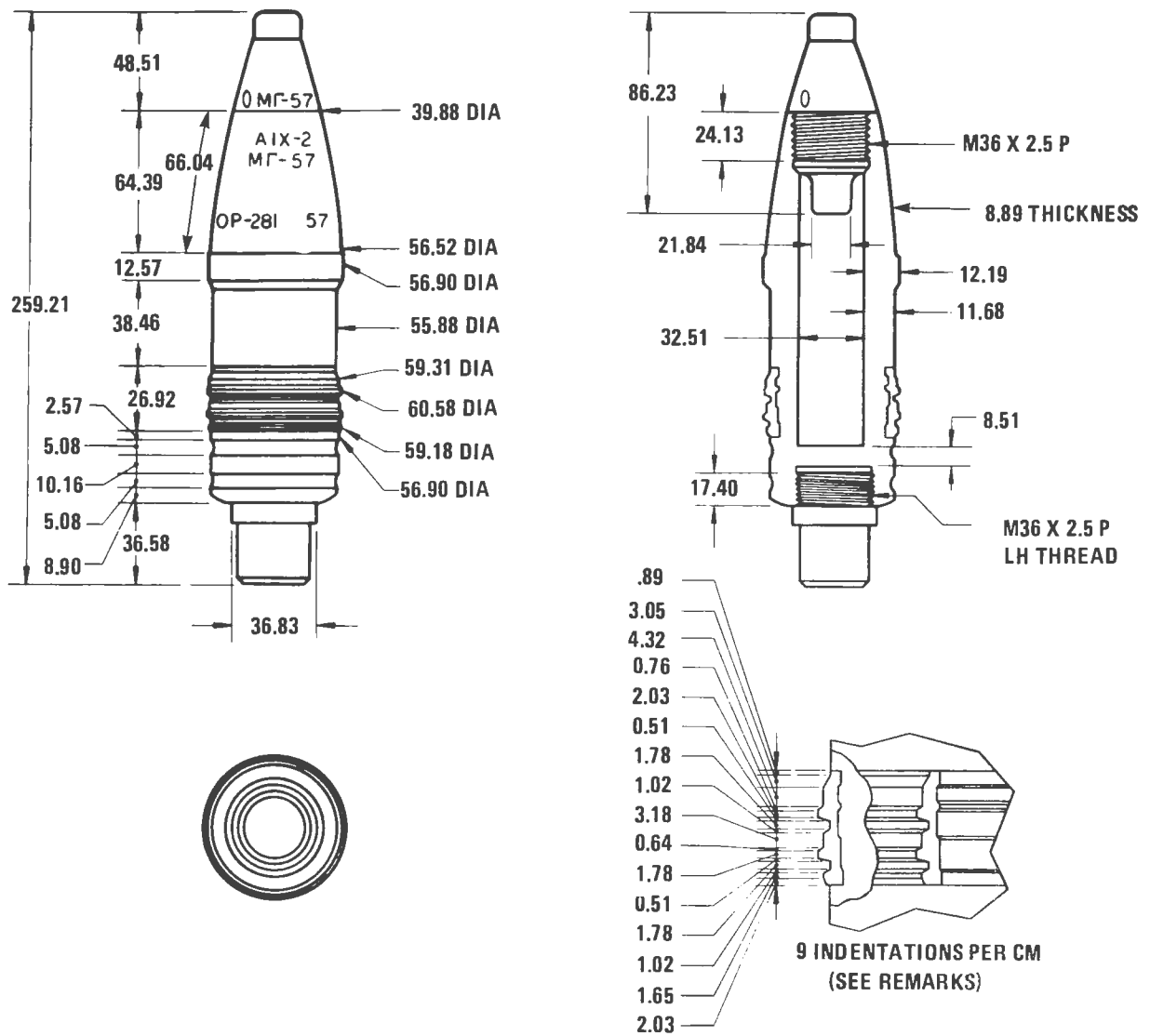
Neg. 502826

Projectile fuzed wt: 3.75 kg  
 Fuze: KTM-1-U PD  
 Filler type & wt: TNT, 0.22 kg

Using weapon(s): AT gun ZIS-2, APAT gun Ch-26, and ASU-57 guns Ch-51 and Ch-51M

Remarks: None

Figure 2-15. Russian 57-mm Frag Projectile Model 0-271U (Variant)



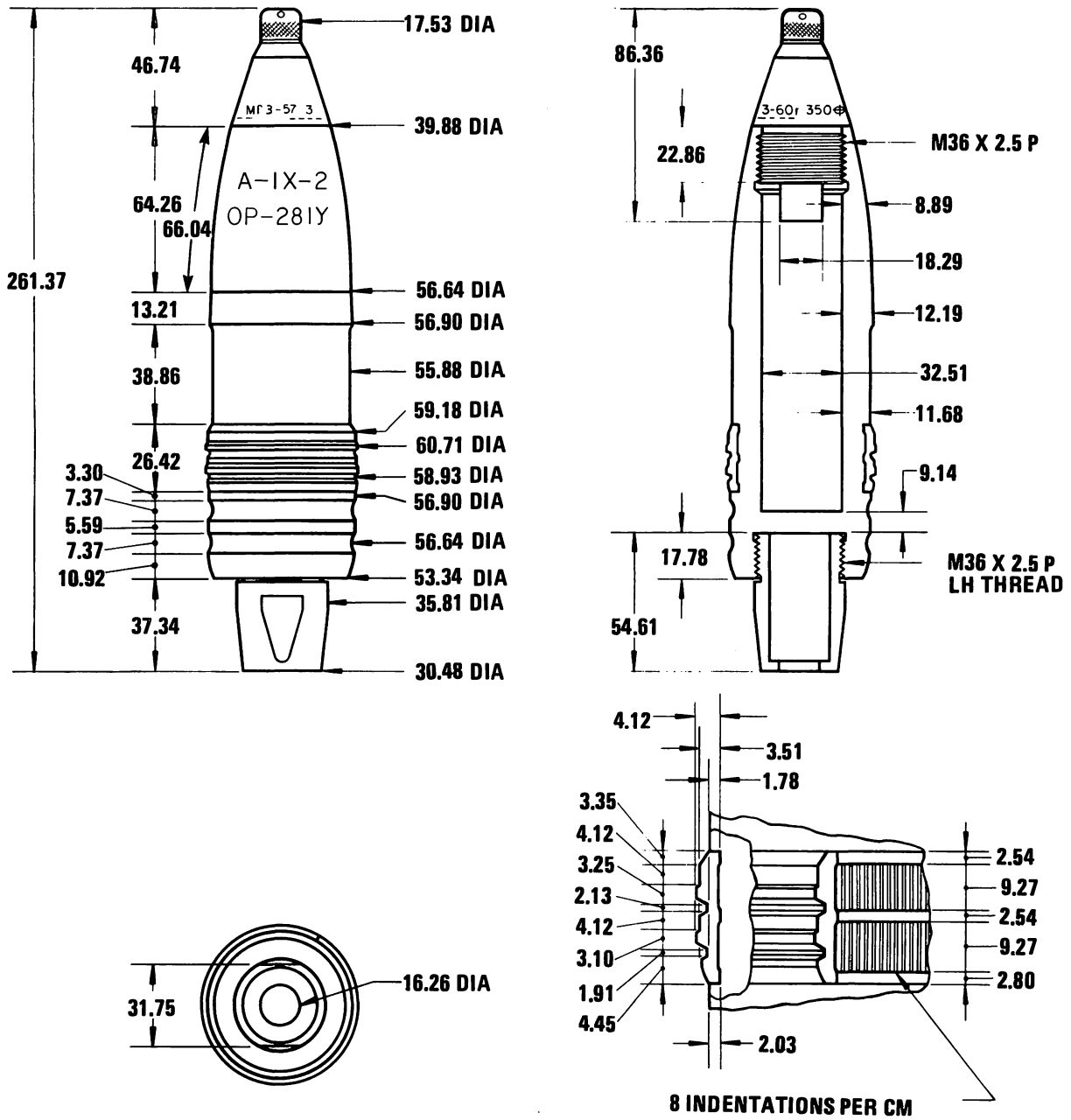
ALL DIMENSIONS IN MILLIMETERS

Neg. 502831

Projectile fuzed wt: 2.81 kg  
 Fuze: MG-57 and MGZ-57 PDS  
 Filler type & wt: RDX/aluminum, 0.17 kg

Using weapon(s): AA gun S-60 and SP AA gun ZSU-57-2  
 Remarks: Two rows of vertical indentations on rotating band seat not shown

Figure 2-16. Russian 57-mm Frag-T Projectile Model OR-281



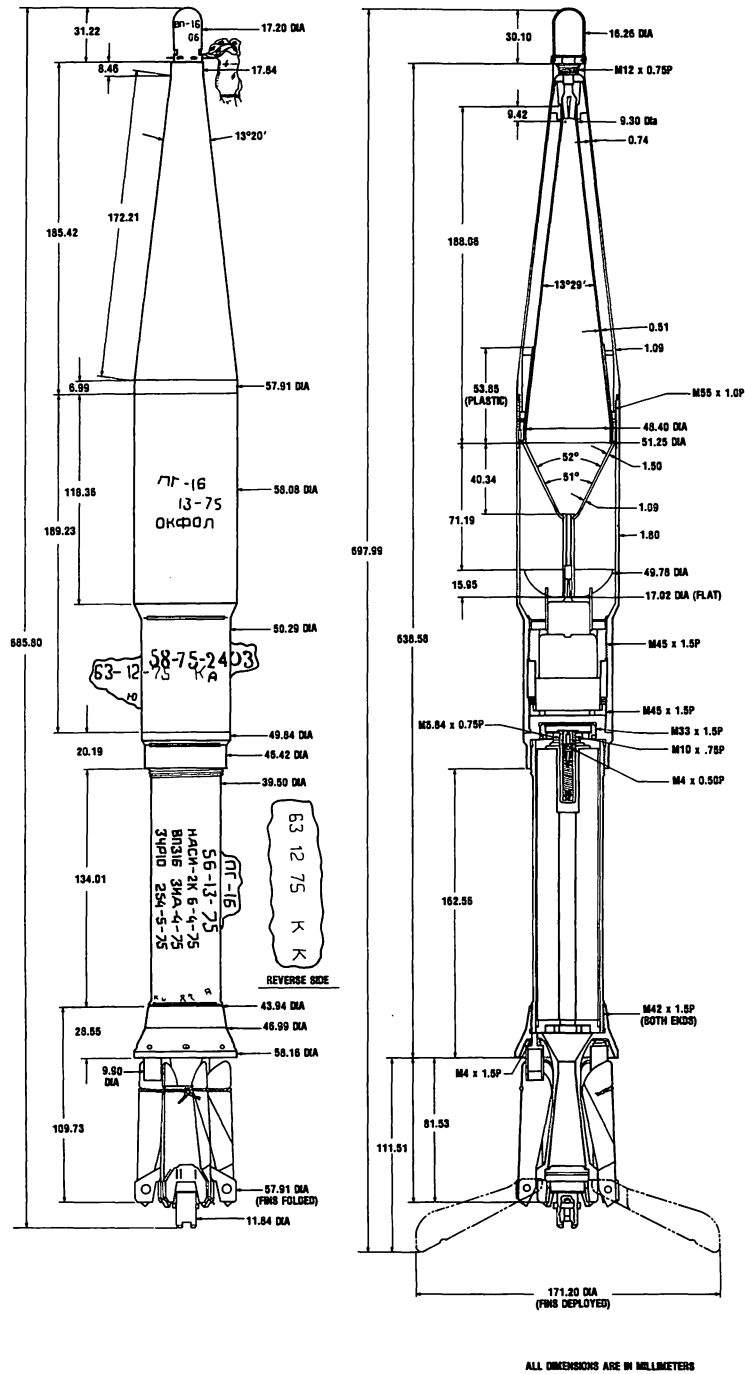
ALL DIMENSIONS IN MILLIMETERS

Neg. 502834

Projectile fuze wt: 2.85 kg  
 Fuze: MG-57 PDSD  
 Filler type & wt: RDX/aluminum, 0.15 kg

Using weapon(s): AA gun S-60 and SP AA gun ZSU-57-2  
 Remarks: Also uses MGZ-57 fuze

Figure 2-17. Russian 57-mm Frag-T Projectile Model OR-281U

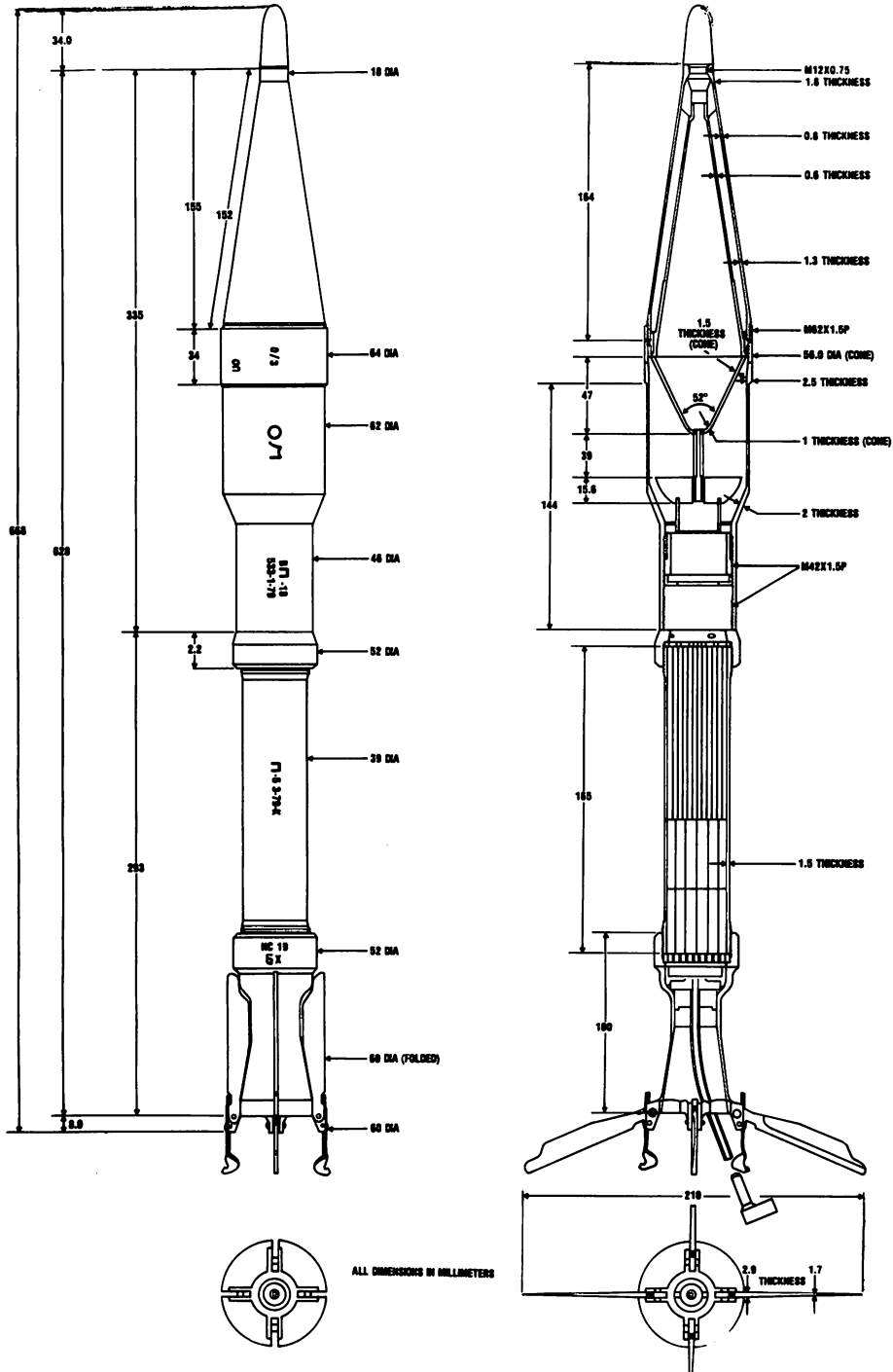


Neg. 535465

Projectile fuzed wt: 1.67 kg  
 Fuze: VP-9 PIBD  
 Filler type & wt: HMX (OKFOL), 0.28 kg

Using weapon(s): RPG-16 AT grenade launcher  
 Remarks: Fuze is piezo-electric

Figure 2-18. Russian 58.3-mm HEAT-FS Projectile Model PG-16

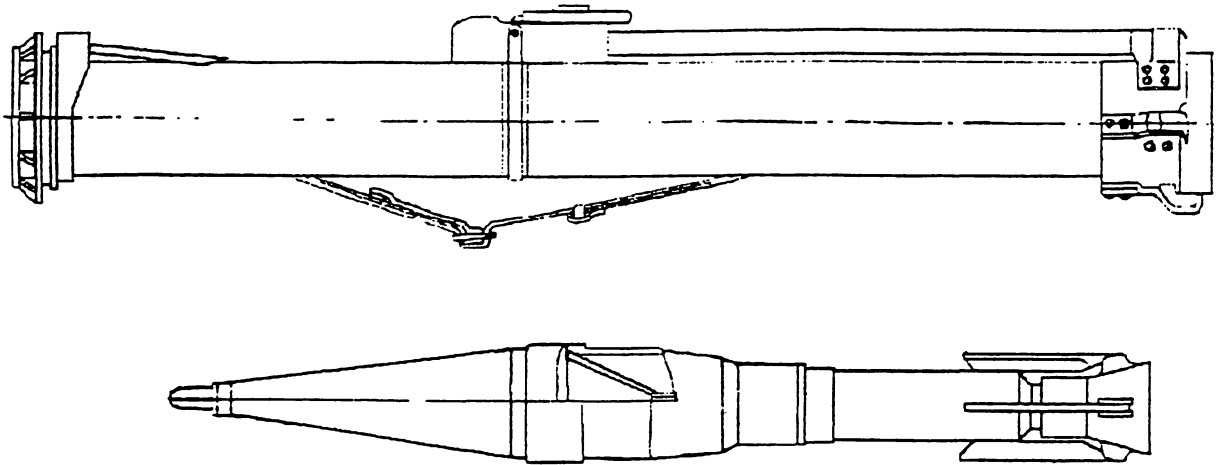


Neg. 533324

Projectile fuze wt: 1.40 kg  
 Fuze: VP-18 PIBD  
 Filler type & wt: HMX/wax/pink ink dye,  
 0.30 kg

Using weapon(s): RPG-18 single-shot disposable  
 rocket launchers  
 Remarks: Weight does not include launch tube

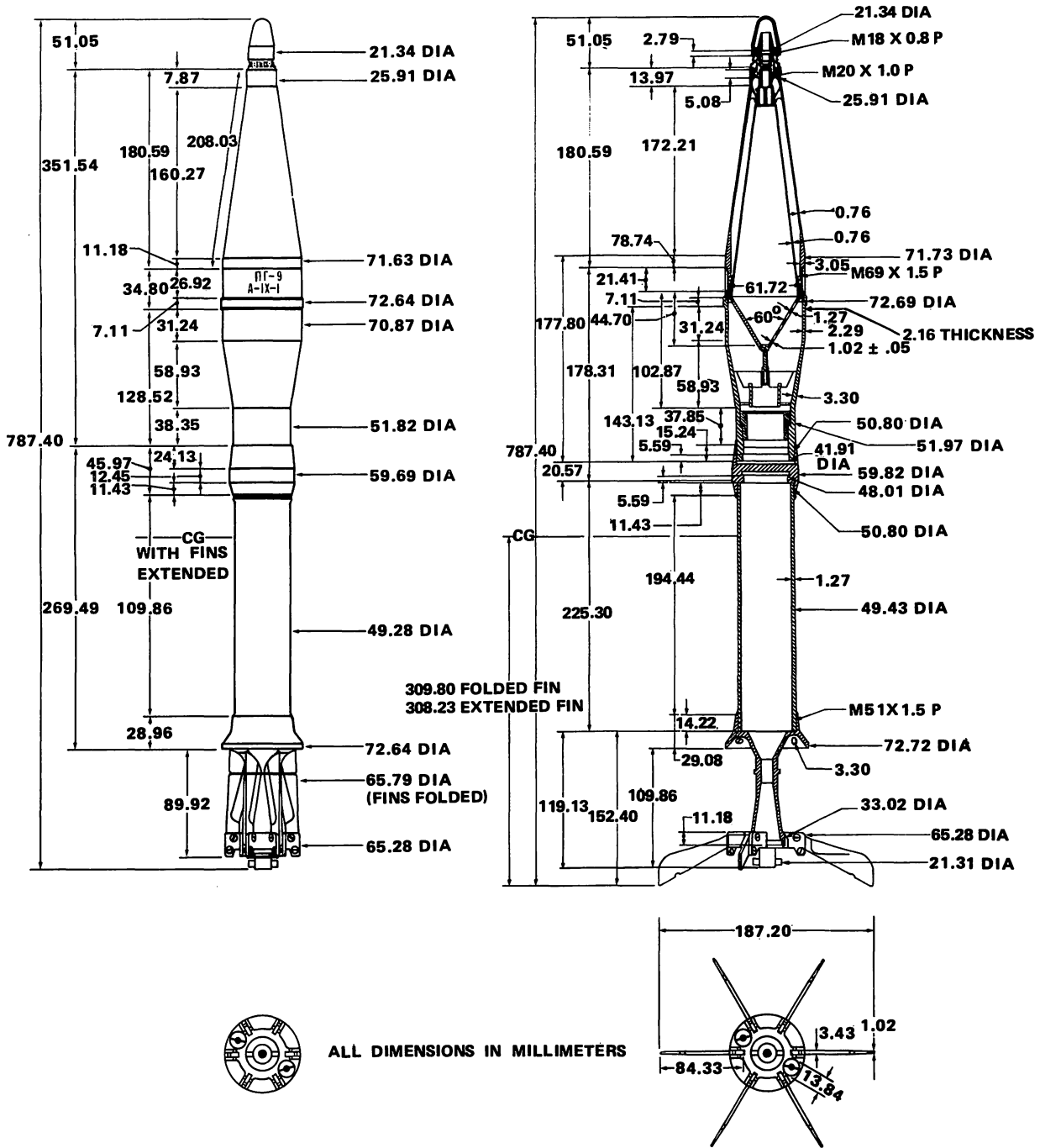
Figure 2-19. Russian 64-mm HEAT-FS Projectile Model PG-18



Using weapon(s): RPG-26 antitank rocket  
launcher

Remarks: LAW-type weapon

Figure 2-20. Russian 72-mm HEAT Projectile Model RPG-26

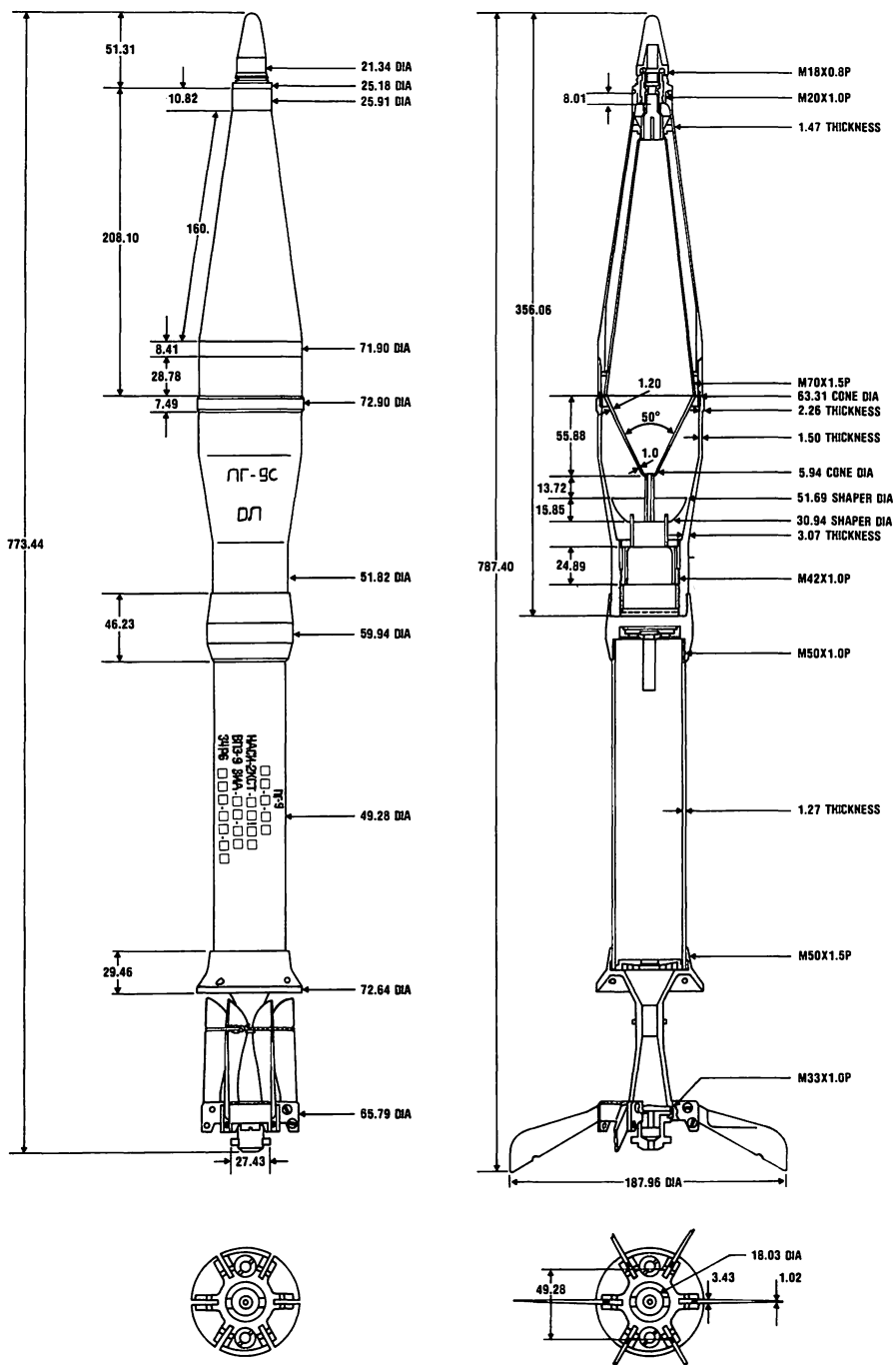


Neg. 520352

Projectile fuze wt: 2.53 kg  
 Fuze: VP-9 PIBD  
 Filler type & wt: RDX/wax, 0.32 kg

Using weapon(s): BMP and BMD AAICV and SPG-9 recoilless gun  
 Remarks: SPG-9 and BMP/BMD use different cartridge cases

Figure 2-21. Russian 73-mm HEAT-FS Projectile Model PG-9



ALL DIMENSIONS IN MILLIMETERS

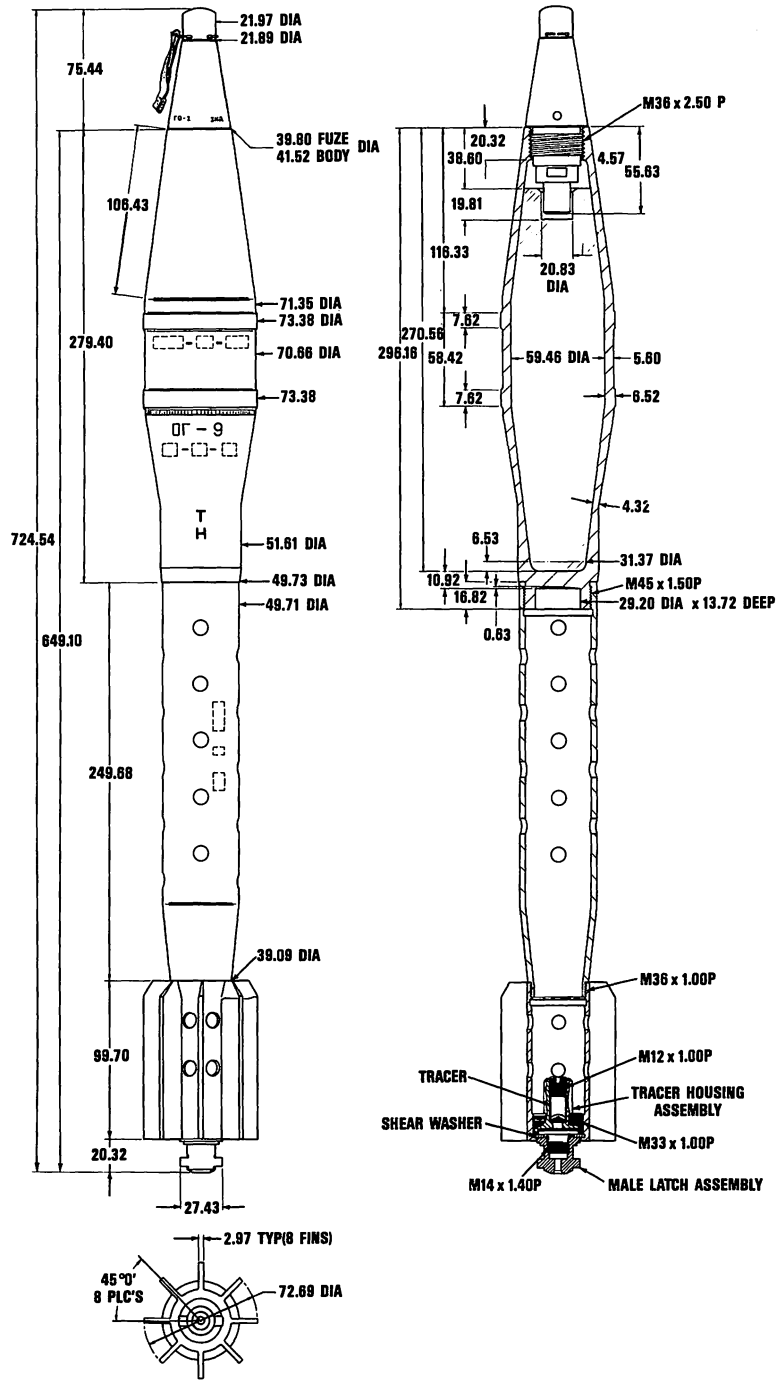
Neg. 533087

Projectile fuzed wt: 2.59 kg  
 Fuze: VP-9 PIBD  
 Filler type & wt: HMX/wax/and pink dye,  
 0.33 kg

Using weapon(s): BMP and BMD AAICV and  
 SPG-9 recoilless gun  
 Remarks: See fig 2-17 remarks

Figure 2-22. Russian 73-mm HEAT-FS Projectile Model PG-9S





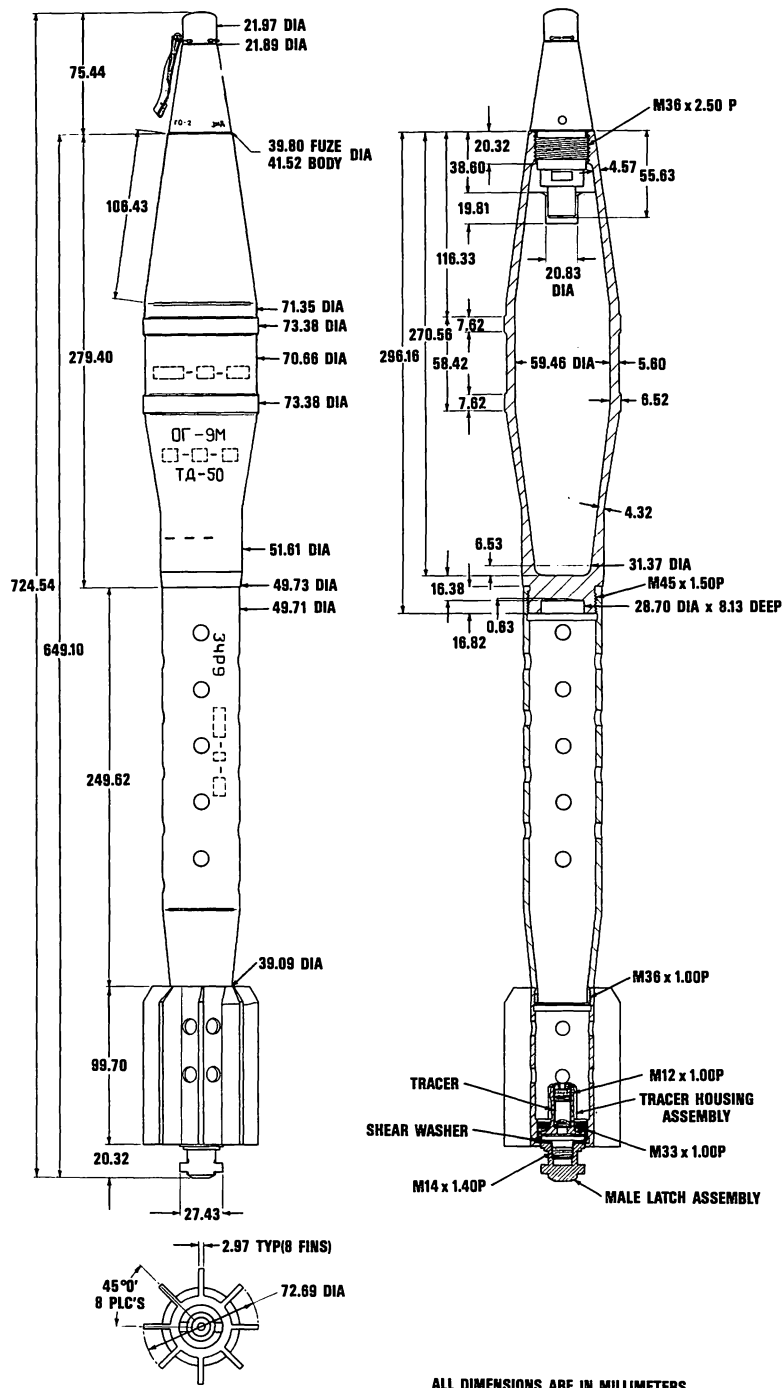
ALL DIMENSIONS ARE IN MILLIMETERS

Neg. 000072

Projectile fuze wt: 3.66 kg  
 Fuze: GO-2 PD  
 Filler type & wt: TNT, 0.7 kg

Using weapon(s): BMP and BMD AAICV, and SPG-9 recoilless gun  
 Remarks: See fig 2-21 remarks

Figure 2-23. Russian 73-mm HE Projectile Model OG-9

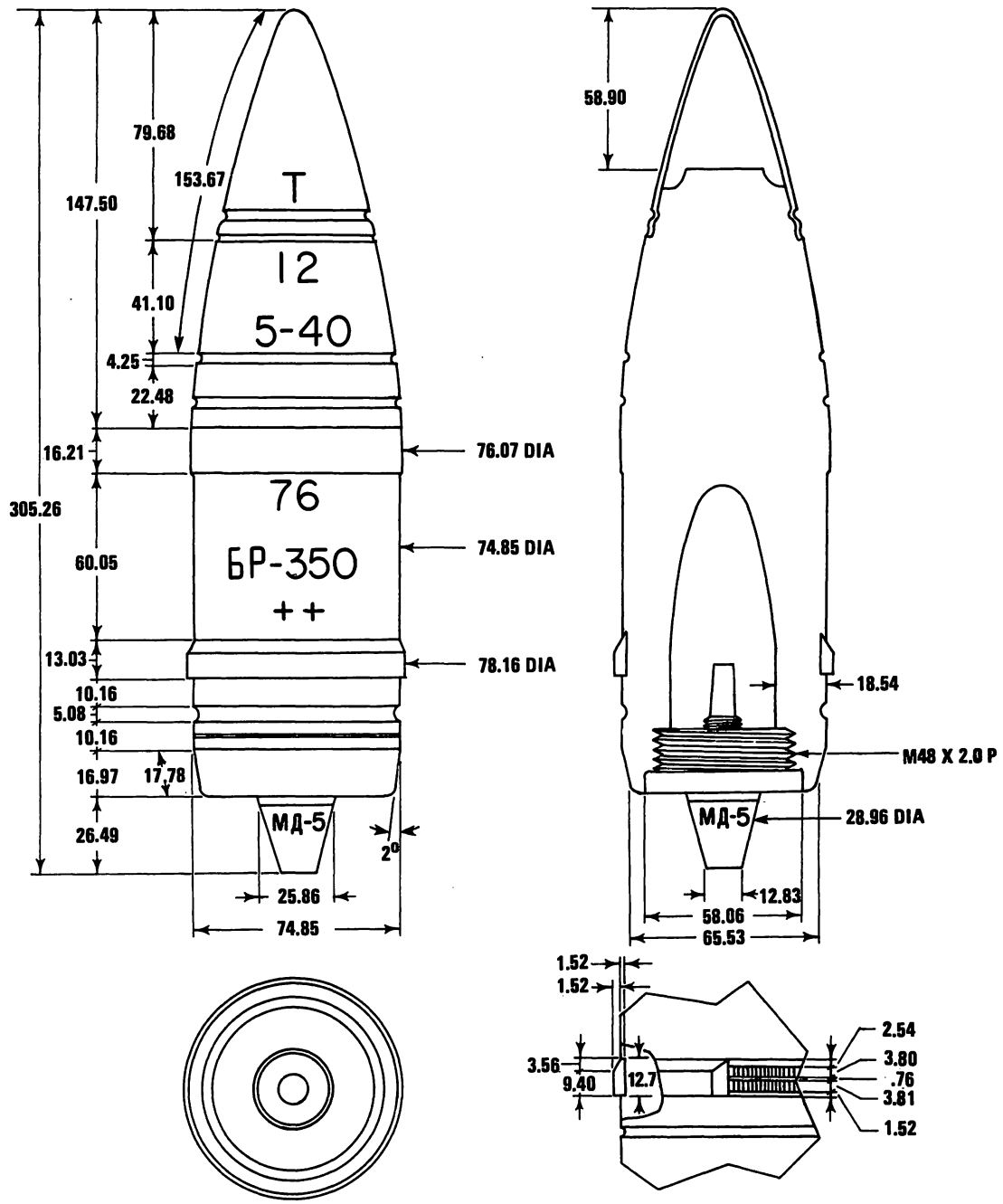


Neg. 000073

Projectile fuzed wt: 3.3 kg  
 Fuze: GO-2 PD  
 Filler type & wt: 50/50 TNT/Dinitronaphthalene,  
 0.7 kg

Using weapon(s): BMP and BMD AAICV, SPG-9  
 recoilless gun  
 Remarks: See fig 2-21 remarks

Figure 2-24. Russian 73-mm HE Projectile Model OG-9M



ALL DIMENSIONS IN MILLIMETERS

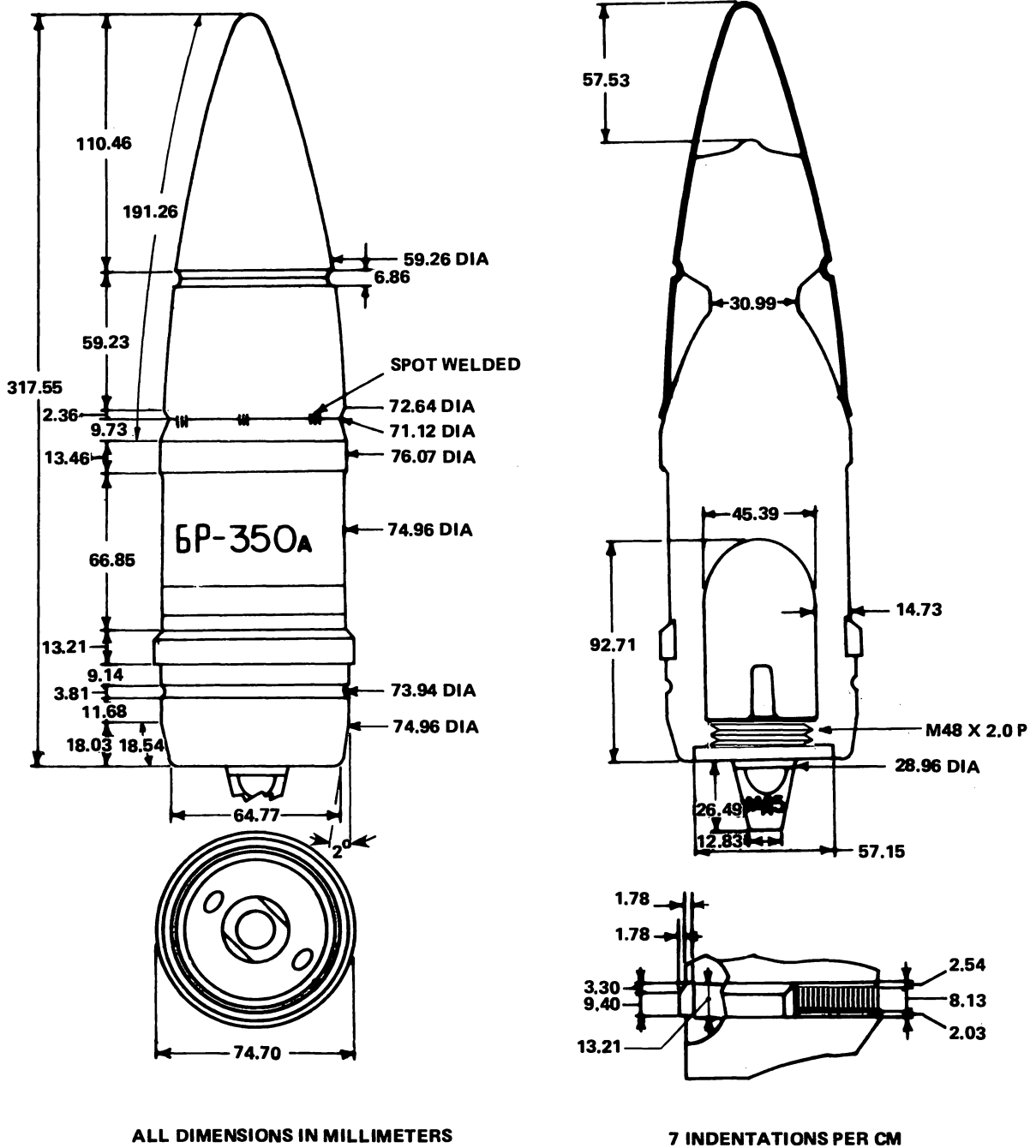
7 INDENTATIONS PER CM

Neg. 502845

Projectile fuzed wt: 6.51 kg  
 Fuze: MD-5 BD  
 Filler type & wt: TNT, 0.15 kg

Using weapon(s): Field gun ZIS-3 and tank gun D-56T  
 Remarks: None

Figure 2-25. Russian 76-mm AP-T Projectile Model BR-350

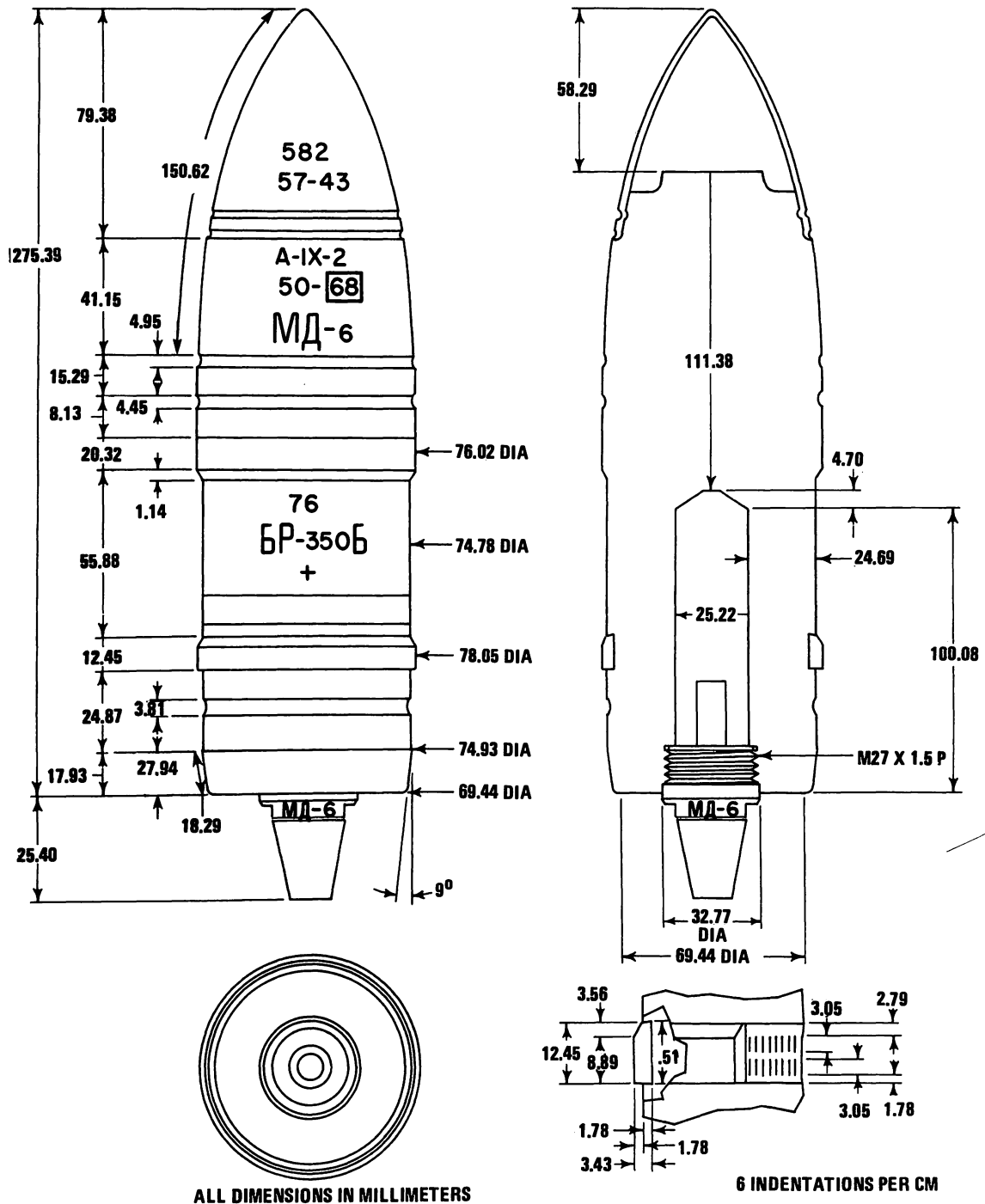


Neg. 502846

Projectile fuze wt: 6.31 kg  
 Fuze: MD-5 BD  
 Filler type & wt: TNT, 0.15 kg

Using weapon(s): Field gun ZIS-3 and tank gun D-56T  
 Remarks: Also uses MD-6 and MD-8 fuzes

Figure 2-26. Russian 76-mm AP-T Projectile Model BR-350A

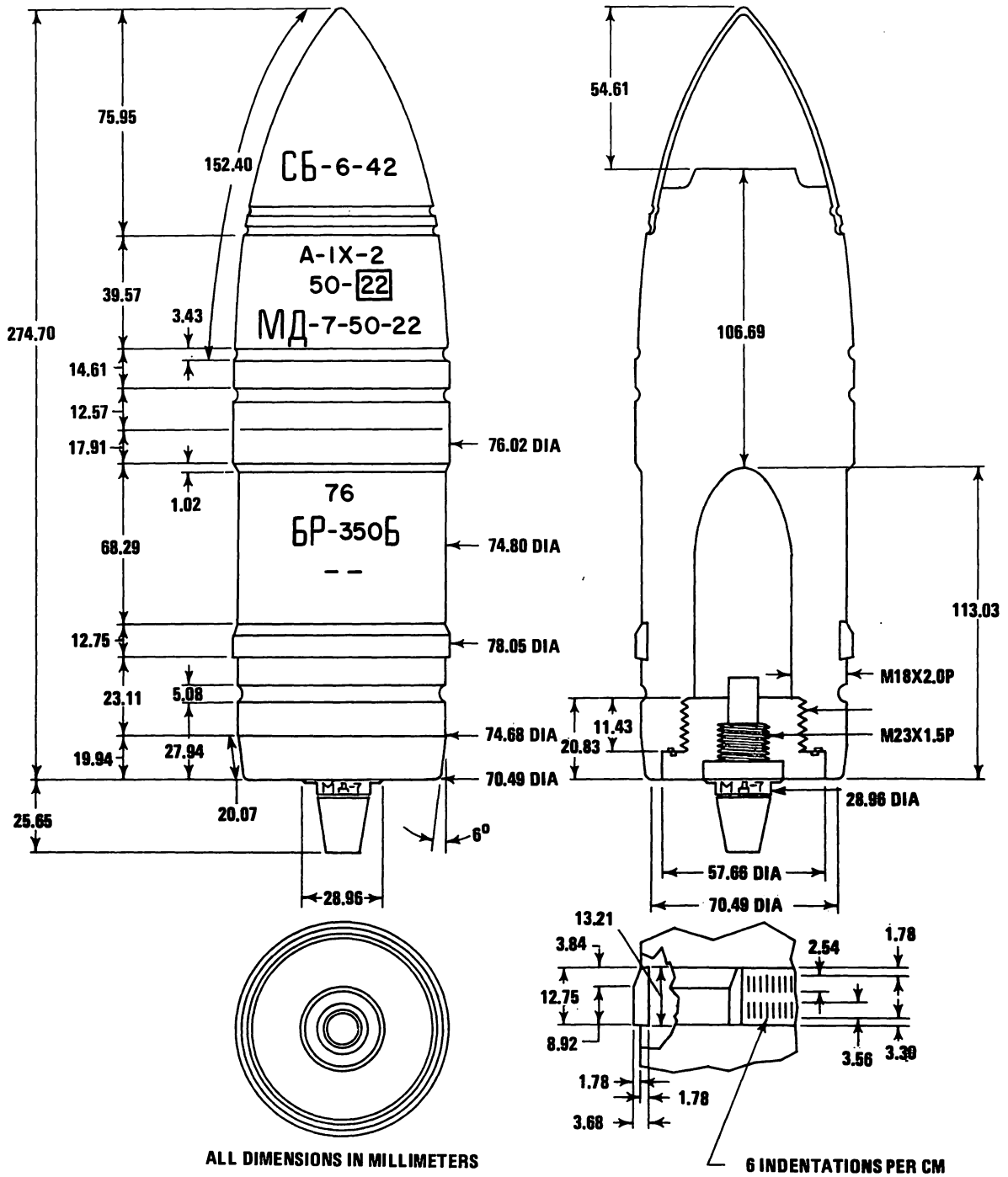


Neg. 502847

Projectile fuze wt: 6.51 kg  
Fuze: MD-6 BD  
Filler type & wt: RDX/aluminum, 0.06 kg

Using weapon(s): Field gun ZIS-3 and tank gun D-56T  
Remarks: Uses most MD series fuzes

Figure 2-27. Russian 76-mm AP-T Projectile Model BR-350B



Neg. 502848

Projectile fuzed wt: 6.50 kg

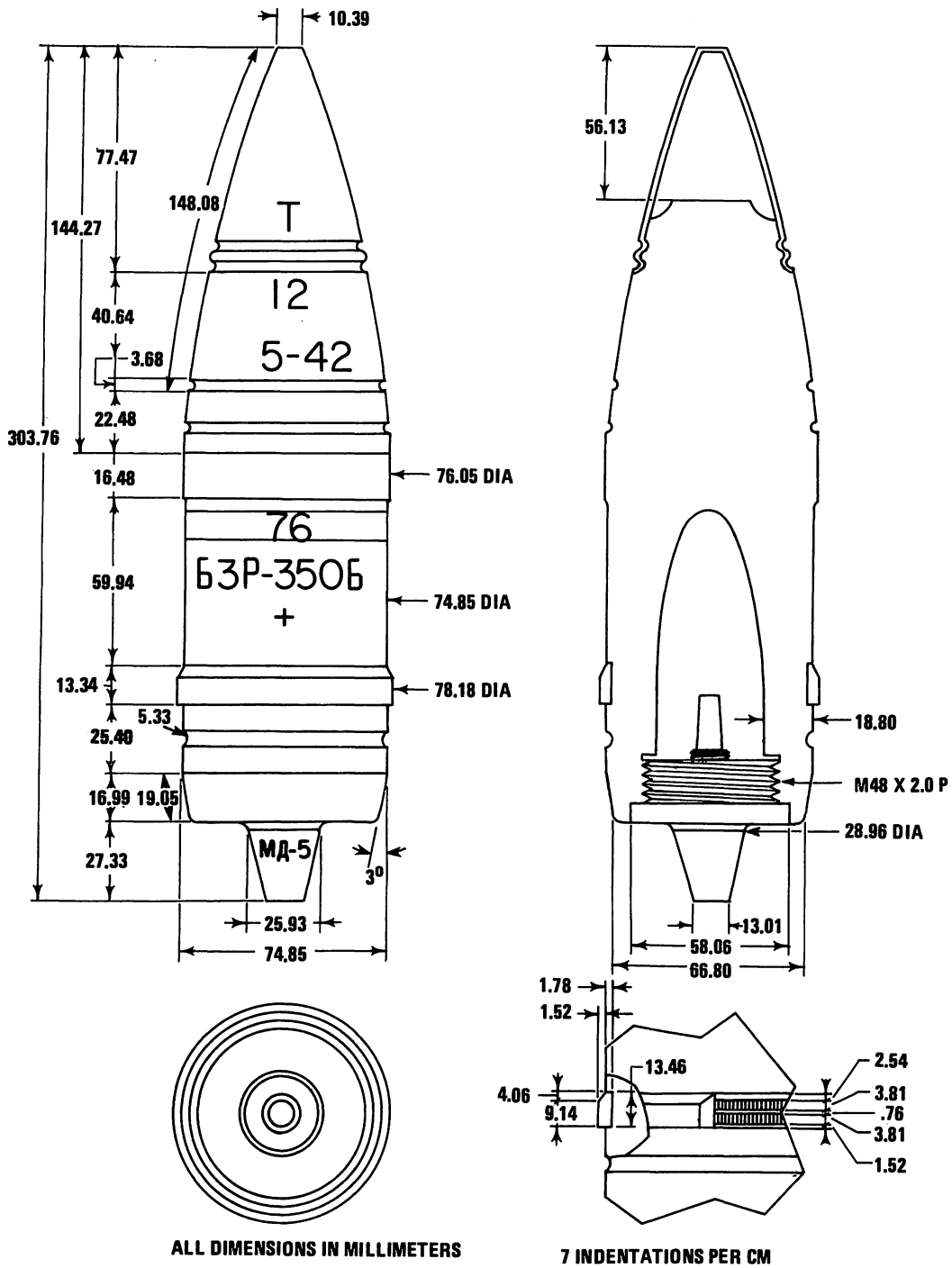
Fuze: MD-7 BD

Filler type & wt: RDX/aluminum, 0.06 kg

Using weapon(s): Field gun ZIS-3 and tank gun D-56T

Remarks: Uses other MD series fuzes

Figure 2-28. Russian 76-mm AP-T Projectile Model BR-350B (Variant)



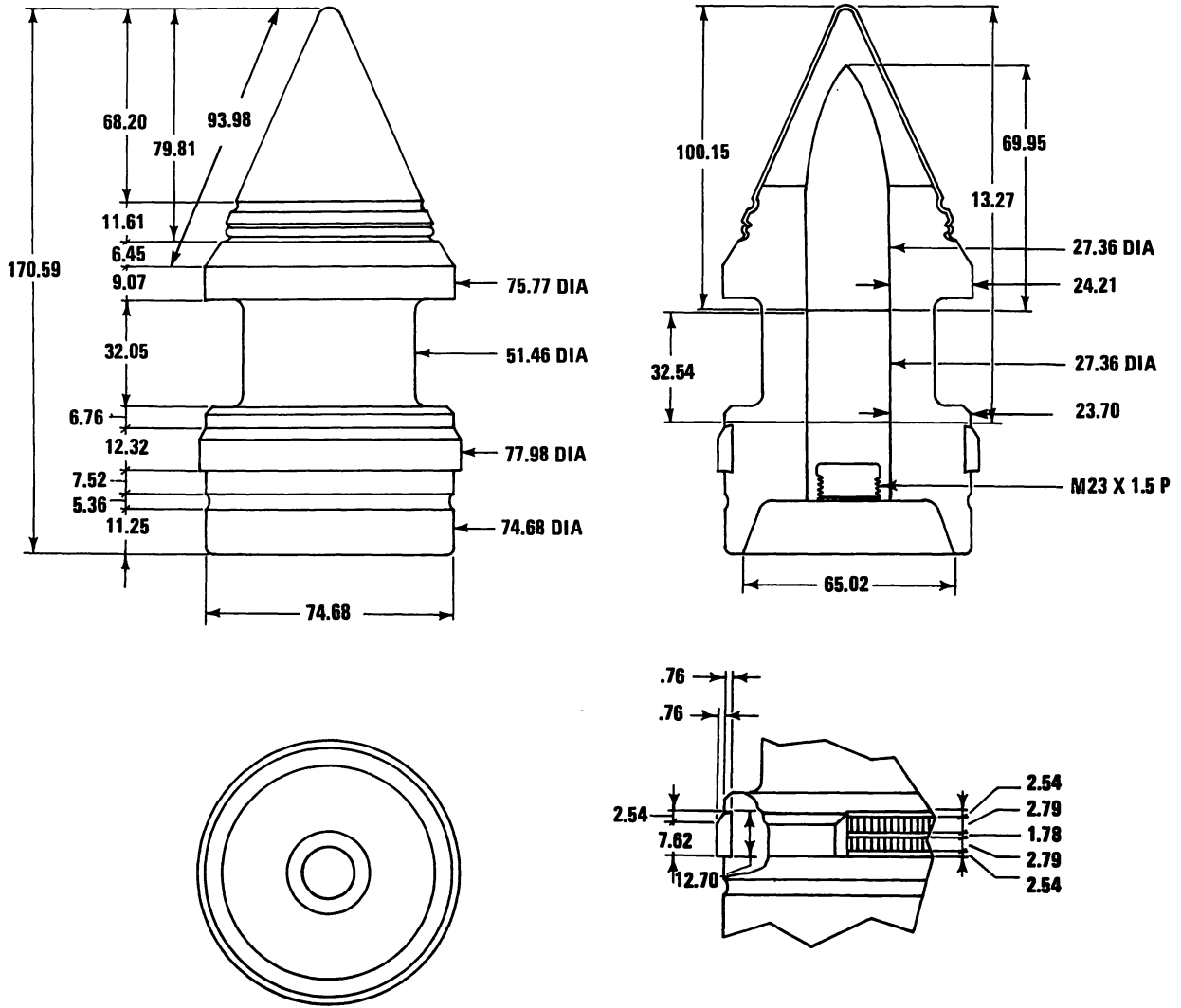
Neg. 502849

Projectile fuze wt: 6.49 kg  
 Fuze: MD-5 BD  
 Filler type & wt: TNT with incendiary pellet,  
 0.12 kg

Using weapon(s): Field gun ZIS-3 and tank gun  
 D-56T

Remarks: None

Figure 2-29. Russian 76-mm API-T Projectile Model BZR-350B



ALL DIMENSIONS IN MILLIMETERS

7 INDENTATIONS PER CM

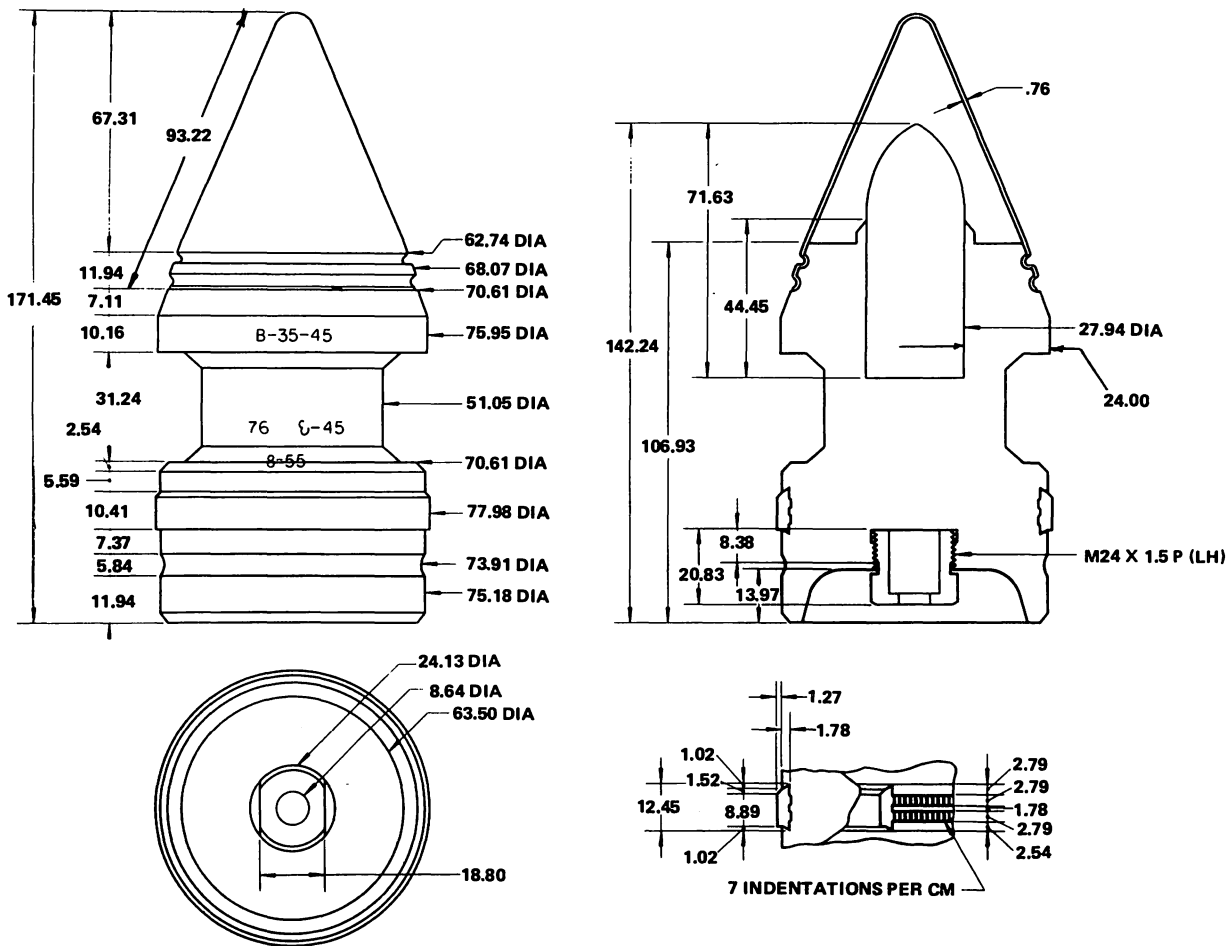
Neg. 502850

Projectile fuzed wt: 2.99 kg  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten carbide, 0.60 kg

Using weapon(s): Field gun ZIS-3 and tank gun D-56T  
 Remarks: Steel follow-through slug

Figure 2-30. Russian 76-mm HVAP-T Projectile Model BR-354P





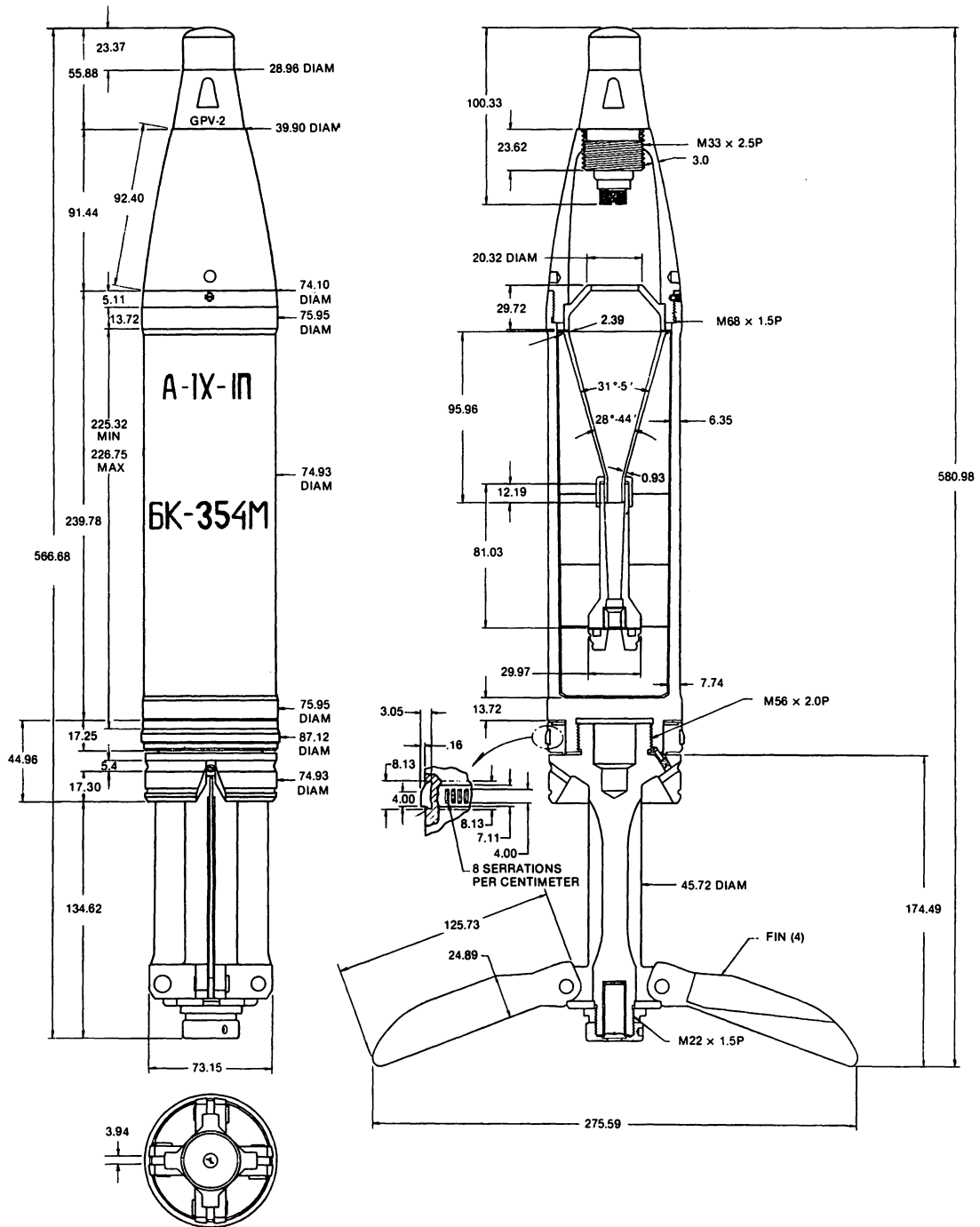
ALL DIMENSIONS IN MILLIMETERS

Neg. 502851

Projectile fuze wt: 3.06 kg  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten carbide, 0.48 kg

Using weapon(s): Field gun ZIS-3 and tank gun D-56T  
 Remarks: None

Figure 2-31. Russian 76-mm HVAP-T Projectile Model BR-354P (Variant)



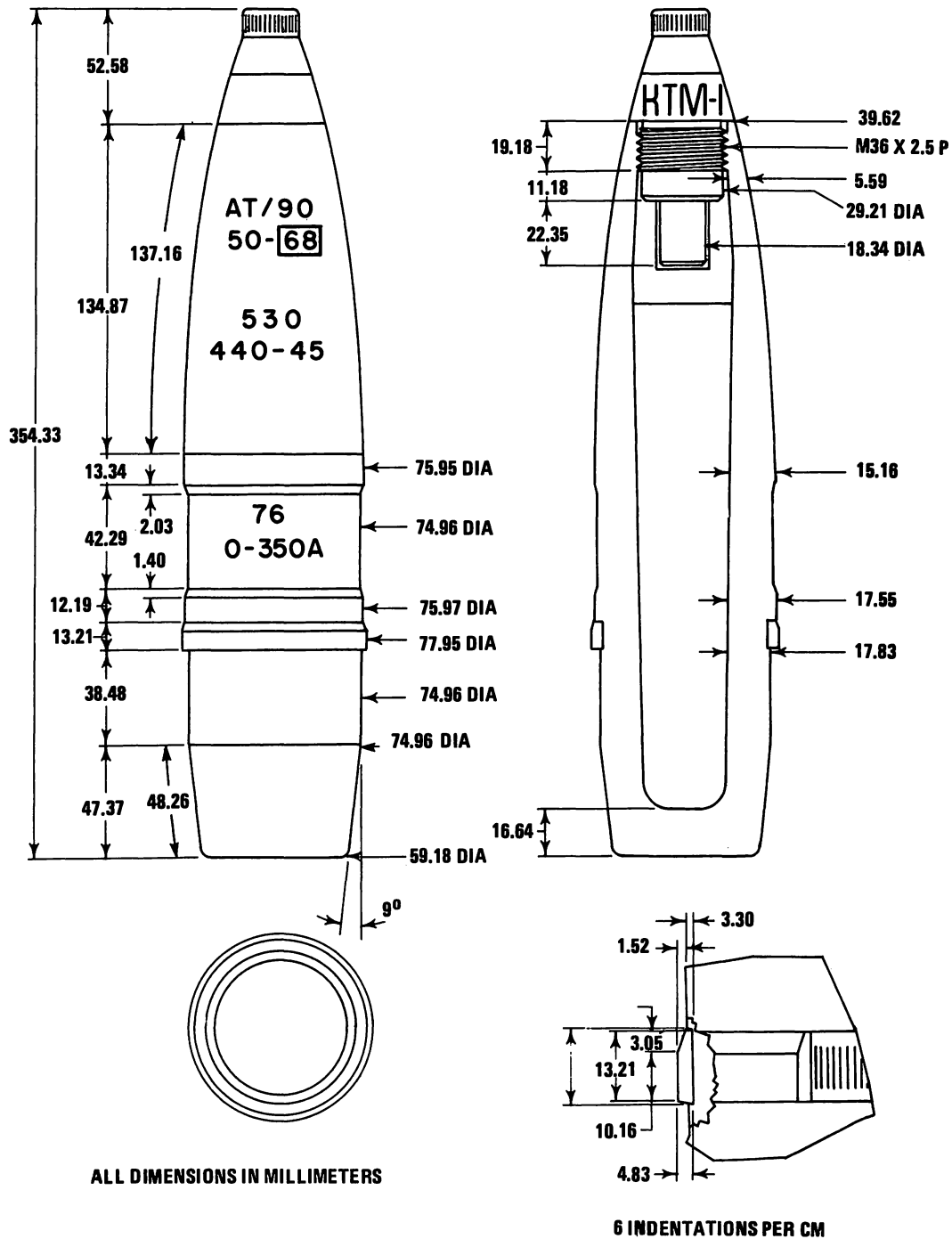
Neg. 533375

Projectile fuzed wt: 6.87 kg  
 Fuze: GPV-2 PIBD  
 Filler type & wt: RDX/wax, 0.75 kg

Using weapon(s): Field gun ZIS-3 and tank gun D-56T

Remarks: None

Figure 2-32. Russian 76-mm HEAT-FS Projectile Model BK-354M

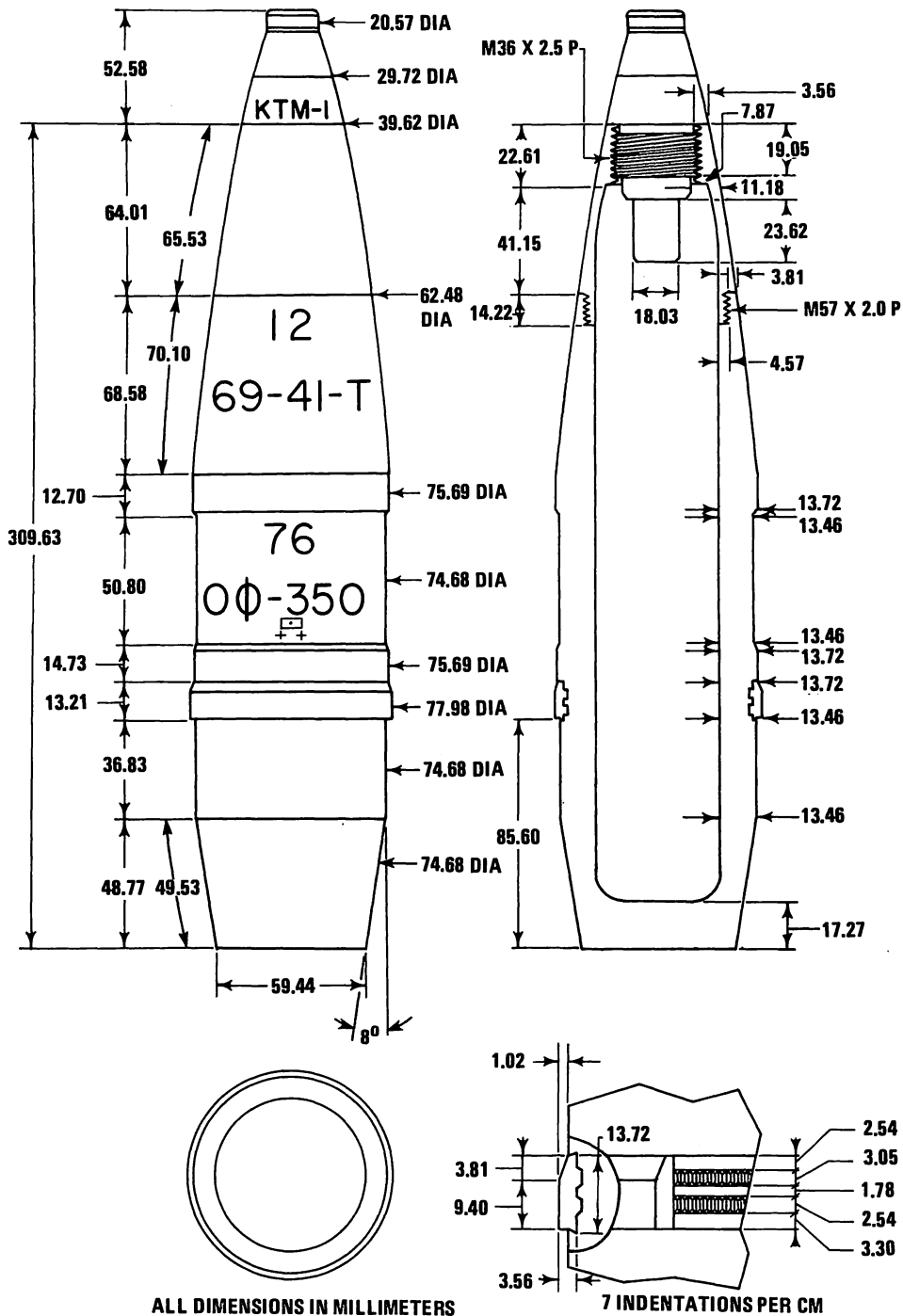


Neg. 502838

Projectile fuzed wt: 6.22 kg  
Fuze: KTM-1 PD  
Filler type & wt: TNT/amatol, 0.49 kg

Using Weapon (s): Field gun ZIS-3 and tank gun D-56T  
Remarks: Also uses KT-1 and KTMZ-1 fuzes

Figure 2-33. Russian 76-mm Frag Projectile Model 0-350A

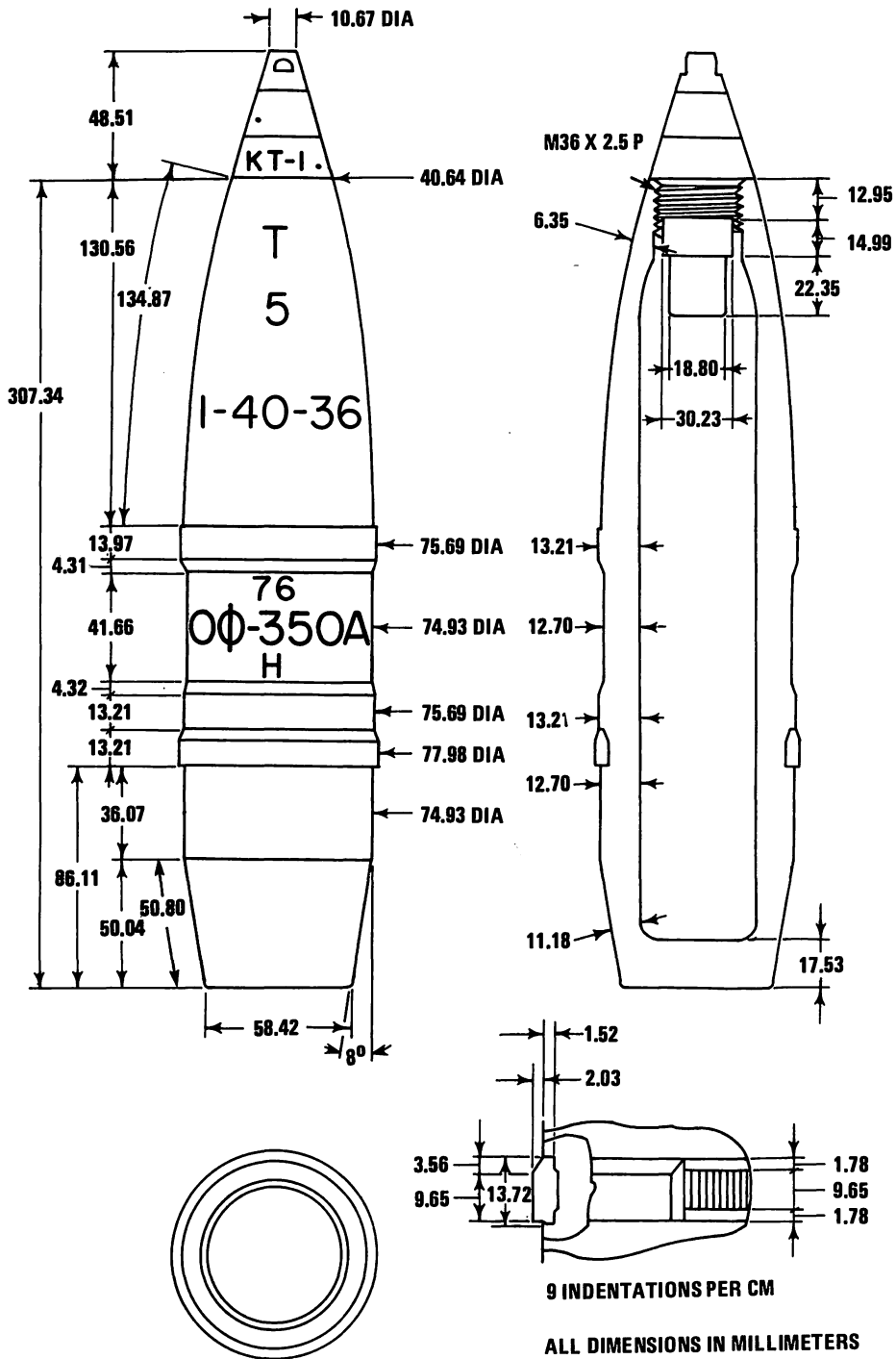


Neg. 502839

Projectile fuze wt: 6.21 kg  
 Fuze: KTM-1 PD  
 Filler type & wt: TNT, 0.71 kg

Using weapon(s): All 76-mm Soviet guns except AA  
 Remarks: Also uses KT-1, KTM-1-U, and KTMZ-1 fuzes

Figure 2-34. Russian 76-mm Frag-HE Projectile Model OF-350



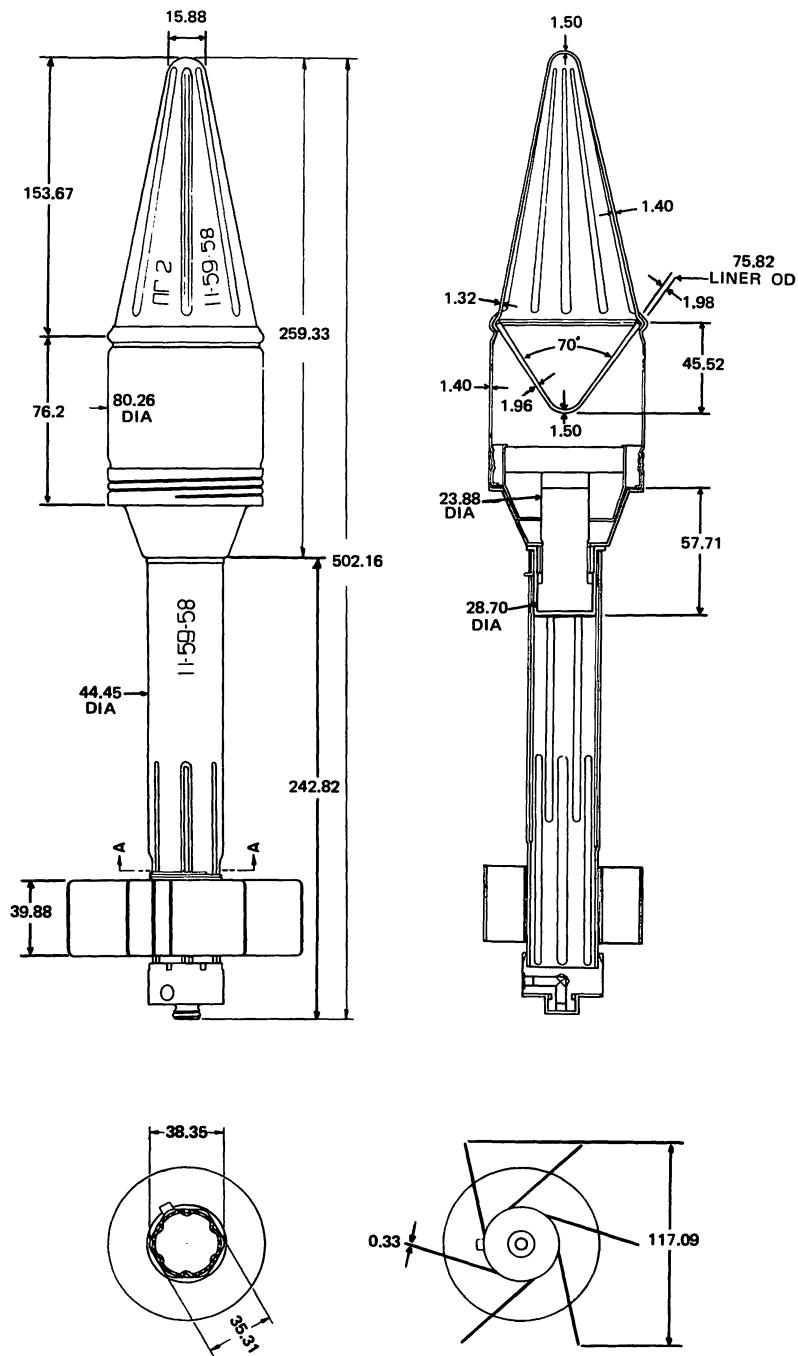
Neg. 502840

Projectile fuzed wt: 6.22 kg  
 Fuze: KT-1 PD  
 Filler type & wt: TNT, 0.71 kg

Using weapon(s): All 76-mm Soviet guns except AA

Remarks: Also uses KTM-1 and KTMZ-1 fuzes

Figure 2-35. Russian 76-mm Frag-HE Projectile Model OF-350A



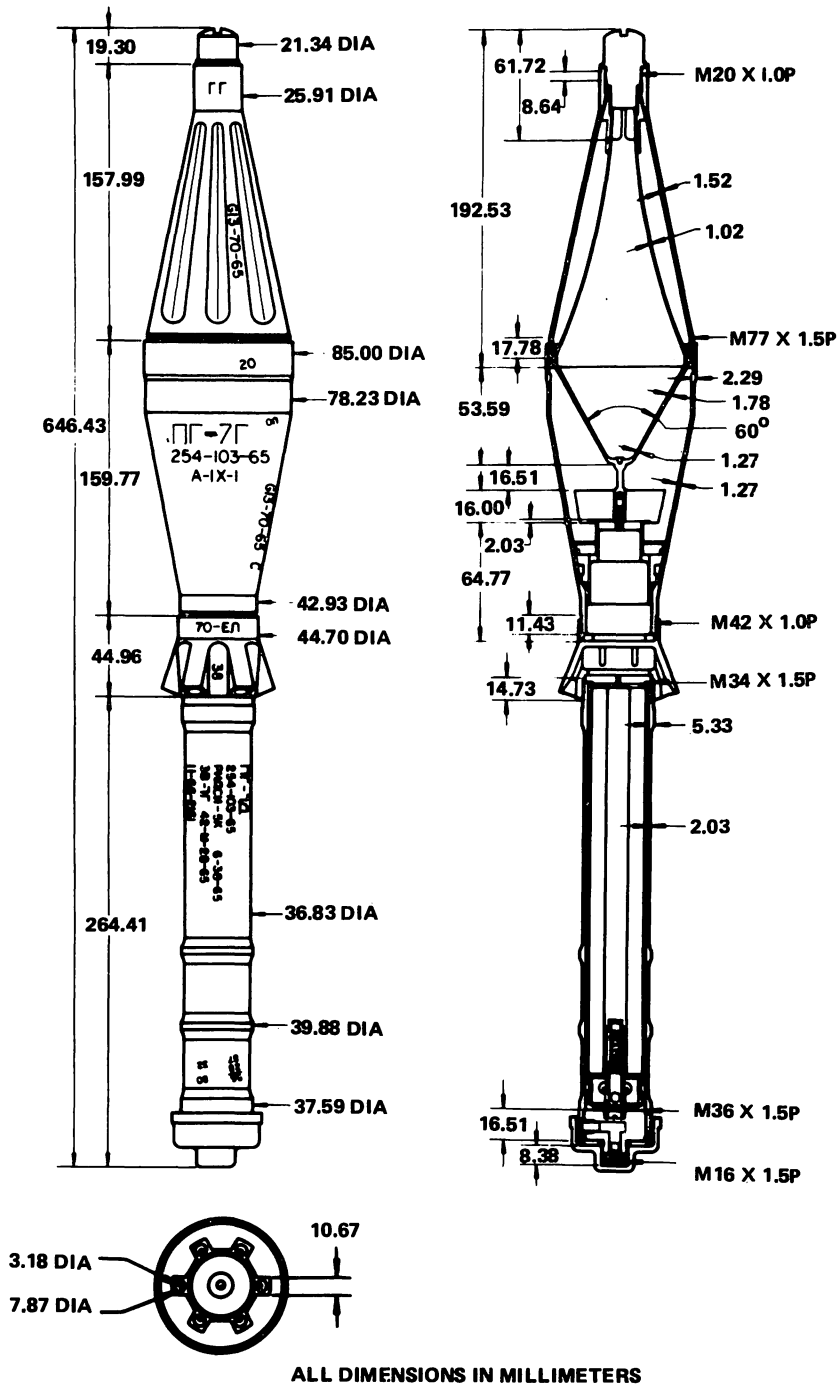
ALL DIMENSIONS IN MILLIMETERS

Neg. 502852

Projectile fuze wt: 1.62 kg  
 Fuze: DK-2 BD  
 Filler type & wt: RDX/TNT, 0.57 kg

Using weapon(s): RPG-2 grenade launcher  
 Remarks: Launcher has 40-mm bore, warhead is 80-mm. DK-4 fuze also used

Figure 2-36. Russian 40/80-mm HEAT Projectile Model PG-2

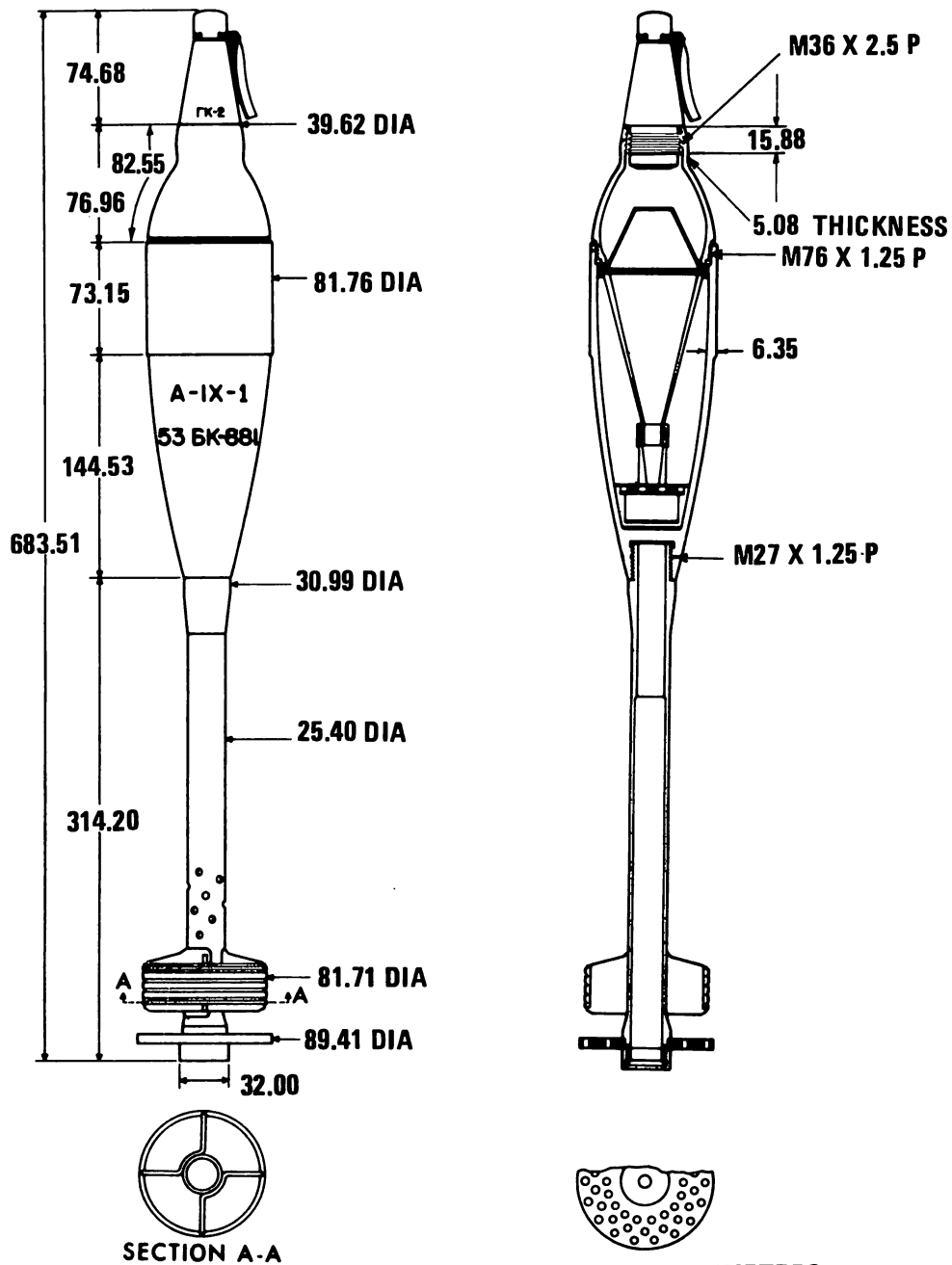


Neg. 502853

Projectile fuzed wt: 1.75 kg  
 Fuze: VP-7 PIBD  
 Filler type & wt: RDX/wax, 0.38 kg

Using weapon(s): RPG-7 grenade launcher  
 Remarks: Launcher has 40-mm bore, warhead is 85-mm. Four fins not shown

Figure 2-37. Russian 40/85-mm HEAT Projectile Model PG-7



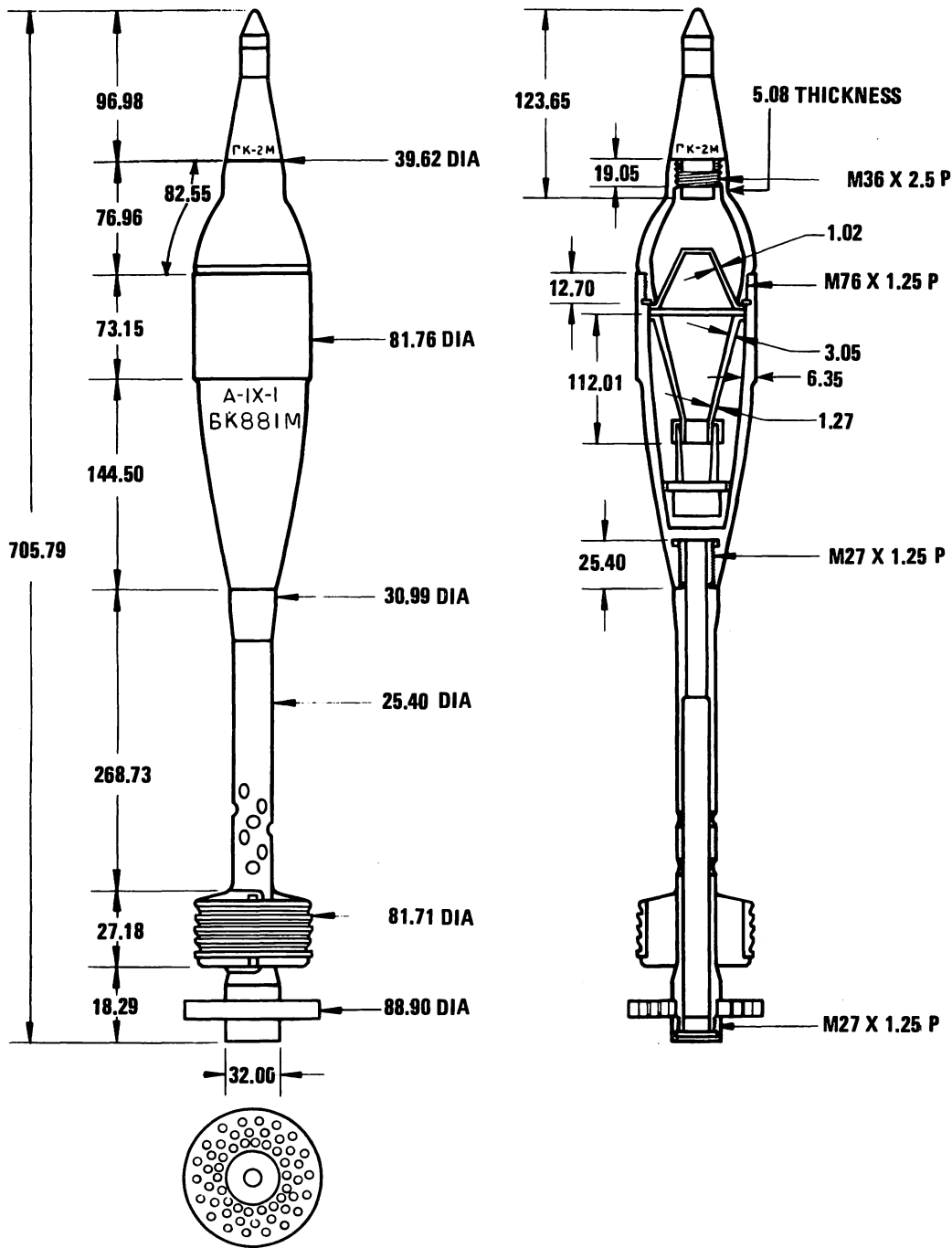
Neg. 502858

Projectile fuze wt: 3.87 kg  
 Fuze: GK-2 PIBD  
 Filler type & wt: RDX, 0.46 kg

Using weapon(s): B-10 recoilless gun  
 Remarks: None

Figure 2-38. Russian 82-mm HEAT Projectile Model BK-881





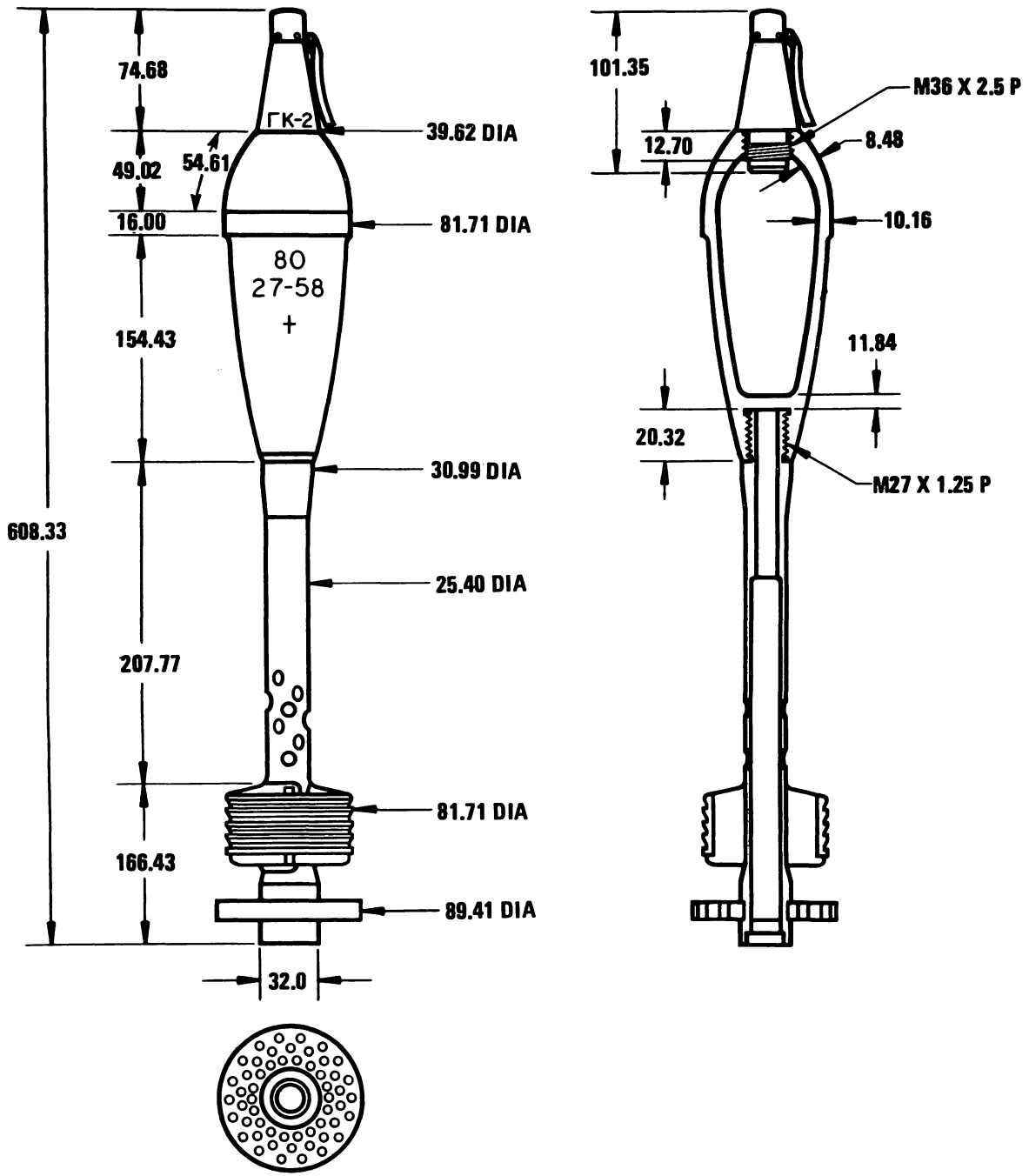
ALL DIMENSIONS IN MILLIMETERS

Neg. 502859

Projectile fuzed wt: 4.11 kg  
 Fuze: GK-2M PIBD  
 Filler type & wt: RDX, 0.55 kg

Using weapon(s): B-10 recoilless gun  
 Remarks: None

Figure 2-39. Russian 82-mm HEAT Projectile Model BK-881M



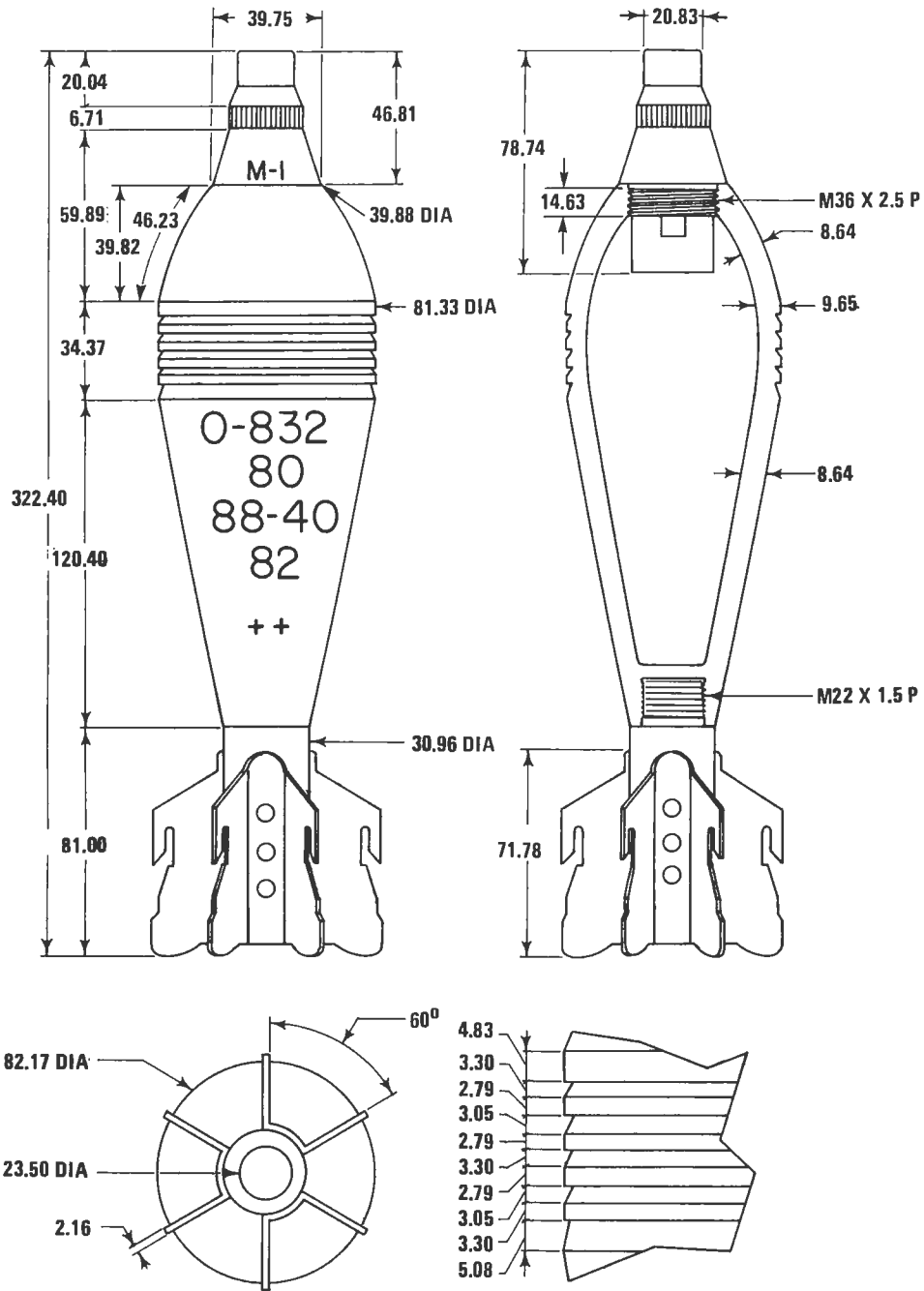
ALL DIMENSIONS IN MILLIMETERS

Neg. 502857

Projectile fuzed wt: 3.90 kg  
 Fuze: GK-2 PD  
 Filler type & wt: TNT/dinitronaphthalene,  
 0.47 kg

Using weapon(s): B-10 recoilless gun  
 Remarks: None

Figure 2-40. Russian 82-mm Frag Projectile Model 0-881A



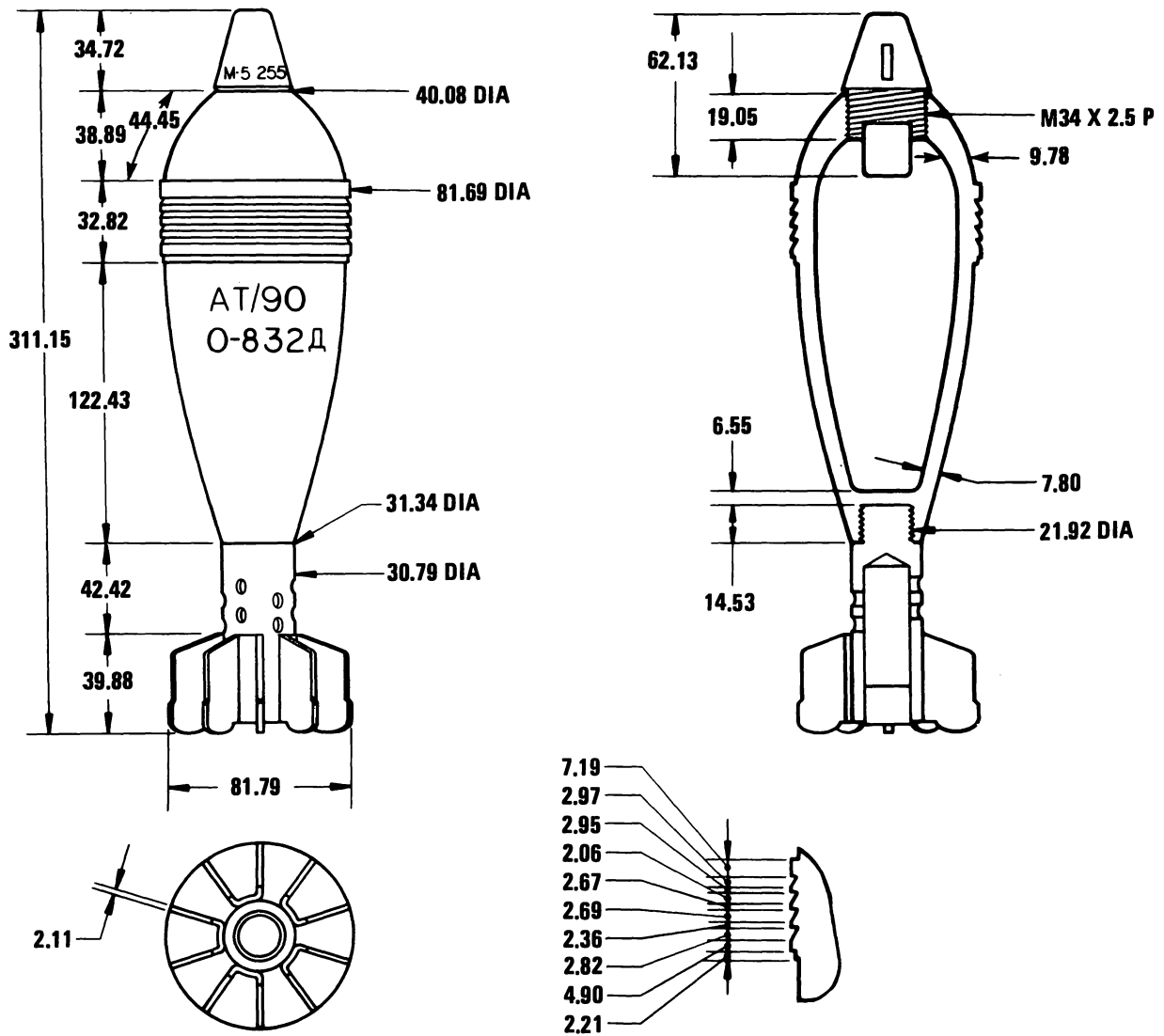
ALL DIMENSIONS IN MILLIMETERS

Neg. 502854

Projectile fuze wt: 3.41 kg  
 Fuze: M-1 PD  
 Filler type & wt: Schneiderite, 0.40 kg

Using weapon(s): Mortar M1937 (M1942-1943 version)  
 Remarks: Also uses M-2, M-3, M-4, MP, and MP-82 PD fuzes

Figure 2-41. Russian 82-mm Frag Projectile Model 0-832



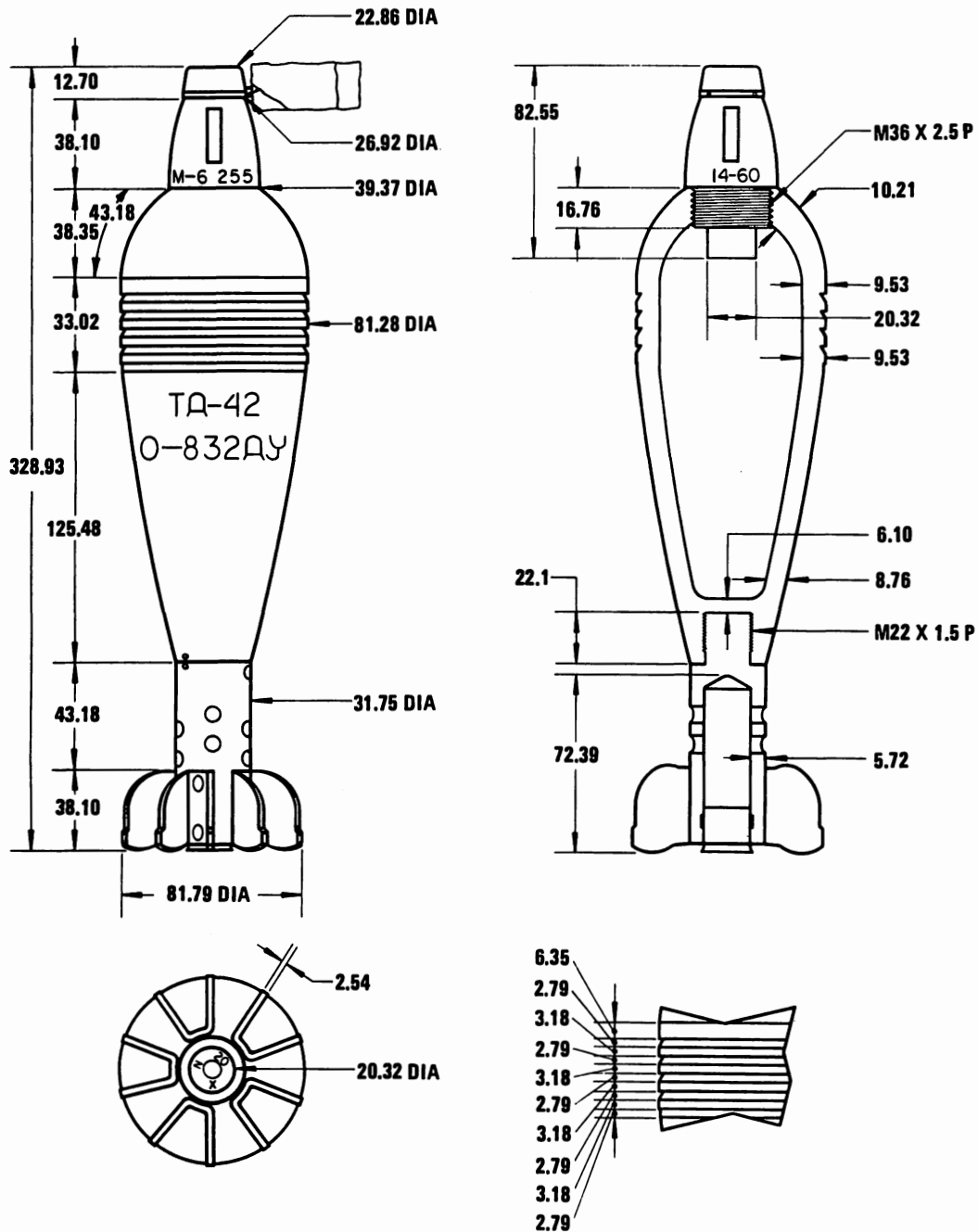
ALL DIMENSIONS IN MILLIMETERS

Neg. 502855

Projectile fuze wt: 3.07 kg  
 Fuze: M-5 PD  
 Filler type & wt: TNT/amatol, 0.41 kg

Using weapon(s): Mortar M1937 (M1942-M1943 version)  
 Remarks: Also uses MP-1, MP-2, MP-3, MP-4, MP-82, and M-6 PD fuzes

Figure 2-42. Russian 82-mm Frag Projectile Model 0-832D



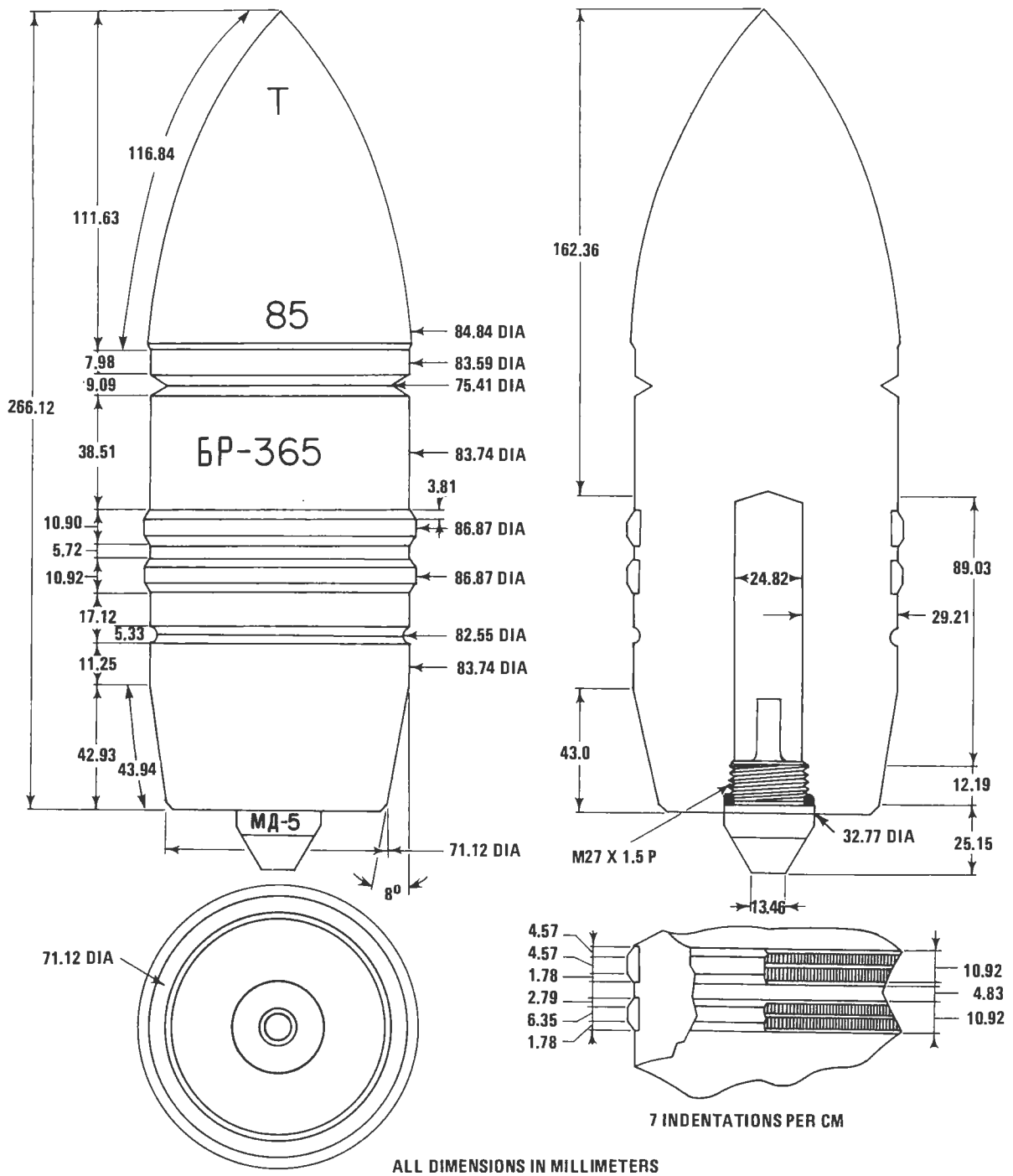
ALL DIMENSIONS IN MILLIMETERS

Neg. 502856

Projectile fuze wt: 3.23 kg  
 Fuze: M-6 PD  
 Filler type & wt: TNT/dinitronaphthalene,  
 0.44 kg

Using weapon(s): Mortar M1937 (1942-1943  
 version)  
 Remarks: Also uses M-1, M-2, M-3, M-4, M-5,  
 and MP-82 fuzes

Figure 2-43. Russian 82-mm Frag Projectile Model 0-832DU



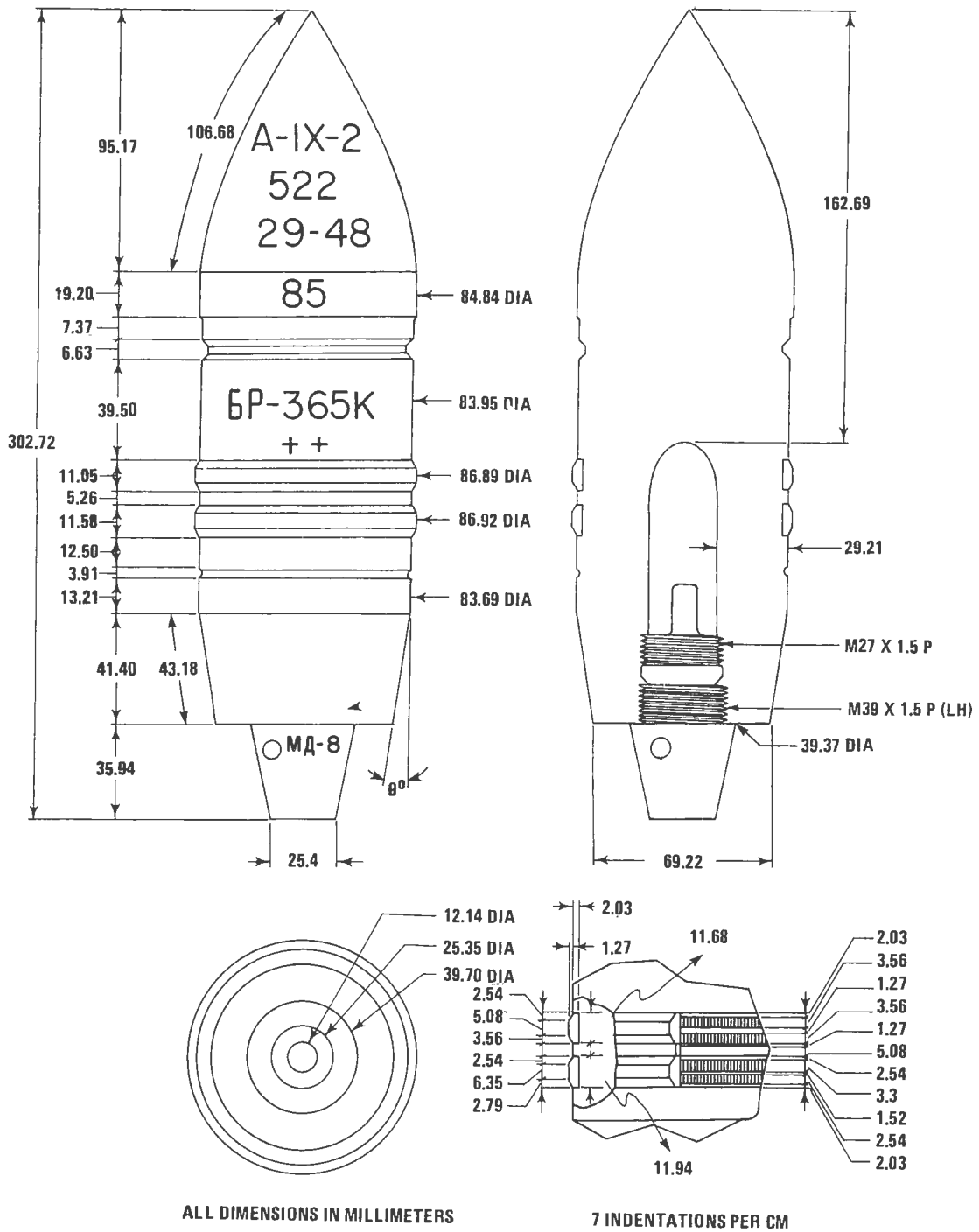
Neg. 502864

Projectile fuzed wt: 9.20 kg  
 Fuze: MD-5 BD  
 Filler type & wt: RDX/aluminum, 0.07 kg

Using weapon(s): AA guns KS-12 and 12A, tank gun ZIS-S53, assault gun ASU-85, field gun D-44, APAT gun SD-44, and AT gun D-48

Remarks: Also used MD-8 fuze

Figure 2-44. Russian 85-mm AP-T Projectile Model BR-365



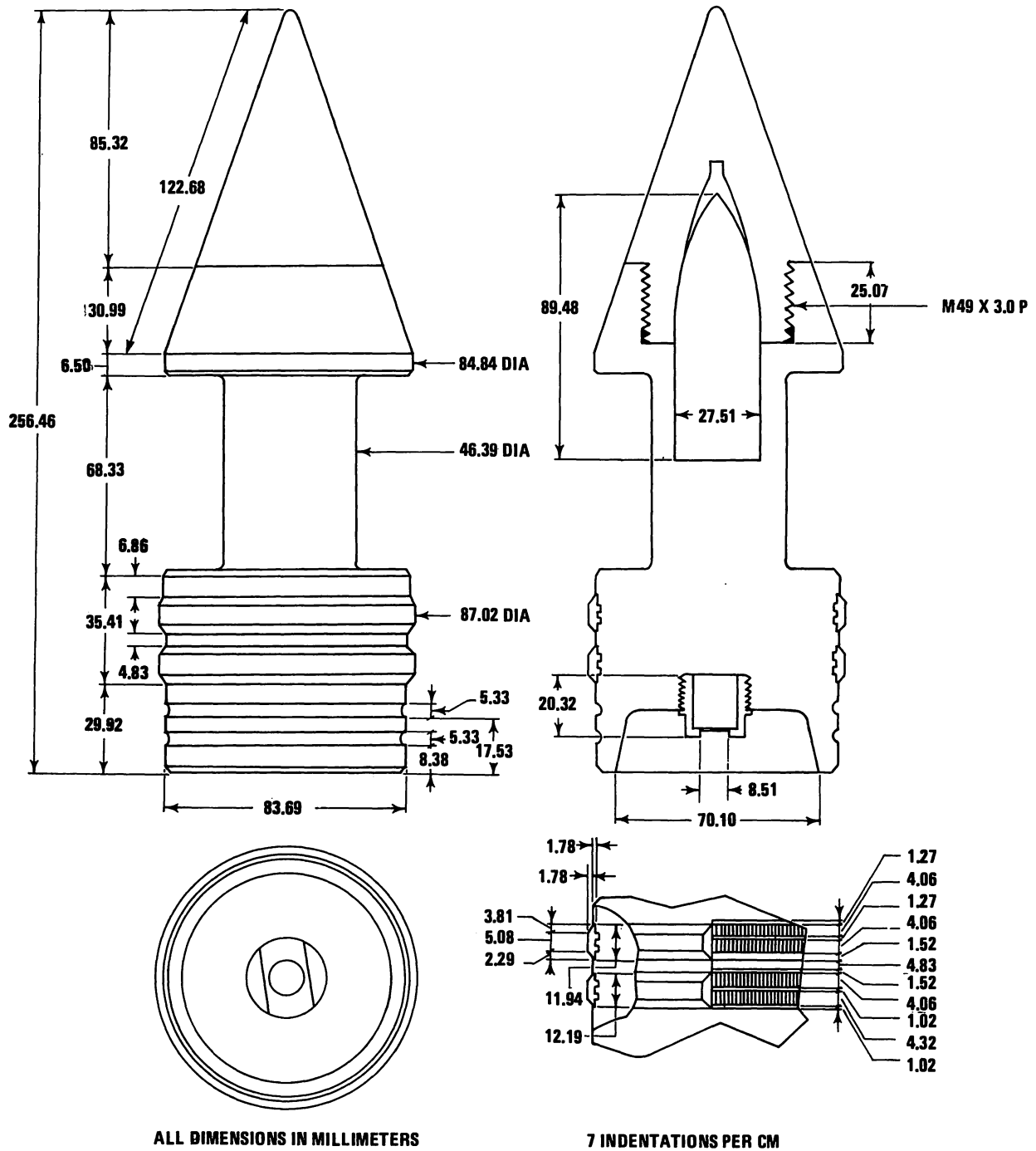
Neg. 502865

Projectile fuze wt: 9.37 kg  
 Fuze: MD-8 BD  
 Filler type & wt: RDX/aluminum, 0.05 kg

Using weapon(s): AA guns KS-12 and 12A, tank gun ZIS-S53, assault gun ASU-85, field gun D-44, APAT gun D-44, and AT gun D-48

Remarks: None

Figure 2-45. Russian 85-mm AP-T Projectile Model BR-365K



Neg. 502866

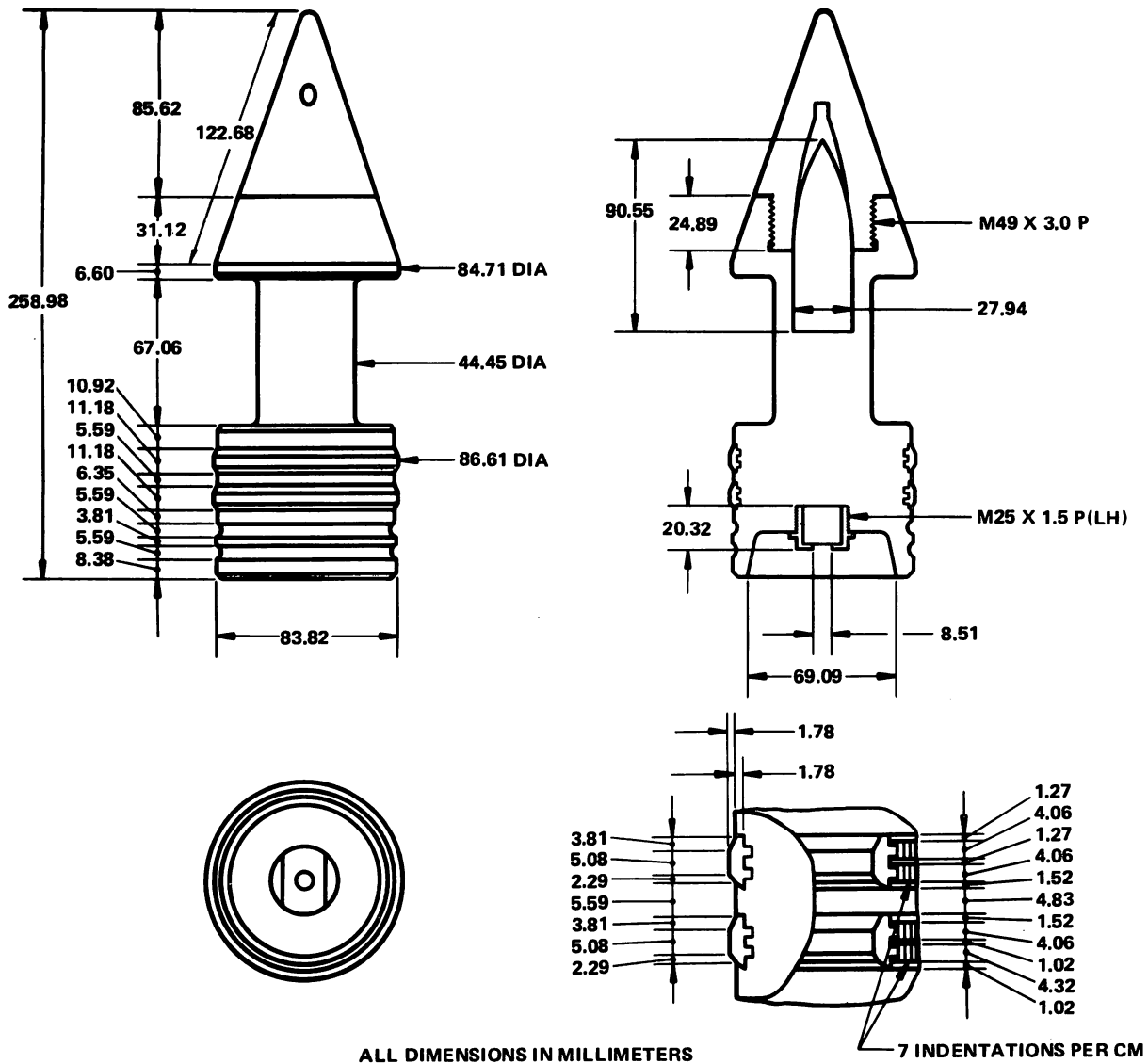
Projectile fuze wt: 4.96 kg  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten carbide, 0.64 kg

Using weapon(s): AA guns KS-12 and 12A, tank gun ZIS-S53, assault gun ASU-85, field gun D-44, APAT gun SD-44, and AT gun D-48

Remarks: None

Figure 2-46. Russian 85-mm HVAP-T Projectile Model BR-365P





ALL DIMENSIONS IN MILLIMETERS

7 INDENTATIONS PER CM

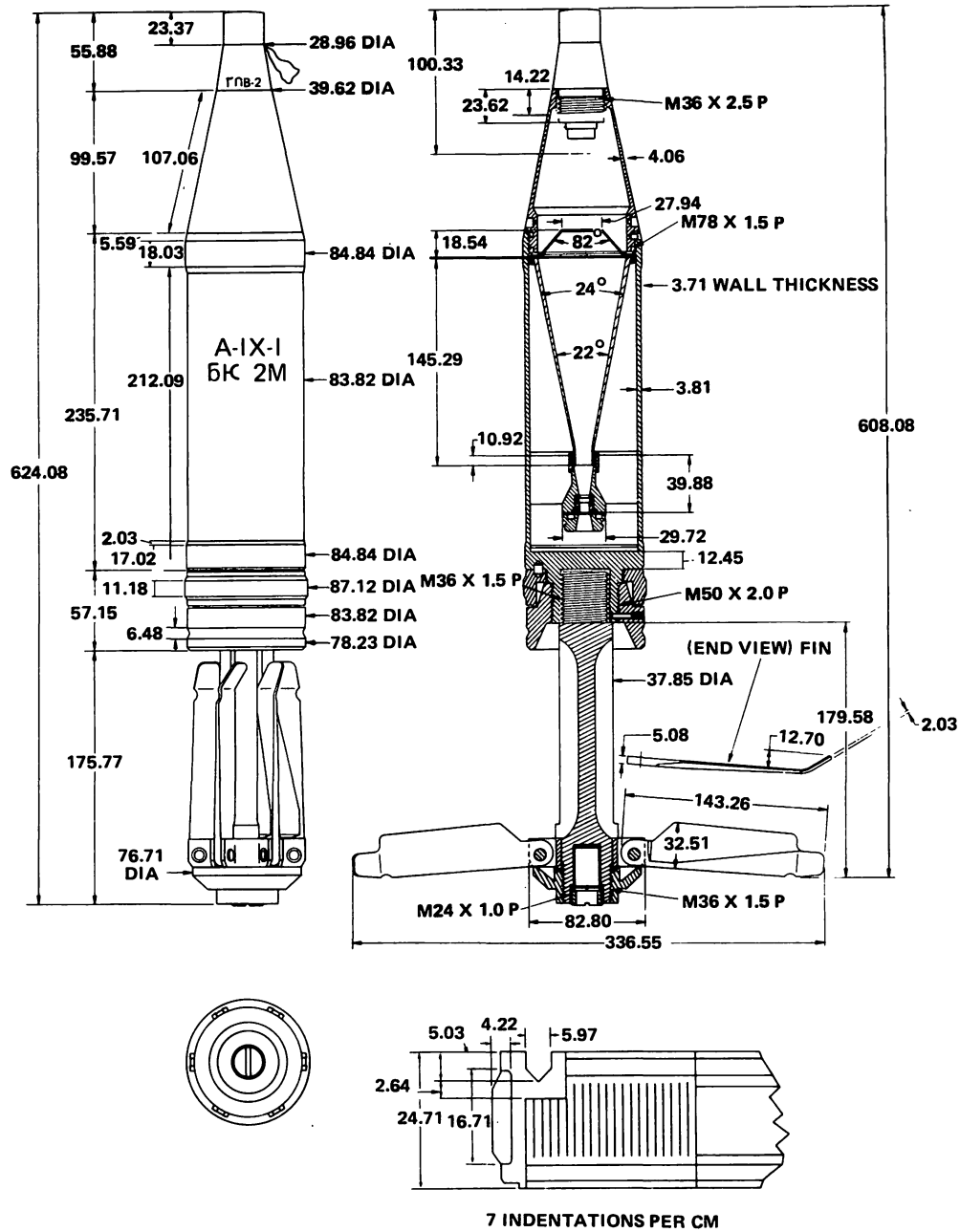
Neg. 502867

Projectile fuze wt: 5.07 kg  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten carbide, 0.65 kg

Using weapon(s): AA guns KS-12 and 12A, tank gun ZIS-S53, assault gun ASU-85, field gun D-44, APAT gun SD-44, and AT gun D-48

Remarks: None

Figure 2-47. Russian 85-mm HVAP-T Projectile Model BR-365PK



ALL DIMENSIONS IN MILLIMETERS

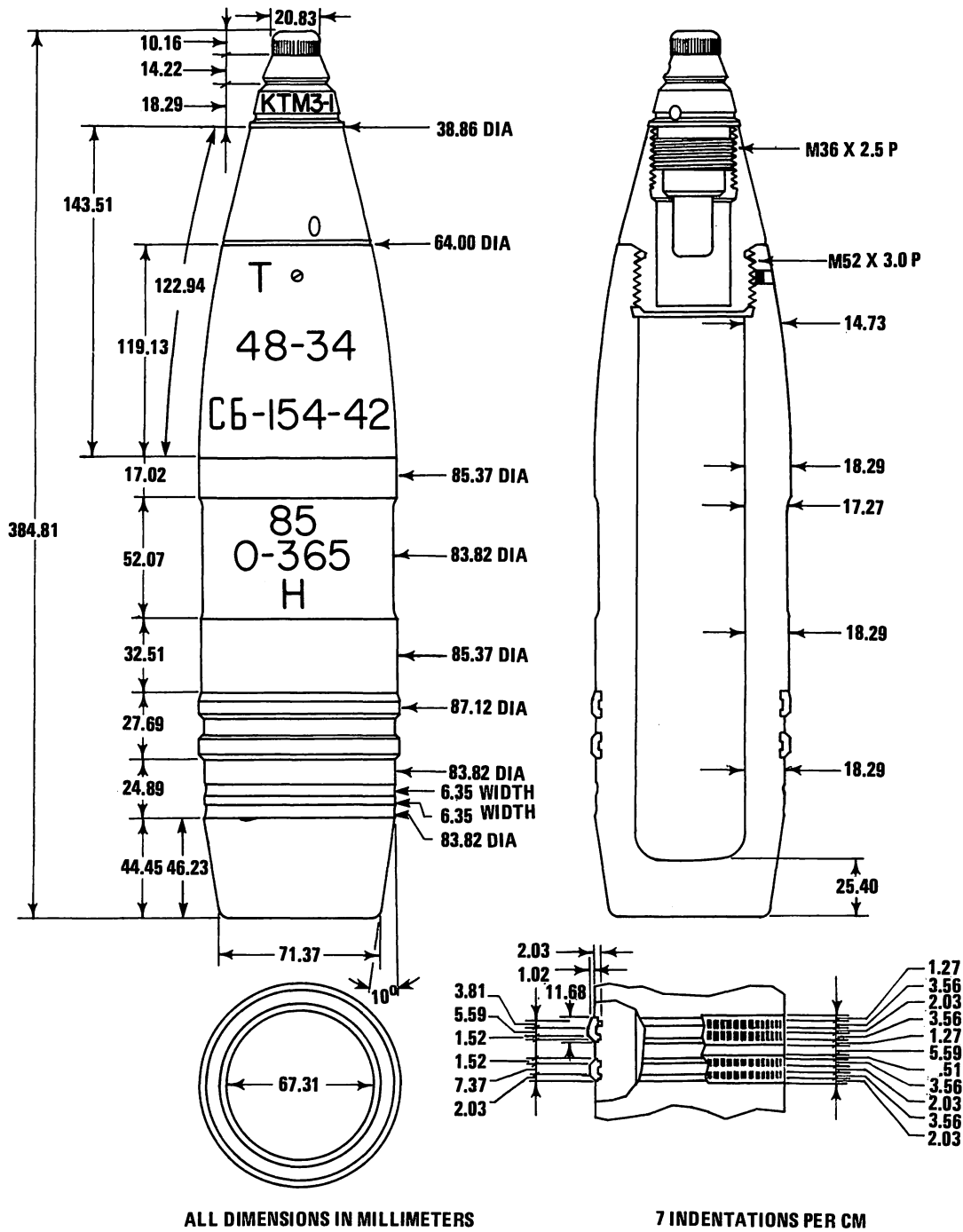
Neg. 520505

Projectile fuzed wt: 7.36 kg  
 Fuze: GPV-2 PIBD  
 Filler type & wt: RDX/wax, 0.92 kg

Using weapon(s): Field guns D-44 and SD-44,  
 AT gun D-48, tank gun  
 ZIS-S53, and assault gun  
 ASU-85

Remarks: Slip type, sintered iron rotating band

Figure 2-48. Russian 85-mm HEAT-FS Projectile Model BK-2M



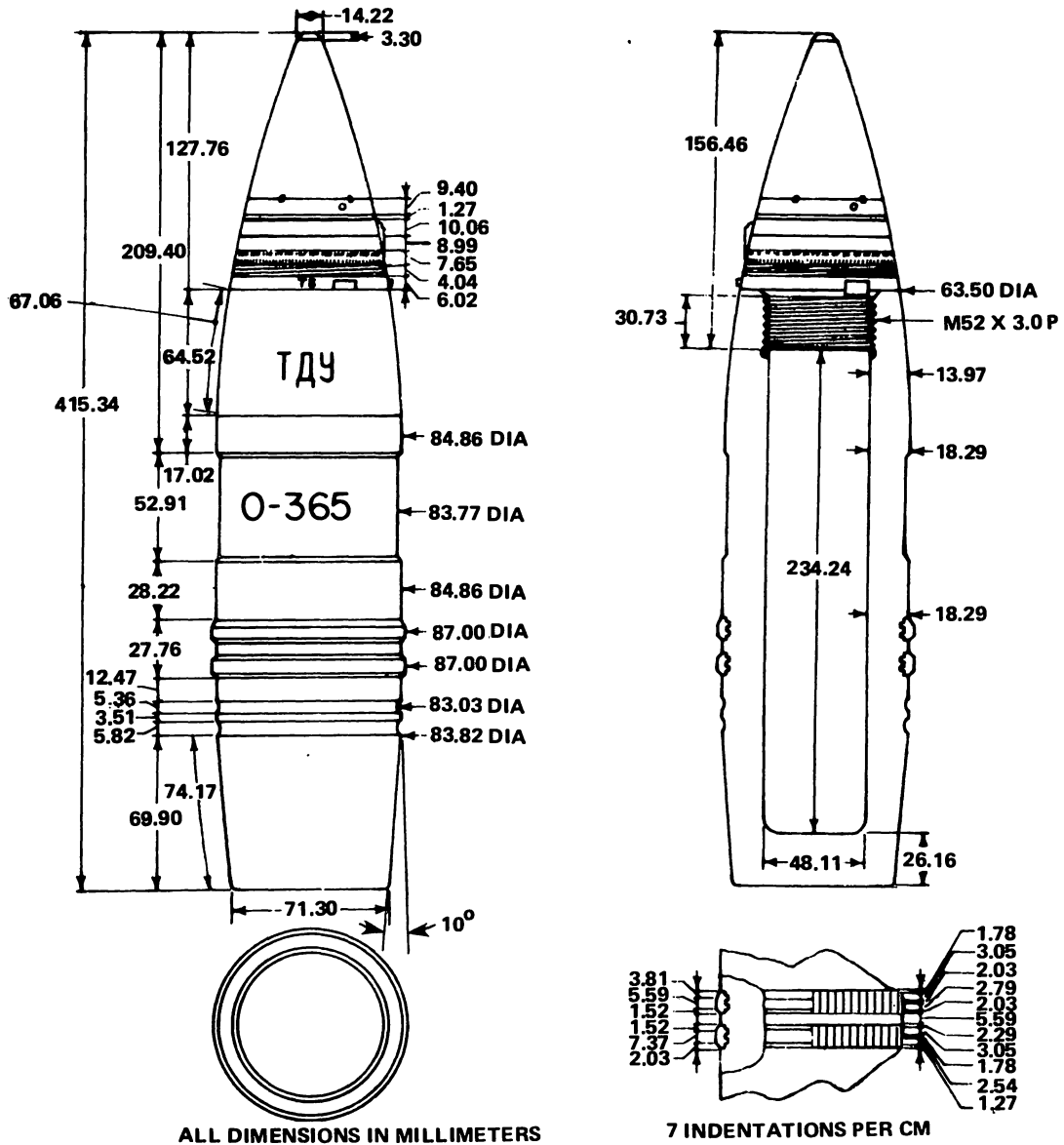
Neg. 502861

Projectile fuze wt: 9.58 kg  
 Fuze: KTMZ-1 PD  
 Filler type & wt: TNT, 0.78 kg

Using weapon(s): AA guns KS-12 and 12A, tank gun ZIL-S53, assault gun ASU-85, field gun D-44, APAT gun SD-44, and AT gun D-48

Remarks: None

Figure 2-49. Russian 85-mm Frag Projectile Model 0-365 (Two-Piece)

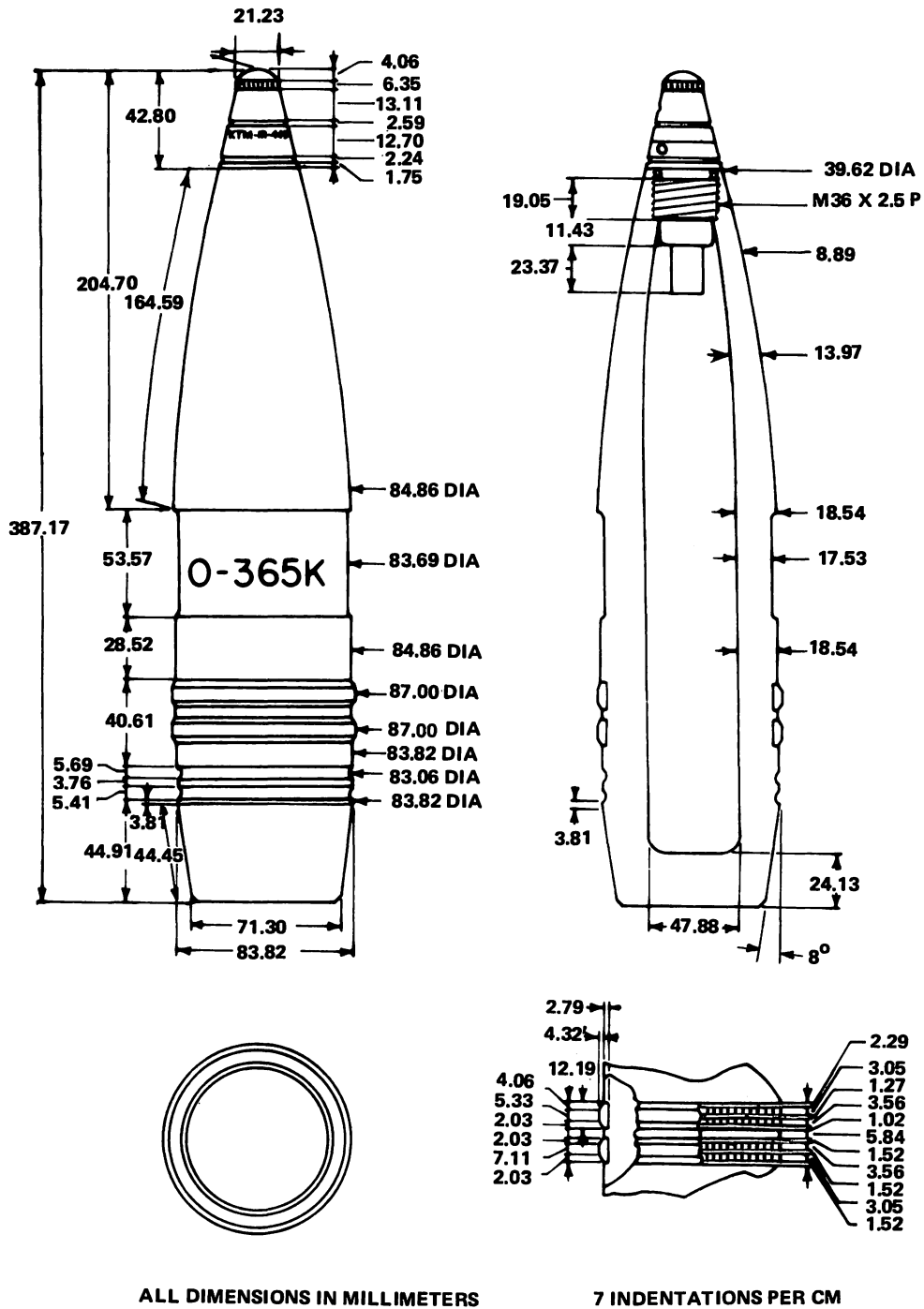


Neg. 502862

Projectile fuzed wt: 9.22 kg  
 Fuze: T-5 time  
 Filler type & wt: TNT, 0.65 kg

Using weapon(s): AA guns KS-12 and 12A, tank gun ZIS-S53, assault gun ASU-85, field gun D-44, APAT gun SD-44, and AT gun D-48  
 Remarks: Fuze cover not shown. Also uses T-11 time fuze

Figure 2-50. Russian 85-mm Frag Projectile Model 0-365



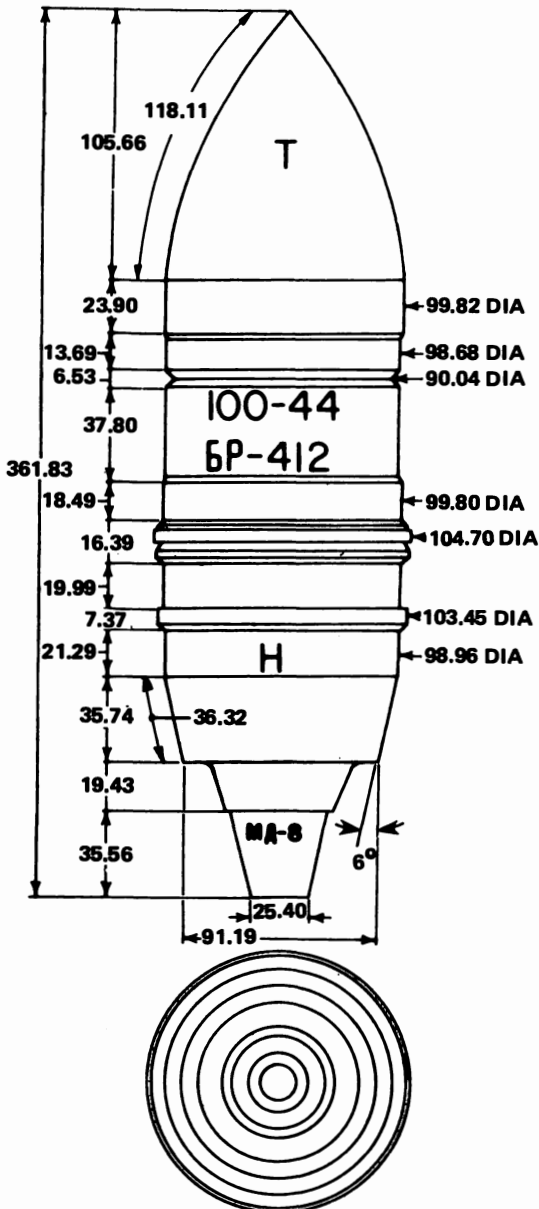
Neg. 502863

Projectile fuze wt: 9.62 kg  
 Fuze: KTM-1 PD  
 Filler type & wt: TNT, 0.78 kg

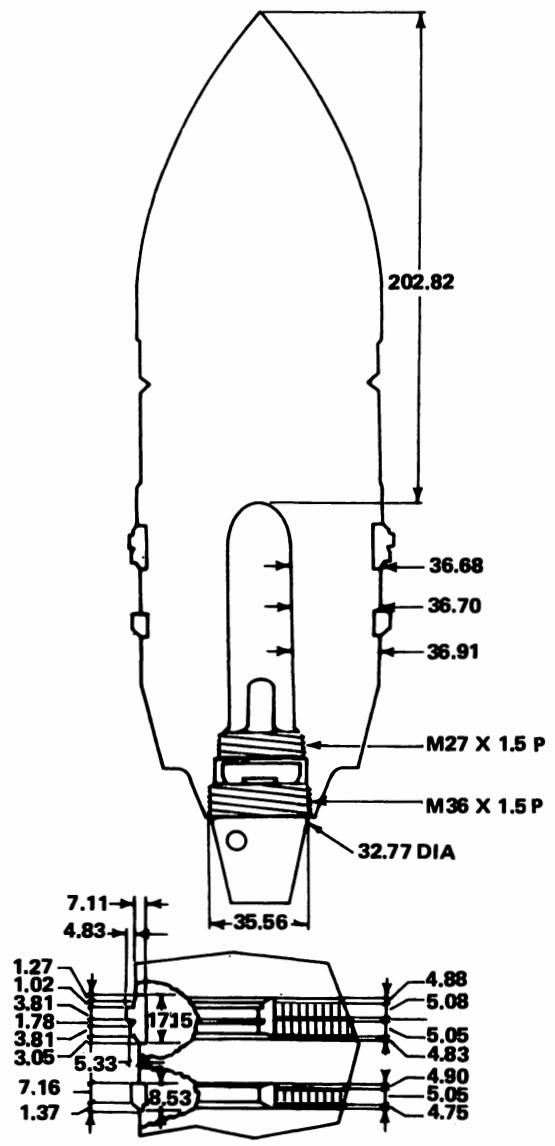
Using weapon(s): AA guns KS-12 and 12A, tank gun ZIS-S53, assault gun ASU-85, field gun D-44, APAT gun SD-44, and AT gun D-48

Remarks: Also uses KTM-1U fuze; a two-piece design also exists

Figure 2-51. Russian 85-mm Frag Projectile Model 0-365K



ALL DIMENSIONS IN MILLIMETERS



7 INDENTATIONS PER CM

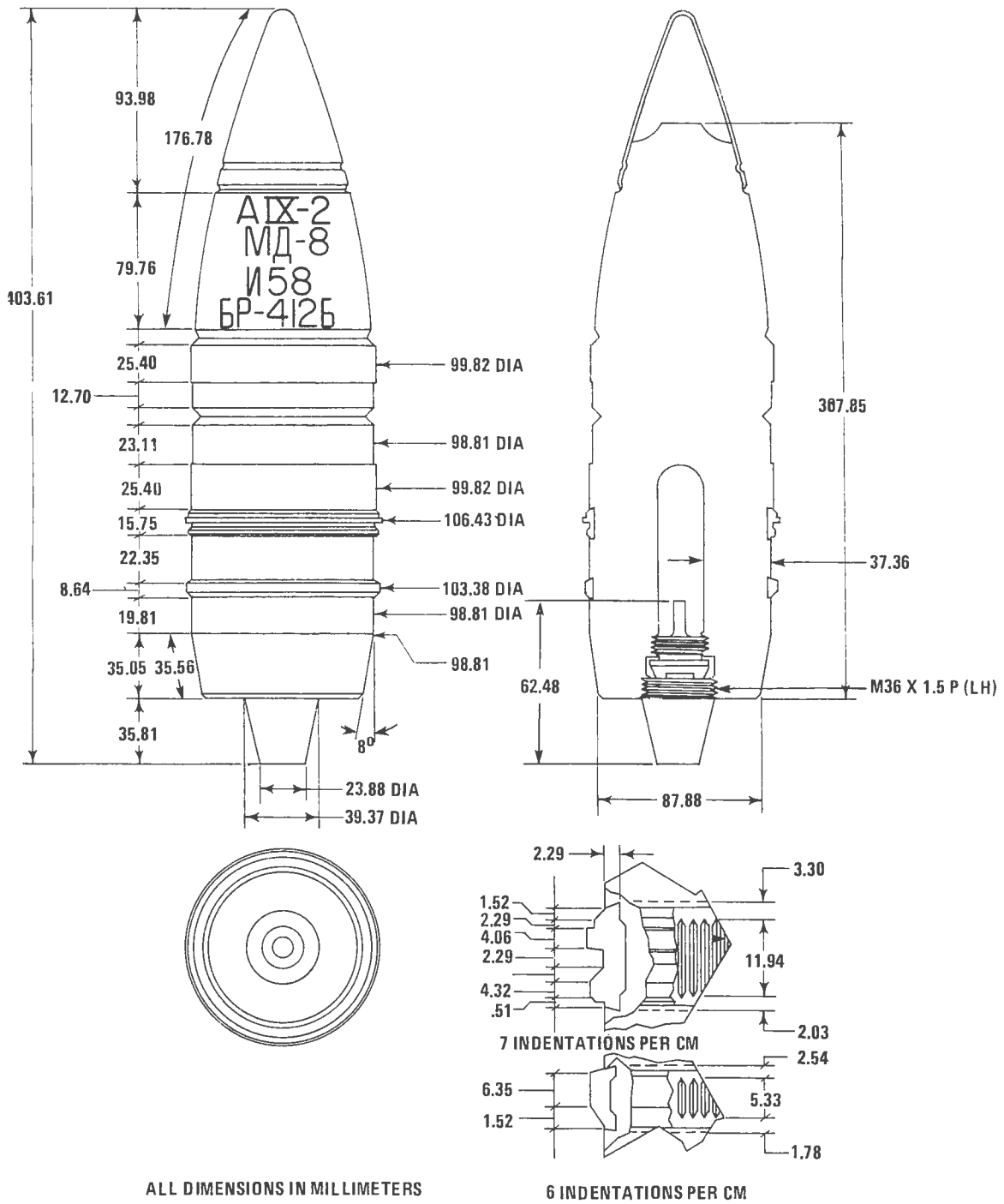
Neg. 502869

Projectile fuzed wt: 15.70 kg  
 Fuze: MD-8 BD  
 Filler type & wt: RDX/aluminum, 0.06 kg

Using weapon(s): Field (AT) gun BS-3, tank guns D-10T, D-10TG, and D-10TS; AA gun KS-19 series and SU-100 assault gun

Remarks: None

Figure 2-52. Russian 100-mm AP-T Projectile Model BR-412

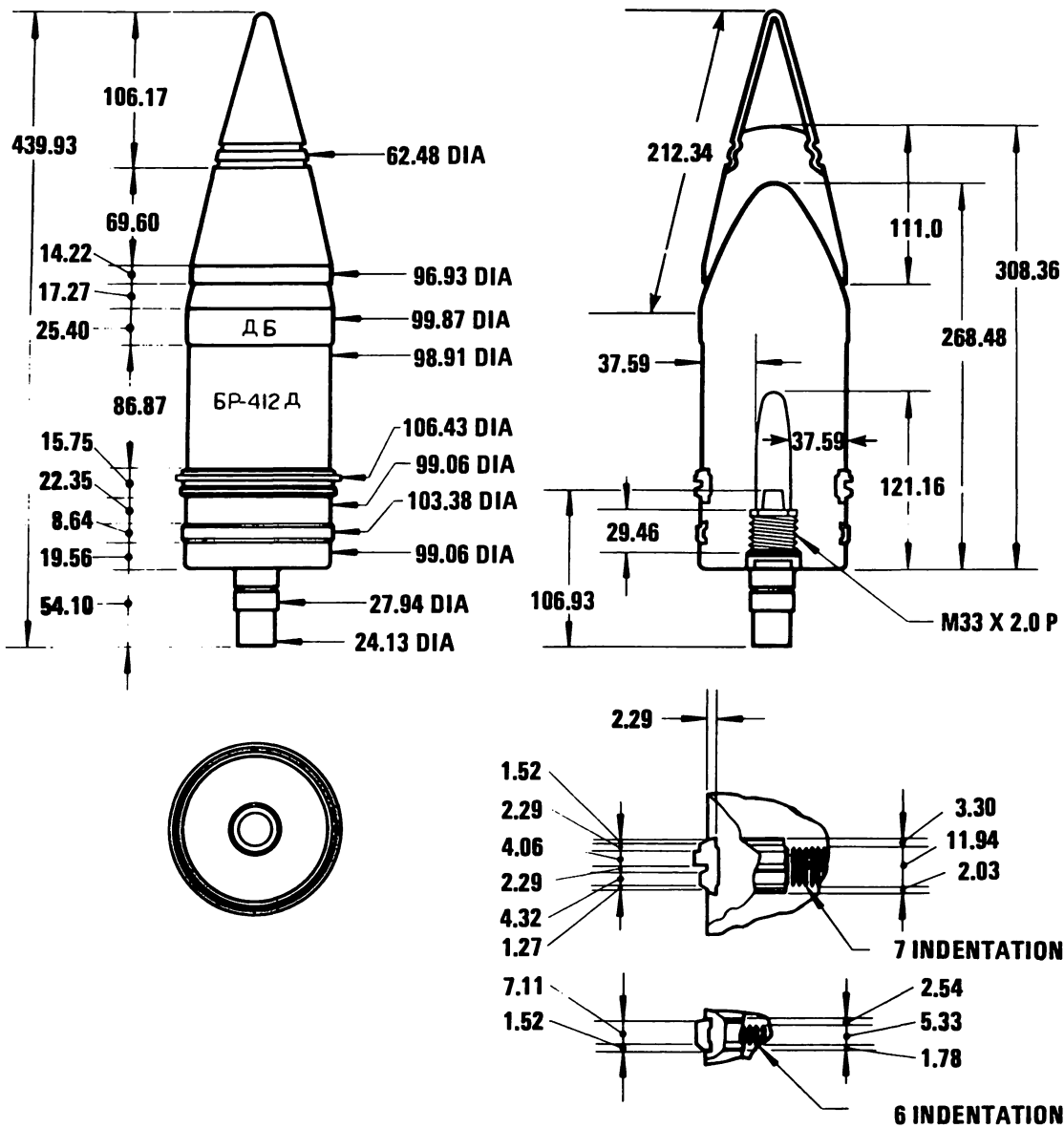


Neg. 502870

Projectile fuze wt: 15.89 kg  
 Fuze: MD-8 BD  
 Filler type & wt: RDX/aluminum, 0.06 kg

Using weapon(s): Field (AT) gun BS-3, tank guns D-10T, D-10TG, and D-10TS; AA gun KS-19 series and SU-100 assault gun  
 Remarks: Also uses DBR-2 fuze

Figure 2-53. Russian 100-mm AP-T Projectile Model BR-412B



ALL DIMENSIONS IN MILLIMETERS

Neg. 502871

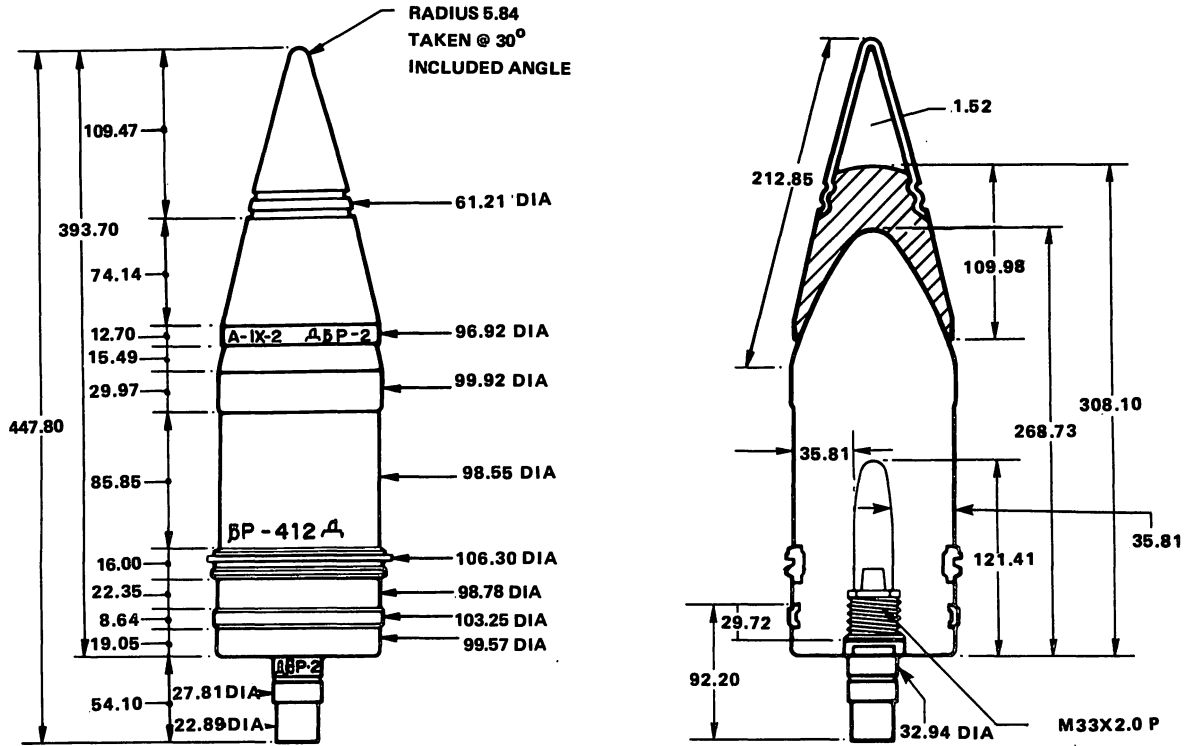
Projectile fuze wt: 16 kg  
 Fuze: DBR-2 BD  
 Filler type & wt: RDX/aluminum, 0.06 kg

Using weapon(s): Field (AT) gun BS-3, tank guns D-10T, D-10TG, and D-10TS; AA gun KS-19 series and SU-100 assault gun

Remarks: Also uses MD-8 fuze

Figure 2-54. Russian 100-mm APC-T Projectile Model BR-412D





ALL DIMENSIONS IN MILLIMETERS

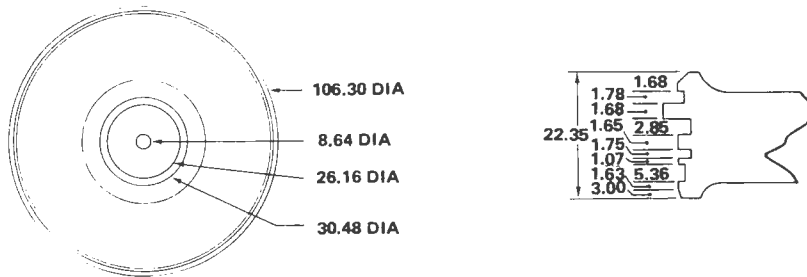
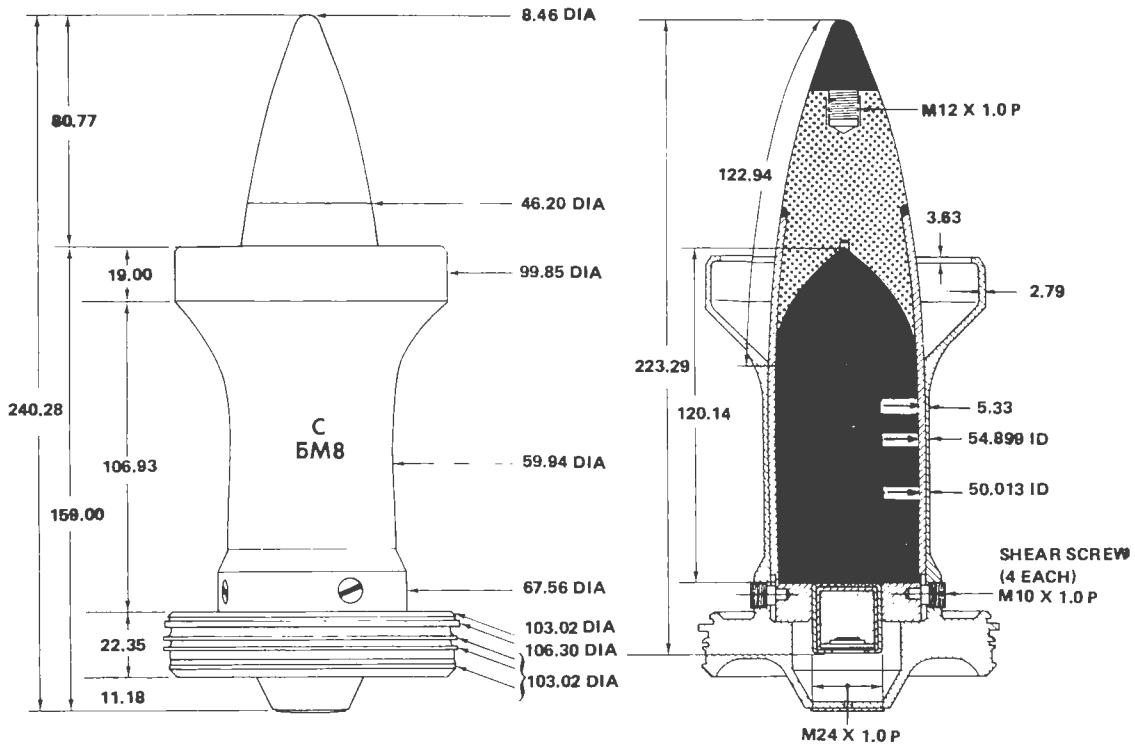
Neg. 502872

Projectile fuze wt: 15.81 kg  
 Fuze: DBR-2 BD  
 Filler type & wt: RDX/aluminum, 0.06 kg

Using weapon(s): Field (AT) gun BS-3, tank guns D-10T, D-10TG, and D-10TS; AA gun KS-19 series and SU-100 assault gun

Remarks: Also uses MD-8 fuze

Figure 2-55. Russian 100-mm APC-T Projectile Model BR-412D (Variant)



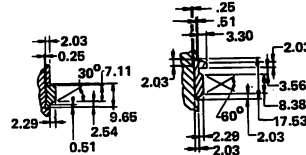
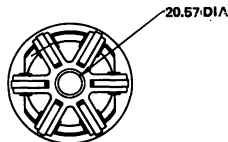
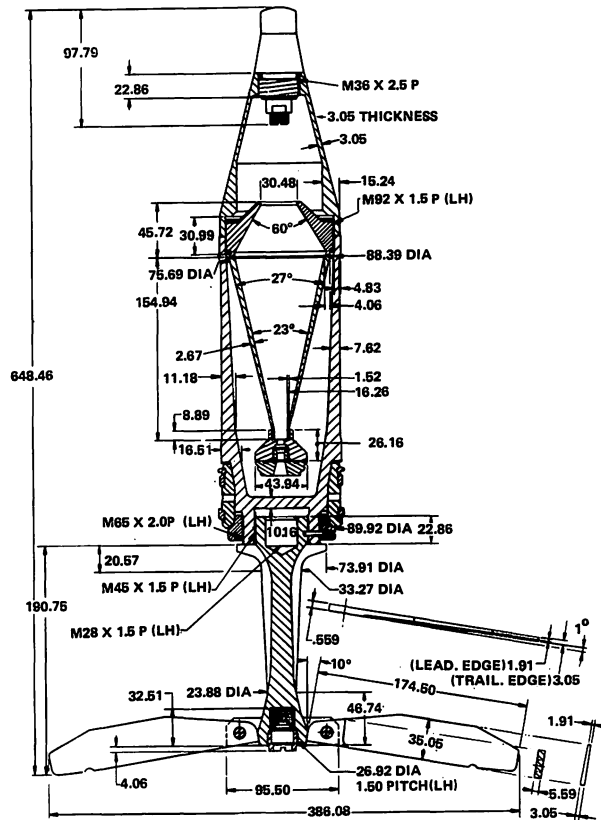
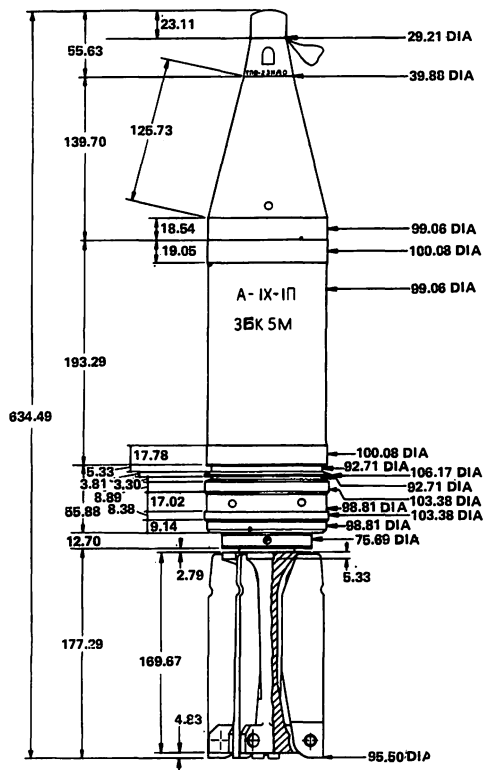
ALL DIMENSIONS IN MILLIMETERS

Neg. 520660

Projectile fuzed wt: 5.69 kg  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten carbide

Using weapon(s): D-10T, D-10TG, and D-10TS  
 tank cannons; SU-100 assault  
 gun and field (AT) gun BS-3  
 Remarks: Projectile weight without sabot is  
 4.13 kg

Figure 2-56. Russian 100-mm APDS-T Projectile Model BM-8



ALL DIMENSIONS IN MILLIMETERS

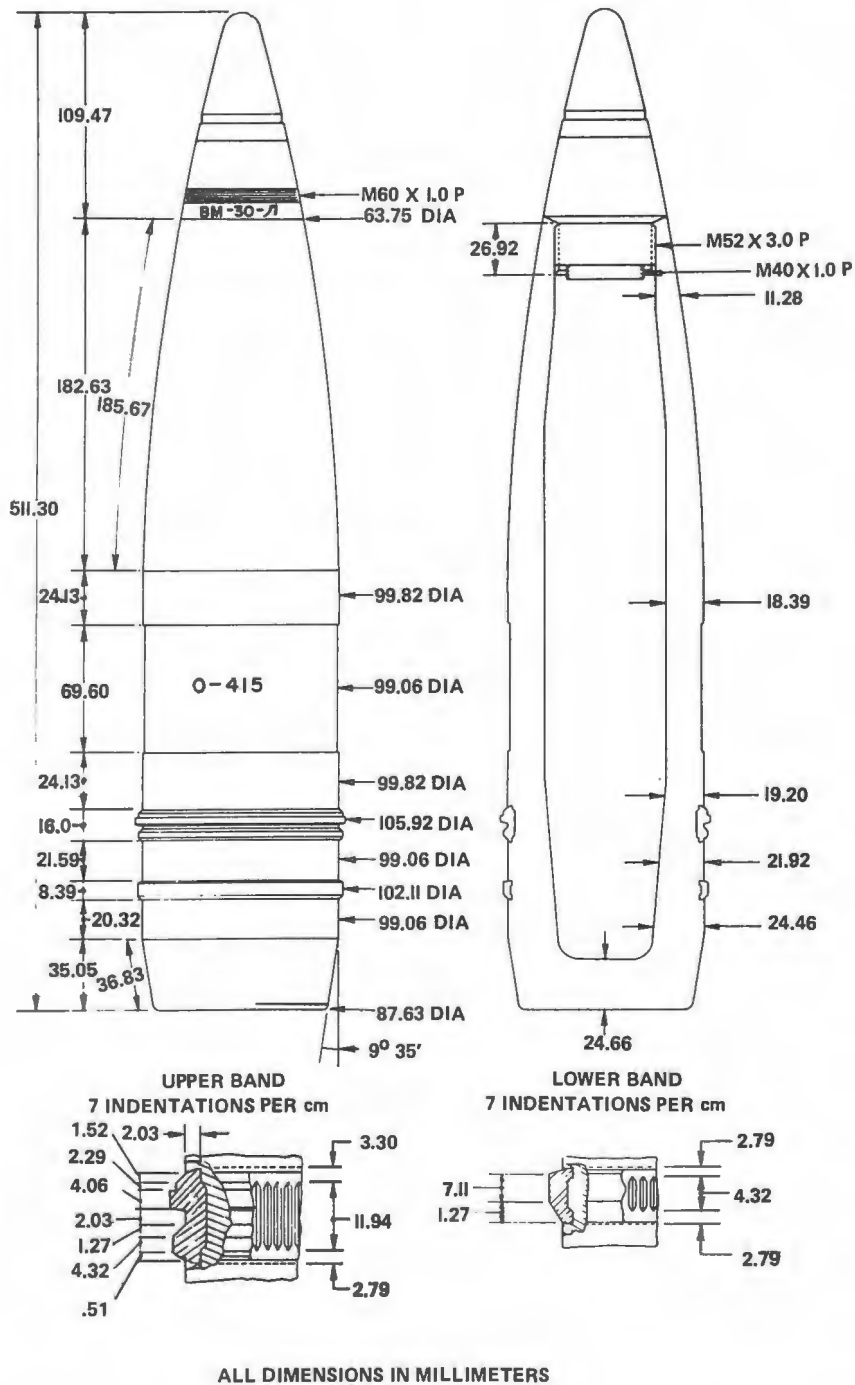
Neg. 520445

Projectile fuze wt: 12.37 kg  
 Fuze: VP-9 PIBD  
 Filler type & wt: RDX/wax 1.04 kg

Using weapon(s): Field (AT) gun BS-3, all rifled 100-mm tank guns, and SU-100 assault gun

Remarks: Uses steel slip band seat. May be seen with Bulgarian markings

Figure 2-57. Russian 100-mm HEAT-FS Projectile Model BK-5M

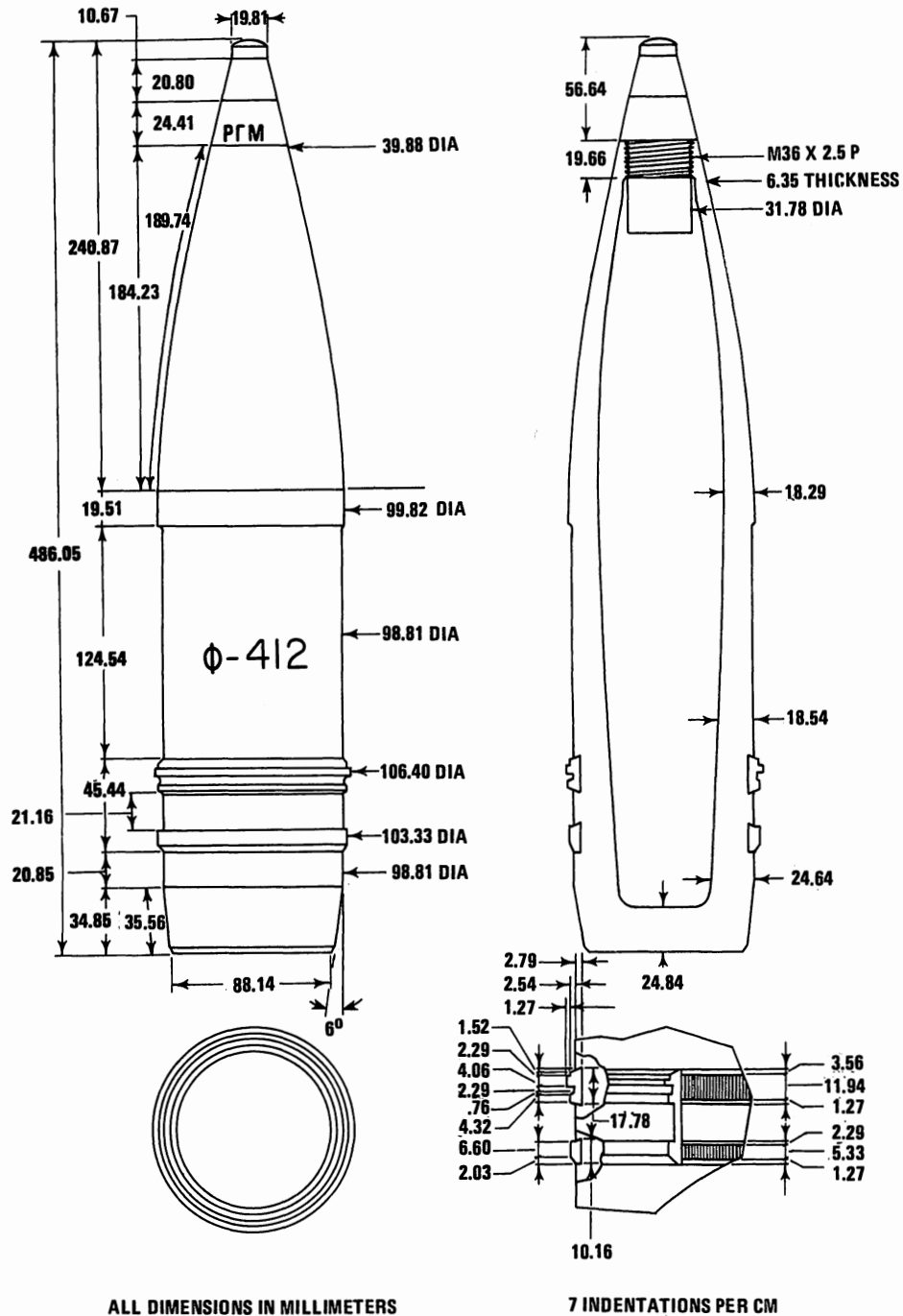


Neg. 527411

Projectile fuzed wt: 15.44 kg  
 Fuze: VM-30 and VM-30L MT  
 Filler type & wt: TNT/aluminum, 1.58 kg

Using weapon(s): AA gun KS-19 series  
 Remarks: None

Figure 2-58. Russian 100-mm Frag Projectile Model 0-415



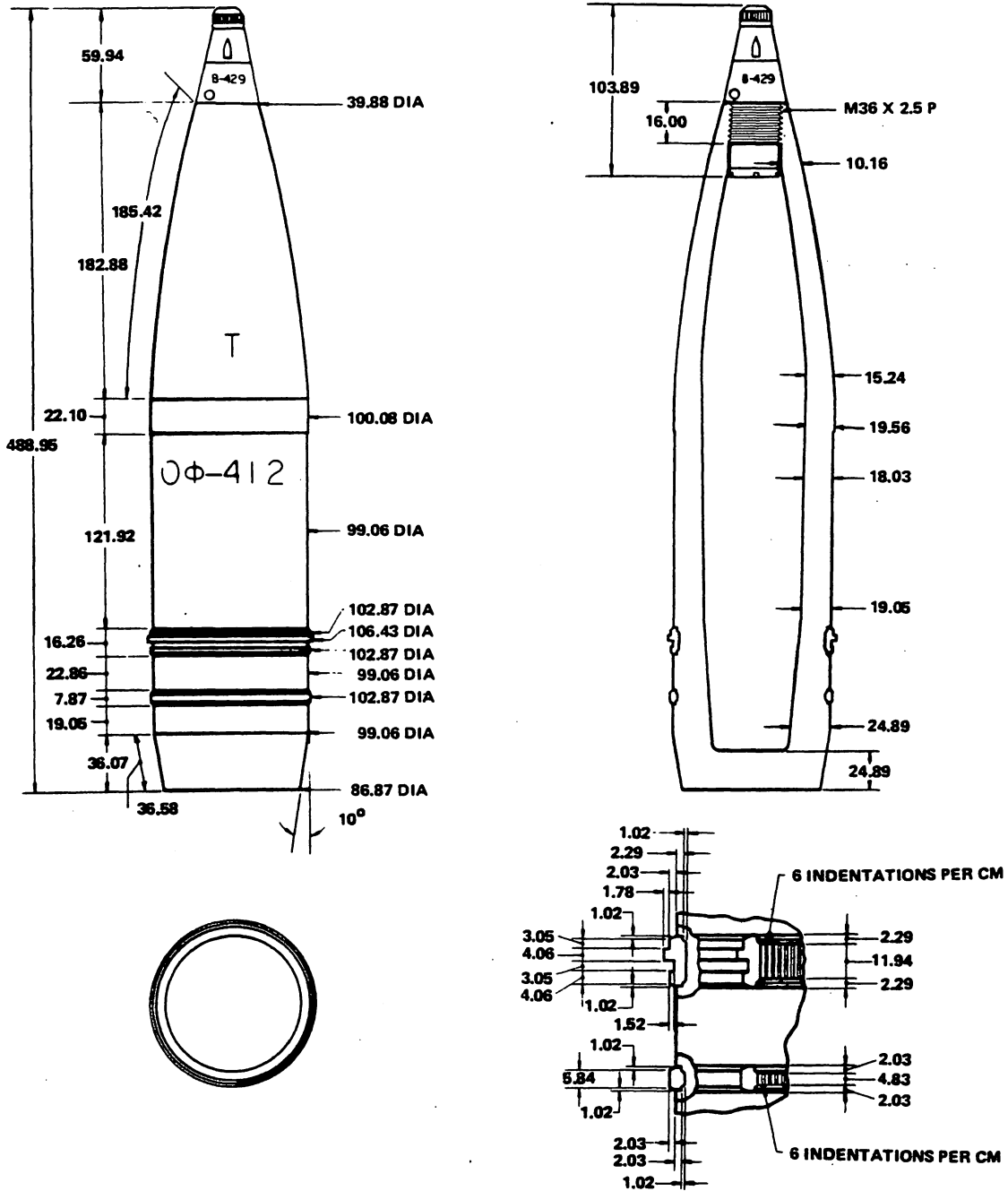
Neg. 502868

Projectile fuze wt: 15.91 kg  
 Fuze: RGM PD  
 Filler type & wt: TNT, 2.16 kg

Using weapon(s): Field (AT) gun BS-3, tank guns D-10T, D-10TG, and D-10TS; AA gun KS-19 series and SU-100 assault gun

Remarks: None

Figure 2-59. Russian 100-mm HE Projectile Model F-412



ALL DIMENSIONS IN MILLIMETERS

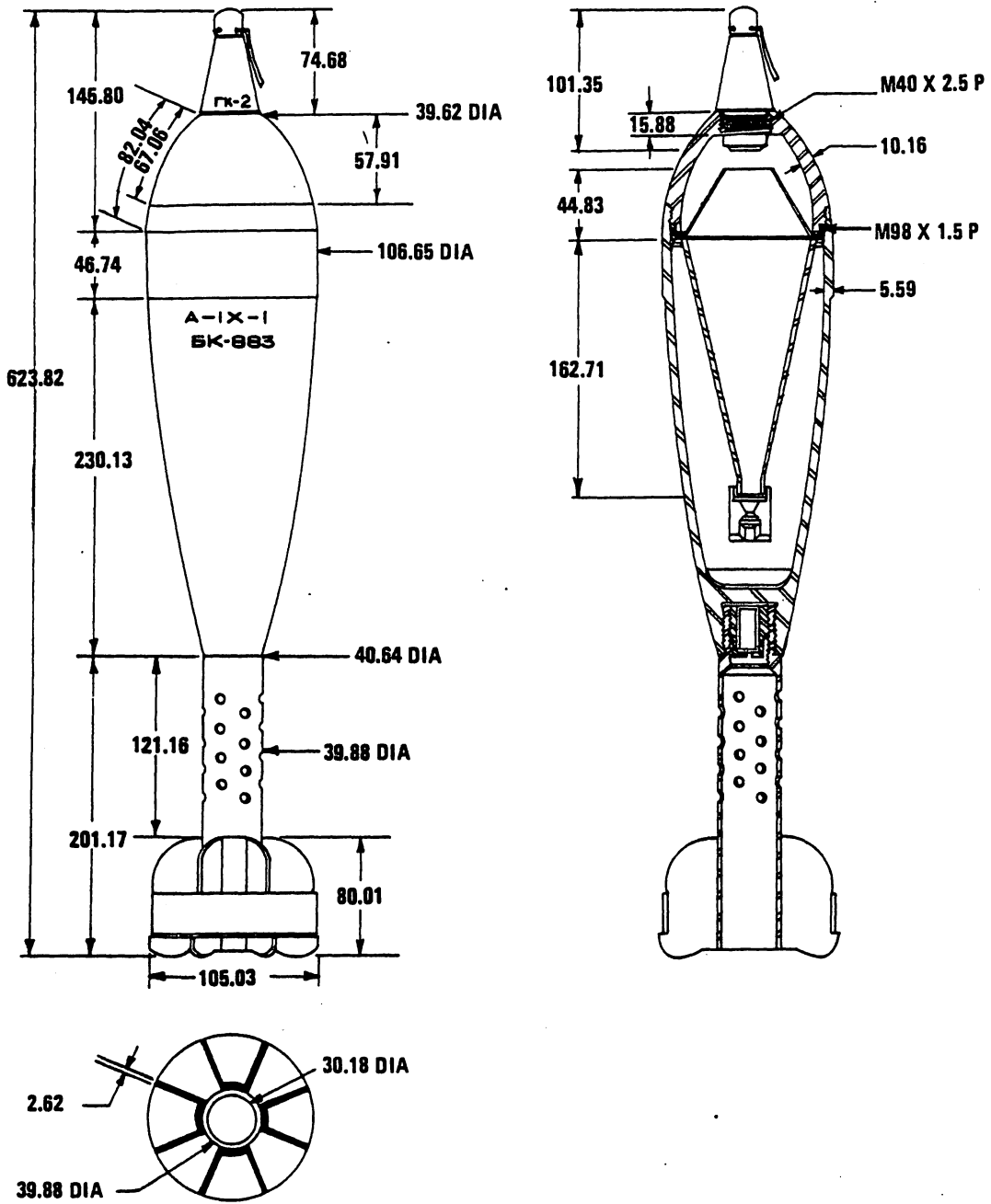
Neg. 502873

Projectile fuzed wt: 15.61 kg  
 Fuze: V-429 PD  
 Filler type & wt: TNT, 1.46 kg

Using weapon(s): Field (AT) gun BS-3, tank guns D-10T, D-10TG, and D-10TS; AA gun KS-19 series and SU-100 assault gun

Remarks: Also uses RGM series fuzes. Projectile may have Bulgarian markings.

Figure 2-60. Russian 100-mm Frag-HE Projectile Model OF-412



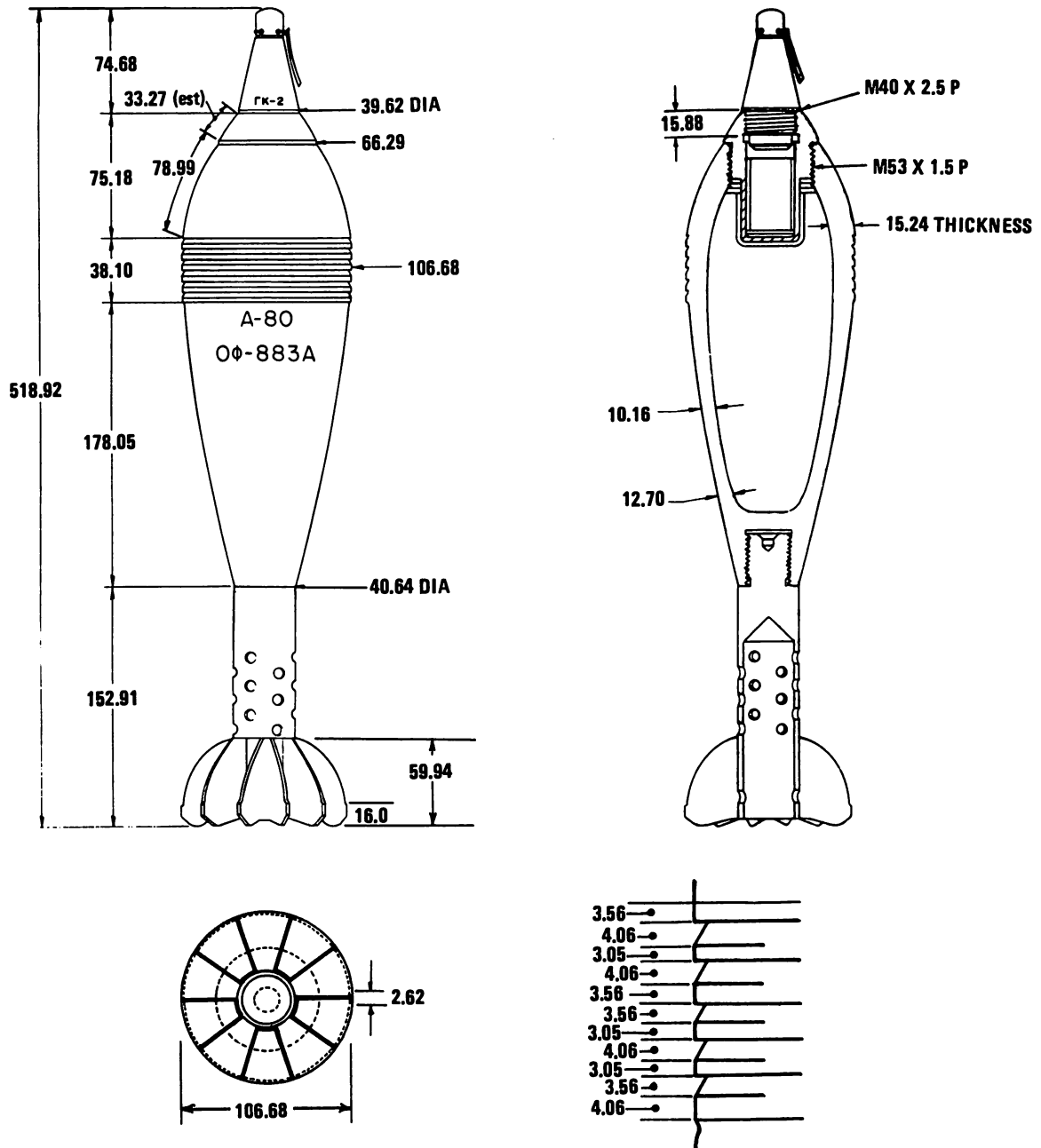
ALL DIMENSIONS IN MILLIMETERS

Neg. 502877

Projectile fuzed wt: 7.51 kg  
 Fuze: GK-2 PIBD  
 Filler type & wt: RDX/aluminum, 1.06 kg

Using weapon(s): Recoilless gun B-11  
 Remarks: None

Figure 2-61. Russian 107-mm HEAT Projectile Model BK-883



ALL DIMENSIONS IN MILLIMETERS

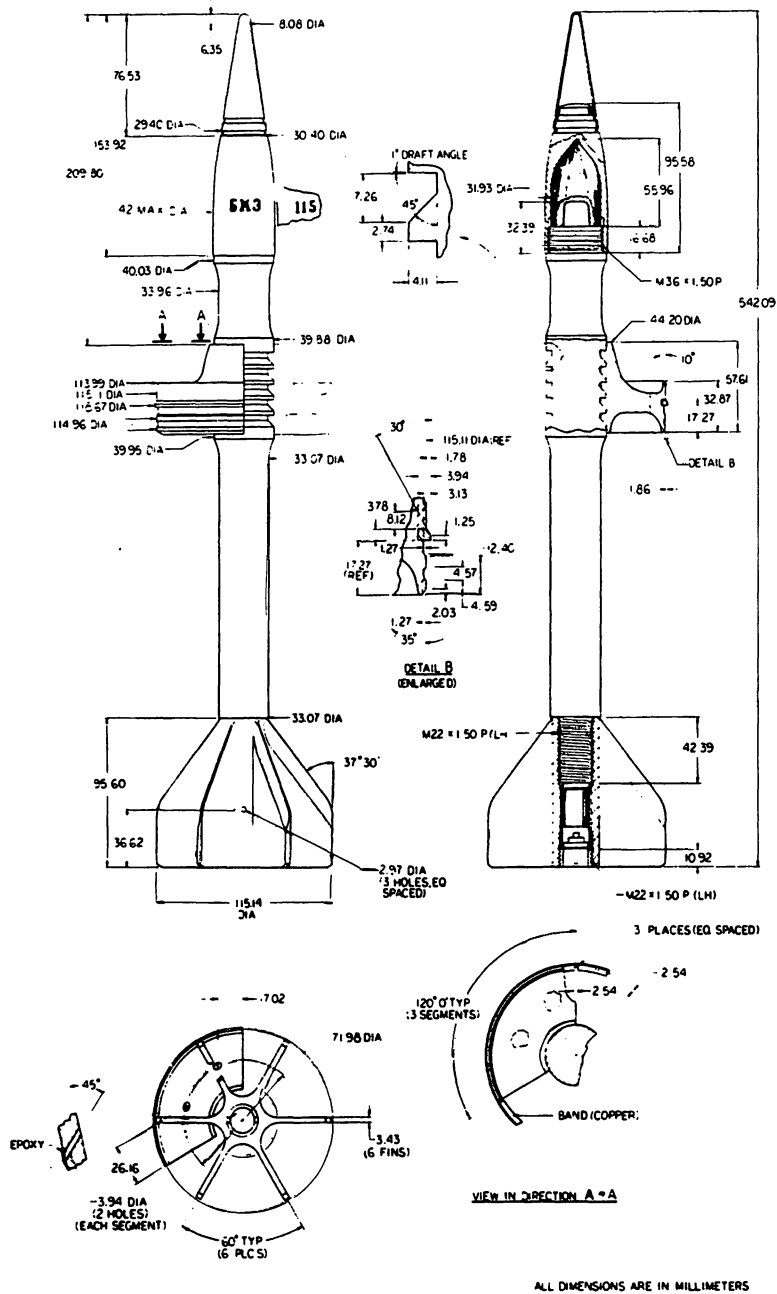
Neg. 502876

Projectile fuzed wt: 8.50 kg  
 Fuze: GK-2 PD  
 Filler type & wt: Amatol 80/20, 2.09 kg

Using weapon(s): Recoilless gun B-11  
 Remarks: None

Figure 2-62. Russian 107-mm Frag-HE Projectile Model OF-883A



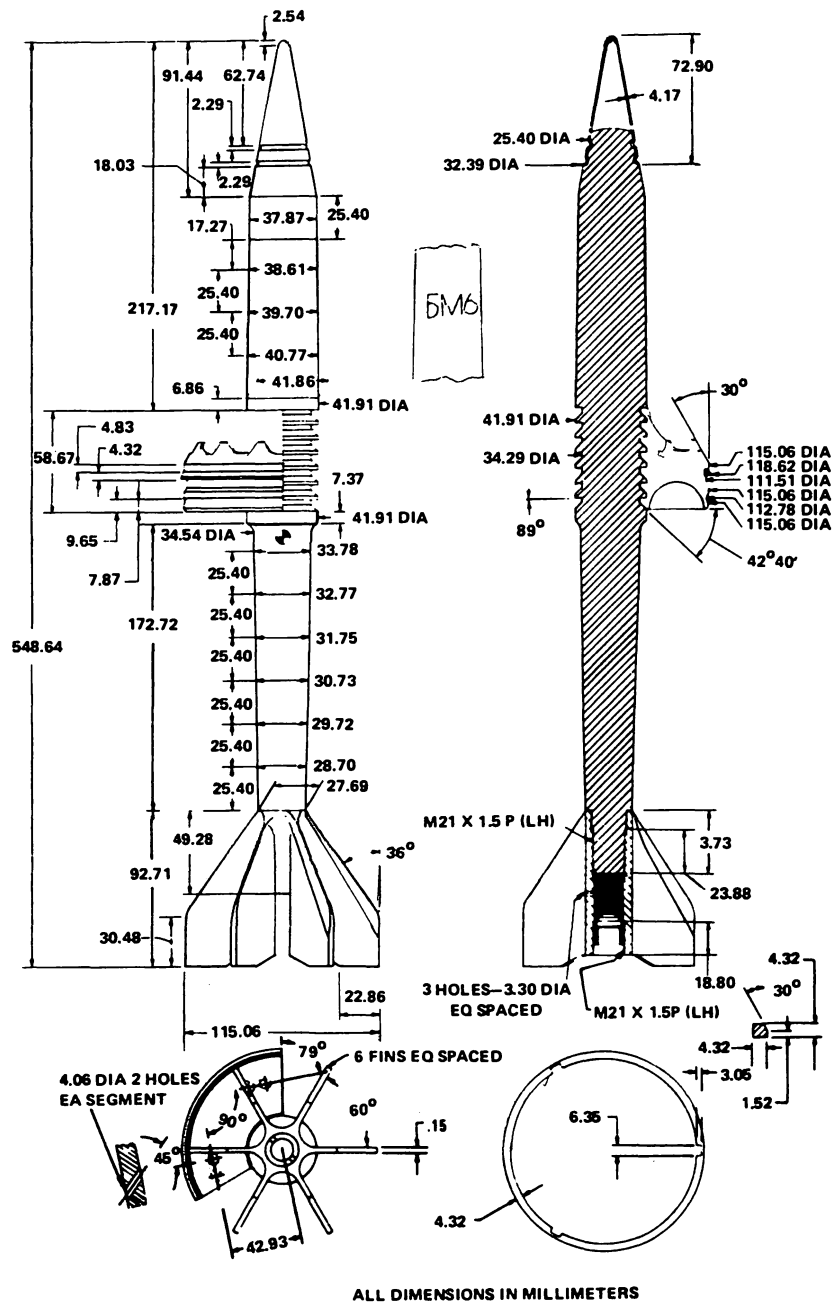


Neg. 000059

Projectile fuzed wt: 5.55 kg (w/sabot)  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten carbide, 0.448 kg

Using weapon(s): U-5TS gun on T-62 tank  
 Remarks: Projectile weighs 4.0 kg w/o sabot

Figure 2-63. Russian 115-mm APFSDS-T Projectile Model BM-3

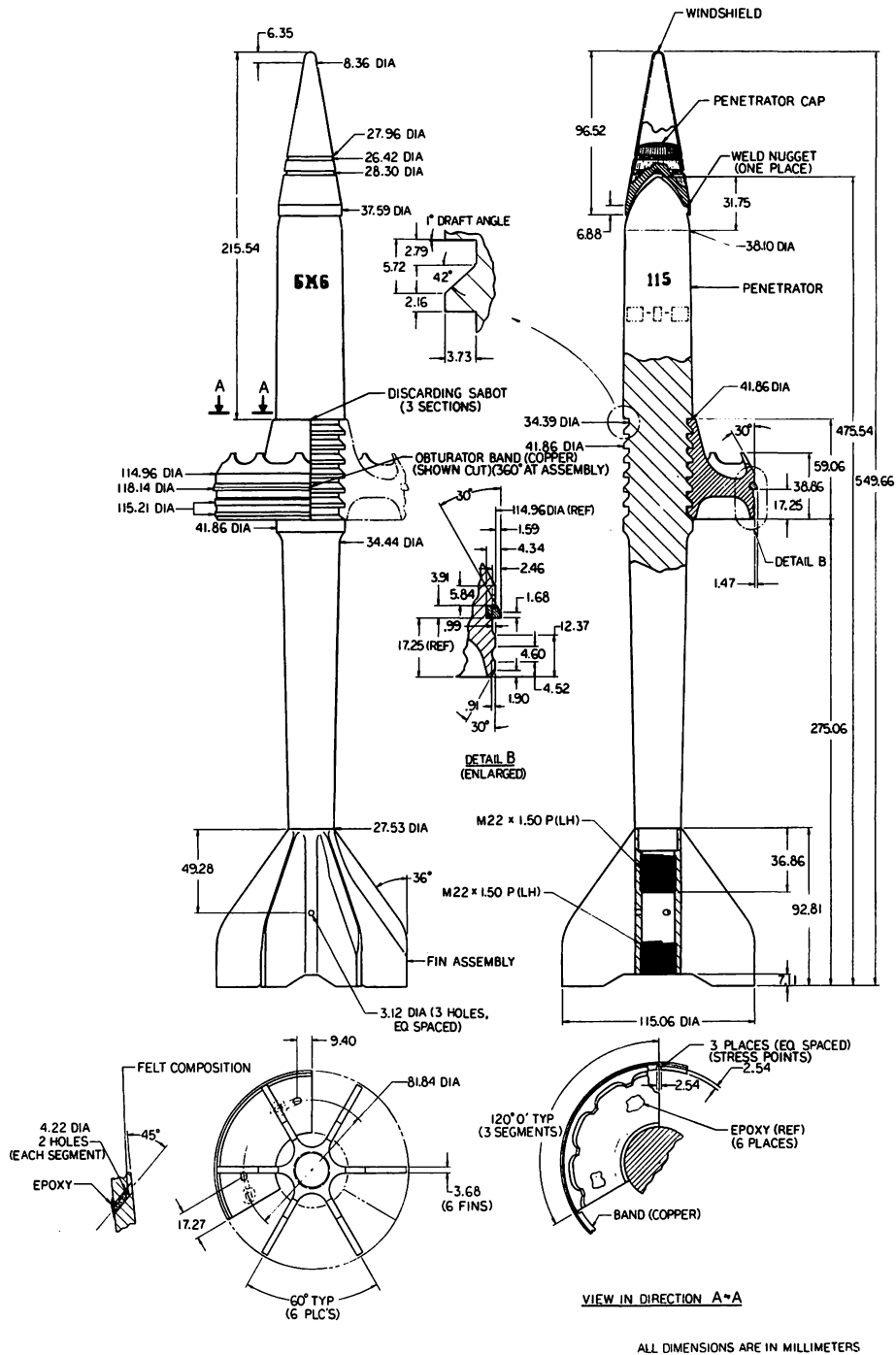


Neg. 520495

Projectile fuzed wt: 5.40 kg (w/sabot)  
 Fuze: None  
 Filler type & wt: None

Using weapon(s): U-5TS gun on T-62 tank  
 Remarks: Projectile is hard steel  
 Projectile weighs 3.9 kg w/o sabot

Figure 2-64. Russian 115-mm APFSDS-T Projectile Model BM-6

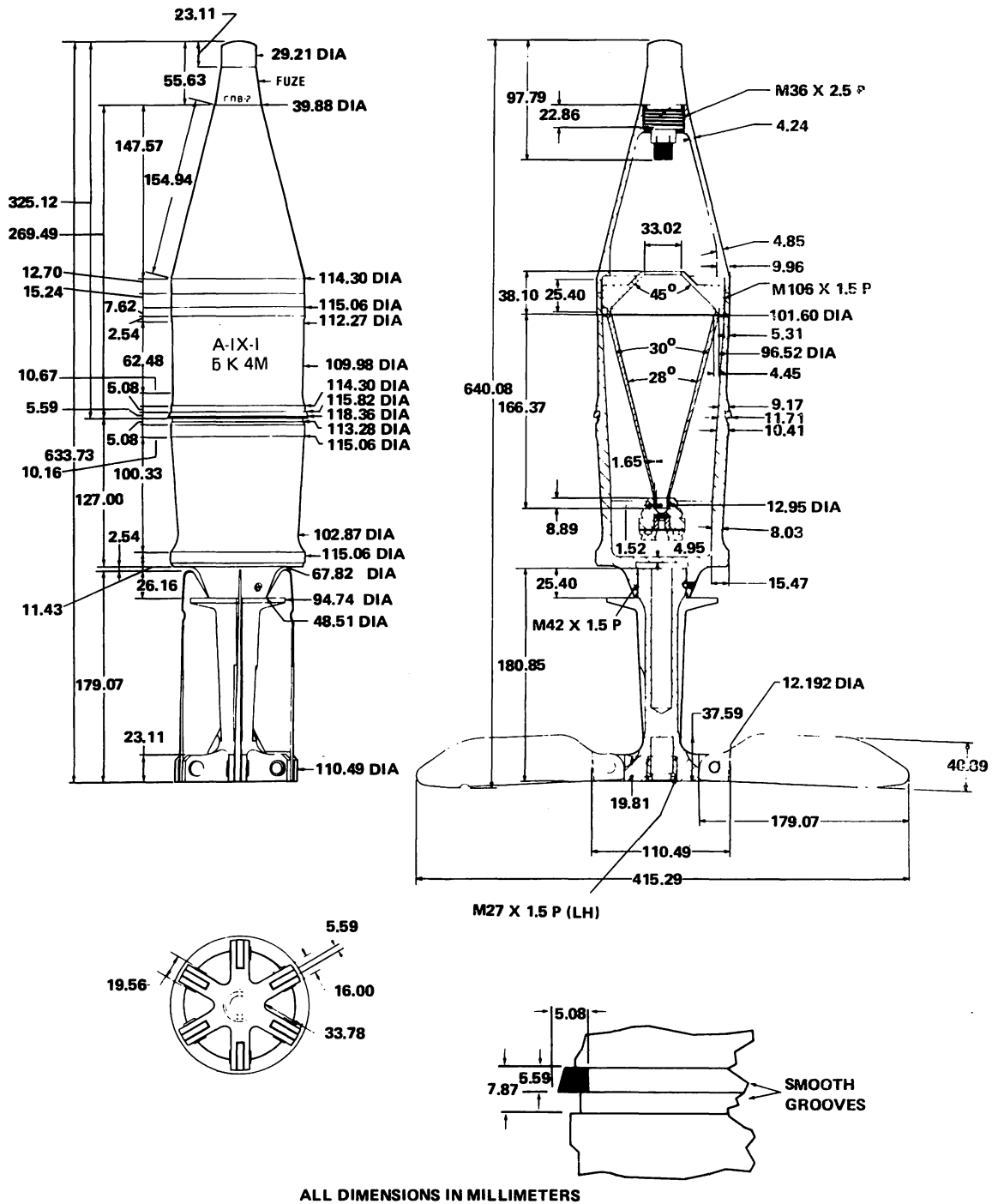


Neg. 000060

Projectile fuze wt: 5.4 kg (w/sabot)  
 Fuze: None  
 Filler type & wt: None

Using weapon(s): U-5TS gun on T-62 tank  
 Remarks: Projectile is hard steel with armor-piercing cap. Projectile weighs 3.9 kg w/o sabot

Figure 2-65. Russian 115-mm HVAPFSDS-T Projectile Model BM-6 (Variant)

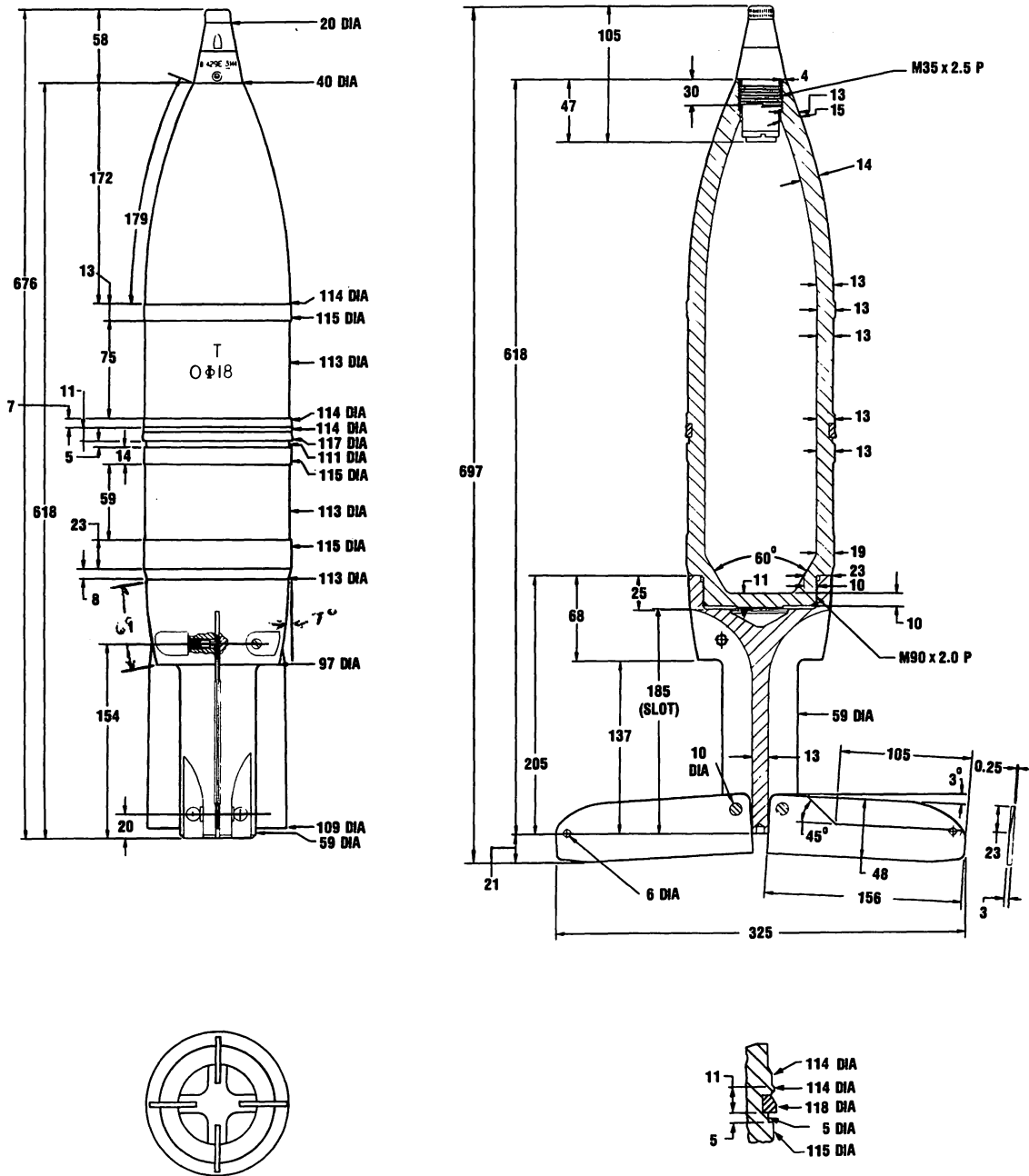


Neg. 520496

Projectile fuze wt: 13.15 kg  
Fuze: GPV-2 PIBD  
Filler type & wt: RDX/wax, 1.45 kg

Using weapon(s): U-5TS gun on T-62 tank  
Remarks: None

Figure 2-66. Russian 115-mm HEAT-FS Projectile Model BK-4M



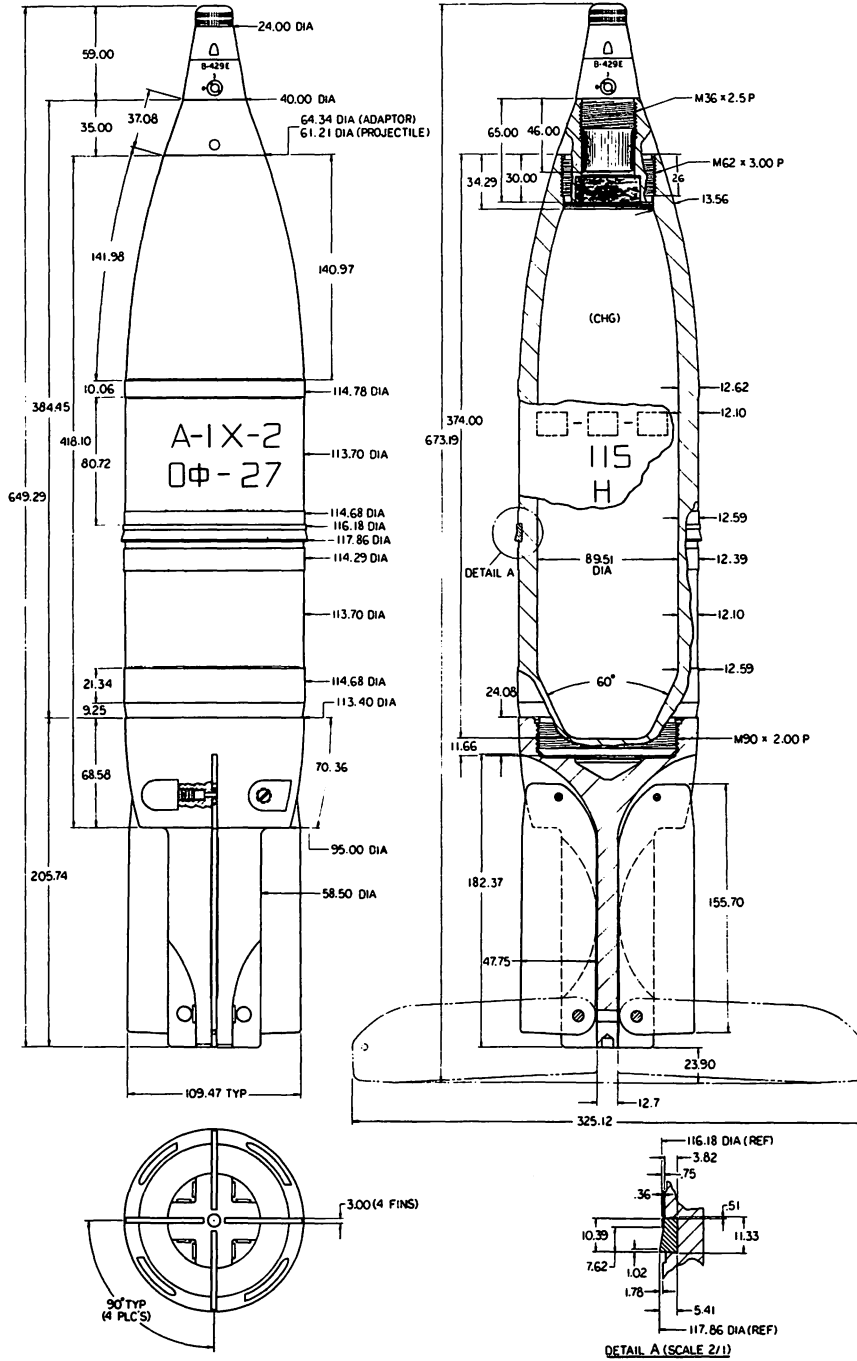
ALL DIMENSIONS IN MILLIMETERS

Neg. 520494

Projectile fuzed wt: 17.74 kg  
 Fuze: V-429E PD  
 Filler type & wt: TNT, 2.72 kg

Using weapon(s): U-5TS gun on T-62 tank  
 Remarks: Designated "Extended Range" by former Soviets

Figure 2-67. Russian 115-mm Frag-HE Projectile Model OF-18



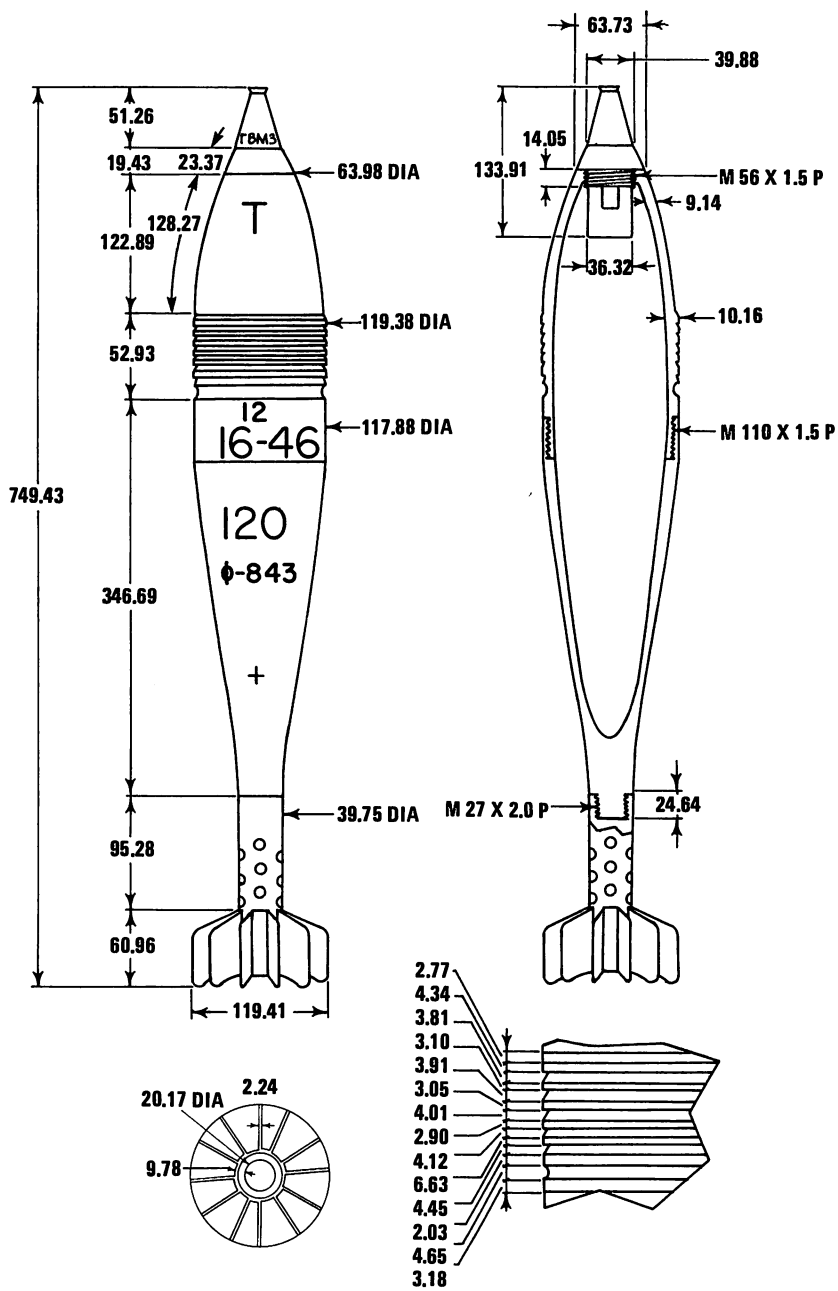
ALL DIMENSIONS ARE IN MILLIMETERS

Neg. 000058

Projectile fuzed wt: 17.70 kg  
 Fuze: V-429E PD  
 Filler type & wt: 75/22/3 RDX/aluminum/wax,  
 3.062 kg

Using weapon(s): U-5TS gun on T-62 tank  
 Remarks: Third-generation 115-mm Frag-HE

Figure 2-68. Russian 115-mm Frag-HE Projectile Model OF-27



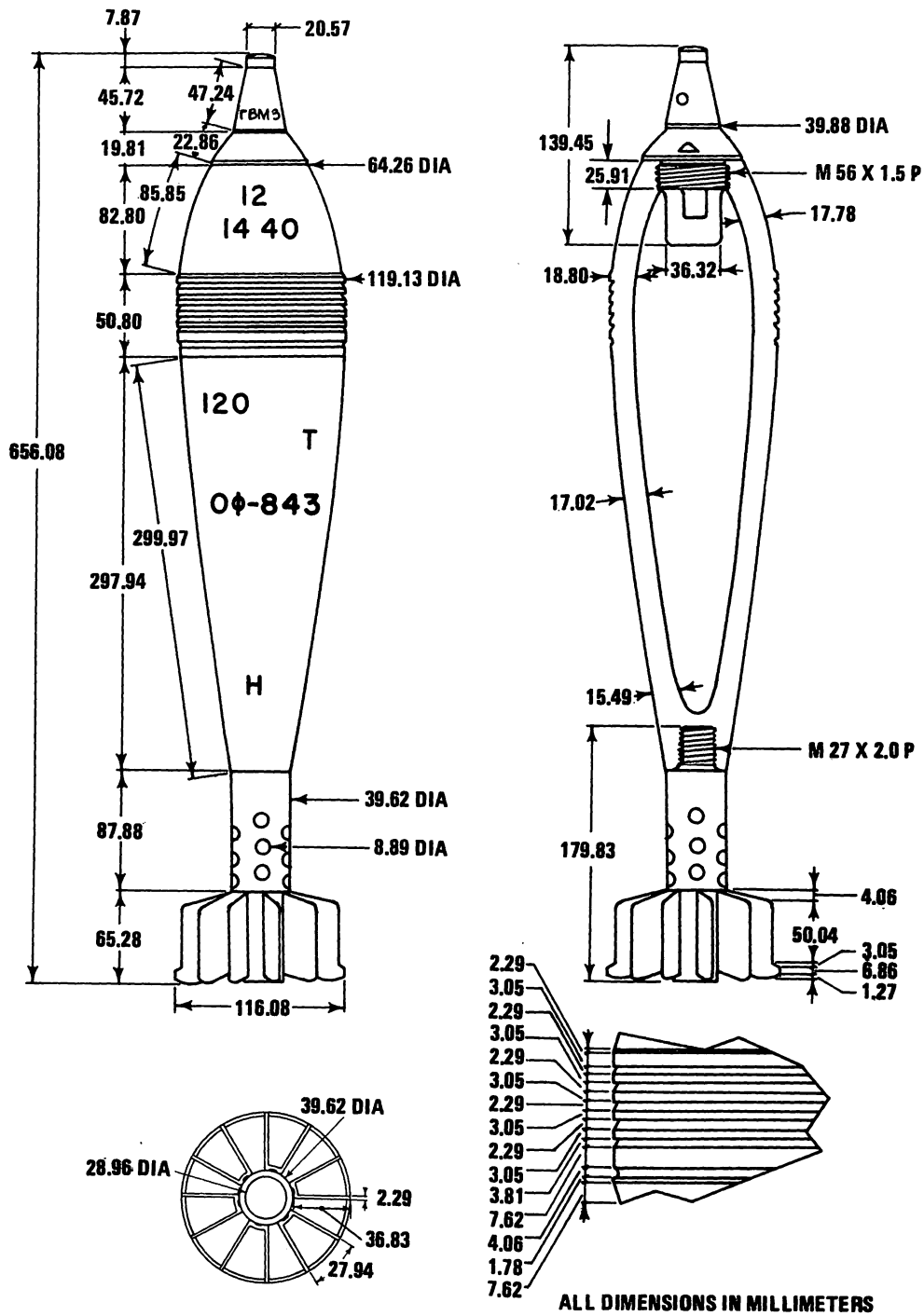
ALL DIMENSIONS IN MILLIMETERS

Neg. 502880

Projectile fuze wt: 16.45 kg  
 Fuze: GVMZ PD  
 Filler type & wt: TNT, 3.90 kg

Using weapon(s): Mortars M1938 and M1943  
 Remarks: Also uses M-1 PD fuze

Figure 2-69. Russian 120-mm HE Projectile Model F-843



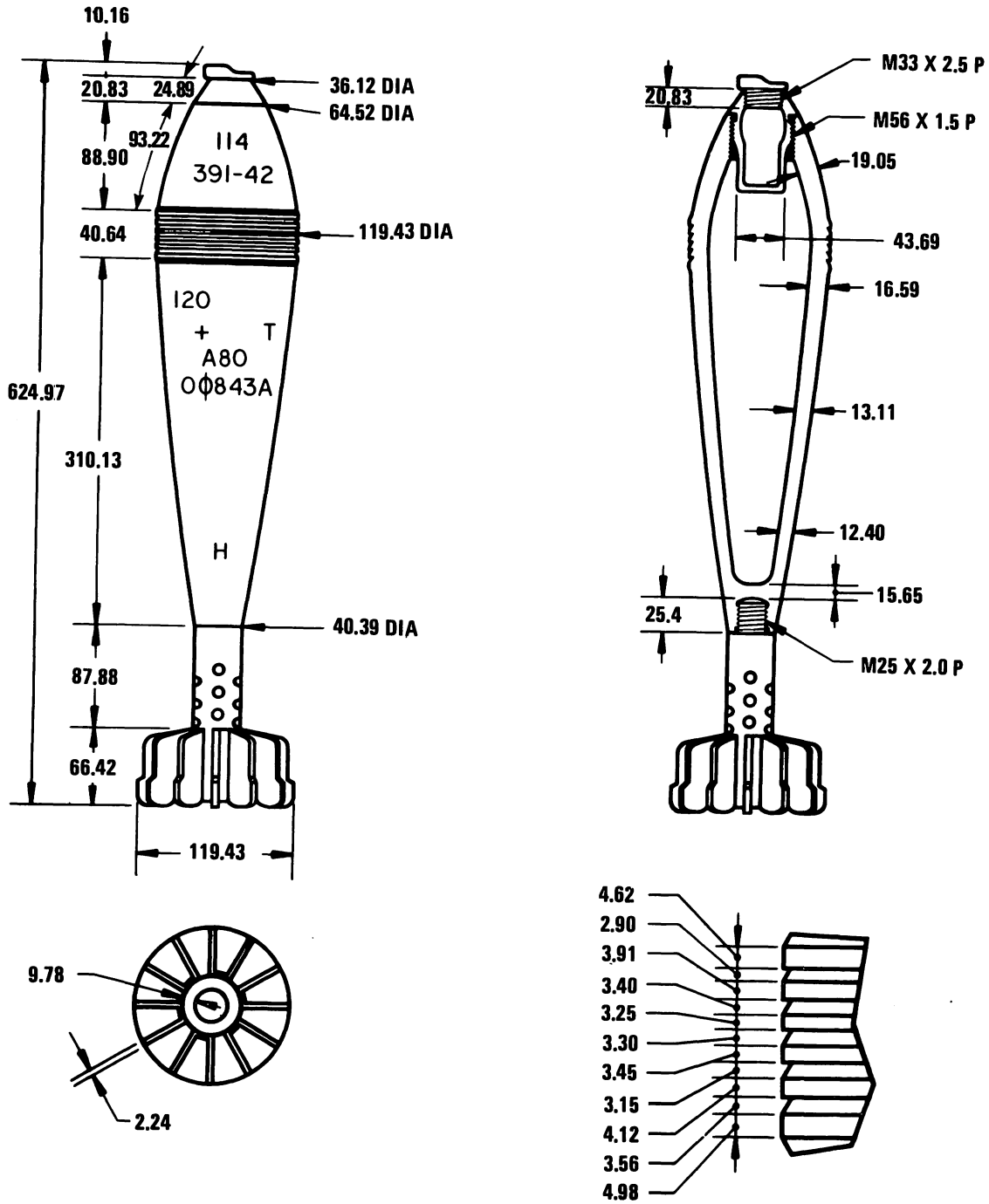
Neg. 502881

Projectile fuzed wt: 16.02 kg  
 Fuze: GVMZ-7 PD  
 Filler type & wt: TNT, 2.68 kg

Using weapon(s): Mortars M1938 and M1943  
 Remarks: Also uses M-12 PD fuze

Figure 2-70. Russian 120-mm Frag-HE Projectile Model OF-843





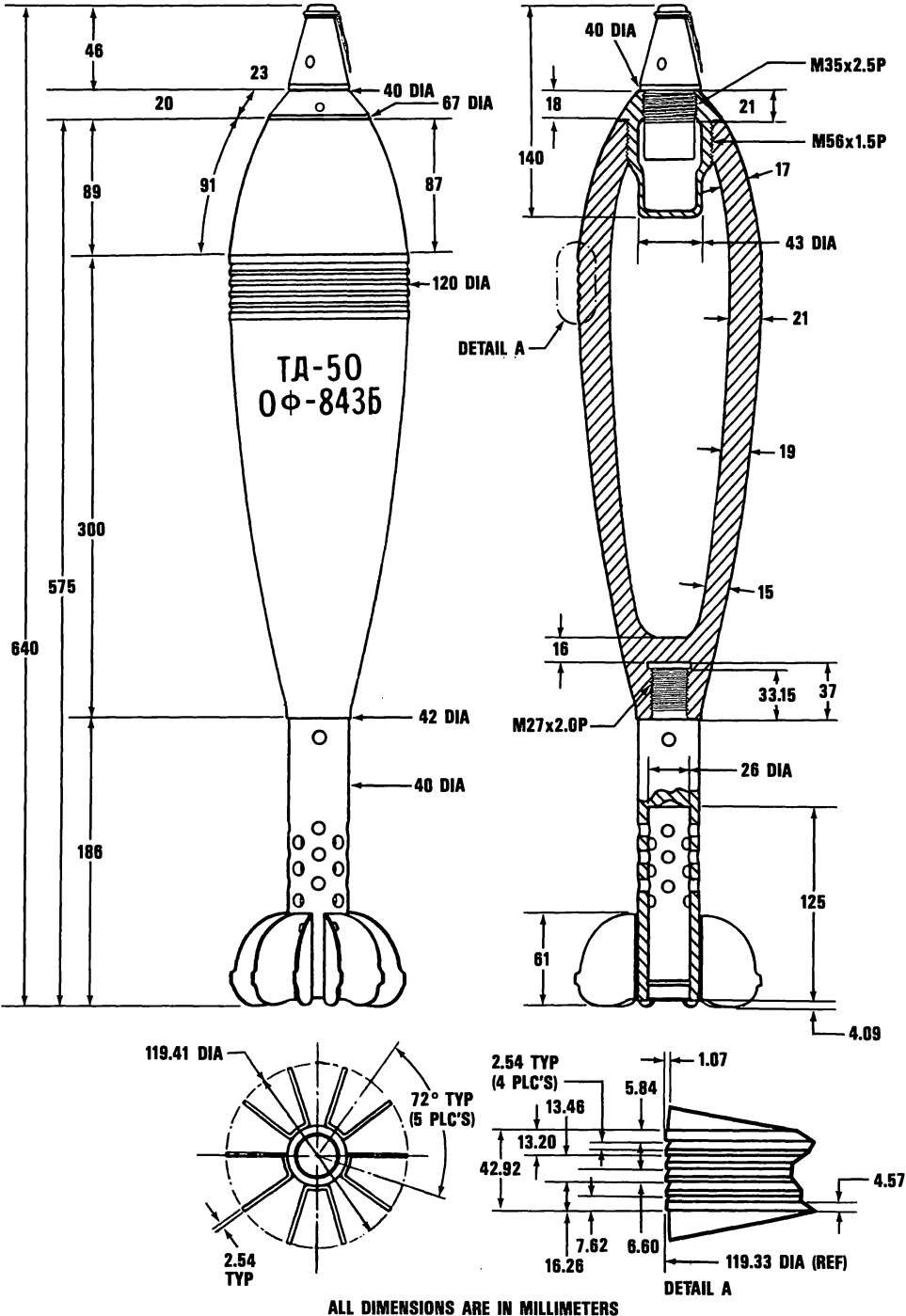
ALL DIMENSIONS IN MILLIMETERS

Neg. 502882

Projectile fuze wt: 15.98 kg  
 Fuze: GMVZ-7 PD  
 Filler type & wt: Amatol 80/20, 1.58 kg

Using weapon(s): Mortars M1938 and M1943  
 Remarks: Also uses M-12 PD fuze. Shown with nose plug

Figure 2-71. Russian 120-mm Frag-HE Projectile Model OF-843A

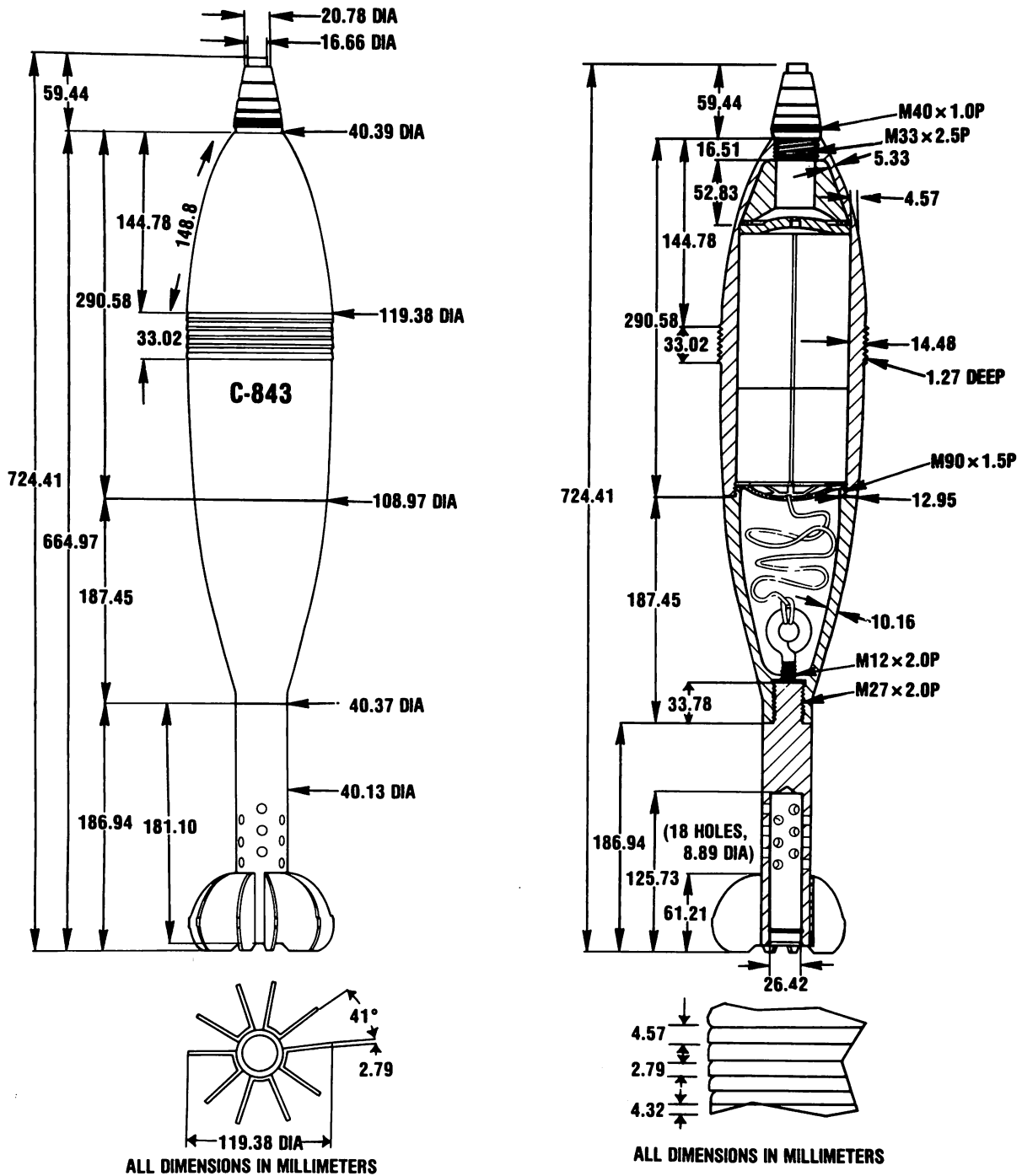


Neg. 001548

Projectile fuzed wt: 16.0 kg  
 Fuze: GVMZ-7 PD  
 Filler type & wt: 50/50 TNT/dinitronaphthalene,  
 1.4 kg

Using weapon(s): Mortars M1938 and M1943  
 Remarks: Also uses M12 PD fuze

Figure 2-72. Russian 120-mm Frag-HE Projectile Model OF-843B

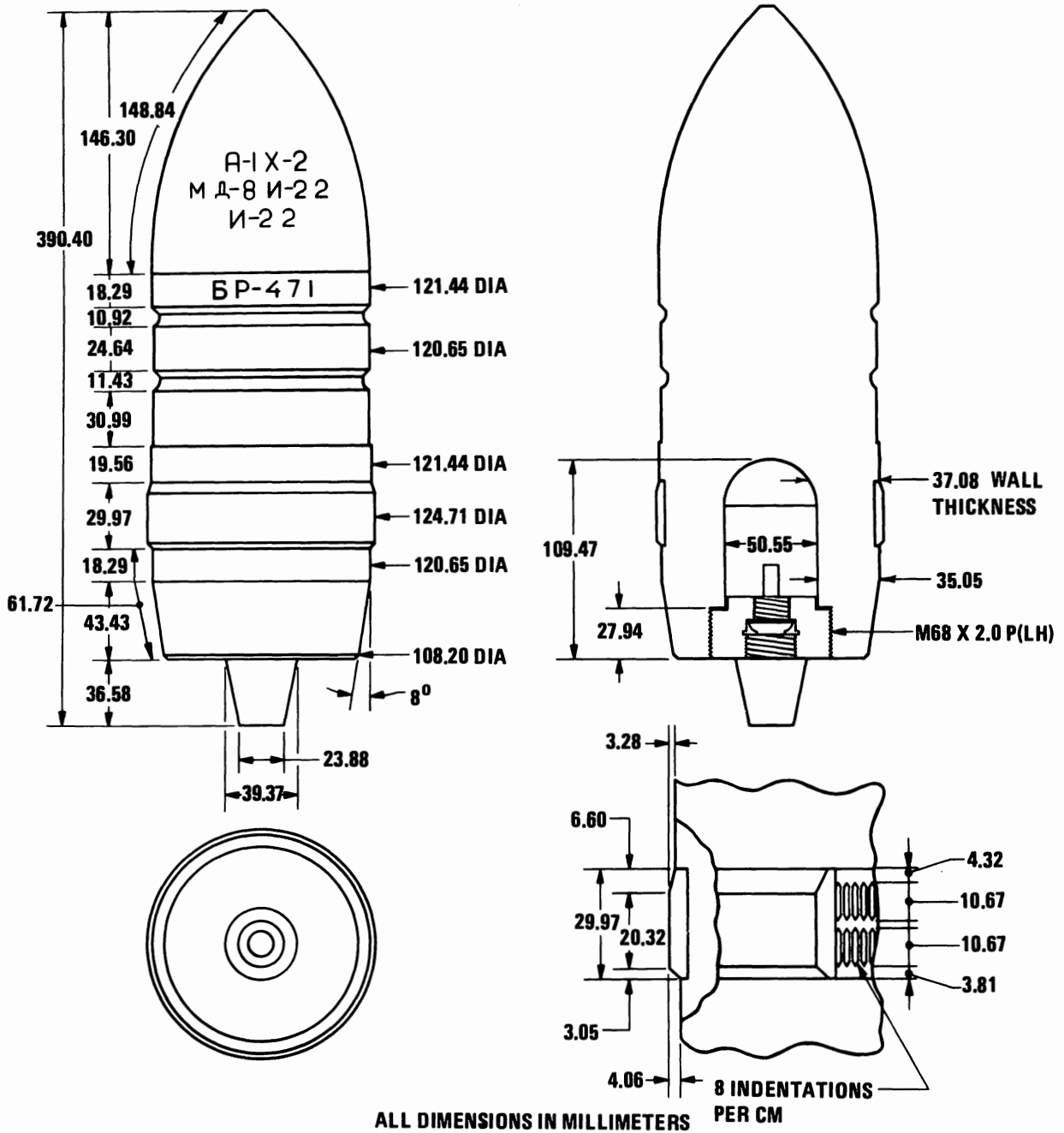


Neg. 532977

Projectile fuze wt: 16.86 kg  
 Fuze: T-1 TSQ  
 Filler type & wt: Illuminating candle assy, 2.0 kg

Using weapon(s): Mortars M1938 and M1943  
 Remarks: Uses 0.027- kg black powder expelling charge

Figure 2-73. Russian 120-mm Illuminating Projectile S-843



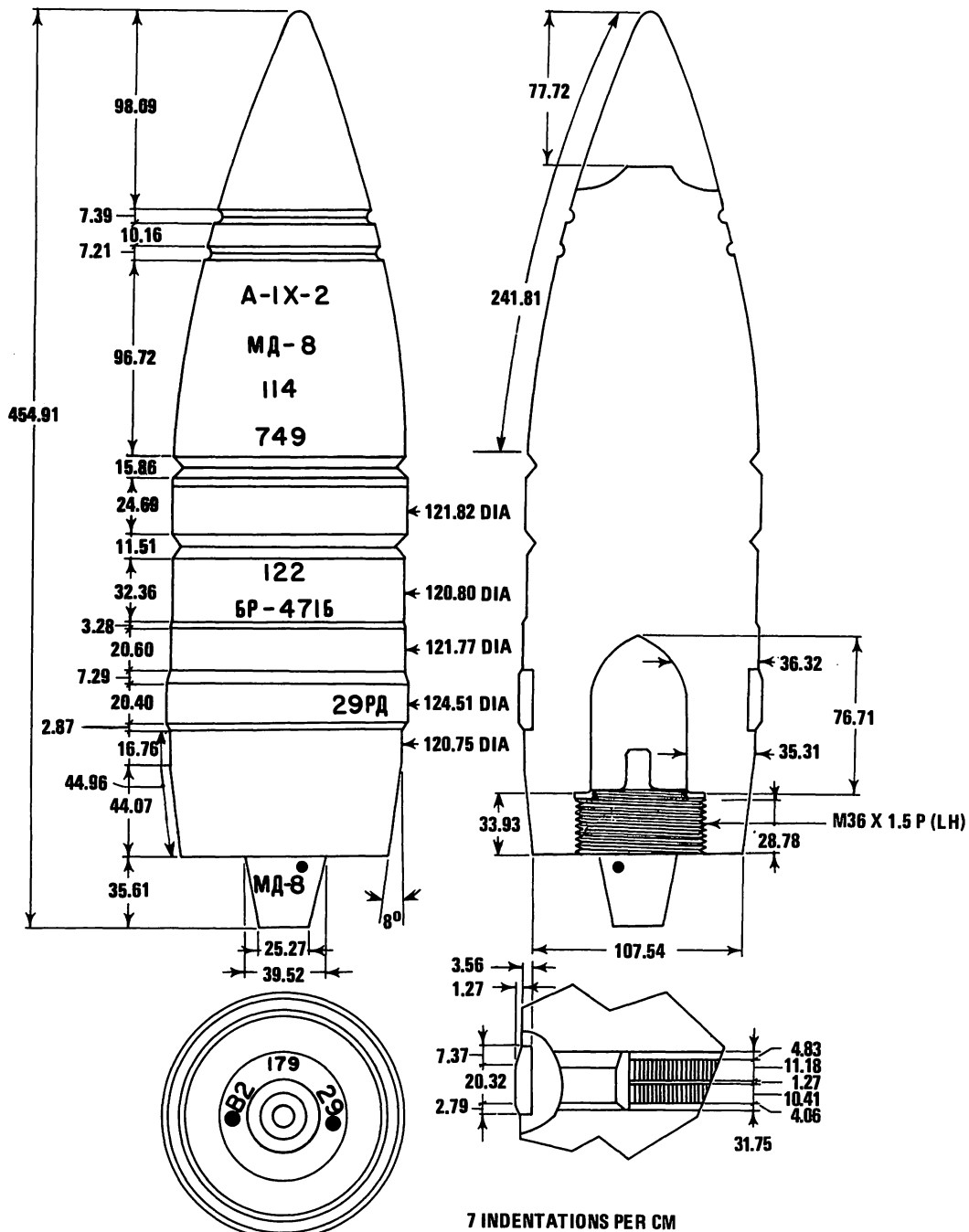
Neg. 502894

Projectile fuzed wt: 25.26 kg  
 Fuze: MD-8 BD  
 Filler type & wt: RDX/aluminum, 0.16 kg

Using weapon(s): Field gun A-19, tank gun D-25,  
 and SP assault guns D-25S and  
 A-19S

Remarks: None

Figure 2-74. Russian 122-mm AP-T Projectile Model BR-471



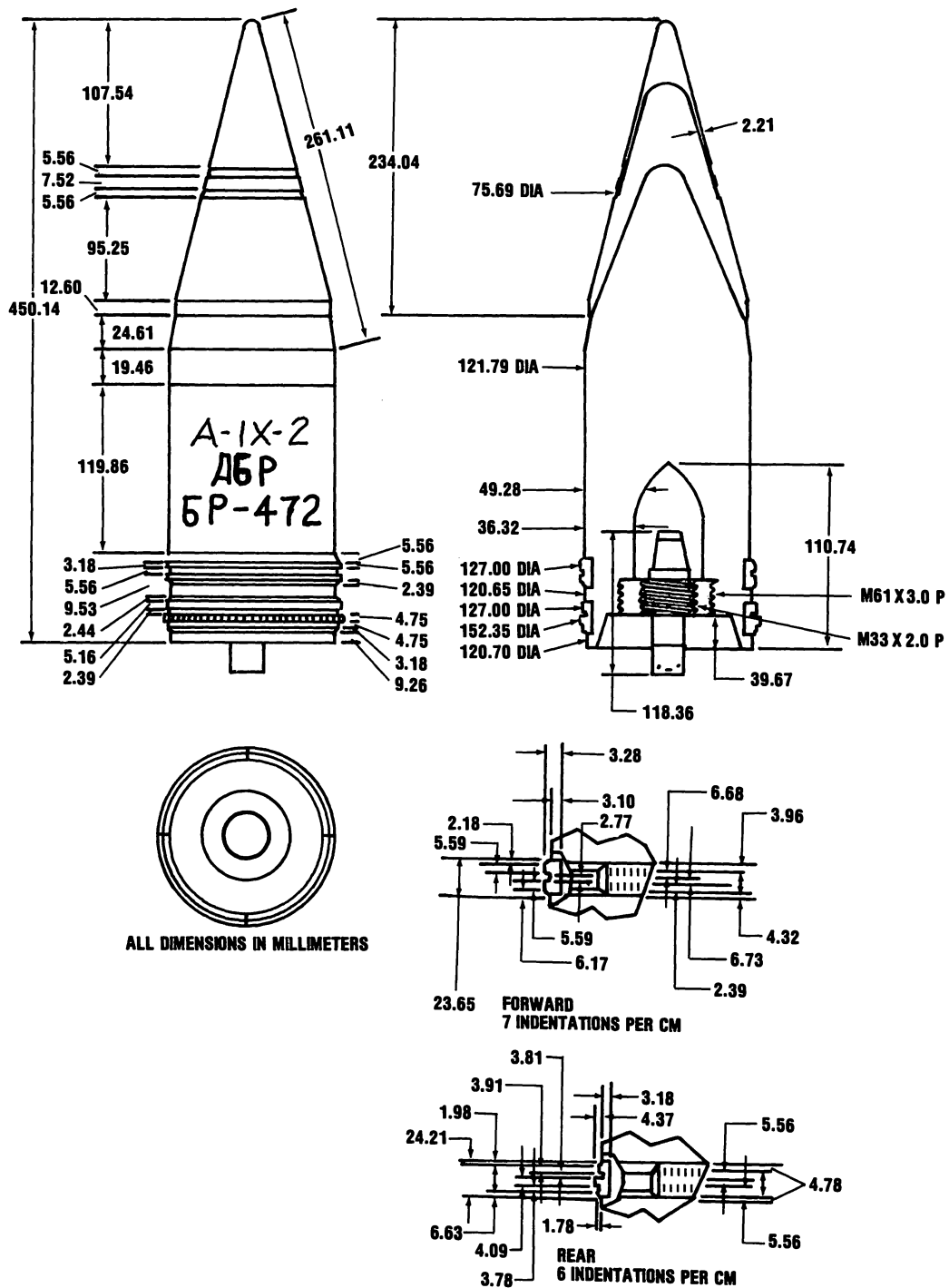
ALL DIMENSIONS IN MILLIMETERS

Neg. 502895

Projectile fuze wt: 25.02 kg  
 Fuze: MD-8 BD  
 Filler type & wt: RDX/aluminum, 0.16 kg

Using weapon(s): Field gun A-19, tank gun D-25,  
 and SP assault guns D-25S and  
 A-19S  
 Remarks: Also uses DBR BD fuze

Figure 2-75. Russian 122-mm AP-T Projectile Model BR-471B



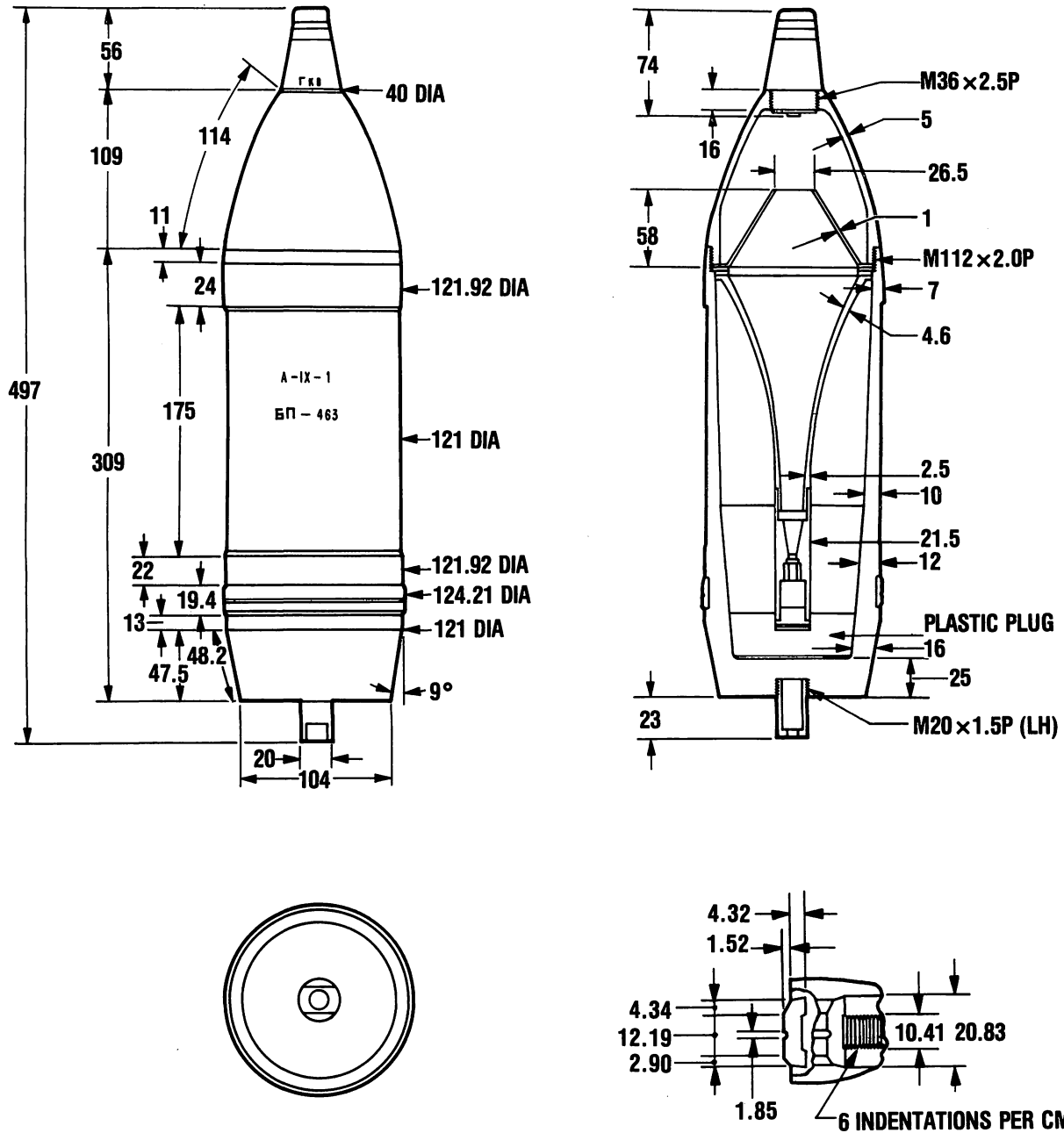
Neg. 502897

Projectile fuze wt: 25.10 kg  
 Fuze: DBR BD  
 Filler type & wt: RDX/aluminum, 0.34 kg

Using weapon(s): Field gun D-74, and possibly  
 T-10M tank gun

Remarks: None

Figure 2-76. Russian 122-mm APC-T Projectile Model BR-472



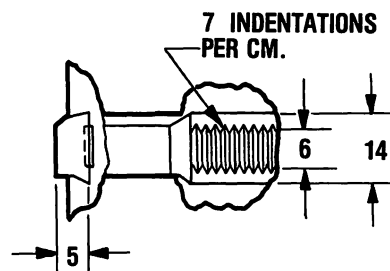
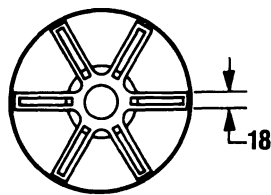
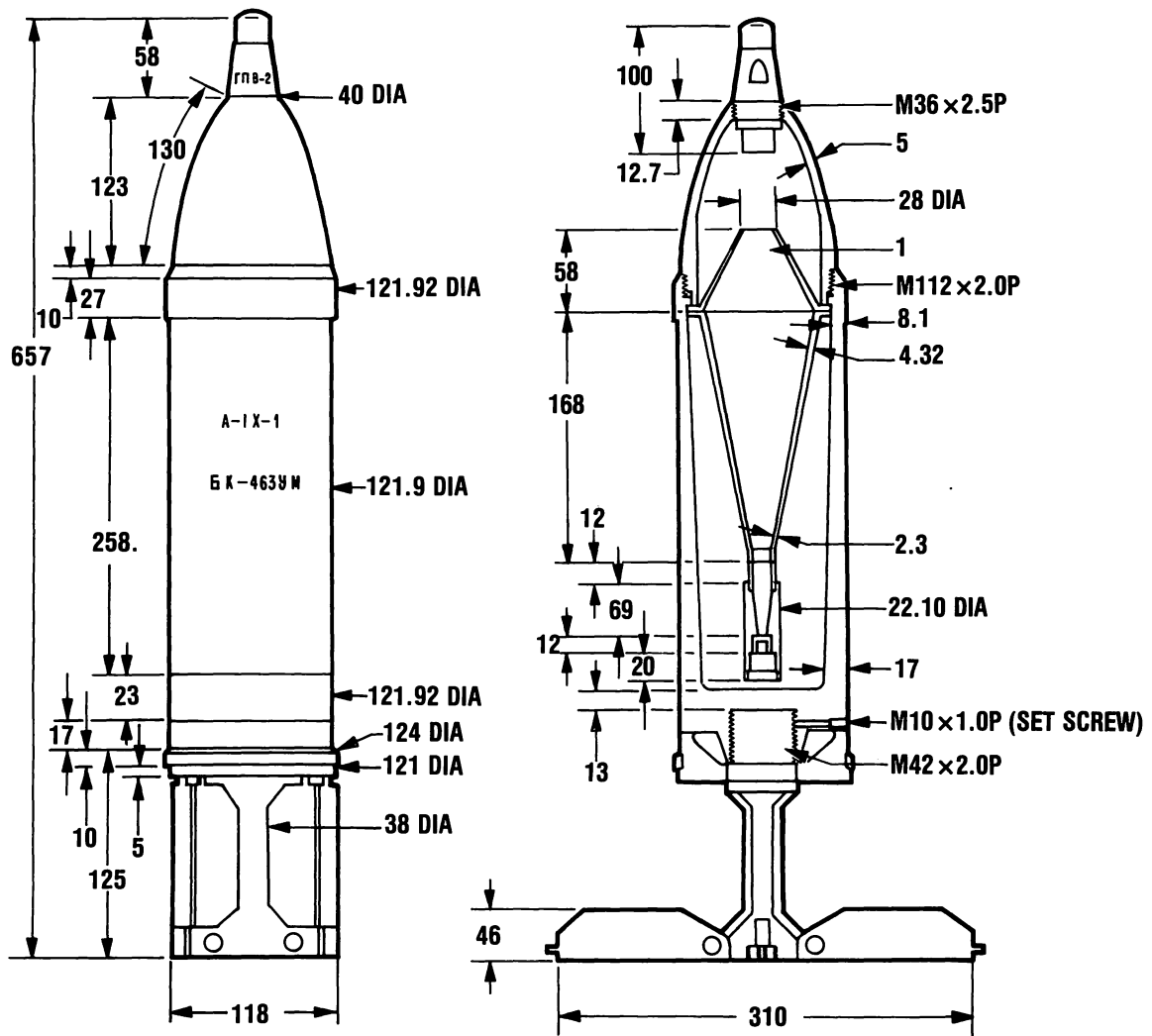
ALL DIMENSIONS IN MILLIMETERS

Neg. 532860

Projectile fuze wt: 14.80 kg  
 Fuze: GKV PIBD  
 Filler type & wt: RDX, 2.18 kg

Using weapon(s): Howitzer M-30 (M1938)  
 Remarks: None

Figure 2-77. Russian 122-mm HEAT Projectile Model BP-463



ALL DIMENSIONS IN MILLIMETERS

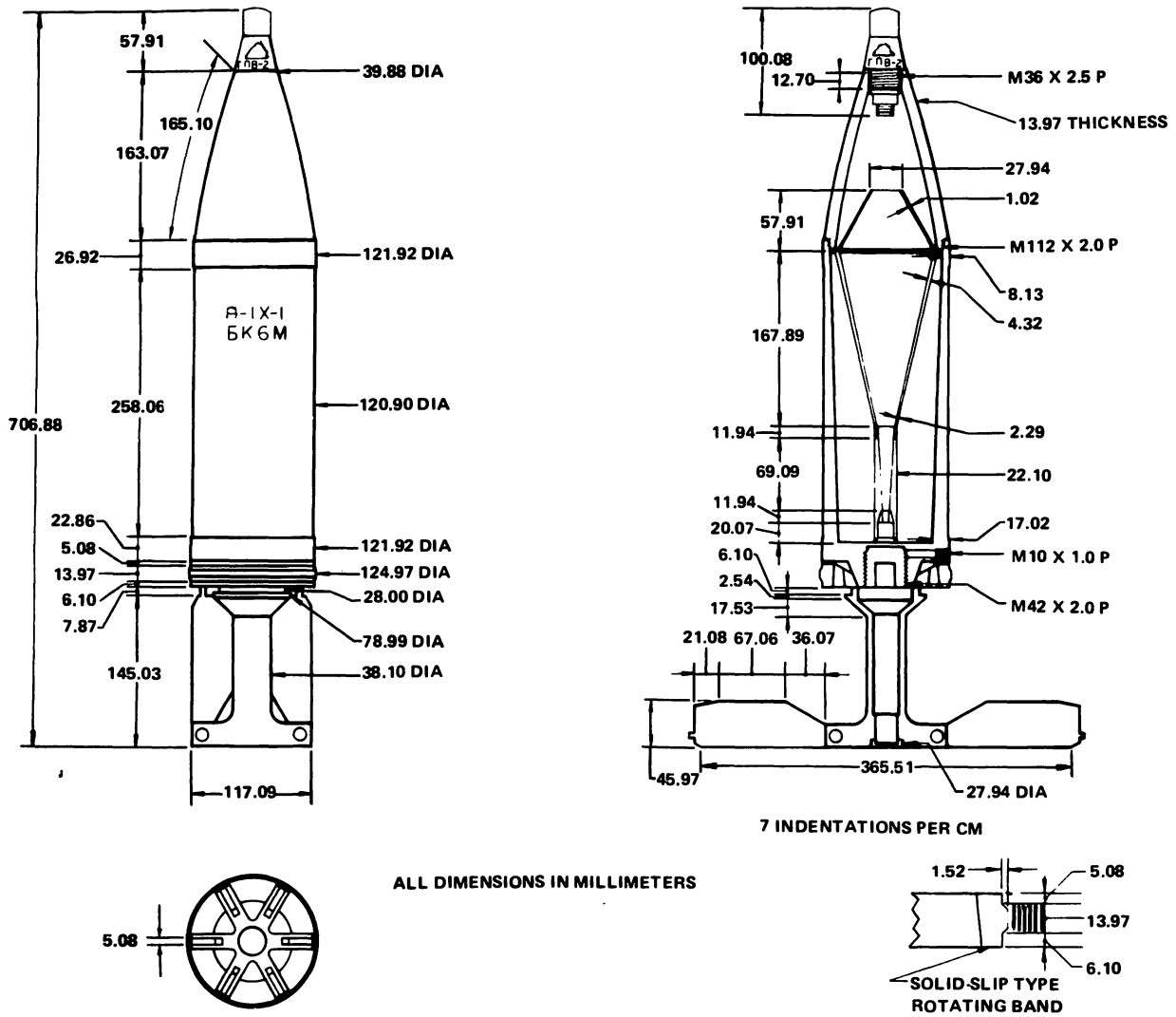
Neg. 532859

Projectile fuze wt: 21.26 kg  
 Fuze: GPV PIDB  
 Filler type & wt: RDX, 2.15 kg

Using weapon(s): Howitzer M-30 (M1938)  
 Remarks: None

Figure 2-78. Russian 122-mm HEAT Projectile Model BK-463UM



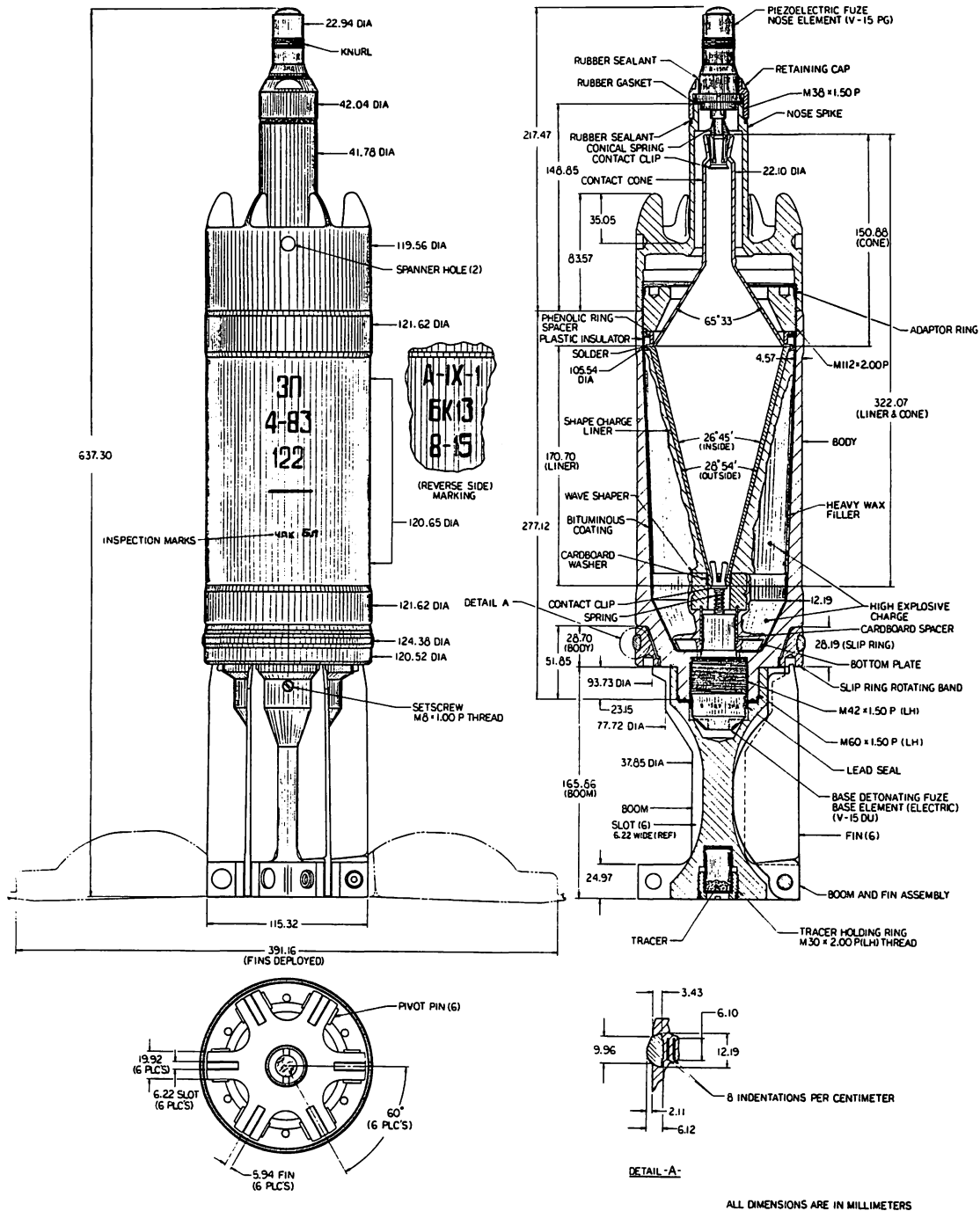


Neg. 502898

Projectile fuzed wt: 21.58 kg  
 Fuze: GPV-2 PIBD  
 Filler type & wt: RDX, 2.15 kg

Using weapon(s): Howitzers D-30 and SP 2S1  
 Remarks: None

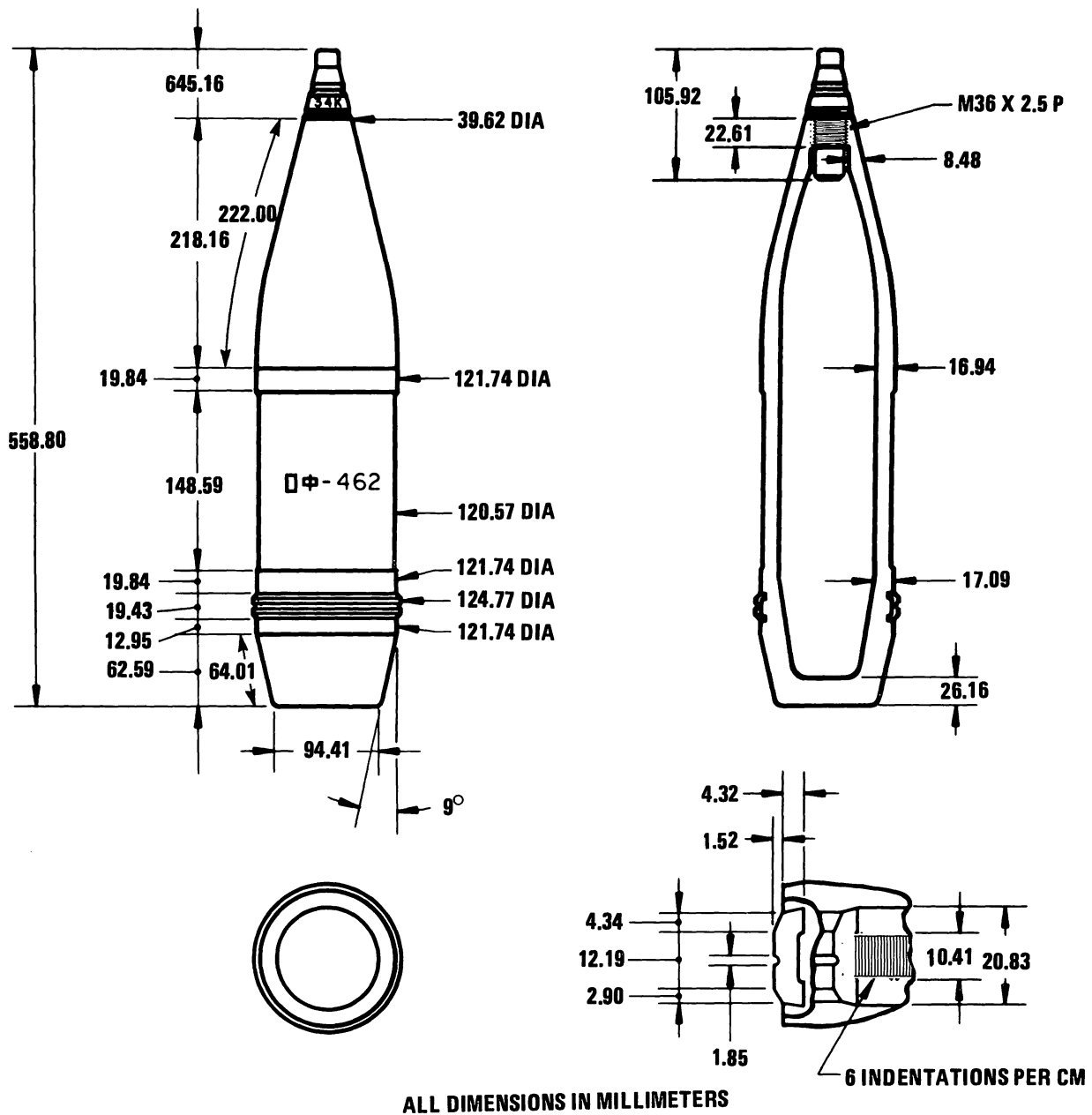
Figure 2-79. Russian 122-mm HEAT-FS Projectile Model BK-6M



Projectile fuzed wt: 18.2 kg  
Fuze: V-15 PIBD  
Filler type & wt: RDX, 1.8 kg

Using weapon(s): D-30 and 2S1 howitzers  
Remarks: None

Figure 2-80. Russian 122-mm HEAT-FS-T Projectile BK-13



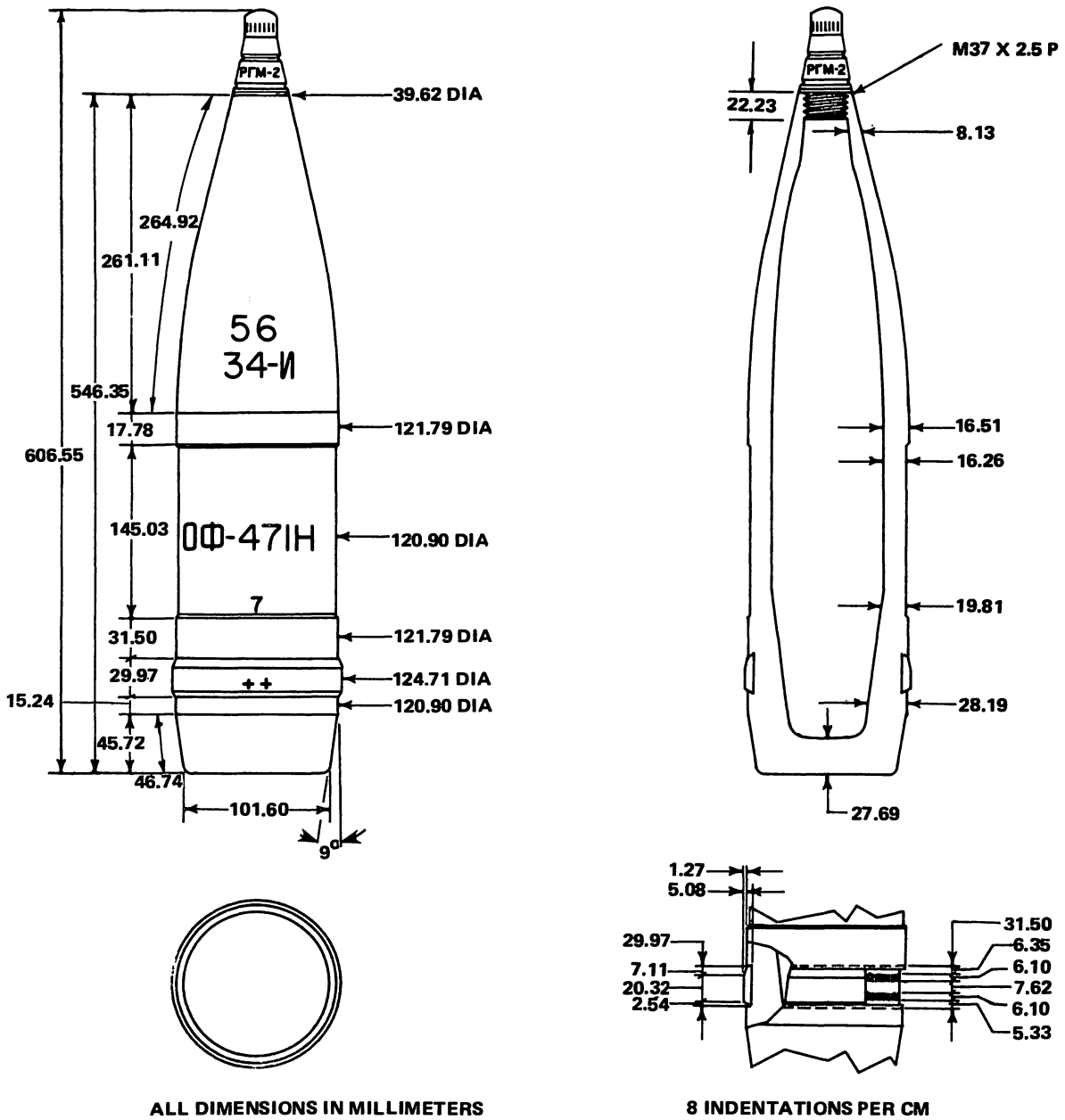
Neg. 502887

Projectile fuze wt: 21.76 kg  
Fuze: RGM-2 PD  
Filler type & wt: TNT/amatol, 3.46 kg

Using weapon(s): Howitzers M-30 and D-30, SP howitzer 2S1, and field gun A-19

Remarks: Also uses D-1, D-1U TSQ, and V-90 MTSQ fuzes

Figure 2-81. Russian 122-mm Frag-HE Projectile Model OF-462 (Variant)



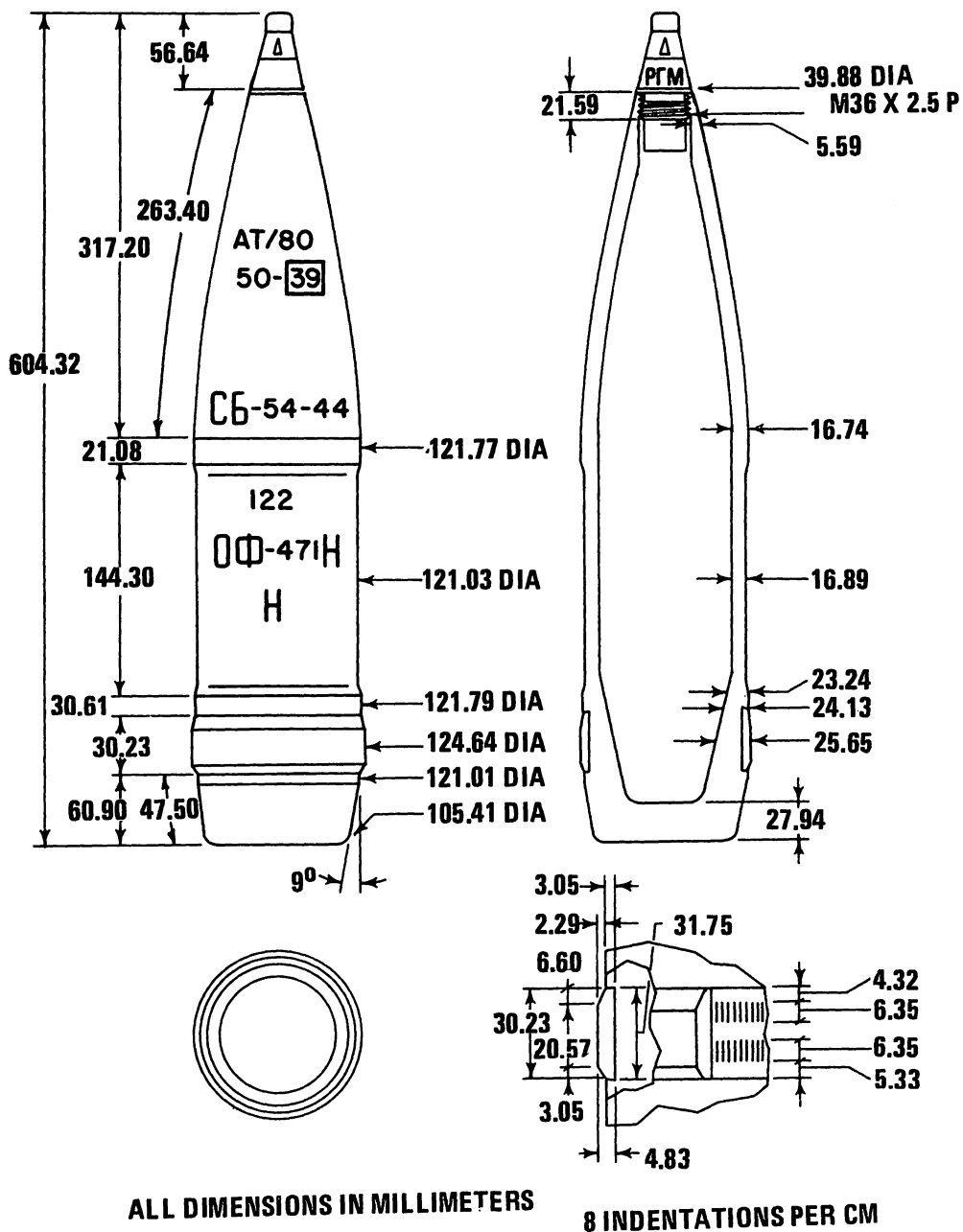
Neg. 502889

Projectile fuzed wt: 24.97 kg  
 Fuze: RGM-2 PD  
 Filler type & wt: TNT, 3.36 kg

Using weapon(s): Field gun A-19, tank gun  
 D-25, and SP assault guns  
 D-25S and A-19S

Remarks: Also uses RGM-6 and V-429 PD fuzes  
 and D-1 TSQ fuze

Figure 2-82. Russian 122-mm Frag-HE Projectile Model OF-471N

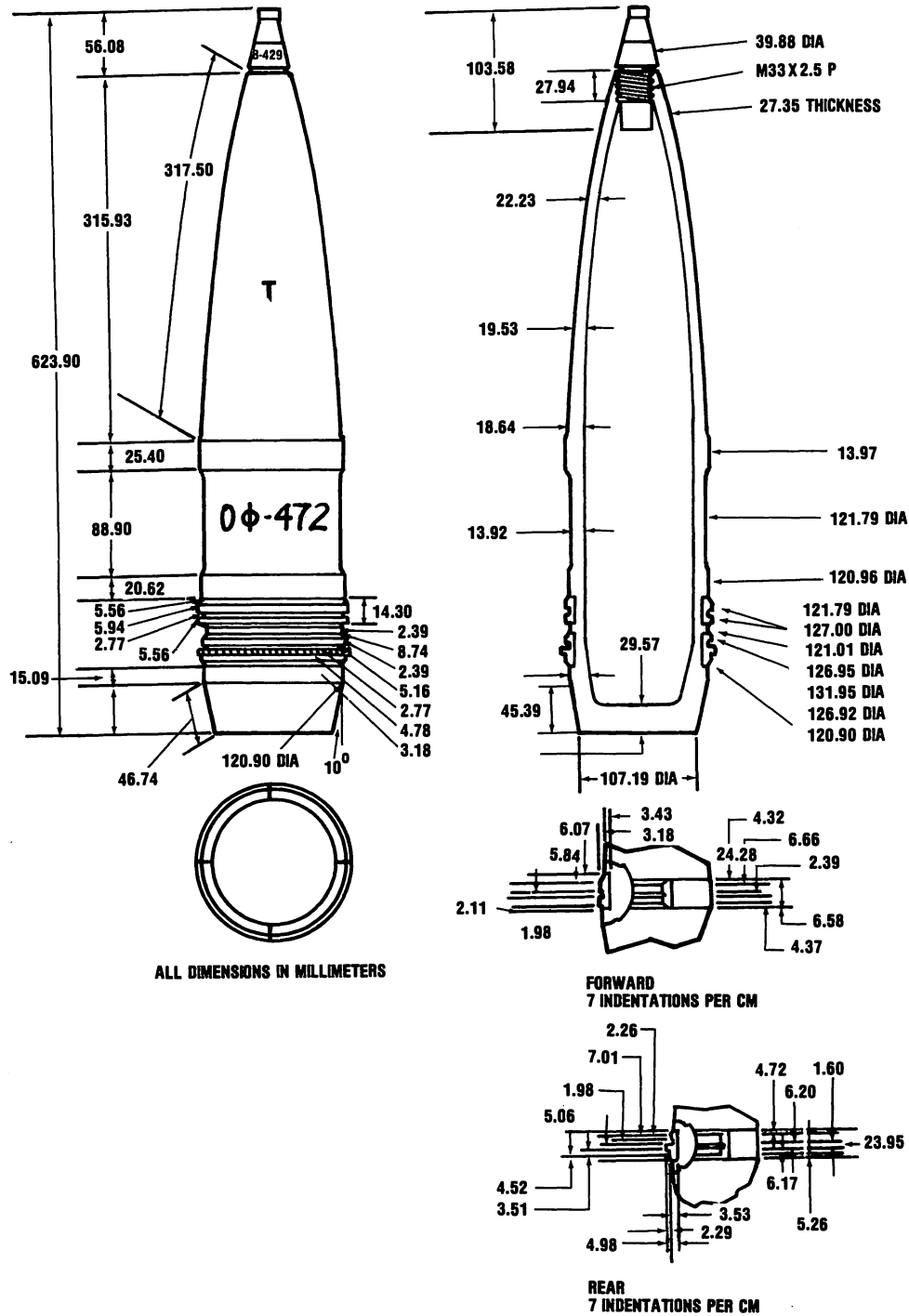


Neg. 502890

Projectile fuze wt: 25 kg  
 Fuze: RGM PD  
 Filler type & wt: TNT/amatol, 4.48 kg

Using weapon(s): Field gun A-19, tank gun D-25,  
 and SP assault guns D-25S and  
 A-19S  
 Remarks: Also uses RGM-2 and RGM-6 PD fuzes  
 and D-1 TSQ fuze

Figure 2-83. Russian 122-mm Frag-HE Projectile Model OF-471N (Variant)

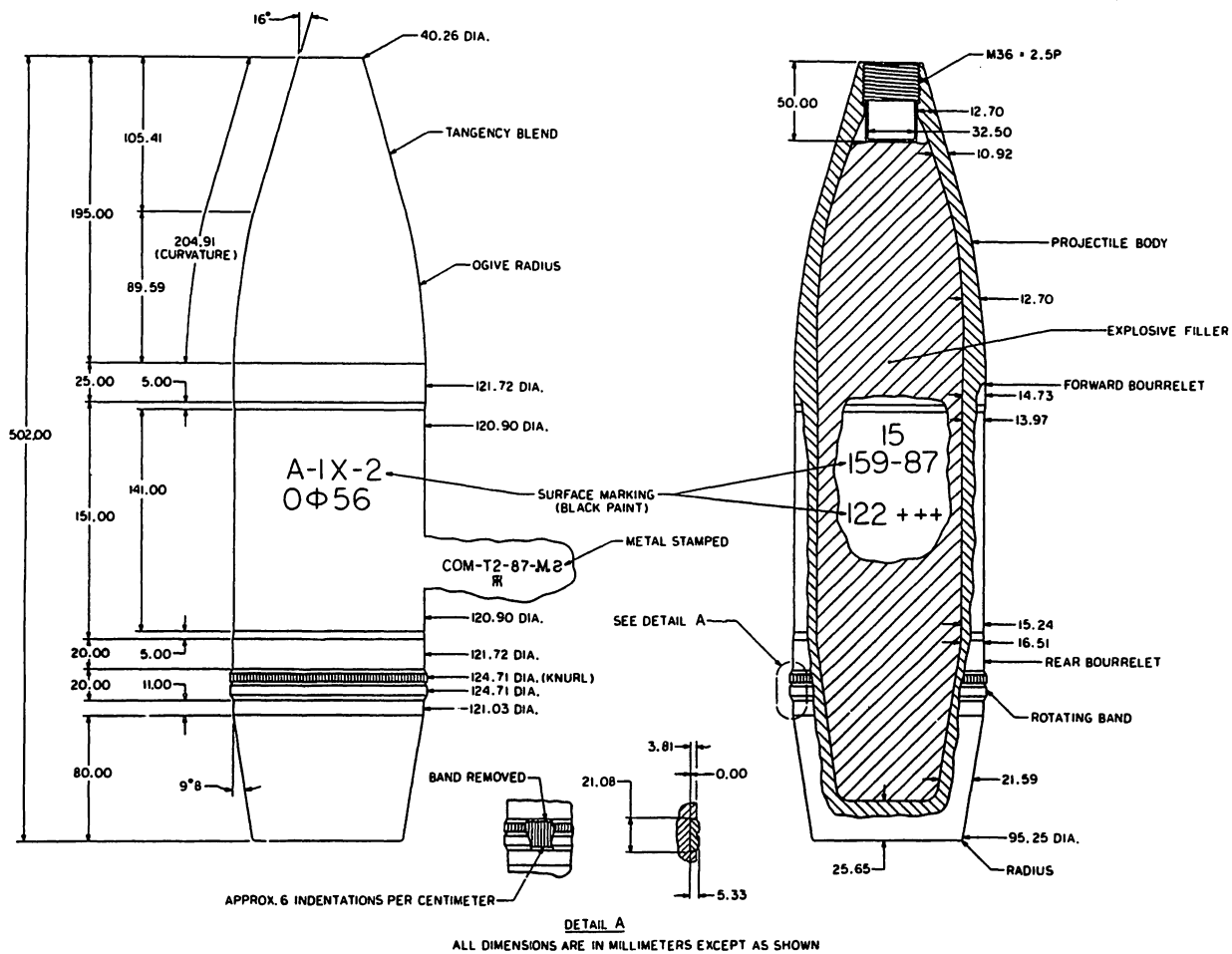


Neg. 502896

Projectile fuze wt: 27.30 kg  
 Fuze: V-429 PD  
 Filler type & wt: TNT, 3 kg

Using weapon(s): Field gun D-74 and possibly  
 T-10M tank gun  
 Remarks: Also uses RGM-6 PD fuze

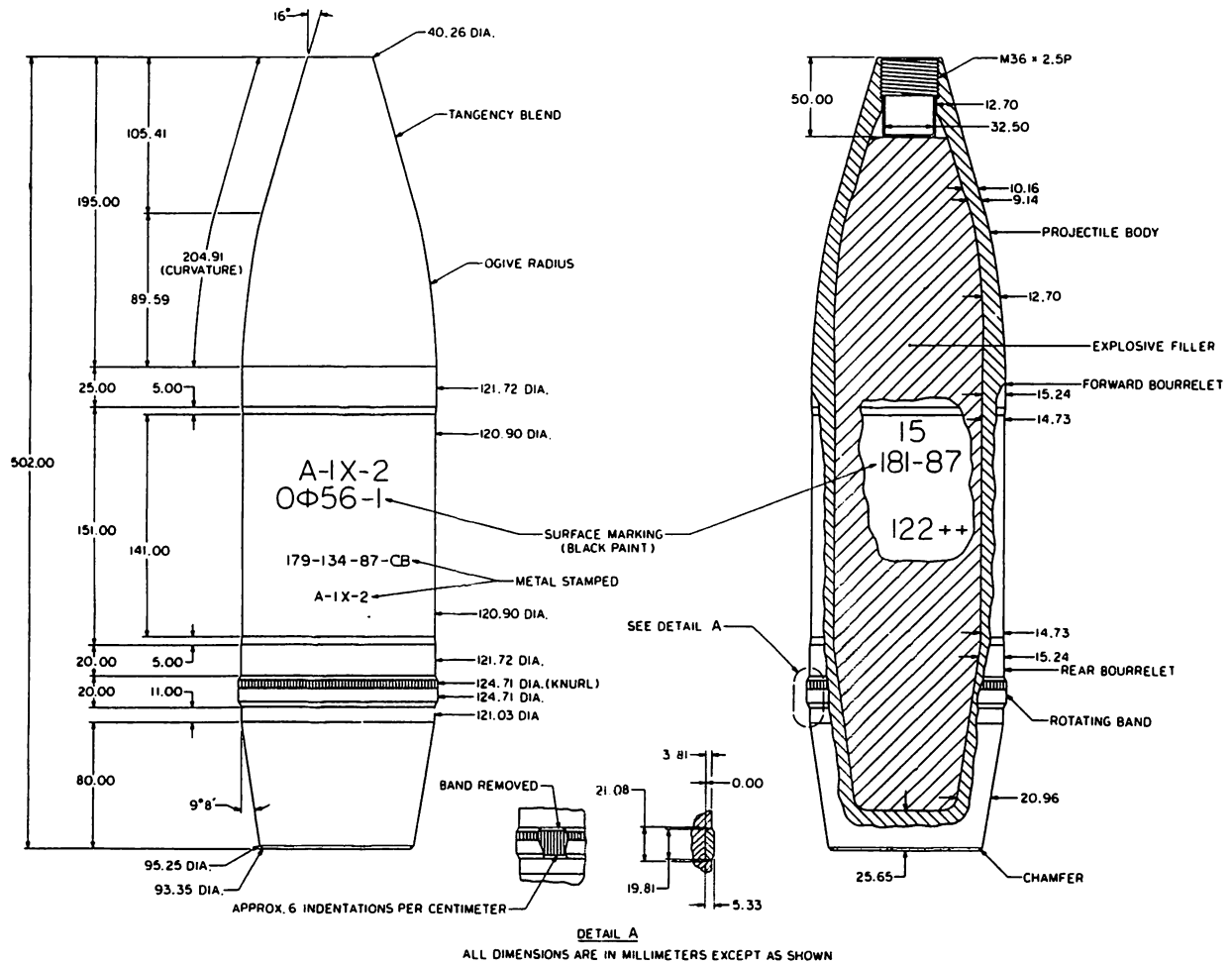
Figure 2-84. Russian 122-mm Frag-HE Projectile Model OF-472



Projectile fuzed wt: 21.76 kg  
 Fuze: RGM-2  
 Filler type & wt: RDX/aluminum, 4.31 kg

Using weapon(s): Howitzer D-30 and 2S1  
 Remarks: Alternate filler TNT.  
 Illustrated without fuze

Figure 2-85. Russian 122-mm Projectile OF-56

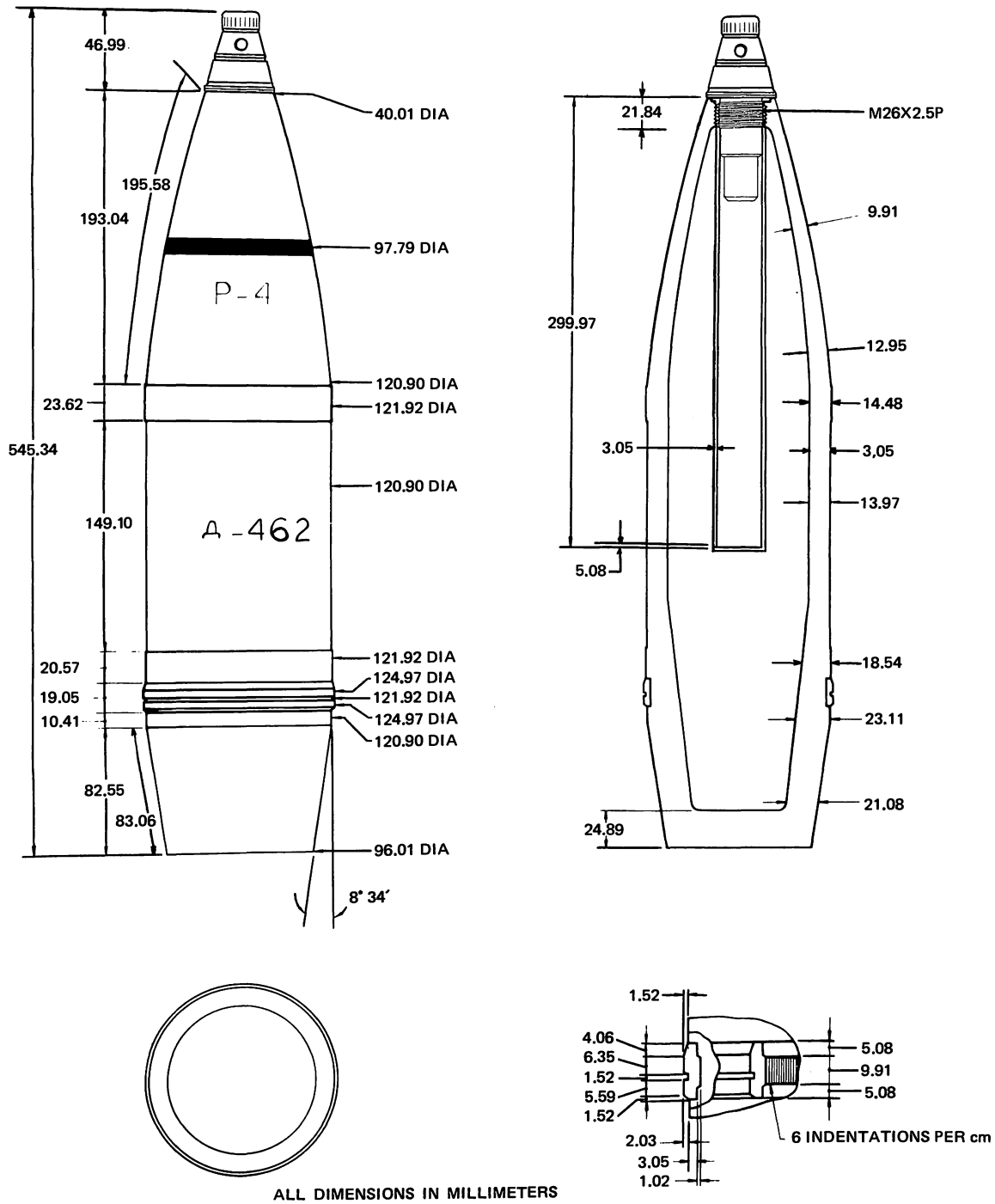


Projectile fuzed wt: 21.76 kg  
Fuze: RGM-2 PD  
Filler type & wt: RDX/aluminum, 4.31 kg

Using weapon(s): Howitzer D-30 and 2S1  
Remarks: Has sintered iron rotating band.  
Illustrated without fuze

Figure 2-86. Russian 122-mm Projectile OF-56-1



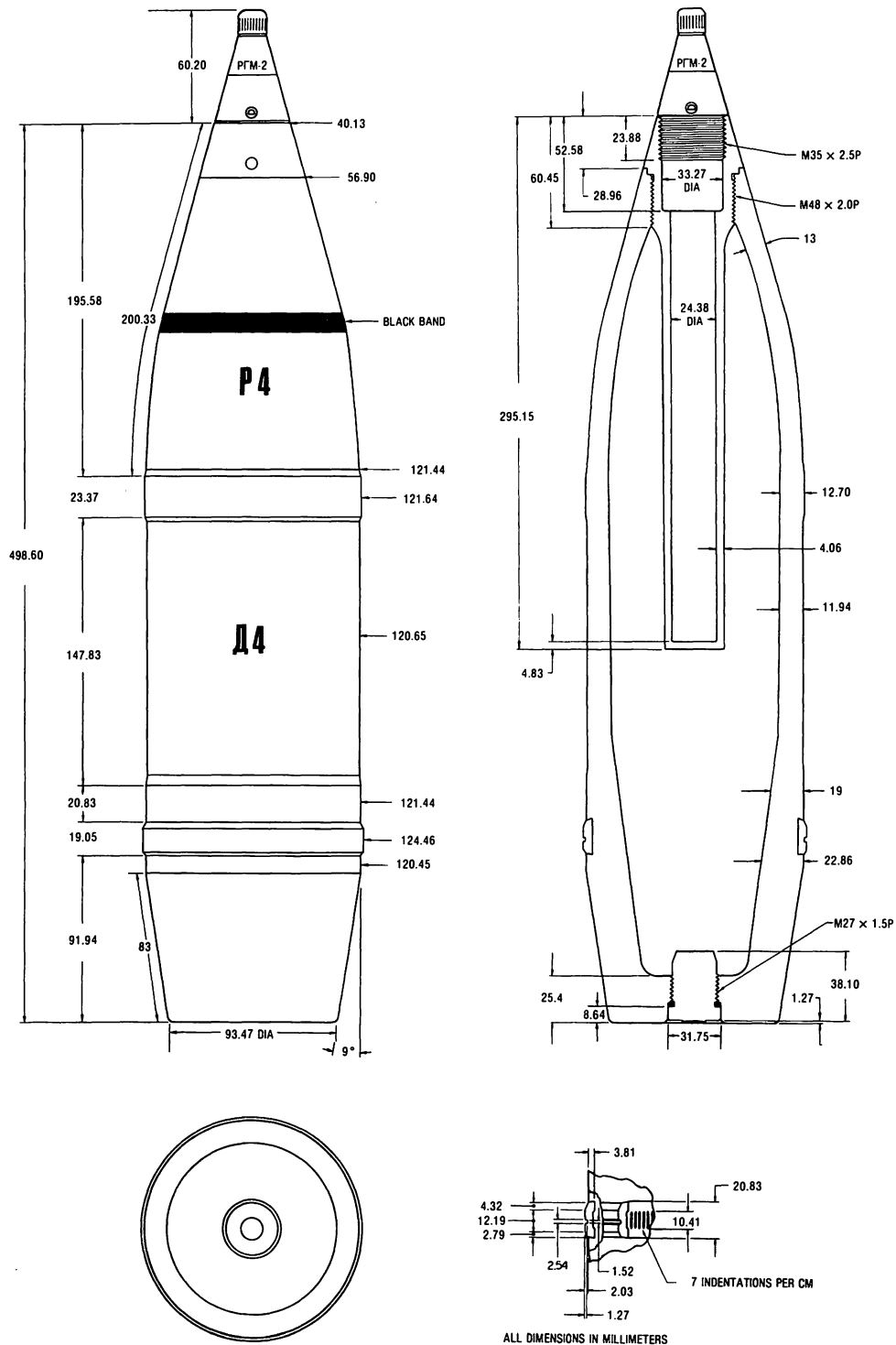


Neg. 502888

Projectile fuze wt: 22.30 kg  
 Fuze: KTM-2 PD  
 Filler type & wt: TNT, 0.16 kg

Using weapon(s): Howitzer M-30  
 Remarks: Main filler is 3.60-kg white phosphorous

Figure 2-87. Russian 122-mm Smoke Projectile Model D-462

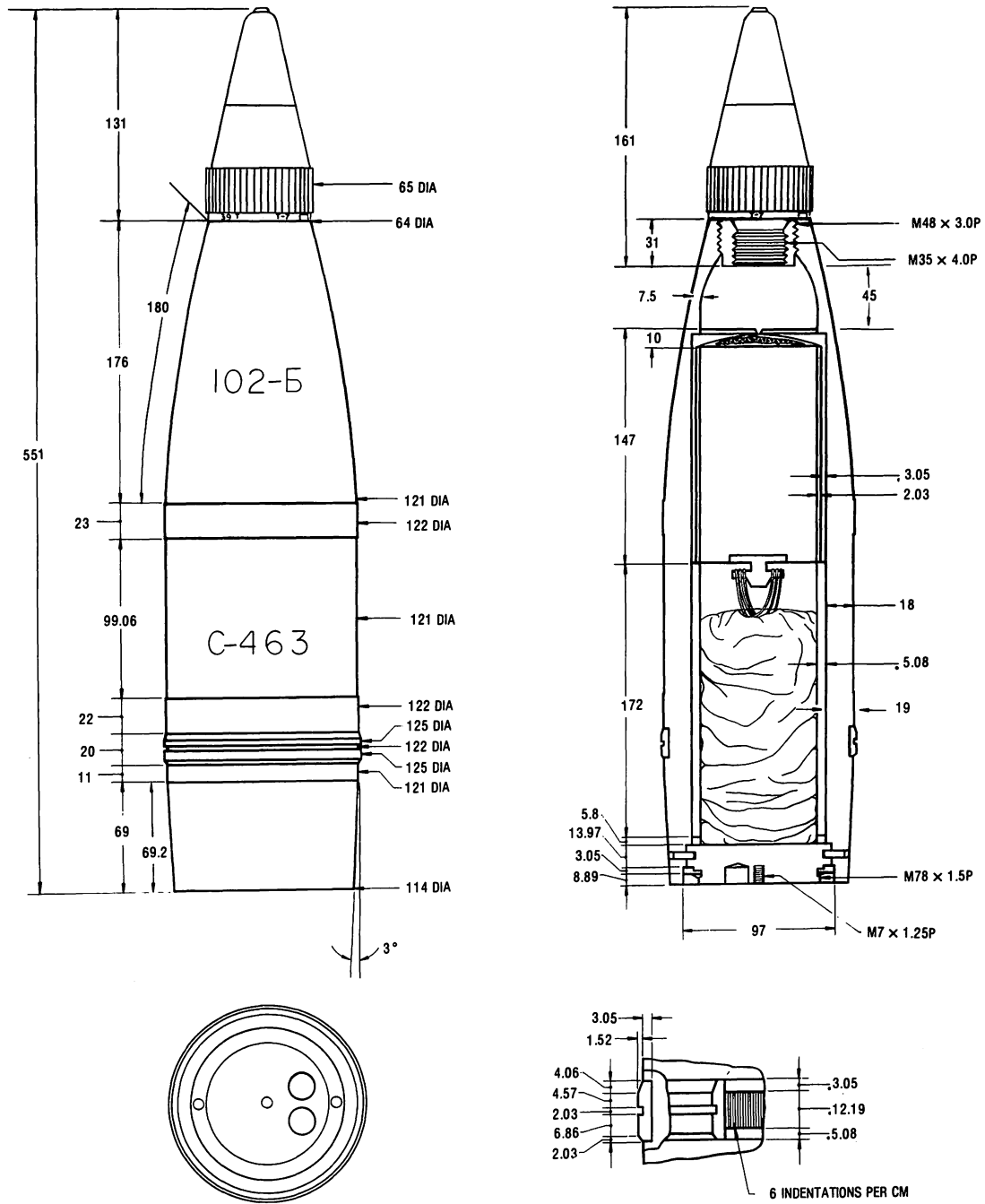


Neg. 533384

Projectile fuzed wt: 21.70 kg  
 Fuze: RGM-2 PD  
 Filler type & wt: WP, 3.60 kg

Using weapon(s): Howitzers M-30 (M1938),  
 D-30, and SP 2S1  
 Remarks: Uses a bursting charge of 0.16 kg tetryl  
 and TNT

Figure 2-88. Russian 122-mm Smoke Projectile Model D-4



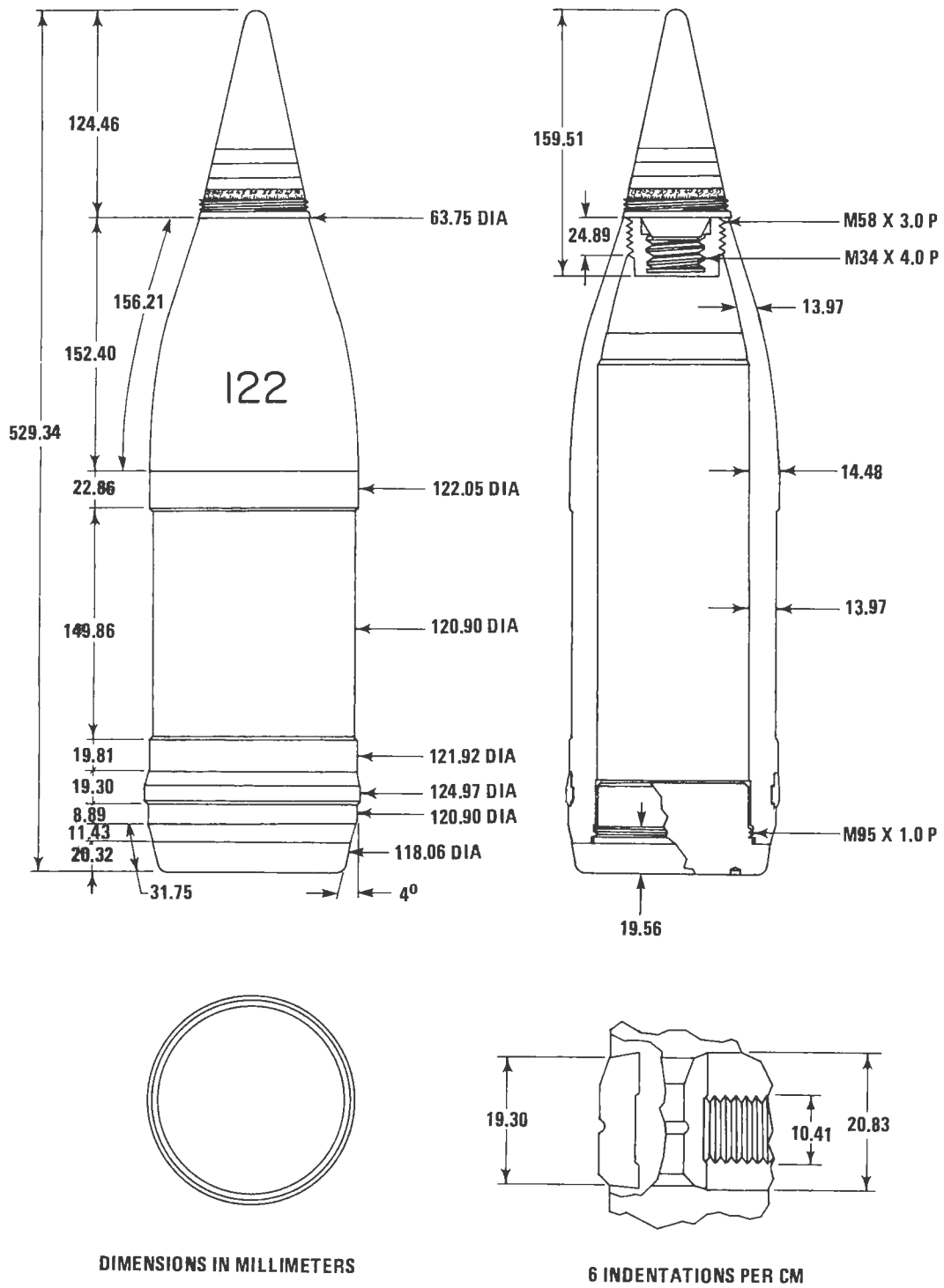
ALL DIMENSIONS IN MILLIMETERS

Neg. 533383

Projectile fuze wt: 21.96 kg  
 Fuze: T-7 time  
 Filler type & wt: Black powder, 0.02 kg/  
 illuminating composition, 1 kg

Using weapon(s): Howitzers M-30 (M1938),  
 D-30, and SP 2S1  
 Remarks: Shown with fuze cover

Figure 2-89. Russian 122-mm Illuminating Projectile Model S-463



Neg. 502892

Projectile fuzed wt: 22.70 kg

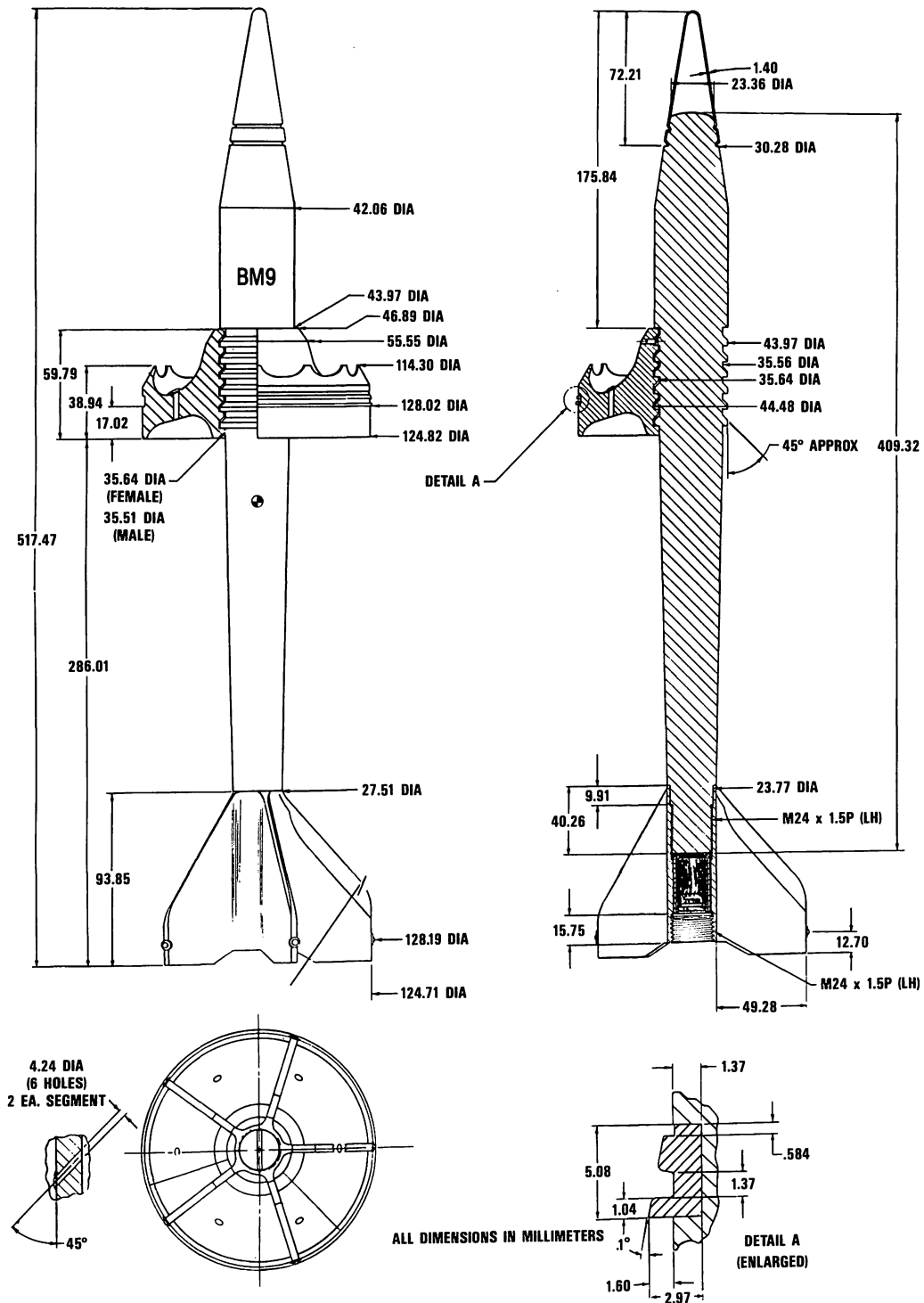
Fuze: T-7 TSQ

Filler type & wt: Black powder ejection charge, weight ?

Using weapon(s): Howitzers M-30, SP 2S1, and D-30

Remarks: Contains leaflets, weight ?

Figure 2-90. Russian 122-mm Propaganda Projectile Model A-462

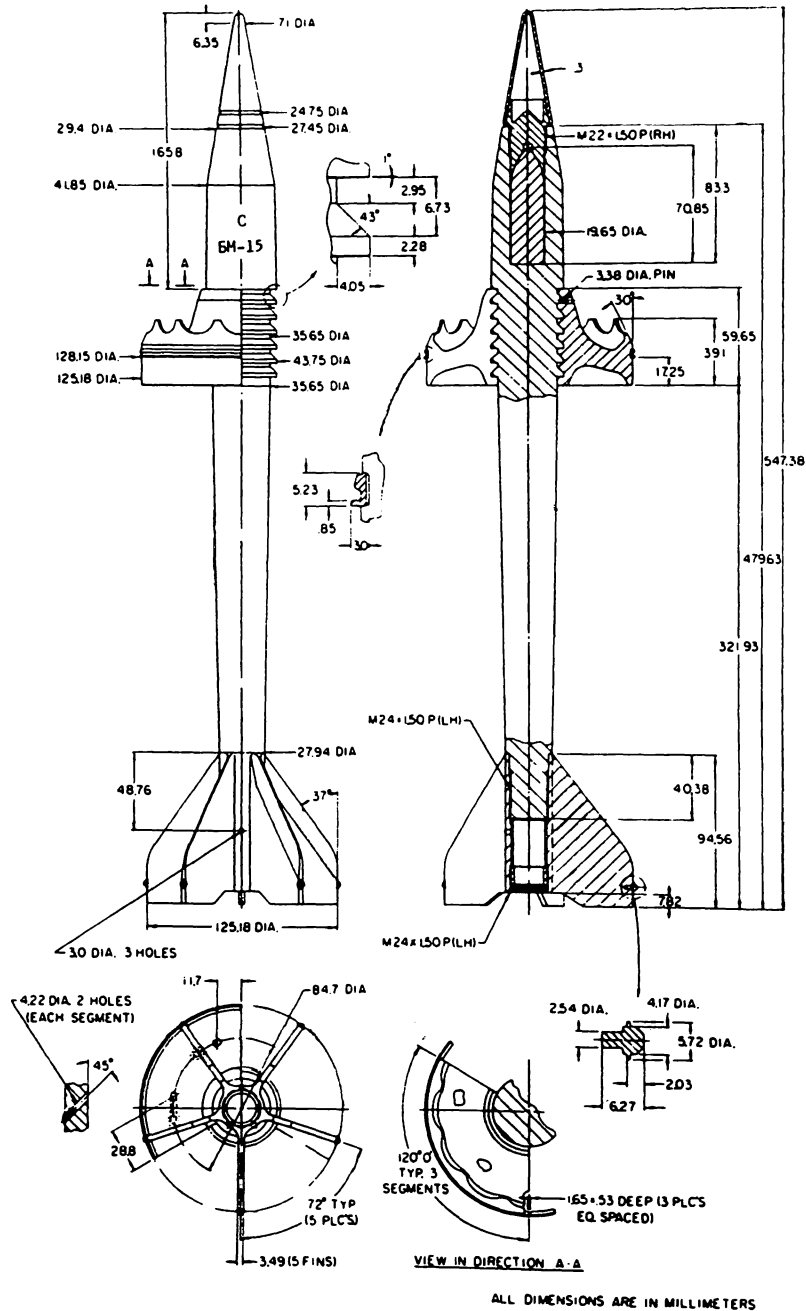


Neg. 000076

Projectile fuzed wt: 5.62 kg (w/sabot)  
 Fuze: None  
 Filler type & wt: None  
 Core: Hard steel

Using weapon(s): D81 tank gun, 2A45M ATG  
 Remarks: Projectile weighs 3.6 kg w/o sabot

Figure 2-91. Russian 125-mm APFSDS-T Projectile Model BM-9

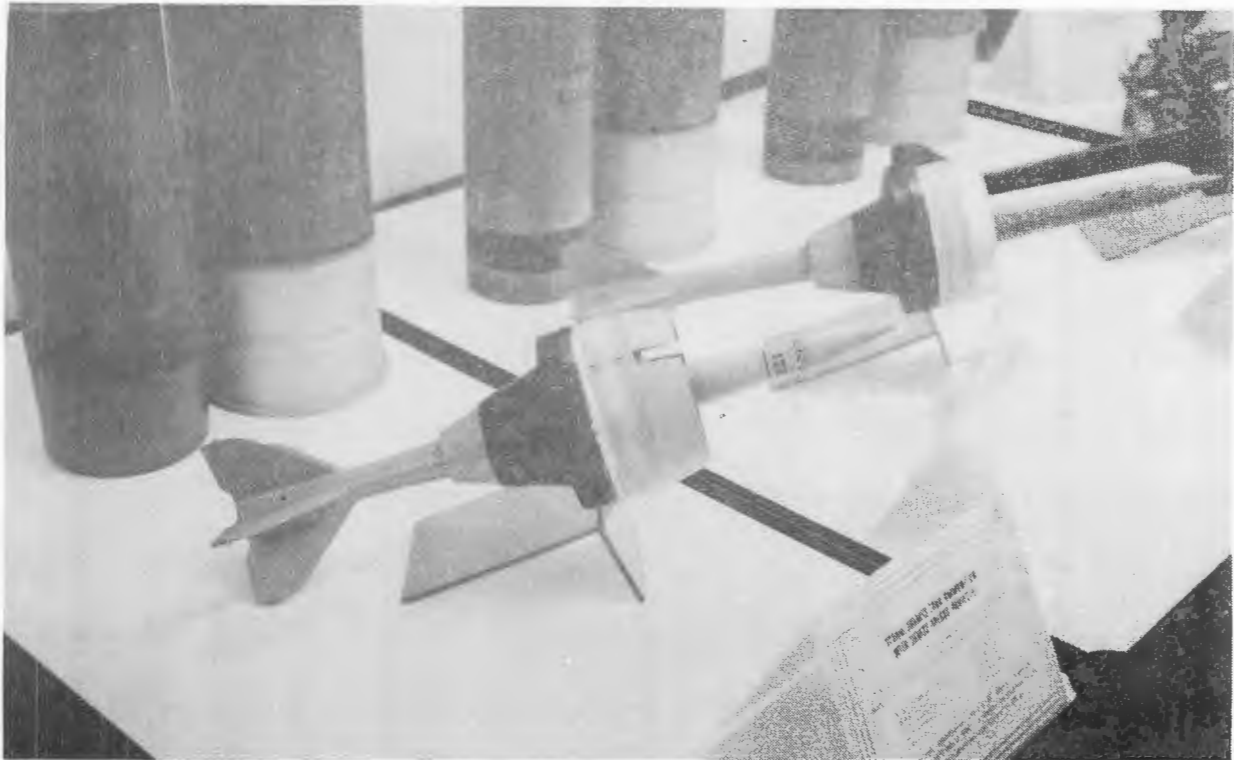


Neg. U-INT.000096

Projectile fuzed wt: 5.93 kg  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten carbide, 0.27 kg

Using weapon(s): D81 tank gun, 2A45M ATG  
 Remarks: Projectile weighs 3.8 kg w/o sabot

Figure 2-92. Russian 125-mm APFSDS-T Projectile Model BM-15

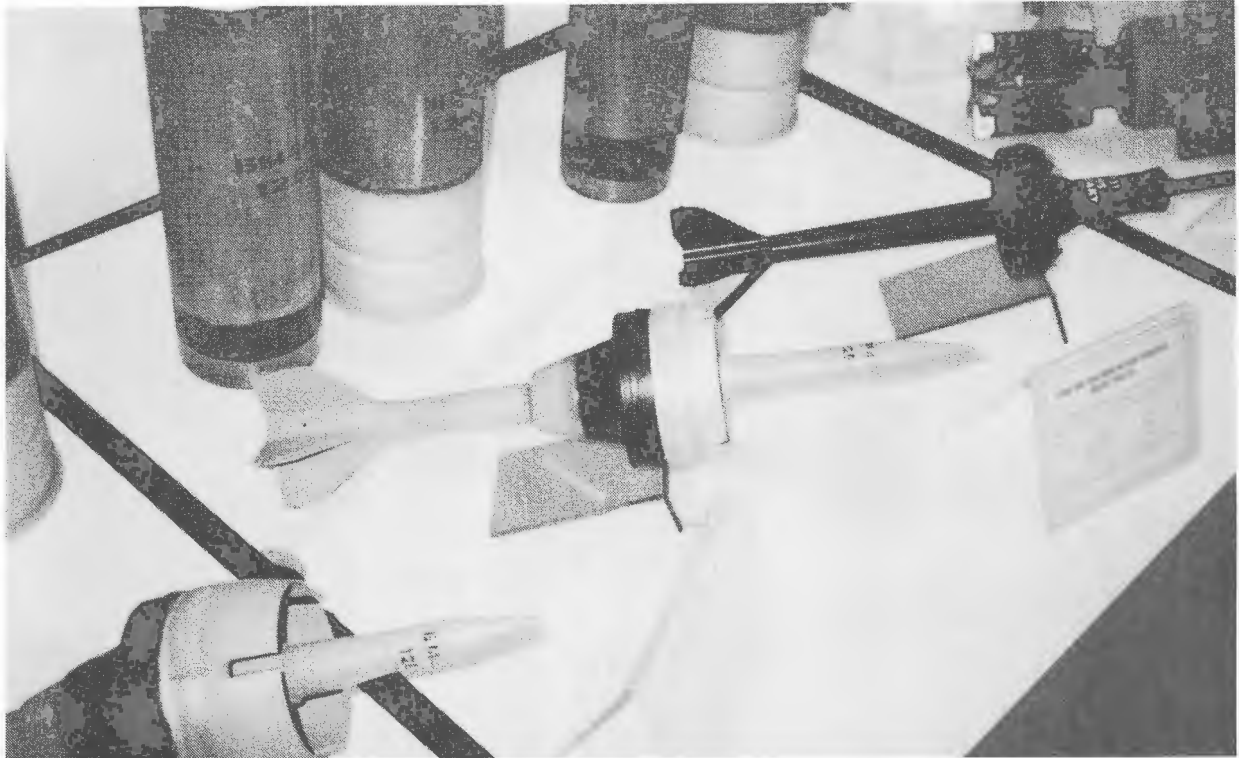


Neg. U-INT.003482

Proj/charge assembly L: 585 mm  
Proj/charge assembly M: 10.95 kg  
Projectile length: 486 mm  
Projectile mass: 7.1 kg  
Core: Monolithic depleted uranium

Using weapon(s): D81 tank gun 2A45M ATG  
Remarks: Proj/aux charge assembly designated  
BM-38; complete cartridge designated  
VBM-13

Figure 2-93. Russian 125-mm APFSDS-T Projectile Model BM-32



Neg. U-INT.003480

Proj/aux charge assembly L: 621 mm  
Proj/aux charge assembly M: 10.8 kg  
Projectile length: 571 mm  
Projectile mass: 7.1 kg  
Core material: Steel-sheathed tungsten alloy

Using weapon(s): D81 tank gun, 2A45M ATG  
Remarks: Proj/aux charge assembly designated  
BM-44; complete cartridge designated  
VBM-17

Figure 2-94. Russian 125-mm APFSDS-T Projectile Model BM-42



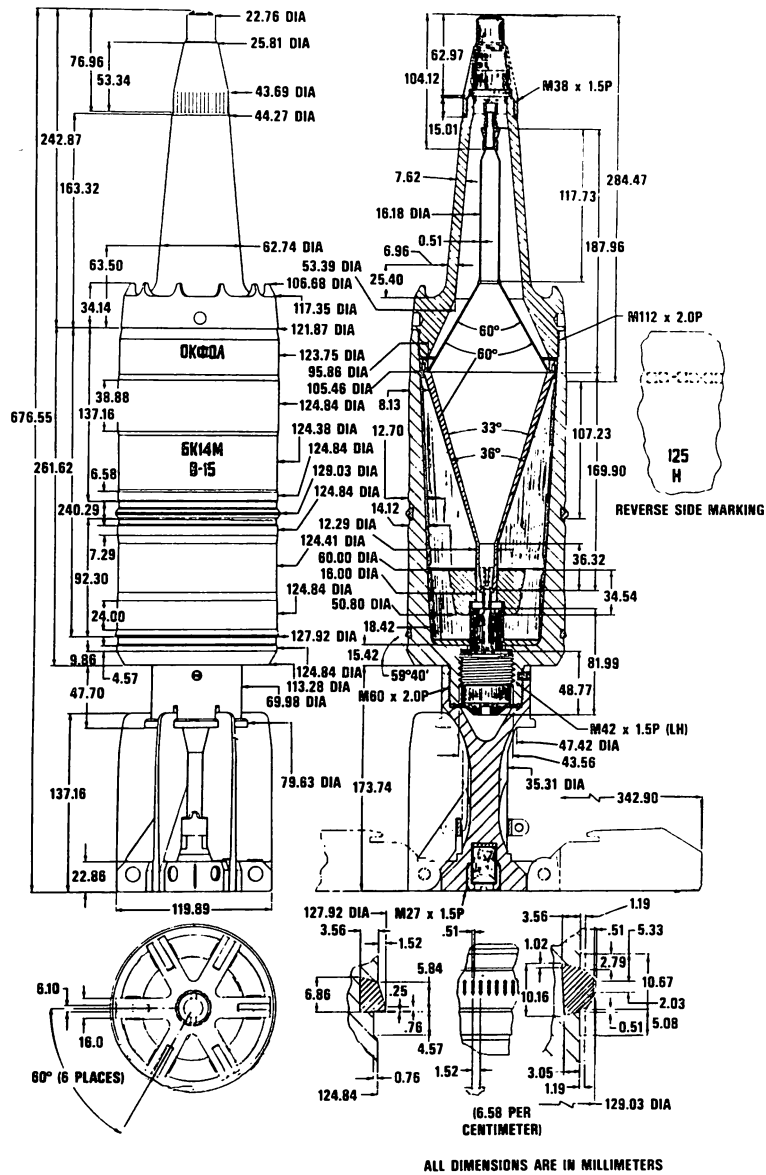


Neg. U-INT.003479

Proj/aux charge assembly L: 582 mm  
Proj/aux charge assembly M: 9.5 kg  
Projectile length: 535 mm  
Projectile mass: 5.2 kg  
Proj material: Steel

Using weapon(s): D81 tank gun, 2A45M ATG  
Remarks: Complete cartridge designated VP-6

Figure 2-95. Russian 125-mm TPFSDS-T Projectile Model P-31

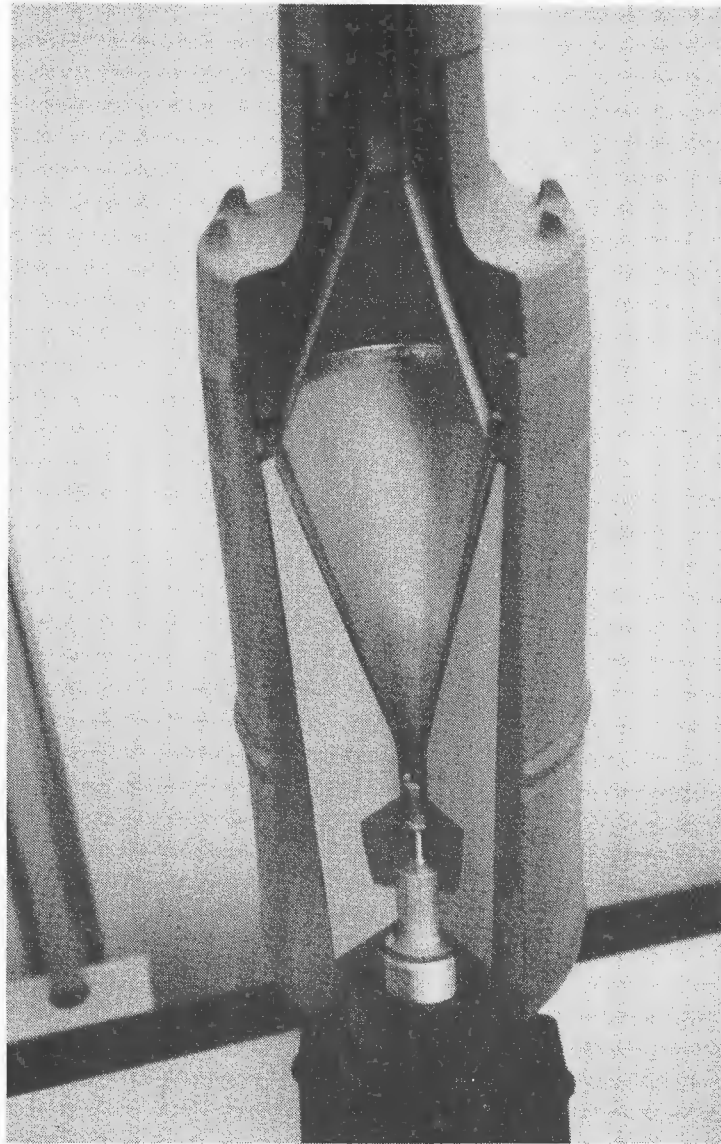


Neg. 000075

Projectile fuzed wt: 19.02 kg  
 Fuze: VG-15 PD PIBD  
 Filler type & wt: 97/3 HMX/wax, 1.85 kg

Using weapon(s): D81 tank gun, 2A45M ATG  
 Remarks: Supersedes BK-12M projectile

Figure 2-96. Russian 125-mm HEAT-FS Projectile Model BK-14M



Neg. U-INT.003473

Projectile length: 680 mm

Projectile mass: 19.0 kg

Fuze: B-15

Filler type & wt: HMX/wax, 1.76 kg

Using weapon(s): D81 tank gun, 2A45M ATG

Remarks: Complete cartridge designated VBK-16

Figure 2-97. Russian 125-mm HEAT Projectile Model BK-18M

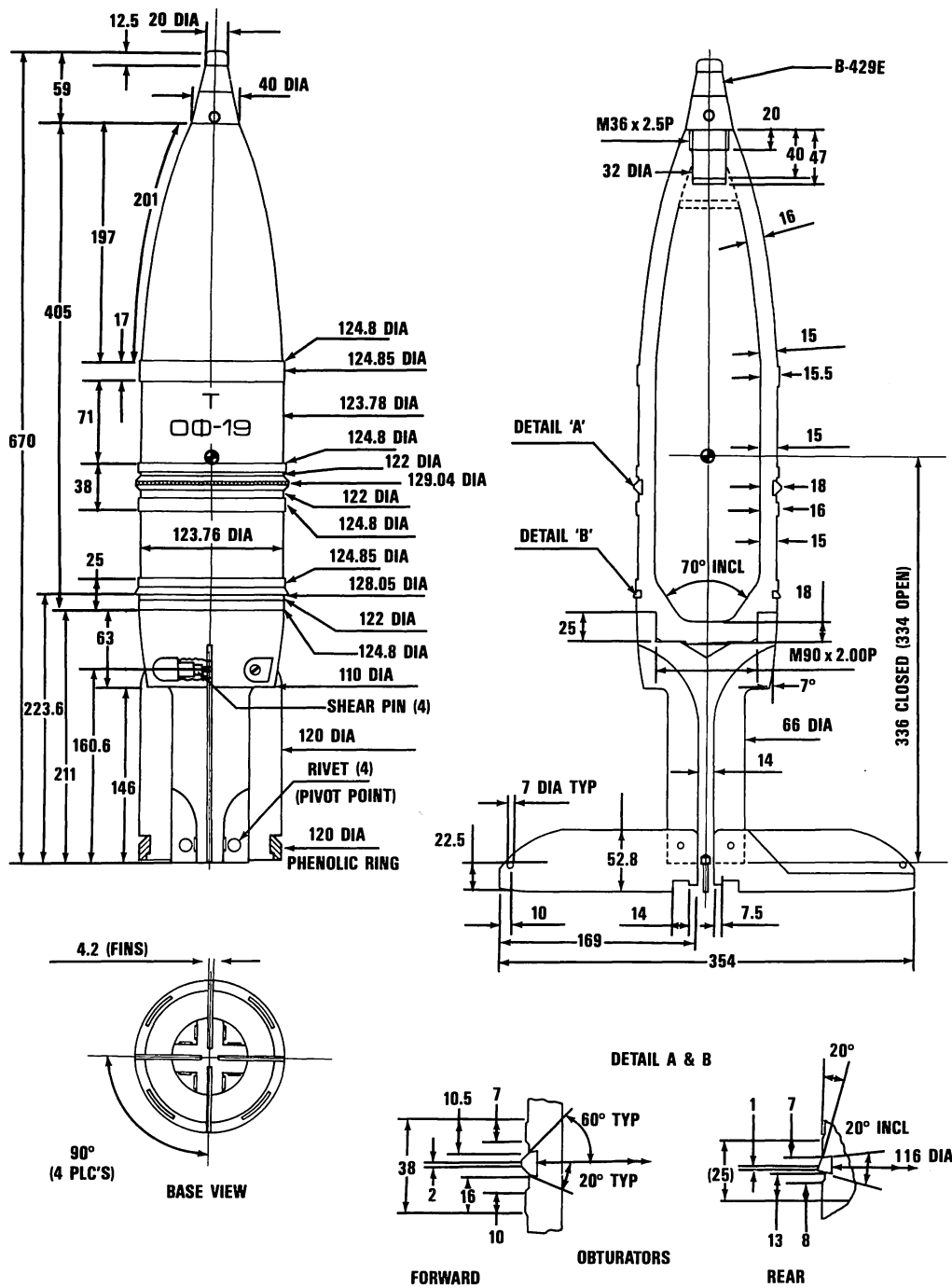


Neg. U-INT.003488

Projectile L: 680 mm  
Projectile mass: 19.0 kg  
Projectile filler: Inert

Using weapon(s): D81 tank gun, 2A45M ATG  
Remarks: Complete cartridge designated VP-5

Figure 2-98. Russian 125-mm HEAT-TP Projectile Model P-11



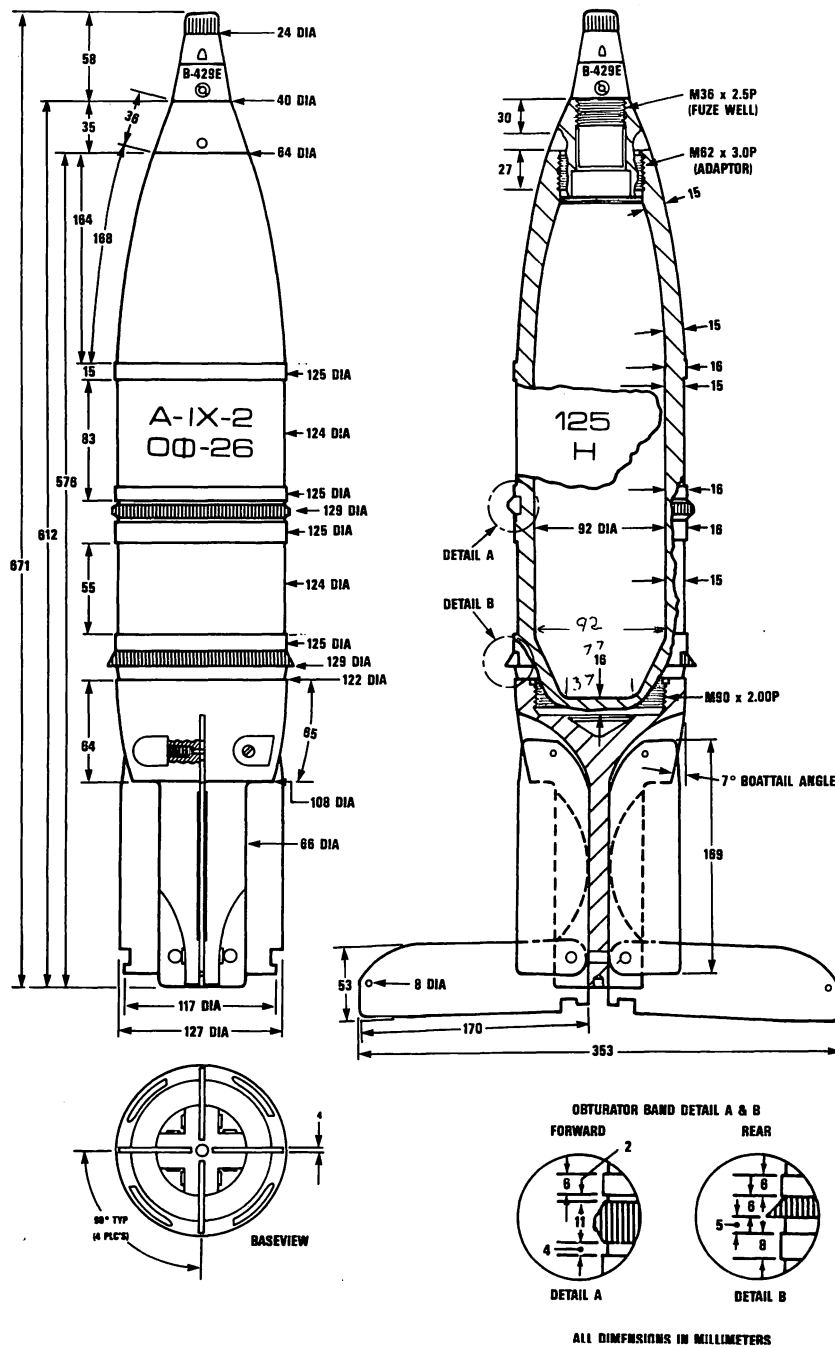
ALL DIMENSIONS IN MILLIMETERS

Neg. 000074

Projectile fuzed wt: 23 kg  
Fuze: V-429E PD  
Filler type & wt: TNT, 3.15 kg

Using weapon(s): D81 tank gun, 2A45M ATG  
Remarks: 1st generation 125-mm Frag-HE projectile

Figure 2-99. Russian 125-mm Frag-HE Projectile Model OF-19

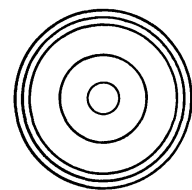
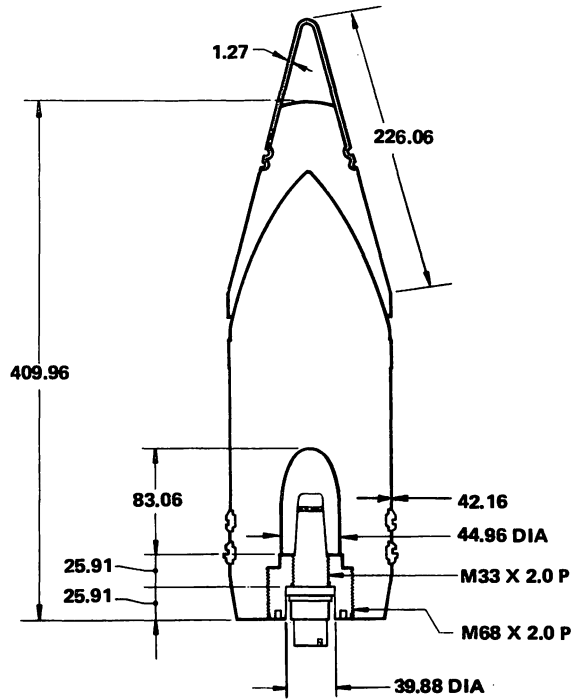
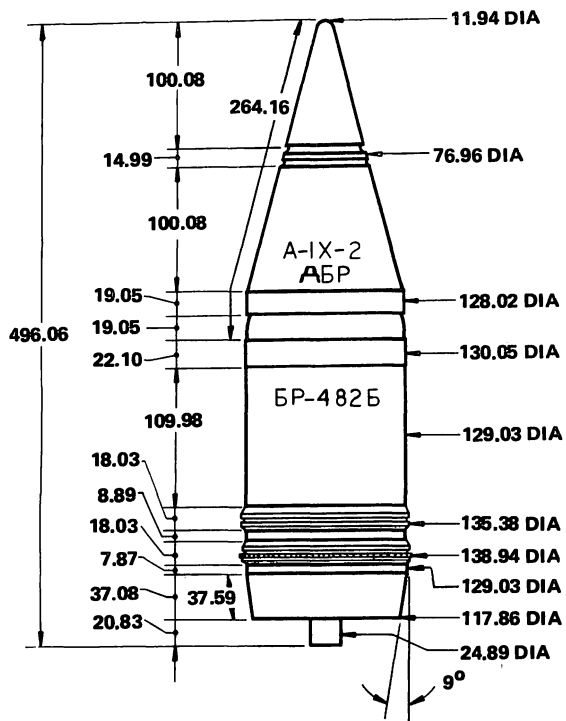


Neg. U-INT.000129

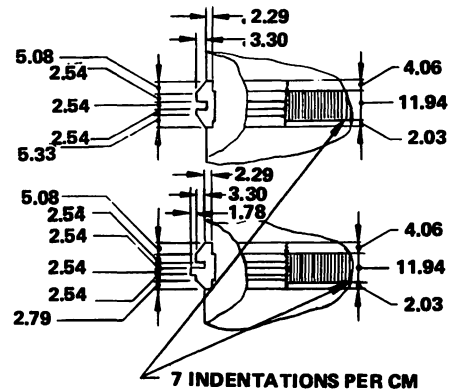
Projectile fuzed wt: 23.20 kg  
 Fuze: V-429E PD  
 Filler type & wt: RDX/aluminum, 3.34 kg

Using weapon(s): D81 tank gun, 2A45M ATG  
 Remarks: 2d generation 125-mm Frag-HE projectile

Figure 2-100. Russian 125-mm Frag-HE Projectile Model OF-26



ALL DIMENSIONS IN MILLIMETERS

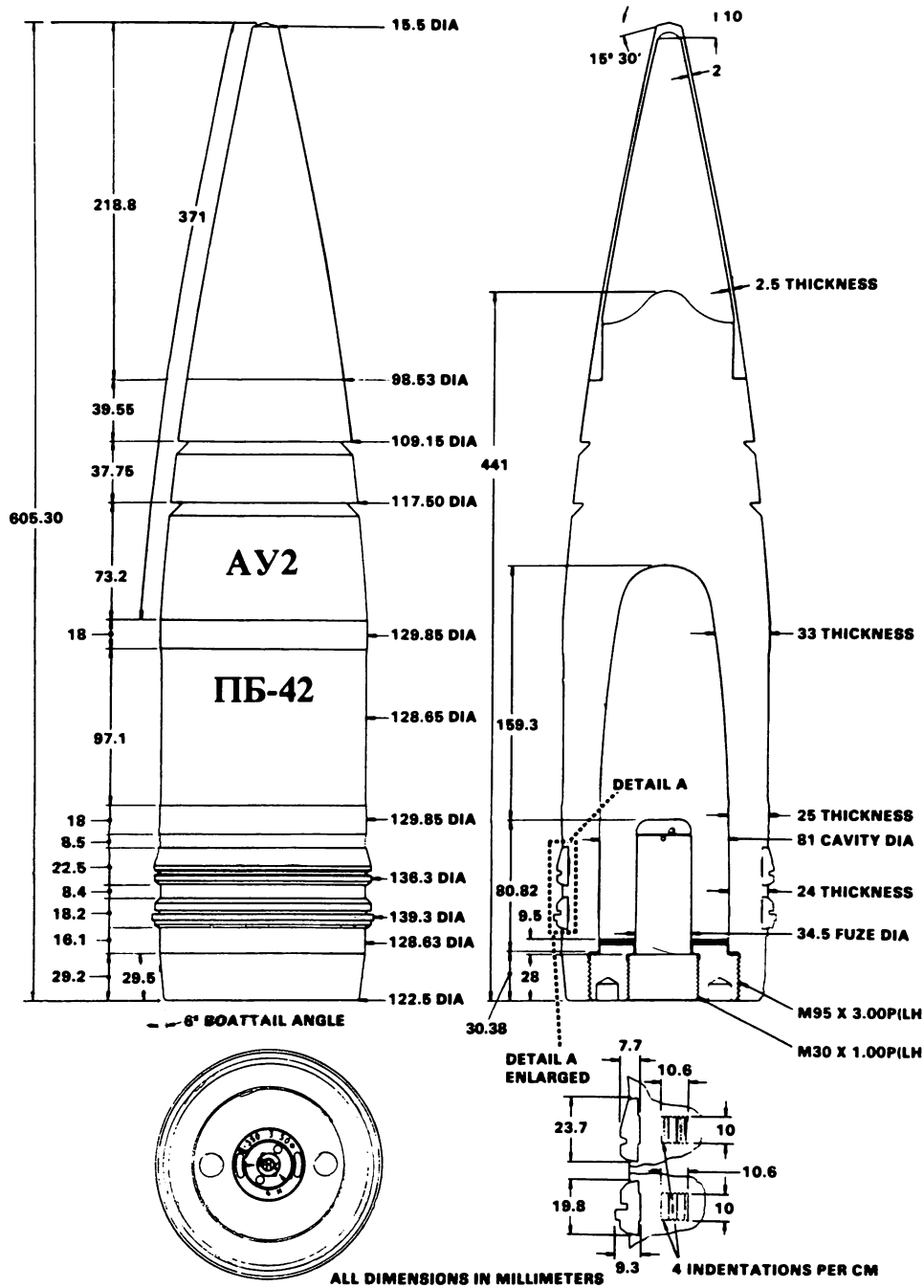


Neg. 502902

Projectile fuze wt: 33.49 kg  
 Fuze: DBR BD  
 Filler type & wt: RDX/aluminum, 0.13 kg

Using weapon(s): Field gun M-46  
 Remarks: None

Figure 2-101. Russian 130-mm APC-T Projectile Model BR-482B



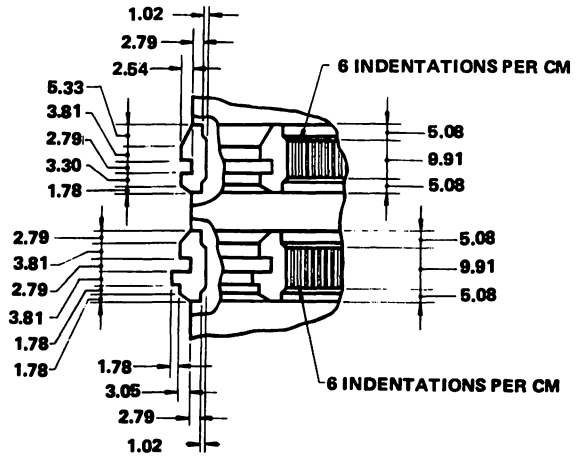
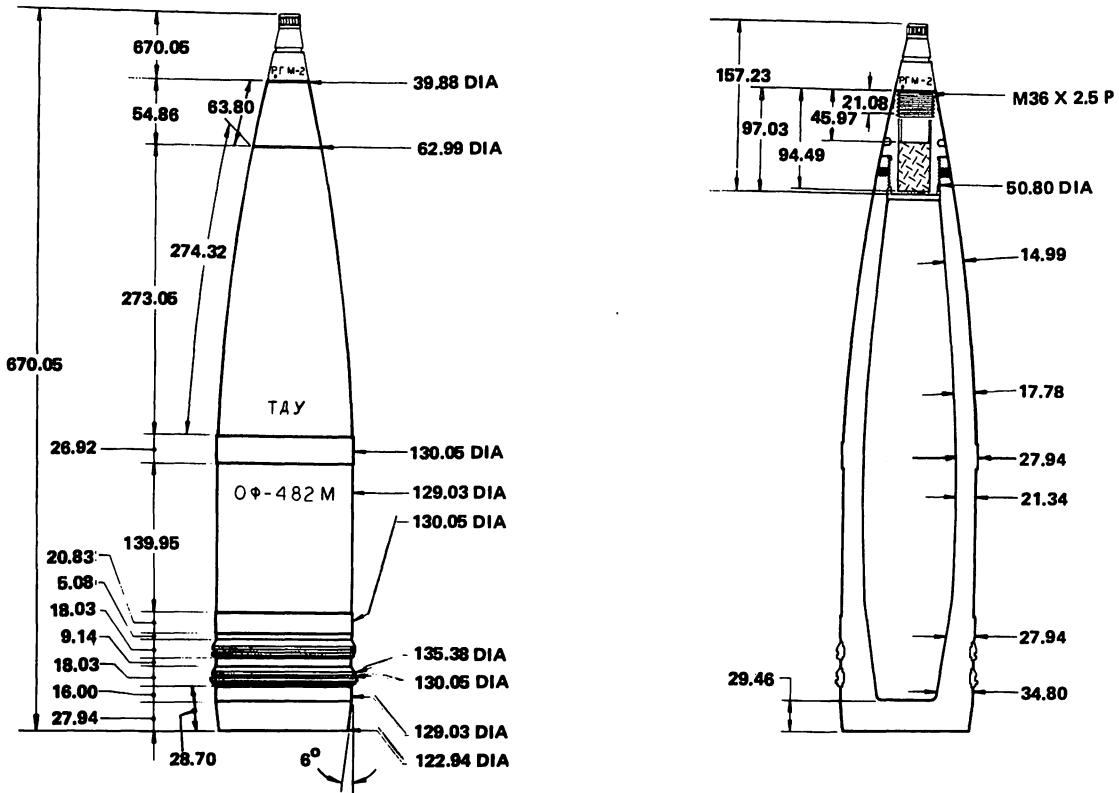
Neg. U-INT.000008

Projectile fuzed wt: 33.40 kg  
 Fuze: V-350 BD  
 Filler type & wt: RDX/aluminum w/spotting charge, weight unknown

Using weapon(s): Coastal gun M-58  
 Remarks: Projectile painted grey

Figure 2-102. Russian 130-mm SAP-HE Projectile Model PB-42





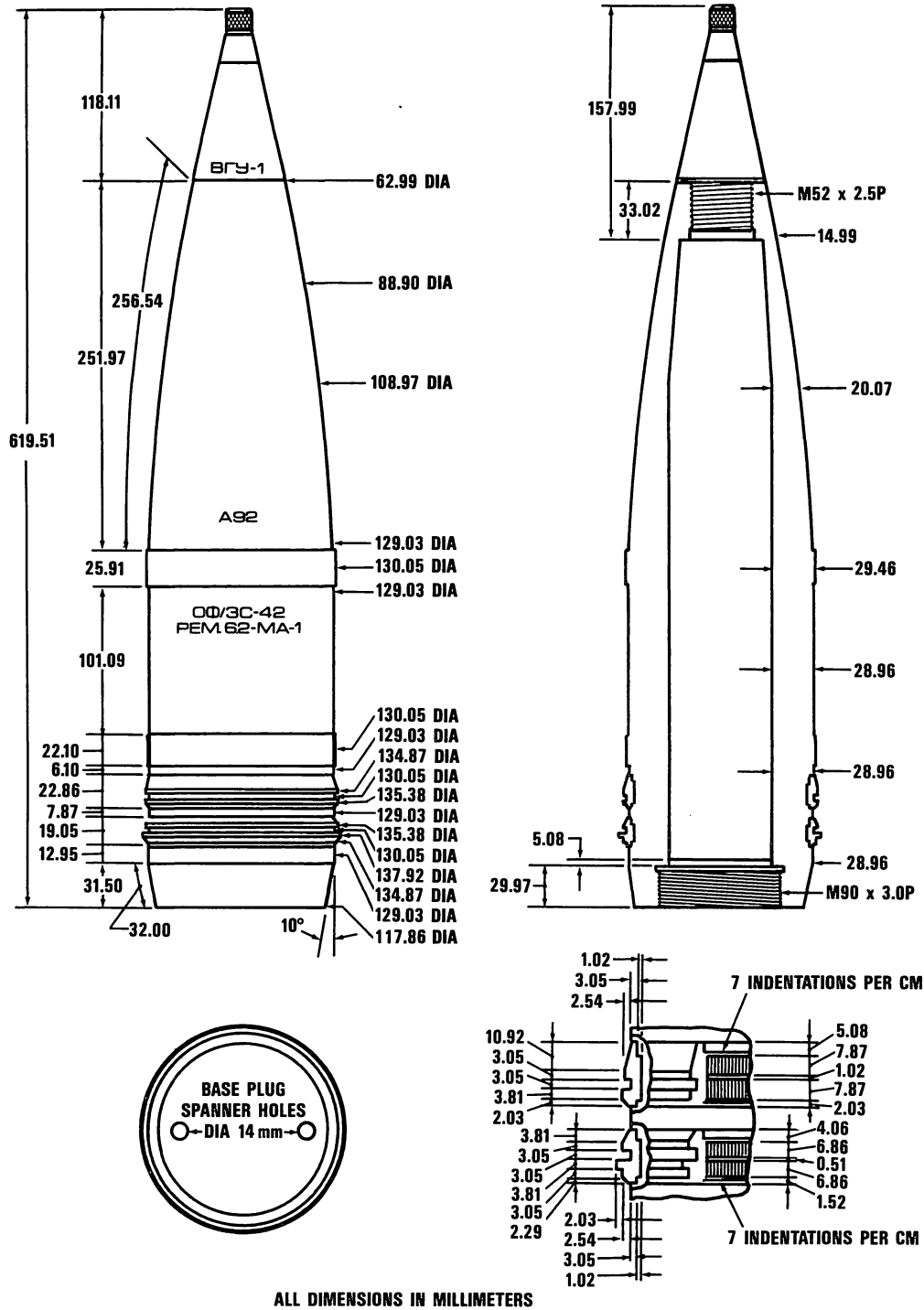
ALL DIMENSIONS IN MILLIMETERS

Neg. 502901

Projectile fuze wt: 33.40 kg  
 Fuze: RGM-2 PD  
 Filler type & wt: TNT w/spotting charge,  
 3.60 kg

Using weapon(s): Field gun M-46  
 Remarks: Also uses RGM-6 and V-429 PD fuzes

Figure 2-103. Russian 130-mm Frag-HE Projectile Model OF-482M

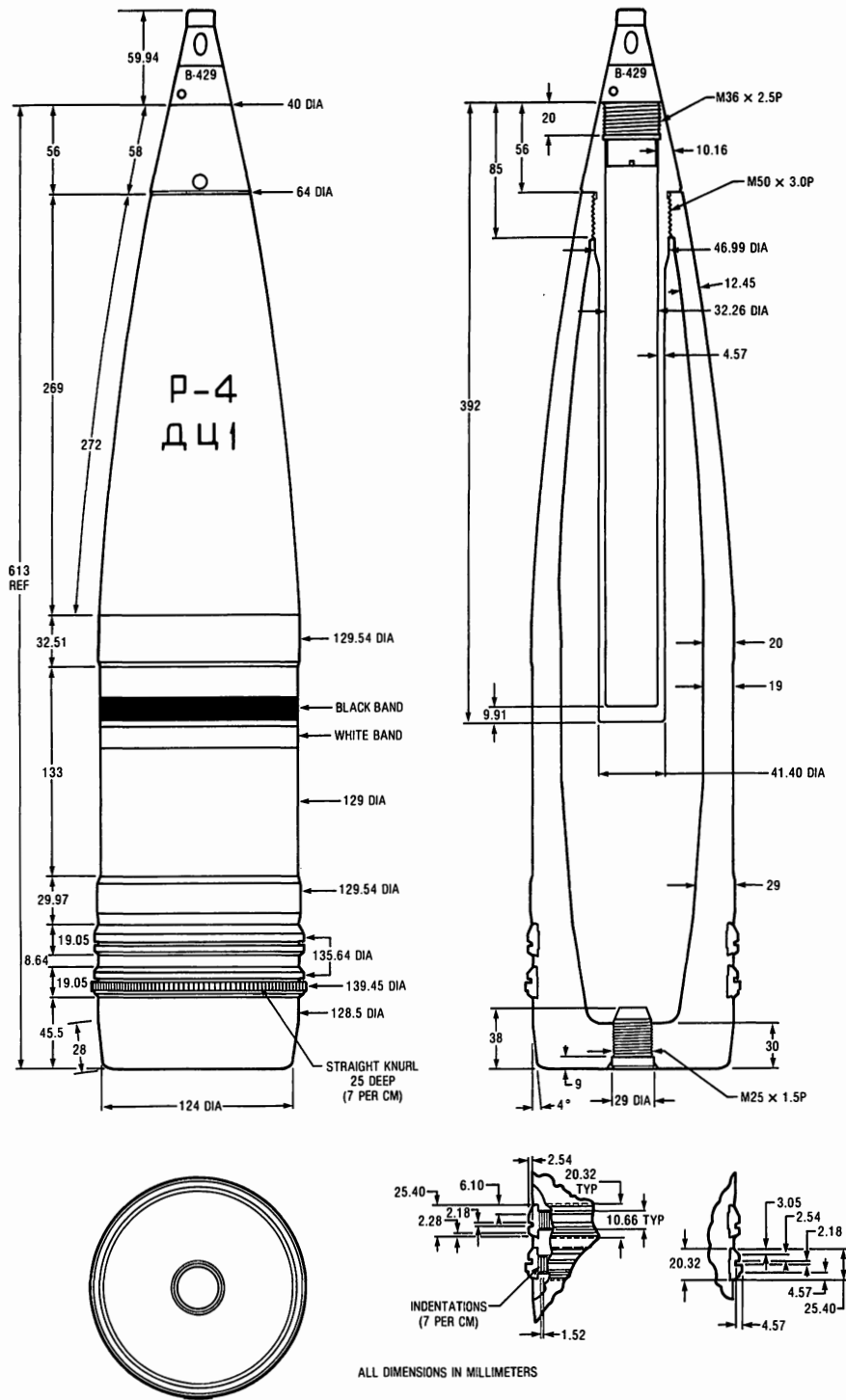


Neg. 502903

Projectile fuzed wt: 33.46 kg  
 Fuze: VGU-1 PD or VM-60 MT  
 Filler type & wt: TNT, 2.76 kg

Using weapon(s): Coastal gun M-58  
 Remarks: A Model PS-42 practice round exists.  
 It has two white bands on ogive and white cross on base

Figure 2-104. Russian 130-mm SAP-HE Projectile Model OF-3S-42

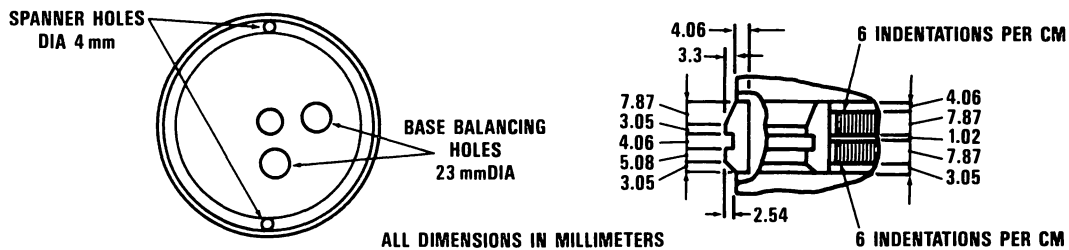
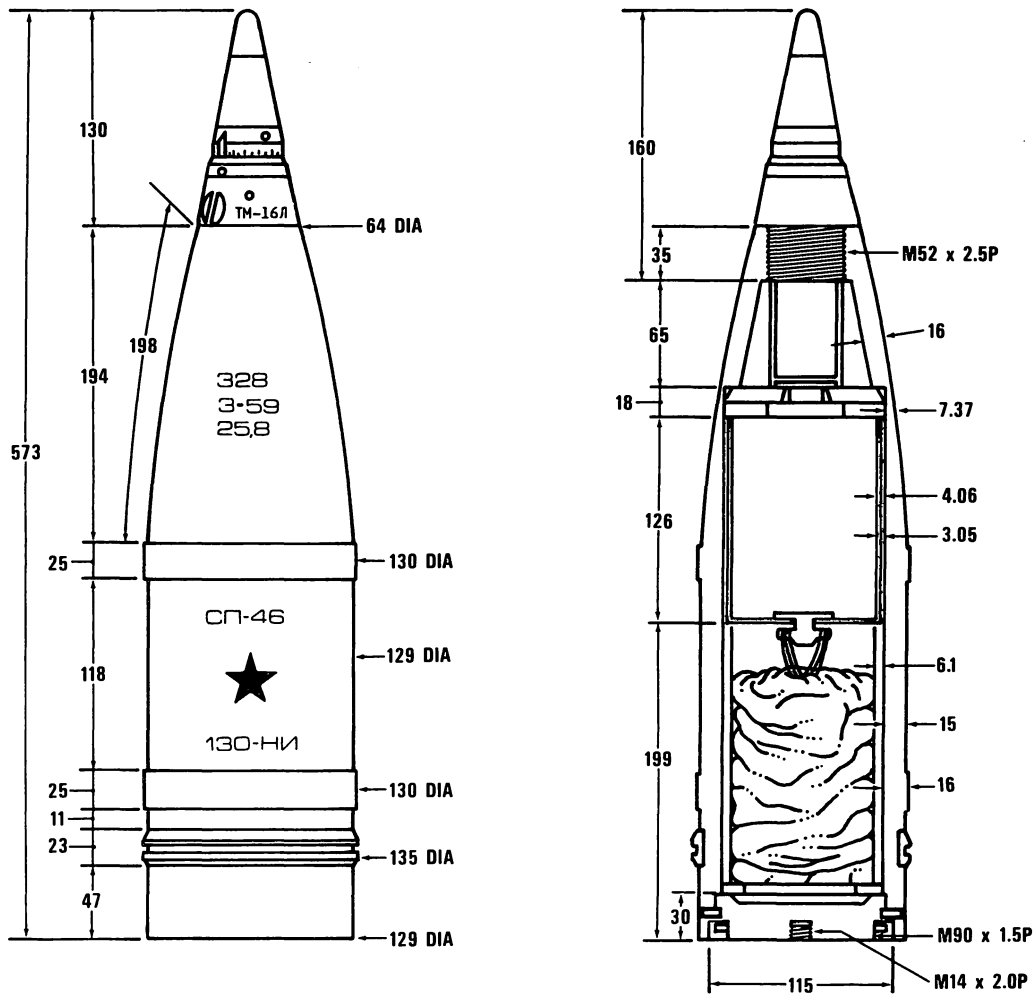


Neg. 533386

Projectile fuze wt: 32.80 kg  
 Fuze: V-429 PD  
 Filler type & wt: WP, 3.23 kg

Using weapon(s): Field gun M-46  
 Remarks: Uses bursting charge tetryl and RDX

Figure 2-105. Russian 130-mm Target Marker Smoke Projectile Model DTS-1



ALL DIMENSIONS IN MILLIMETERS

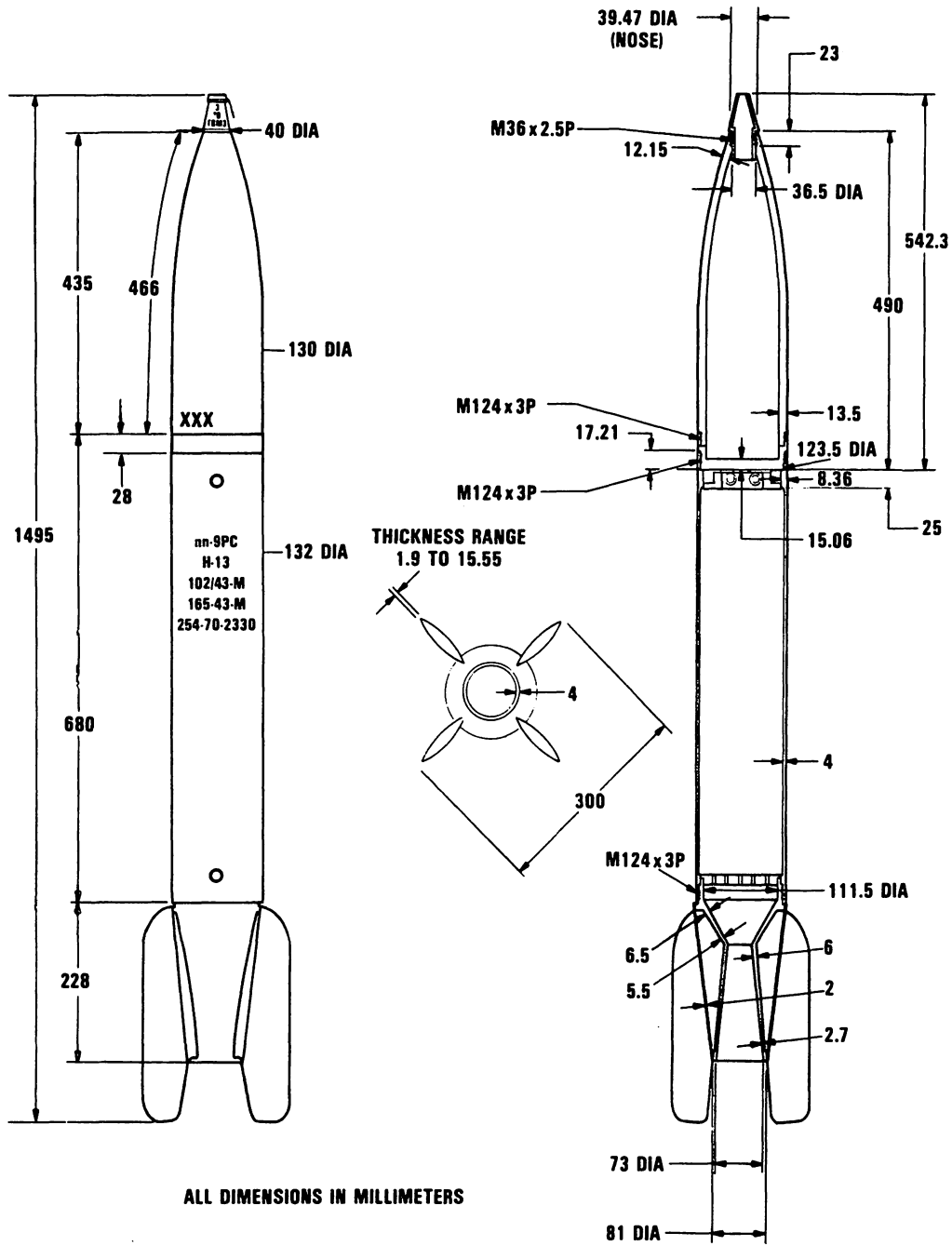
6 INDENTATIONS PER CM

Neg. 533385

Projectile fuze wt: 25.80 kg  
 Fuze: TM-16L MT and VM-60 MT  
 Filler type & wt: Black powder, 0.78 kg;  
 illuminating composition,  
 2.38 kg

Using weapon(s): Field gun M-46  
 Remarks: White body with red star

Figure 2-106. Russian 130-mm Illuminating Projectile Model SP-46

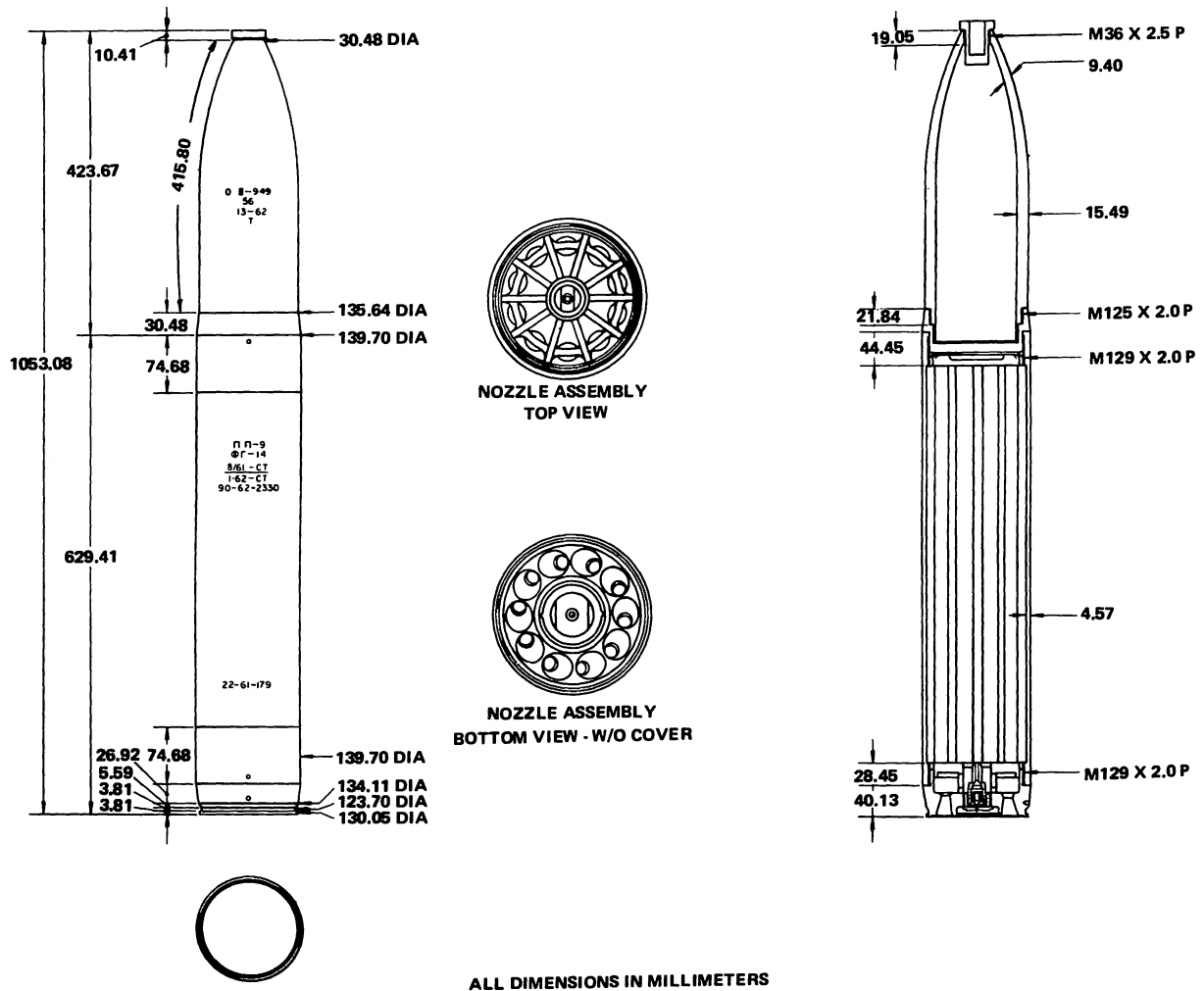


Neg. 001323

Projectile fuze wt: 43 kg  
Fuze: GVMZ PD  
Filler type & wt: TNT/tetryl, 4.78 kg

Using weapon(s): M-13 16-round MRL  
Remarks: Still used in Third World countries

Figure 2-107. Russian 132-mm Frag-HE Rocket Model M-13-UK



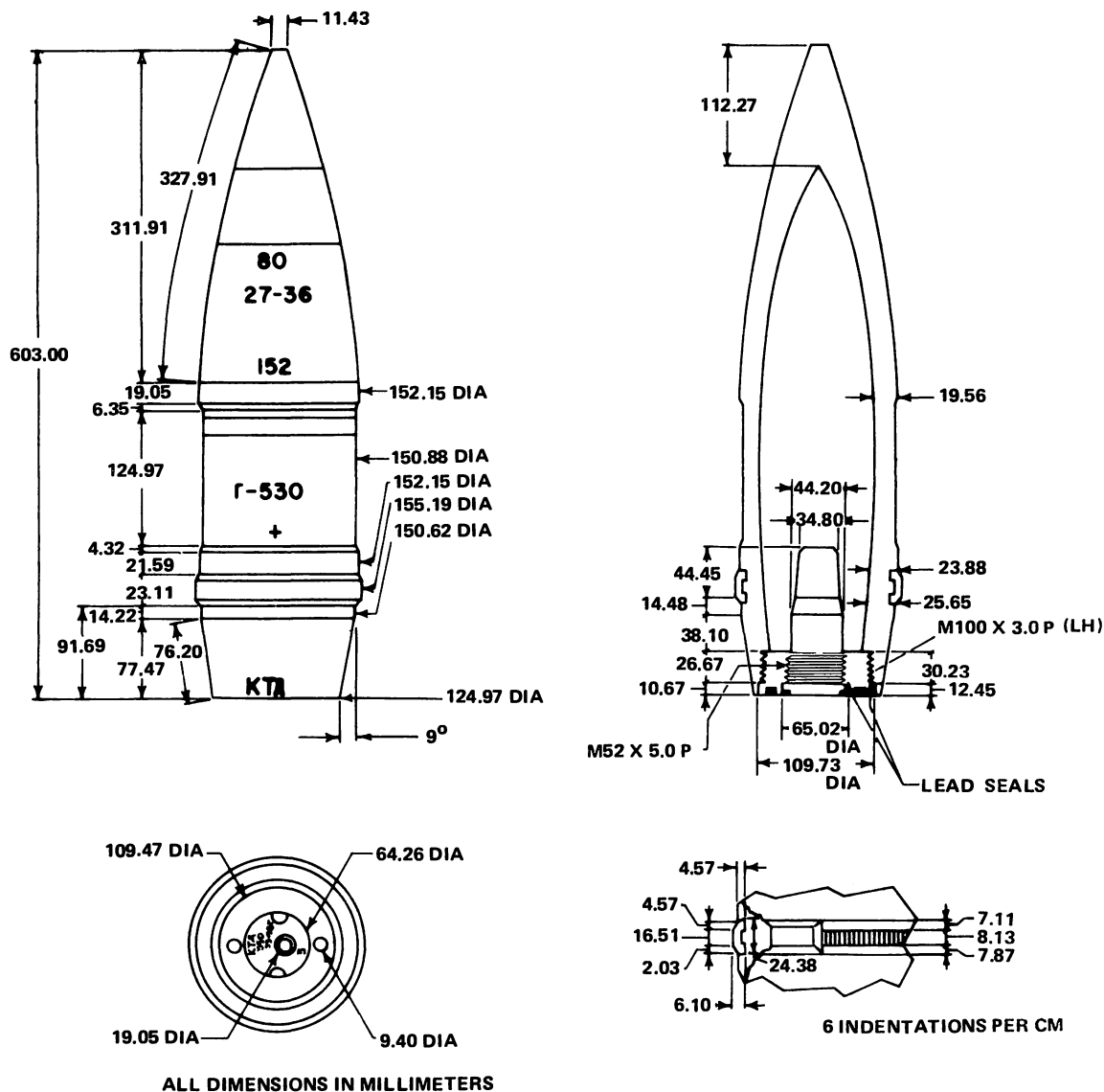
Neg. 502904

Projectile fuze wt: 39.66 kg  
 Fuze: V-25 PD  
 Filler type & wt: TNT, 3.68 kg

Using weapon(s): Truck-mounted BM-14-16 and  
 BM-14-17 launchers and 16-rd  
 towed launcher

Remarks: Shown without fuze

Figure 2-108. Russian 140-mm Frag-HE Rocket Model M-14-OF

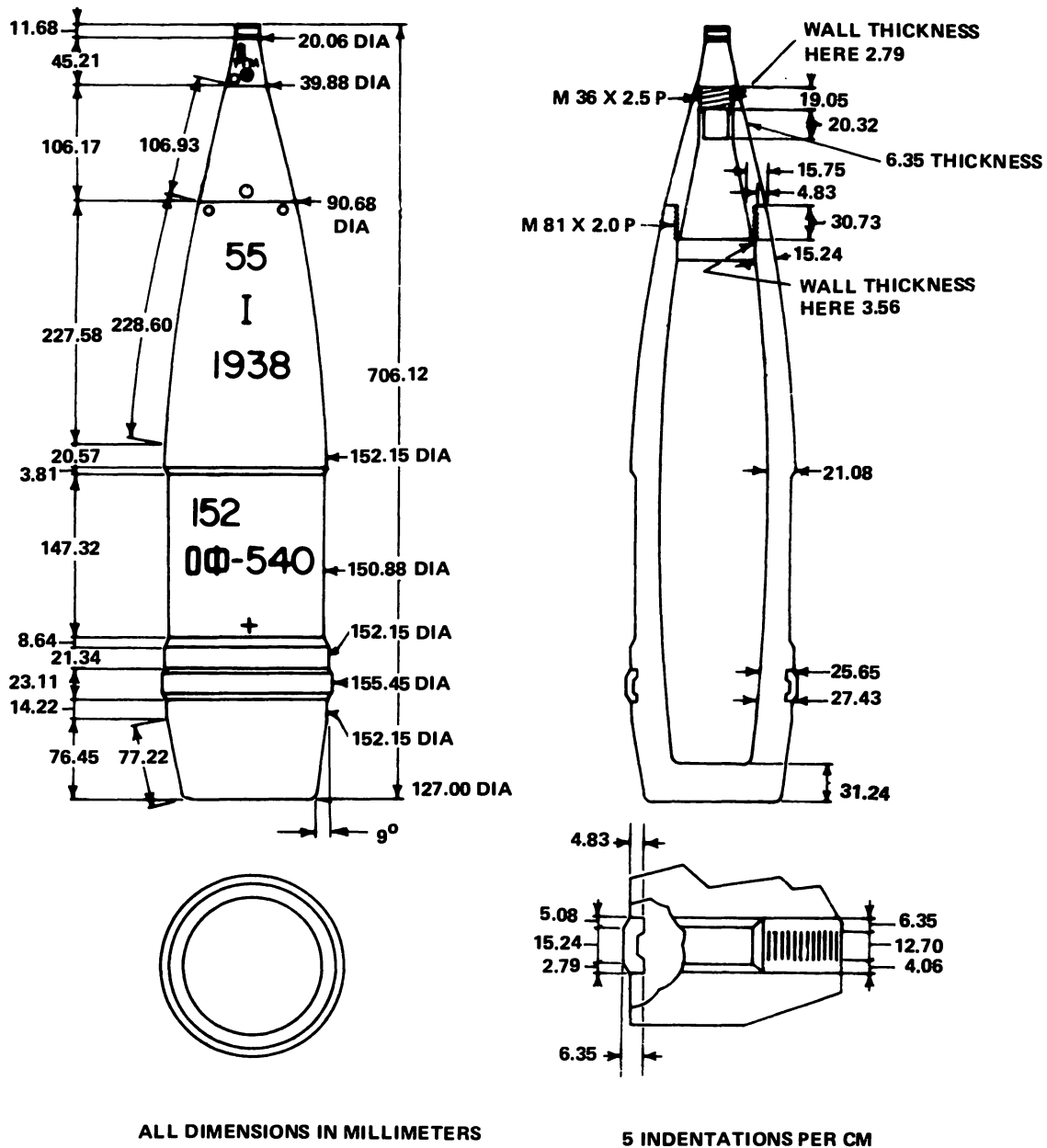


Neg. 502907

Projectile fuze wt: 40 kg  
 Fuze: KTD BD  
 Filler type & wt: TNT, 5.10 kg

Using weapon(s): Howitzers ML-20, D-1 and D-20, SP gun-howitzer 2S3, and assault gun ML-20S  
 Remarks: Also uses DBT BD fuze

Figure 2-109. Russian 152-mm CP Projectile Model G-530



Neg. 502905

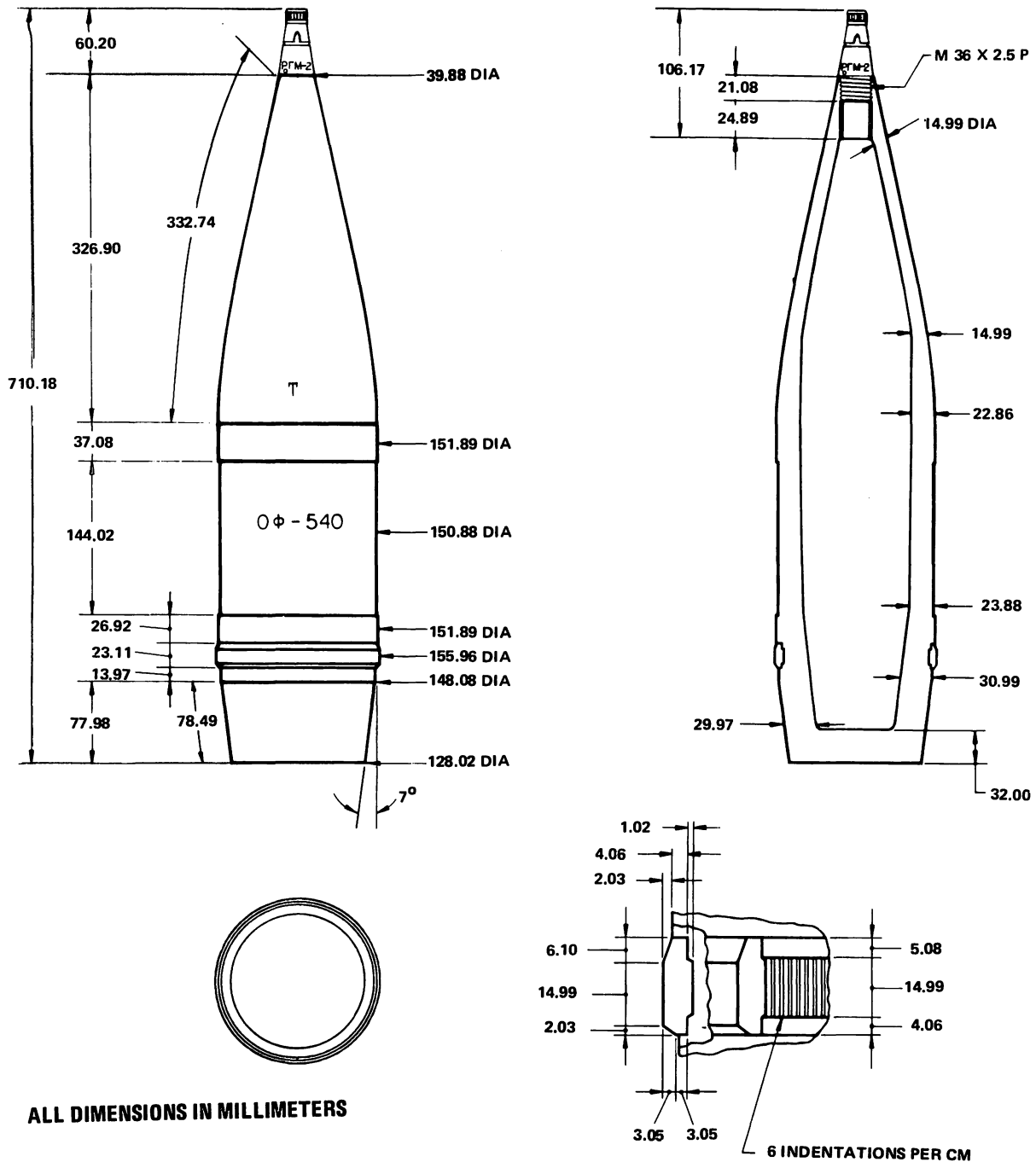
Projectile fuze wt: 43.56 kg  
 Fuze: RGM PD  
 Filler type & wt: TNT, 6.24 kg

Using weapon(s): Howitzers ML-20 and D-20, SP  
 gun-howitzer 2S3, and assault  
 gun ML-20S

Remarks: A two-piece OF-540B projectile also  
 exists

Figure 2-110. Russian 152-mm Frag-HE Projectile Model OF-540 (Two-Piece)



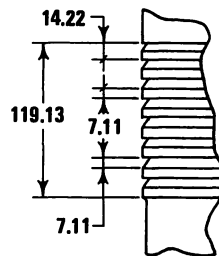
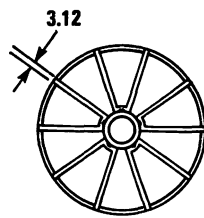
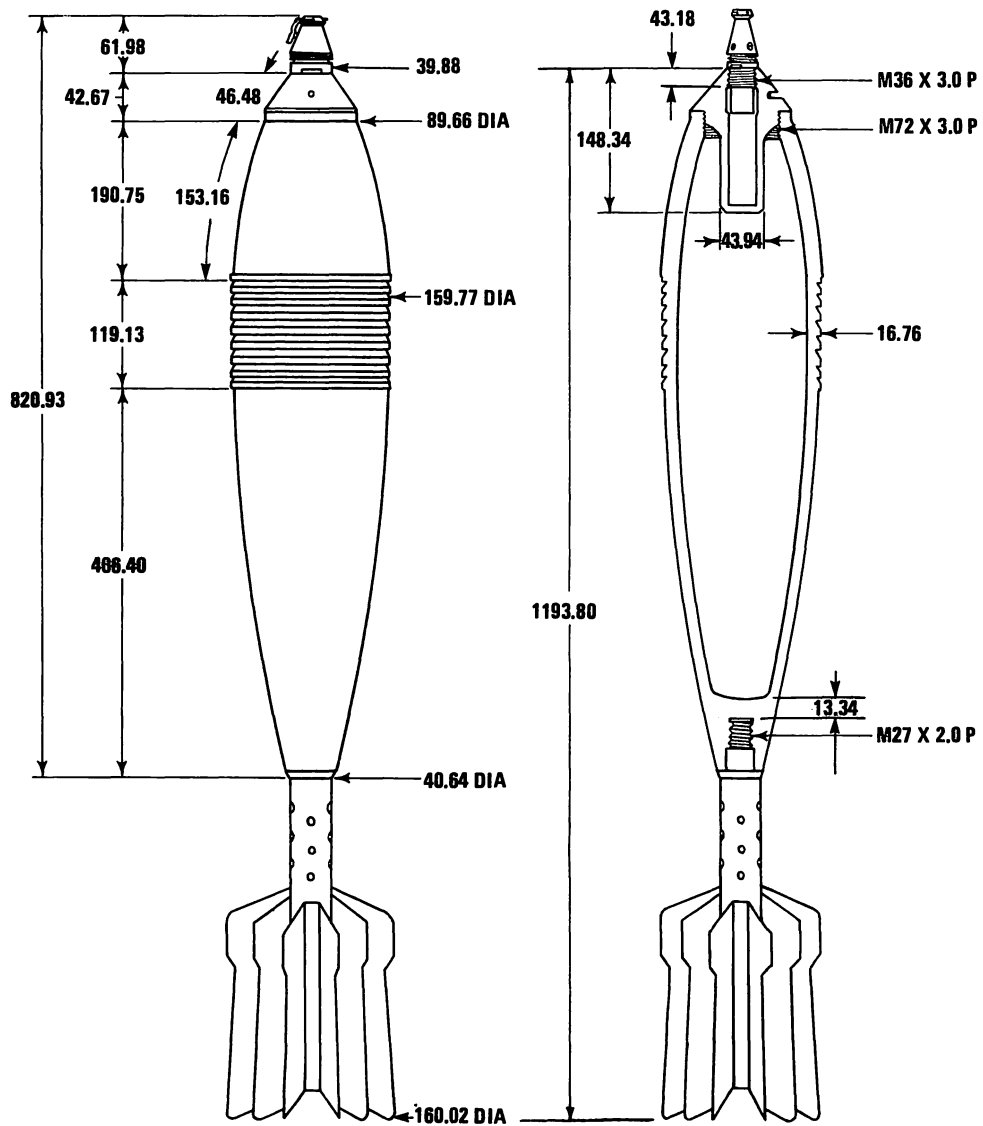


Neg. 502906

Projectile fuzed wt: 43.51 kg  
 Fuze: RGM-2 PD  
 Filler type & wt: TNT, 6.24 kg

Using weapon(s): Howitzers ML-20 and D-20, SP  
 gun-howitzer 2S3, and assault  
 gun ML-20S  
 Remarks: Also uses TSQ fuze D-1U

Figure 2-111. Russian 152-mm Frag-HE Projectile Model OF-540



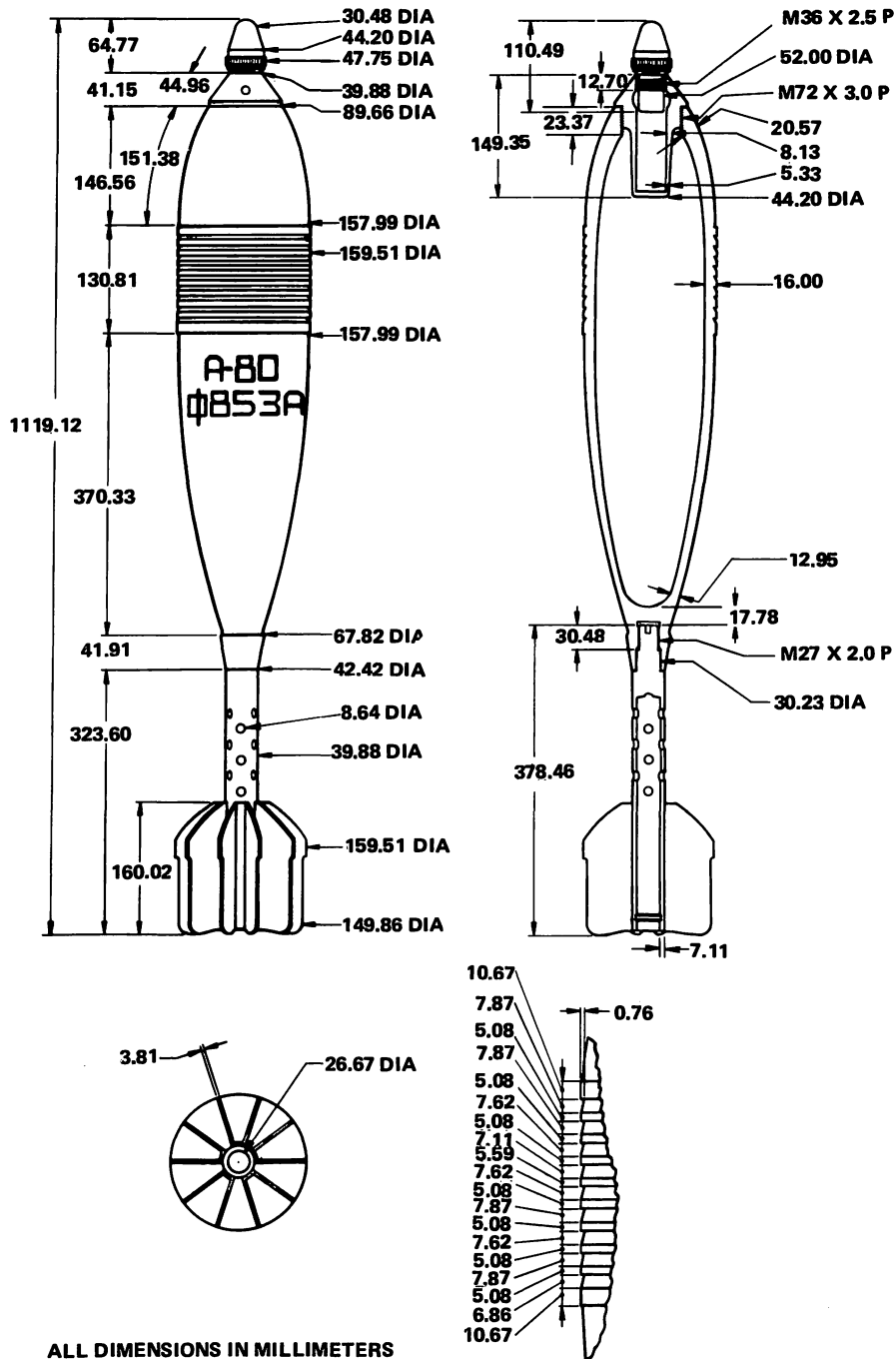
ALL DIMENSIONS IN MILLIMETERS

Neg. 502908

Projectile fuzed wt: 39.95 kg  
 Fuze: GVMZ-7 PD  
 Filler type & wt: TNT, 7.39 kg

Using weapon(s): Mortar M1943  
 Remarks: None

Figure 2-112. Russian 160-mm HE Projectile Model F-852

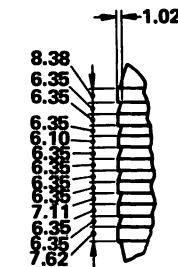
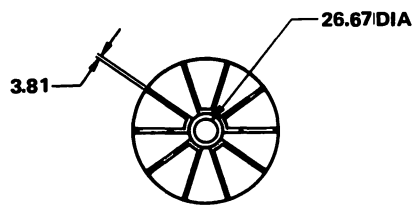
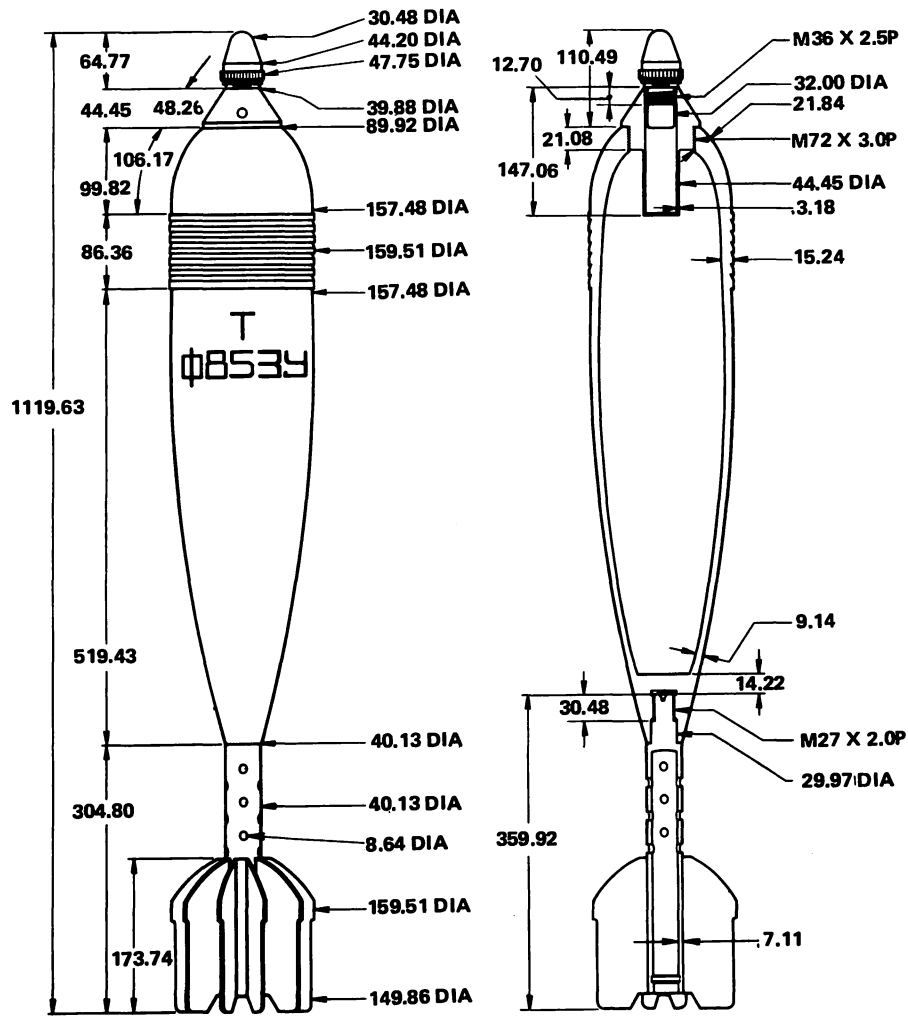


Neg. 502910

Projectile fuze wt: 41.18 kg  
 Fuze: GVMZ-7 PD  
 Filler type & wt: Amatol, 7.73 kg

Using weapon(s): Mortar M-160  
 Remarks: Shown with fuze cover

Figure 2-113. Russian 160-mm HE Projectile Model F-853A



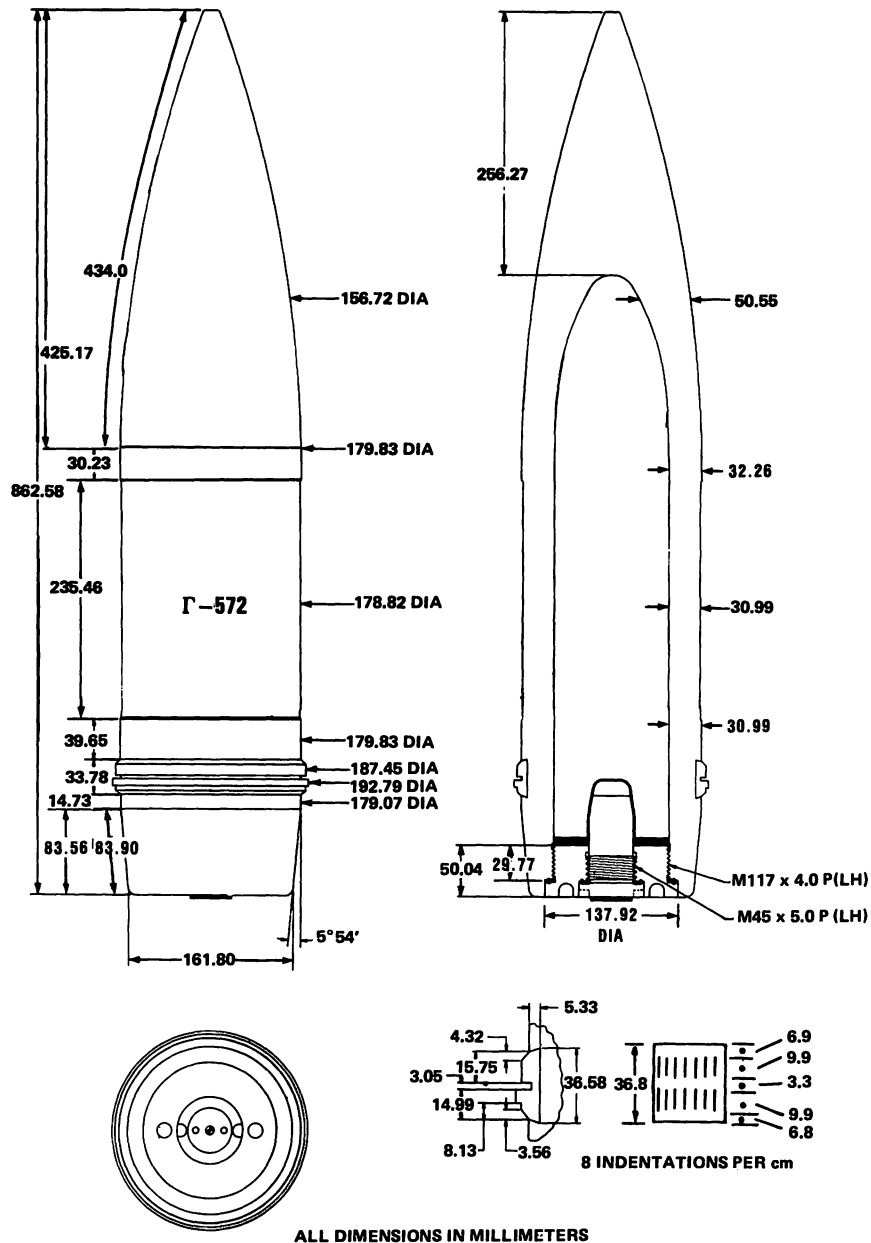
ALL DIMENSIONS IN MILLIMETERS

Neg. 502909

Projectile fuze wt: 41.18 kg  
 Fuze: GVMZ-7 PD  
 Filler type & wt: TNT, 8.99 kg

Using weapon(s): Mortar M-160  
 Remarks: Shown with fuze cover

Figure 2-114. Russian 160-mm HE Projectile Model F-853U

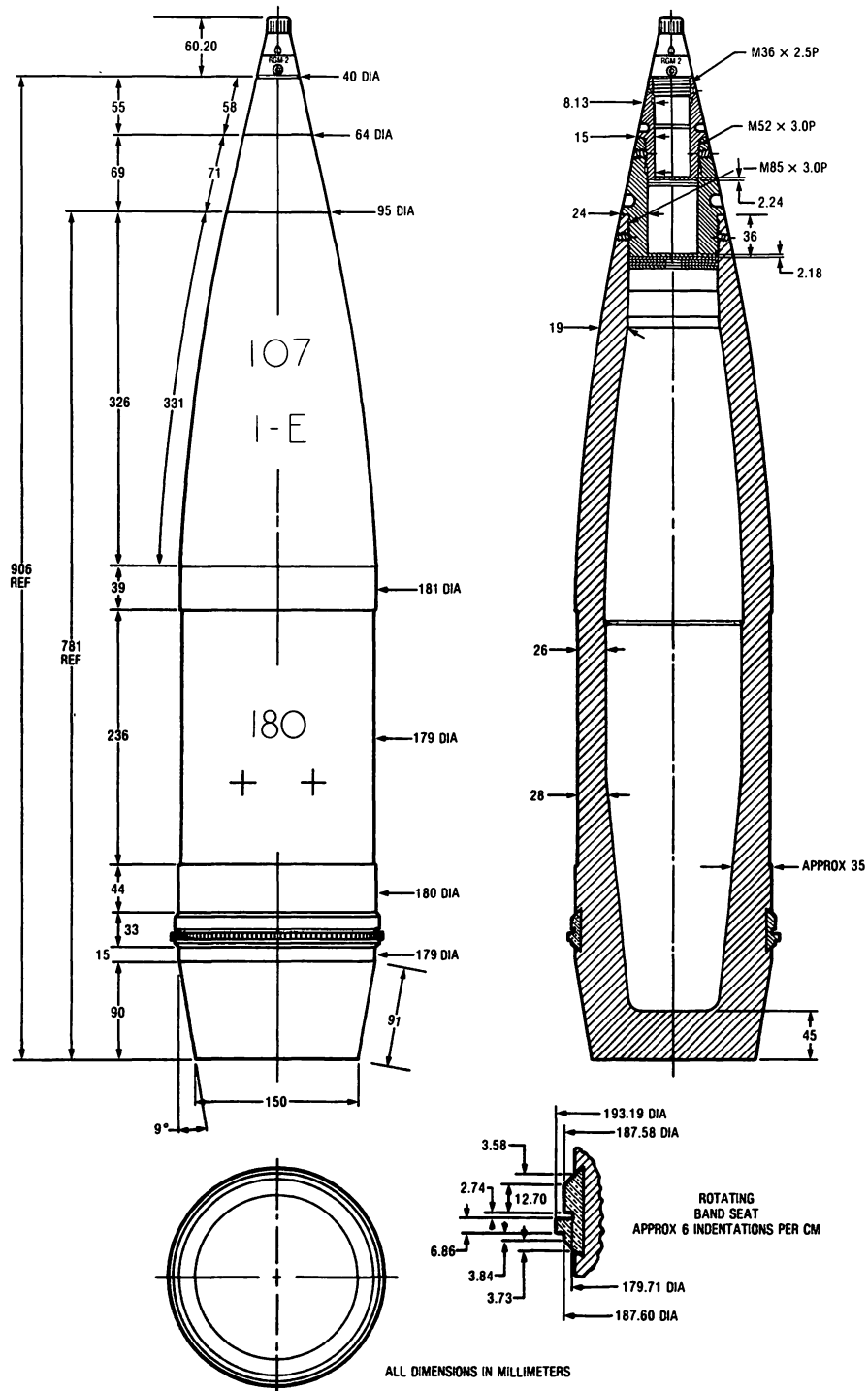


Neg. 527607

Projectile fuzed wt: 97.50 kg  
 Fuze: DBT BD  
 Filler type & wt: TNT, 7.35 kg

Using weapon(s): Gun S-23  
 Remarks: None

Figure 2-115. Russian 180-mm CP Projectile Model G-572

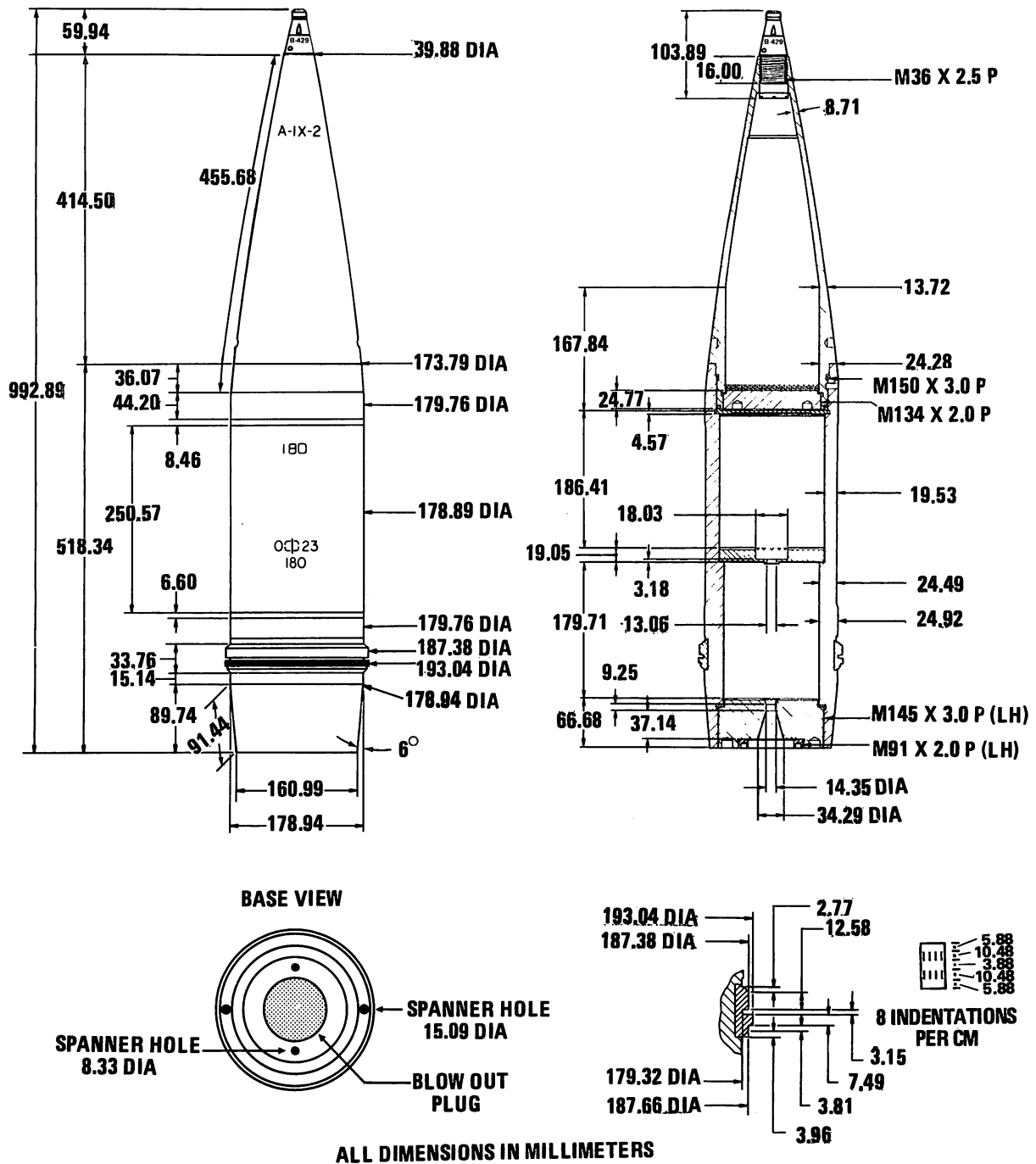


**Neg. 533387**

**Projectile fuze wt: 88 kg**  
**Fuze: RGM-2 PD**  
**Filler type & wt: TNT, 10.70 kg**

**Using weapon(s): Gun S-23**  
**Remarks: None**

**Figure 2-116. Russian 180-mm HE Projectile Model F-572**

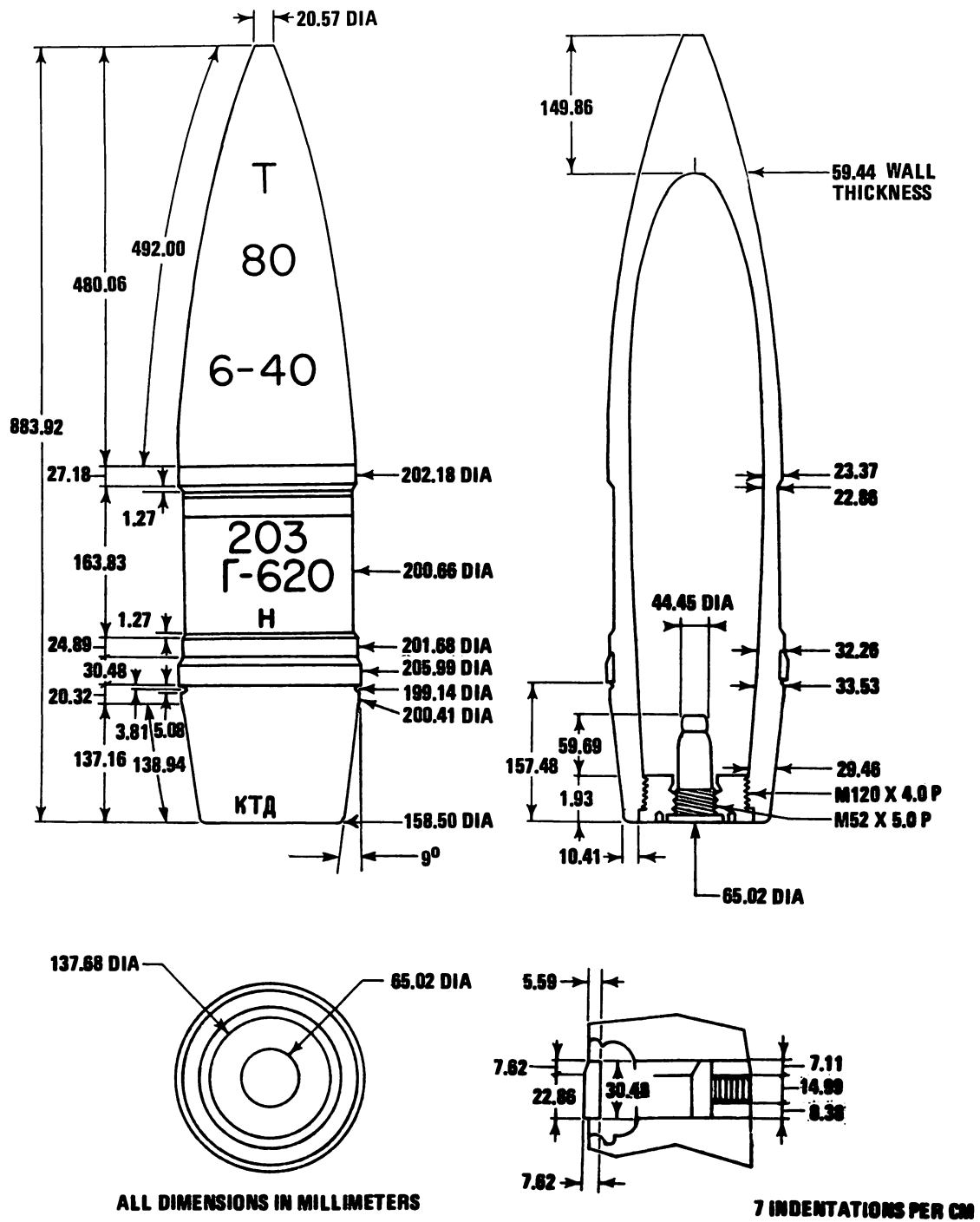


Neg. 520521

Projectile fuze wt: 84 kg  
 Fuze: V-429 PD  
 Filler type & wt: RDX/aluminum, 5.62 kg

Using weapon(s): Gun S-23  
 Remarks: None

Figure 2-117. Russian 180-mm Frag-HE-RA Projectile Model OF-23



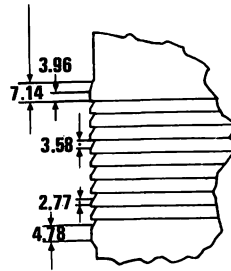
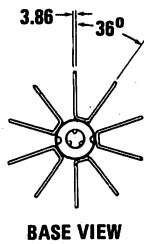
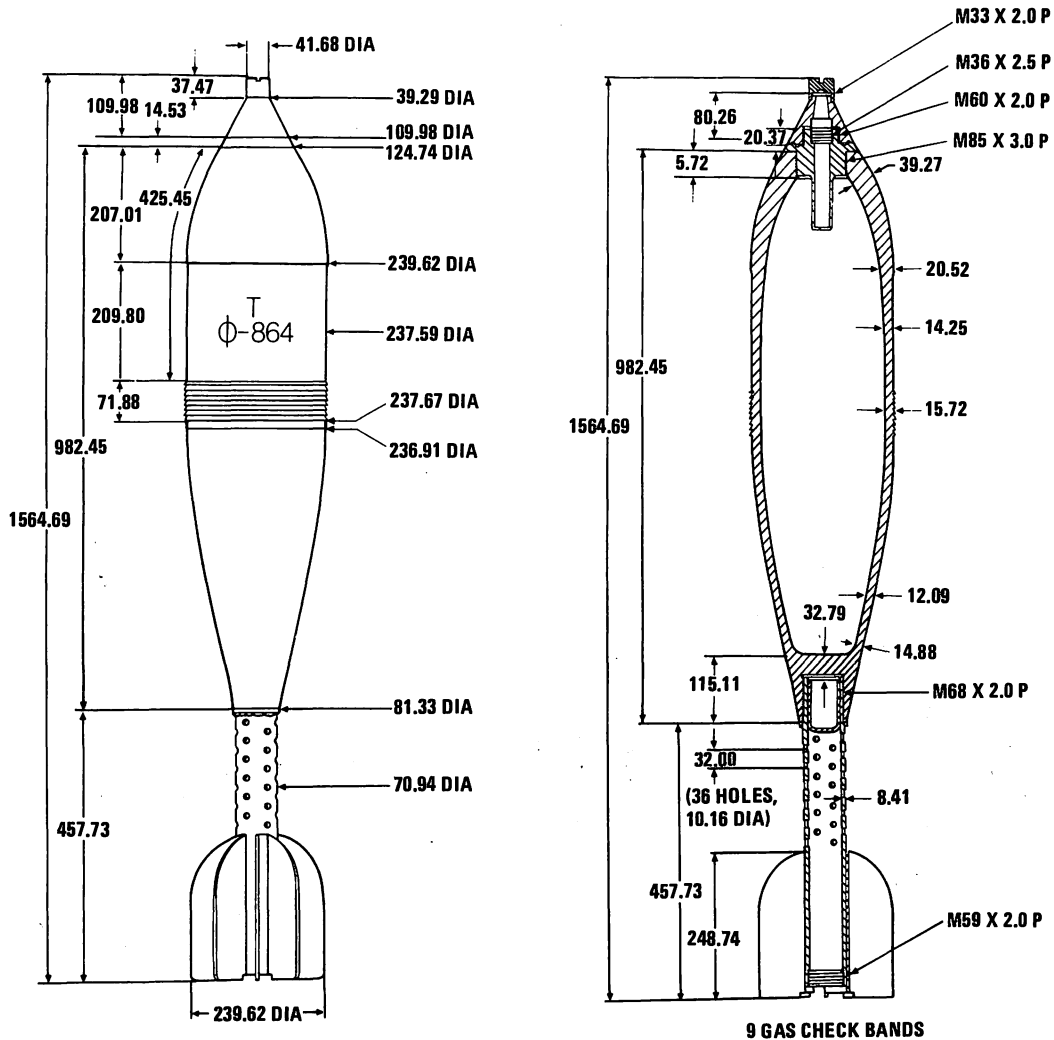
Neg. 502911

Projectile fuze wt: 100 kg  
 Fuze: KTD BD  
 Filler type & wt: TNT, 15.36 kg

Using weapon(s): Howitzers B-4 and B-4M  
 Remarks: Also uses KTD BD fuze

Figure 2-118. Russian 203-mm CP Projectile Model G-620





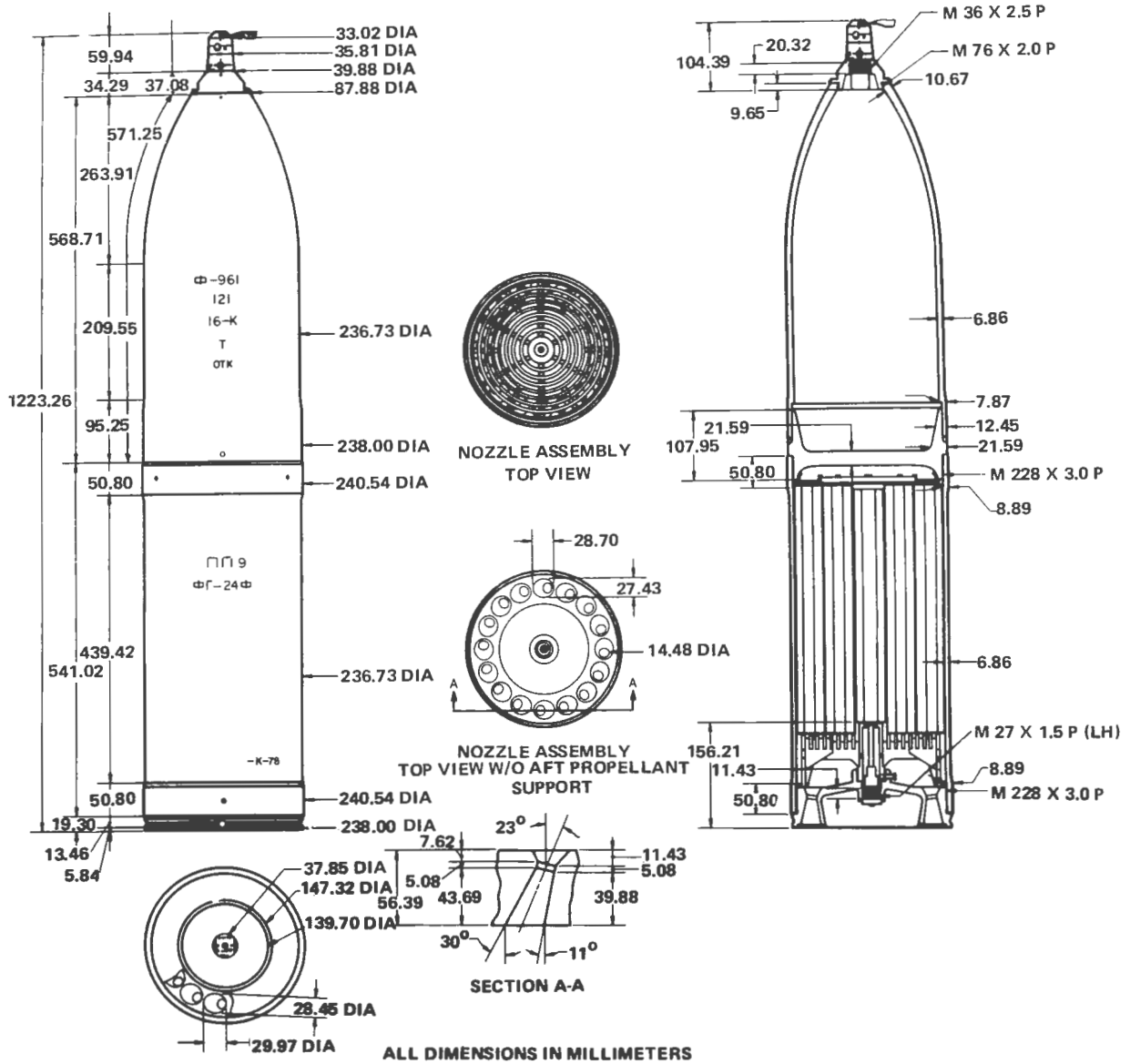
ALL DIMENSIONS IN MILLIMETERS

Neg. 520522

Projectile fuze wt: 130.84 kg  
 Fuze: GVMZ-7 PD  
 Filler type & wt: TNT, 31.93 kg

Using weapon(s): Mortar M-240, 2S4  
 Remarks: Shown with nose plug.  
 Also uses M-16 PD fuze

Figure 2-119. Russian 240-mm HE Projectile Model F-864

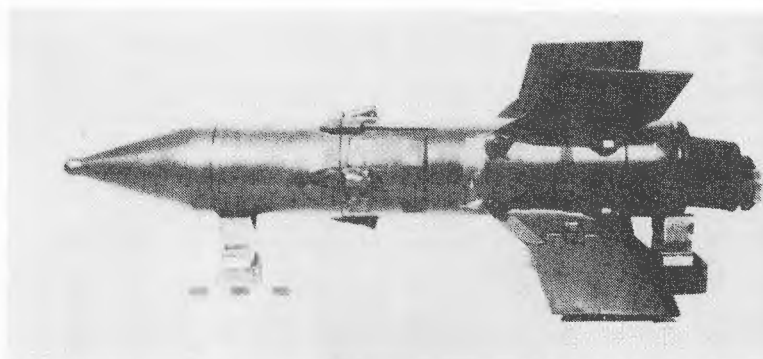


Neg. 502912

Projectile fuze wt: 112.53 kg  
Fuze: V-24 PD  
Filler type & wt: TNT, 27.15 kg

Using weapon(s): 12-tube launcher on AT-S  
artillery tractor and BM-24  
launcher on ZIL-151 truck  
Remarks: Two other versions exist

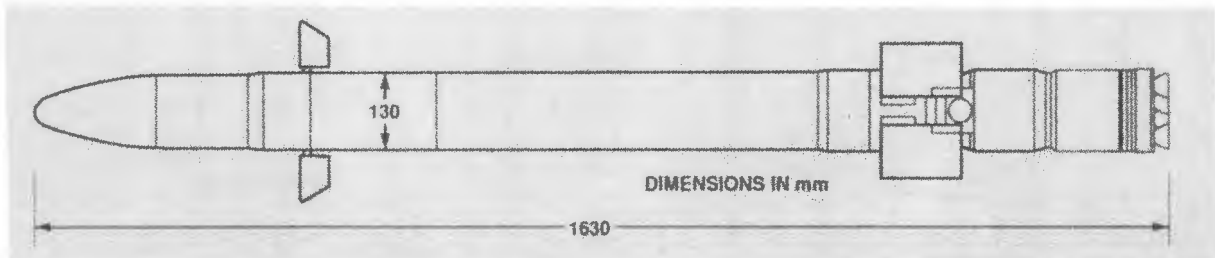
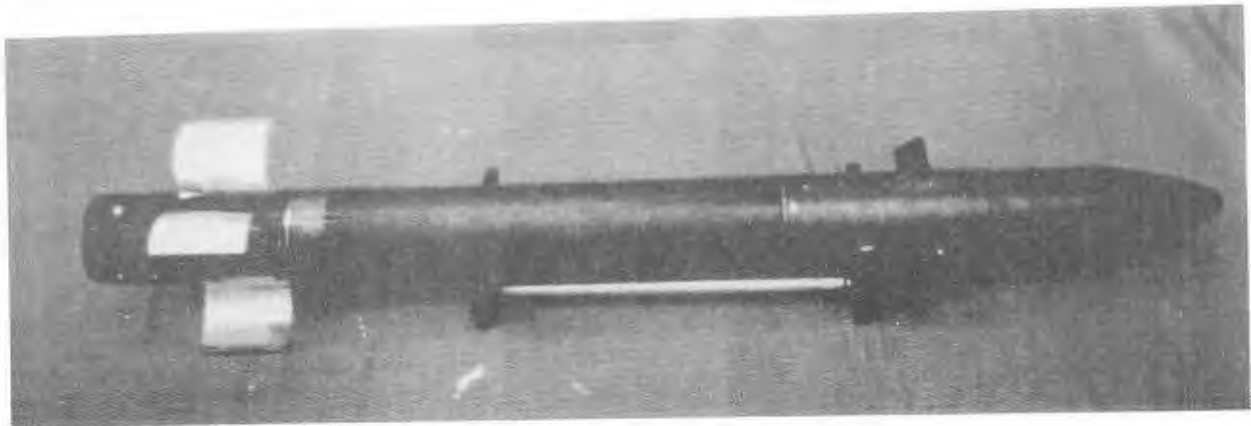
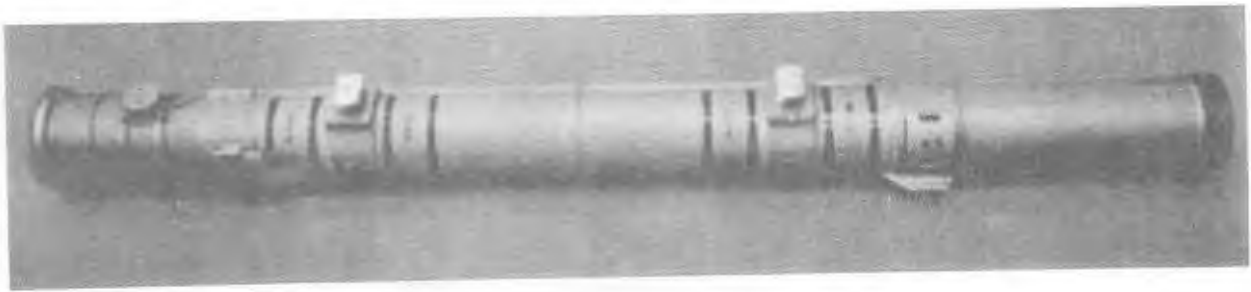
Figure 2-120. Russian 240-mm HE Rocket Model F-961



Missile length: 864 mm  
Wing span: 370 mm  
Missile mass: 11.3 kg

Using weapon(s): Man portable, C Variant on the  
BRDM-1 & 2  
Remarks: NATO designator AT-3A/SAGGER A  
Also a C Variant

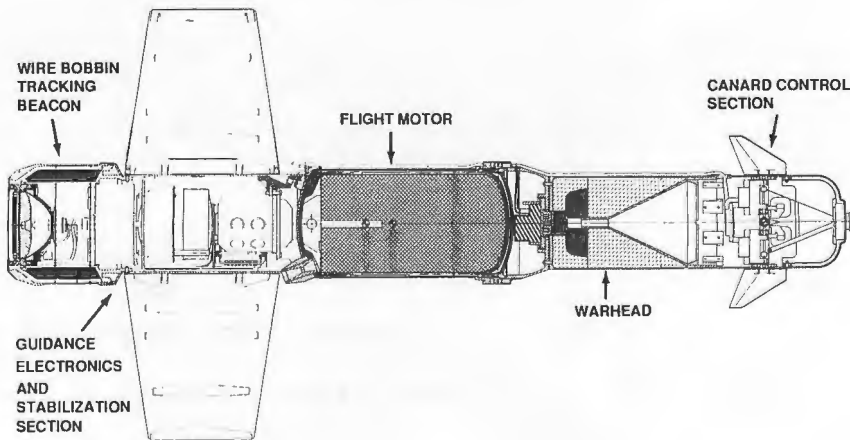
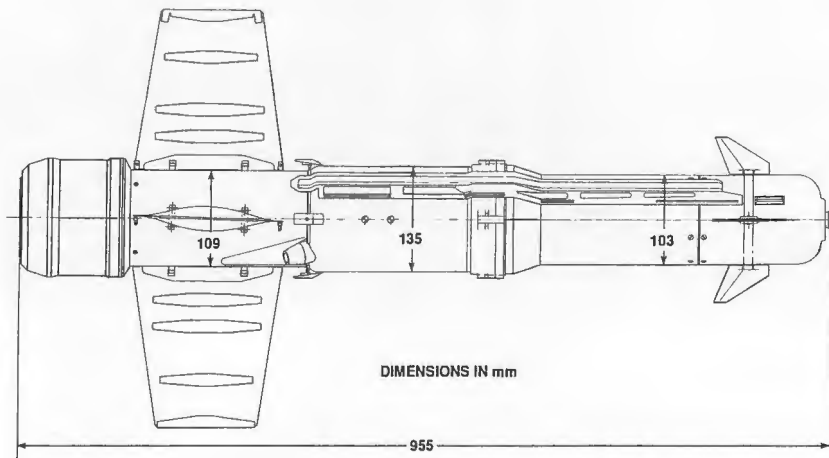
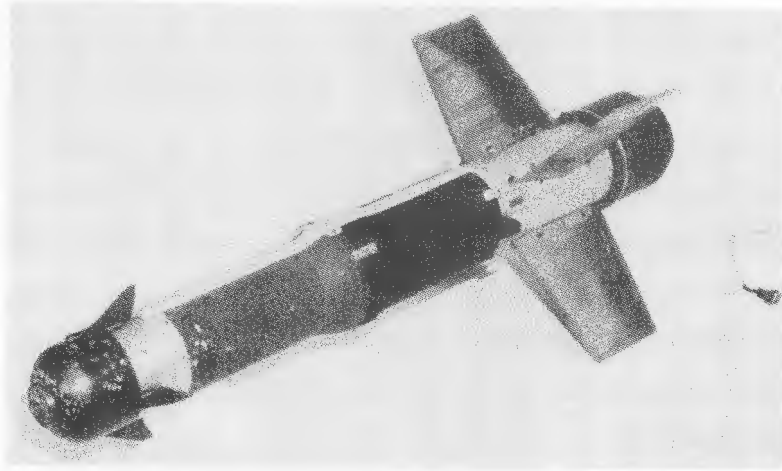
Figure 2-121. Russian 120-mm ATGM Model 9M14



Using weapon(s): Hind E&F, Helix-B, Havoc,  
Sokol

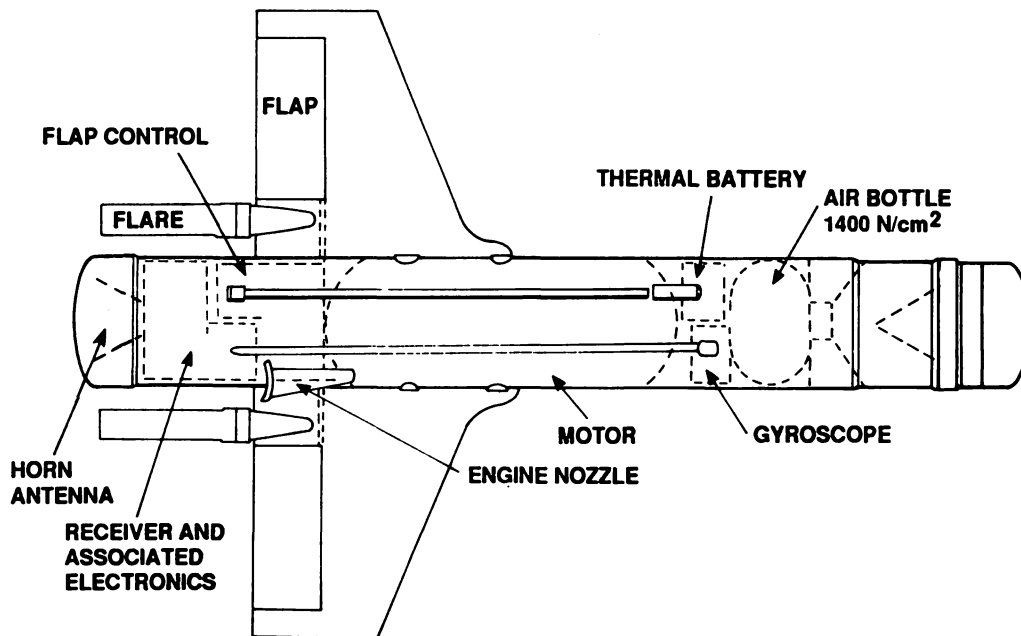
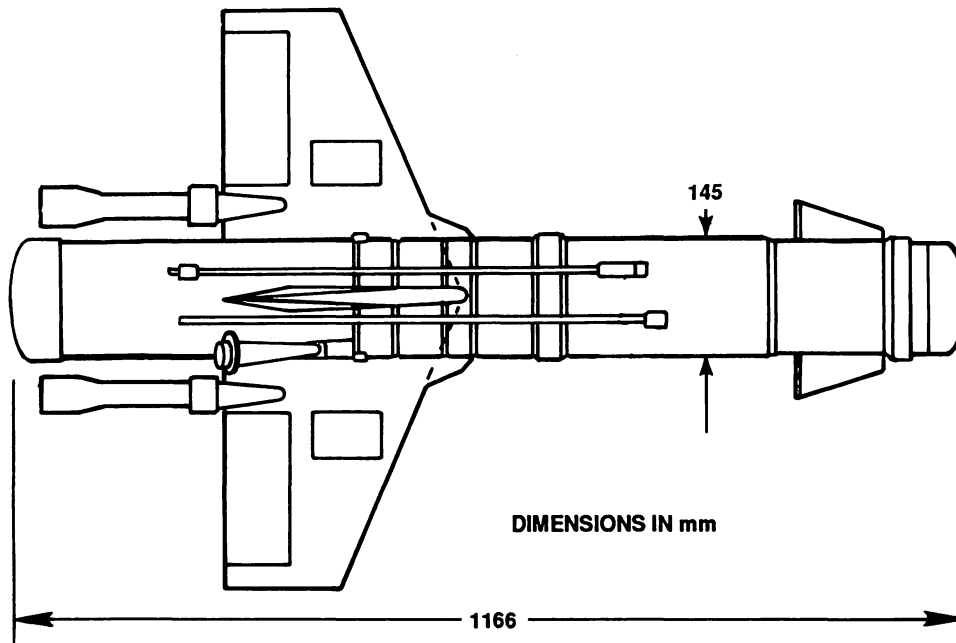
Remarks: NATO designator AT-6 SPIRAL

Figure 2-122. Russian 130-mm ATGM Model Unknown



Using weapon(s):  
Remarks: NATO designator AT-5 SPANDREL

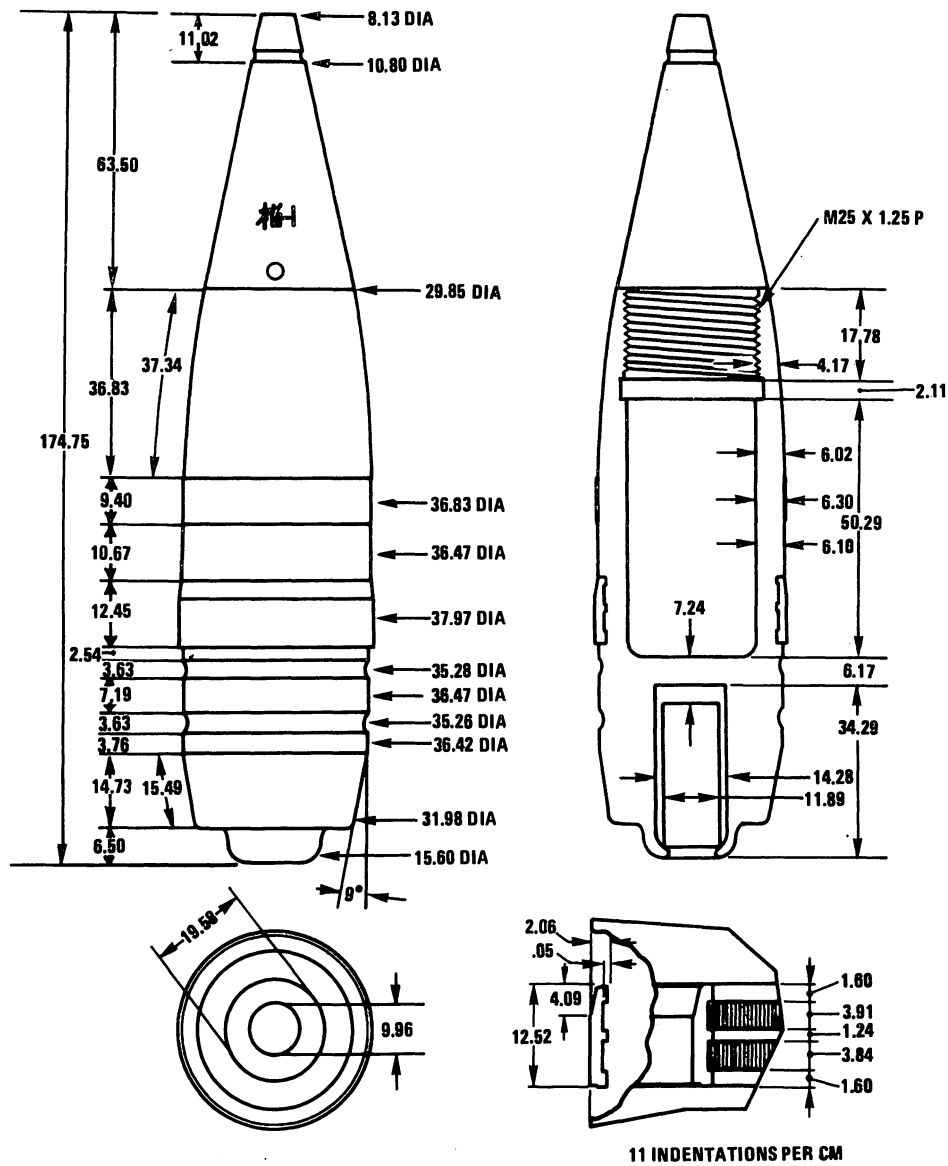
Figure 2-123. Russian 135-mm ATGM Model Unknown



Wing span: 680 mm  
 Missile mass: 31.5 kg  
 Explosive filler: 4.8 kg

Using weapon(s): BRDM-2, HIND-D  
 Remarks: NATO designator AT-2C SWATTER

Figure 2-124. Russian 145-mm ATGM Model Unknown



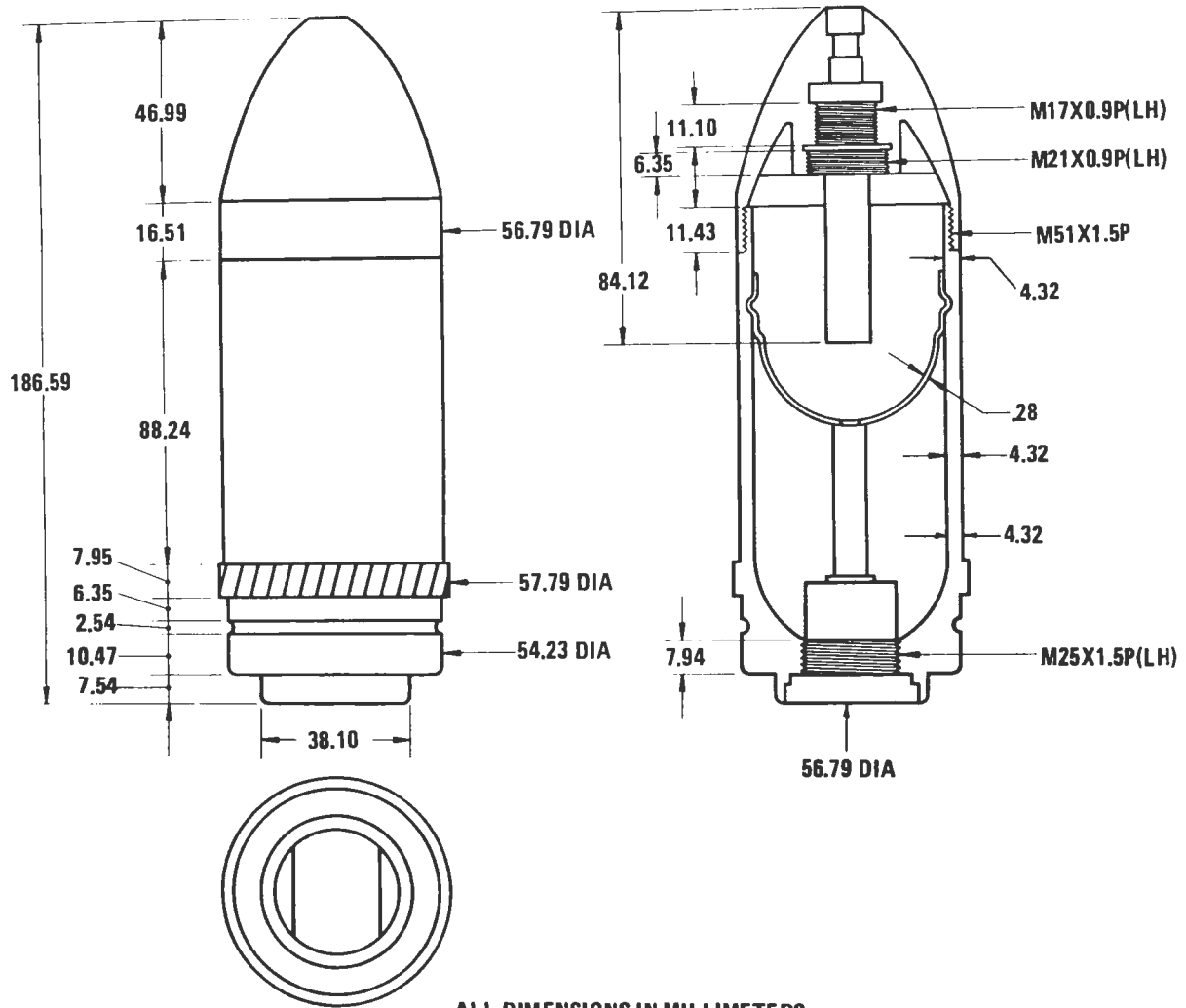
ALL DIMENSIONS IN MILLIMETERS

Neg. 520128

Projectile fuzed wt: 0.62 kg  
 Fuze: Type 1 PDS  
 Filler type & wt: RDX/aluminum, 0.04 kg

Using weapon(s): AA gun Type 55  
 Remarks: Patterned after former Soviet OR-167 projectile

Figure 2-125. Chinese 37-mm Frag-T Projectile Type ?



ALL DIMENSIONS IN MILLIMETERS

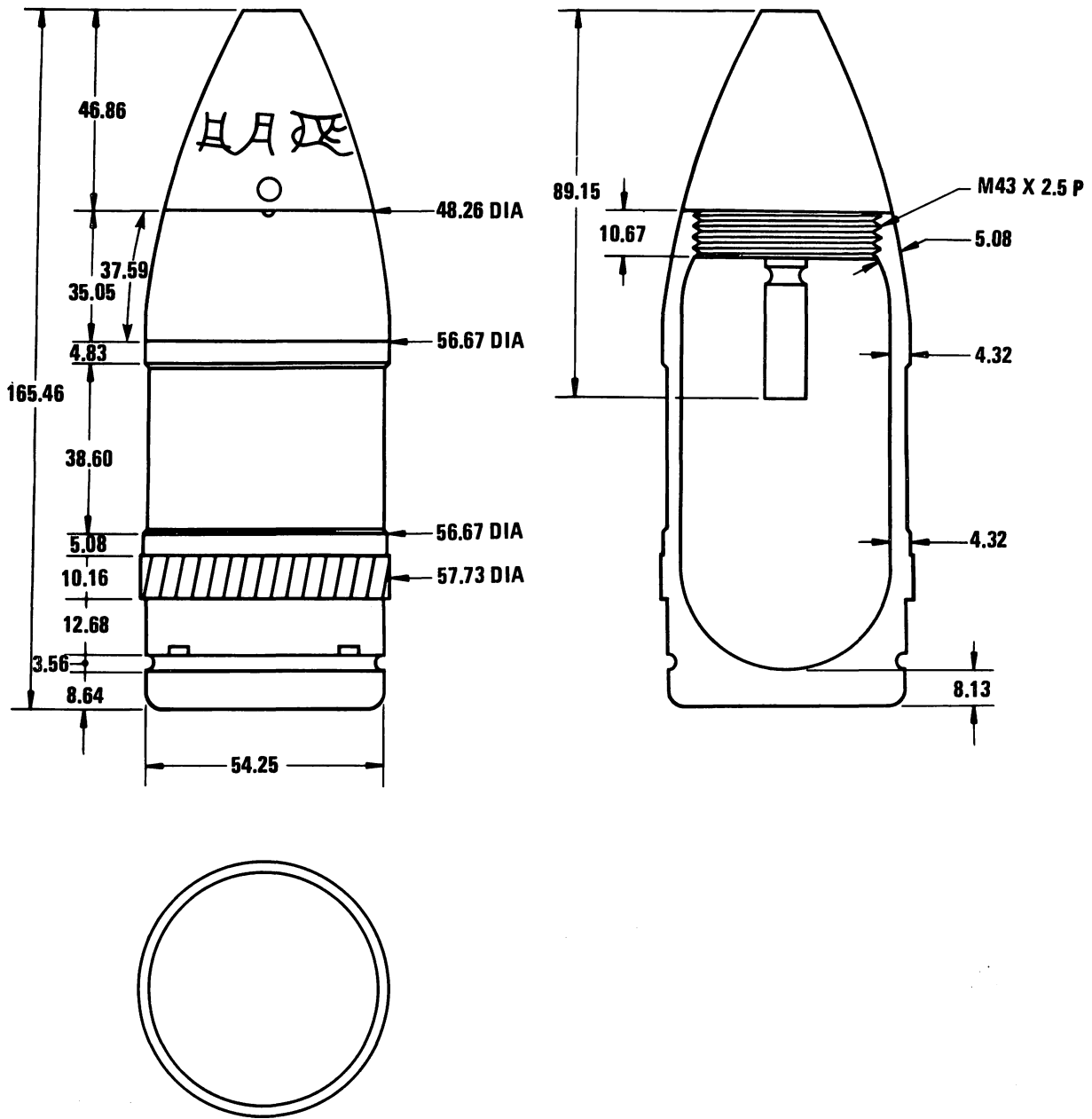
Neg. 502915

Projectile fuzed wt: 1.23 kg  
 Fuze: Type ? PIBD  
 Filler type & wt: TNT, 0.16 kg

Using weapon(s): Recoilless rifle Type 36  
 Remarks: Rotating band is integral part of projectile body. Projectile is copy of US M307

Figure 2-126. Chinese 57-mm HEAT Projectile Type ?





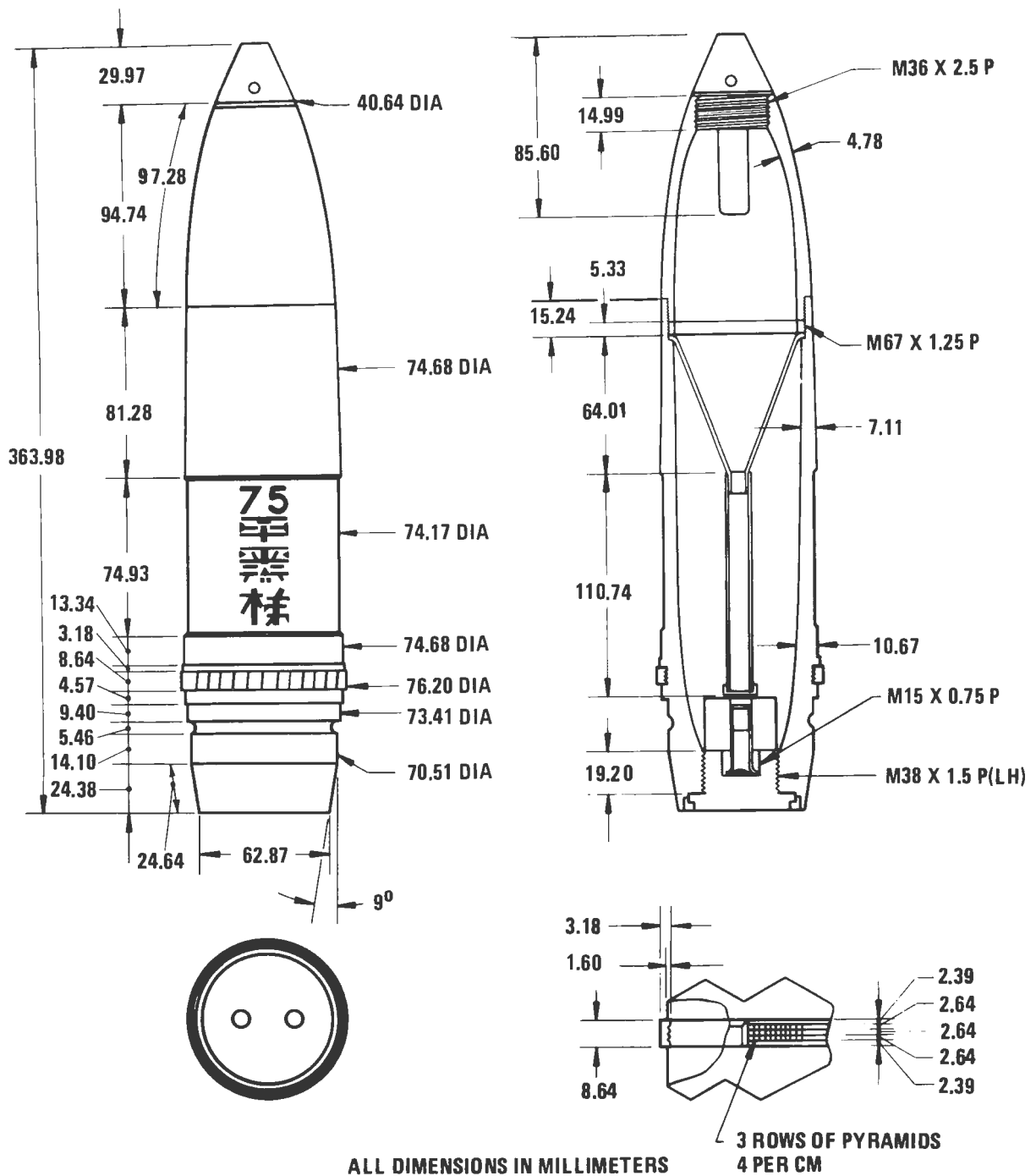
ALL DIMENSIONS IN MILLIMETERS

Neg. 502914

Projectile fuzed wt: 1.29 kg  
 Fuze: Type ? PD  
 Filler type & wt: TNT, 0.23 kg

Using weapon(s): Recoilless rifle Type 36  
 Remarks: Rotating band is integral part of projectile body. Projectile is copy of US M306

Figure 2-127. Chinese 57-mm HE Projectile Type ?

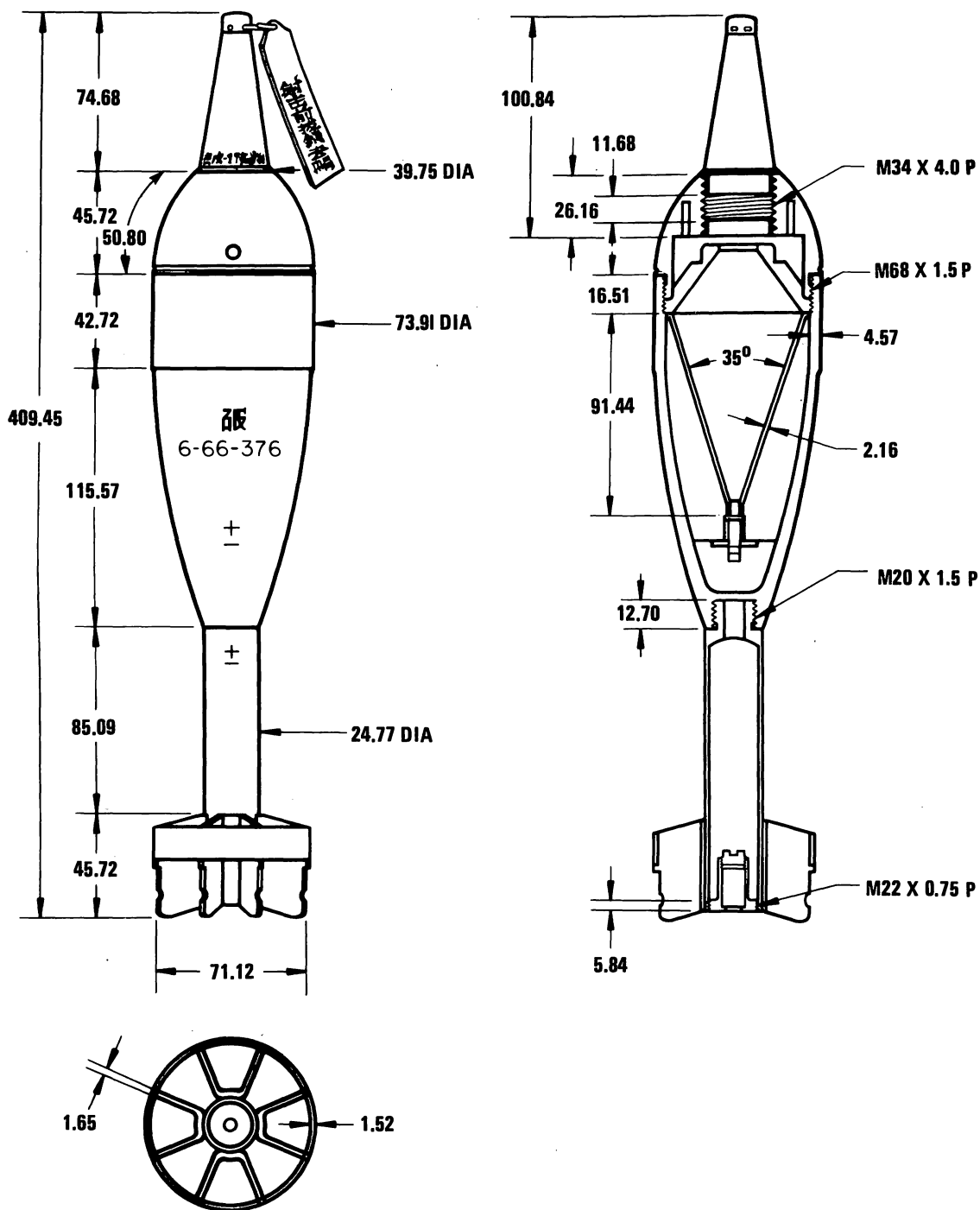


Neg. 502924

Projectile fuzed wt: 5.39 kg  
 Fuze: Type ? PIBD  
 Filler type & wt: RDX/TNT, 0.62 kg

Using weapon(s): Recoilless rifles Types 52 and 56  
 Remarks: Projectile is copy of US M310A1

Figure 2-128. Chinese 75-mm HEAT Projectile Type ?



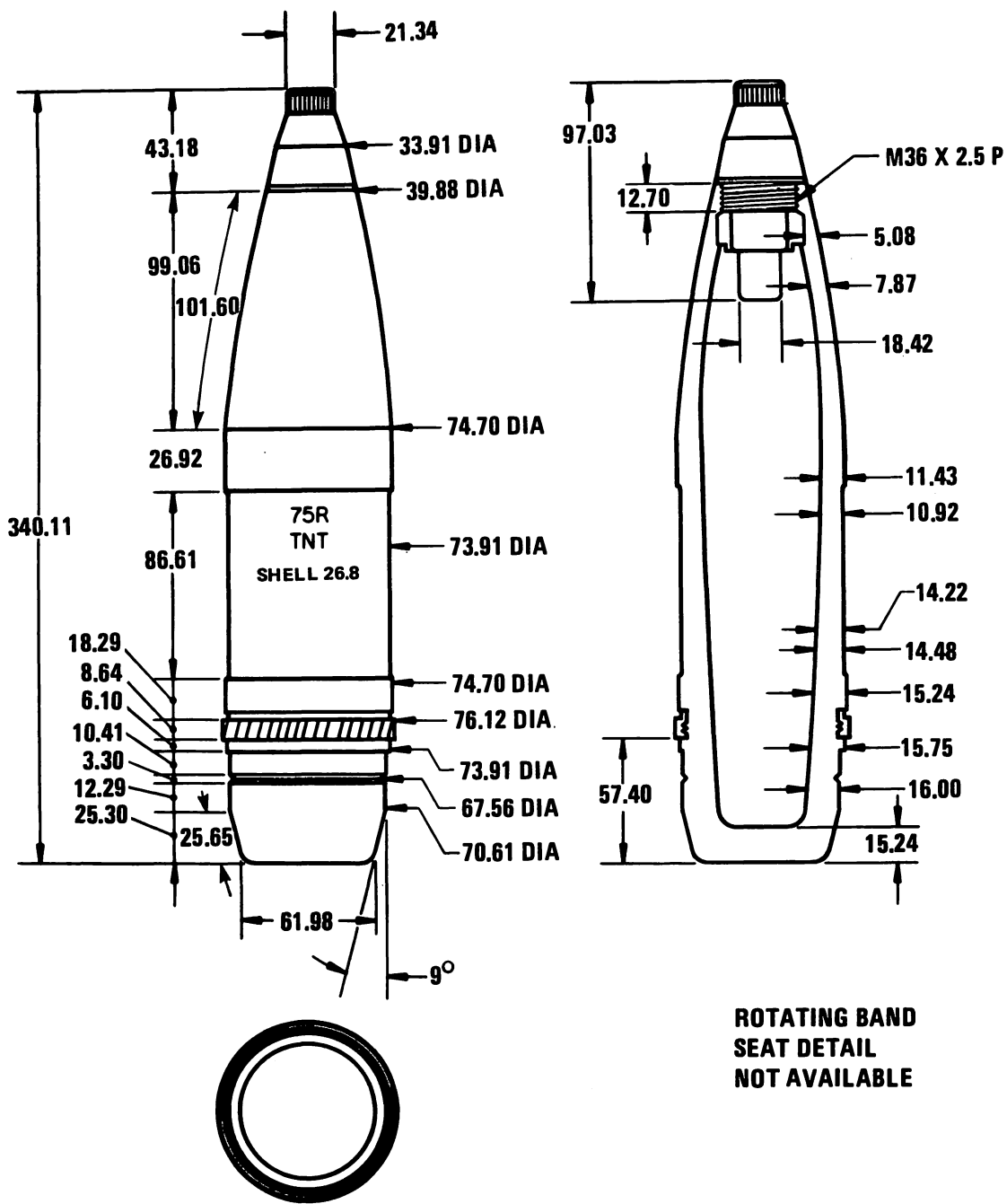
ALL DIMENSIONS IN MILLIMETERS

Neg. 502925

Projectile fuze wt: 2.81 kg  
 Fuze: Type 1 PIBD  
 Filler type & wt: RDX/TNT, 0.34 kg

Using weapon(s): Recoilless rifles Types 52 and 53  
 Remarks: Also uses TS-1 and TS-2 PIBD fuzes

Figure 2-129. Chinese 75-mm HEAT Projectile Type ?



ROTATING BAND  
SEAT DETAIL  
NOT AVAILABLE

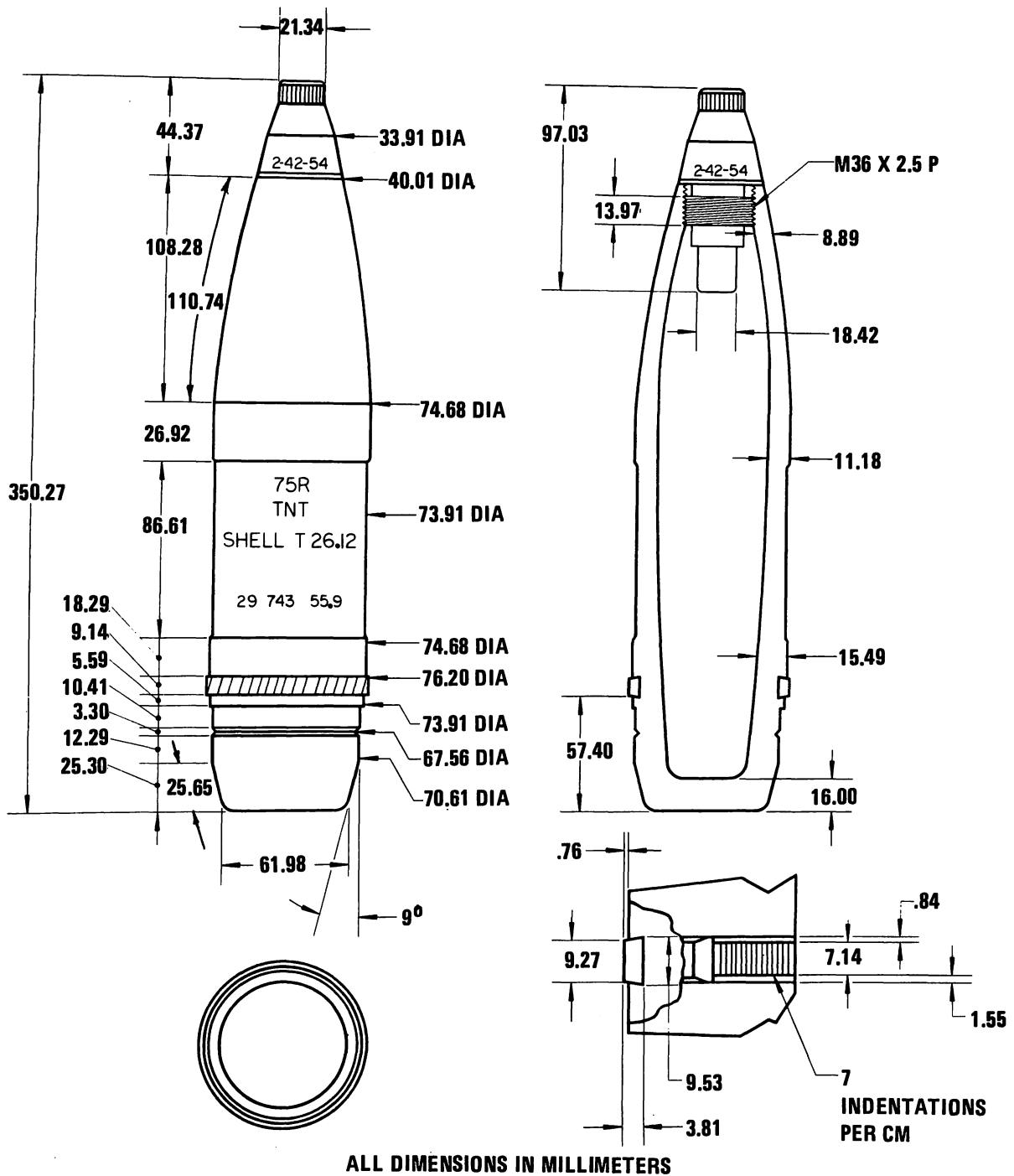
ALL DIMENSIONS IN MILLMETERS

Neg. 502922

Projectile fuzed wt: 6.16 kg  
Fuze: Type 1 PD  
Filler type & wt: TNT, 0.71 kg

Using weapon(s): Recoilless rifles Types 52  
and 56  
Remarks: Also uses Types 3 and 53 PD fuzes.  
Projectile is copy of US M309

Figure 2-130. Chinese 75-mm HE Projectile Type 26.8

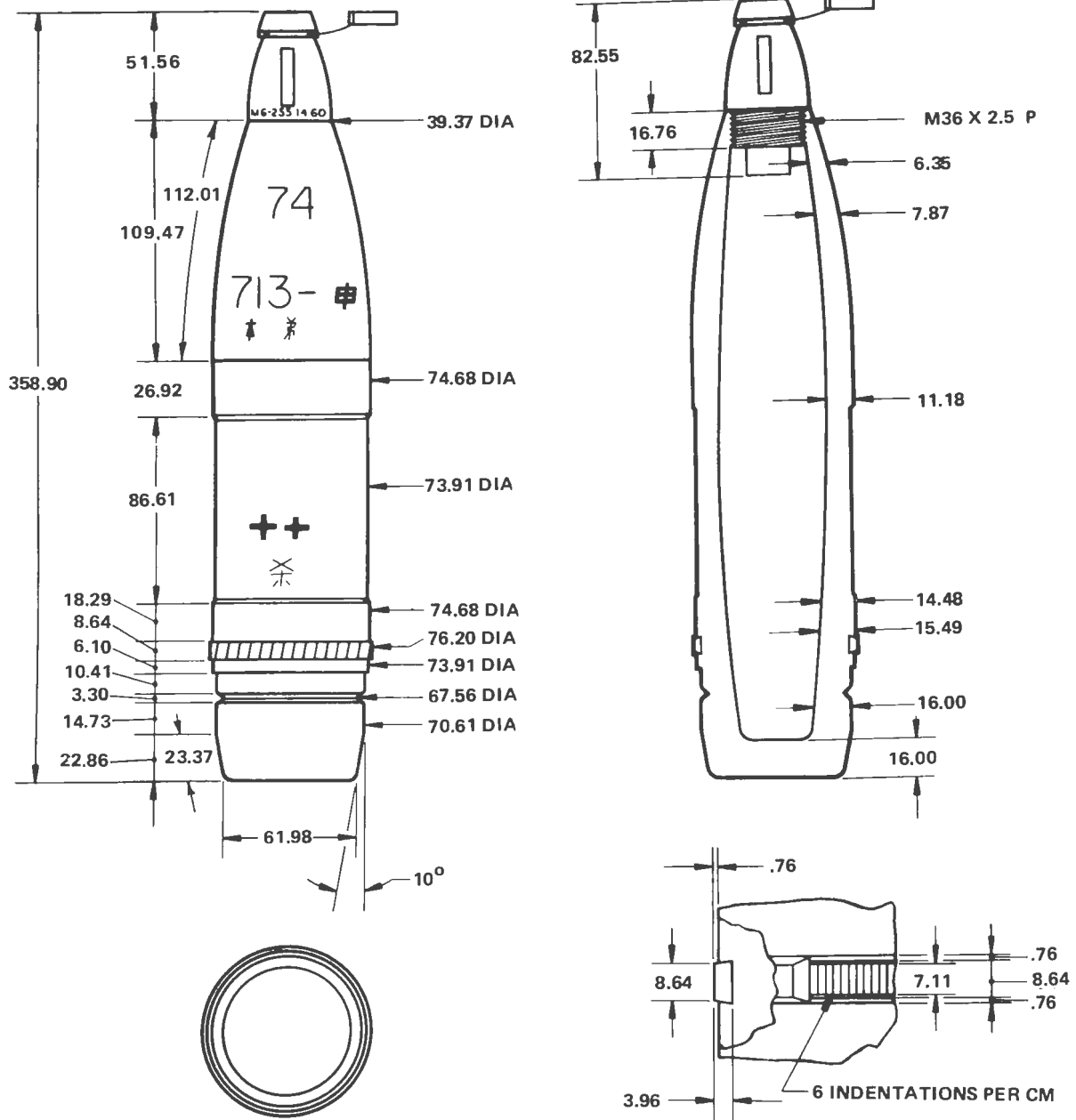


Neg. 502923

Projectile fuze wt: 6.16 kg  
 Fuze: Type 1 PD  
 Filler type & wt: TNT, 0.71 kg

Using weapon(s): Recoilless rifles Types 52 and 56  
 Remarks: Also uses Types 3 and 53 PD fuzes.  
 Projectile is copy of US M309

Figure 2-131. Chinese 75-mm HE Projectile Type 26.12 (Variant I)



ALL DIMENSIONS IN MILLIMETERS

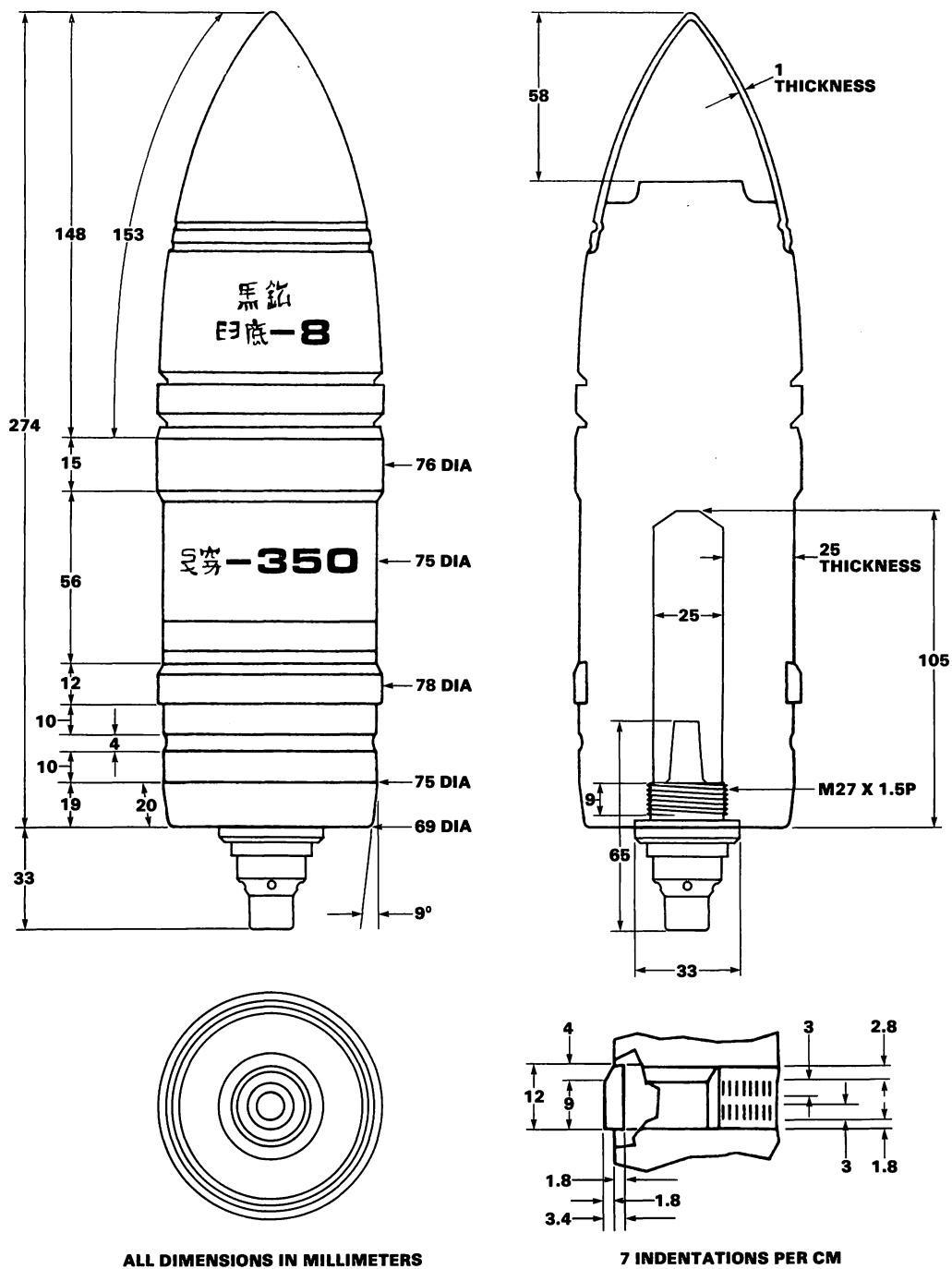
Neg. 503007

Projectile fuze wt: 5.94 kg  
 Fuze: Type 6 PD  
 Filler type & wt: TNT, 0.71 kg

Using weapon(s): Recoilless rifles Types 52  
 and 56

Remarks: Fuze is same as former Soviet M-6  
 mortar fuze. Projectile is copy of US  
 M309

Figure 2-132. Chinese 75-mm HE Projectile Type ? (Variant II)

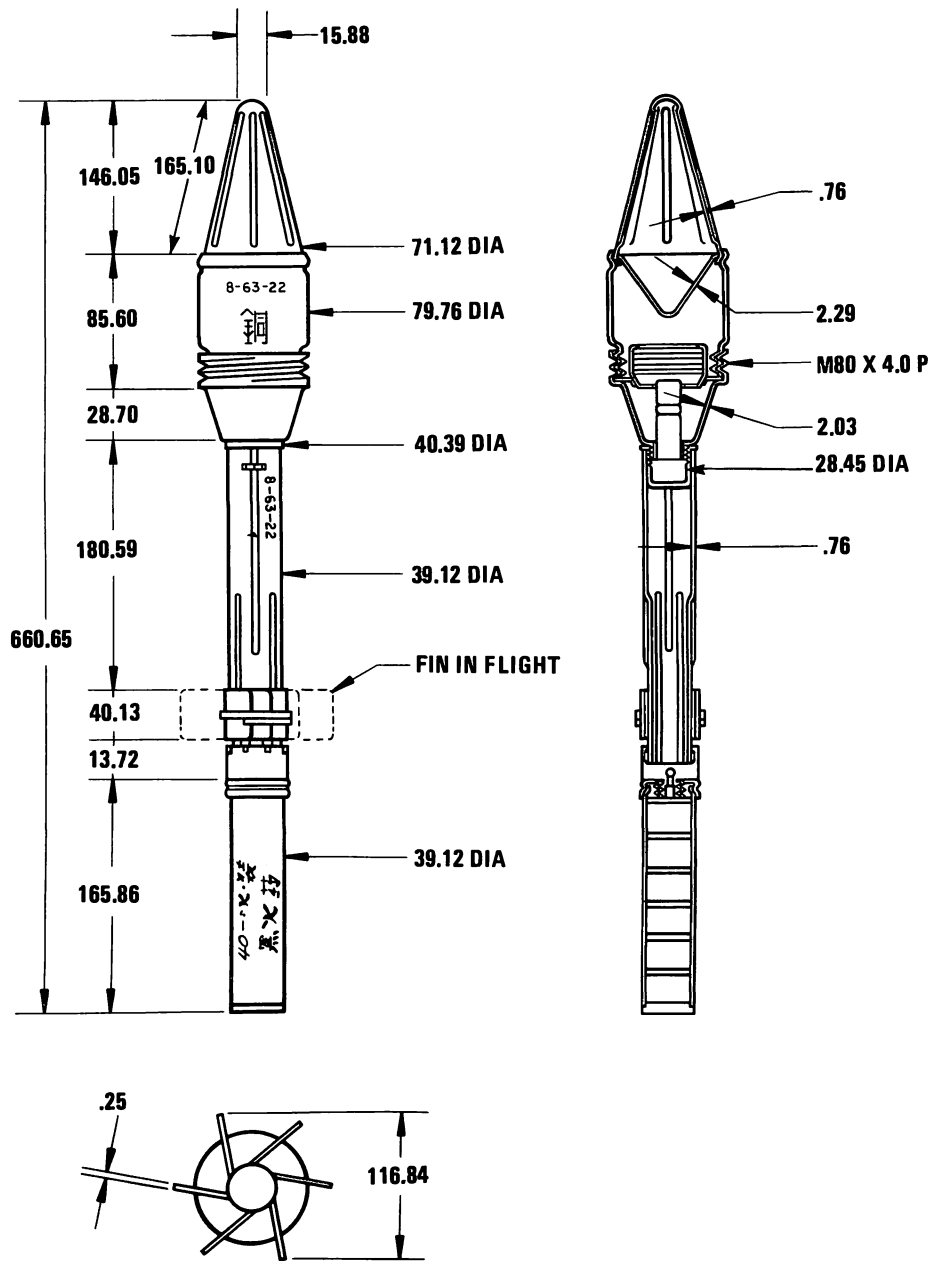


Neg. 000077

Projectile fuze wt: 6.51 kg  
 Fuze: Type 8 PD  
 Filler type & wt: RDX/aluminum, 0.06 kg

Using weapon(s): Field gun Type 54, former Soviet field gun ZIS-3, and tank gun D-56T for PT-76 tank  
 Remarks: Can be found with other PD fuzes. Projectile is copy of former Soviet BR-350B

Figure 2-133. Chinese 76-mm APC-T Projectile Type 350



ALL DIMENSIONS IN MILLIMETERS

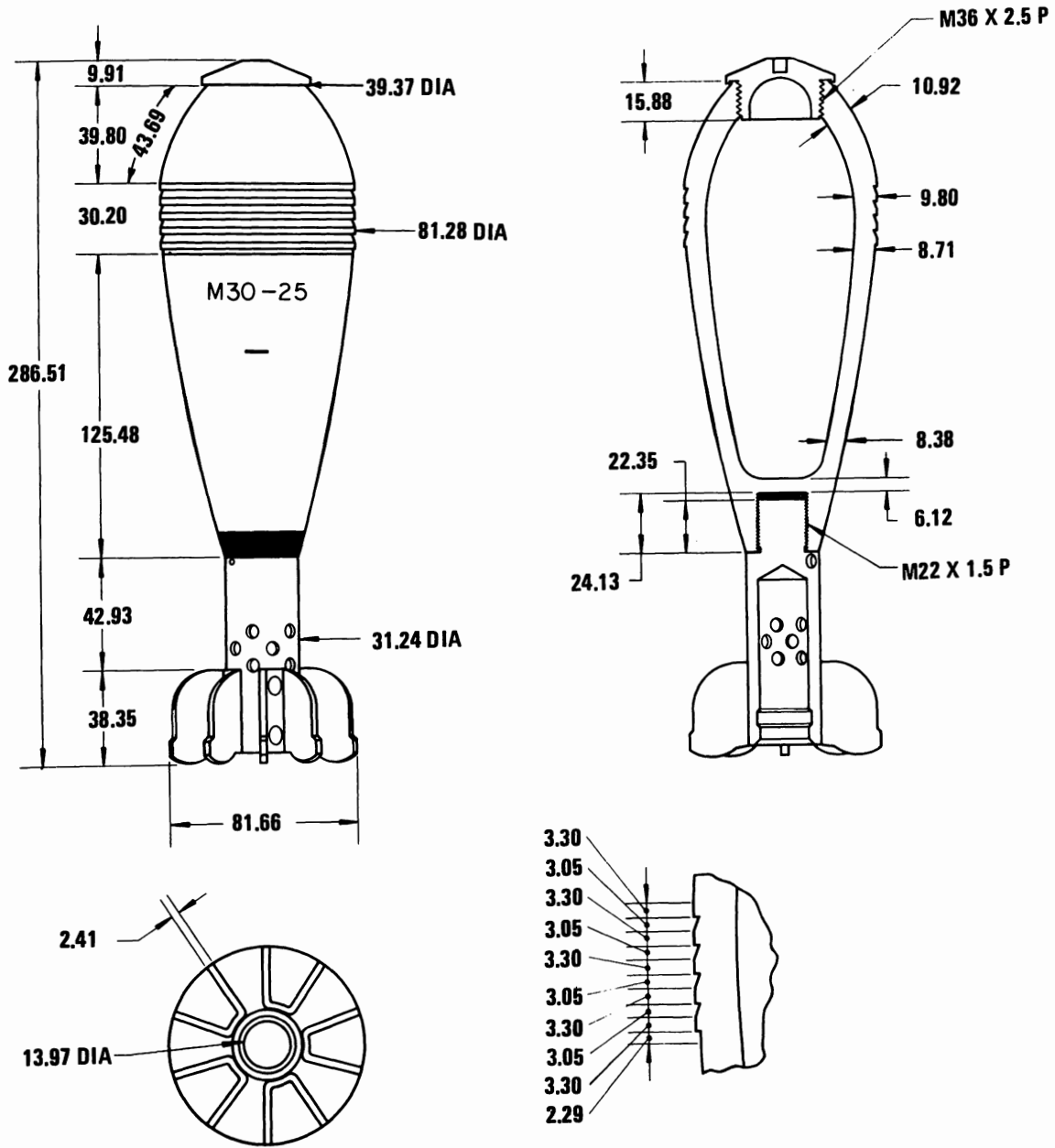
Neg. 502926

Projectile fuze wt: 1.62 kg  
 Fuze: Type 2 BD  
 Filler type & wt: TNT, 0.48 kg

Using weapon(s): AT grenade launcher Type 56  
 Remarks: Launcher has 40-mm bore. Projectile has 80-mm warhead. Projectile is copy of former Soviet PG-2

Figure 2-134. Chinese 40/80-mm HEAT Projectile Type 56





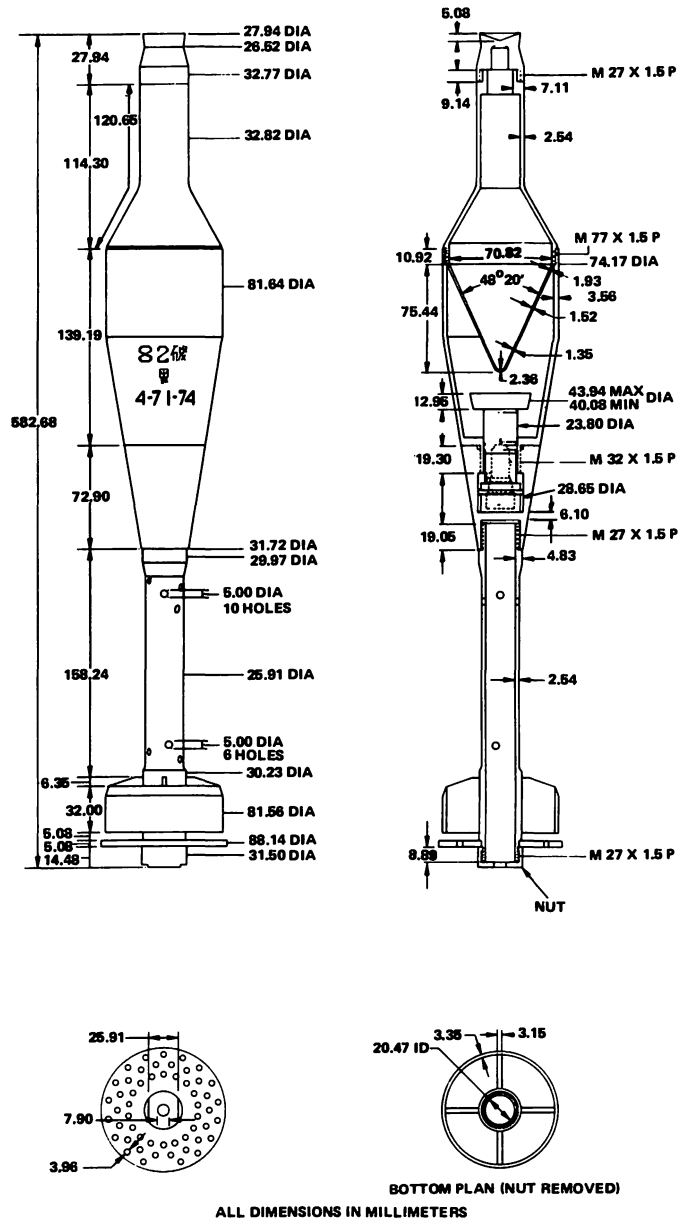
ALL DIMENSIONS IN MILLIMETERS

Neg. 502930

Projectile fuzed wt: 3.15 kg  
 Fuze: Type 6 PD  
 Filler type & wt: TNT/dinitronaphthalene,  
 0.42 kg

Using weapon(s): Mortar Type 53  
 Remarks: Fuze is copy former Soviet M-6.  
 Projectile is copy of former Soviet  
 0-832 series.

Figure 2-135. Chinese 82-mm Frag Projectile Type M30

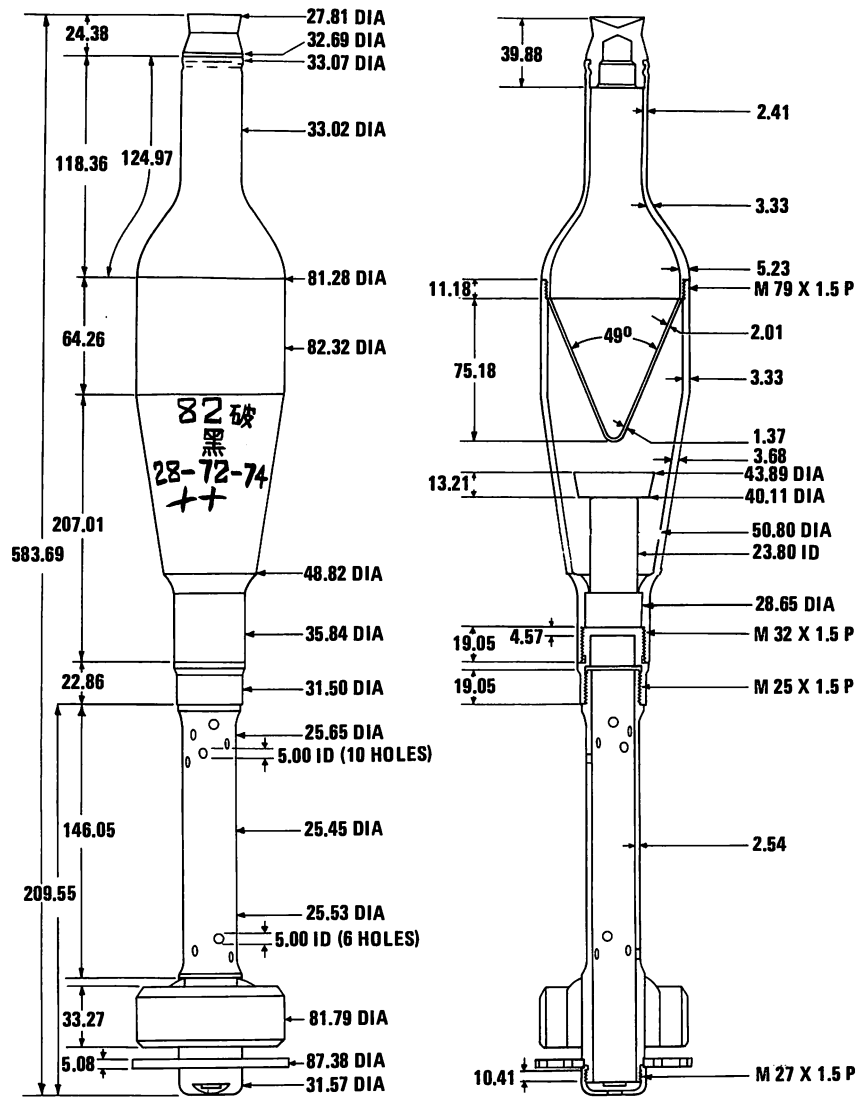


Neg. 502934

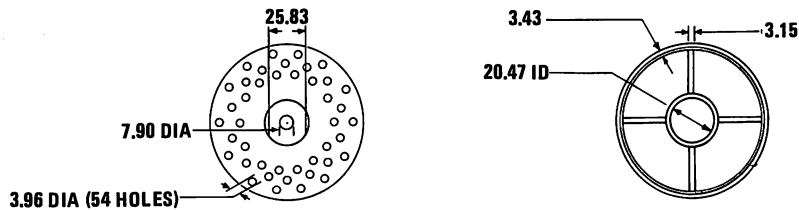
Projectile fuze wt: 2.95 kg  
Fuze: Type 4 BD  
Filler type & wt: RDX/wax, 0.42 kg

Using weapon(s): Recoilless gun Type 65  
Remarks: None

Figure 2-136. Chinese 82-mm HEAT Projectile Type 65



ALL DIMENSIONS IN MILLIMETERS

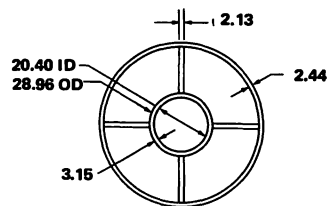
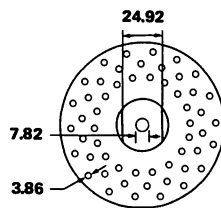
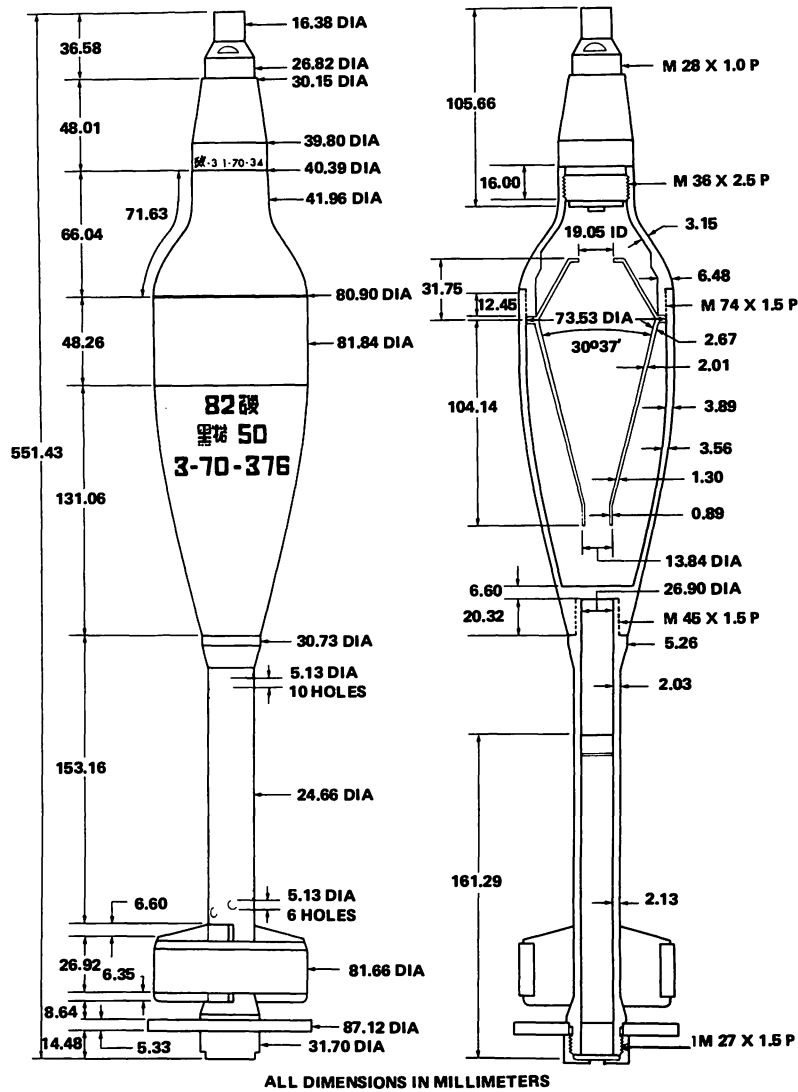


Neg. 521074

Projectile fuze wt: 2.94 kg  
 Fuze: Type 4 BD  
 Filler type & wt: RDX/wax/PETN, 0.45 kg

Using weapon(s): Recoilless gun Type 65  
 Remarks: PETN comprises lower part of main charge

Figure 2-137. Chinese 82-mm HEAT-FS Projectile Type 65 (Variant)

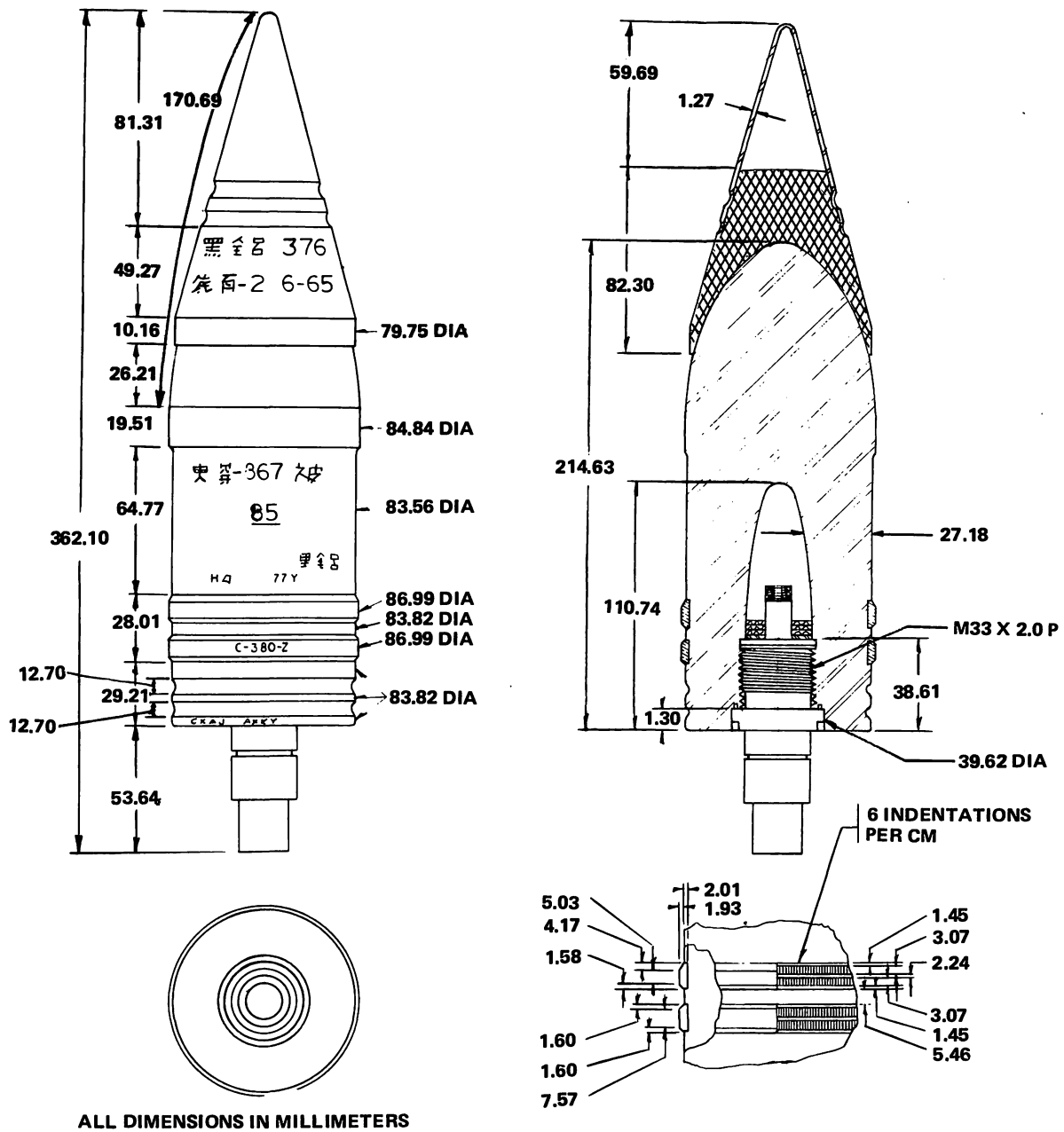


Neg. 516064

Projectile fuzed wt: 3.54 kg  
 Fuze: Type 3 PIBD  
 Filler type & wt: RDX/TNT, 0.45 kg

Using weapon(s): Recoilless gun Type 65  
 Remarks: None

Figure 2-138. Chinese 82-mm HEAT-FS Projectile Type ?

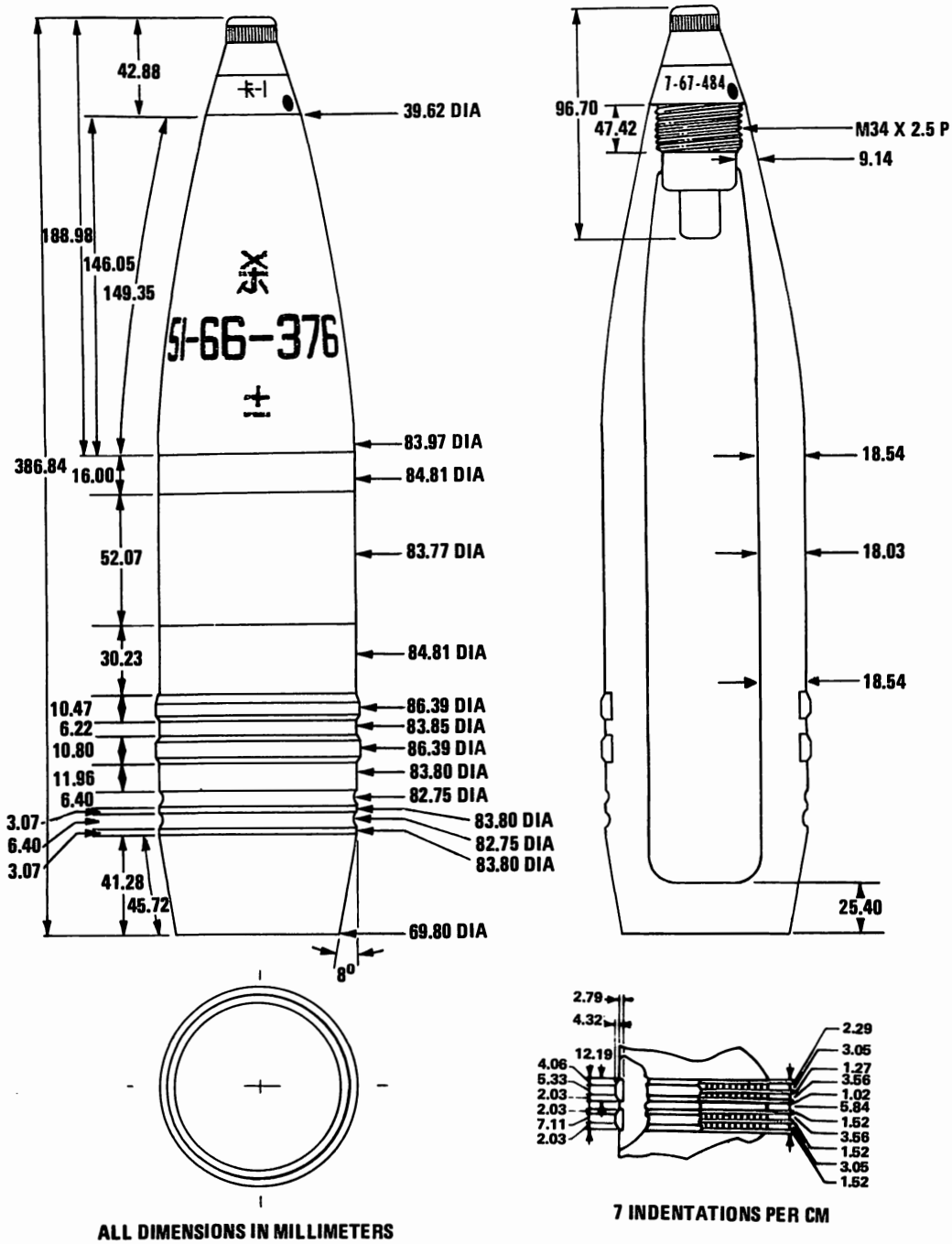


Neg. 502935

Projectile fuzed wt: 9.23 kg  
 Fuze: Type 2 BD  
 Filler type & wt: RDX/aluminum/wax,  
 0.13 kg

Using weapon(s): Field AT gun Type 56, tank  
 guns Types 62 and 60/63  
 Remarks: Fuze is copy of former Soviet DBR-2

Figure 2-139. Chinese 85-mm APC-T Projectile Type 367



Neg. 520045

Projectile fuzed wt: 16.22 kg  
 Fuze: Type 1 (artillery) BD  
 Filler type & wt: TNT, 0.75 kg

Using weapon(s): Field AT gun Type 56, tank guns Types 62 and 60/63, and AA gun Type 39

Remarks: Fuze is copy of former Soviet KTM-1.  
 Projectile is copy of former Soviet 0-365K

Figure 2-140. Chinese 85-mm Frag Projectile Type 365K

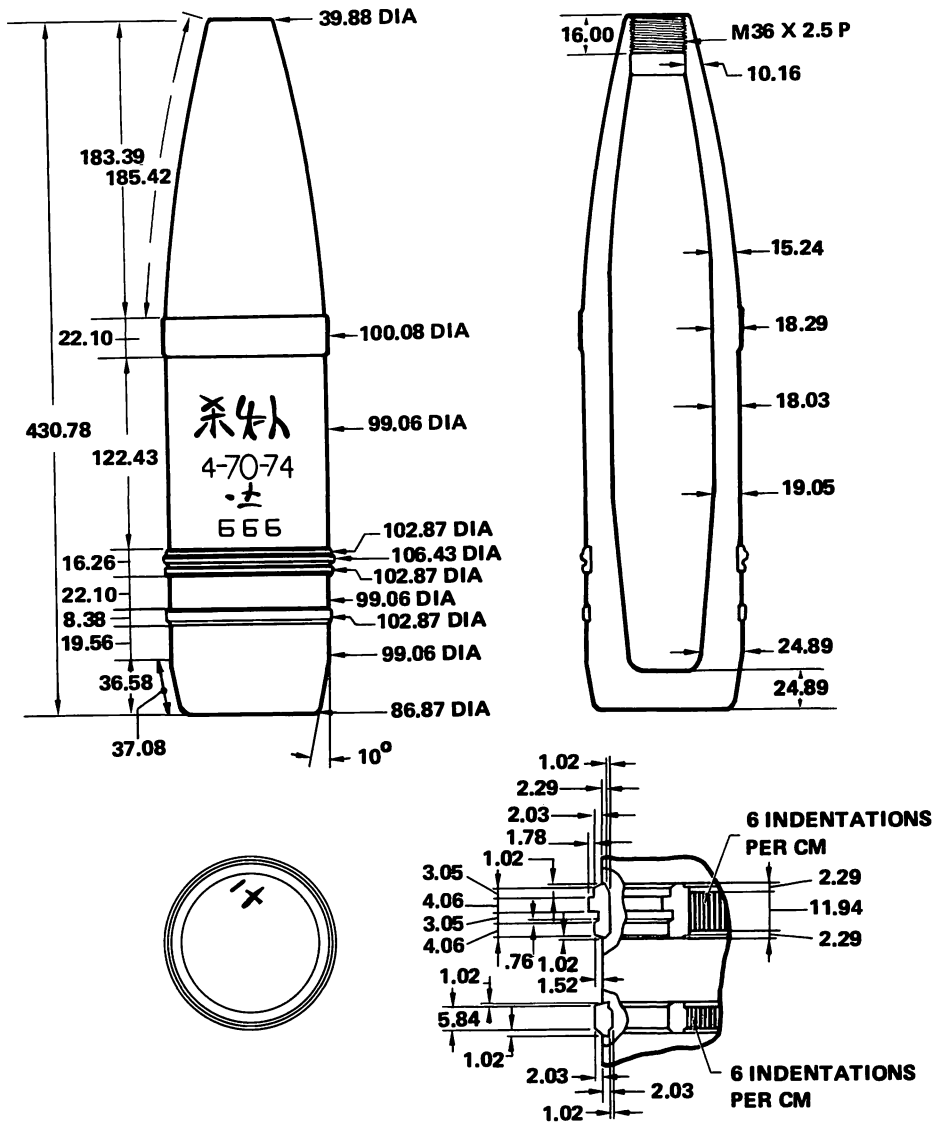


Neg. U-INT.003679

Complete cartridge length: 945 mm  
Complete cartridge mass: 19.0 kg  
Projectile mass: 4.7 kg  
Projectile length: 532 mm

Using weapon(s): D10TS tank gun  
Remarks: None

Figure 2-141. Chinese 100-mm APFSDS-T Muniton Model Type 73



ALL DIMENSIONS IN MILLIMETERS

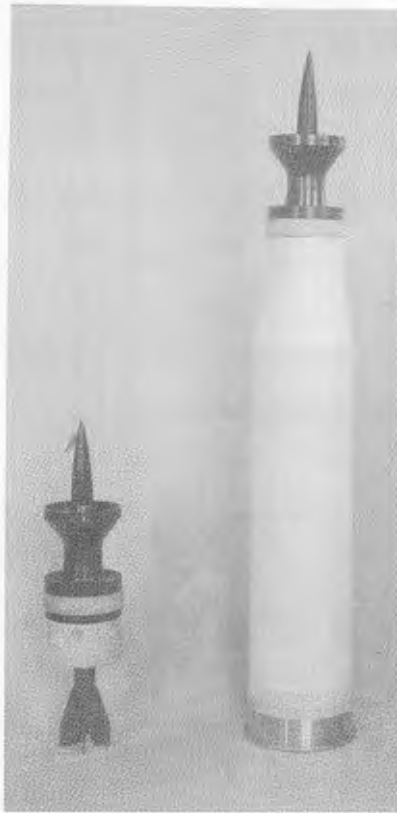
Neg. 520483

Projectile fuzed wt: 15.07 kg  
 Fuze: Type 429 PD  
 Filler type & wt: TNT, 1.50 kg

Using weapon (s): D10TS tank gun, field, assault,  
 and AA guns  
 Remarks: Shown without fuze. Projectile is copy  
 of former Soviet OF-412

Figure 2-142. Chinese 100-mm Frag-HE Projectile Type 412



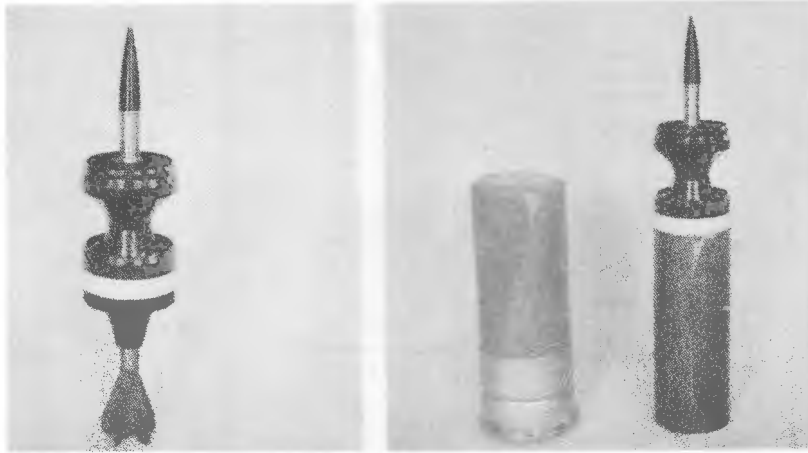


Neg. U-INT.003492

**Complete cartridge mass:** 23.0 kg  
**Projectile mass:** 7.1 kg  
**Core material:** Tungsten alloy

**Using weapon(s):** 120-mm L44 German gun  
**Remarks:** None

Figure 2-143. Chinese 120-mm APFSDS-T Projectile Model Unknown

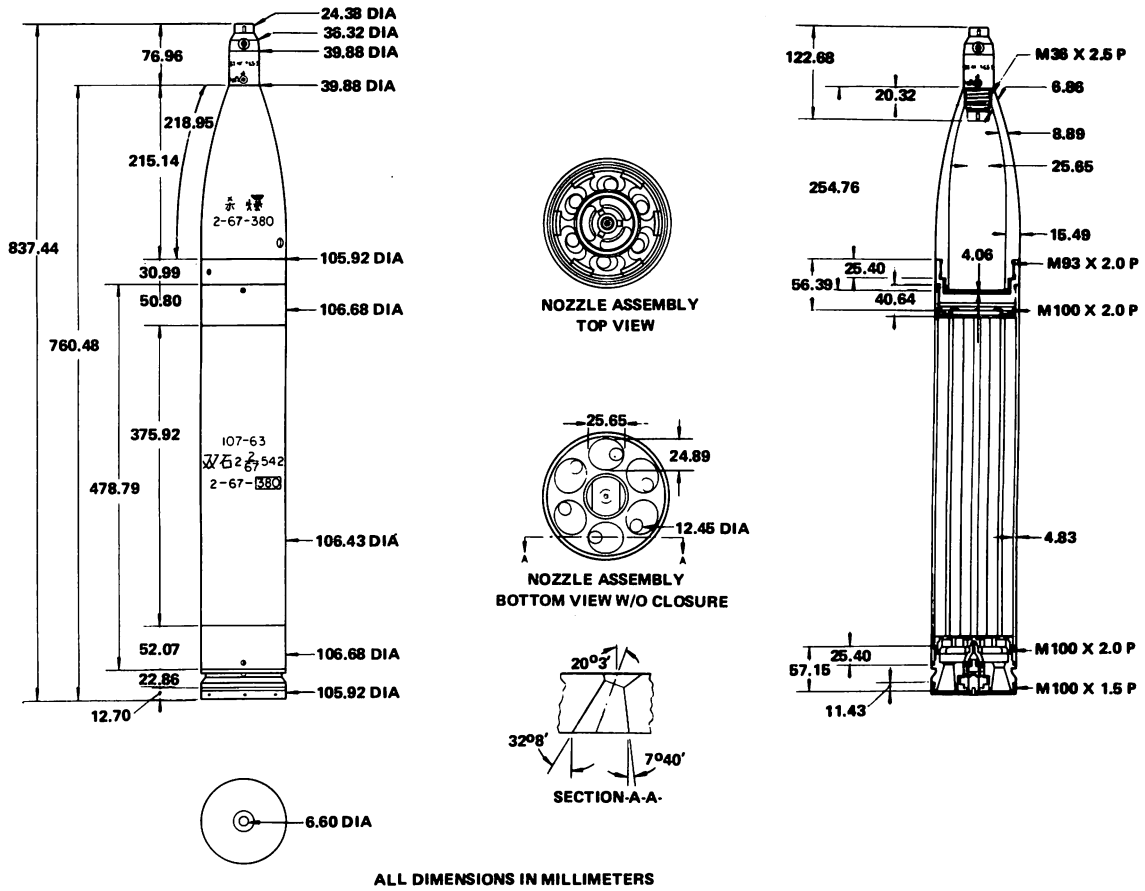


Neg. U-INT.003493

Projectile charge assy length: 672 mm  
Projectile length: 546 mm  
Projectile mass: 7.3 kg  
Core material: Monolithic tungsten alloy

Using weapon(s): D81 tank gun, 2A45M ATG  
Remarks: None

Figure 2-144. Chinese 125-mm APFSDS-T Projectile Model Unknown

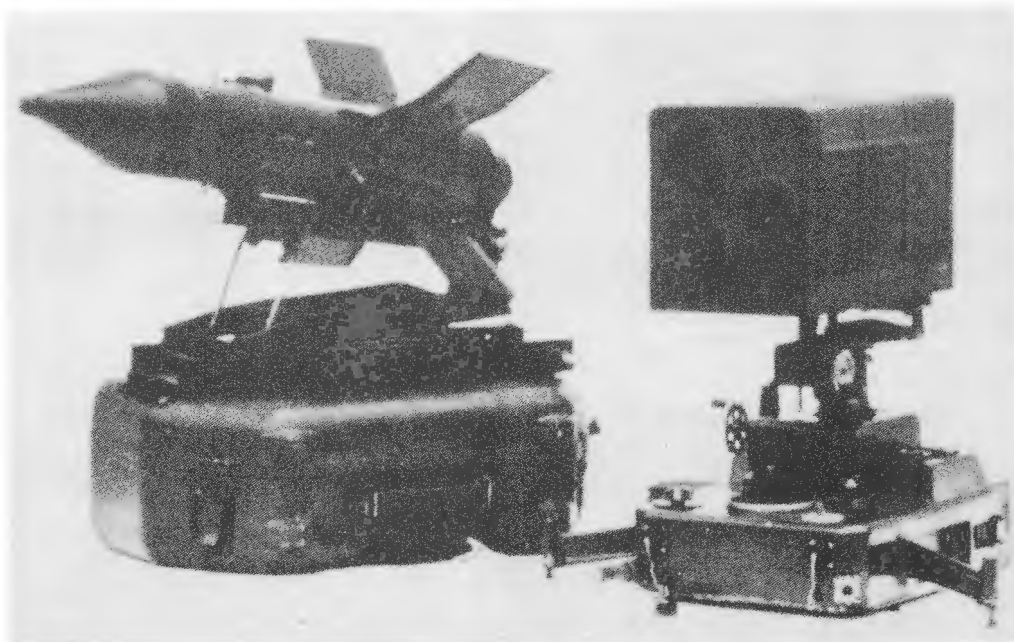
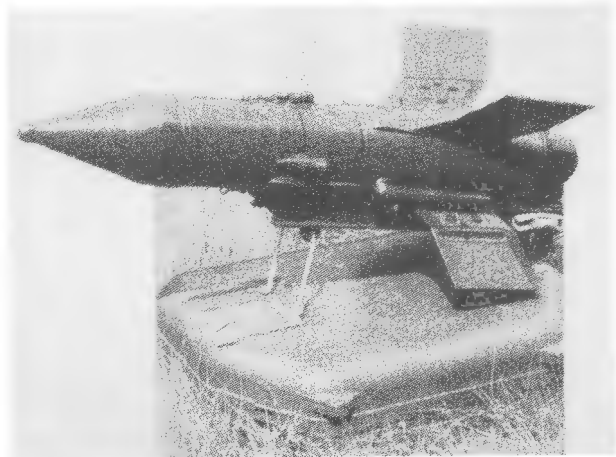
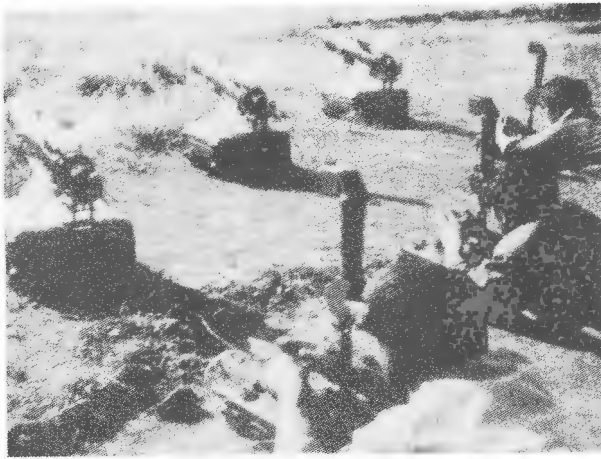


Neg. 502940

Projectile fuze wt: 18.84 kg  
Fuze: Type 1 PD, MJ-1  
Filler type & wt: TNT, 1.296 kg

Using weapon(s): 12-tube launcher Types 63 and 63-1  
Remarks: Fuze is modified copy of former Soviet V-25

Figure 2-145. Chinese 107-mm HE Rocket Type 63-2

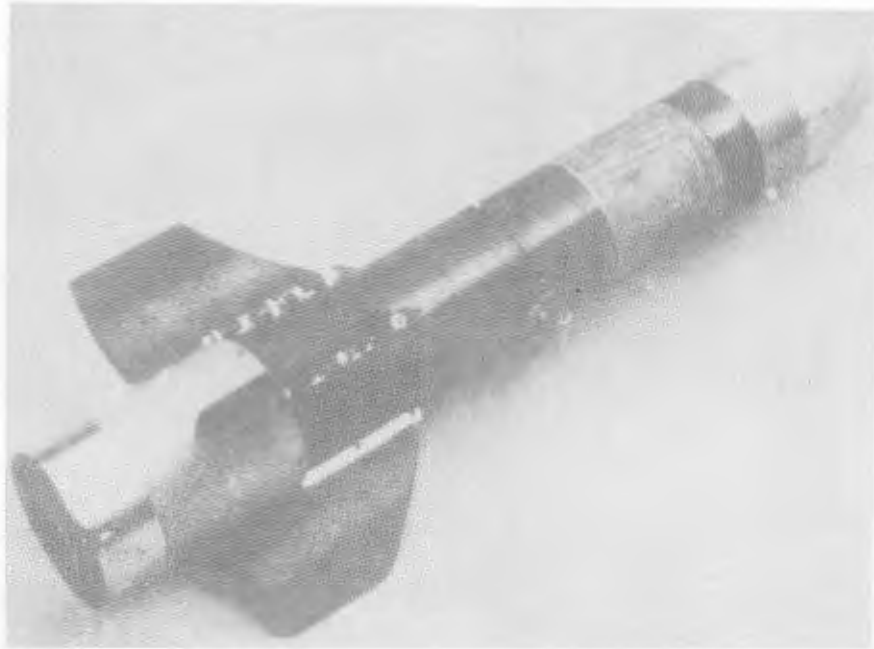


Using weapon(s): Man portable, vehicle mounted

Remarks: A, B, & C variants exist.

Copy of Russian 9M14

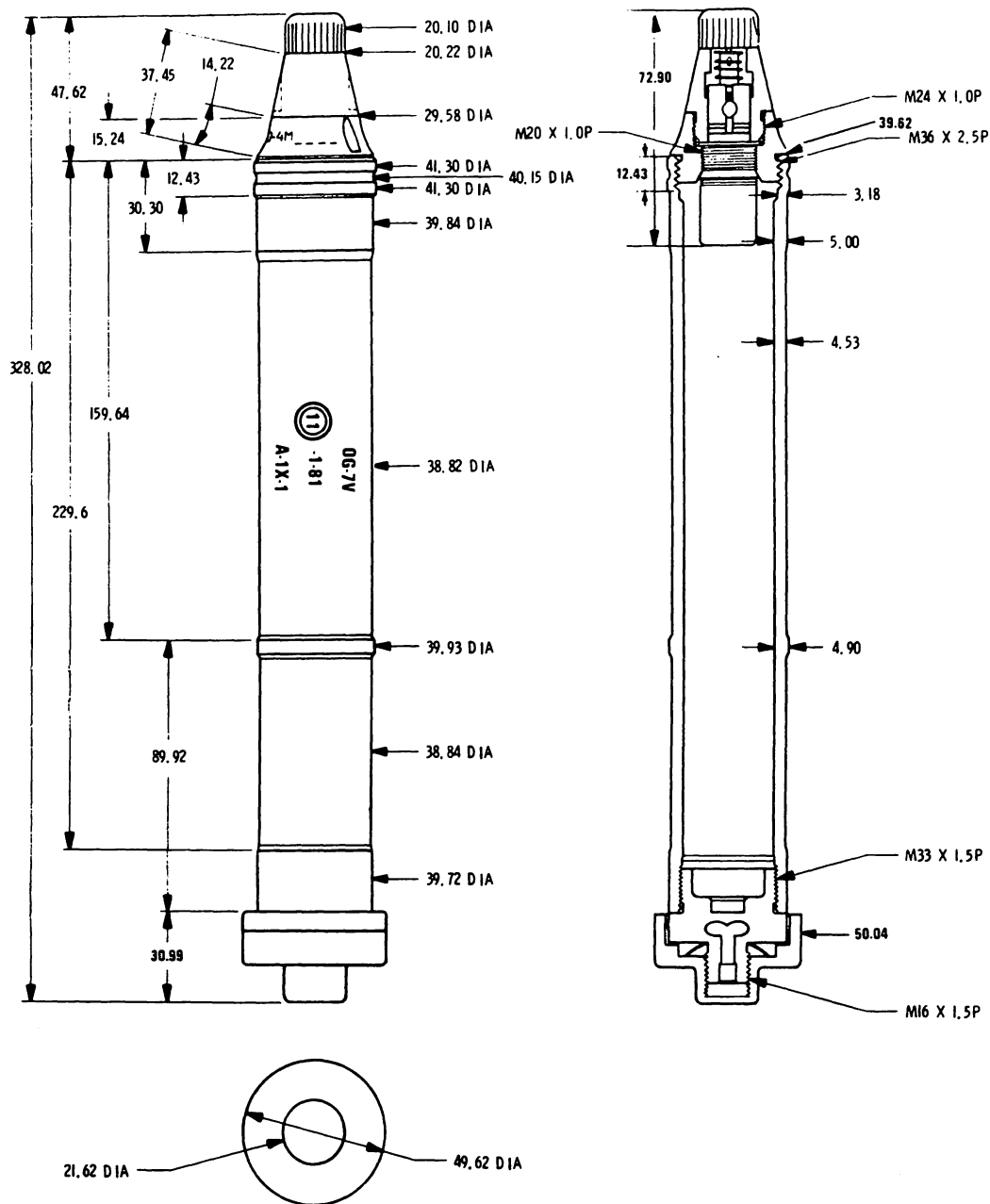
Figure 2-146. Chinese ATGM Model Red Arrow 73



Tube length: 1566 mm  
Tube dia(max): 255 mm  
Missile length: 875 mm  
Wing span: 320 mm  
Missile mass: 11.2 kg

Using weapon(s): Crew portable, vehicle mounted  
Remarks: None

Figure 2-147. Chinese 120-mm ATGM Model Red Arrow 8



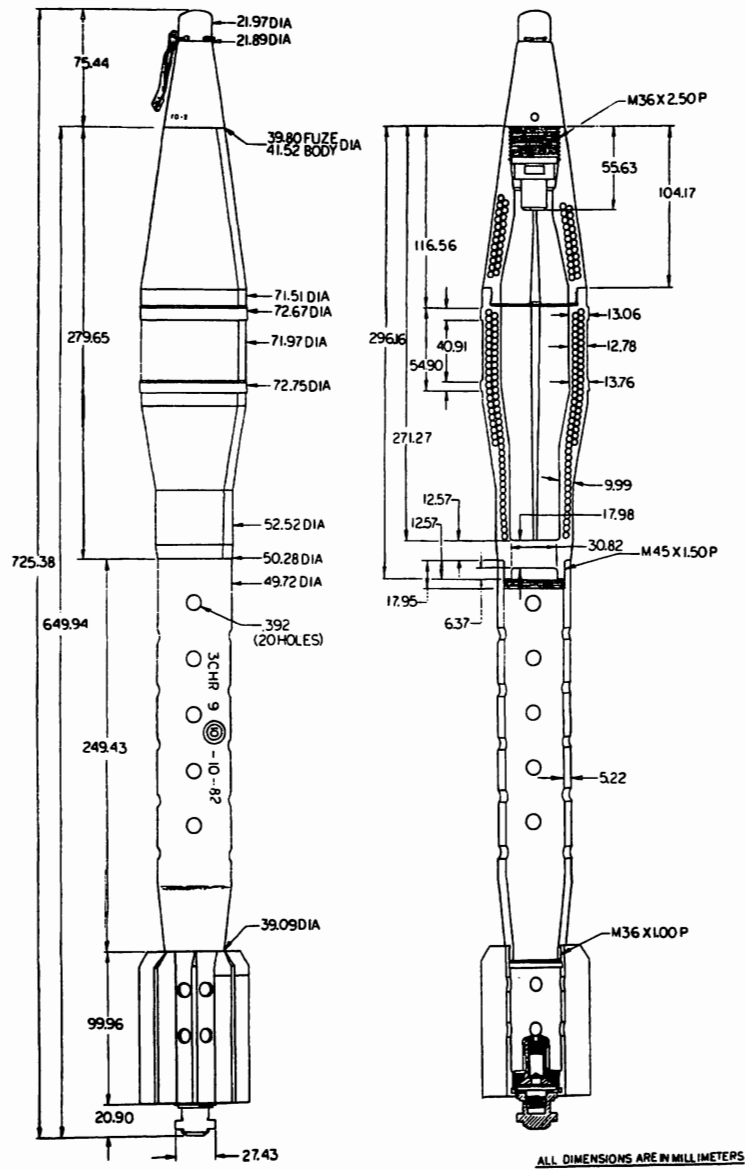
ALL DIMENSIONS IN MILLIMETERS

Neg. U-INT.000095

Projectile fuzed wt: 1.39 kg  
Fuze: 0-4M  
Filler type & wt: RDX/wax, 0.21 kg

Using weapon(s): RPG-7 AT grenade launcher  
Remarks: Illustrated with plastic shipping cap.  
Uses same propellant charge as PG-7G

Figure 2-148. Bulgarian 40-mm HE Projectile Model OG-7V

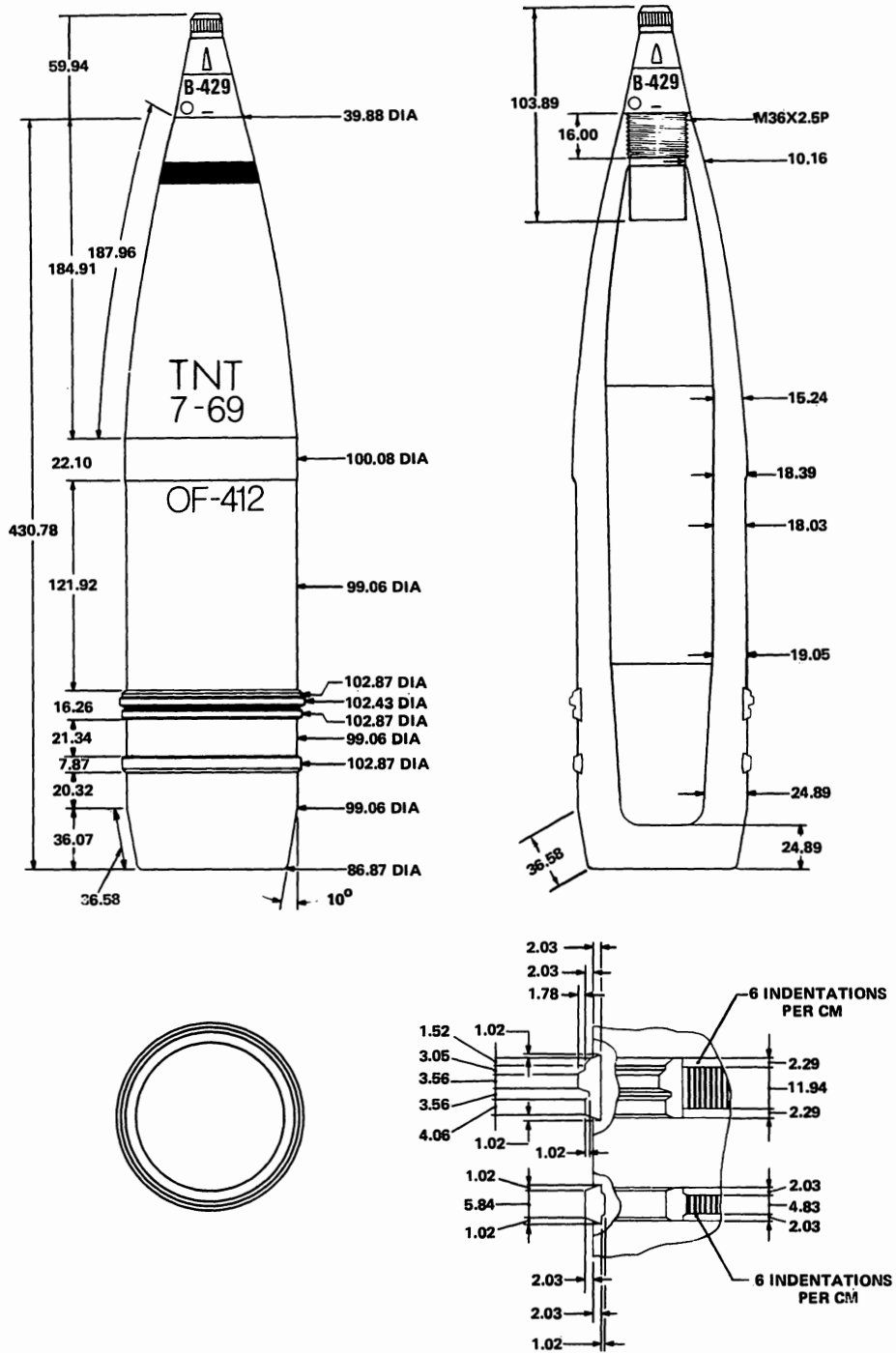


Neg. U-INT.003145

Projectile weight: 4.0 kg  
 Fuze: GO-2 PD  
 Filler: TNT

Using weapon(s): BMP, BMD, and SPG-9  
 recoilless gun  
 Remarks: Prefragmented body 990 fragments

Figure 2-149. Bulgarian 73-mm HE Projectile Model OG-15VB



ALL DIMENSIONS IN MILLIMETERS

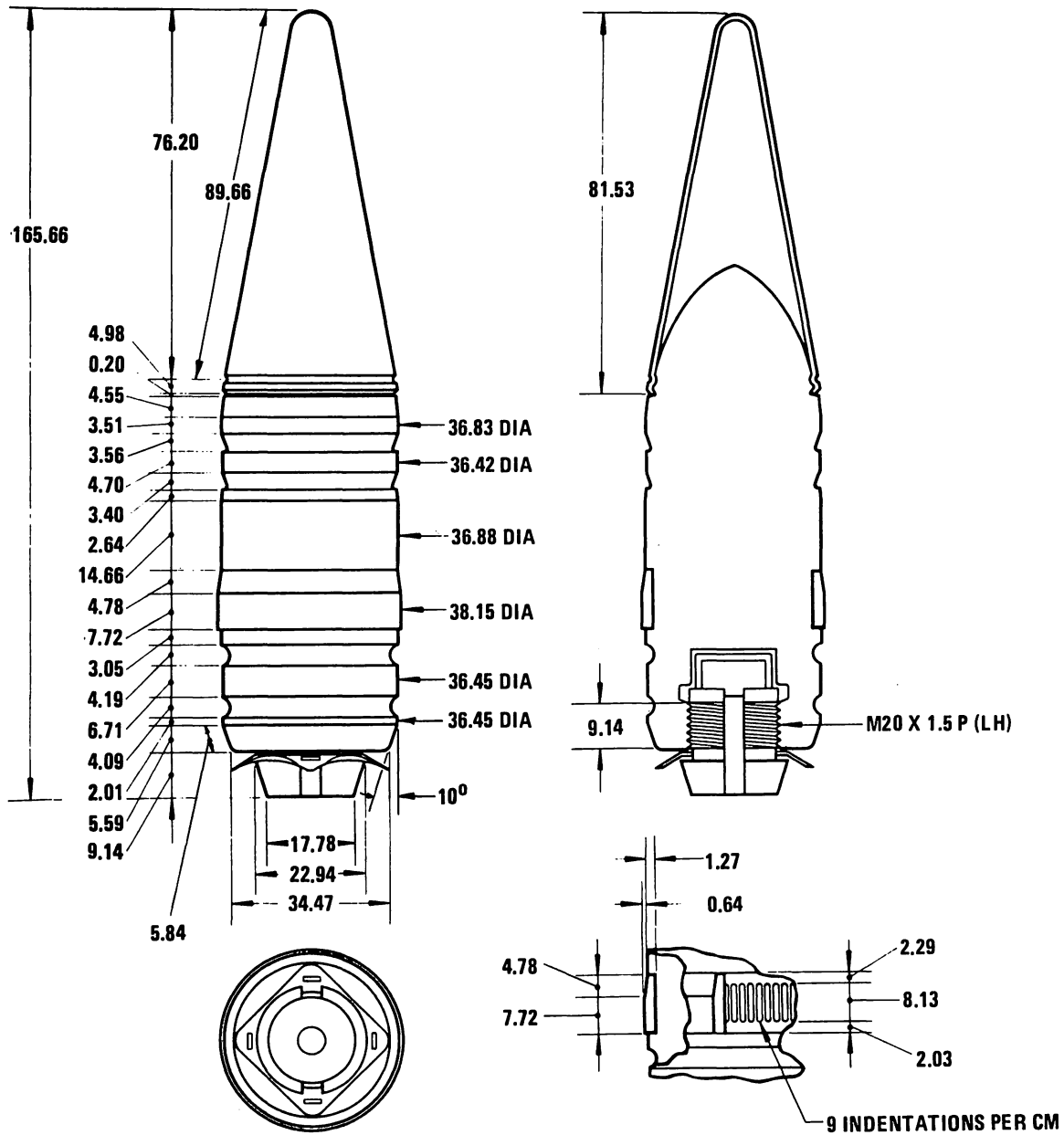
Neg. 520504

Projectile fuze wt: 15.69 kg  
 Fuze: V-429 PD  
 Filler type & wt: TNT, 1.50 kg

Using weapon(s): Former Soviet field, tank,  
 assault, and AT guns  
 Remarks: Copy of former Soviet OF-412  
 projectile

Figure 2-150. Bulgarian 100-mm Frag-HE Projectile Model OF-412





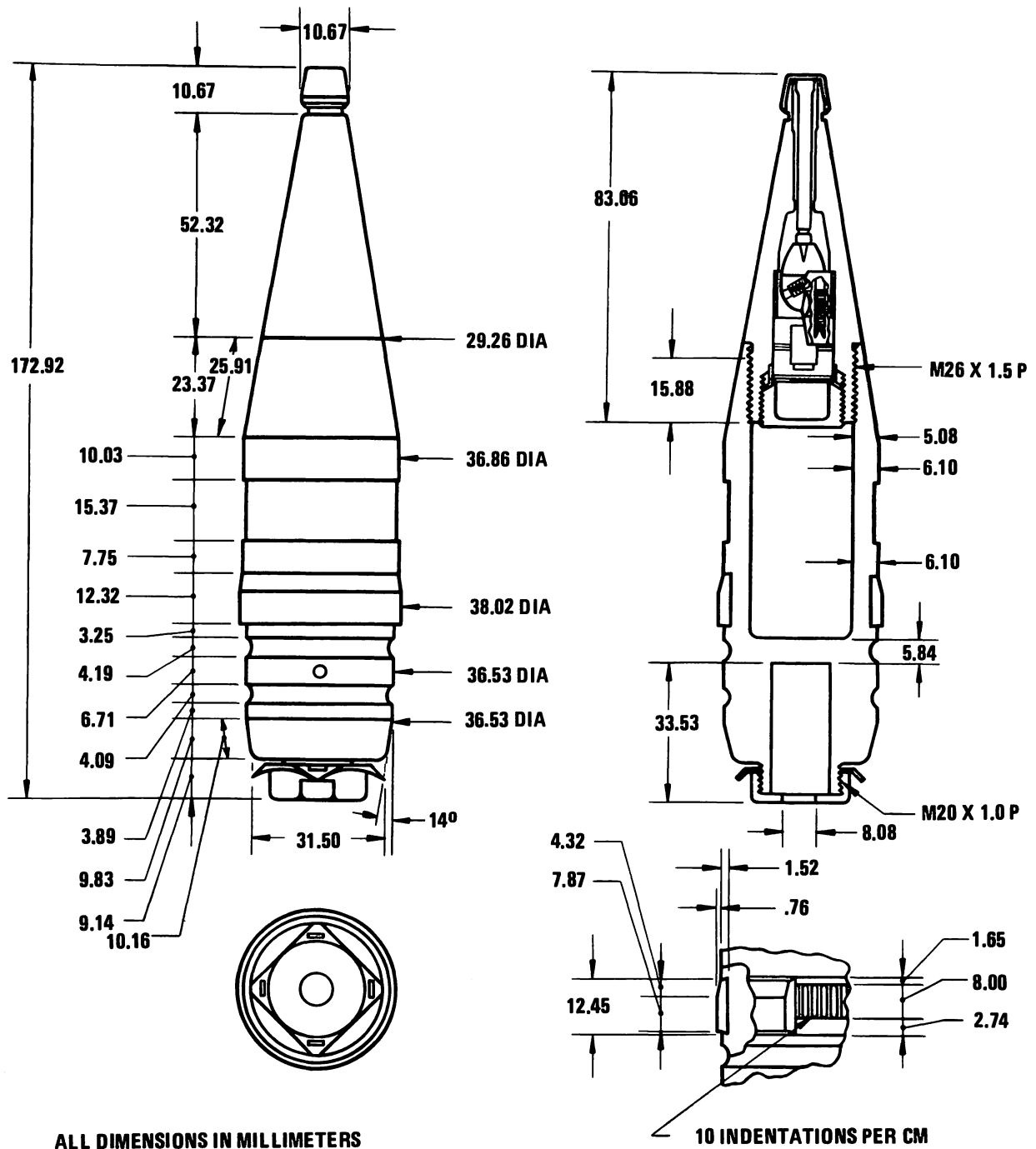
ALL DIMENSIONS IN MILLIMETERS

Neg. 502946

Projectile fuzed wt: 0.75 kg  
 Fuze: None  
 Filler type & wt: None

Using weapon(s): Former Soviet aircraft cannon  
 Model N  
 Remarks: Copy of former Soviet BZT projectile

Figure 2-151. Czechoslovak 37-mm AP-T Projectile Model BZT

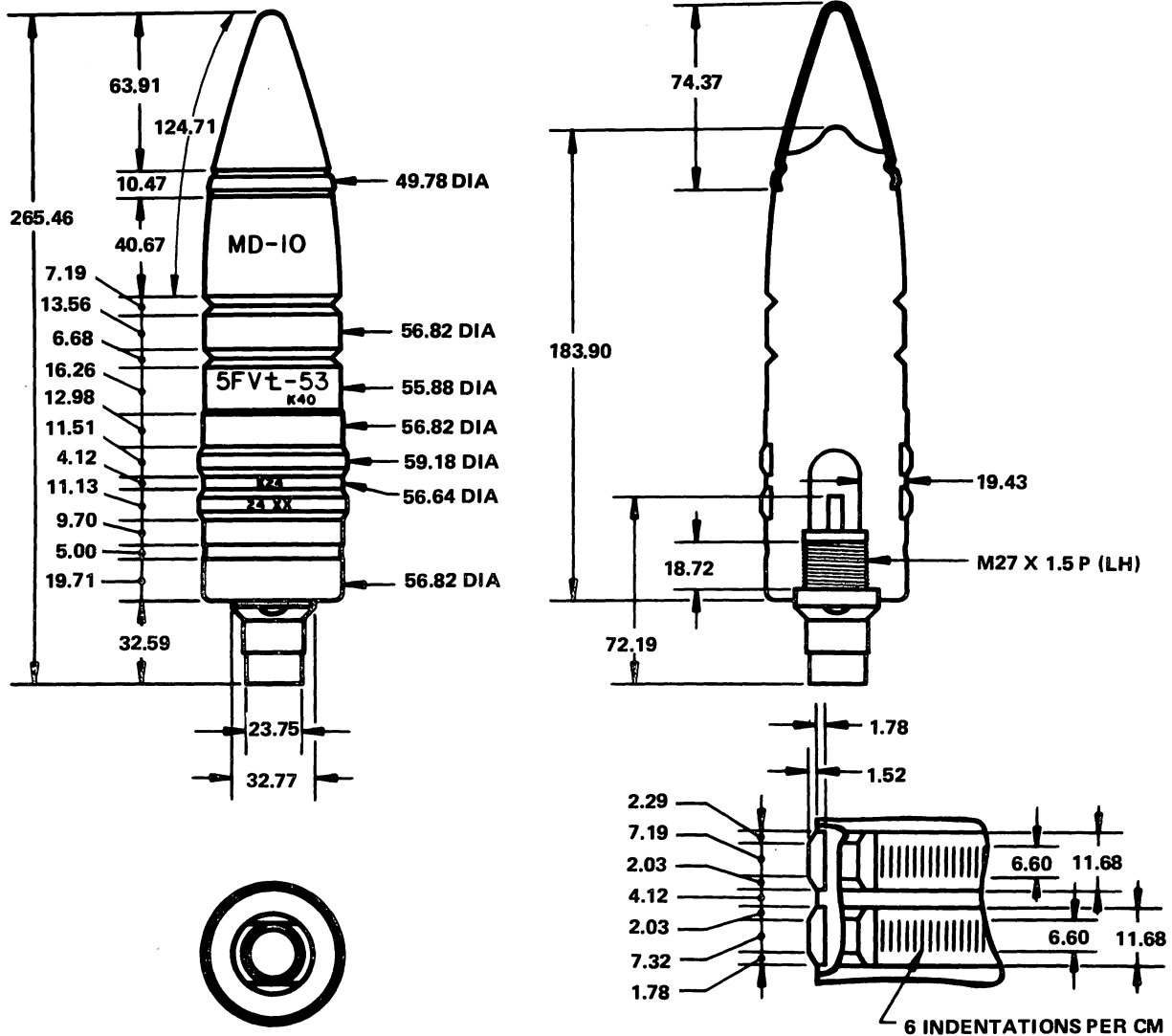


Neg. 502945

Projectile fuzed wt: 0.73 kg  
 Fuze: A-37 PDSD  
 Filler type & wt: RDX/aluminum, 0.04 kg

Using weapon(s): Former Soviet aircraft cannon  
 Model N  
 Remarks: Copy of former Soviet OZT projectile

Figure 2-152. Czechoslovak 37-mm HEI-T Projectile Model OZT



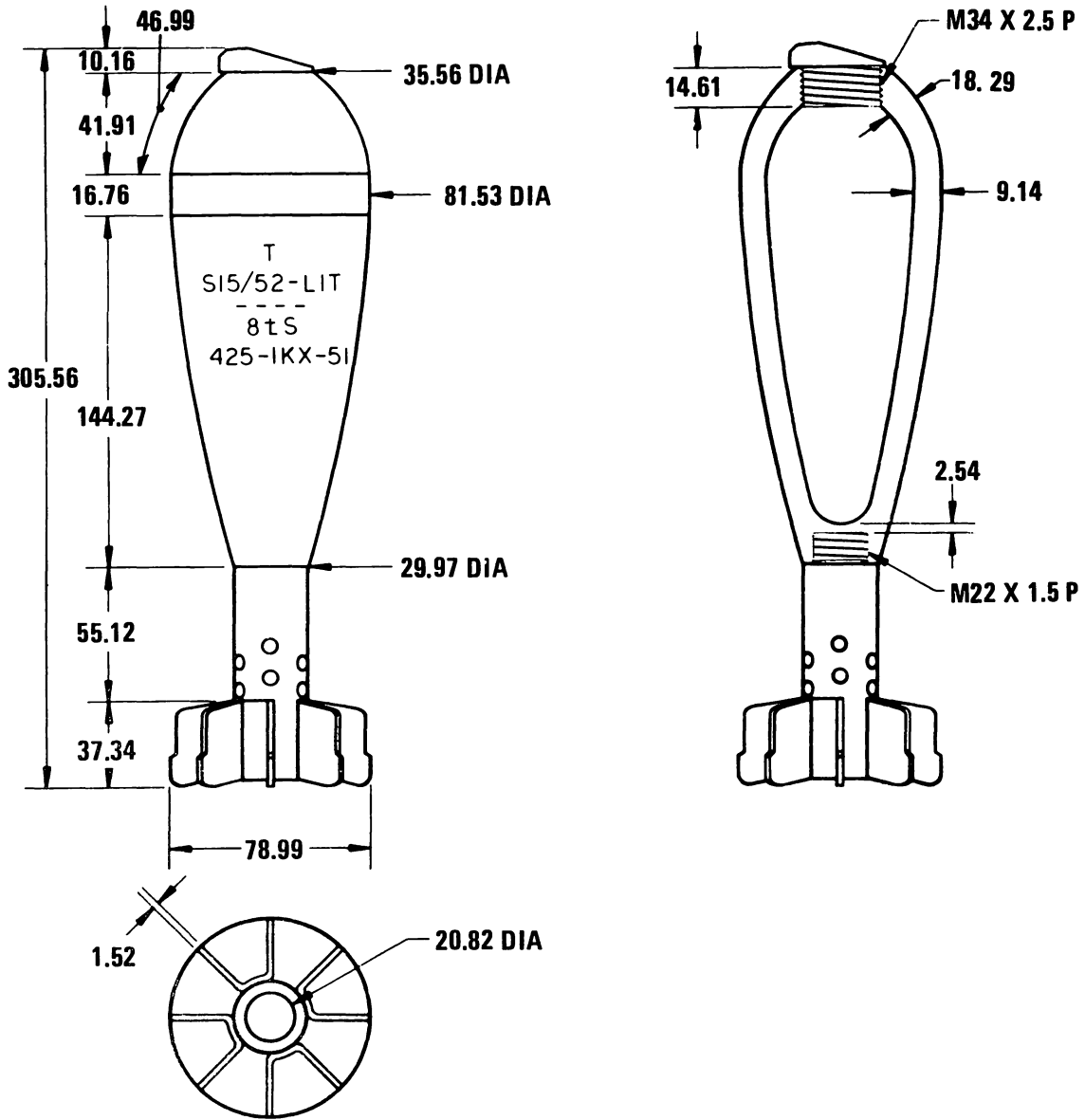
ALL DIMENSIONS IN MILLIMETERS

Neg. 502947

Projectile fuze wt: 3.16 kg  
 Fuze: MD-10 BD  
 Filler type & wt: RDX, 0.01 kg

Using weapon(s): Former Soviet AT, APAT, AA,  
 and assault guns  
 Remarks: Copy of former Soviet BR-271  
 projectile

Figure 2-153. Czechoslovak 57-mm AP-T Projectile



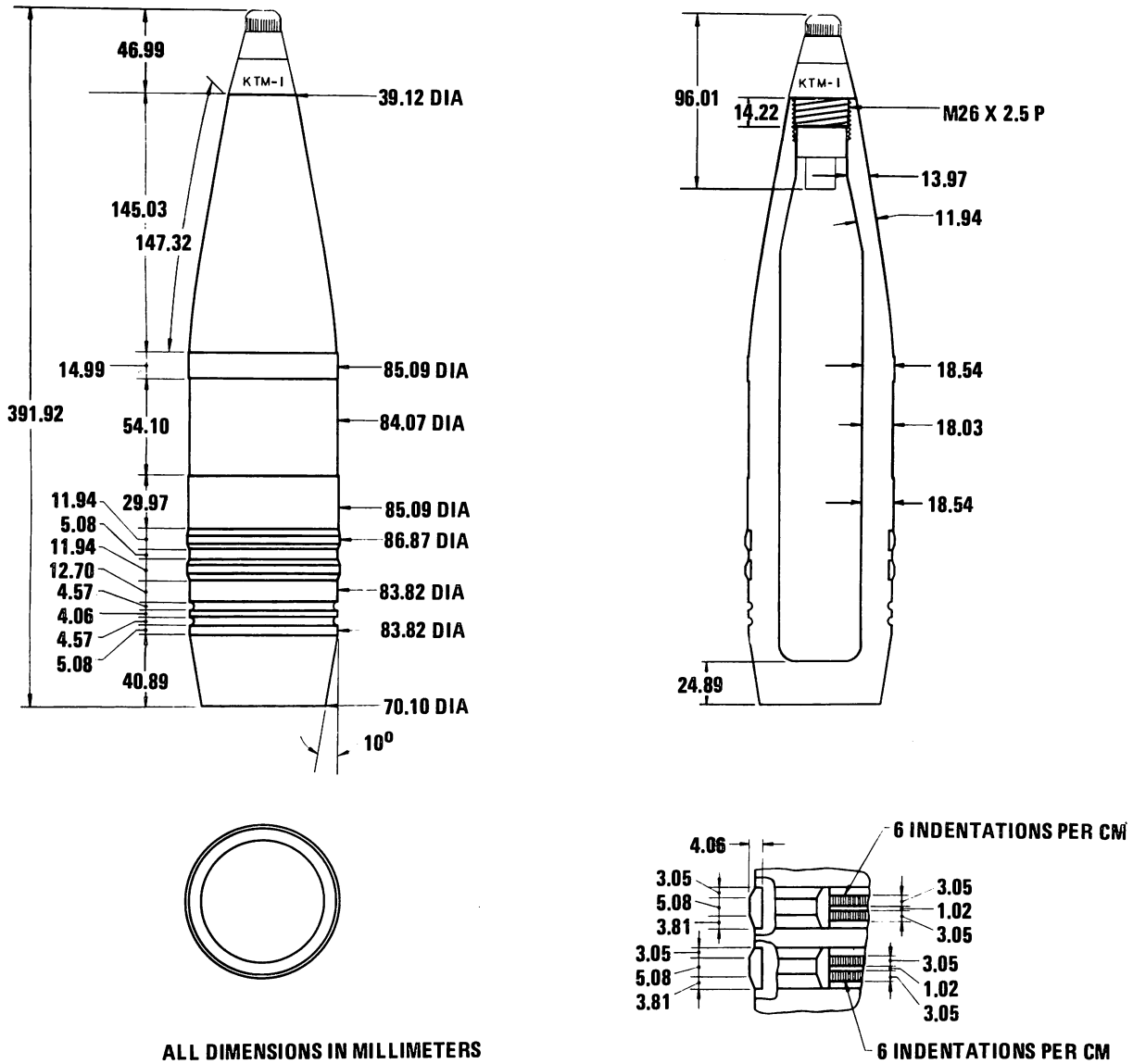
ALL DIMENSIONS IN MILLIMETERS

Neg. 502948

Projectile fuze wt: 3.18 kg  
 Fuze: Model ? PD  
 Filler type & wt: TNT, 0.57 kg

Using weapon(s): Mortar M1937, 1941, and M1943  
 Remarks: Weight is without fuze

Figure 2-154. Czechoslovak 82-mm Frag Projectile

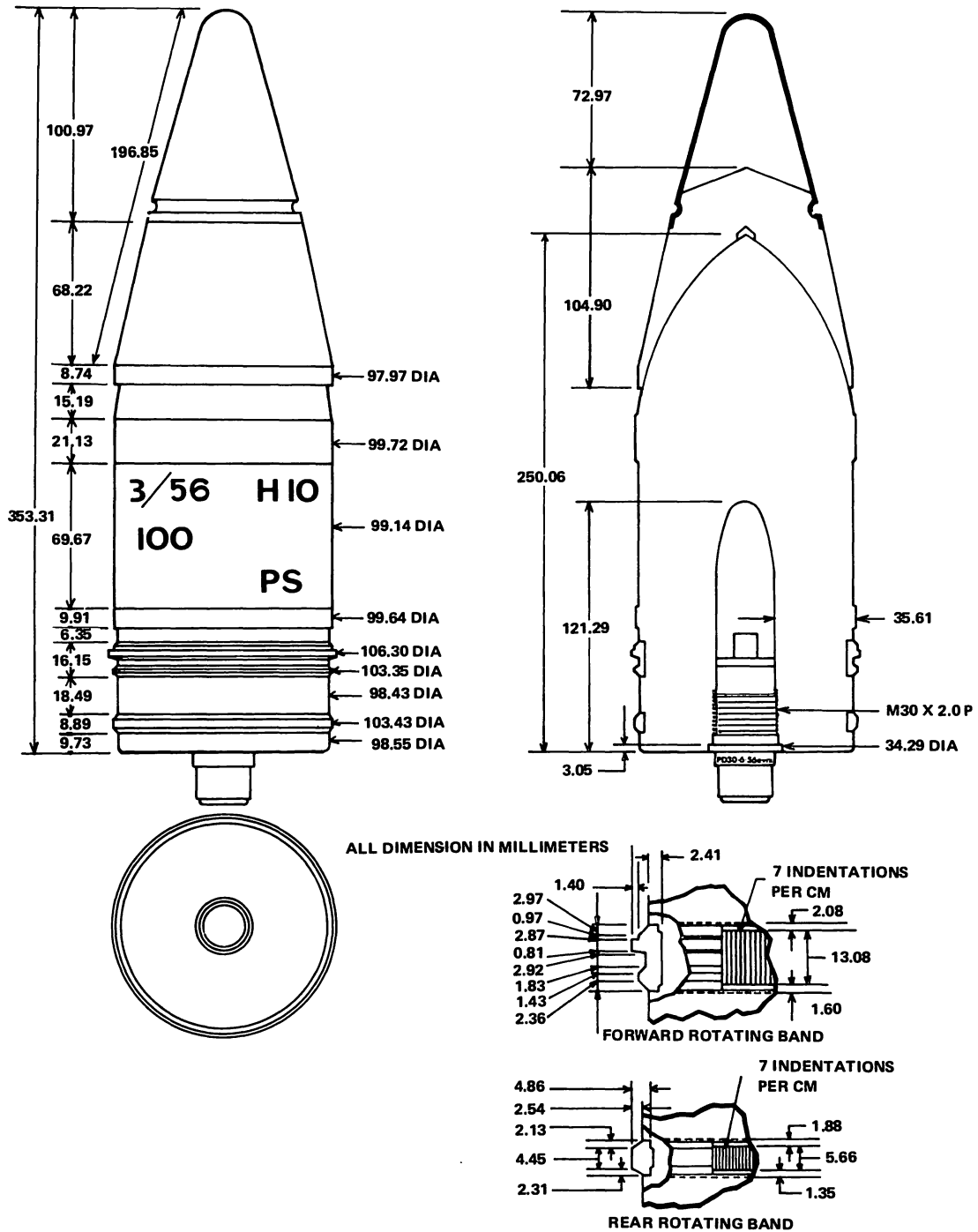


Neg. 502950

Projectile fuze wt: 8.36 kg  
 Fuze: KTM-1U PD  
 Filler type & wt: TNT, 0.78 kg

Using weapon(s): Field gun K-52/K-55 and AA gun PLK-39  
 Remarks: Copy of former Soviet 0-365K projectile

Figure 2-155. Czechoslovak 85-mm Frag Projectile Model OF



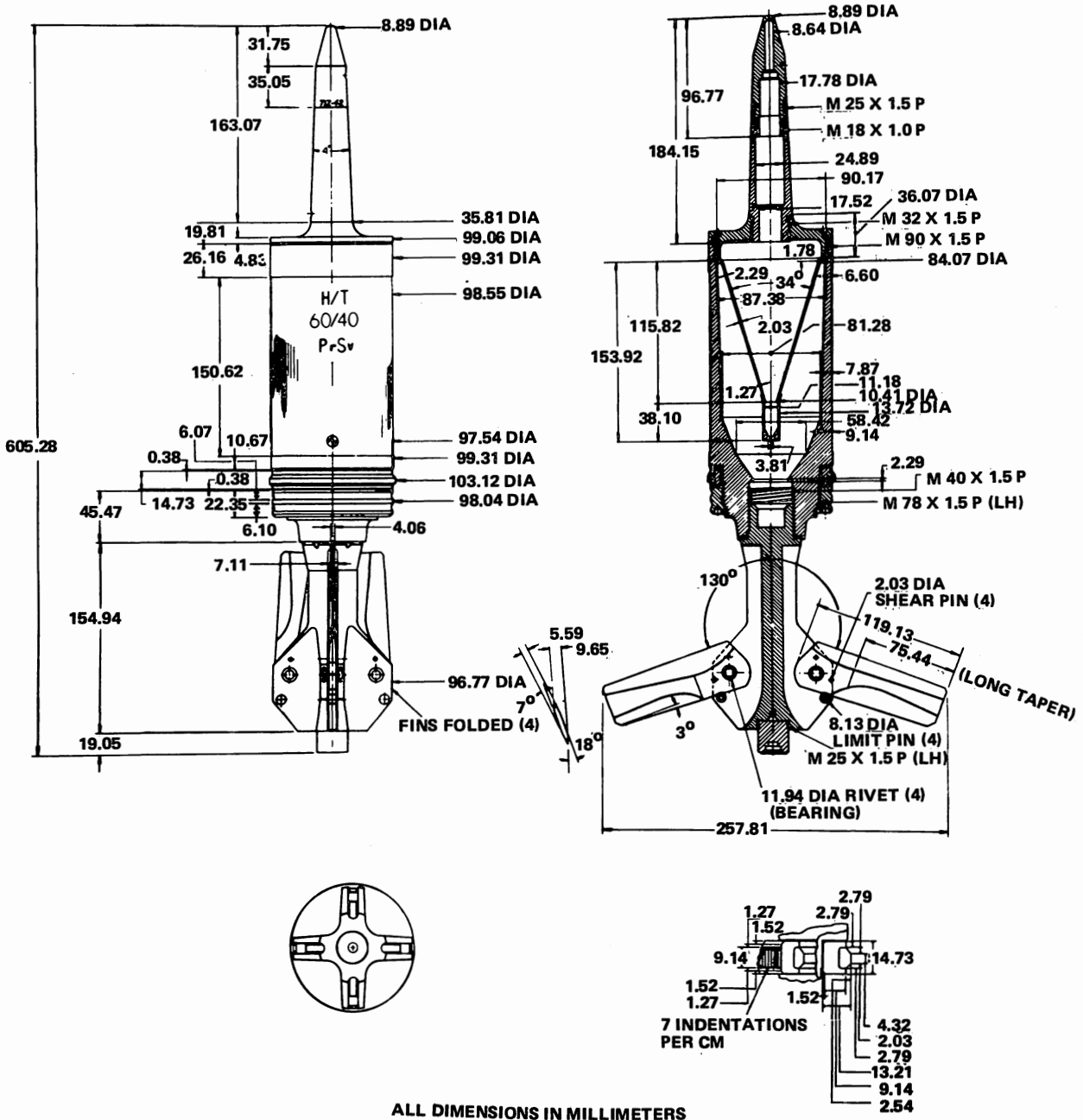
Neg. 502952

Projectile fuzed wt: 16 kg  
 Fuze: DZ-30 BD  
 Filler type & wt: RDX/wax, 0.06 kg

Using weapon(s): Field gun K-53, assault gun  
 ShK-44, and tank guns  
 T-54/T-55

Remarks: Similar to former Soviet BR-412D  
 projectile

Figure 2-156. Czechoslovak 100-mm APC-T Projectile Model PSv



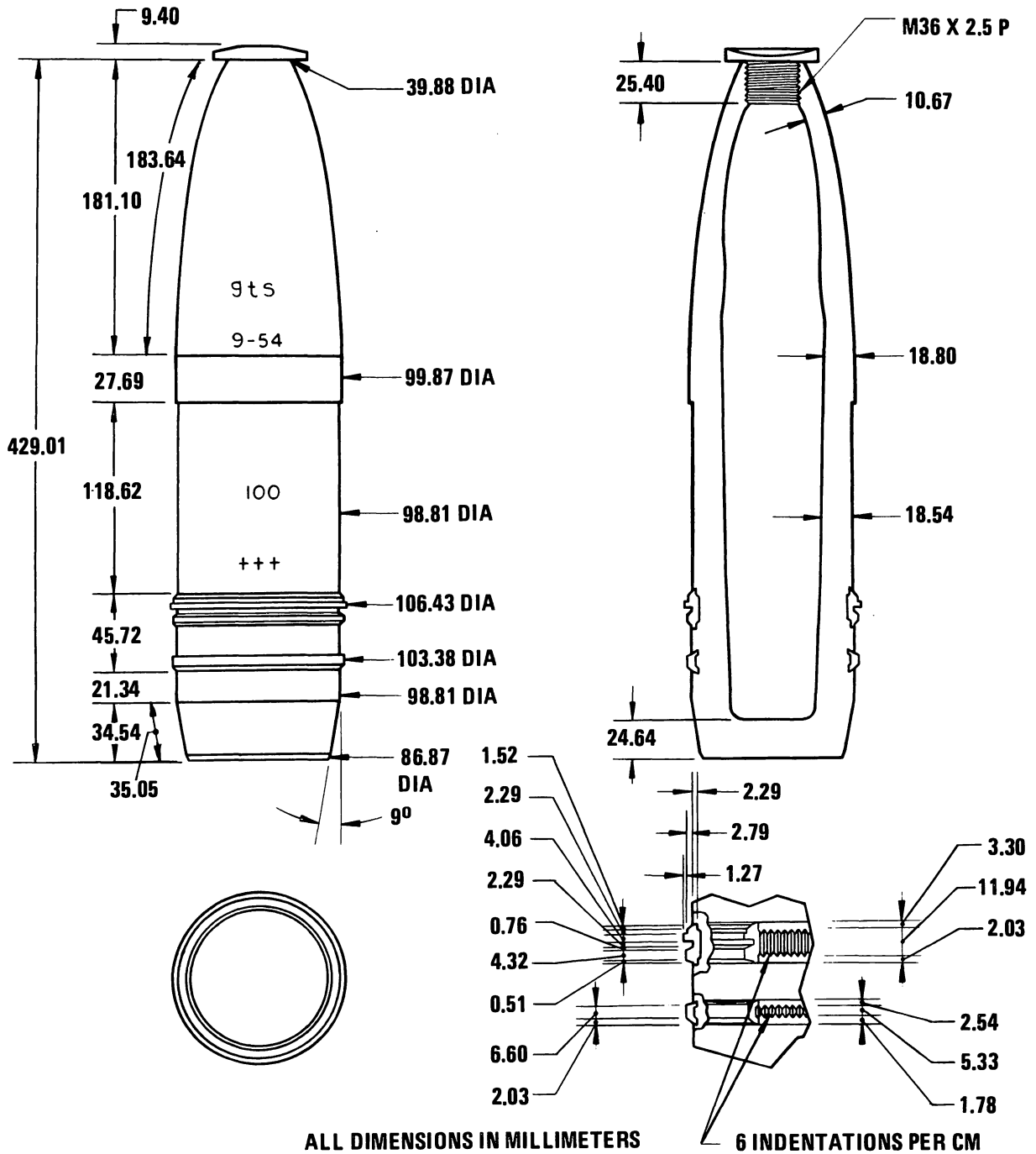
Neg. 520150

Projectile fuzed wt: 9.52 kg  
Fuze: NZ-42 PIBD  
Filler type & wt: TNT/RDX, 0.95 kg

Using weapons (s): Field gun K-53, assault gun  
ShK-44, and tank guns  
T-54/T-55

Remarks: None

Figure 2-157. Czechoslovak 100-mm HEAT-FS Projectile Model PrSv



Neg. 502951

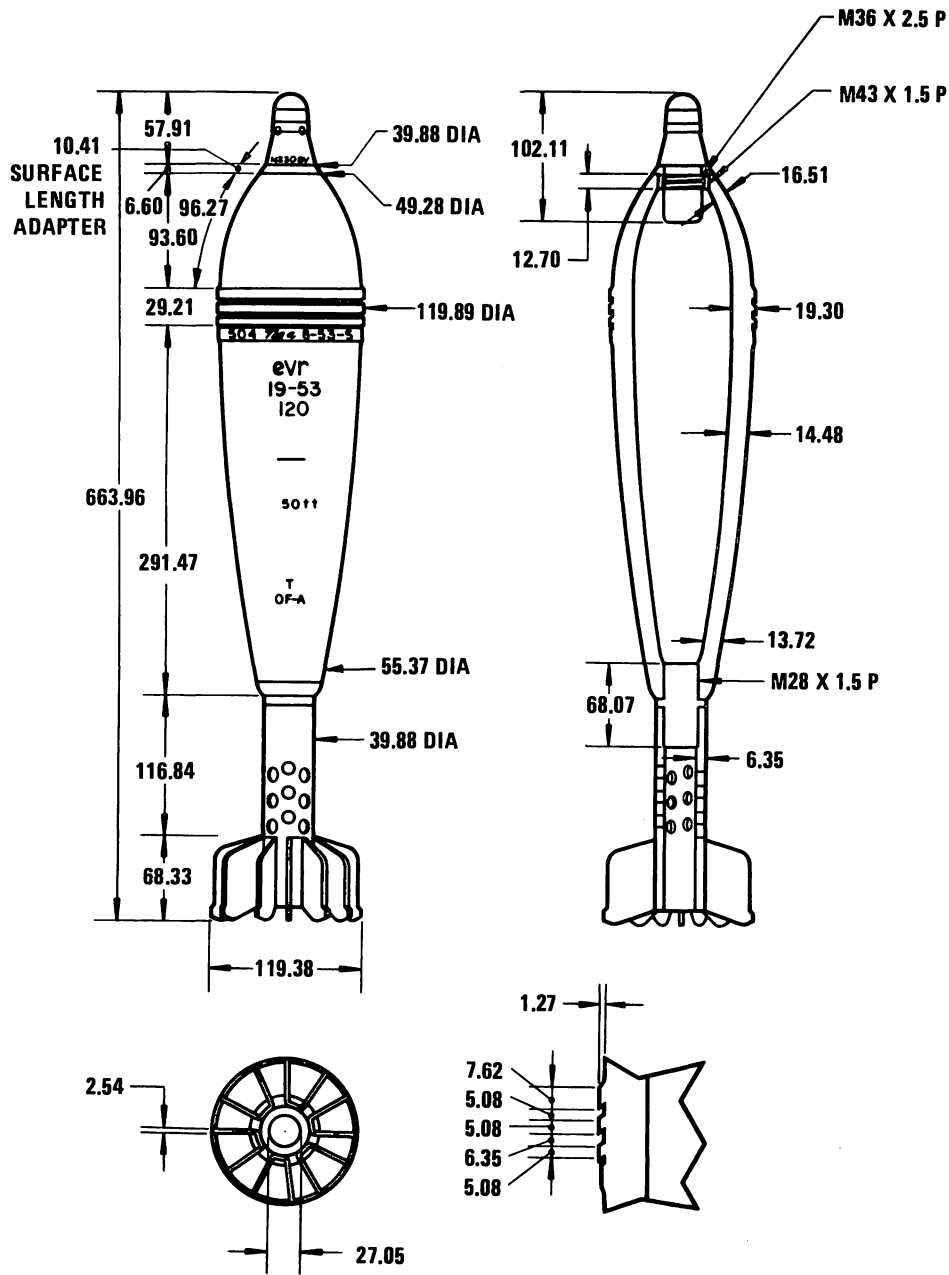
Projectile fuze wt: 15.96 kg  
Fuze: NZ-10av PD  
Filler type & wt: TNT, 1.59 kg

Using weapon(s): Field gun K-53, assault gun  
ShK-44, and tank guns  
T-54/T-55

Remarks: Shown without fuze. Also uses  
NZ-10bv and NZ-11 fuzes

Figure 2-158. Czechoslovak 100-mm HE Projectile Model OF





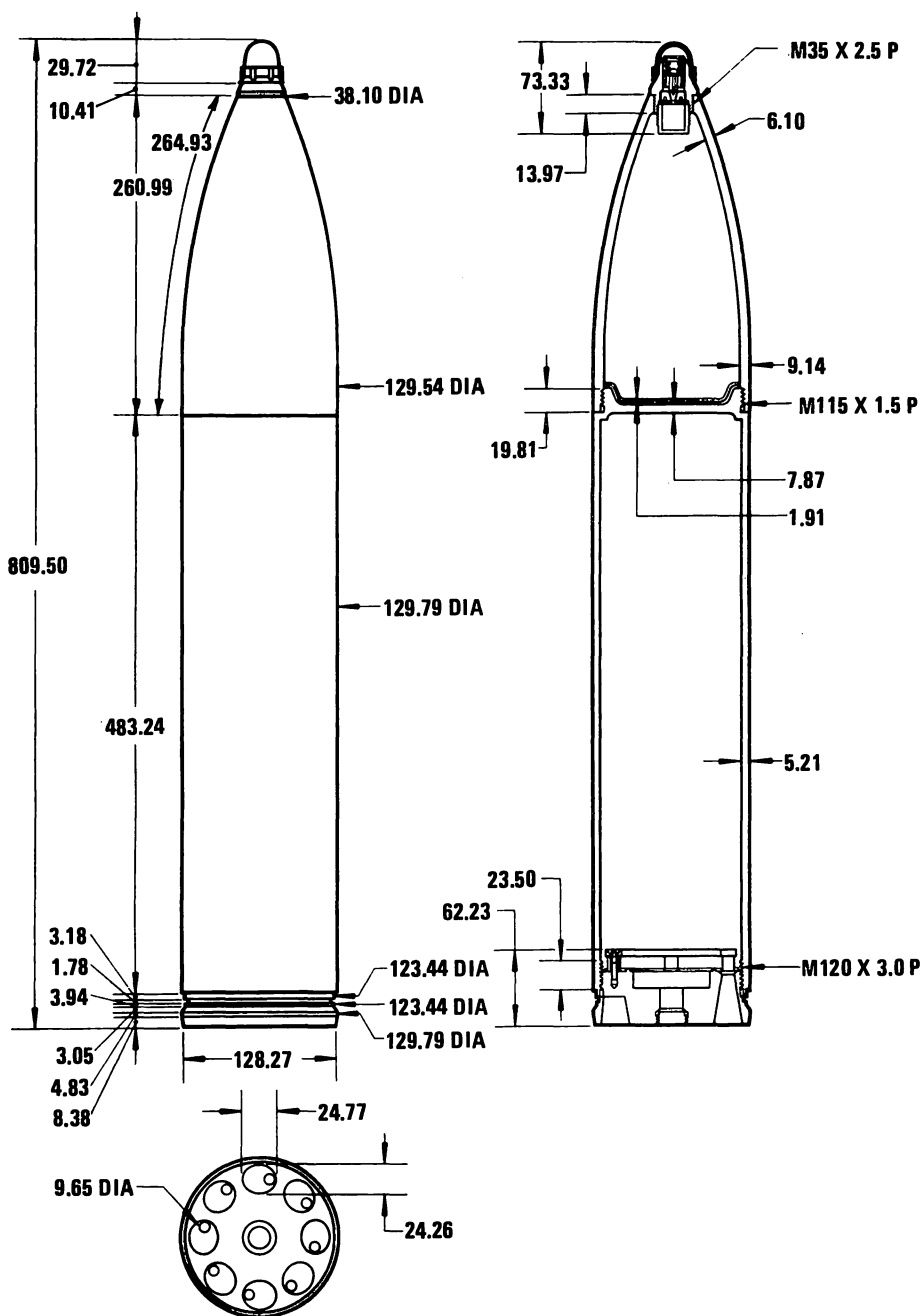
ALL DIMENSIONS IN MILLIMETERS

Neg. 502953

Projectile fuze wt: 15.33 kg  
 Fuze: MZ-30av PD  
 Filler type & wt: TNT, 2.04 kg

Using weapon(s): Former Soviet mortars M1938 and M1943  
 Remarks: None

Figure 2-159. Czechoslovak 120-mm HE Projectile Model OF-A



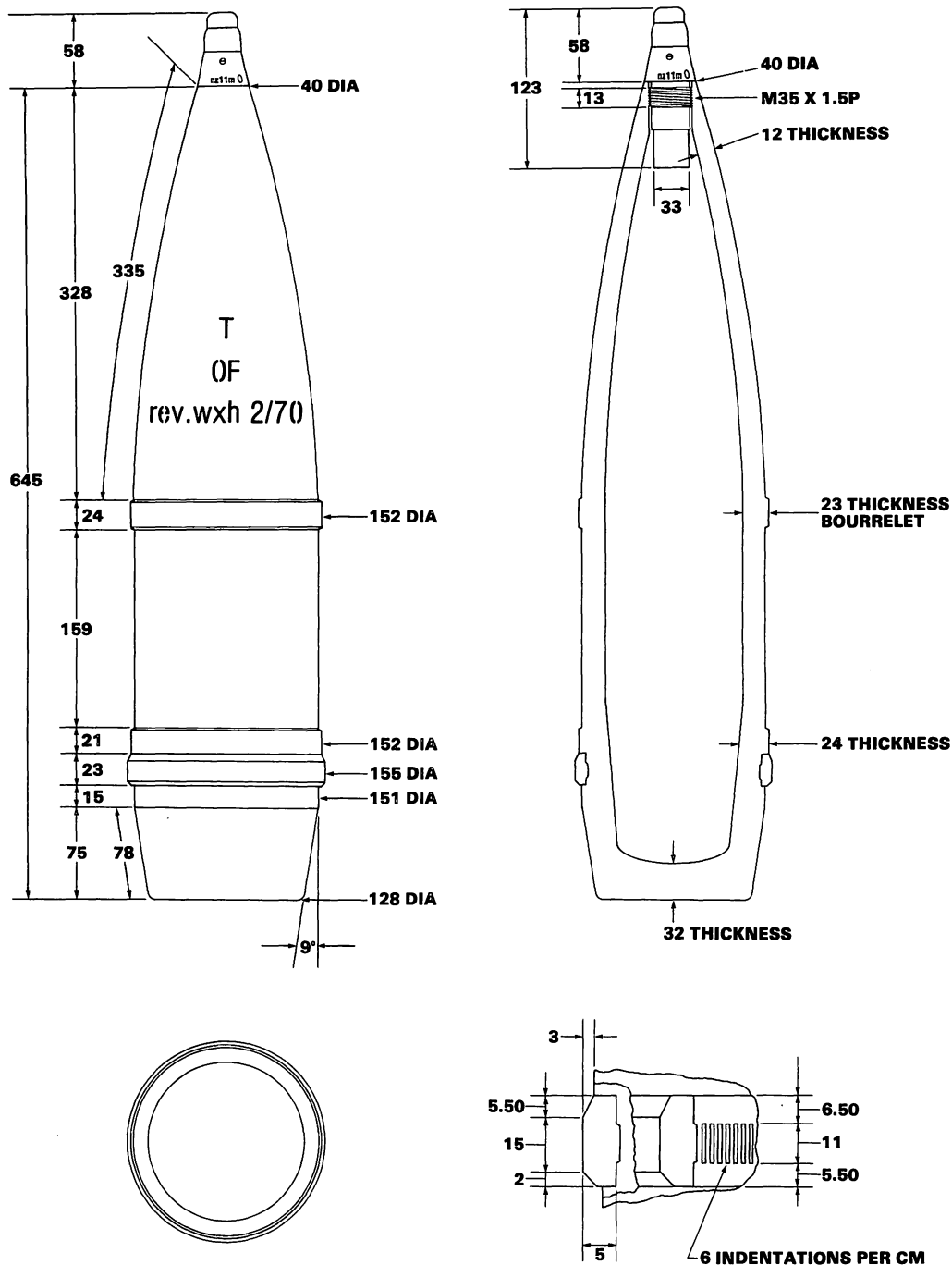
ALL DIMENSIONS IN MILLIMETERS

Neg. 502954

Projectile fuzed wt: 24.22 kg  
 Fuze: NZ-60V PD  
 Filler type & wt: TNT, 2.33 kg

Using weapon(s): Launcher M-51  
 Remarks: None

Figure 2-160. Czechoslovak 130-mm HE Rocket RP-2



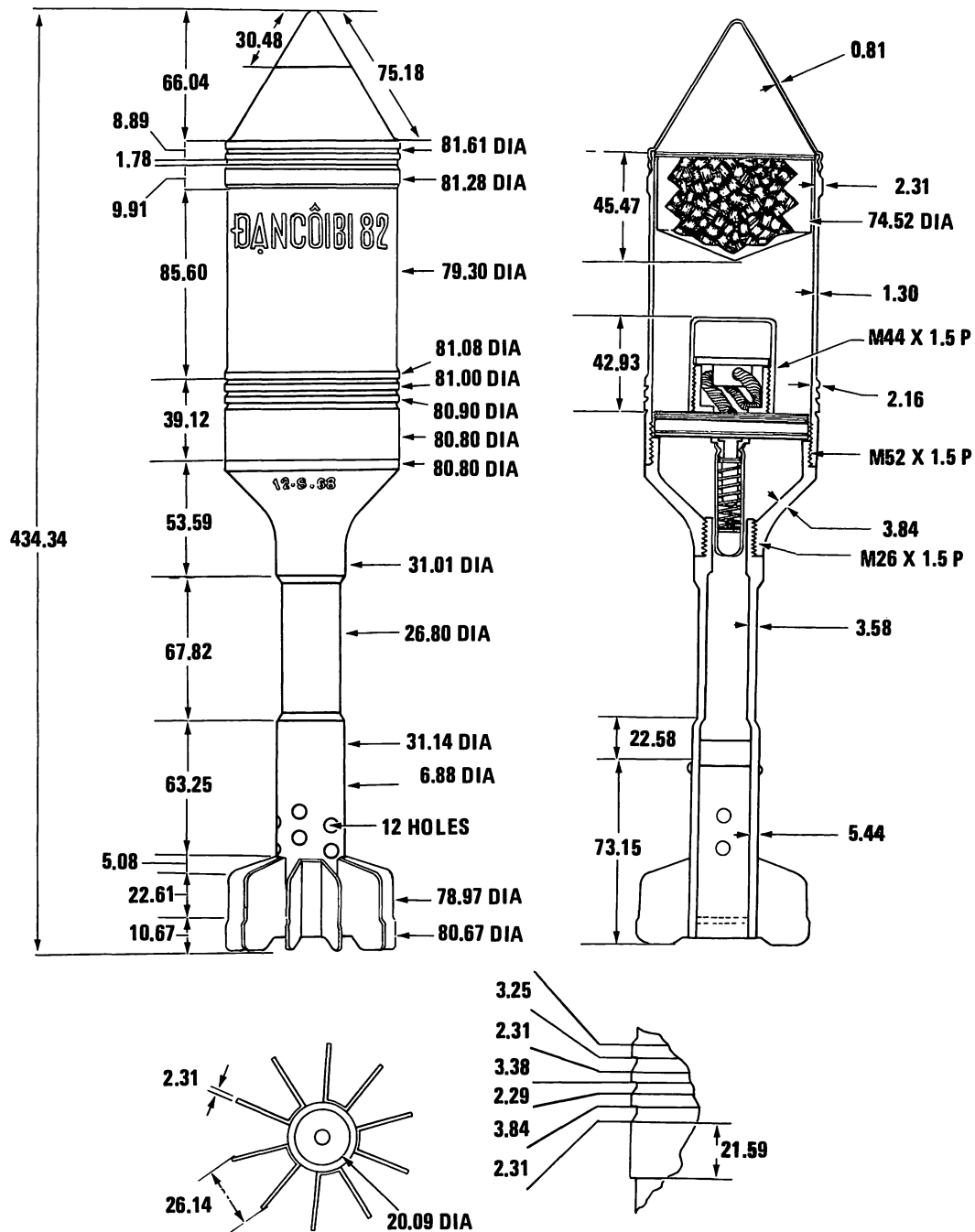
**ALL DIMENSIONS IN MILLIMETERS**

Neg. 000078

Projectile fuzed wt: 43.5 kg  
 Fuze: NZ-11M PD  
 Filler type & wt: TNT, 6.45 kg

Using weapon(s): Gun/how KH-37, how H18-47,  
 SP gun/how 1978  
 Remarks: Rotating band and seat are not dovetailed

Figure 2-161. Czechoslovak 152-mm HE Projectile Model OF



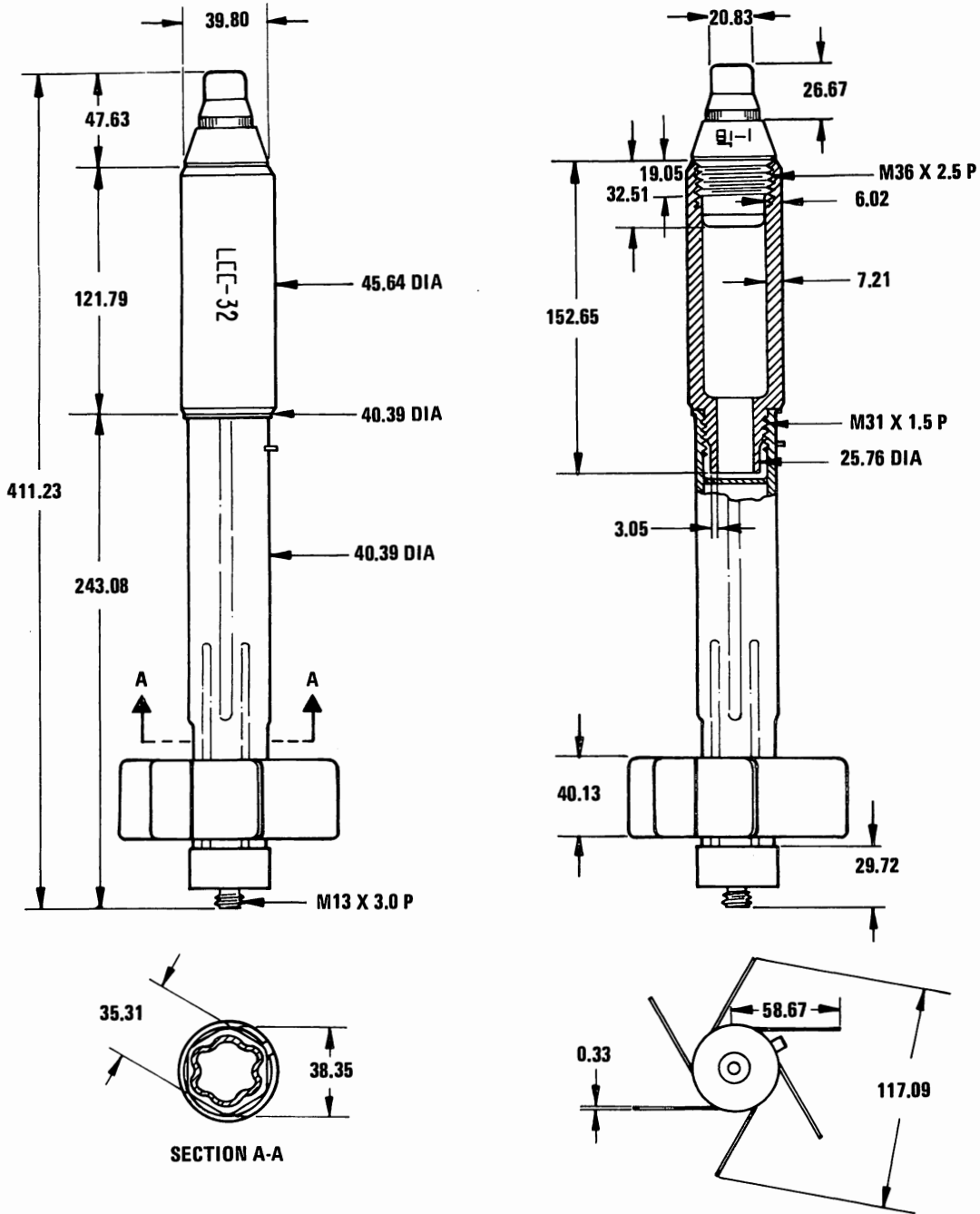
ALL DIMENSIONS IN MILLIMETERS

Neg. 502955

Projectile fuzed wt: 3.23 kg  
 Fuze: Type II base/time  
 Filler type & wt: TNT, 0.60 kg

Using weapon(s): Chinese mortars Types 20 and 53 and former Soviet M1937  
 Remarks: Projectile has payload of 240 steel fragments

Figure 2-162. Vietnamese 82-mm HE Projectile Model B1



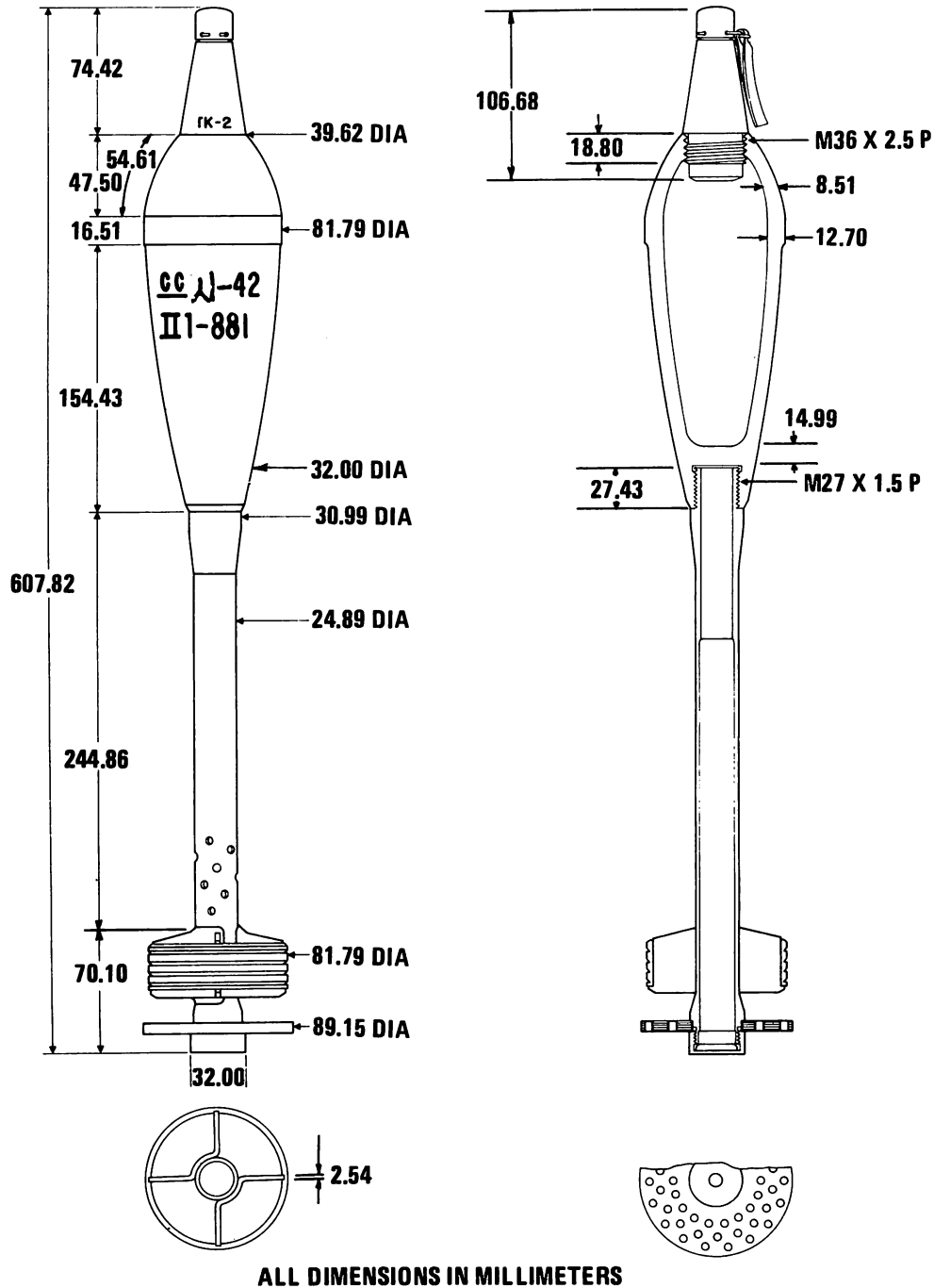
ALL DIMENSIONS IN MILLIMETERS

Neg. 502957

Projectile fuze wt: 1.77 kg  
 Fuze: M-1 PD  
 Filler type & wt: TNT/dinitronaphthalene,  
 0.10 kg

Using weapon(s): AT grenade launcher RPG-2  
 Remarks: Fuze is copy of former Soviet M-1

Figure 2-163. North Korean 40/45-mm HE Projectile Model LCC-32



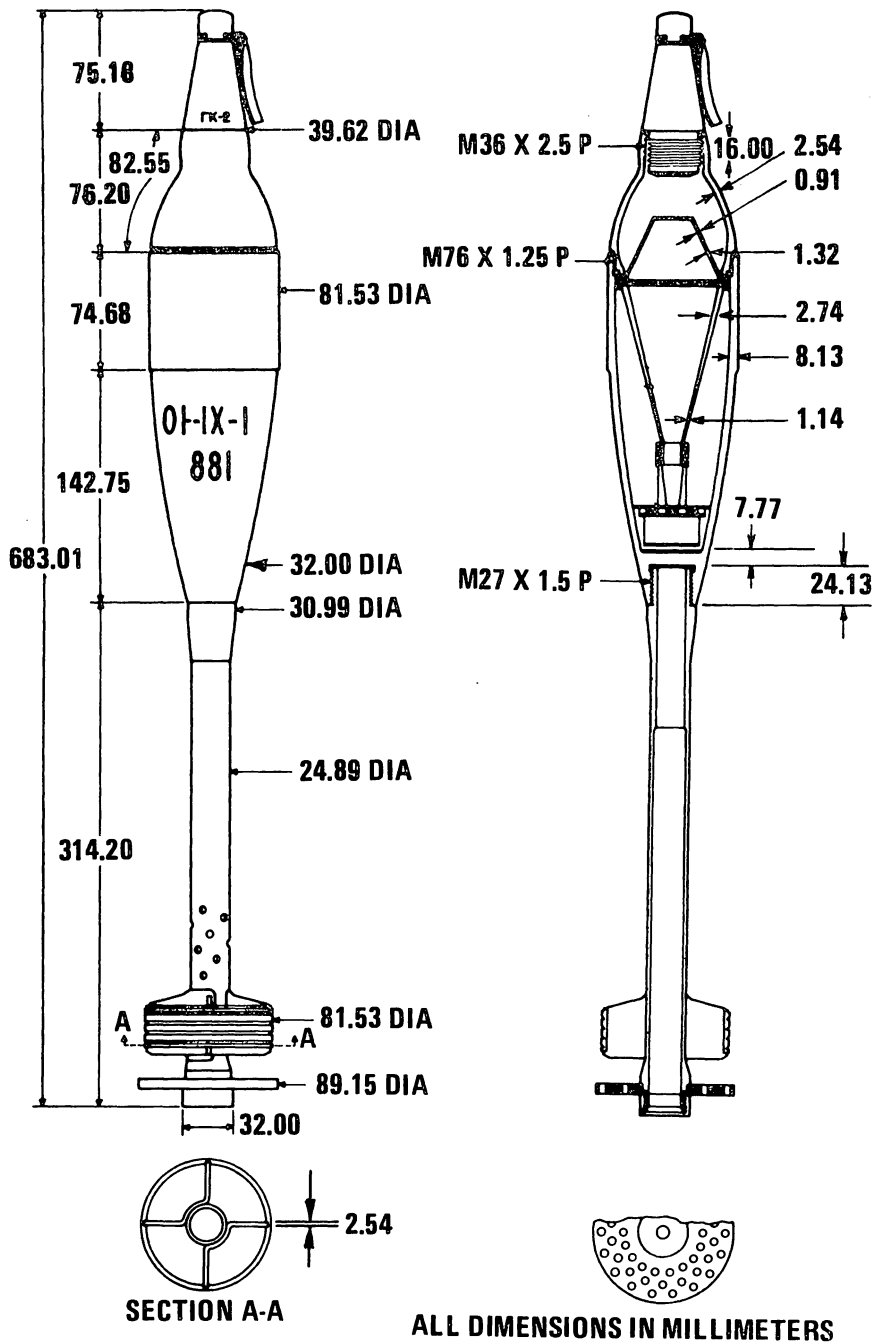
ALL DIMENSIONS IN MILLIMETERS

Neg. 502958

Projectile fuze wt: 4.05 kg  
 Fuze: GK-2 PD  
 Filler type & wt: TNT/dinitronaphthalene,  
 0.47 kg

Using weapon(s): Recoilless gun B-10  
 Remarks: Copy of former Soviet 0-881 projectile

Figure 2-164. North Korean 82-mm Frag Projectile Model 0-881

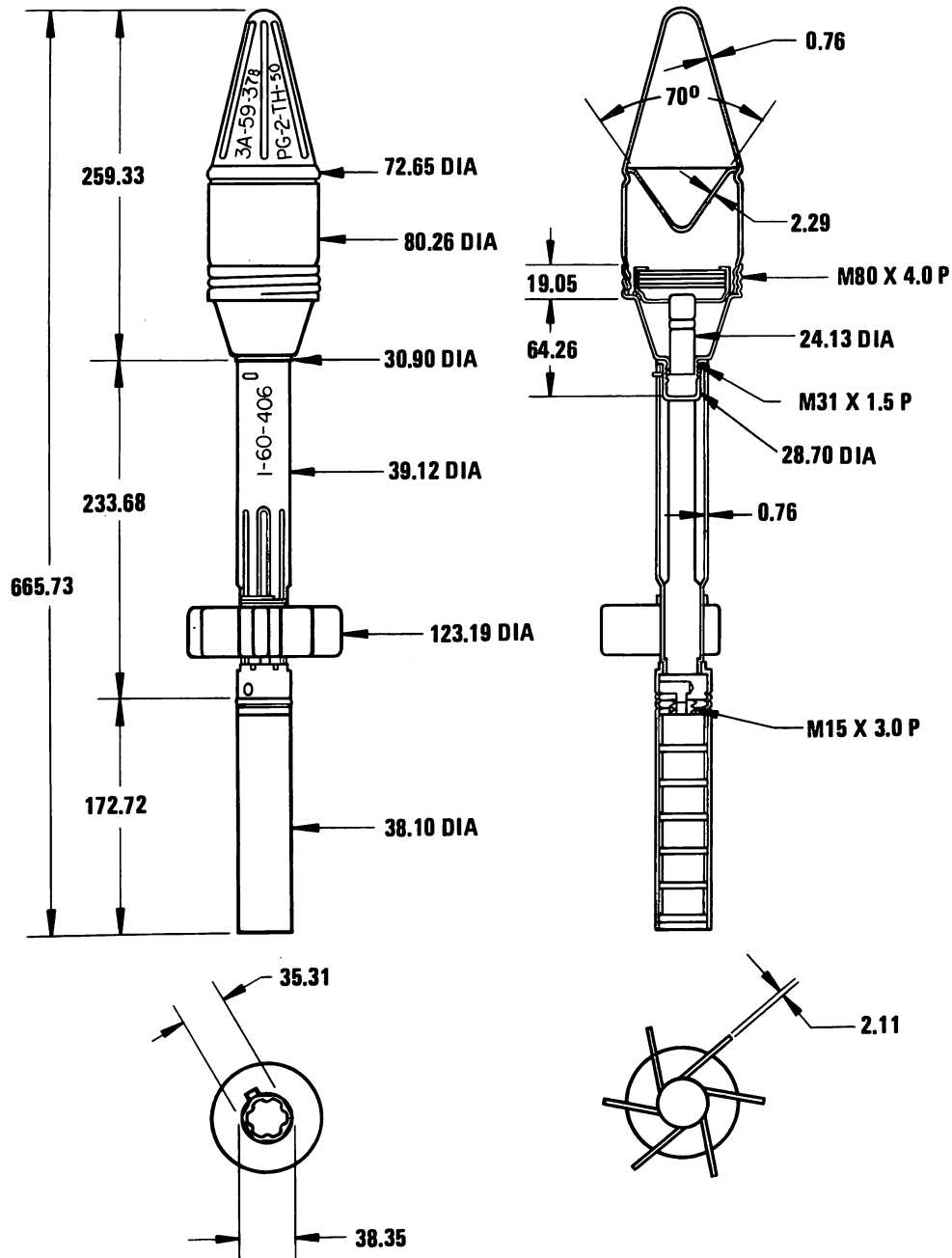


Neg. 502959

Projectile fuze wt: 3.89 kg  
Fuze: GK-2 PIBD  
Filler type & wt: RDX/wax, 0.54 kg

Using weapon(s): Recoilless gun B-10  
Remarks: Copy of former Soviet BK-881 projectile

Figure 2-165. North Korean 82-mm HEAT Projectile Model BK-881



ALL DIMENSIONS IN MILLIMETERS

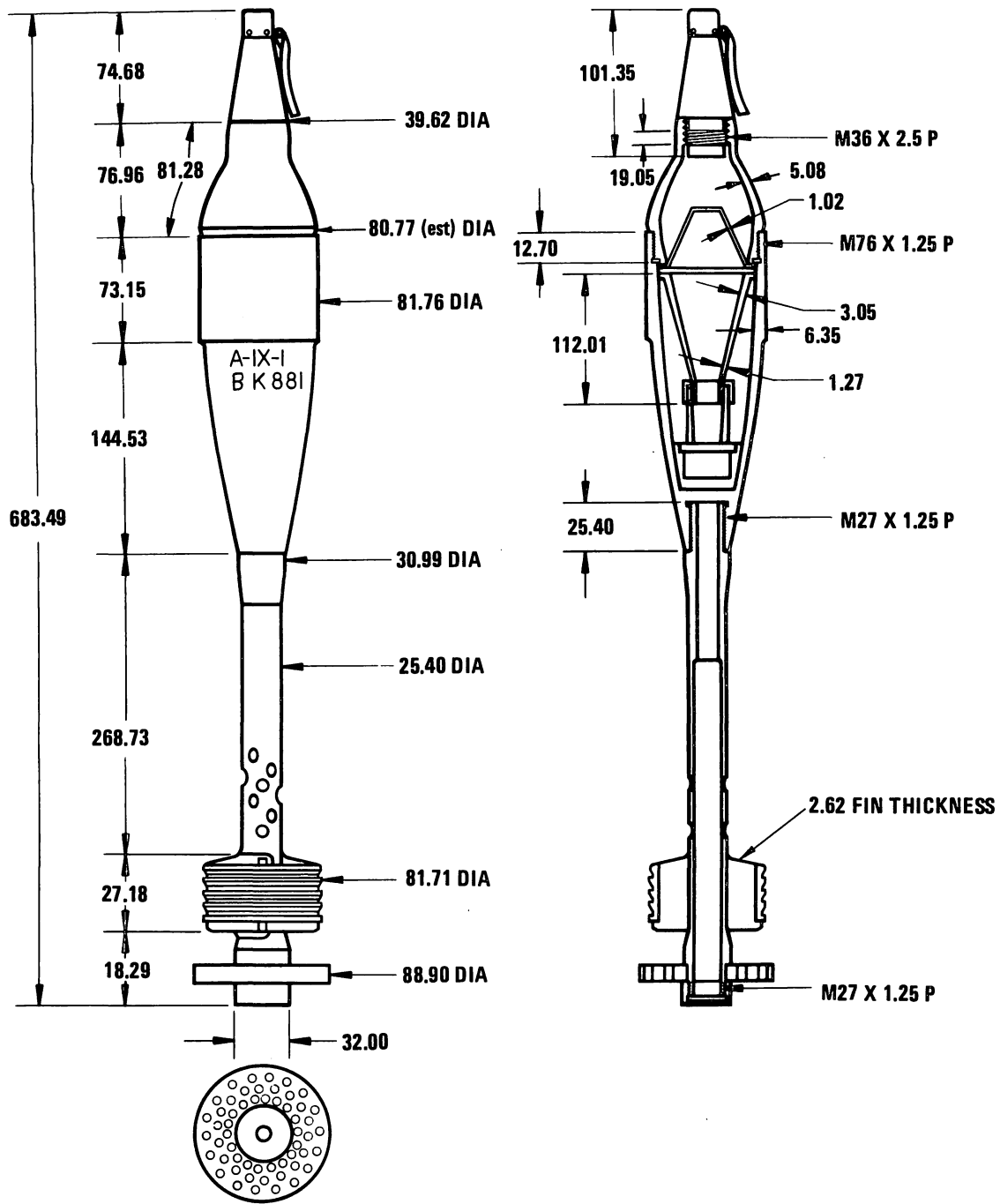
Neg. 502960

Projectile fuzed wt: 1.57 kg  
 Fuze: DK-2 BD  
 Filler type & wt: RDX/TNT, 0.47 kg

Using weapon(s): AT grenade launcher RPG-2  
 Remarks: Copy of former Soviet PG-2 projectile

Figure 2-166. Polish 40/80-mm HEAT Projectile Model PG-2



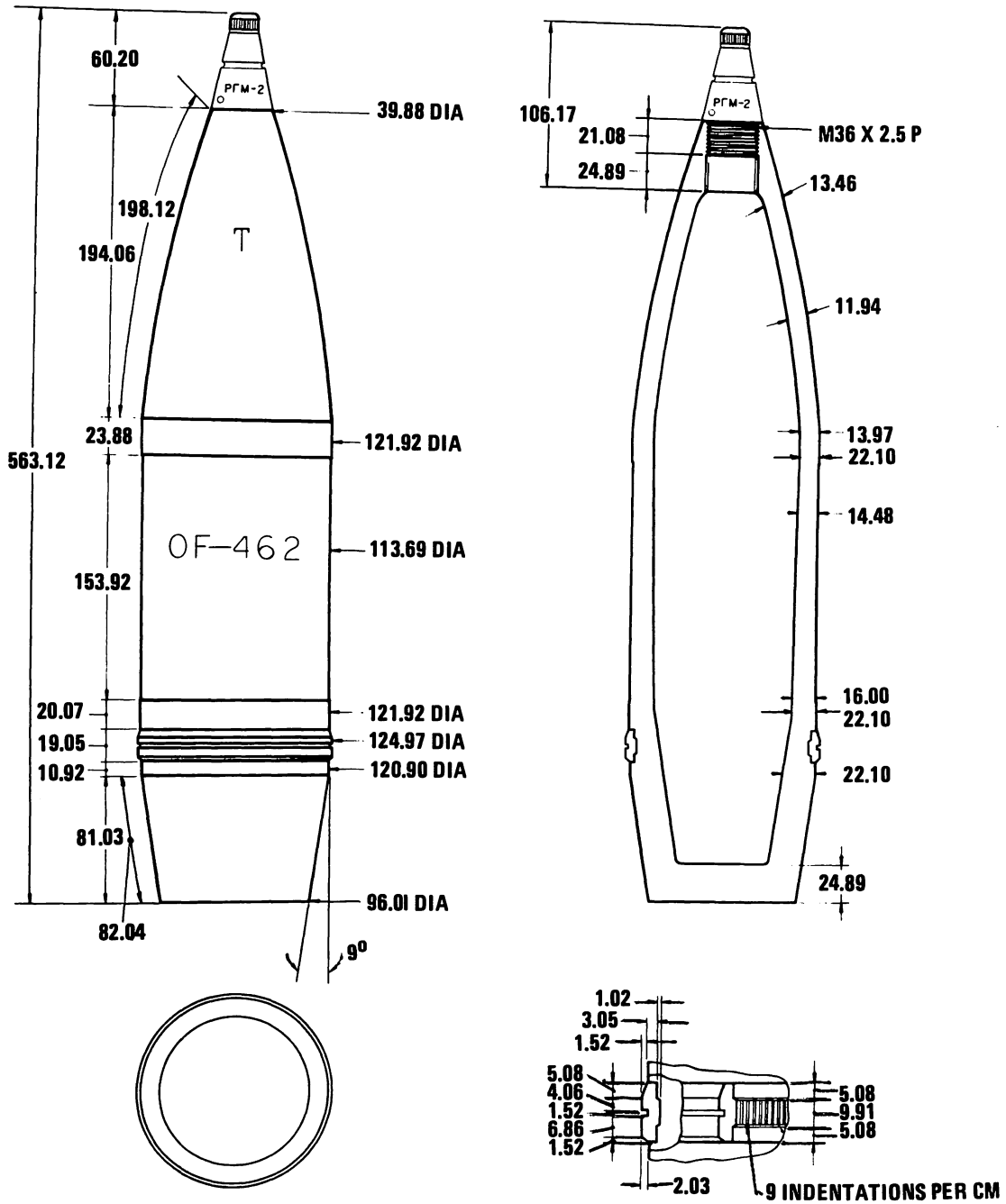


Neg. 502961

Projectile fuze wt: 3.87 kg  
 Fuze: GK-2 PIBD  
 Filler type & wt: RDX, 0.46 kg

Using weapon(s): Recoilless gun B-10  
 Remarks: Copy of former Soviet BK-881  
 projectile

Figure 2-167. Polish 82-mm HEAT Projectile Model BK-881



ALL DIMENSIONS IN MILLIMETERS

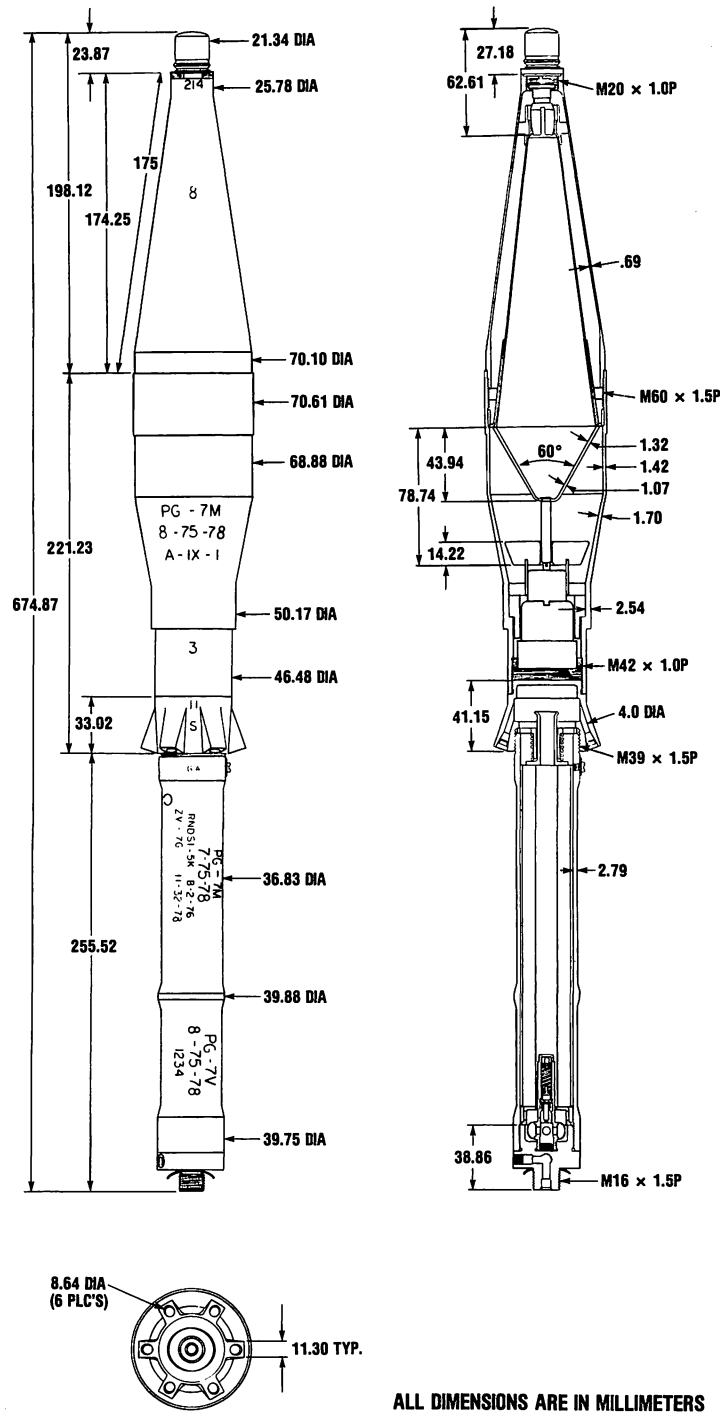
Neg. 502962

Projectile fuze wt: 21.76 kg  
 Fuze: RGM-2 PD  
 Filler type & wt: TNT, 3.46 kg

Using weapon(s): Howitzer M-30 (1938) and  
 D-30 SP howitzer 2S1 and  
 field gun A-19

Remarks: Copy of former Soviet OF-462  
 projectile

Figure 2-168. Polish 122-mm Frag-HE Projectile Model OF-462

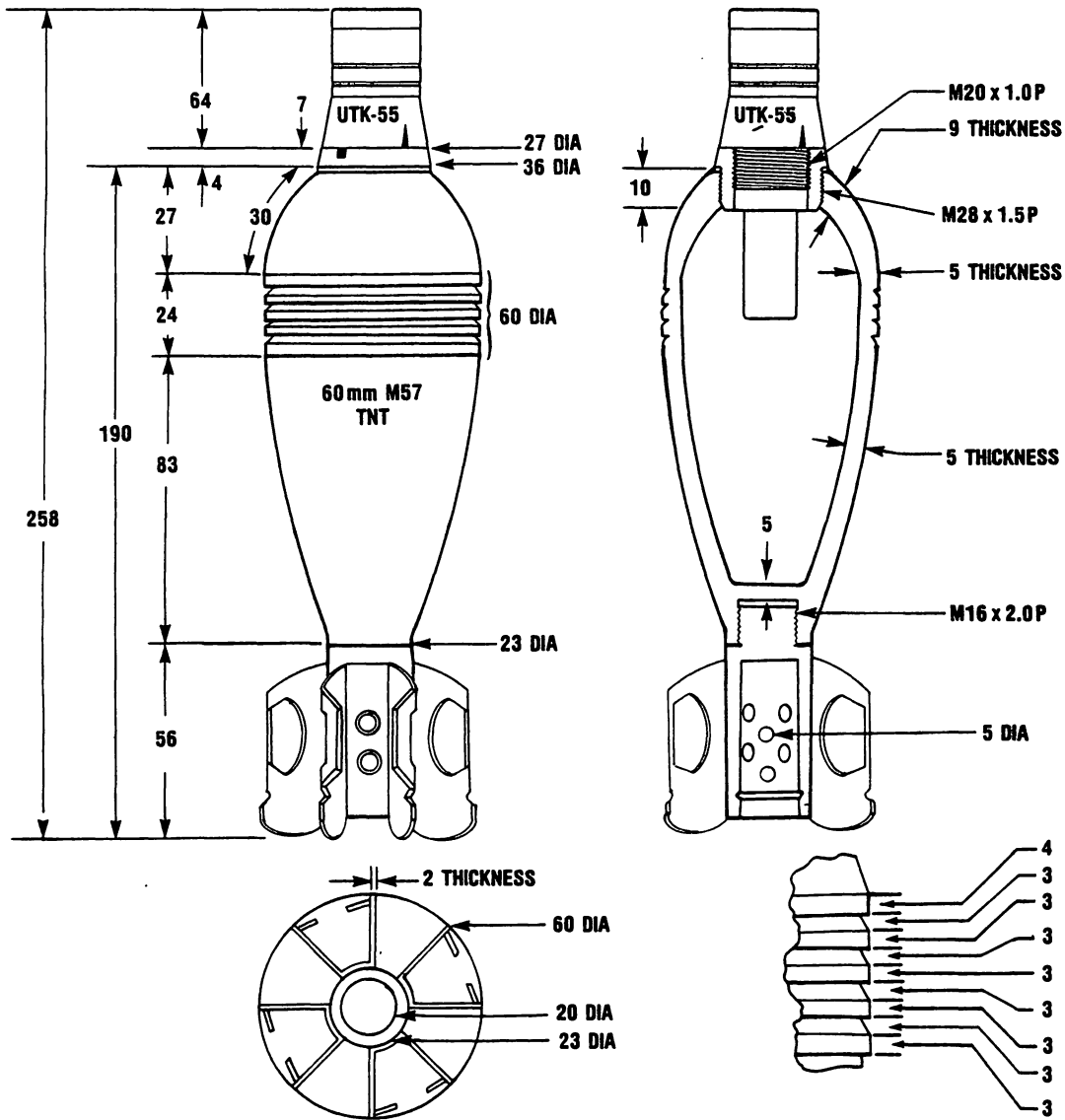


ALL DIMENSIONS ARE IN MILLIMETERS

Projectile fuzed wt: 2.02 kg  
 Fuze: VP-7 PIBD  
 Filler type & wt: RDX/wax, 0.31 kg

Using weapon(s): RPG-7 AT grenade launcher  
 Remarks: Launcher is 40-mm. Projectile has 70-mm warhead, otherwise is similar to former Soviet PG-7 grenade

Figure 2-169. Romanian 40/70-mm HEAT Projectile Model PG-7M



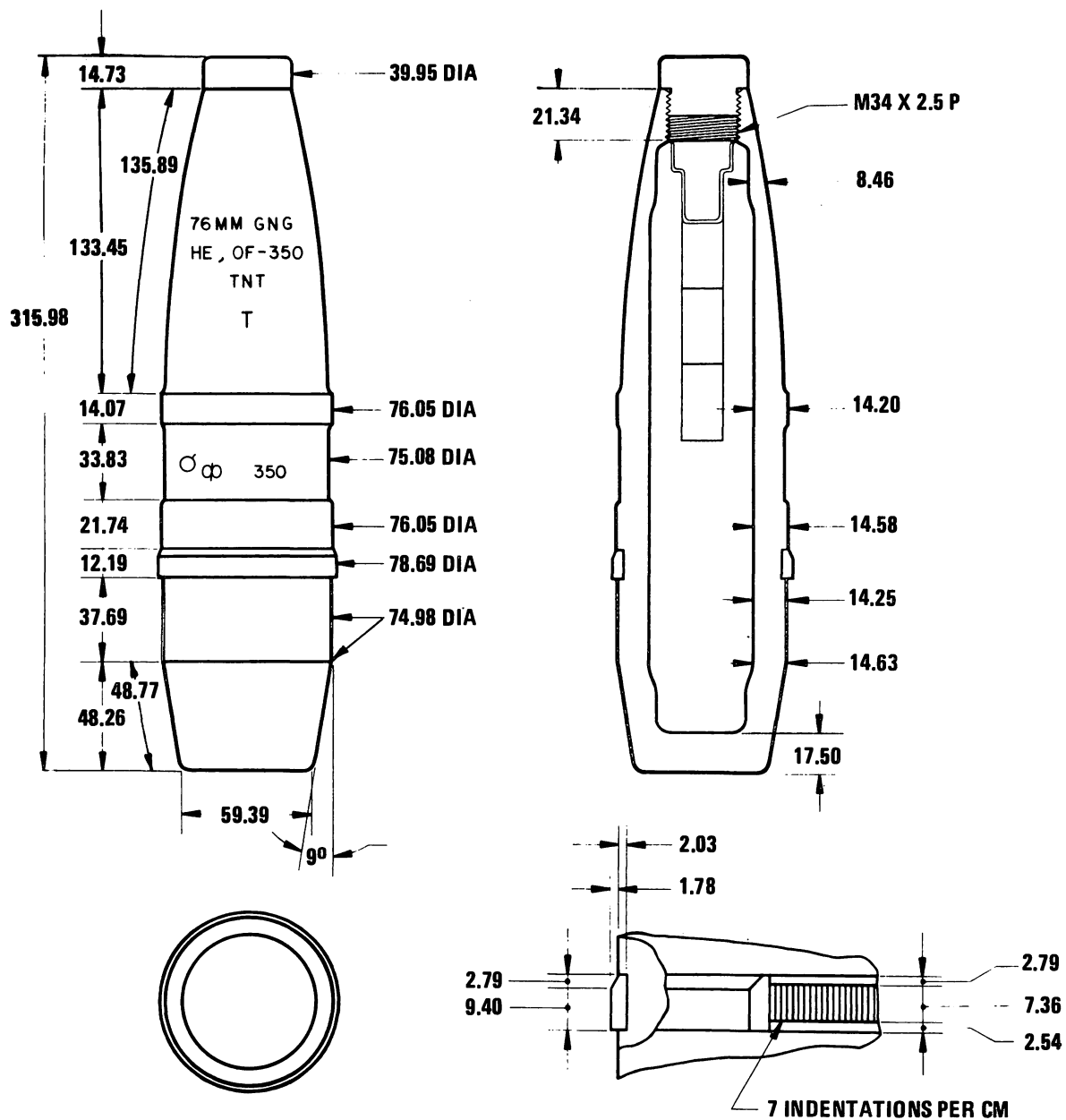
ALL MEASUREMENTS IN MILLIMETERS

Neg. 536570

Projectile fuzed wt: 1.35 kg  
 Fuze: M55 PP  
 Filler type & wt: TNT, 0.18 kg

Using weapon(s): M57 mortar  
 Remarks: None

Figure 2-170. Yugoslav 60-mm HE Projectile Model M57



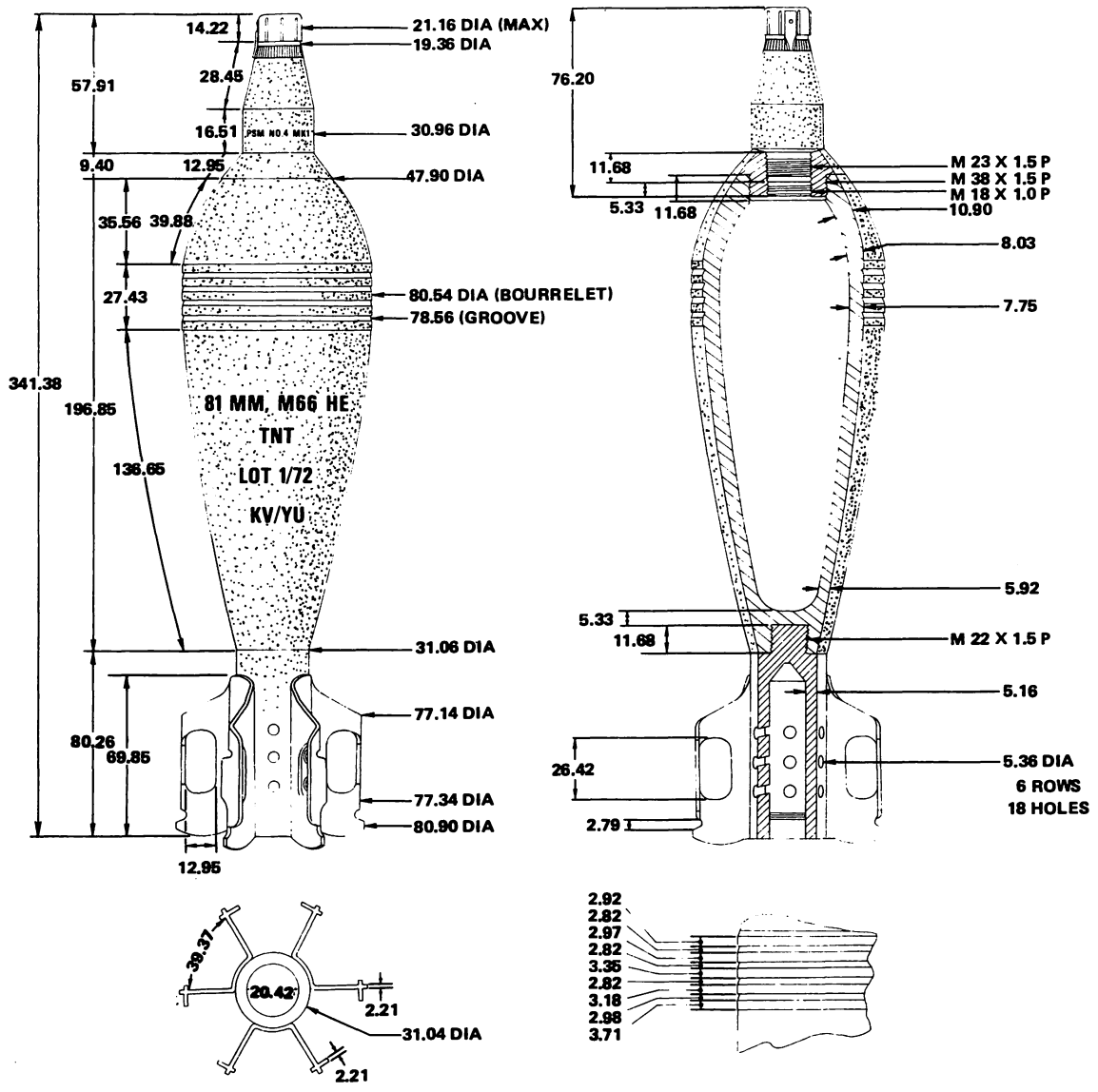
ALL DIMENSIONS IN MILLIMETERS

Neg. 502963

Projectile fuzed wt: 6.20 kg  
Fuze: KTM-1 PD  
Filler type & wt: TNT, 0.63 kg

Using weapon(s): Mountain gun M-48  
Remarks: Shown with nose plug

Figure 2-171. Yugoslav 76-mm HE Projectile Model OF-350



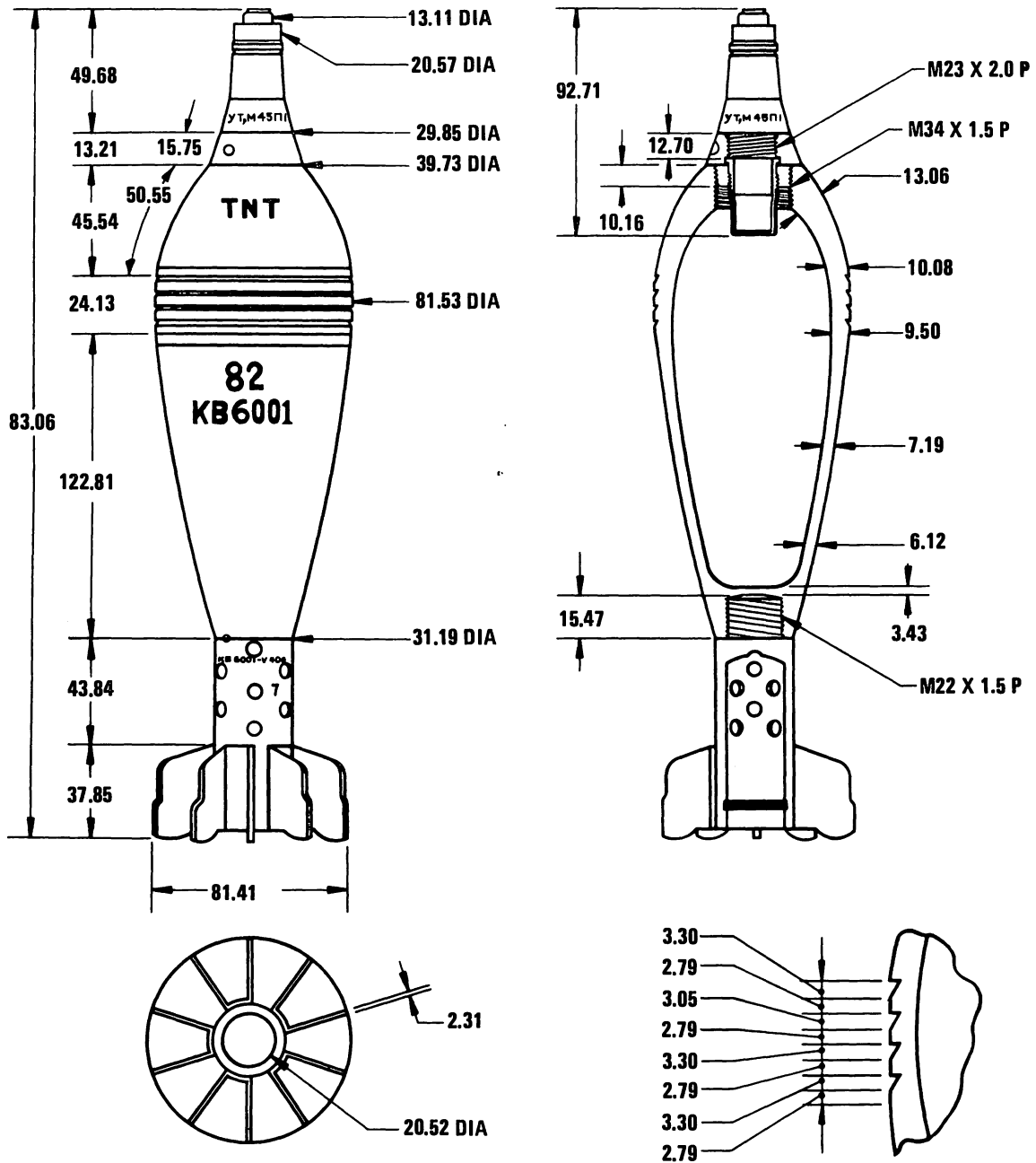
ALL DIMENSIONS IN MILLIMETERS

Neg. 521075

Projectile fuze wt: 3.35 kg  
 Fuze: PSM No. 4, MK-1 PD  
 Filler type & wt: TNT, 0.71 kg

Using weapon(s): Mortar M-5  
 Remarks: Charge weight includes a 46-gram supplementary TNT charge

Figure 2-172. Yugoslav 81-mm HE Projectile Model M66



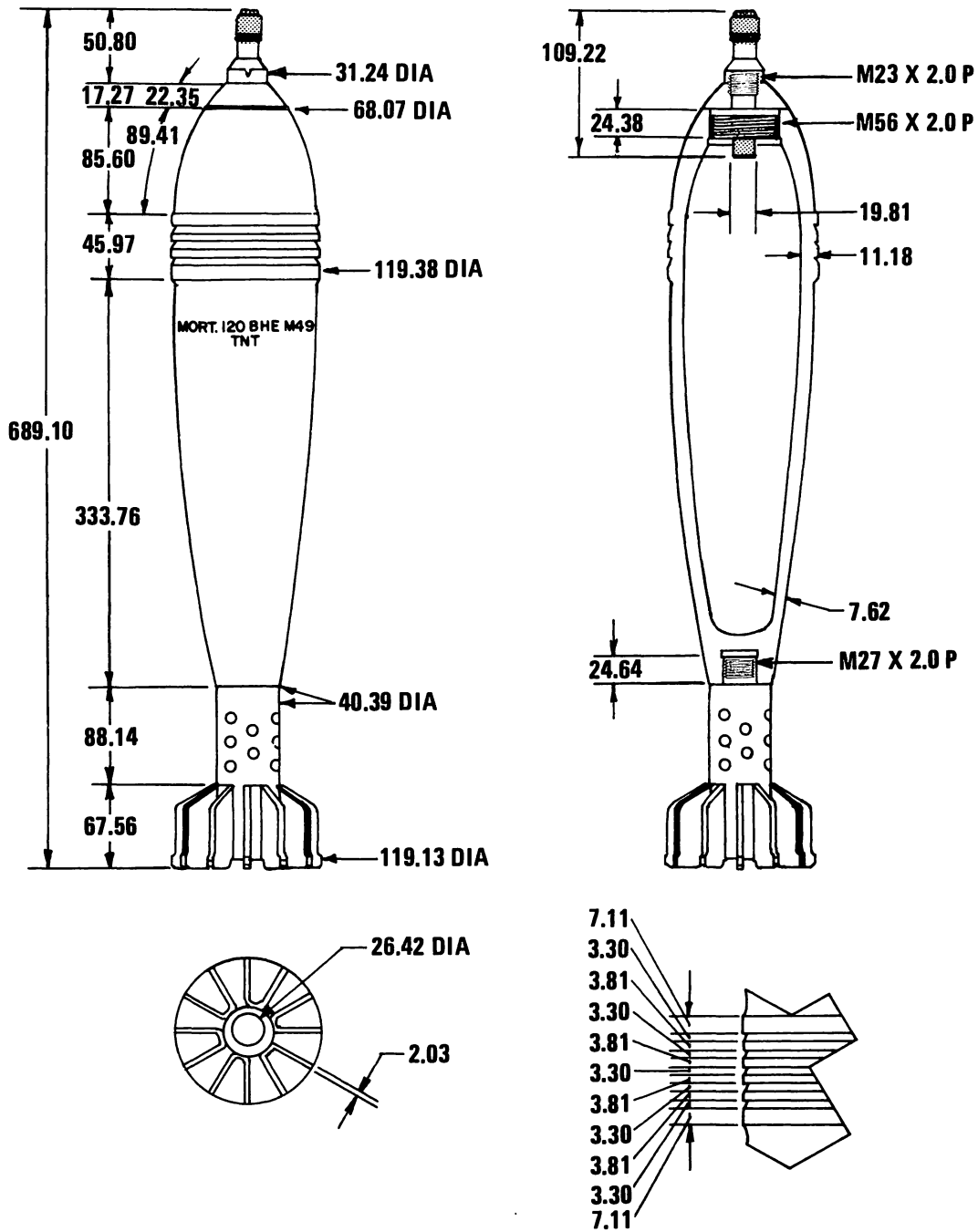
ALL DIMENSIONS IN MILLIMETERS

Neg. 502964

Projectile fuzed wt: 3.31 kg  
 Fuze: UT M45P1 PD  
 Filler type & wt: TNT, 0.46 kg

Using weapon(s): Mortar M-31, M-68, and Type 52  
 Remarks: None

Figure 2-173. Yugoslav 82-mm HE Projectile Model M31



ALL DIMENSIONS IN MILLIMETERS

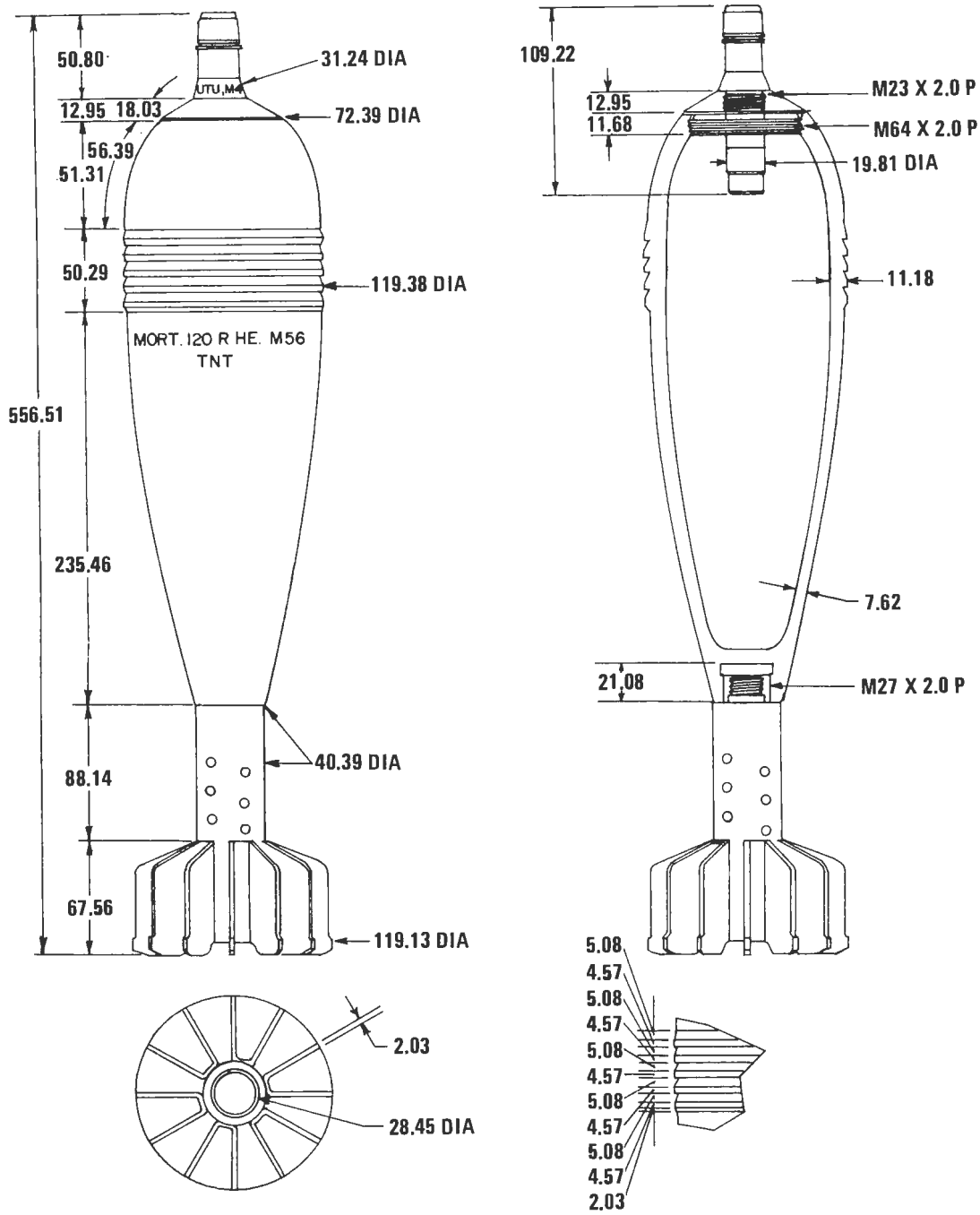
Neg. 502965

Projectile fuzed wt: 15.91 kg  
 Fuze: B-45TU PD  
 Filler type & wt: TNT, 3.10 kg

Using weapon(s): Mortar UB M-52  
 Remarks: Fuze is modified Brandt 1945 design

Figure 2-174. Yugoslav 120-mm HE Projectile Model 49





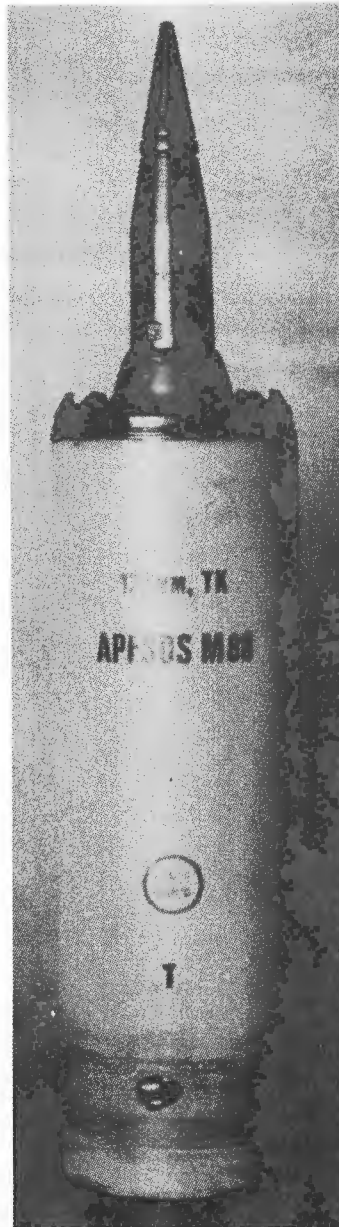
ALL DIMENSIONS IN MILLIMETERS

Neg. 502966

Projectile fuze wt: 12.21 kg  
 Fuze: UTU-M45 PD  
 Filler type & wt: TNT, 2.50 kg

Using weapon(s): Mortar UB M-52  
 Remarks: Fuze is copy of 1945 Brandt design

Figure 2-175. Yugoslav 120-mm HE Projectile Model 56

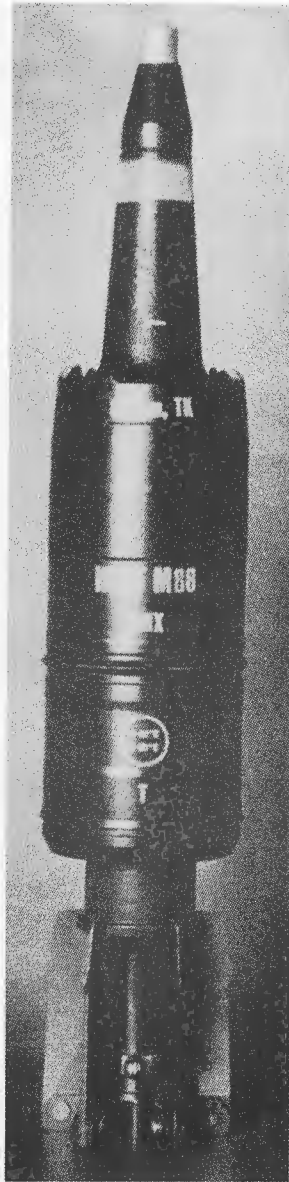


Neg. U-INT.003720

Projectile length: 550 mm  
Projectile mass: 5.86/3.82 kg  
Core material: Steel, WC tip

Using weapon(s): D81 gun, 2A45M ATG  
Remarks: Copy of Russian BM-15

Figure 2-176. Yugoslav 125-mm APFSDS-T Projectile Model M88

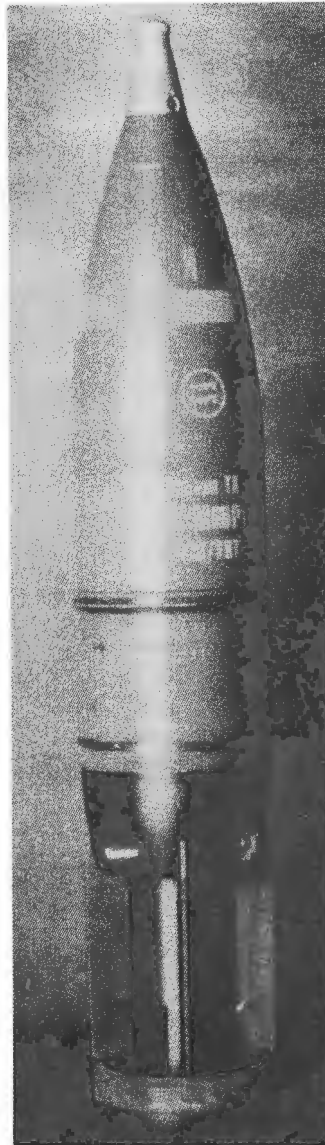


Neg. U-INT.003718

Projectile length: 680 mm  
Projectile mass: 19.1 kg  
Filler Mat: Octogen, 1.75 kg

Using weapon(s): D81 tank gun, 2A45M ATG  
Remarks: Copy of Russian Bk-14M

Figure 2-177. Yugoslav 125-mm HEAT Projectile Model M88

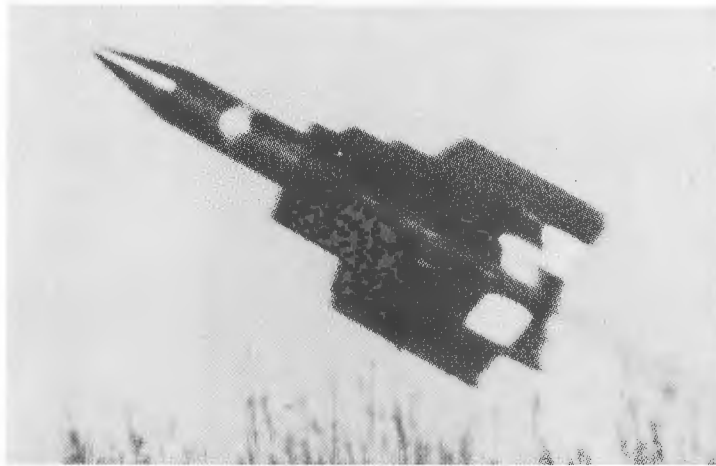


Neg. U-INT.003719

Projectile length: 615/670 mm fuze  
Projectile mass: 21.19 kg  
Filler Mat: TNT, 3.3 kg

Using weapon(s): D81 tank gun, 2A45M ATG  
Remarks: Copy of Russian OF-19

Figure 2-178. Yugoslav 125-mm Frag-HE Projectile Model M86



Missile length: 1020 mm  
Wing span: 420 mm  
Missile weight: 12.5 kg  
Explosive filler: 2.8 kg ?

Using weapon(s): Crew Portable  
Remarks: None

Figure 2-179. Argentinean 104-mm ATGM Model MATHOGO

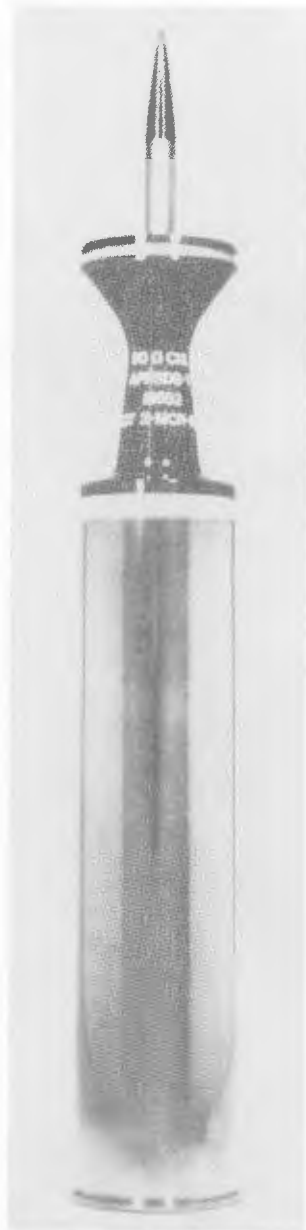


Neg. U-INT.003553

Projectile length: 313 mm  
Projectile mass: 1.3 kg w/o sabot  
Core: Tungsten alloy

Using weapon(s): OTO Melara  
Remarks: None

Figure 2-180. Belgian 60-mm APFSDS Projectile Model M300



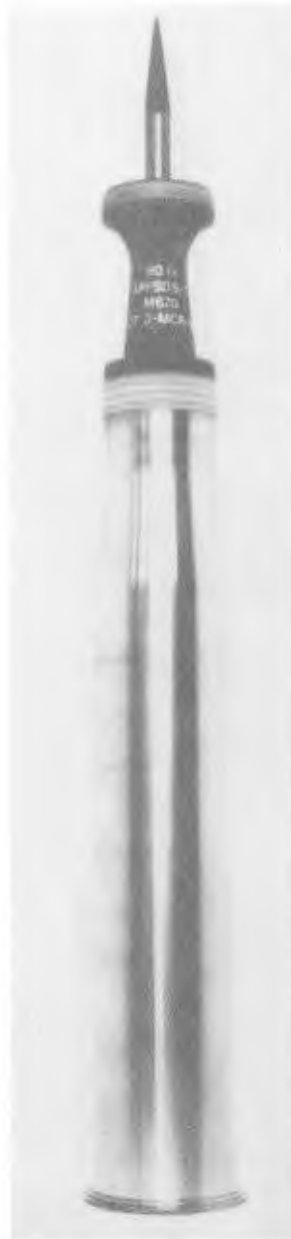
Neg. U-INT.003555

Complete cartridge length: 647 mm  
Complete cartridge mass: 7.2 kg  
Projectile length: 426 mm  
Projectile mass: 2.5 kg  
Core type: Monolithic tungsten alloy

Using weapon(s): Cockerill MK II and Mk III  
guns

Remarks: None

Figure 2-181. Belgian 90-mm APFSDS-T Muniton Model M652



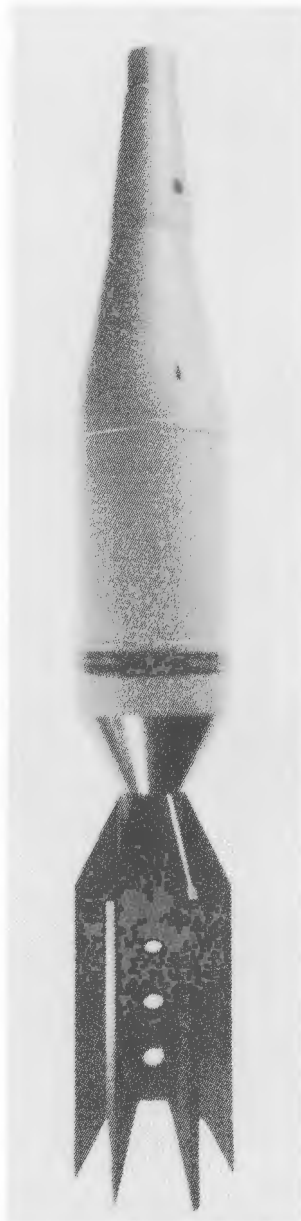
Neg. U-INT.003554

Complete cartridge length: 865 mm  
Complete cartridge mass: 13.8 kg  
Projectile length: 480 mm  
Projectile mass: 3.65 kg  
Core type: Monolithic tungsten alloy

Using weapon(s): M36 gun  
Remarks: None

Figure 2-182. Belgian 90-mm APFSDS-T Munition Model M670





Neg. U-INT.003570

Complete cartridge length: 702 mm  
Complete cartridge mass: 7.35 kg  
Projectile mass: 5.07 kg  
Fuze: GIPD 9009  
Filler type & wt: Comp A3, 0.77 kg

Using weapon(s): Cockerill Mk I, Mk II, and  
Mk III guns

Remarks: None

Figure 2-183. Belgian 90-mm HEAT Munition Model M617



Neg. U-INT.003571

Complete cartridge length: 680 mm  
Complete cartridge mass: 6.55 kg  
Projectile mass: 4.1 kg  
Fuze: GIPD 9010  
Filler type & wt: Comp A3, .51 kg

Using weapon(s): Cockerill Mk I, Mk II, and  
Mk III guns

Remarks: None

Figure 2-184. Belgian 90-mm HEAT Munition Model M620



Neg. U-INT.003585

Complete cartridge length: 645 mm  
Complete cartridge mass: 8.2 kg  
Projectile mass: 5.1 kg  
Fuze: PIBD  
Filler type & wt: Comp B, 0.5 kg

Using weapon(s): Cockerill Mk III gun  
Remarks: None

Figure 2-185. Belgian 90-mm HEAT Muniton Model NR 220

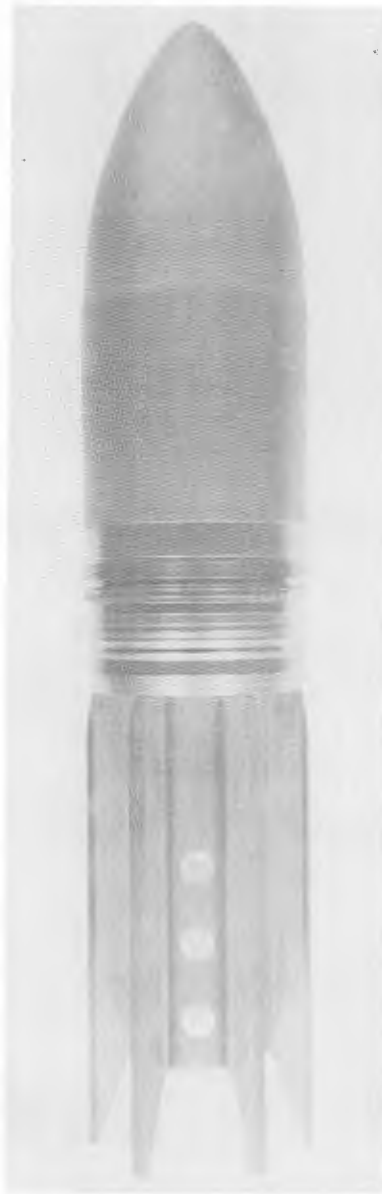


Neg. U-INT.003583

Complete cartridge length: 645 mm  
Complete cartridge mass: 7.3 kg  
Projectile mass: 4.1 kg  
Fuze: PIBD  
Filler type & wt: Comp B, 0.5 kg

Using weapon(s): Cockerill Mk III gun  
Remarks: None

Figure 2-186. Belgian 90-mm HEAT Muniton Model NR 478



Neg. U-INT.003574

Complete cartridge length: 600 mm  
Complete cartridge mass: 6.8 kg  
Projectile mass: 4.4 kg  
Fuze: Base  
Filler type & wt: Comp A3, 1.1 kg

Using weapon(s): Cockerill Mk I, Mk II, and  
Mk III guns

Remarks: None

Figure 2-187. Belgian 90-mm HESH Muniton Model M625

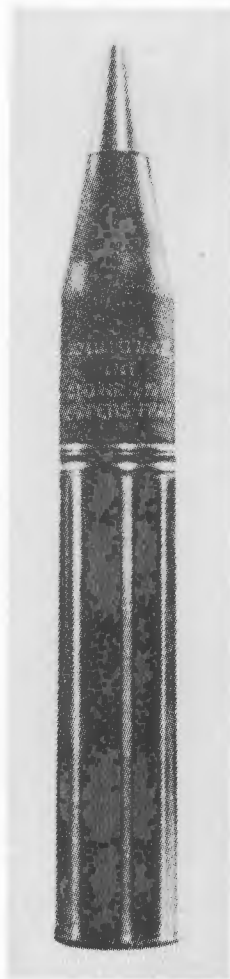


Neg. U-INT.003586

Complete cartridge length: 591 mm  
Complete cartridge mass: 7.7 kg  
Projectile mass: 4.4 kg  
Fuze: BD  
Filler type & wt: Comp A3, 1.1 kg

Using weapon(s): CMI Mk III gun  
Remarks: None

Figure 2-188. Belgian 90-mm HESH Muniton Model NR 503



Neg. U-INT.003588

Complete cartridge mass: 11.0 kg  
Projectile mass: 8.5 kg  
Fuze: ?  
Filler type & wt: TNT, 1.0 kg

Using weapon(s): Cockerill Mk III gun  
Remarks: None

Figure 2-189. Belgian 90-mm HE-Frag Muniton Model NR 219



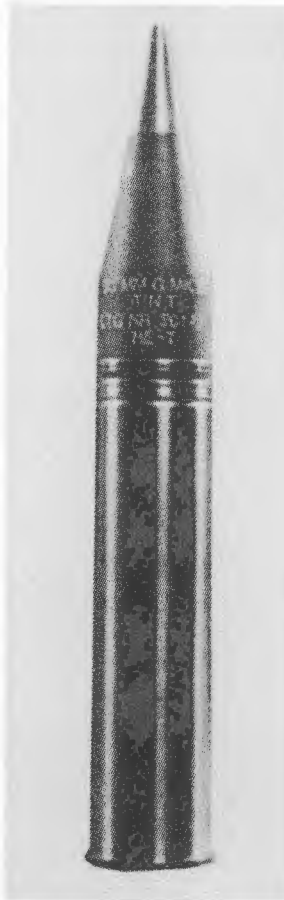
Neg. U-INT.003572

Complete cartridge length: 638 mm  
Complete cartridge mass: 7.4 kg  
Projectile mass: 5.1 kg  
Fuze: GIPD 9004  
Filler type & wt: Comp B, 1.02 kg

Using weapon(s): Cockerill Mk I, Mk II, and  
Mk III guns  
Remarks: None

Figure 2-190. Belgian 90-mm HE Muniton Model M616



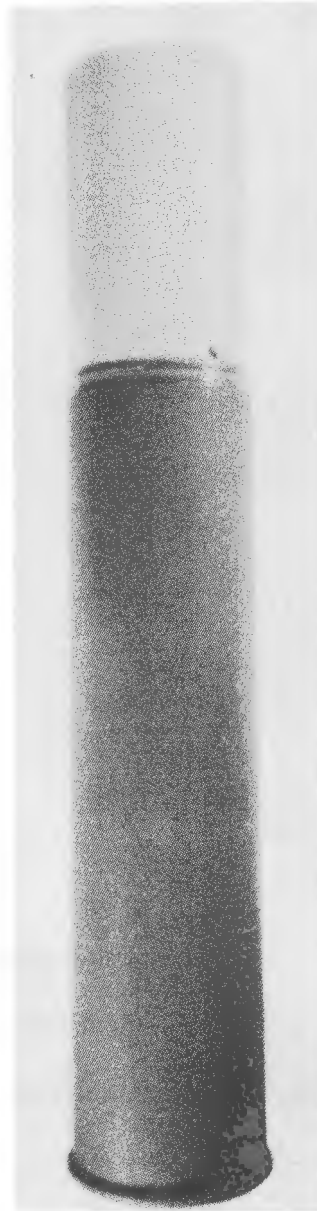


Neg. U-INT.003587

Complete cartridge length: 635 mm  
Complete cartridge mass: 8.3 kg  
Projectile mass: 5.1 kg  
Fuze: PD  
Filler type & wt: TNT, 1.05 kg

Using weapon(s): Cockerill Mk III gun  
Remarks: None

Figure 2-191. Belgian 90-mm HE Muniton Model NR 501



Neg. U-INT.003575

Complete cartridge length: 526 mm  
Complete cartridge mass: 7.4 kg  
Filler type: 1100 8.5-mm steel spheres

Using weapon(s): Cockerill Mk I, Mk II, and  
Mk III guns  
Remarks: None

Figure 2-192. Belgian 90-mm Canister Munition Model M621

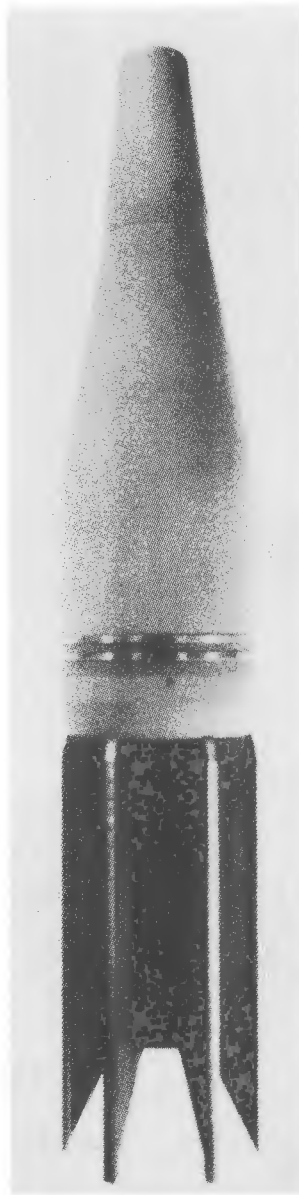


Neg. U-INT.003589

Using weapon(s): Cockerill Mk I, Mk II, and  
Mk III guns

Remarks: None

Figure 2-193. Belgian 90-mm Canister Munition Model NR 125



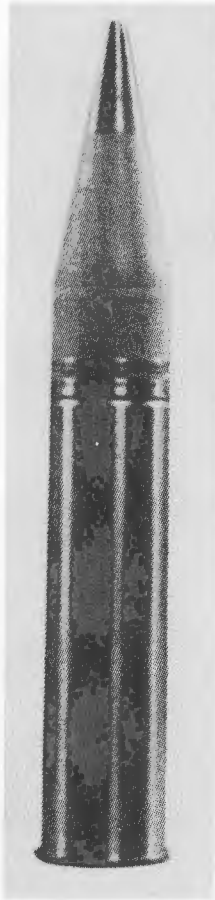
Neg. U-INT.003573

Complete cartridge length: 640 mm  
Complete cartridge mass: 7.7 kg  
Projectile mass: 5.4 kg

Using weapon(s): CMI Mk I, Mk II, and Mk III  
guns

Remarks: None

Figure 2-194. Belgian 90-mm Smoke Muniton Model M618

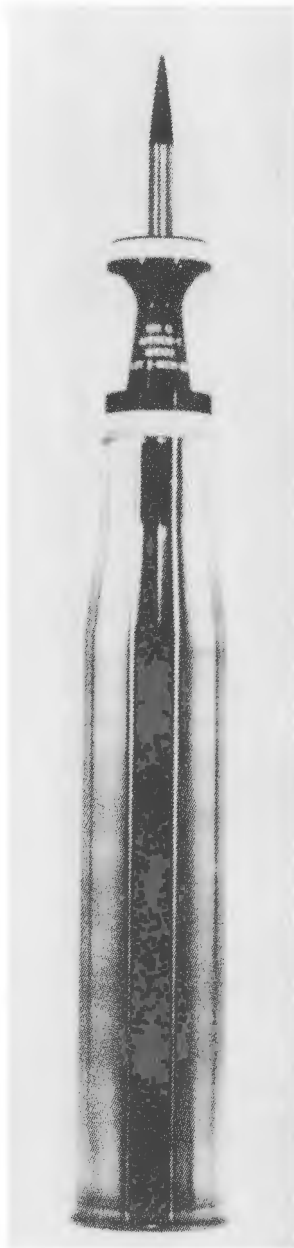


Neg. U-INT.003590

Complete cartridge length: 635 mm  
Complete cartridge mass: 8.7 kg  
Filler: White phosphorous

Using weapon(s): Cockerill Mk I and Mk II  
guns  
Remarks: None

Figure 2-195. Belgian 90-mm SMK/WP Muniton Model NR 502



Neg. U-INT.003558

Complete cartridge length: 1064 mm  
Complete cartridge mass: 21.8 kg  
Projectile mass: 5.0 kg  
Core: Monolithic tungsten alloy

Using weapon(s): D10 gun series  
Remarks: None

Figure 2-196. Belgian 100-mm APFSDS-T Munition Model M1000



Neg. U-INT.003561

Complete cartridge length: 838 mm  
Complete cartridge mass: 14.5 kg  
Projectile mass: 3.9 kg  
Core: Steel

Using weapon(s): L7 gun  
Remarks: Copy of US M724

Figure 2-197. Belgian 105-mm TPDS Munition Model M724



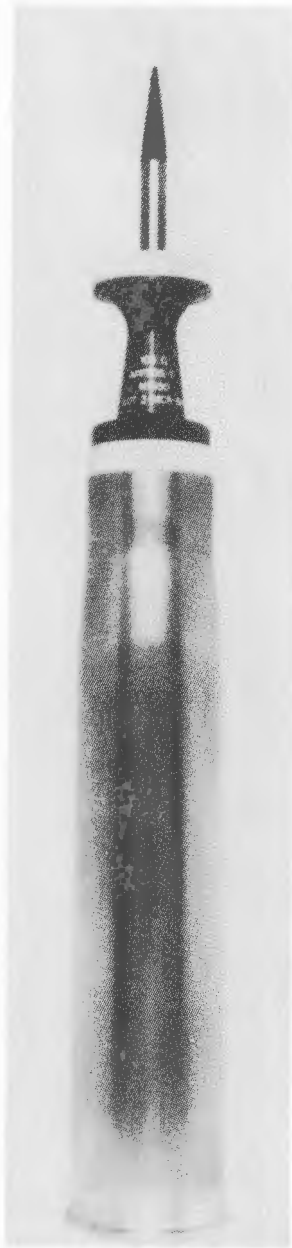
Neg. U-INT.003560

Complete cartridge length: 985 mm  
Complete cartridge mass: 19.1 kg  
Projectile mass: 5.8 kg  
Core: Monolithic tungsten alloy

Using weapon(s): M68 gun  
Remarks: None

Figure 2-198. Belgian 105-mm APFSDS-T Munition Model M1001



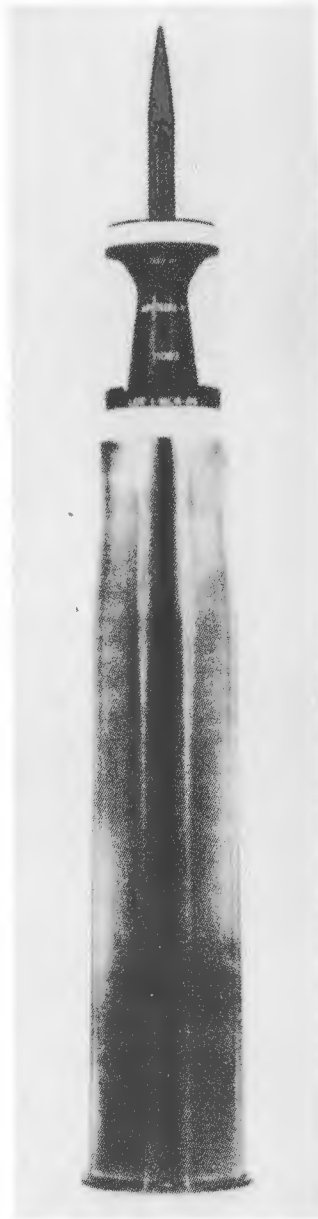


Neg. U-INT.003556

Complete cartridge length: 927 mm  
Complete cartridge mass: 17.7 kg  
Projectile mass: 5.8 kg  
Core: Monolithic tungsten alloy

Using weapon(s): L7 guns  
Remarks: None

Figure 2-199. Belgian 105-mm APFSDS-T Munition Model M1050

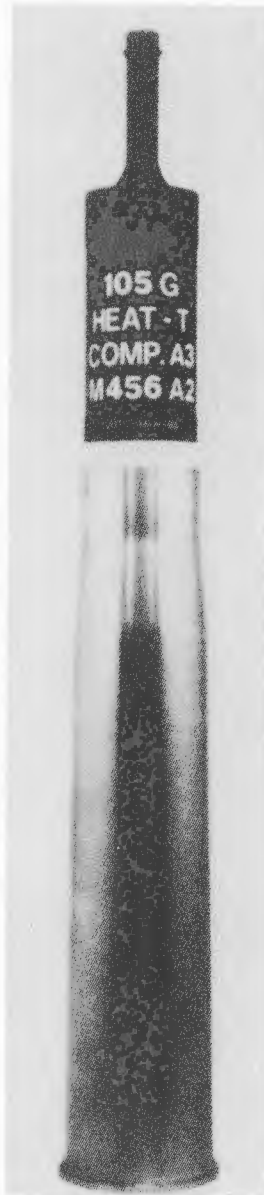


Neg. U-INT.003557

Complete cartridge length: 980 mm  
Complete cartridge mass: 18.0 kg  
Projectile mass: 5.8 kg  
Core: Monolithic tungsten alloy

Using weapon(s): L7 gun  
Remarks: None

Figure 2-200. Belgian 105-mm APFSDS-T Munition Model M1060

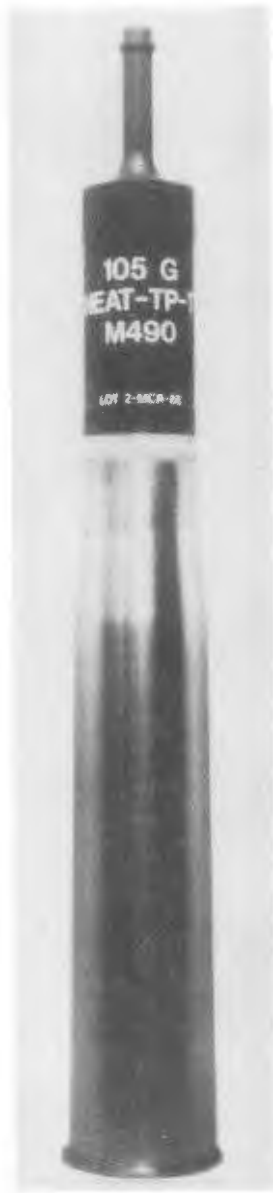


Neg. U-INT.003565

Complete cartridge length: 1006 mm  
Complete cartridge mass: 22.2 kg  
Projectile mass: 10.5 kg  
Fuze: PIBD  
Filler type & wt: Comp B, 0.97 kg

Using weapon(s): L7 gun  
Remarks: Copy of US M456A2

Figure 2-201. Belgian 105-mm HEAT Munition Model M456A2

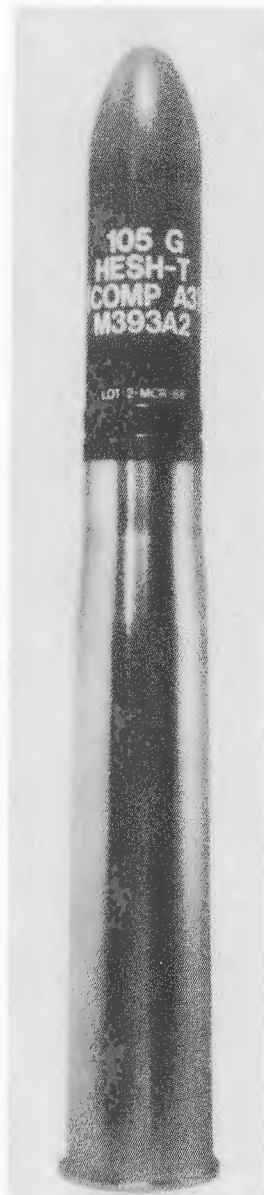


Neg. U-INT.003569

Complete cartridge length: 991 mm  
Complete cartridge mass: 20.45 kg  
Filler: Inert

Using weapon(s): L7 gun  
Remarks: Ballistically matched to M456

Figure 2-202. Belgian 105-mm HEAT-TP Munition Model M490



Neg. U-INT.003562

Complete cartridge length: 940 mm  
Complete cartridge mass: 20.4 kg  
Projectile mass: 11.25 kg  
Fuze: BD  
Filler type & wt: Comp A3, 3.0 kg

Using weapon(s): L7 gun  
Remarks: Copy of US M393A2

Figure 2-203. Belgian 105-mm HESH Munition Model M393A2



Neg. U-INT.003563

Complete cartridge length: 940 mm  
Complete cartridge mass: 20.42 kg  
Filler: Inert

Using weapon(s): L7 gun  
Remarks: Ballistically matched to M393 HESH

Figure 2-204. Belgian 105-mm HESH-TP Munition Model M467



Neg. U-INT.003566

Complete cartridge length: 990 mm  
Complete cartridge mass: 20.8 kg  
Projectile mass: 12.1 kg  
Filler: Comp B, 2.0 kg

Using weapon(s): L7 gun  
Remarks: None

Figure 2-205. Belgian 105-mm HE-T Munition Model M1010



Neg. U-INT.003564

Complete cartridge length: 940 mm  
Complete cartridge mass: 20.6 kg  
Filler type & wt: WP, 2.72 kg

Using weapon(s): L7 gun  
Remarks: Copy of US M416

Figure 2-206. Belgian 105-mm Smoke Munition Model M416





Neg. U-INT.003567

Complete cartridge length: 990 mm  
Complete cartridge mass: 20.8 kg  
Projectile mass: 12.8 kg  
Fuze: PD impact fuze  
Filler type & wt: WP, 1.77 kg

Using weapon(s): F1 gun  
Remarks: None

Figure 2-207. Belgian 105-mm Smoke Muniton Model M1009

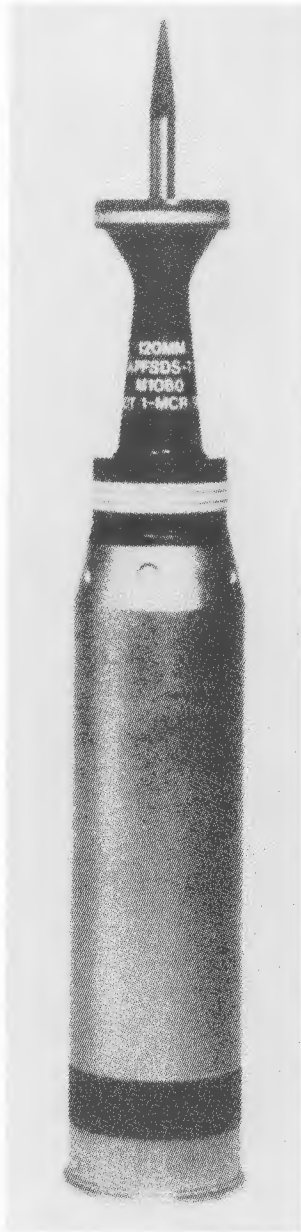


Neg. U-INT.003568

Complete cartridge length: 960 mm  
Complete cartridge mass: 11.7 kg  
Projectile mass: ? kg  
Fuze: Mech time fuze  
Filler type & wt: WP, 0.46 kg

Using weapon(s): F1 gun, L7 gun  
Remarks: None

Figure 2-208. Belgian 105-mm Illumination Muniton Model M1008

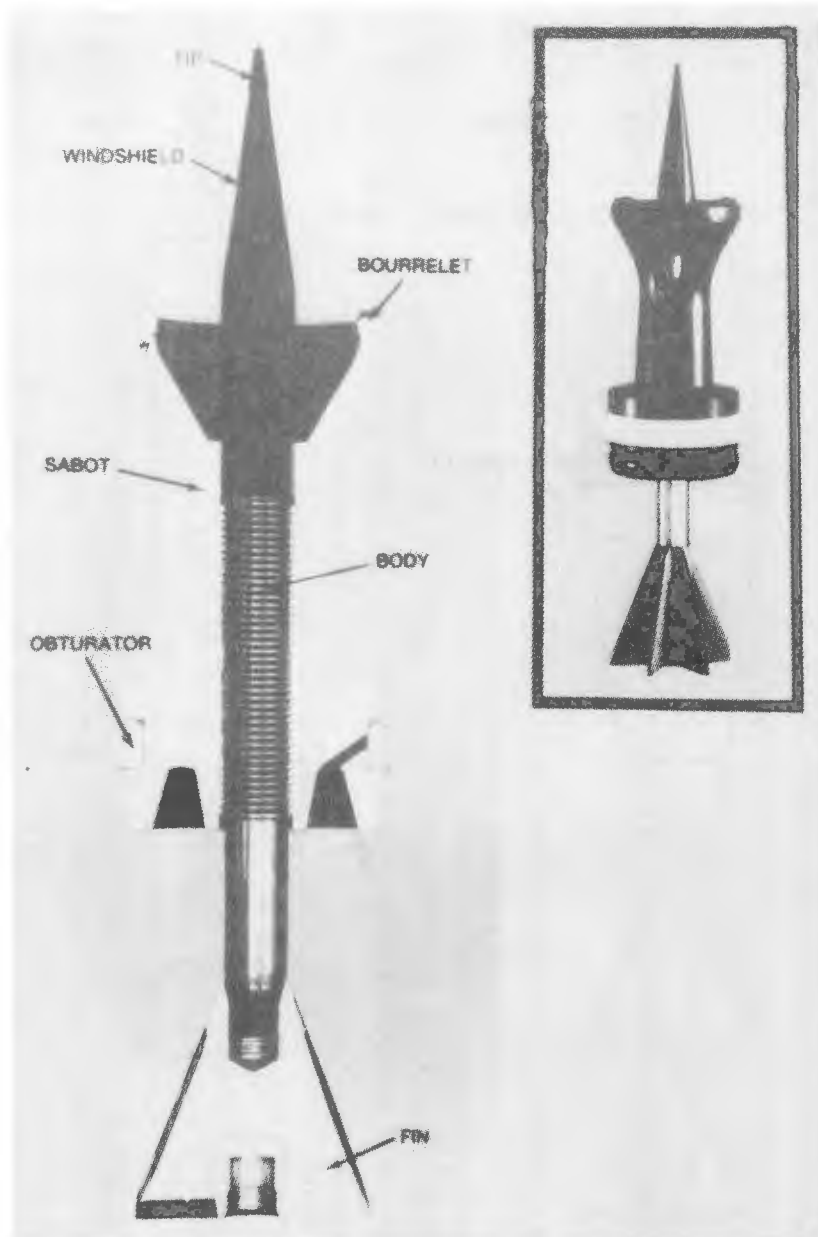


Neg. U-INT.003559

Complete cartridge length: 995 mm  
Complete cartridge mass: 25 kg  
Projectile mass: 7.2 kg  
Core material: Monolithic tungsten alloy

Using weapon(s): GSB  
Remarks: None

Figure 2-209. Belgian 120-mm APFSDS-T Munition Model M1080

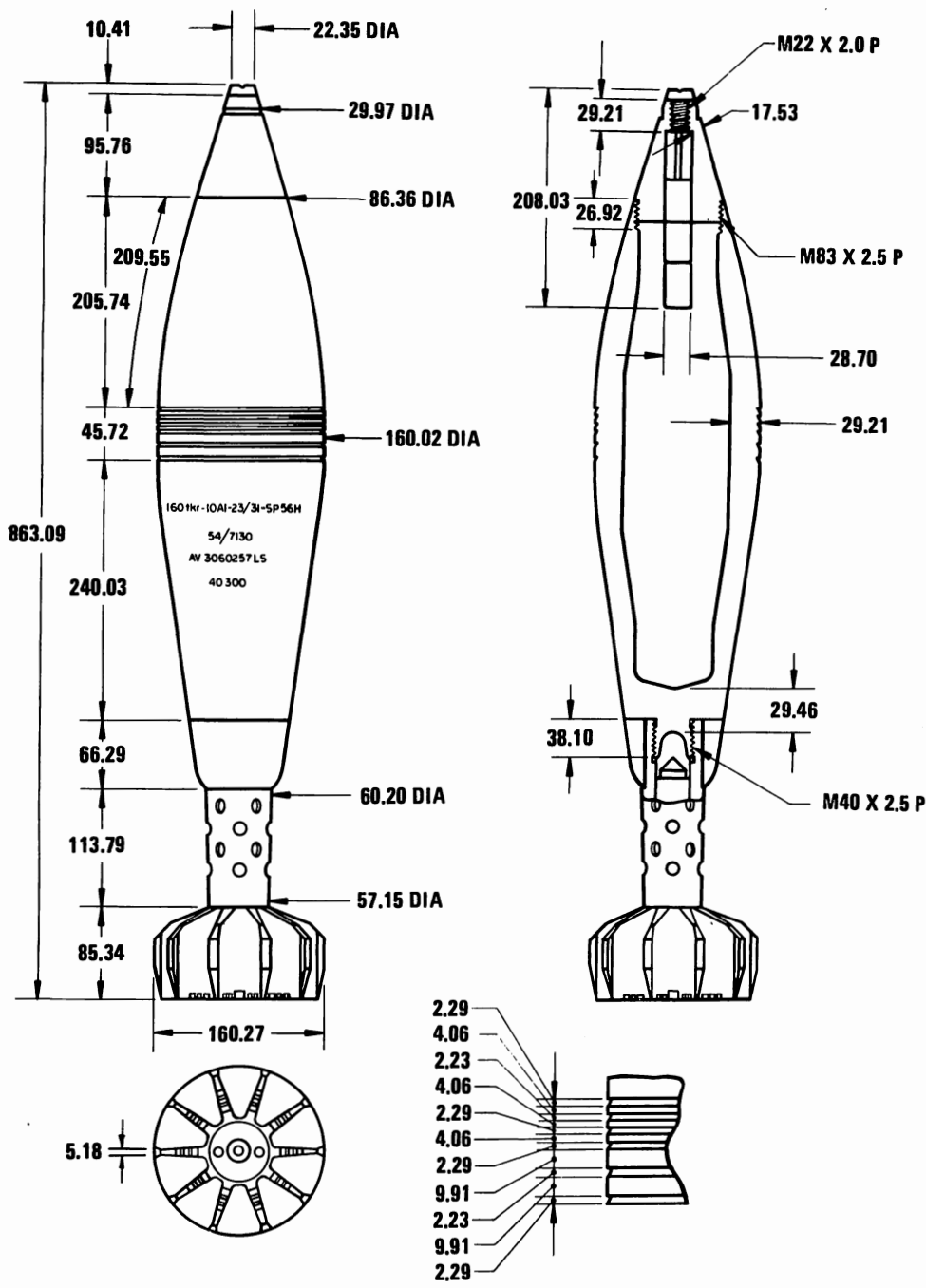


Neg. U-INT.003696

Complete cartridge length: 927 mm  
 Complete cartridge mass: 18.0 kg  
 Projectile mass: 5.8 kg  
 Core material: Monolithic tungsten alloy

Using weapon(s): L7 gun  
 Remarks: Copy of US FP105

Figure 2-210. Canadian 105-mm APFSDS-T Muniton Model C76



ALL DIMENSIONS IN MILLIMETERS

Neg. 502969

Projectile fuze wt: 38.10 kg  
 Fuze: SP-52 PD  
 Filler type & wt: TNT, 4.21 kg

Using weapon(s): Mortar M1953  
 Remarks: None

Figure 2-211. Finnish 160-mm HE Projectile Model M1955

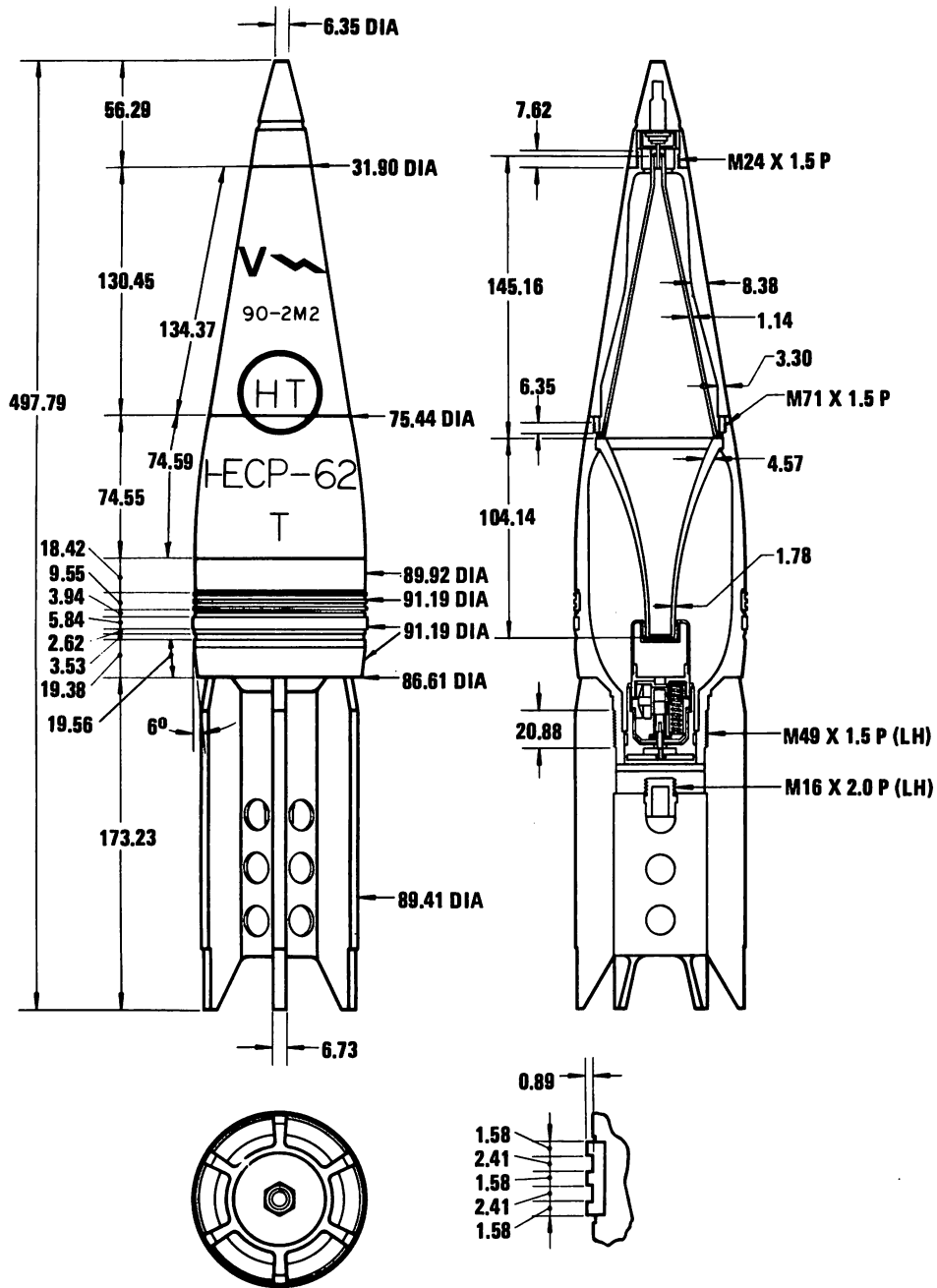


Neg. U-INT.003612

Complete cartridge length: 958 mm  
Complete cartridge mass: 9.9 kg  
Projectile mass: 3.3 kg  
Core material: Monolithic tungsten alloy

Using weapon(s): CN-90-F3 and CN-90-F4 guns  
Remarks: None

Figure 2-212. French 90-mm APFSDS-T Muniton Model OFL-90-F1



ALL DIMENSIONS IN MILLIMETERS

Neg. 502973

Projectile fuzed wt: 3.65 kg  
 Fuze: G3E-A PIBD  
 Filler type & wt: RDX/TNT, 0.67 kg

Using weapon(s): CN-90-F1, CN-90-F2,  
 CN-90-F3, and CN-90-F4  
 Remarks: None

Figure 2-213. French 90-mm HEAT Projectile Model 62



Neg. U-INT.003595

Using weapon(s): CN-90-F1, F2, F3, & F4  
Remarks: Ballistically matched to the Model 62

Figure 2-214. French 90-mm HEAT-TP Muniton Model BSCC





Neg. U-INT.003593

Complete cartridge length: 638 mm  
Complete cartridge mass: 8.95 kg  
Projectile mass: 5.3 kg  
Fuze: FUI-F1 or FUI-F2  
Filler type & wt: Hexolite, 0.945 kg

Using weapon(s): CN-90-F1 gun  
Remarks: None

Figure 2-215. French 90-mm HE Muniton Model OE-90-F1

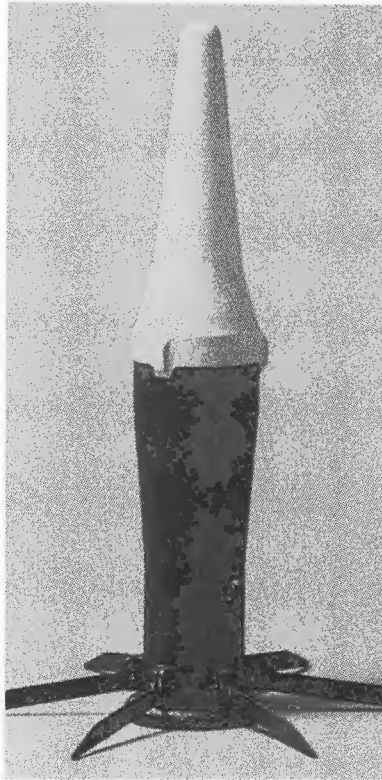


Neg. U-INT.003594

Complete cartridge length: 886 mm  
Complete cartridge mass: 10.4 kg  
Projectile mass: 5.4 kg  
Filler type & wt: 0.8 kg of ?

Using weapon(s): CN-90-F3 and CN-90-F4 guns  
Remarks: None

Figure 2-216. French 90-mm Smoke Muniton Model OFUM-90-F2



Complete launcher mass: 7 kg  
Projectile mass: 1.8 kg

Using weapon(s): AB-92 antitank rocket launcher  
Remarks: Tandem heat and terminal homing  
projectile under development

Figure 2-217. French 92-mm HEAT Projectile Model AB-92

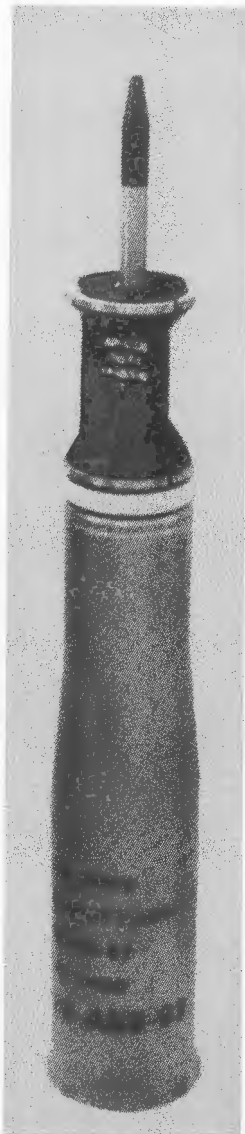


Neg. 532857

Complete cartridge length: 985 mm  
Complete cartridge mass: 17.1 kg  
Projectile mass: 5.8 kg  
Core material: Monolithic tungsten alloy

Using weapon(s): CN-105-FL  
Remarks: Usable in L7

Figure 2-218. French 105-mm APFSDS-T Muniton Model OFL-105-F1

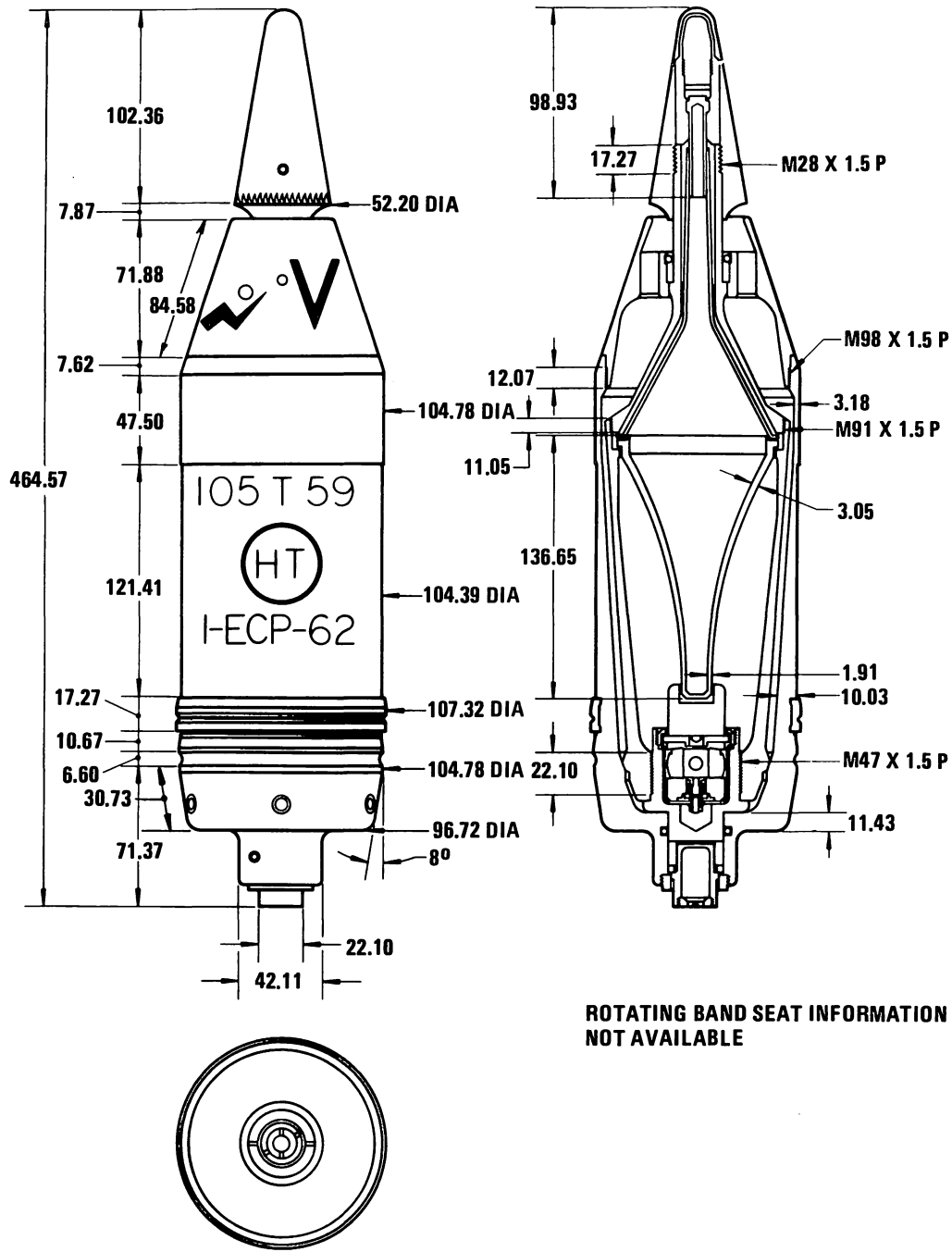


Neg. U-INT.003548

Complete cartridge length: ? mm  
Complete cartridge mass: 12.8 kg  
Projectile mass: ? kg  
Core material: Monolithic tungsten alloy

Using weapon(s): CN-105-F2  
Remarks: None

Figure 2-219. French 105-mm APFSDS-T Muniton Model OFL-105-F3



ROTATING BAND SEAT INFORMATION  
NOT AVAILABLE

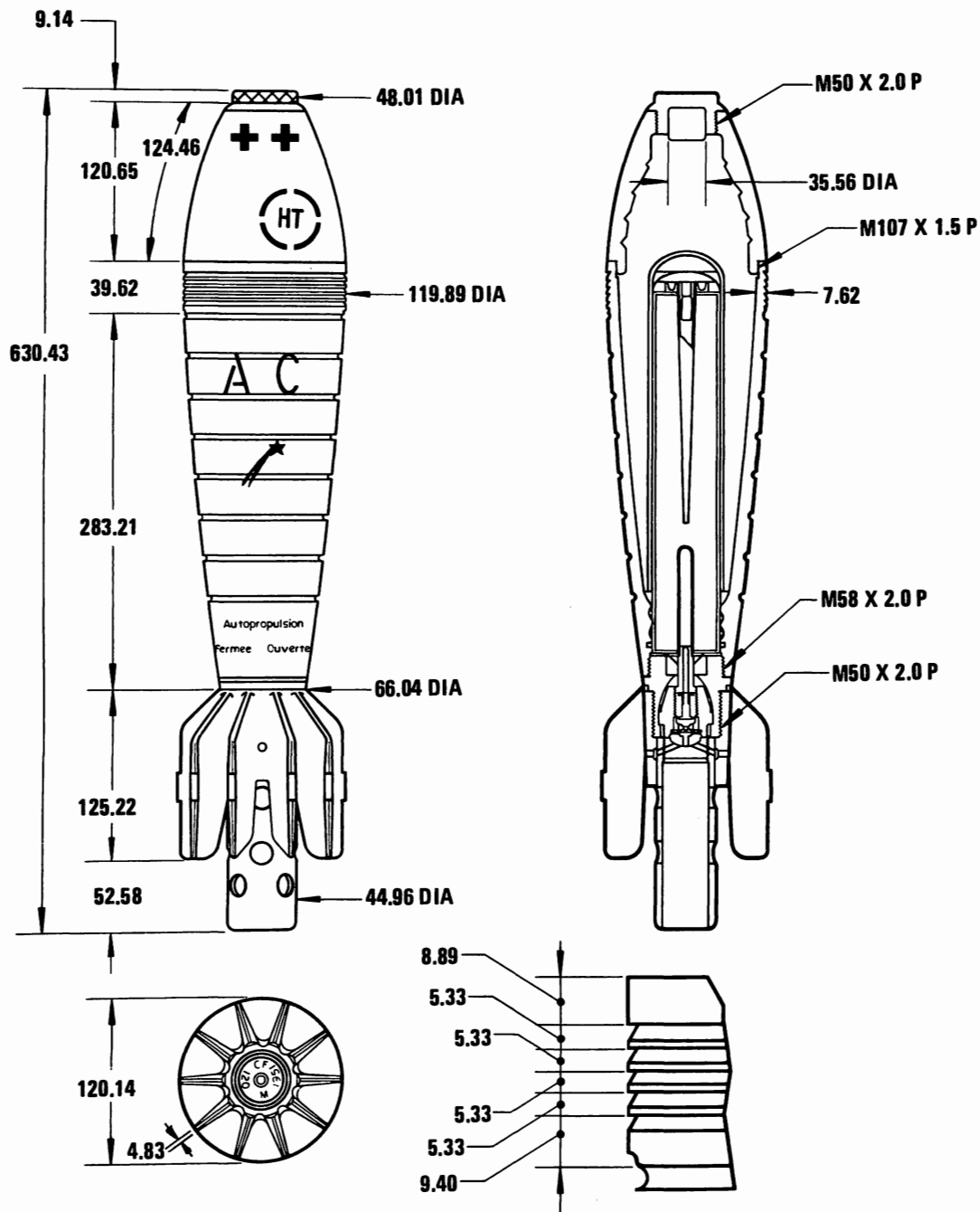
ALL DIMENSIONS IN MILLIMETERS

Neg. 502977

Projectile fuzed wt: 10.90 kg  
Fuze: G4A PIBD  
Filler type & wt: RDX/TNT, 0.73 kg

Using weapon(s): Howitzers 14/56 and AU50 SP;  
AMX-13 and AMX-30 tanks  
Remarks: Projectile is same as OCC-90-F1

Figure 2-220. French 105-mm HEAT Projectile Model 61 OCC



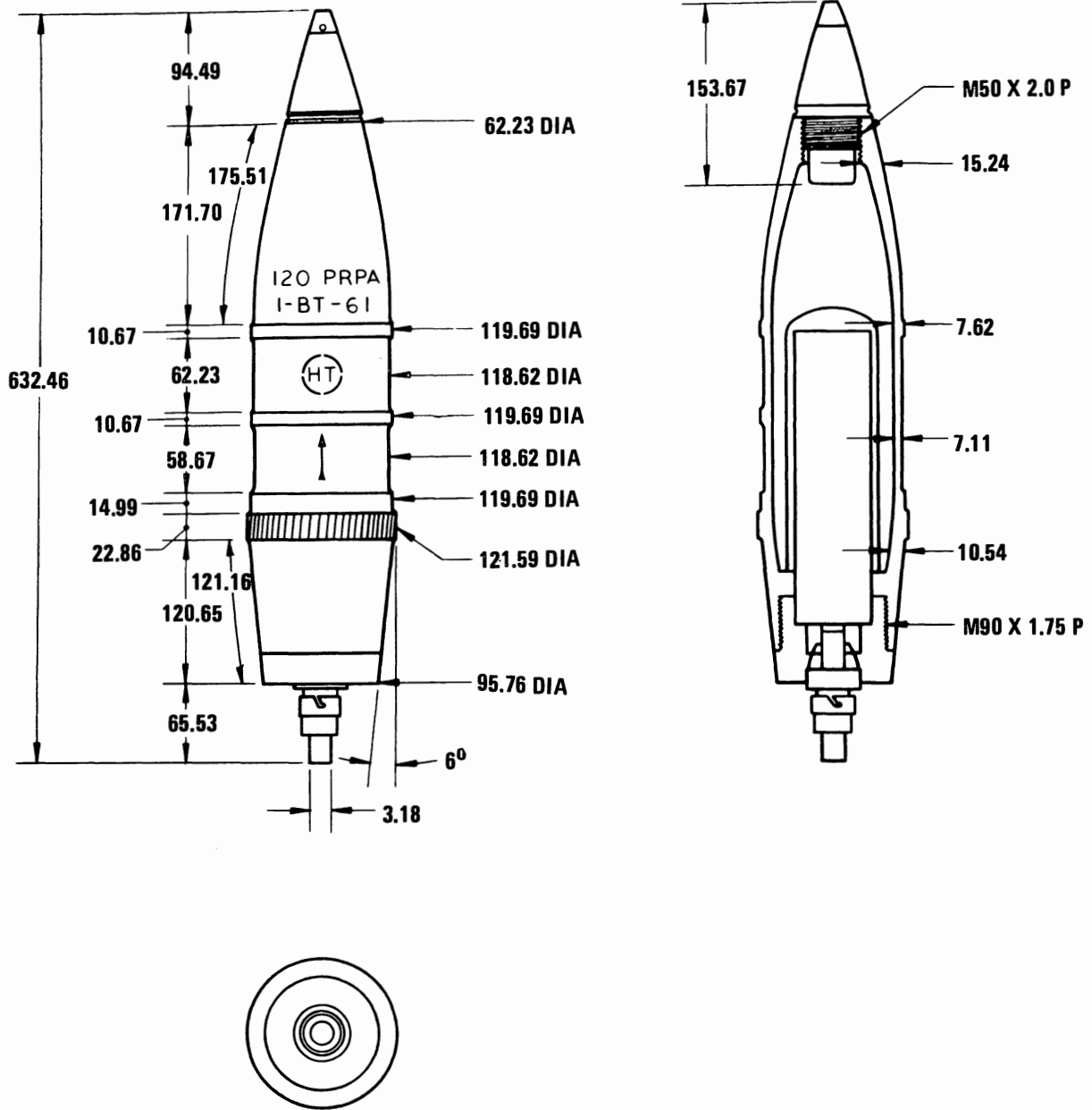
ALL DIMENSIONS IN MILLIMETERS

Neg. 502978

Projectile fuze wt: 13.44 kg  
 Fuze: V-19 PD  
 Filler type & wt: TNT, 2.33 kg

Using weapon(s): Mortar M1950 and M1960  
 Remarks: Also uses V-18-1 fuze. Shown with nose plug

Figure 2-221. French 120-mm HE-RA Projectile Model PEPA-ED (Type 1)



ALL DIMENSIONS IN MILLIMETERS

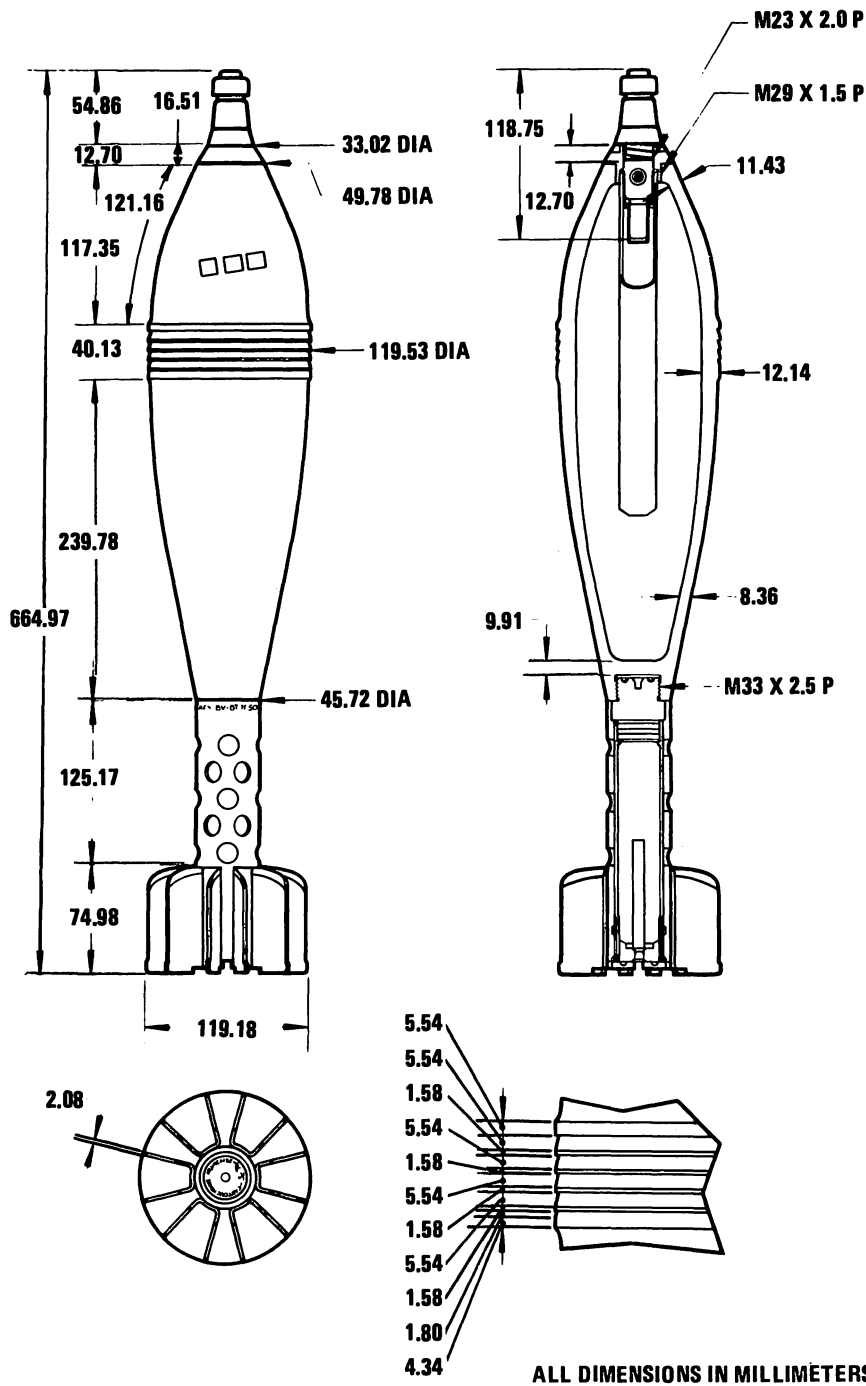
Neg. 502979

Projectile fuzed wt: 16.99 kg  
 Fuze: M557  
 Filler type & wt: RDX/TNT, 2.7 kg

Using weapon(s): Mortar M61R  
 Remarks: None

Figure 2-222. French 120-mm HE-RA Projectile Model PRPA





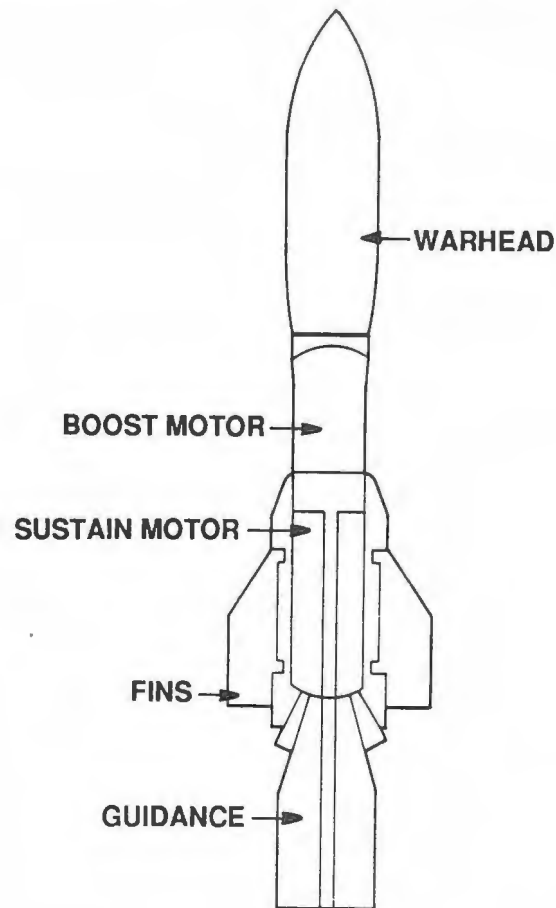
Neg. 502980

Projectile fuzed wt: 13 kg  
 Fuze: V-18-1 PD  
 Filler type & wt: TNT, 2.68 kg

Using weapon(s): Mortar M1951 and LT mortar  
 M1960

Remarks: None

Figure 2-223. French 120-mm HE (Light) Projectile Model 44

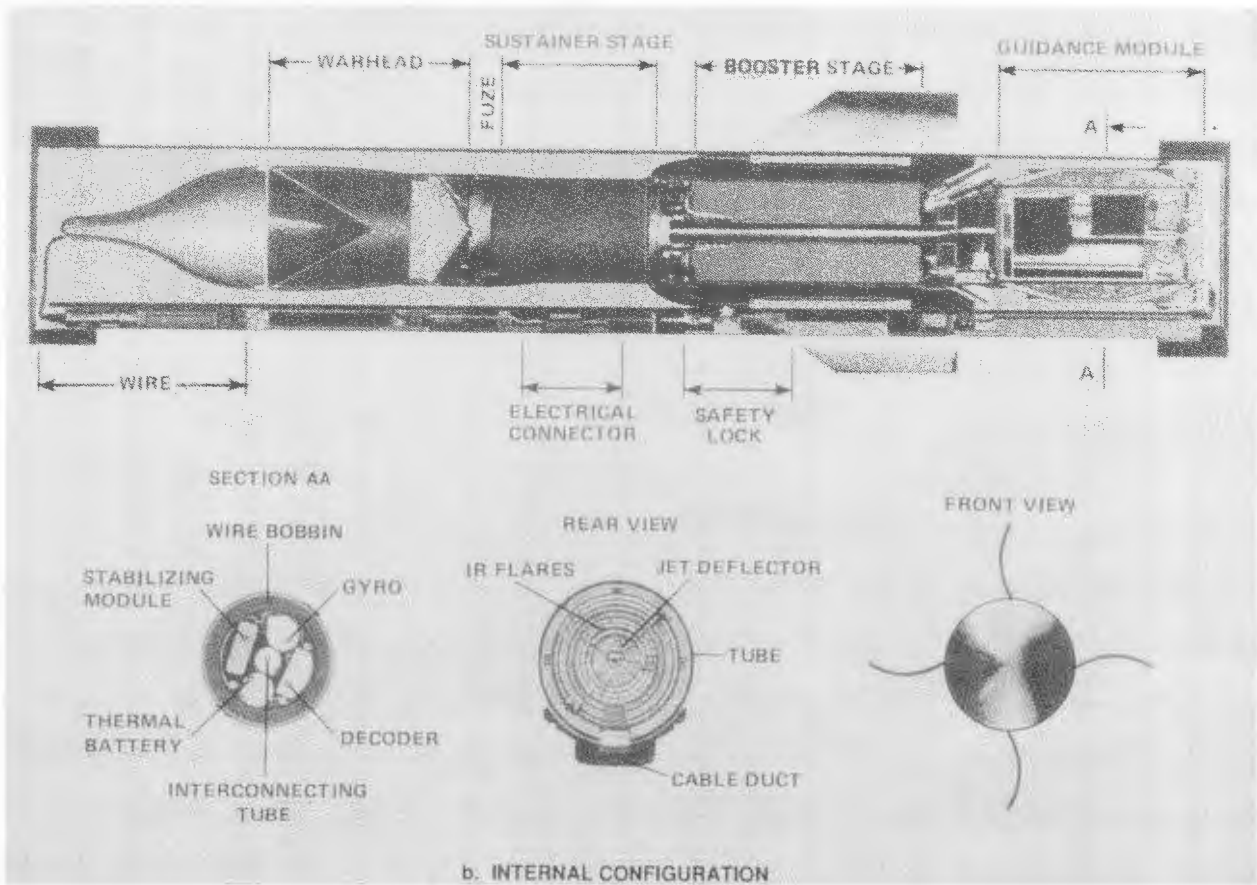


Tube length: 1300 mm  
Tube dia (max): 175 mm  
Tube mass: 6.2 kg  
Missile length: 1275 mm  
Wing span: 310 mm  
Missile mass: 21.8 kg

Using weapon(s): Vehicle mounted, helicopter mounted

Remarks: Codeveloped and also in service with the Germans

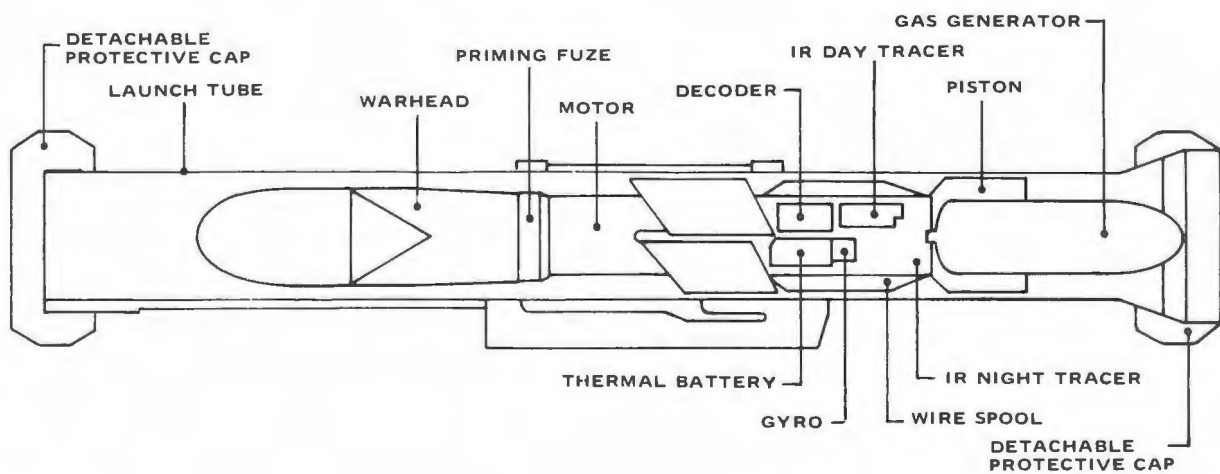
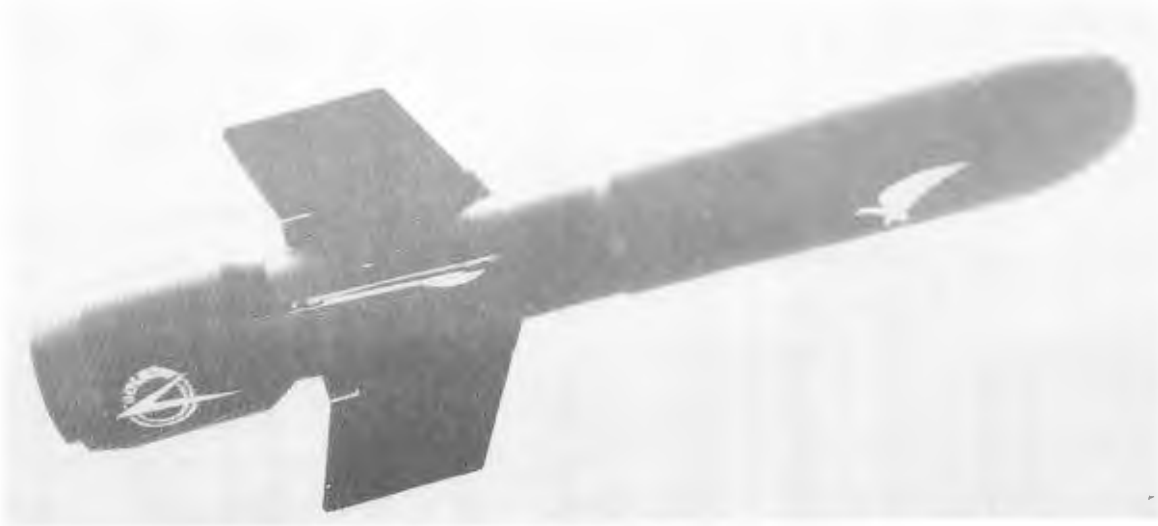
Figure 2-224. French 136-mm ATGM Model HOT



Tube length: 1300 mm  
 Tube dia: 175 mm  
 Tube mass: 6.2 kg  
 Missile length: 1275 mm  
 Wing span: 310 mm  
 Missile mass: 23.0 kg

Using weapon(s): Vehicle mounted, helicopter mounted  
 Remarks: Codeveloped and also in service with the Germans

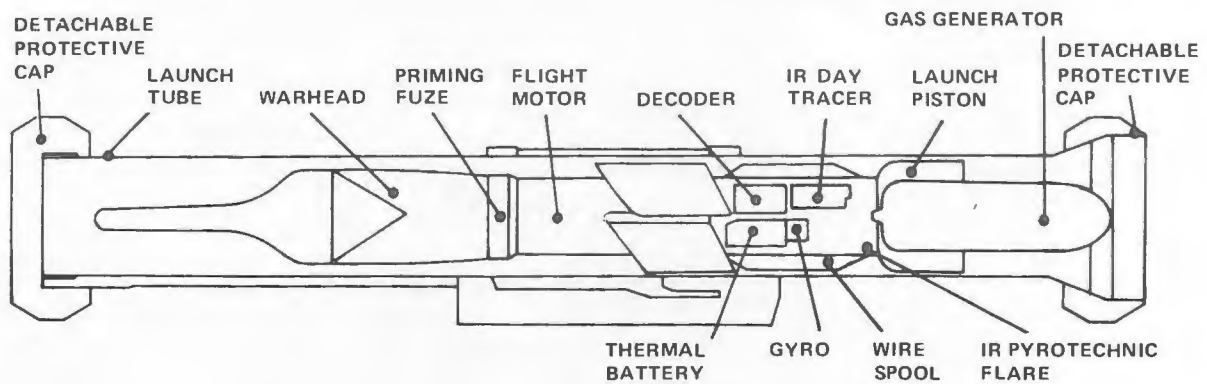
Figure 2-225. French 150-mm ATGM Model HOT2



Tube length: 1200 mm  
 Tube dia: 140 mm  
 Tube mass: 4.6 kg  
 Missile length: 770 mm  
 Wing span: 265 mm  
 Missile mass: 6.7 kg

Using weapon(s): Crew portable, vehicle mounted  
 Remarks: Codeveloped and also in service with  
 the Germans

Figure 2-226. French 103-mm ATGM Model MILAN

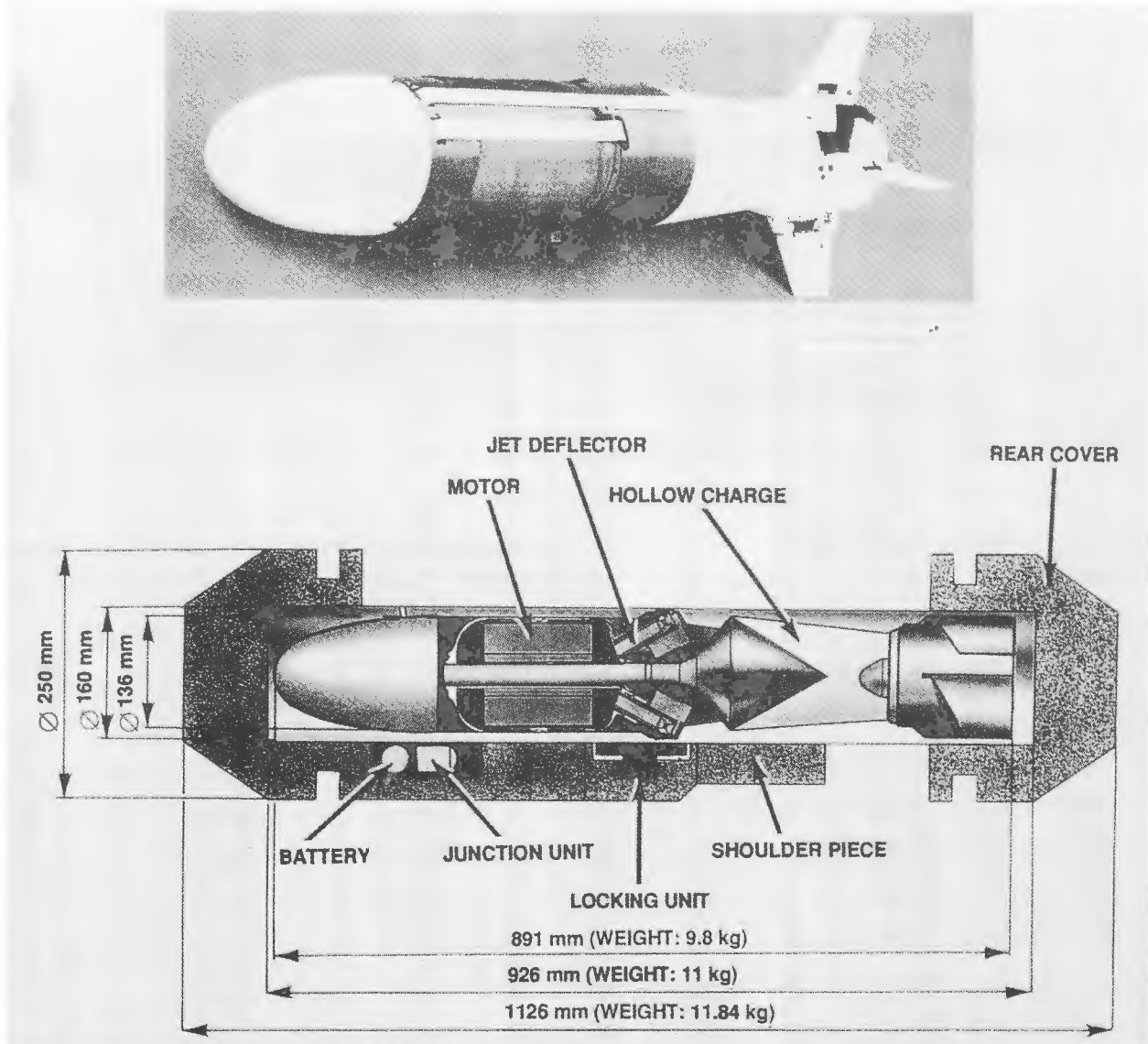


b. INTERNAL CONFIGURATION

Tube length: 1200 mm  
Tube dia: 140 mm  
Tube mass: 4.6 kg  
Missile length: 893 mm  
Wing span: 265 mm  
Missile mass: 6.7 kg

Using weapon(s): Crew portable, vehicle mounted  
Remarks: Codeveloped and also in service with Germany

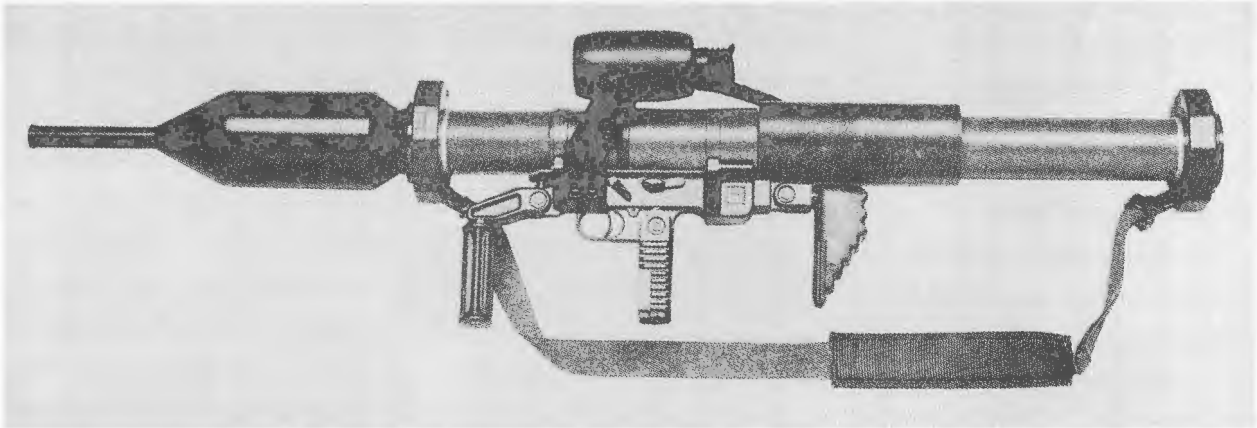
Figure 2-227. French 115-mm ATGM Model MILAN 2



Tube length: 926 mm  
 Tube dia (max): 160 mm  
 Missile length: 885 mm  
 Missile mass: 9.8 kg

Using weapon(s): Man portable  
 Remarks: None

Figure 2-228. French 136-mm ATGM Model ERYX

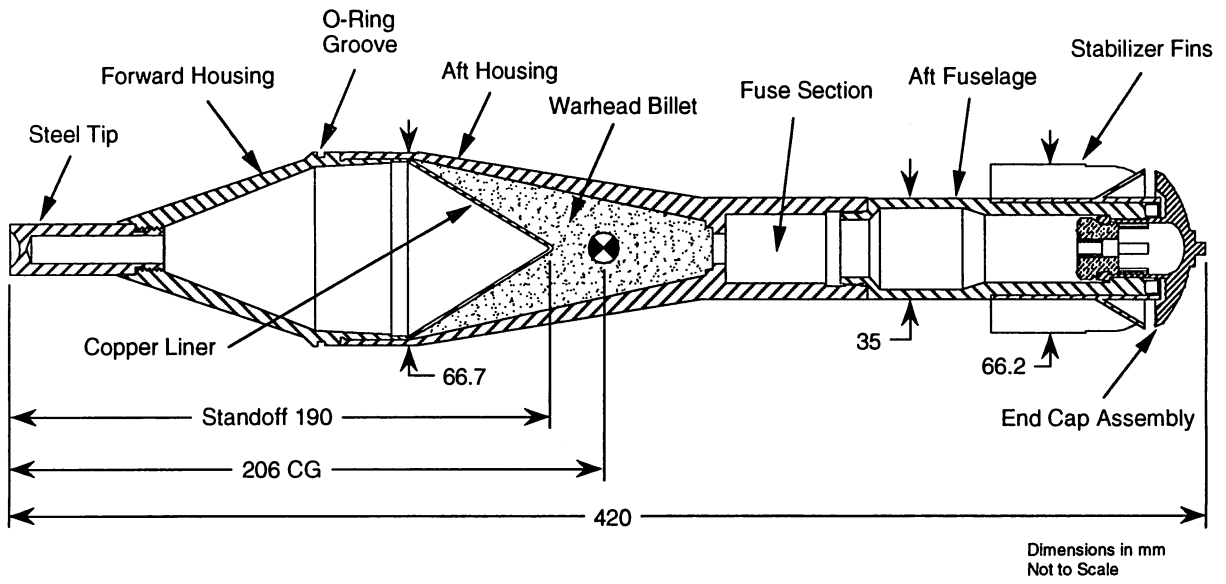


Neg. U-INT.000564

Complete cartridge mass: 7 kg  
Projectile mass: 3.8 kg

Using weapon(s): Panzerfaust-3 antitank weapon  
Remarks: Projectile shown in Panzerfaust-3  
launcher

Figure 2-229. German 60/110-mm HEAT Projectile, Model PANZERFAUST 3

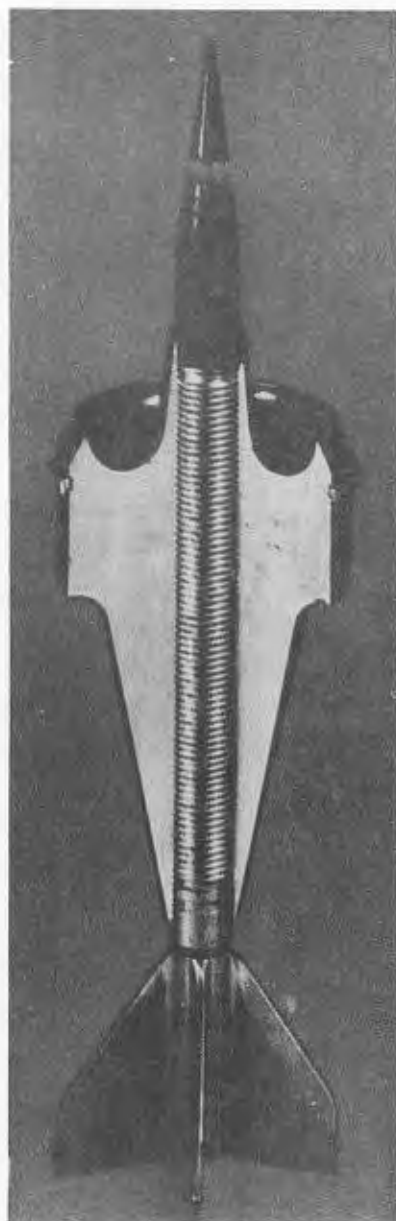


Projectile mass: 1.0 kg  
 Filler type & wt: RDX, 0.16 kg

Using weapon(s): ARMBRUST antitank weapon  
 Remarks: None

Figure 2-230. German 67-mm HEAT Projectile Model ARMBRUST



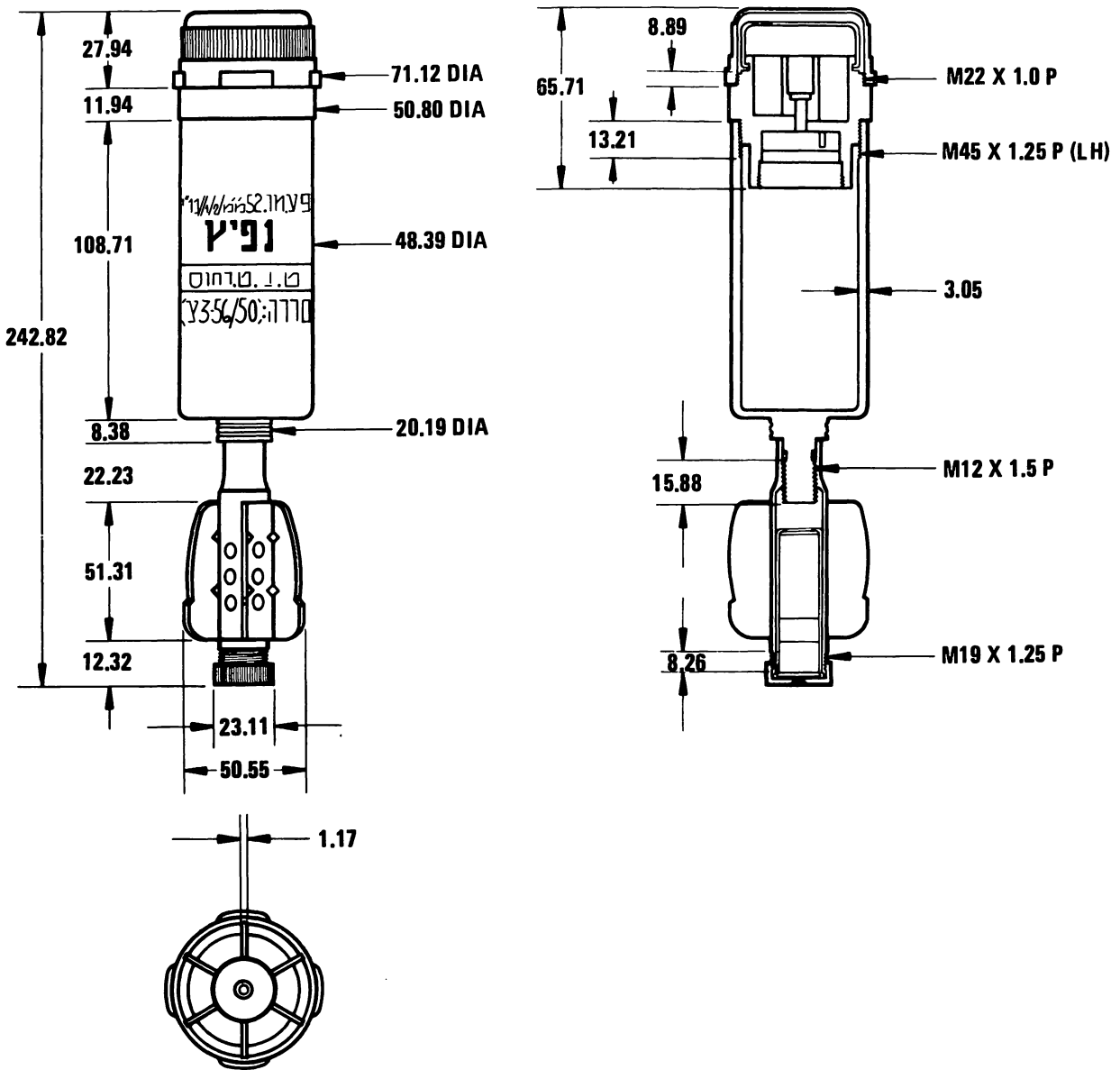


Neg. U-INT.003152

Core: Tungsten alloy

Using weapon(s): D81 tank gun, 2A45M  
Remarks: None

Figure 2-231. Indian 125-mm APFSDS-T Projectile Model MK II



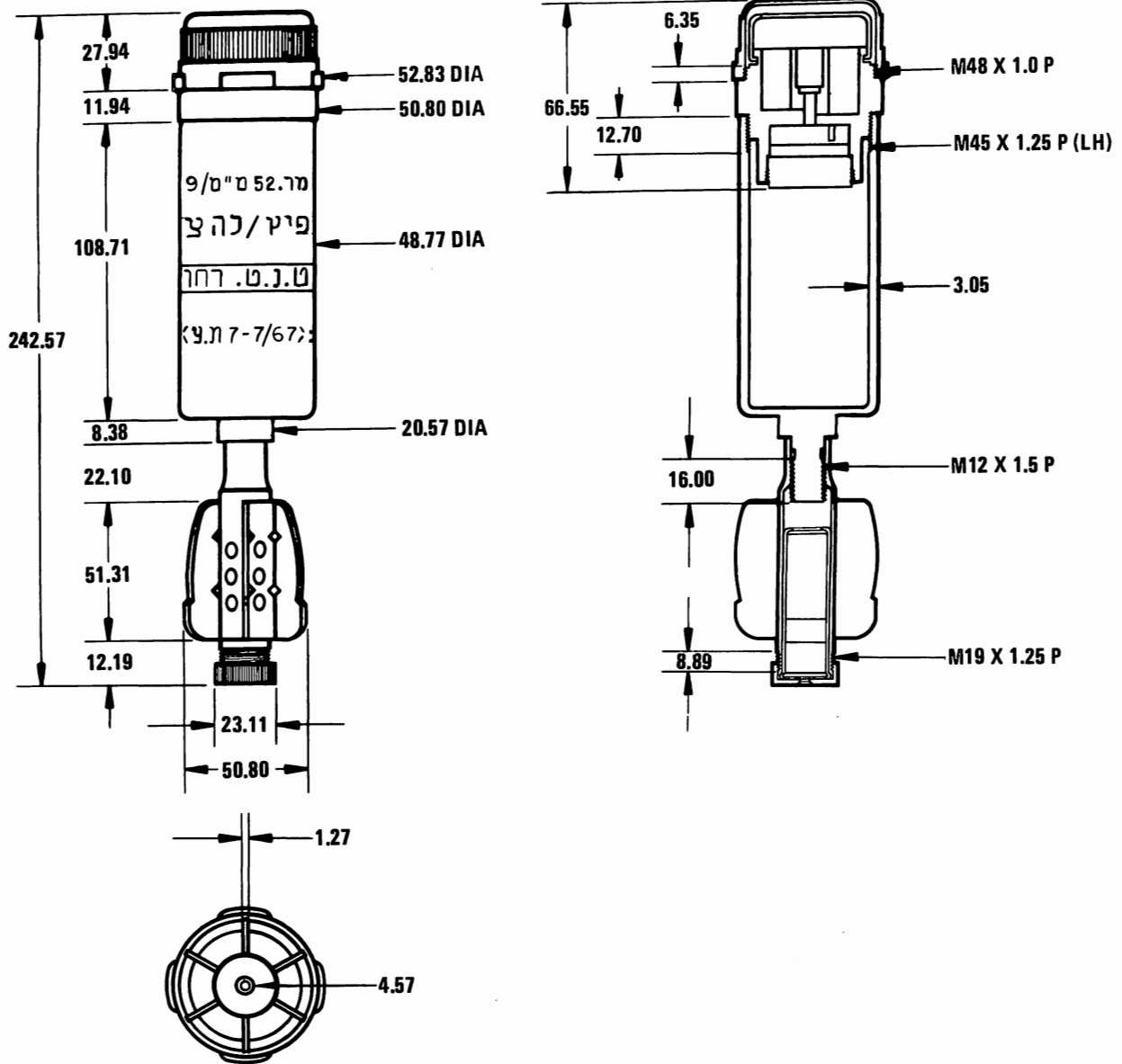
ALL DIMENSIONS IN MILLIMETERS

Neg. 502987

Projectile fuze wt: 1.02 kg  
 Fuze: Model ? PD  
 Filler type & wt: TNG, 0.16 kg

Using weapon(s): Soltam mortar  
 Remarks: None

Figure 2-232. Israeli 52-mm HE Projectile Model MK 2/1



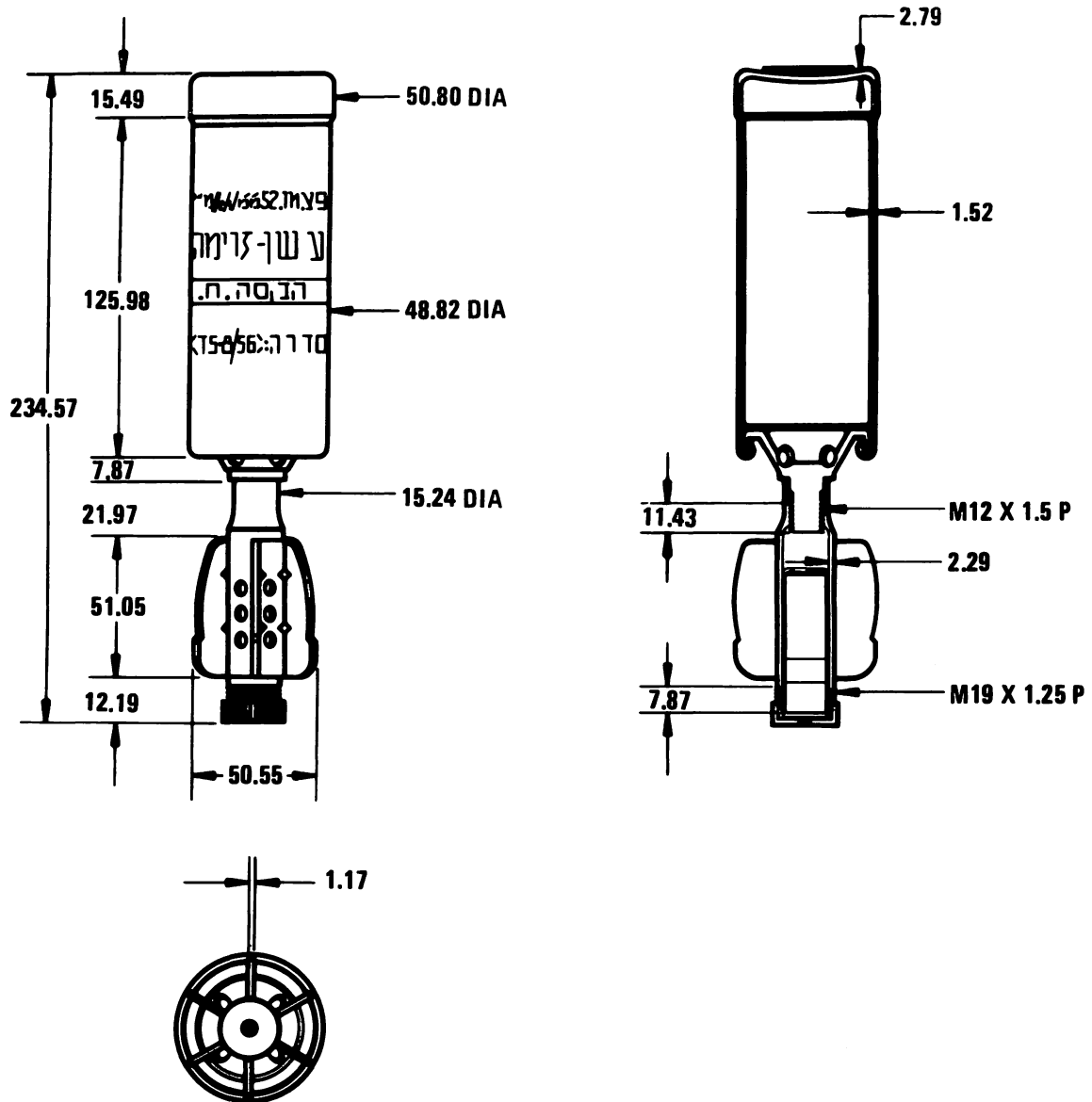
ALL DIMENSIONS IN MILLIMETERS

Neg. 502988

Projectile fuze wt: 1.02 kg  
 Fuze: Model ? PD  
 Filler type & wt: TNT, 0.17 kg

Using weapon(s): Soltam mortar  
 Remarks: Appears to be a variant of MK 2/1 projectile

Figure 2-233. Israeli 52-mm HE Projectile Model ? (Variant)



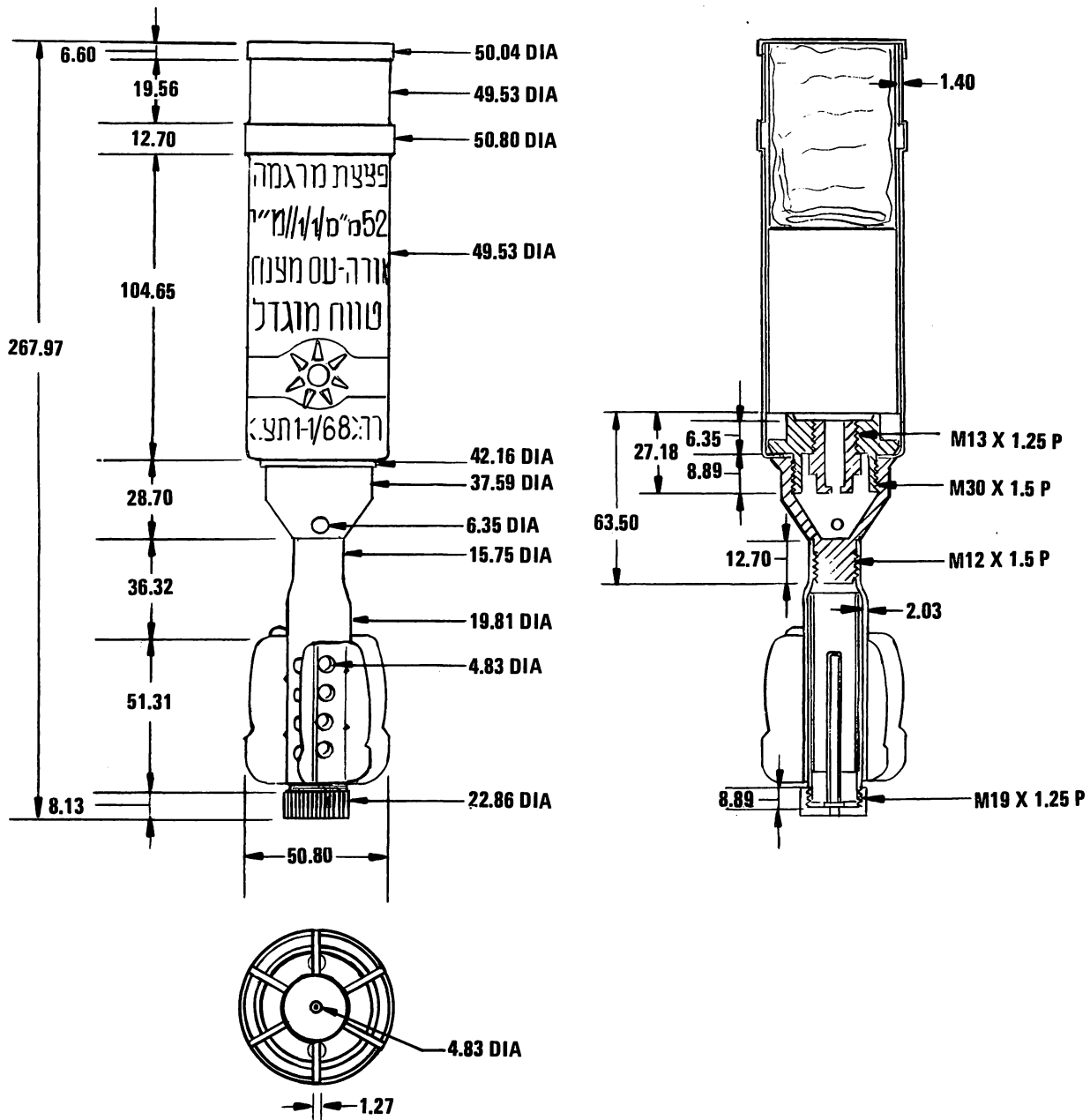
ALL DIMENSIONS IN MILLIMETERS

Neg. 502989

Projectile fuzed wt: 0.91 kg  
 Fuze: None  
 Filler type & wt: WP, 0.54 kg

Using weapon(s): Soltam mortar  
 Remarks: None

Figure 2-234. Israeli 52-mm Smoke Projectile Model MK 1/2



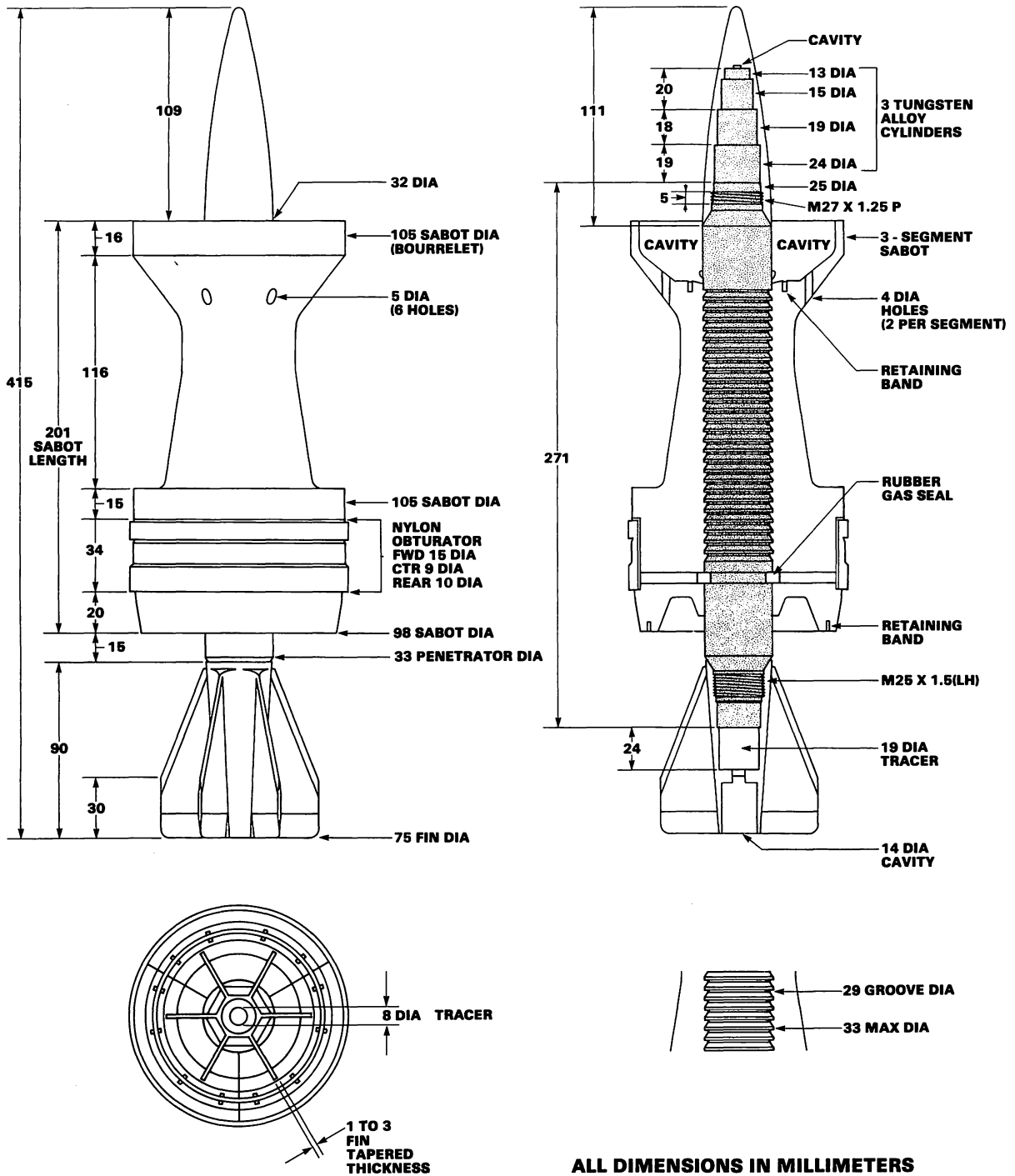
ALL DIMENSIONS IN MILLIMETERS

Neg. 502990

Projectile fuzed wt: 0.83 kg  
 Fuze: None  
 Filler type & wt: Parachute and expelling charge,  
 0.02 kg

Using weapon(s): Soltam mortar  
 Remarks: Filler weight is for expelling charge  
 only

Figure 2-235. Israeli 52-mm Illuminating Projectile Model 7



Neg. 536545

Projectile wt: 6.30 kg  
 Fuze: None  
 Filler type & wt: None  
 Core: Tungsten alloy, 3.79 kg

Using weapon(s): UK L7 series  
 Remarks: Adopted by Germany as DM-23

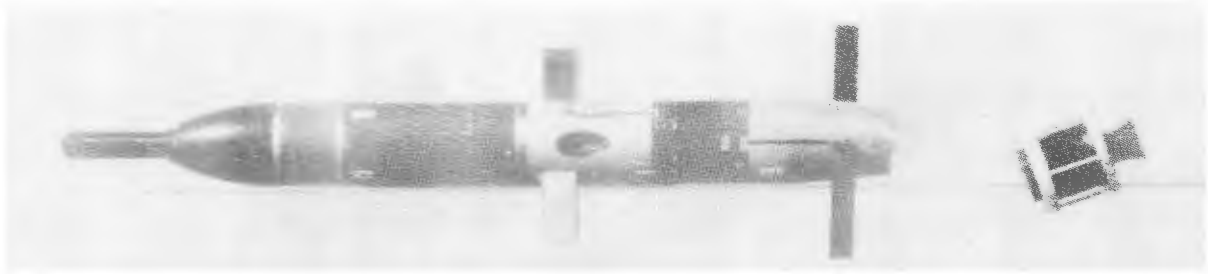
Figure 2-236. Israeli 105-mm APFSDS-T Projectile Model M111



Using weapon(s): Vehicle mounted, helicopter  
mounted

Remarks: None

Figure 2-237. Israeli ATGM Model NIMROD

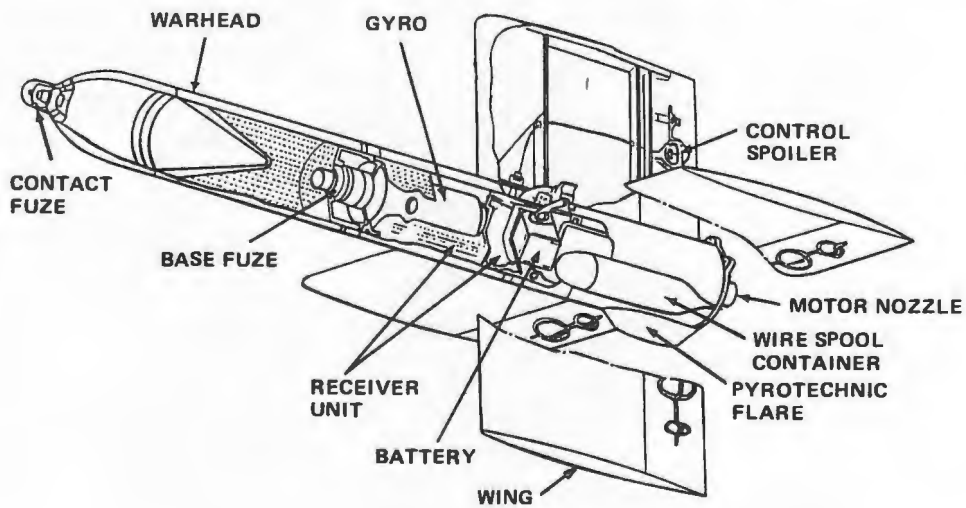
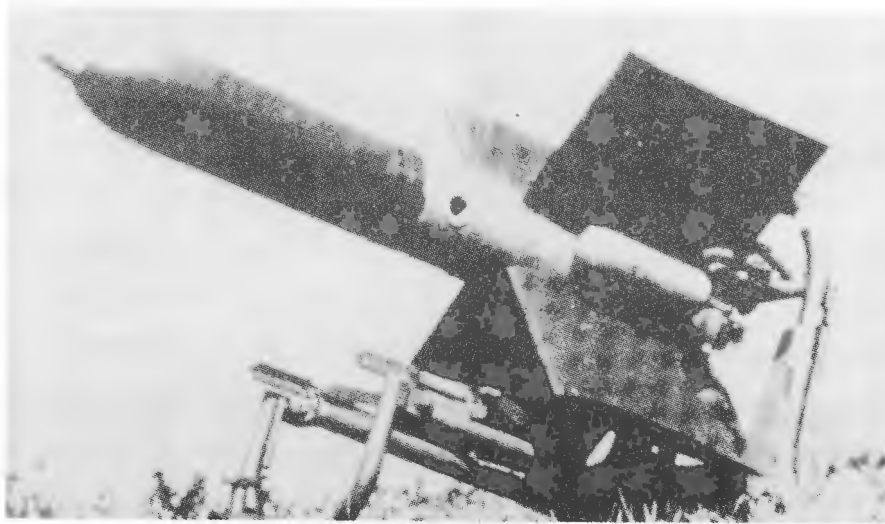


Missile length: 1560 mm  
Missile mass: 18.5 kg

Using weapon(s): Crew portable, vehicle mounted  
Remarks: None

Figure 2-238. Israeli 149-mm ATGM Model MAPATS





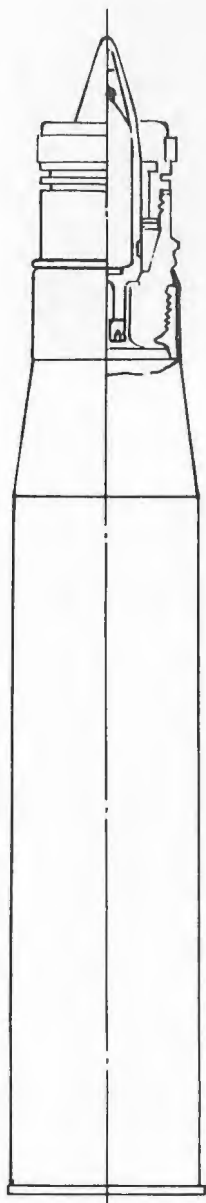
Using weapon(s): Crew portable, vehicle mounted  
Remarks: Also designated ATM-1

Figure 2-239. Japanese ATGM Model KAM-3D

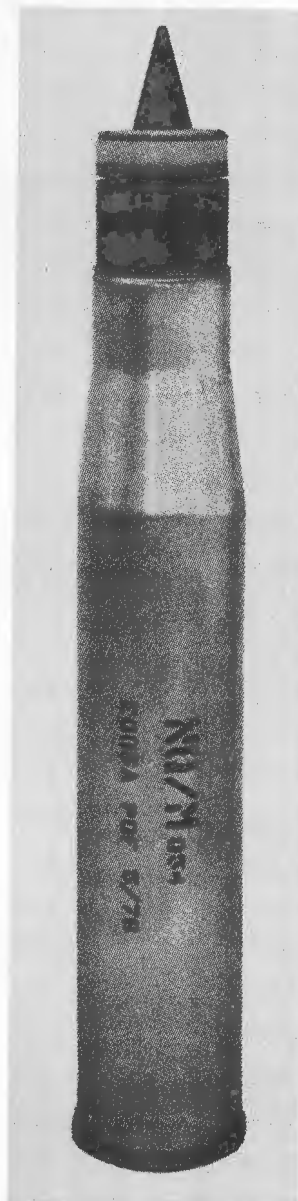


Using weapon(s): Crew portable, vehicle mounted  
Remarks: Also designated ATM-2

Figure 2-240. Japanese ATGM Model JuMAT



Neg. U-INT.003552



Neg. U-INT.003698

Complete cartridge mass: 20.0 kg  
Projectile mass: ? kg  
Core material: Tungsten alloy

Using weapon(s): D10 series  
Remarks: Resabotted version of the UK 105-mm  
L28

Figure 2-241. Pakistani 100-mm APDS Munition Model "100mm APDS"

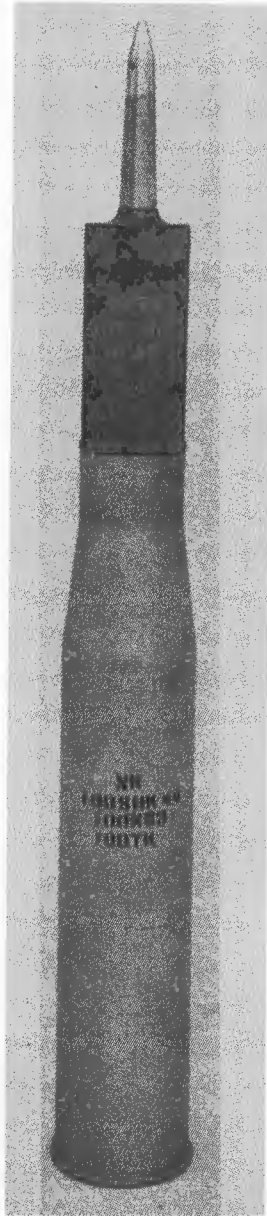


Neg. U-INT.003639

Complete cartridge length: 1021 mm  
Complete cartridge mass: 20.2 kg  
Projectile mass: 5.0 kg  
Core material: Tungsten alloy

Using weapon(s): D10 series  
Remarks: Resabotted version of the UK 105-mm  
L64

Figure 2-242. Pakistani 100-mm APFSDS-T Munition Model "100mm APFSDS"



Neg. U-INT.003697

Using weapon(s): D10 series  
Remarks: None

Figure 2-243. Pakistani 100-mm HEAT Muniton Model Unknown

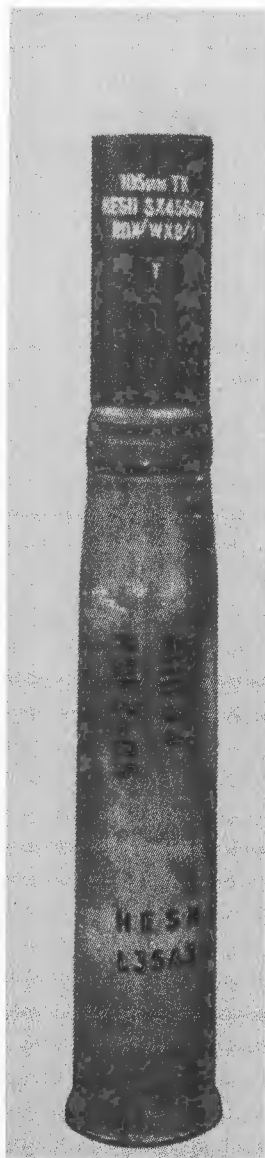


Neg. U-INT.003699

Complete cartridge length: 948 mm  
Complete cartridge mass: 18.9 kg  
Projectile mass: 6.1 kg  
Core material: Tungsten alloy

Using weapon(s): L7 gun series  
Remarks: Copy of UK 105-mm L64A4

Figure 2-244. Pakistani 105-mm APFSDS-T Muniton Model L64A4



Neg. U-INT.003700

Complete cartridge length: 940 mm  
Complete cartridge mass: 21.26 kg  
Projectile mass: 11.28 kg  
Filler type & wt: RDX, 4.0 kg

Using weapon(s): L7 gun series  
Remarks: Copy of UK L35

Figure 2-245. Pakistani 105-mm HESH Muniton Model L35



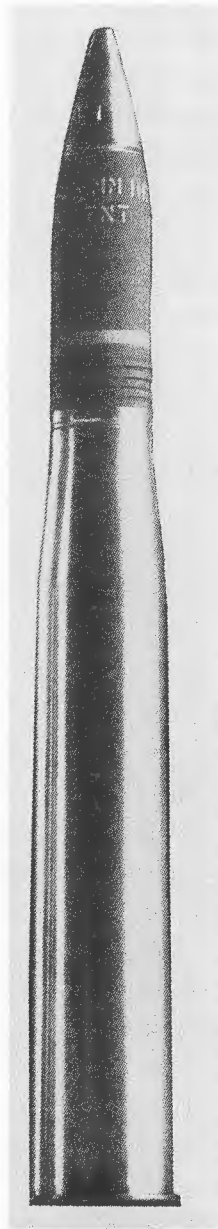
Neg. U-INT.003680

Core material: Tungsten alloy

Using weapon(s): CN-75-50 gun  
Remarks: None

Figure 2-246. Singapore 75-mm APFSDS-T Mmunition Model Unknown





Neg. U-INT.003681

Complete cartridge length: 876 mm  
Complete cartridge mass: 12.7 kg  
Projectile mass: 4.6 kg  
Fuze: PD Model M572  
Filler type & wt: TNT, 0.6 kg

Using weapon(s): CN-75-50 gun  
Remarks: None

Figure 2-247. Singapore 75-mm HE Mmunition Model Unknown

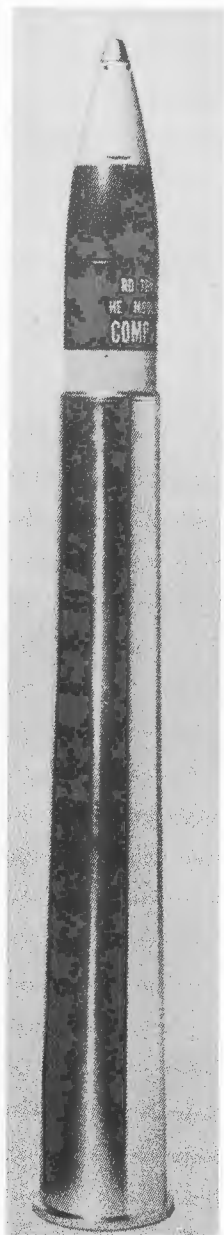


Neg. U-INT.003695

Complete cartridge length: 873 mm  
Complete cartridge mass: 9.07 kg  
Core material: Tungsten alloy

Using weapon(s): OTO Melara 76-mm gun  
Remarks: None

Figure 2-248. South African 76-mm APFSDS-T Munition



Neg. U-INT.003712

Complete cartridge length: 908 mm  
Complete cartridge wt: 12.5 kg  
Projectile fuze wt: 6.6 kg  
Fuze: PD  
Filler type & wt: TNT, 0.6 kg

Using weapon(s): OTO Melara 76-mm gun  
Remarks: None

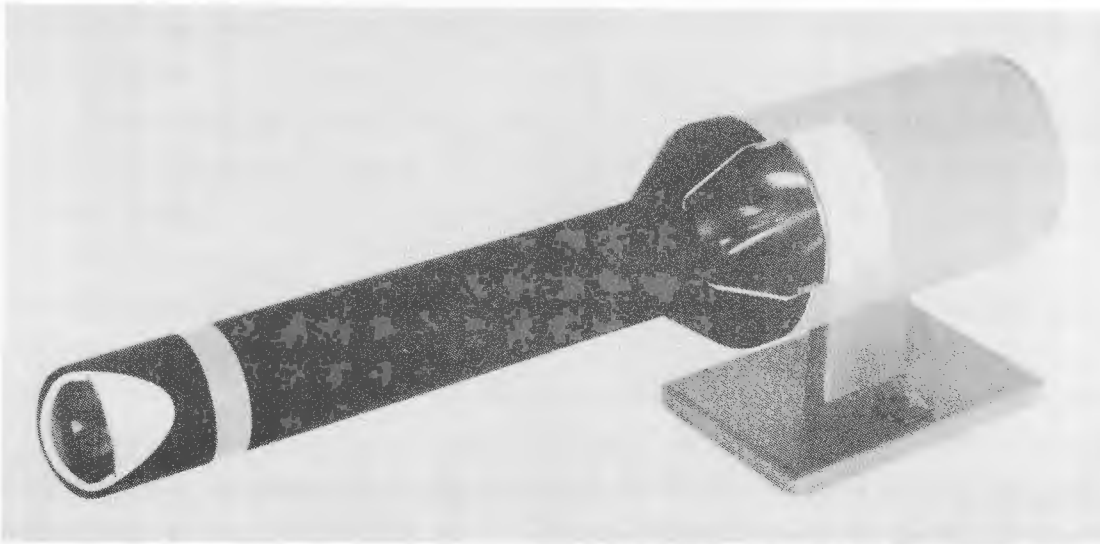
Figure 2-249. South African 76-mm HE Muniton Model Unknown



Neg. U-INT.002274

Using weapon(s): FT-5 antitank rocket launcher  
Remarks: Standard HEAT rocket for FT-5 shown  
in canister

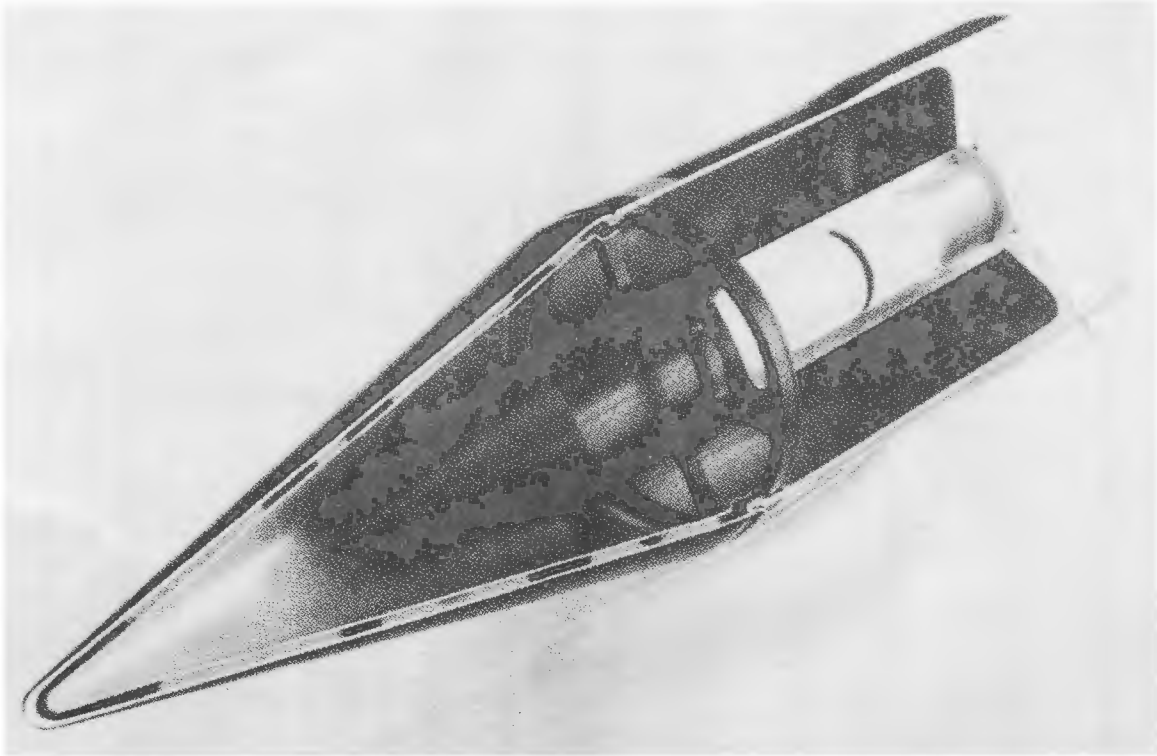
Figure 2-250. South African 92-mm HEAT Projectile Model ?



Neg. U-INT.002275

Using weapon(s): FT-5 antitank rocket launcher  
Remarks: Tandem HEAT warhead

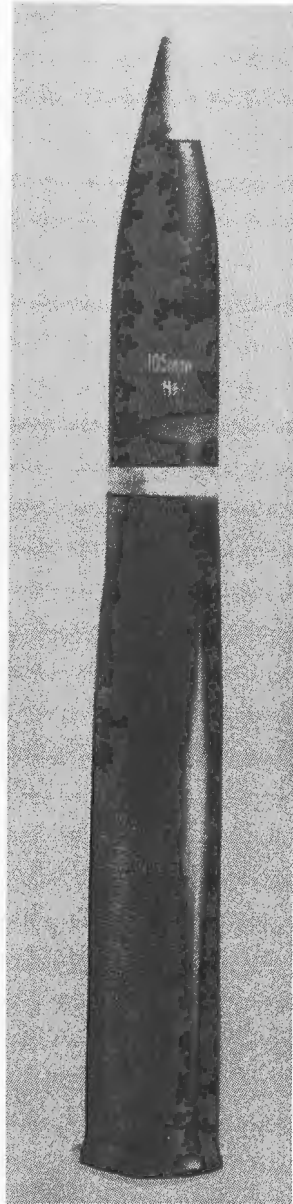
Figure 2-251. South African 92-mm Tandem HEAT Projectile Model ?



Neg. U-INT.003443

Using weapon(s): FT-5 antitank rocket launcher  
Remarks: Multipurpose warhead

Figure 2-252. South African 92-mm High-Explosive Multipurpose Projectile Model ?



Neg. U-INT.003701

Complete cartridge length: 1004 mm  
Complete cartridge mass: 23 kg  
Projectile mass: 14.2 kg  
Filler type & wt: TNT ?, 2 kg

Using weapon(s): L7 gun series  
Remarks: None

Figure 2-253. South African 105-mm HE Mmunition Model Unknown



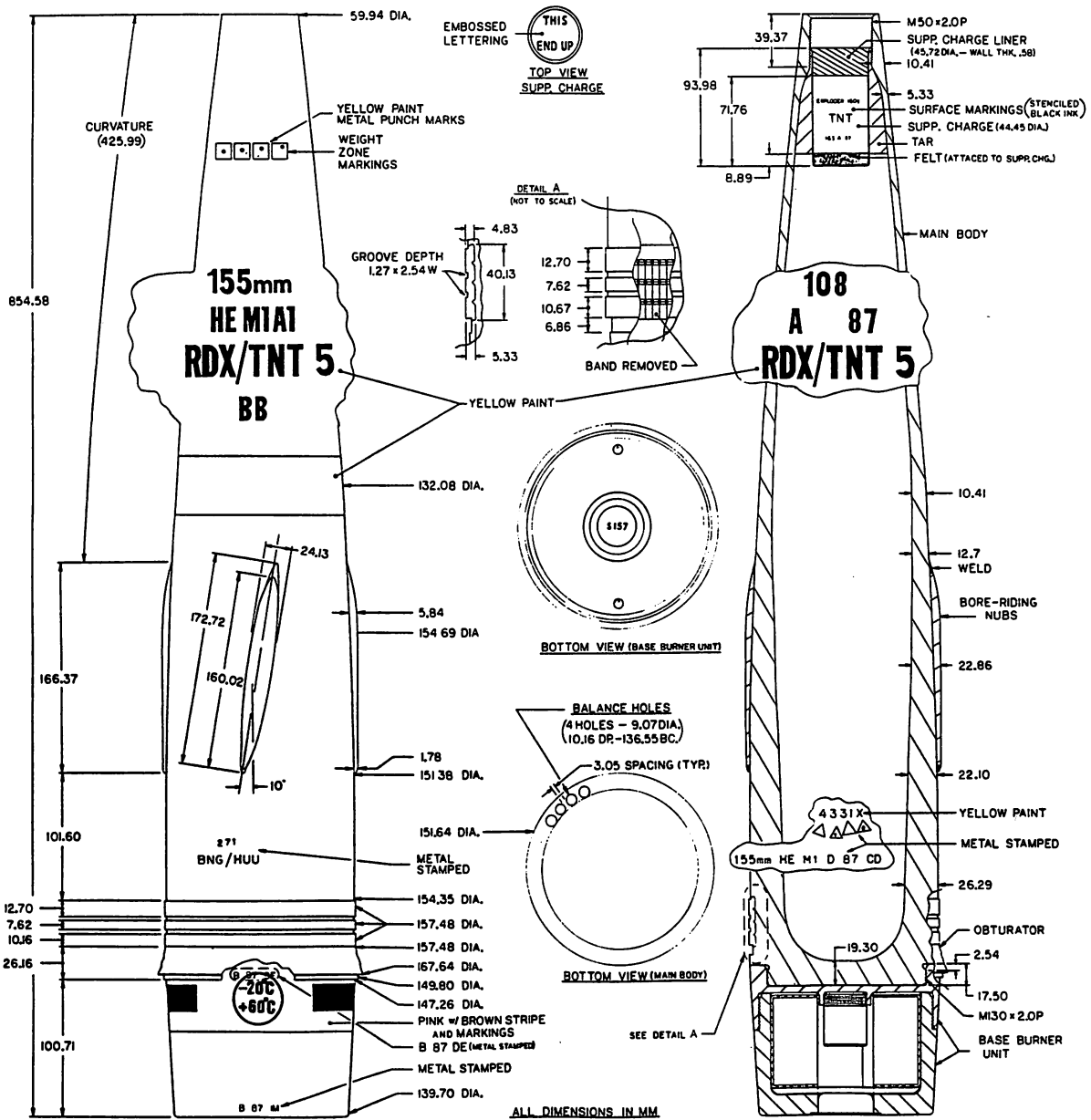
Tube length: 1600 mm  
Tube diameter: 200 mm  
Tube mass: 7.2 kg  
Missile length: 1220 mm  
Missile mass: 17.6 kg  
Charge mass: 2.5 kg

Using weapon(s): Crew portable, vehicle  
mounted, helicopter mounted

Remarks: None

Figure 2-254. South African 127-mm ATGM Model SWIFT





Projectile fuzed wt: 47.8 kg (max)  
 Fuze: M841 PD  
 Filler type & wt: TNT/RDX 95%/5%, 8.7 kg

Using weapon(s): Gun howitzers G-5 and G-6 (SP)  
 Remarks: Illustrated without fuze. Also uses M8513A1 radio proximity fuze

Figure 2-255. South African 155-mm M1A1 ERFB-BB Projectile

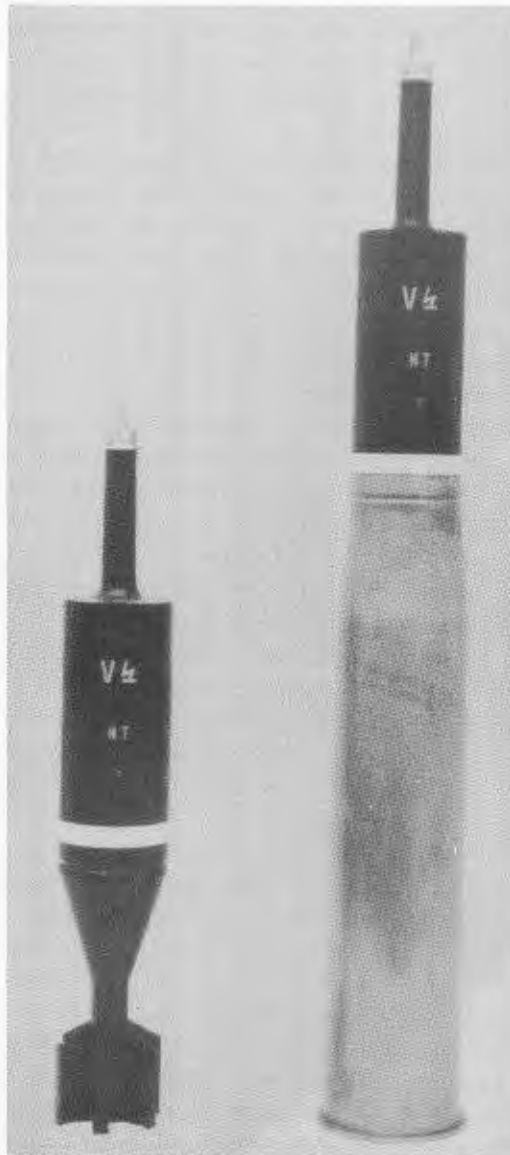


Neg. U-INT.003693

Complete cartridge length: 996 mm  
Complete cartridge mass: 18.0 kg  
Core material: Tungsten alloy

Using weapon(s): L7 gun  
Remarks: None

Figure 2-256. Spanish 105-mm APFSDS Munition Model Unknown

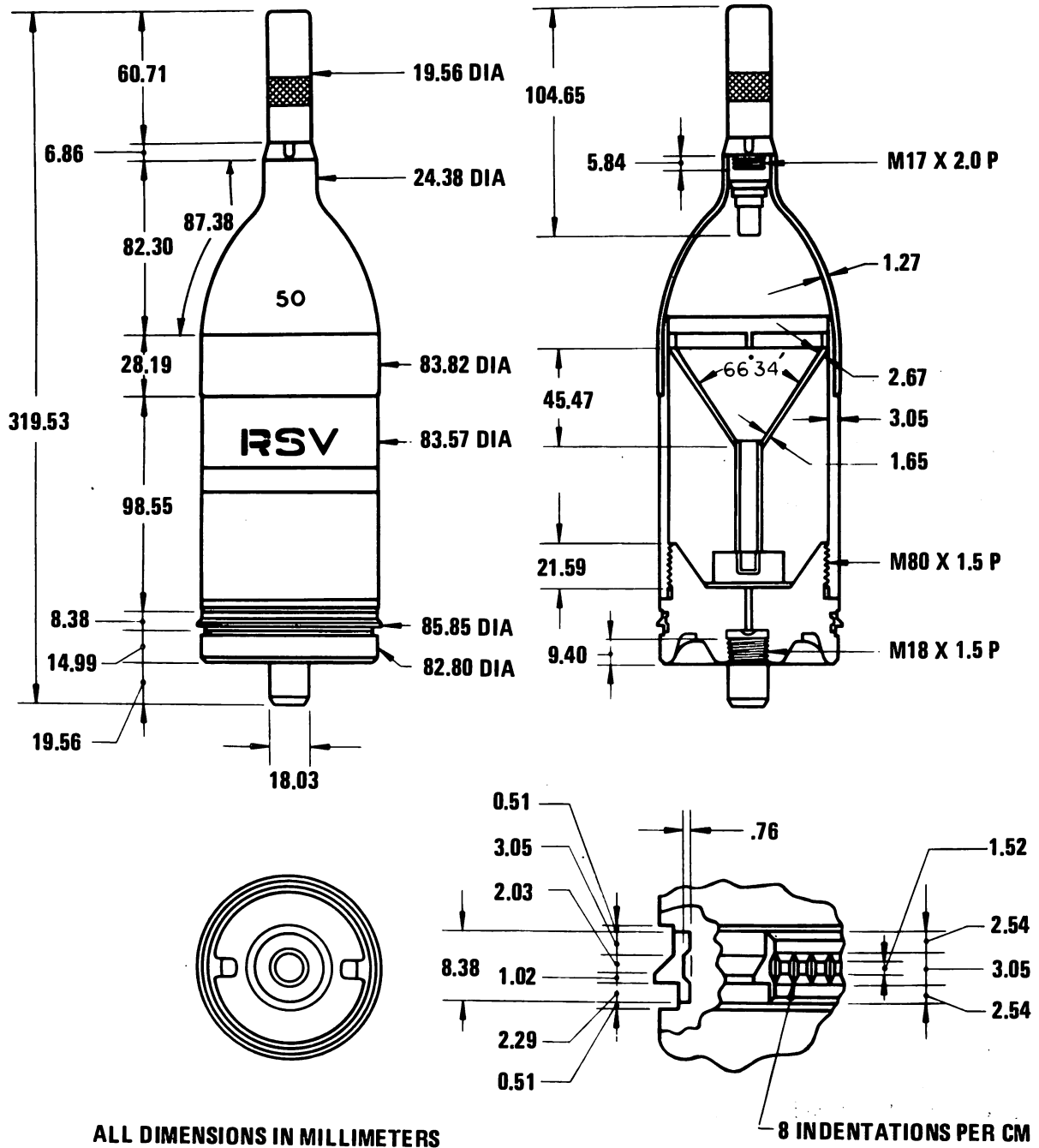


Neg. U-INT.003721

Complete cartridge length: 1015 mm  
Complete cartridge mass: 22.0 kg  
Projectile mass: 10.7 kg  
Explosive mass: Explosive ?, 1.5 kg

Using weapon(s): L7 gun series  
Remarks: None

Figure 2-257. Spanish 105-mm HEAT Munition Model Unknown

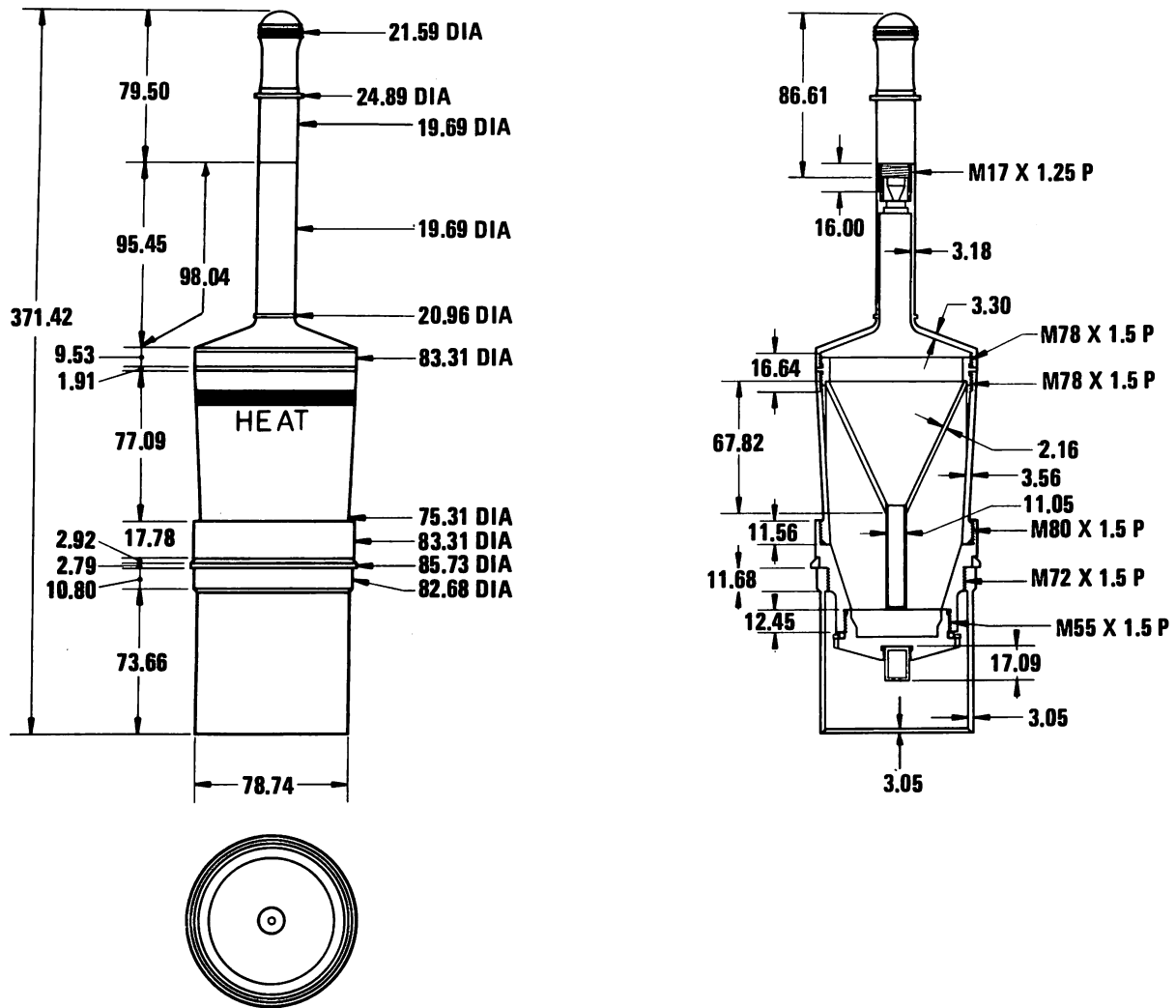


Neg. 503001

Projectile fuzed wt: 2.02 kg  
 Fuze: M-48 PIBD  
 Filler type & wt: RDX/TNT, 0.59 kg

Using weapon(s): Recoilless rifle M-48 (M2)  
 Remarks: None

Figure 2-258. Swedish 84-mm HEAT Projectile Model 48



ALL DIMENSIONS IN MILLIMETERS

Neg. 503002

Projectile fuzed wt: 1.75 kg  
Fuze: Model ? PIBD  
Filler type & wt: RDX/TNT, 0.59 kg

Using weapon(s): Recoilless rifle M-48 (M2)  
Remarks: None

Figure 2-259. Swedish 84-mm HEAT Projectile Model 59

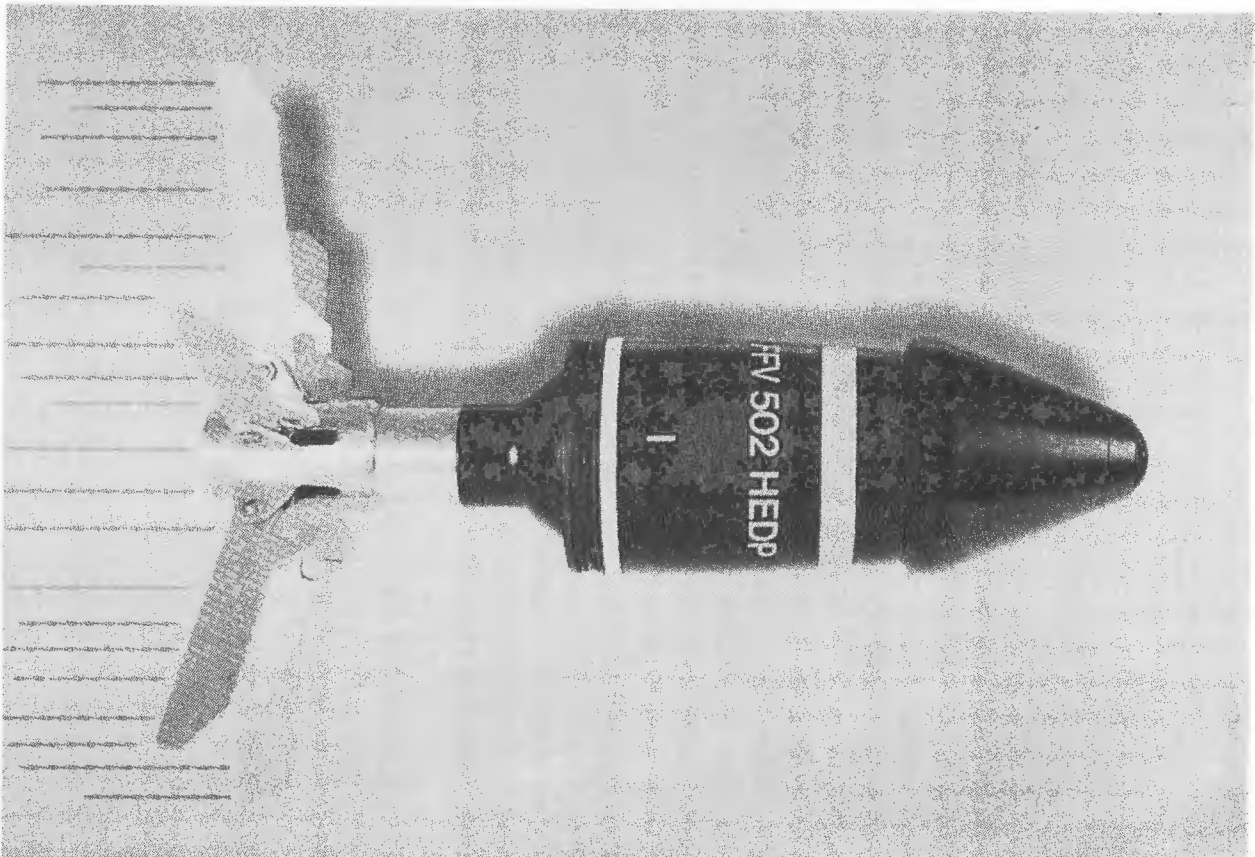


Neg. U-INT.002833

Complete cartridge mass: 4.0 kg  
Projectile mass: 3.2 kg

Using weapon(s): Carl Gustaf recoilless rifle  
Remarks: Tandem HEAT warhead

Figure 2-260. Swedish 84-mm HEAT Projectile Model FFV-751

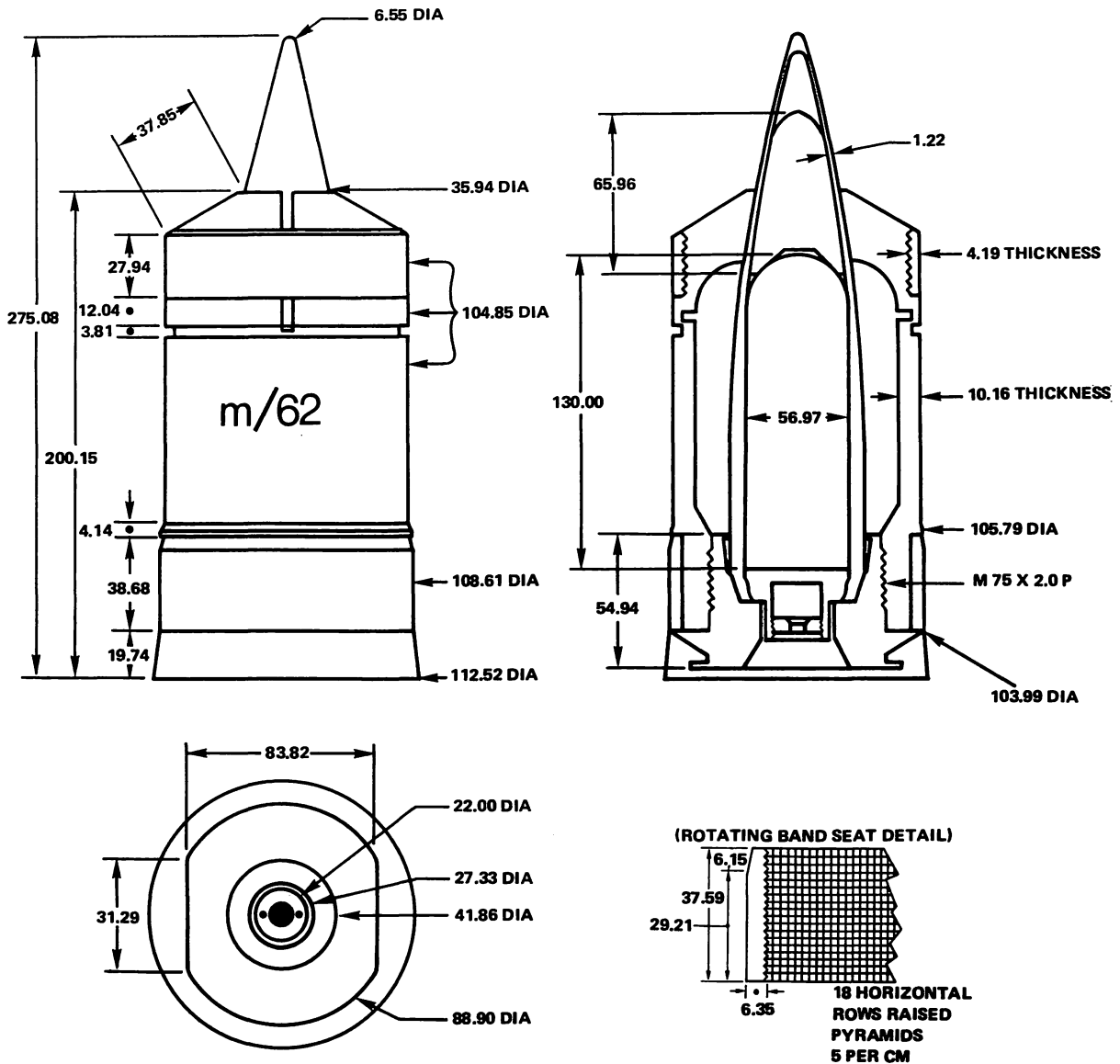


**Neg. U-INT.002834**

**Complete cartridge mass: 3.3 kg  
Projectile mass: 2.5 kg**

**Using weapon(s): Carl Gustaf recoilless rifles  
Remarks: Projectile has dual mode fuze**

**Figure 2-261. Swedish 84-mm HEDP Projectile Model FFV-502**



ALL DIMENSIONS IN MILLIMETERS

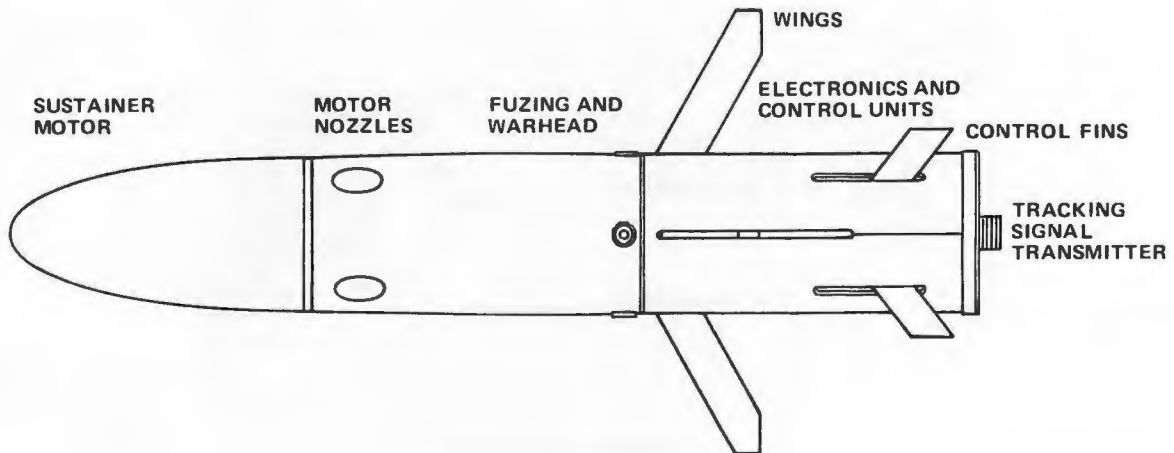
Neg. 520181

Projectile fuzed wt: 6.31 kg  
 Fuze: None  
 Filler type & wt: None

Using weapon(s): STRV-103S tank gun L-62  
 Remarks: Projectile has tungsten carbide core

Figure 2-262. Swedish 105-mm APDS-T Projectile Model M62





Tube length: 1600 mm  
Tube diameter: 225 mm  
Tube mass: 9.3 kg  
Missile length: 900 mm  
Wing span: 410 mm  
Missile mass: 10.7 kg  
Charge mass: 1.5 kg

Using weapon(s): Crew portable, vehicle mounted  
Remarks: Also designated RB556

Figure 2-263. Swedish 150-mm ATGM Model BILL

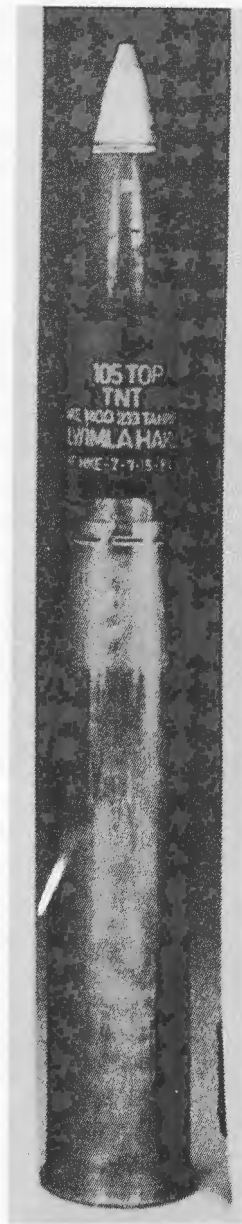


Neg. U-INT.003581

Complete cartridge length: 927 mm  
Complete cartridge mass: 18.0 kg  
Projectile mass: 5.8 kg  
Core material: Tungsten alloy

Using weapon(s): L7 gun  
Remarks: Copy of US FP105

Figure 2-264. Turkish 105-mm APFSDS-T Muniton Model FP105

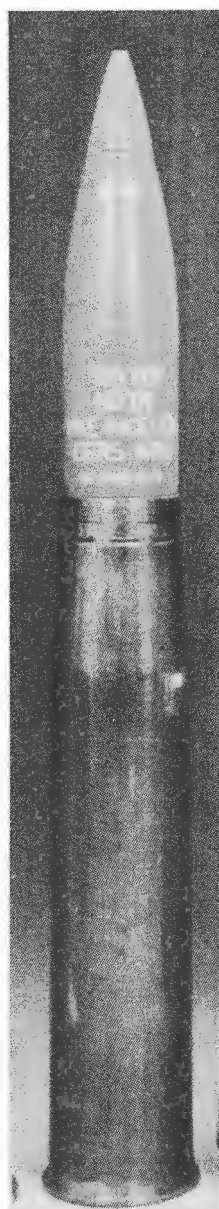


Neg. U-INT.003582

Fuze: M51A5, M557

Using weapon(s): L7 gun series  
Remarks: None

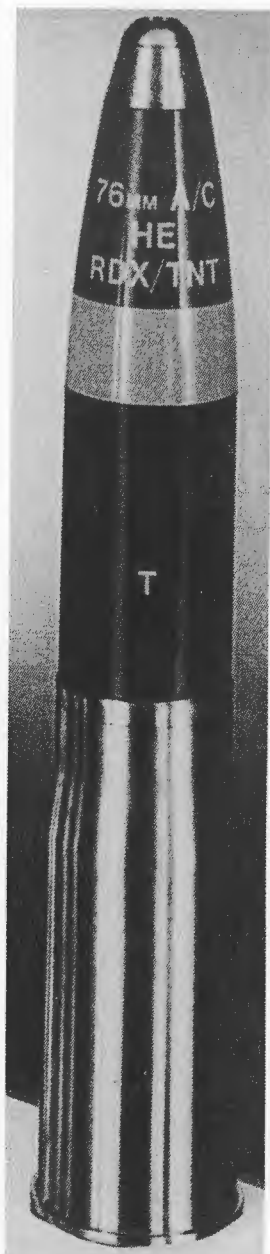
Figure 2-265. Turkish 105-mm HE Muniton Model 233



Neg. U-INT.003580

Using weapon(s): L7 gun series  
Remarks: Ballistically matched to Model 233

Figure 2-266. Turkish 105-mm HE-TP Muniton Model 234



Neg. U-INT.003707

Complete cartridge length: 527 mm  
Complete cartridge mass: 7.34 kg  
Filler: RDX, 1.08 kg

Using weapon(s): L5 & L23 guns  
Remarks: None

Figure 2-267. British 76-mm HE-T Muniton Model L24



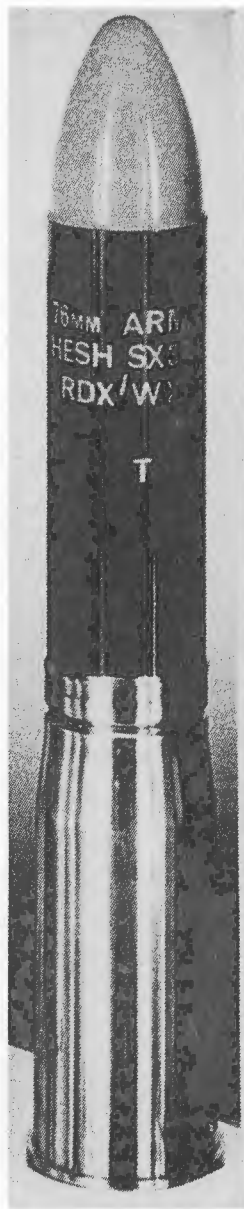
Neg. U-INT.003710

Complete cartridge length: 533 mm

Using weapon(s): L5 & L23 guns

Remarks: Ballistically matched to the L29 HE

Figure 2-268. British TP-HE Muniton Model L25

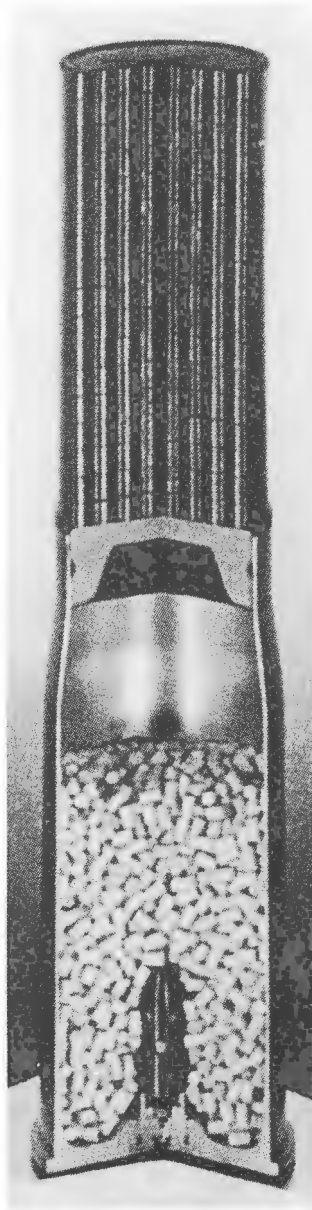


Neg. U-INT.003708

Complete cartridge length: 539 mm  
Complete cartridge mass: 7.42 kg  
Filler: RDX, 0.93 kg

Using weapon(s): L5 & L23 guns  
Remarks: None

Figure 2-269. British 76-mm HESH Muniton Model L29



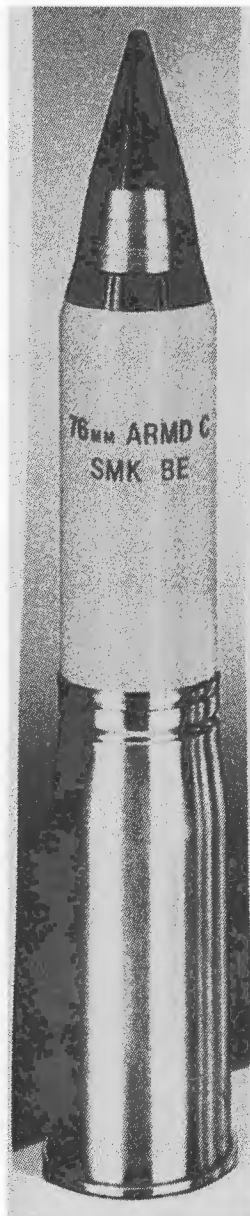
Neg. U-INT.003709

Complete cartridge length: 399 mm  
Complete cartridge mass: 6.69 kg  
Filler: 816 steel pellets

Using weapon(s): L5 & L23 guns  
Remarks: None

Figure 2-270. British 76-mm Canister Munition Model L33





Neg. U-INT.003711

Complete cartridge length: 588 mm  
Complete cartridge mass: 10.2 kg

Using weapon(s): L5 & L23 guns  
Remarks: None

Figure 2-271. British 76-mm Smoke Muniton Model L32



Neg. U-INT.003692

Core material: Tungsten alloy

Using weapon(s): CKL Mk III  
Remarks: None

Figure 2-272. British 90-mm APFSDS-T Muniton Model RO964

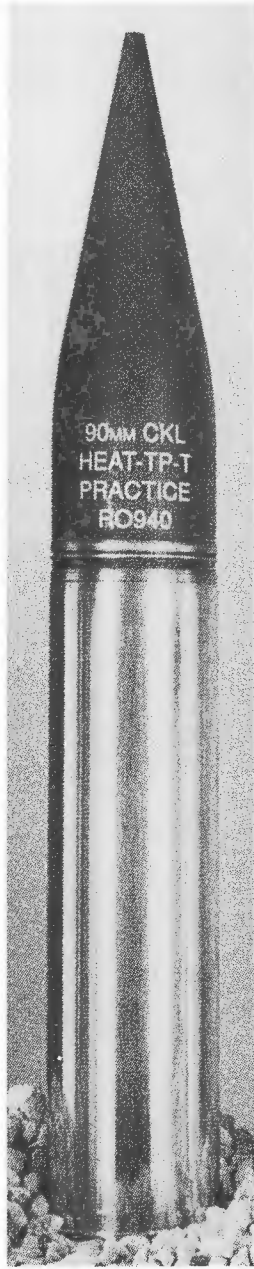


Neg. U-INT.003704

Complete cartridge length: 245 mm  
Complete cartridge wt: 7.3 kg  
Projectile fuze wt: 4.1 kg  
Fuze: PIBD  
Filler type & wt: Comp B, 0.5 kg

Using weapon(s): CKL Mk III  
Remarks: Copy of Belgian NR 478

Figure 2-273. British 90-mm HEAT Muniton Model RO907

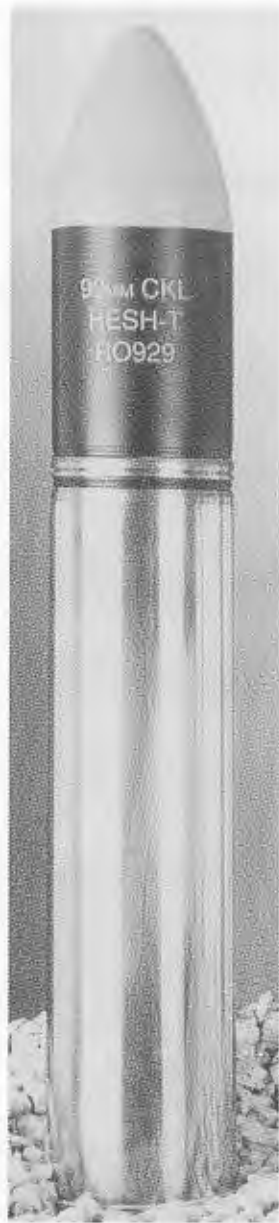


Neg. U-INT.003705

Filler type & wt: Inert

Using weapon(s): Cockerill Mk III gun  
Remarks: Copy of Belgian NR 479 muniton

Figure 2-274. British 90-mm TP-HEAT Muniton Model RO940

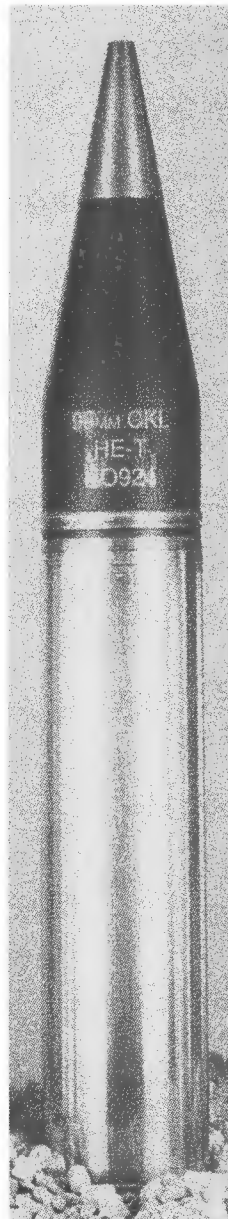


Neg. U-INT.003706

Complete cartridge length: 591 mm  
Complete cartridge wt: 7.4 kg  
Fuse: BD  
Filler type & wt: Comp A3, 1.23 kg

Using weapon(s): CKL Mk III  
Remarks: Copy of Belgian NR 445 muniton

Figure 2-275. British 90-mm HESH-T Muniton Model RO929

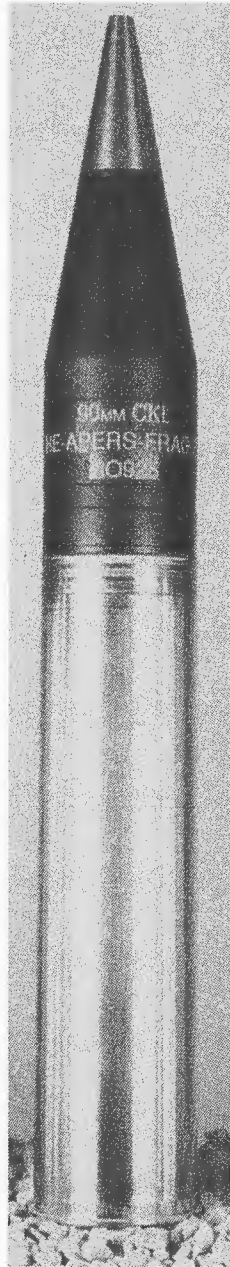


Neg. U-INT.003723

Complete cartridge length: 635 mm  
Complete cartridge wt: 8.3 kg  
Projectile fuzed wt: 5.1 kg  
Fuse: PD  
Filler type & wt: TNT, 1.05 kg

Using weapon(s): CKL Mk III  
Remarks: Copy of Belgian NR 501 muniton

Figure 2-276. British 90-mm HE-T Muniton Model RO924

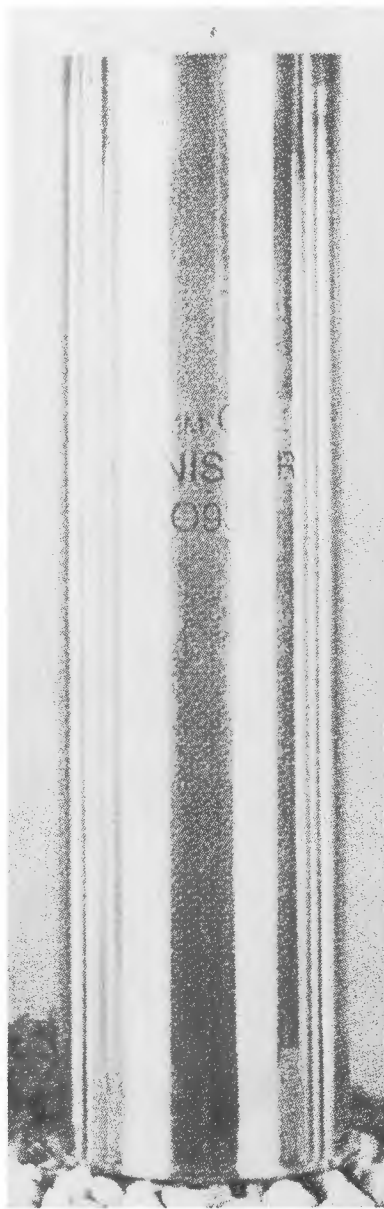


Neg. U-INT.003703

Complete cartridge wt: 11.0 kg  
Projectile fuze wt: 8.5 kg  
Fuze: PD  
Filler type & wt: ? kg

Using weapon(s): CKL Mk III  
Remarks: Copy of Belgian NR 219 muniton

Figure 2-277. British 90-mm HE-APERS-T Muniton Model RO925

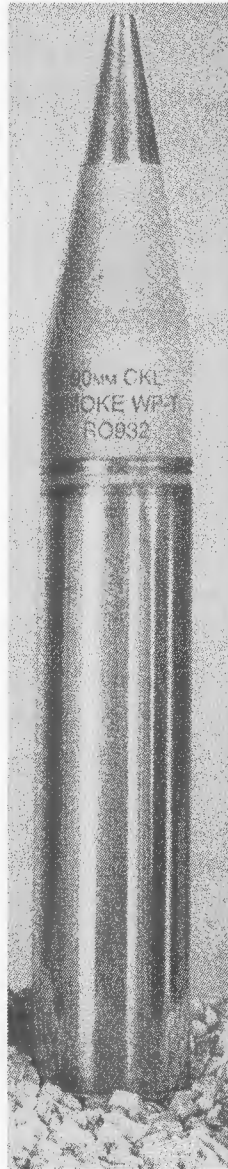


Neg. U-INT.003702

Using weapon(s): CKL Mk III  
Remarks: Copy of Belgian NR 125 munition

Figure 2-278. British 90-mm Canister Munition Model RO933



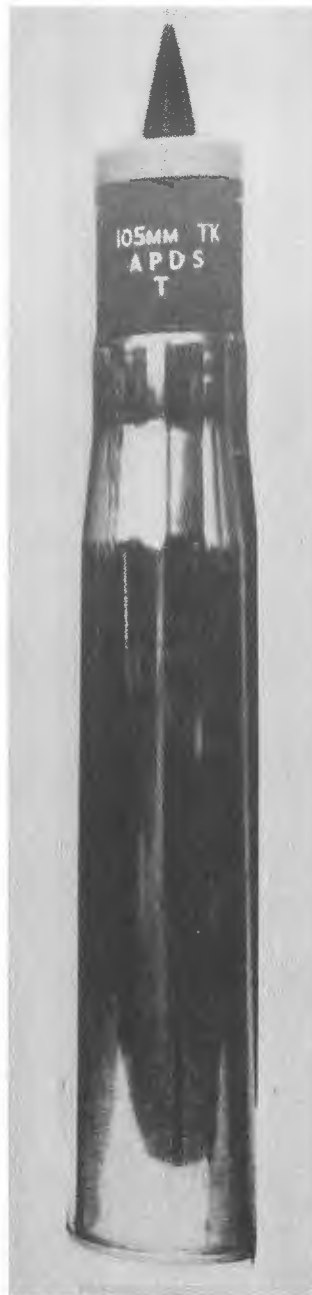


Neg. U-INT.003722

Complete cartridge length: 635 mm  
Complete cartridge wt: 8.7 kg  
Filler type & wt: White phosphorous

Using weapon(s): CKL Mk III  
Remarks: Copy of Belgian NR 502 muniton

Figure 2-279. British 90-mm Smoke Muniton Model RO932



Neg. U-INT.003686

Complete cartridge length: 838 mm  
Complete cartridge mass: 19.1 kg  
Projectile mass: 6.5 kg  
Core material: WA

Using weapon(s): L7 gun  
Remarks: None

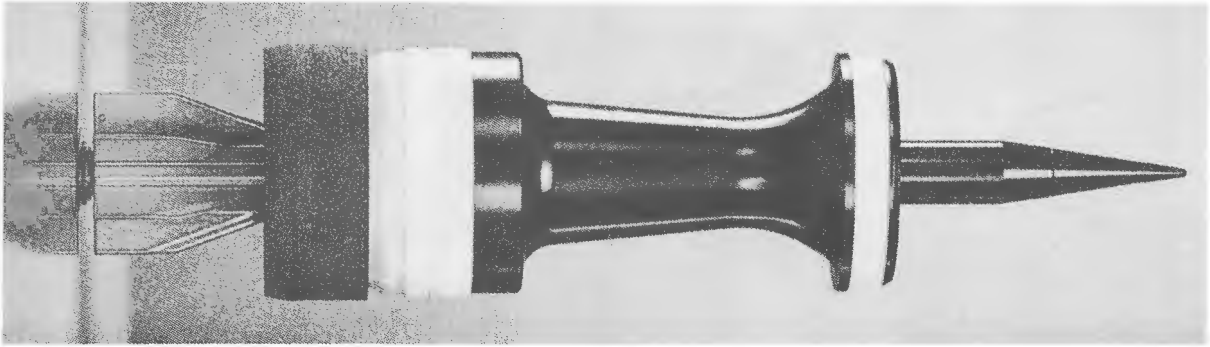
Figure 2-280. British 105-mm APDS-T Muniton Model L52



Neg. U-INT.003684

Using weapon(s): L7 gun  
Remarks: None

Figure 2-281. British 105-mm TPDS-T Muniton Model L63



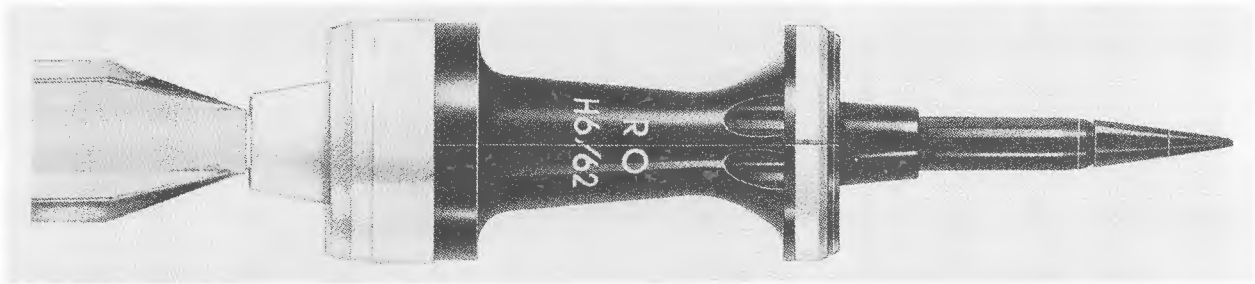
Neg. 900959

Complete cartridge length: 948 mm  
Complete cartridge mass: 18.5 kg  
Projectile mass: 6.1 kg  
Core material: Tungsten alloy

Using weapon(s): L7 gun  
Remarks: None

Figure 2-282. British 105-mm APFSDS-T Muniton Model L64

DST-1160Z-029-94

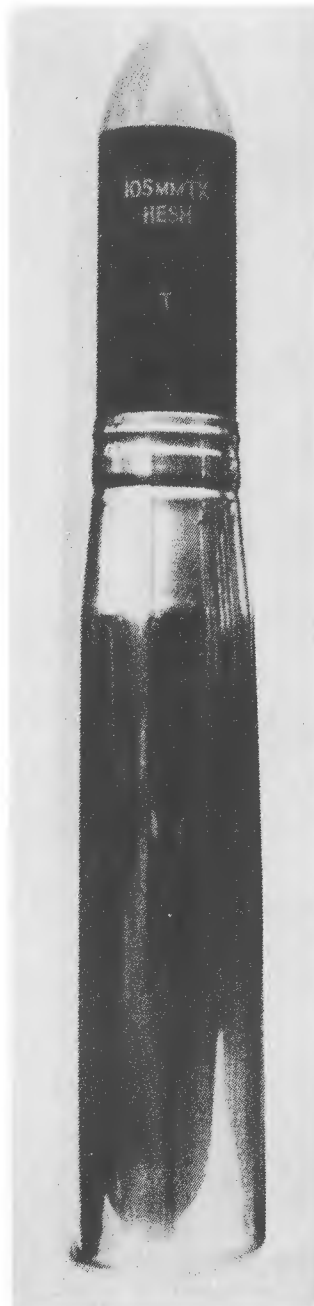


Neg. U-INT.003495

Complete cartridge length: 990 mm  
Complete cartridge mass: 18.5 kg  
Projectile mass: 6.1 kg  
Core material: Tungsten alloy

Using weapon(s): L7 gun  
Remarks: None

Figure 2-283. British 105-mm APFSDS-T Muniton Model H6/62

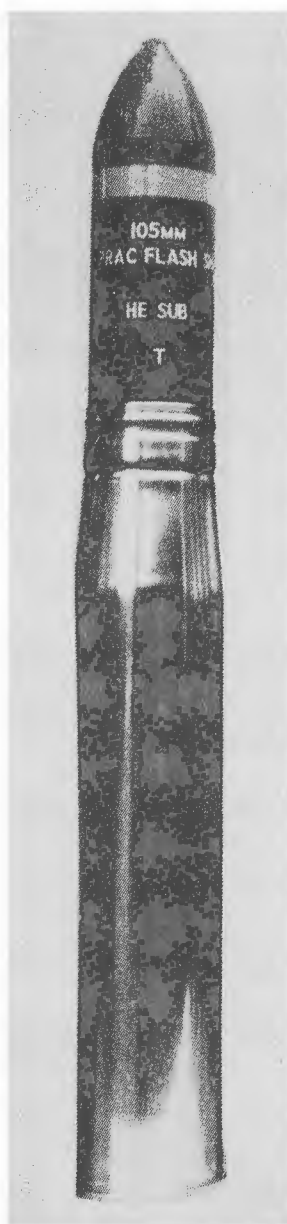


Neg. U-INT.003682

Complete cartridge length: 939 mm  
Complete cartridge mass: 21.2 kg  
Projectile mass; 11.3 kg  
Fuse: BD L19 or L56  
Filler type & wt: RDX, 2.1 kg

Using weapon(s): L7  
Remarks: None

Figure 2-284. British 105-mm HESH Muniton Model L35



Neg. U-INT.003683

Complete cartridge length: 925 mm  
Complete cartridge mass: 21.2 kg  
Filler: Inert

Using weapon(s): L7 gun series  
Remarks: Ballistically matched to the L35 HESH

Figure 2-285. British 105-mm TP-HESH Muniton Model L38



Neg. U-INT.003687

Complete cartridge length: 927 mm  
Complete cartridge mass: 26.4 kg  
Projectile mass: 19.6 kg  
Fuze: Time

Using weapon(s): L7 gun series  
Remarks: None

Figure 2-286. British 105-mm Smoke Projectile Model L39





Neg. U-INT.003716

Projectile mass; 10.4 kg  
Core material: Tungsten alloy

Using weapon(s): L11 gun  
Remarks: None

Figure 2-287. British 120-mm APDS Projectile Model L15

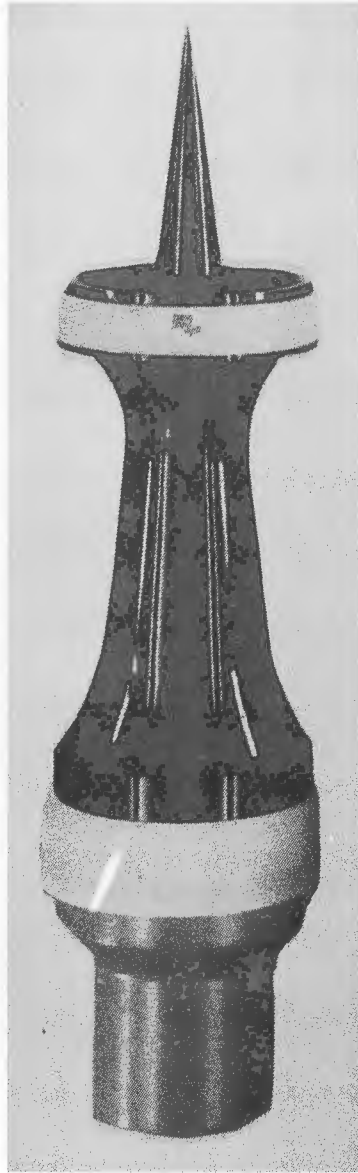


Neg. U-INT.003715

Projectile mass: 5.8 kg  
Core material: Steel

Using weapon(s): L11 gun  
Remarks: Ballistically matched to the L15

Figure 2-288. British 120-mm TPDS-T Projectile Model L20



Neg. U-INT.003717

Projectile mass: 7.9 kg  
Core material: Tungsten alloy

Using weapon(s): L11  
Remarks: None

Figure 2-289. British 120-mm APFSDS-T Projectile Model L23



Neg. U-INT.003714

Projectile length: 503 mm  
Projectile mass: 17.1 kg  
Filler type & wt: RDX, 4.1 kg

Using weapon(s): L11 gun  
Remarks: None

Figure 2-290. British 120-mm HESH Projectile Model L31

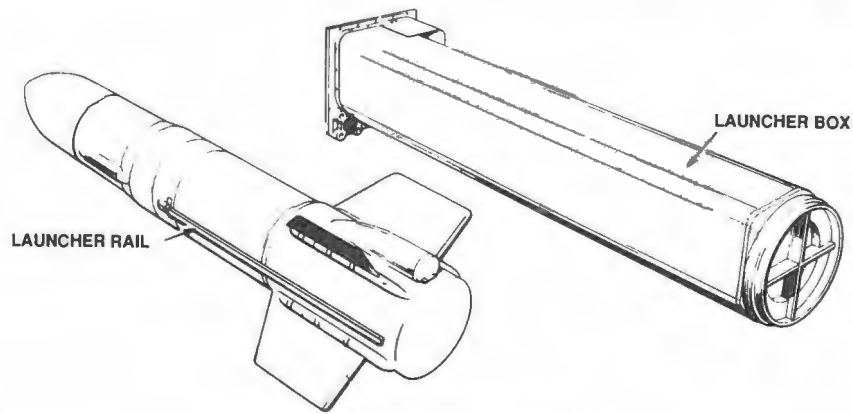


Neg. U-INT.003713

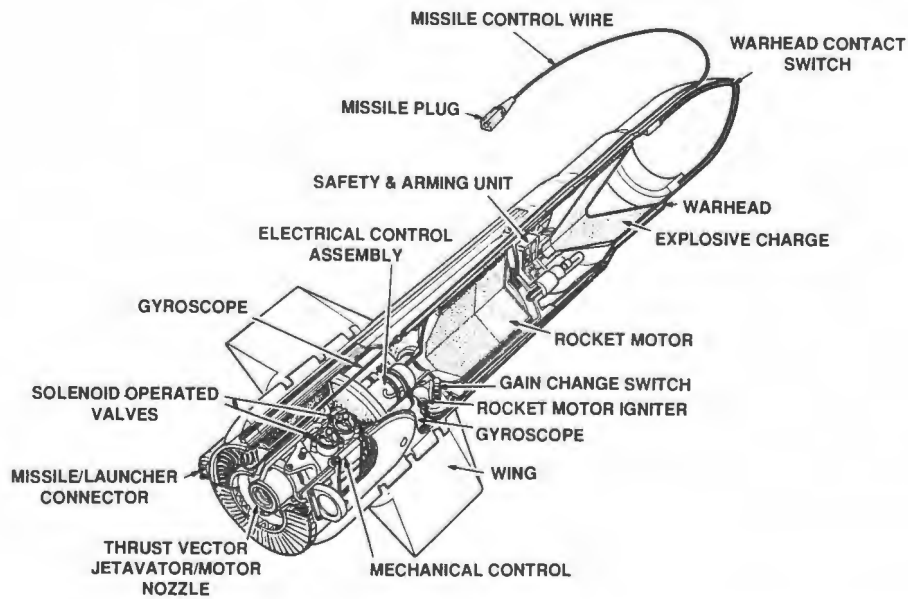
Projectile length: ? mm  
Projectile mass: 17.1 kg  
Filler type & wt: Either inert or with live  
fuze & flush pellet

Using weapon(s): L11 gun  
Remarks: Ballistically matched to L31

Figure 2-291. British 120-mm S.H. PRAC Projectile Model L32



a. EXTERNAL CONFIGURATION



b. INTERNAL CONFIGURATION

Using weapon(s): Vehicle mounted  
 Remarks: None

Figure 2-292. British ATGM Model Swingfire

APPENDIX I

CHARACTERISTICS OF FOREIGN WEAPONS

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Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
RUSSIA		FORMER EURASIAN COMMUNIST COUNTRIES					
37-mm AA gun M1939	<sup>9</sup> 6000 (vert) 8000 (horiz)	880 Frag-T 880 AP-T	160 to 180	85	-5	360	16
37-mm aircraft cannon Model N	—	686 HEI-T 686 AP-T	400 to 440	—	—	—	16
57-mm AT guns ZIS-2 (M1943) and APAT gun Ch-26	<sup>9</sup> 8400	700 Frag 1270 HVAP-T 990 AP-T	25	25	-5	57	24
57-mm assault gun ASU-57	<sup>9</sup> 6000	700 Frag 980 AP-T 1255 HVAP-T	8 to 12	12	-5	22	24
57-mm AA gun Model S-60	<sup>9</sup> 8800 (vert) 12 000 (horiz)	1000 Frag-T 1000 AP-T	105 to 120	87	-4	360	24
Twin 57-mm SP AA gun ZSU-57-2	<sup>9</sup> 8800 (vert) 12 000 (horiz)	1000 Frag-T 1000 AP-T	210 to 220	85	-5	360	24
58.3-mm AT grenade launcher RPG-16	800	? HEAT	4 to 6 (est)	—	—	—	0
64-mm AT rocket launcher RPG-18	200	114 HEAT	Single shot throwaway	—	—	—	0
73-mm recoilless gun SPG-9	<sup>8</sup> 1800-2300 (HEAT) 4500 (HE)	316 HE 435 RAP-HEAT (boosted to 700)	6	7	-3	30	0
Note: See footnotes at end of table.							



Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
RUSSIA (Continued)		FORMER EURASIAN COMMUNIST COUNTRIES (Continued)					
73-mm gun on BMP and BMD Armored Infantry Combat Vehicles	<sup>8</sup> 1800- 2000 (HEAT) 4500 (HE)	316 HE 400 RAP-HEAT (boosted to 665)	7 to 8	30	-4	360	0
76-mm field gun ZIS-3 (M1942)	<sup>10</sup> 13 300	680 Frag-HE 655 AP-T 950 HVAP-T 550 HEAT	25	37	-5	54	32
76-mm tank PT-76	<sup>1</sup> 13 290	680 Frag-HE 663 AP-T 966 HVAP-T 550 HEAT	15	30	-4	360	32
40/80-mm AT grenade launcher RPG-2	<sup>2</sup> 100	83 HEAT	4 to 6	—	—	—	0
40/85-mm AT grenade launcher RPG-7V	<sup>2</sup> 7300 to 500	120 HEAT (boosted to 300)	4 to 6	—	—	—	0
82-mm mortar M1937 (1942-43 version)	3040	210 Frag	25	85	45	10	0
82-mm recoilless gun B-10	<sup>9</sup> 4470	321 Frag 321 HEAT	4 to 6	35	-20	360	0
85-mm AA gun M1939 (KS-12 and KS-12A)	<sup>9</sup> 10 218 (vert) 15 500 (horiz)	800 Frag 800 AP-T 1 030 HVAP-T	15 to 20	82	-3	360	24
85-mm AA gun M1944	<sup>9</sup> 11 590 (vert) 18 000 (horiz)	880 Frag 805 AP-T 1 020 HVAP-T	12 to 15	82	-3	360	24

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
RUSSIA (Continued)		FORMER EURASIAN COMMUNIST COUNTRIES (Continued)					
85-mm field (AT) gun D-44 and SD-44	<sup>10</sup> 15 650	800 Frag 805 AP-T 1 020 HVAP-T	10	35	-7	54	24
85-mm tank T34/85	<sup>10</sup> 15 300	800 Frag 805 APC-T 1 050 HVAP-T 842 HEAT-FS	7 to 8	25	-5	360	24
85-mm assault gun ASU-85	<sup>10</sup> 15 300 (est)	800 Frag 805 APC-T 1 050 HVAP-T	7 to 8	15 (est)	-4 (est)	12 (est)	24 (est)
85-mm AT gun D-48	<sup>10</sup> 16 200	900 Frag 900 HEAT 1 000 APC-T	7	20	-5	54	24 (est)
100-mm AA gun KS-19 series	<sup>10</sup> 14 500 (vert) 21 000 (horiz)	900 HE 900 APC-T	15	87	-3	360	42
100-mm field (AT) gun BS-3 (M1944)	<sup>10</sup> 20 000	900 Frag-HE 895 AP-T <sup>6</sup> 1 415 HVAPDS-T 900 HEAT	7	45	-5	58	40
100-mm tank T-54 (all)	<sup>10</sup> 21 031	900 Frag-HE 916 APC-T 900 HEAT 1 415 HVAPDS-T 1 500 APFSDS-T (est)	4 to 7	17	-4	360	40
100-mm tank T-55 (all)	<sup>10</sup> 21 031	900 Frag-HE 916 APC-T 900 HEAT 1 415 HVAPDS-T 1 500 APFSDS-T (est)	4 to 7	18	-5	360	40

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
RUSSIA (Continued)				FORMER EURASIAN COMMUNIST COUNTRIES (Continued)			
100-mm assault gun SU-100	<sup>10</sup> 21 031	900 Frag-HE 916 APC-T 900 HEAT 1415 HVAPDS-T	8 to 10	20	-2	32	40
107-mm recoilless gun B-11	<sup>9</sup> 6650	400 Frag-HE 400 HEAT	4 to 5	45	-10	35	0
115-mm tank T-62	<sup>1</sup> <sup>9</sup> 12 230	800 Frag-HE 950 HEAT-FS 1615 HVAPFSDS-T	4	18	-5	360	0
120-mm mortars M1938 and M1943	<sup>9</sup> 5700	272 Frag-HE 269 incend 269 smoke 269 illum	15	80	45	6	0
<sup>4</sup> 122-mm tank T-10	<sup>10</sup> 21 945	885 Frag-HE 885 APC-T	3 to 4	17 (est)	-3 (est)	360	28 (est)
122-mm tank T-10M	<sup>10</sup> 22 000	915 (est) Frag-HE 915 (est) HEAT 950 APC-T	3 to 4	17 (est)	-3 (est)	360	28 (est)
122-mm howitzer M30 (M1938)	<sup>9</sup> 11 800	515 Frag-HE 570 HEAT 515 illum 515 smoke	6	64	-3	49	36
122-mm field gun A-19	<sup>10</sup> 19 750	800 Frag-HE 800 AP-T 800 CP	5 to 6	69	-2	58	44
122-mm field gun D-74	<sup>10</sup> 23 900	885 Frag-HE 885 APC-T	6	45	-5	58	28

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
RUSSIA (Continued)		FORMER EURASIAN COMMUNIST COUNTRIES (Continued)					
122-mm tanks JS-1, JS-2, and JS-3	<sup>1</sup> 1020 116	780 Frag-HE 800 AP-T	3 to 4	20	-3	360	44
122-mm assault gun JSU-122	<sup>1</sup> 1020 800	800 Frag-HE 800 AP-T	3 to 6	15	-4	11	44
122-mm assault gun JSU-122A	<sup>1</sup> 1020 116	780 Frag-HE 895 AP-T	3 to 6	20	-3	20	44
122-mm howitzer D-30	<sup>5</sup> 915 300	690 illum 690 Frag-HE 690 smoke 740 HEAT 680 HEAT-FS	6	<sup>5</sup> 70	<sup>5</sup> -7	360	36
122-mm MRL BM-21	20 380	699 HE (at burnout)	40 in 20 s @ 0.5-s intervals	55	0	175	0
122-mm SP howitzer 2S1	<sup>9</sup> 15 000	690 Frag-HE 740 HEAT 680 HEAT-FS 690 illum 690 smoke	5	70	-7	360	36
125-mm tank gun T-64 and T-72	12 000	1800 APFSDS-T 905 HEAT-FS 850 Frag-HE	6 to 8	14	6	360	0
130-mm field gun M-46	<sup>9</sup> 27 490	930 Frag-HE 930 APC-T 680 illum 930 TgT mkr	5	45	-2.5	50	40
132-mm MRL M-13, 16-rd	900	350 HE	16	45	+15	10+20	0

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
RUSSIA (Continued)		FORMER EURASIAN COMMUNIST COUNTRIES (Continued)					
140-mm MRLs: BM-14-16 BM-14-17 M1965 (towed)	9810	402 HE (at burnout)	16) in less 17) than 16) 1 min	52 47 48	-1.7 — —	200 210 30	0
152-mm gun-howitzer ML-20	<sup>9</sup> 17 230	655 Frag-HE 600 CP 670 HEAT	4	65	-2	58	48
152-mm SP howitzer gun 2S3	<sup>9</sup> 17 300	655 Frag-HE 600 CP 670 HEAT	4	65	-2	360	48
152-mm gun howitzer D-1	<sup>9</sup> 12 390	510 Frag-HE 510 CP 510 HEAT	4	63	-3	35	48
152-mm gun howitzer D-20	<sup>9</sup> 17 230	655 HE 600 CP 670 HEAT	4	63	-5	58	48
152-mm assault gun JSU-152	<sup>1</sup> 9 15 850	655 Frag-HE 601 AP-T	2 to 3	20	-3	20	48
160-mm mortar M1943	5000	305 HE	3	85	45	25	0
160-mm mortar M160	8070	343 HE	3	80	50	25	0
180-mm gun S-23	<sup>9</sup> 30 000 (conventional) 40 000 HE-RA	825 HE (est) 800 CP (est) 850 RAP-HE (est)	1 (est) 1st min only	55	-2	40	40
203-mm howitzer B-4 (M1931) and B-4M	<sup>9</sup> 18 025	607 HE 607 CP	1 in 2 min	60	0	8	64

I-7

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
RUSSIA (Continued)				FORMER EURASIAN COMMUNIST COUNTRIES (Continued)			
240-mm MRL BM-24	10 300	295 HE (at burnout)	12 in less than 1 min	52	—	140	0
240-mm MRL on AT-S artillery tractor	10 300	295 HE (at burnout)	12 in less than 1 min	55	—	210	0
240-mm mortar M-240	8050 9700 (w/additional charge)	363 HE	1	70	45	17	0
CHINA							
<sup>3</sup> 37-mm AA gun Type 55	<sup>9</sup> 6000 (vert) 8000 (horiz)	880 Frag-T 880 AP-T	160 to 180	85	-5	360	16
<sup>3</sup> 57-mm AT gun Type 55 (Copy Soviet ZIS-2)	<sup>9</sup> 8400	700 Frag 1270 HVAP-T 990 AP-T	25	25	-5	57	24
<sup>3</sup> 57-mm AA gun Type 59	<sup>9</sup> 8800 (vert) 12 000 (horiz)	1000 Frag-T 1000 AP-T	105 to 120	87	-4	360	24
57-mm recoilless rifle Type 36	<sup>9</sup> 3657	340 HE 340 HEAT	15	12	—	38	24
75-mm recoilless rifles Type 52 and Type 56	<sup>9</sup> 6675	305 HE 295 HEAT	10	18	-20	360	28
<sup>3</sup> 40/80-mm AT grenade launcher Type 56	<sup>2</sup> 100	83 HEAT	4 to 6	—	—	—	0
<sup>3</sup> 82-mm mortar Type 53	3535	211 HE	15	85	45	10	0

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
CHINA (Continued)		FORMER EURASIAN COMMUNIST COUNTRIES (Continued)					
82-mm recoilless gun Type 65	1000	247 HEAT	6 (est)	45	?	360	0
85-mm AA gun Type ? (Copy Soviet M1939)	<sup>10</sup> 10 218 (vert) 15 500 (horiz)	800 Frag 800 AP-T 1030 HVAP-T	15 to 20	82	-3	360	24
<sup>3</sup> 85-mm field gun Type 56 (Copy Soviet D-44)	<sup>10</sup> 15 650	800 ? Frag-HE 800 Frag 805 AP-T 1020 HVAP-T	10	35	-7	54	24
<sup>3</sup> 85-mm lt tank Type 62 and lt amphib tank Type 60/63	<sup>1</sup> <sup>10</sup> 15 300	800 ? Frag-HE 805 APC-T 1050 HVAP-T	7 to 8	20 Type 62 18 Type 60/63	-4 Type 62 -5 Type 60/63	360	24
<sup>3</sup> 100-mm med tank Type 59	<sup>1</sup> <sup>10</sup> 21 031	900 Frag-HE 925 AP-T 900 HEAT	4 to 7	17	-4	360	40
<sup>3</sup> 100-mm HT gun Type 59 (Copy Soviet BS-3)	<sup>10</sup> 20 000	900 Frag-HE 895 AT-T 900 HEAT 916 APC-T	7	45	-5	58	40
<sup>3</sup> 100-mm AA gun Type 59	<sup>10</sup> 14 500 (vert) 21 000 (horiz)	900 HE 900 APC-T	15	87	-3	360	42
107-mm rocket launcher Type 63	8300	385 HE (at burnout)	12 in less than 1 min	58.2	—	32	0
107-mm MRL Type 63-1	8300	385 HE (at burnout)	Manual variable	58.5	-3	36	0

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
CHINA (Continued)		FORMER EURSIAN COMMUNIST COUNTRIES (Continued)					
<sup>3</sup> 122-mm field gun Type 60 (Copy Soviet D-74)	<sup>10</sup> 23 900	885 Frag-HE 885 APC-T	6	45	-5	58	28
BULGARIA							
40/85-mm AT grenade launcher (using OG-7V HE projectile)	200 (est)	140 (est)	4 to 6	—	—	—	0
CZECHOSLOVAKIA							
37-mm aircraft cannon, Model N	—	686 HEI-T & AP-T	400 to 400	—	—	—	16
<sup>3</sup> 57-mm AT gun PTK-43S and all 57-mm guns except AA	<sup>9</sup> 8400	700 Frag 1270 HVAP 990 AP-T	25	25	-5	57	24
<sup>3</sup> 82-mm mortars, M1937, M1941. & M1943	3040	210 HE	25	85	45	10	0
82-mm recoilless gun T-21	2800	236 HEAT	4 to 6	—	—	—	0
85-mm field gun K-52/55	<sup>10</sup> 16 160	805 HE 820 AP-T 1070 HVAP-T 805 Frag-HE	10 to 12	38	-6	60	24
<sup>3</sup> 85-mm AA gun PLK-39	<sup>10</sup> 10 218 (vert) 15 500 (horiz)	800 Frag 835 AP-T 1020 HVAP-T	12 to 15	82	-3	360	24



Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
CZECHOSLOVAKIA (Continued)      FORMER EURASIAN COMMUNIST COUNTRIES (Continued)							
<sup>3</sup> 100-mm tank T-54	<sup>10</sup> 21 031	930 Frag-HE 955 APC-T 995 HEAT	4 to 7	17	-4	360	40
<sup>3</sup> 100-mm tank T-55	<sup>10</sup> 21 031	930 Frag-HE 955 APC-T 995 HEAT	4 to 7	18	-5	360	40
<sup>3</sup> 100-mm assault gun ShK-44	<sup>10</sup> 21 031	930 Frag-HE 955 APC-T 995 HEAT	8 to 10	17	-2	32	40
100-mm field gun K-53	<sup>10</sup> 21 000	930 Frag-HE 955 APC-T 995 HEAT-FS	10	42	-6	60	40
<sup>3</sup> 120-mm mortars M1938 and M1943	<sup>9</sup> 5700	272 Frag-HE 269 incend 269 smoke 269 illum	15	80	45	6	0
130-mm MRL M51	8200	415 HE	32 in less than 1 min	50	—	120	0
152-mm gun/howitzer KH-37 (Soviet ML 20)	<sup>9</sup> 17 230	655 Frag-He 600 CP 670 HEAT	4	65	-2	58	48
152-mm howitzer 18/47	No data available						
152-mm SP gun/howitzer (wheeled) M1978	<sup>9</sup> 17 230 20 000 (est)	655 Frag-HE 655 HE (ER)	6	60	-3	360	?

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
<b>YUGOSLAVIA</b>							
<b>FORMER EURASIAN COMMUNIST COUNTRIES (Continued)</b>							
60-mm mortar M57	1690	159 HE	25 to 30	85	40	14	0
76-mm mountain gun M48	<sup>9</sup> 8600	400 HE 400 HEAT	20	45	-15	50	24
81-mm mortar M5	3810	240 HE	25	85	45	11	0
82-mm mortar M31	3100	211 HE	25	85	45	29	0
120-mm mortar UB M52	6300 (lt rd) 4700 (hvy rd)	300 HE (lt rd) ? HE	25	85	45	6	0
<b>BELGIUM</b>							
<b>REST OF WORLD</b>							
83-mm AT rocket launcher M1951	<sup>2</sup> 200	180	6	—	—	—	0
<b>FINLAND</b>							
160-mm mortar M1953	9600	370 HE 592 HEDS	5	75	45	360	0
<b>FRANCE</b>							
73-mm rocket launcher M1950	<sup>2</sup> 183	165 HEAT	4 to 5	—	—	—	0
90-mm armored recon vehicle EBR-90	<sup>1</sup> 2300	640 HE 750 HEAT	6 to 8	15	-12	360	60
90-mm tank ELC (EVEN)	<sup>1</sup> 2300	650 HE 800 HEAT	6 to 8	13	-9.3	360	60
105-mm tank AMX-13	<sup>1</sup> 2000	800 HEAT	10	13	-6	360	32 (est)

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
FRANCE (Continued)				REST OF WORLD (Continued)			
105-mm tank AMX-30	<sup>1</sup> 10 500	700 HE 1000 HEAT	10	20	-8	360	32
105-mm howitzer 14/56	10 200 (both)	420 HE 420 HEAT	3	65	-5	56	36
105-mm SP howitzer AU 50	14 000	600 HE 675 HE (hollow base)	6	66	-4.5	40 fixed	?
120-mm mortar M1950	6700 9000 (extended range)	290 HE 290 RAP-HE (boosted to 370)	10	80	45	45	0
120-mm lt mortar M1960	6650 9000 (extended range)	240 HE 290 RAP-HE (boosted to 370)	8	85	40	6	0
120-mm rifled mortar M61R	13 000	369 RAP-HE	6	85	28	14	40
ISRAEL							
52-mm mortar Soltam	489 (all)	78 HE 78 smoke 78 illum	8	86	-4	40	0
82-mm rocket launcher Model 19 MKA	<sup>2</sup> 250 (both)	215 HEAT 215 smoke	6	—	—	—	0
105-mm tank Merkava (Chariot)	<sup>2</sup> <sup>10</sup> 5000	1455 APFSDS-T 1174 HEAT-FS 732 HESH	6	20	-10	360	28

Nomenclature	Max range (m)	Muzzle velocity (m/s)	Max rate of fire (rd/min)	Max elevation (deg)	Max depression (deg)	Max traversing (deg)	Number of lands and grooves
ITALY		REST OF WORLD (Continued)					
105-mm howitzer Model 56 (105/14)	10 200 (both)	420 HE 420 HEAT	3	65	-5	56	36
SWEDEN							
40-mm AA gun L/60	6700 (vert) 9875 (horiz)	860 HEI-T 880 AP-T	120	90	-6	360	16
40-mm SP AA gun L/60	6700 (vert) 9875 (horiz)	860 HEI-T 880 AP-T	120	80	-7	360	16
80-mm AT rocket launcher M51	<sup>2</sup> 150	145 HEAT	6	—	—	—	0
84-mm recoilless rifle M48 (M2)	<sup>2</sup> 450 (HEAT) 1200 (HE)	271 HE 311 HEAT 260 smoke	6	—	—	—	24
105-mm tank Model "S" (STRV-103S)	20 000	1525 APDS	15	11	-11	360	28
<p>Note:</p> <p><sup>1</sup>Maximum range is limited due to elevation capabilities of weapon.</p> <p><sup>2</sup>Maximum effective range.</p> <p><sup>3</sup>Weapon is a copy of a Soviet design and can therefore fire domestic and Soviet ammunition interchangeably.</p> <p><sup>4</sup>Data are based on the Soviet D-74 field gun.</p> <p><sup>5</sup>Maximum range, elevation, and depression are decreased when breech is over a trail.</p> <p><sup>6</sup>HVAPDS-T projectile not confirmed for this weapon.</p> <p><sup>7</sup>Also fires modified 70-mm projectile with same range and velocity.</p> <p><sup>8</sup>Range limited by self-destruct feature.</p> <p><sup>9</sup>Maximum range pertains to HE, HEI, Frag, and Frag-HE projectiles.</p> <p><sup>10</sup>Maximum range pertains to AP-T, APC-T, APDS, APFSDS-T, and HVAP-T projectiles.</p>							

## APPENDIX II

## USEFUL CONVERSION FORMULAS

Metric to english unit	English to metric units
<u>LENGTH</u>	
Millimeters x 0.039 37 = inches	Inches x 25.40 = millimeters
Centimeters x 0.3937 = inches	Inches x 2.54 = centimeters
Meters x 3.281 = feet	Feet x 0.3048 = meters
Meters x 1.094 = yards	Yards x 0.9144 = meters
<u>MASS</u>	
Grams x 15.43 = grains	Grains x 0.0648 = grams
Grams x 0.035 27 = ounces	Ounces x 28.35 = grams
Grams x 0.002 20 = pounds	Pounds x 453.6 = grams
Kilograms x 2.205 = pounds	Pounds x 0.4536 = kilograms
<u>VELOCITY</u>	
Meters/second x 3.281 = feet/ second	Feet/second x 0.3048 = meters/ second

## APPENDIX III

## TRANSLITERATION OF RUSSIAN ALPHABET

<i>Russian</i>		<i>English</i>		<i>Russian</i>		<i>English</i>	
А	а	A	a	Р	р	Р	r
Б	б	B	b	С	с	С	s
В	в	V	v	Т	т	Т	t
Г	г	G	g	У	у	У	u
Д	д	D	d	Ф	ф	F	f
Е	е	Ye, E	ye, e <sup>1</sup>	Х	х	Kh	kh
Ж	ж	Zh	zh	Ц	ц	Ts	ts
З	э	Z	z	Ч	ч	Ch	ch
И	и	I	i	Ш	ш	Sh	sh
Й	й	Y	y	Щ	щ	Shch	shch
К	к	K	k	Ъ	ъ	(")	(")
Л	л	L	l	Ы	ы	Y	y
М	м	M	m	Ь	ь	(')	(')
Н	н	N	n	Э	э	E	e
О	о	O	o	Ю	ю	Yu	yu
П	п	P	p	Я	я	Ya	ya

<sup>1</sup>ye initially, after vowels, and after ъ, ы; e elsewhere. When written as ѐ in Russian, translate as yě or ě. Use of diacritical marks is preferred, but such marks may be omitted when expediency dictates.

## APPENDIX IV

## GLOSSARIES OF FOREIGN PROJECTILE TERMS

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ALBANIAN

Baj hoka ----- Canister

Bombe flakse ----- HE bomb

Bombe nxehse ----- Incendiary bomb

Ckrej ----- Fire; discharge

Departmenti i ármëve ----- Ordnance department

Gremisje ----- Demolitions

Giyle topi ----- Shell

Lândë, luftëe ----- Munitions

Municione ----- Ammunition



ARABIC

(Arabic abbreviations appear in parentheses to the left of the word(s) that they abbreviate because Arabic is read from right to left.)

ammunition -----	. ذخيرة
ball ammunition -----	. ذخيرة عادية
live ammunition -----	. ذخيرة حية
antiaircraft -----	. مضاد للطائرات (م/ط)
antipersonnel -----	. مضاد للأشخاص (م/أ)
antitank -----	. مضاد للدبابات (م/د)
armor-piercing -----	. ثاقب المدرع (ث/م) . ثاقب (ث)
	. خارقة للدروع . خارق (خ)
artillery -----	. مدفعية (مد)
base -----	. قاعدة
black -----	. أسود . سواد
blank -----	. خالئ
blue -----	. أزرق . زراق

ARABIC (Continued)

bomb (aircraft) -----	. قنبلة (قن)
bomb (mortar) -----	. بمبة
brass -----	. براس . صفر
brown -----	. بني
bullet -----	. رصاصة
caliber -----	. عيار
candlepower -----	. القدرة بالشمعة
cap -----	. غطاء
armor-piercing cap -----	. غطاء خارق للدرع
fuze cap -----	. غطاء الصمامة
cartridge -----	. فشيك . فشك . فشكة . خرطوشة
charge -----	. عبوة . حشوة
first charge -----	. عبوة اولي
fourth charge -----	. عبوة رابعة
full charge -----	. عبوة كاملة

ARABIC (Continued)

propellent charge -----	. عبوة دافعة .
reduced charge -----	. عبوة مخفضة .
second charge -----	. عبوة ثانية .
shaped charge -----	. عبوة جوفاء .
third charge -----	. عبوة ثالثة .
case -----	. ظرف . جسم .
centimeter -----	. سنتيمتر (سم) .
complete -----	. كاملة . كامل .
concrete-piercing -----	. ثاقب خرسانة (ث/خ) .
copper -----	. نحاس .
copy -----	. نسخة .
cubic -----	. تكعبي . مكعب .
day -----	. يوم .
delay -----	. تعويق .
electrical -----	. كهربائية . كهربائي .

ARABIC (Continued)

explosive -----	. انفجار
factory -----	. مصنع . معمل
first -----	. اولى . اول
flamethrower -----	. قاذف لهب
fourth -----	. رابعة . رابع
fragmentation -----	. تشظية . شظايا
full -----	. كاملة . كامل
fuze -----	. طابية . صمامة
base fuze -----	. صمامة القاعدة
fuze cap -----	. غطاء الصمامة
delay fuze -----	. صمامة تعويق
electrical fuze -----	. صمامة كهربائية
impact fuze -----	. صمامة مصادمة
instantaneous fuze -----	. صمامة فورية . طابية لحظية
mechanical-time fuze -----	. صمامة آلية زمنية

ARABIC (Continued)

point fuze -----	. صامة الرأس .
quick fuze -----	. صامة سريعة .
safety fuze -----	. طابة الامن .
time fuze -----	. طابة زمنية .
gas -----	. غاز .
gray -----	. رمادي .
green -----	. اخضر . خضرة .
grenade -----	. قنبلة .
handgrenade -----	. قنبلة يدوية .
heavy -----	. ثقيلة . ثقيل .
high explosive -----	. شديد الانفجار (ش/ف) . متفجرة .
howitzer -----	. هاوتزر (هاو) .
illumination -----	. مضية .
impact -----	. مصادمة .
incendiary -----	. حارق .

ARABIC (Continued)

inert -----	. خامد
instantaneous -----	. لحظية
kilogram -----	. كيلوجرام ( كجم ) كيلوغرام ( كغ )
light -----	. خفيفة . خفيف
live -----	. حية
lot -----	. قسيمة . قسم . لوت
machinegun -----	. رشاش
marks -----	. علامات
weight marks -----	. علامات وزنة
mechanical -----	. آلي
medium -----	. متوسطة . متوسط
millimeter -----	. مليمتر (مم) (م م)
mine -----	. لغم
model -----	. نموذج . طراز
modified -----	. معدل . معدلة

ARABIC (Continued)

month -----	. شهر
mortar -----	. هاون (ها)
muzzle velocity -----	. السرعة الابتدائية
number -----	. رقم . عدد
ogive -----	. بيضة
package -----	. علب . كرتون
per package -----	. بعلب . في كرتون
parachute -----	. مظلة . برشوت
pistol -----	. مسدس . خدارة
plastic -----	. بلاستيك
plug -----	. سدادة
point -----	. راس
pound -----	. رطل
powder -----	. بارود
primer -----	. برايمر . بادبي . كبسولة

ARABIC (Continued)

projectile -----	. قنبلة . مقذوف . قذيفة .
illumination projectile -----	. مقذوف مضية .
AP projectile -----	. مقذوف ثاقب المدرع .
concrete-piercing projectile -----	. مقذوف ثاقب خرسانة .
HE projectile -----	. مقذوف شديد الانفجار .
HEAT projectile -----	. مقذوف ذات حشوة جوفاء قذيفة مجوفة .
incendiary projectile -----	. مقذوف حارق .
practice projectile -----	. مقذوف تمرين .
smoke projectile -----	. مقذوف دخان .
tracer projectile -----	. مقذوف بكاشف .
propellant -----	. دافعة .
rifle -----	. بندقية .
rocket -----	. صاروخ .
round -----	. قذيفة . طلقة . دانة .



ARABIC (Continued)

sabot -----	. ساپو
shrapnel -----	. شظايا
smoke -----	. دخان
steel -----	. فولاذية
subcaliber -----	. مخفضة العيار
time -----	. زمنية
third -----	. ثالثة . ثالث
tracer -----	. كاشق . خطاطة
type -----	. طراز . نوع
velocity -----	. سرعة
volume -----	. حجم
weight -----	. وزن
gross weight -----	. وزن قائم
white -----	. ابيض . بيضا
workshop -----	. ورشة

ARABIC (Continued)

year -----

عام . سنة .

yellow -----

اصفر . صفرة .

0 -----

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1 -----

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2 -----

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ARABIC (Continued)

100	-----	100	.
101	-----	101	.
1000	-----	1000	.
1250	-----	1250	.
7.62	-----	7,62	.
12.5	-----	12,0	.

BULGARIAN

Алуминиев	-----	Aluminum
Амониев	-----	Ammonium
Амонит	-----	Ammonite
Балистичен наконечник	-----	Windshield, ballistic cap
Балистически	-----	Ballistic
Безконтактен	-----	Proximity
Бетон	-----	Concrete
Боен	-----	Live
Бойни прираси	-----	Ammunition
Бомба	-----	Bomb
Бризантен	-----	Brisant; high explosive
Броня	-----	Armor
Бял	-----	White
Взрив	-----	Explosion; burst
Взривател	-----	Fuze
Взривно вещество	-----	Explosive
Възпламенителен	-----	Incendiary
Вълна	-----	Wave
Газов	-----	Gas; gaseous
Глава	-----	Nose; head
Година	-----	Year
Граната	-----	Grenade

BULGARIAN (Continued)

Детонатор	-----	Detonator
Димен	-----	Smoke
Дистанционен взривател	-----	Time fuze
Експериментален	-----	Test; experimental
Желязо	-----	Iron
Завод	-----	Plant; factory
Задържан	-----	Delay
Заряд	-----	Charge
Зона	-----	Zone
Изстрел	-----	Round; shot
Изтласкващ заряд	-----	Expelling charge
Калибър	-----	Caliber
Картеч	-----	Canister
Килограм	-----	Kilogram
Корпус	-----	Casing
Кумулативен заряд	-----	Shaped charge
Лакиран	-----	Varnished; lacquered
Маркировка	-----	Code; marking
Меден	-----	Copper
Мелинит	-----	Melinite
Месец	-----	Month
Метал	-----	Metal

BULGARIAN (Continued)

Мина	Mortar shell
Миномет	Mortar
Минохвъргачка	Mortar
Наконечник	Cap
Незареден	Empty; inert
Нитрат	Nitrate
Обезвреден	Disarmed
Образец	Model
Октол	Octol
Опасно	Danger
Спитен	Test; experimental
Осветителен снаряд	Flare; illuminating shell; star shell
Партия	Lot
Подготовка	Training
Пояс	Band
Пояс на снаряда	Rotating band; driving band
Пластичен	Plastic
Практически	Practice
Предпазител	Safety
Преждевремен	Premature
Противобронев	Antiarmor

BULGARIAN (Continued)

Пълен	-----	Full
Разривен заряд	-----	Explosive charge
Ракета	-----	Rocket
Реактивен заряд	-----	Rocket projectile
Рикошет	-----	Ricochet
Сигнален	-----	Signal
Снаряд	-----	Projectile; shell
Стабилизатор	-----	Fin; stabilizer; vane
Стомана	-----	Steel
Тегло	-----	Weight
Тетрил	-----	Tetryl
Трасирац	-----	Tracer
Тринитротолуол	-----	Trinitrotoluene
Тротил	-----	Trotyl; trinitrotoluene
Ударен	-----	Impact
Усилвател на детонатор	-----	Booster
Учебен	-----	Training
Фосфорен	-----	Phosphorus
Фугасен	-----	Demolition; high explosive
Химически	-----	Chemical; gas
Цвят	-----	Color
Черен барут	-----	Black powder

BULGARIAN (Continued)

Чувствителен ----- Sensitive

Чугун ----- Cast iron

Шрапнел ----- Shrapnel



CHINESE

一 ----- 1

二 ----- 2

三 ----- 3

四 ----- 4

五 ----- 5

六 ----- 6

七 ----- 7

八 ----- 8

九 ----- 9

十 ----- 10

十一 ----- 11

CHINESE (Continued)

十二 ----- 12

十三 ----- 13

二十 ----- 20

二十一 ----- 21

二十二 ----- 22

三十 ----- 30

四十 ----- 40

一百 or 百 ----- 100

一百零二 ----- 102

一百一十 ----- 110

一百一十二 ----- 112

一百二十二 ----- 122

CHINESE (Continued)

二百	-----	200
一千 or 千	-----	1 000
万	-----	10 000
彈藥	-----	Ammunition
杀多	-----	Annihilation
杀	-----	Antipersonnel
杀爆变钢	-----	Antipersonnel HE fragmentation
破甲子彈	-----	Armor-piercing bullet
兵工廠	-----	Arsenal
砲兵	-----	Artillery
彈底信管	-----	Base-detonating fuze
批	-----	Batch, lot
黑火藥	-----	Black powder

CHINESE (Continued)

黃銅	-----	Brass
子彈	-----	Bullet
雙用信管	-----	Combination fuze
銅	-----	Copper
做	-----	Copy
立方	-----	Cubic
立方公分 or 立方厘米	-----	Cubic centimeter
日	-----	Day
延	-----	Delayed Action (fire)
炸藥	-----	Explosive
工廠	-----	Factory
輕放	-----	Fragile (no rough handling)
炸爆	-----	Fragmentation

CHINESE (Continued)

信管 ----- Fuze

總重 ----- Gross weight

輕放 / 小心輕方 ----- Handle with care

破壞藥 ----- High explosive

曳破 ----- High Explosive Antitank (HEAT)

碰炸信管 ----- Impact fuze

燒夷彈 ----- Incendiary shell

----- Black incendiary (thermite)

格 ----- Inspected

瞬發信管 ----- Instantaneous fuze

公斤 ----- Kilograms 克 abbreviation

公厘 ----- Millimeter

變 ----- Modified

防潮 ----- Moisture proof

CHINESE (Continued)

月	-----	Month
迫擊炮彈	-----	Mortar shell
瞬	-----	Nondelay
一枚	-----	One unit
銚	-----	Pig iron
彈頭信管	-----	Point-detonating fuze
彈尖	-----	Point; nose (of projectile)
彈頭 or 彈丸 or 炮彈	-----	Projectile
火箭	-----	Rocket
	-----	Reduced (charged)
破	-----	Shaped charge
炮彈	-----	Shell
	-----	Shell case cartridge case
短時延期信管	-----	Short-delay fuze

CHINESE (Continued)

榴霰彈 ----- Shrapnel, canister (shot) fragment

----- Shrapnel, canister (shot)

煙藥彈 ----- Smoke shell

鋼 ----- Steel

定時信管 ----- Time fuze

梯恩梯 / 茶褐火藥 ----- TNT

曳光彈 ----- Tracer bullet

梯萘 ----- Trinitronaphthalene

式. ----- Type

體積 ----- Volume

年 ----- Year

CZECH

Amatol	-----	Amatol
Amonium	-----	Ammonium
Armáda	-----	Army
Arsenál	-----	Arsenal
Barva	-----	Color
Balistická <sup>v</sup> čepice	-----	Ballistic cap; windshield
Balistický	-----	Ballistic
Beton	-----	Concrete
Bílý	-----	White
Brizance	-----	Brisance
Citlivý	-----	Sensitive
Cvičení	-----	Practice; training
Cvičný	-----	Blank; training
<sup>v</sup> Časovací <sup>v</sup> přístroj	-----	Fuze setter
<sup>v</sup> Časový	-----	Time
<sup>v</sup> Čepice	-----	Cap
<sup>v</sup> Černý prach	-----	Black powder
<sup>v</sup> Červený	-----	Red
Dutina	-----	Cavity
Dým	-----	Smoke
Fosfor	-----	Phosphorus
Granát	-----	Shell



CZECH (Continued)

Hlavový	Nose
Hliníkový	Aluminum
Chemický	Chemical
Index	Code
Inertní	Inert
Jádro	Core
Krátký	Short
Kužel <sup>v</sup>	Cone
Litina	Cast iron
Měď <sup>v</sup>	Copper
Melinit	Melinite
Měsíc <sup>v</sup>	Month
Mina	Mortar projectile
Minomet	Mortar
Monoblok	Monobloc
Munice	Ammunition
Náboj	Round
Nábojnice	Casing
Náplň	Charge; filler
Nárazový	Impact
Obroučka <sup>v</sup>	Band
Ocel	Steel

CZECH (Continued)

OČG	-----	Time fuze projectile
Okamžitý	-----	Instantaneous
OMG	-----	Live shell with base detonating fuze
ONG	-----	Live shell with impact fuze
Ostrý	-----	Live
Pásmo	-----	Zone
Plastický	-----	Plastic
Plná náplň	-----	Full charge
Plyn	-----	Gas
Pojistka	-----	Safety pin; fuze
Protipancéřový	-----	Antiarmor
Protitankový	-----	Antitank
Prubojný	-----	Armor-piercing
Prubojný s tvrzeným jádrem	-----	Armor-piercing with special core
Prubojný zápalný	-----	Armor-piercing incendiary
Předčasný	-----	Premature
Puma	-----	Bomb
Raketa	-----	Rocket

CZECH (Continued)

Rána-----	Report (sound)
Ráz <sup>v</sup> -----	Caliber
Rok-----	Year
Rozbuška-----	Detonator
Série laborace-----	Lot
Signál-----	Signal
Signální náboj-----	Signal cartridge
Stopovka-----	Tracer
Střela-----	Projectile; bullet
Střelivo-----	Ammunition
Střepina-----	Fragment
Svíticí-----	Tracer
Svíticí střela-----	Tracer projectile
Skolní <sup>v</sup> -----	Dummy; training
Srapnel <sup>v</sup> -----	Shrapnel
Terčový <sup>v</sup> -----	Target (adj)
Tetryl-----	Tetryl
Těžký-----	Heavy
Trhavina-----	Explosive
Trhavý-----	High explosive
Trinitrotoluen-----	Trinitrotoluene; TNT
Váha-----	Weight

CZECH (Continued)

Vlna	-----	Wave
Vodící obroučka <sup>v</sup>	-----	Rotating band
Výroba	-----	Manufacture; production
Vzor (Vz)	-----	Model
Zápalný	-----	Incendiary
Zapalovač <sup>v</sup>	-----	Fuze
Zastřelovací	-----	Observation; incendiary ranging
Závod	-----	Factory
Zažehovač <sup>v</sup>	-----	Igniter
Zpožd'ovač <sup>v</sup>	-----	Delay

DUTCH

Antipersoneel -----	Antipersonnel
Antitank -----	Antitank
Antitankbrisant -----	High-explosive antitank
Antitankbrisantgranaat -----	High-explosive antitank projectile
Antitankbrisantgrantaatraket -----	High-explosive antitank rocket
Antitankbrisantgranaatschot -----	High-explosive antitank round
Aanvullingsspringlading -----	Supplementary explosive charge
Bodembuis -----	Base fuze
Brisantbrandgranaat -----	High-explosive round
Brisantgranaat -----	High-explosive projectile
Brisantgranaat tegen pantser -----	High-explosive armor-piercing projectile
Buisgatvoering -----	Fuze well
Buskruitgranaat -----	Black powder projectile
Bakeliet -----	Bakelite
Brisantpantsergranaat met kap -----	High-explosive armor-piercing projectile w/cap
Brand -----	Incendiary
Buisgotschoef -----	Fuze hole screw
Duplexslagpijpje -----	Duplex detonator/primer
Exercitiegranaat -----	Training projectile
Exercitieschokbuis -----	Training percussion fuze
Explosieve inhoud -----	Explosive content
Gekleurd -----	Colored

DUTCH (Continued)

Gasgranaat -----	Gas grenade
Geweergranaat -----	Rifle grenade
Granaatskartets -----	Grape shot
Grote springlading -----	Large explosive charge
Gekleurde rook -----	color smoke
Kunststof -----	Synthetic material
Koper(en) -----	Copper
Kneedspringstofbrisantgranaat -----	High-explosive plastic projectile
Kartets -----	Grape shot
Lad -----	Charge
Lading holle -----	Hollow charge
Lichtspoor -----	Tracer
Lichtspoorzelfvernietiger -----	Tracer self-destruct mechanism
Lichtgranaat -----	Flare
Markeerbrisantgranaat -----	High-explosive marking projectile
Mortier -----	Mortar
Messing -----	Brass
Metalen -----	Metal
Mechanische tijdschokbuis -----	Mechanical-time percussion fuze
Nabijheidsbuis -----	Proximity fuze
Ontstekingsdop -----	Ignition cap
Ontstekingmechanisme -----	Ignition mechanism
Ontsteker -----	Igniter

DUTCH (Continued)

Overdrachtslading -----	Booster charge
Plastische phosphor -----	Plastic phosphorus
Ponder -----	Pounder
Proefgranaat -----	Test or proof projectile
Petardeganaat -----	Fragmentation projectile
Patroon markeer-lichtspoor -----	Marking tracer round
Rookzwak buskruit -----	Smokeless black powder
Rookkaars -----	Smoke candle
Rookvrij -----	Smokeless
Schobuis -----	Percussion fuze
Scherpe -----	Sharp; live ammo
Seingranaat -----	Signal projectile
Springrookgranaat -----	Explosive smoke projectile
Stalen -----	Steel
Staartstuk -----	Tailpiece
Tijdbuis -----	Time fuze
Traangas -----	Tear gas
Trotyl -----	TNT
Tijdschokbuis -----	Time percussion fuze
Uitstootlading -----	Ejection charge
Vertragingsbuskruitpijpje -----	Black powder delay fuze
Vertragingsvlampijpje -----	Delay fire tube
Vuurkoord -----	Time fuze

DUTCH (Continued)

Vlamhoedje ----- Igniter cap  
Aanvangssnelheid ----- Initial velocity  
Vtbuis ----- Proximity fuze  
Ijzer ----- Iron  
Zwart buskruit ----- Black powder



FRENCH

Acier -----	Steel
A forte vitesse -----	High velocity
Ailette -----	Fin; vane
Aluminium -----	Aluminum
Ammonium -----	Ammonium
An, année -----	Year
Anti-béton -----	Concrete-piercing
Antichar -----	Antitank
Antipersonnel -----	Antipersonnel
Armement -----	Armament; arms; equipment; arming
Balistique -----	Ballistic
Balle lumineuse -----	Illuminating projectile
Balle traceuse, balle traçante ----	Tracer projectile
Bague obturatrice -----	Obturator band
Béton -----	Concrete
Blanc -----	White
Blindage -----	Armor
Boîte -----	Casing
Bombe -----	Bomb
Boulet d'épreuve -----	Proof shot
Brisance -----	Brisance
Brisant -----	High explosive

FRENCH (Continued)

Calibre -----	Caliber
Cannelure -----	Cannelure
Ceinture arrière -----	Rotating band
Ceinture -----	Driving band
Chanfrein de culot -----	Boattail
Charge -----	Charge
Charge creuse -----	Shaped charge
Charge d'amorçage -----	Booster charge
Chimique -----	Chemical
Corps solide -----	Rigid body
Couleur -----	Color
Coup -----	Round
Coup d'épreuve -----	Test round
Cuivre -----	Copper
Culot -----	Tail; base
De calibre réduit -----	Subcaliber
Démolition -----	Demolition
Désarmer -----	Disarm
Détonateur -----	Detonator
Dispositif de sûreté -----	Safety
Eclairant -----	Illuminating

FRENCH (Continued)

Eclat -----	Fragment; flash; burst
Eclatement -----	Burst; bursting
(Empennage) ailette -----	(Fin assembly) Fin
Epreuve, essai -----	Test
Explosif -----	Explosive
Fléchette -----	Flechette
Fonte raffinée -----	Refined cast iron
Fumigène -----	Smoke-producing
Fusée -----	Fuze; rocket
Fusée à temps -----	Time fuze
Fusée de culot -----	Base-detonating fuze
Fusée percutante de tête -----	Point-detonating fuze
Fusée, roquette -----	Rocket
Gaz -----	Gas
Gerbe -----	Flash; splash
Gerbe de feu -----	Flash of fire
Grenade -----	Grenade
Hexachloréthane -----	Hexachloroethane
Incendiaire -----	Incendiary
Instantané -----	Instantaneous
Lot -----	Lot
Mécanique à temps -----	Mechanical-time (fuze)
Mécanique à temps et instantanée ---	Mechanical-time (fuze) and superquick

FRENCH (Continued)

Mélinite -----	Melinite
Modèle -----	Model
Mois -----	Month
Mortier -----	Mortar
Munition -----	Ammunition
Nitrate -----	Nitrate
Noyau -----	Core
Obus -----	Projectile
Obus à balles -----	Shrapnel
Obus explosif (OE) -----	Explosive projectile
Obus charge creuse (OCC) -----	Hollow-charge projectile
Ogive -----	Ogive, nose
Obus fumigène (OFUM) -----	Smoke projectile
Obus flèche (OFL) -----	Arrow projectile
Percuteur -----	Igniter
Perforer -----	To pierce
Phosphore -----	Phosphorus
Plastique -----	Plastic
Poudre noire -----	Black powder
Prémature -----	Premature
Projectile -----	Projectile
Projectile-aiguille -----	Long rod projectile
Proximité -----	Proximity

FRENCH (Continued)

Raser -----	To graze
Rayé -----	Rifled; fluted
Retard -----	Delay
Retreint de culot -----	Streamline base
Rotation -----	Spin
Sabot -----	Sabot
Sensible -----	Sensitive
Sol-Air -----	Surface to air
Stabilisant -----	Stabilizing
Stabilisateur -----	Stabilizer
Tempage -----	Fuze setting
Tétryl -----	Tetryl
Trinitrotoluène -----	Trinitrotoluene
Usine (fabriqué à l') -----	Factory (manufactured by)
Zone de tir -----	Zone of fire

GERMAN

Beobachtungspatrone ----- Spotter cartridge  
 Brand ----- Incendiary  
 Brandsprenggranate mit Leuchtspur  
     (Br. sprgr. L'spur) ----- High-explosive incendiary tracer shell  
 Brandwirkend ----- Incendiary  
 Brisanzgranate ----- High-explosive shell  
 Bruttogewicht ----- Gross weight  
 Fabrik ----- Factory; plant  
 Für Abpraller ----- For ricochet  
 Für Schiessen ----- For firing  
 Gefahr Sprengstoff! ----- Danger explosives!  
 Geprüft ----- Inspected  
 Geschoss ----- Projectile  
 Geschoss mit Leuchtspur ----- Projectile with tracer  
 Granate ----- Grenade  
 Granate...(Beton) (Gr. ...BE) ----- Concrete-piercing shell  
 Granate B...Betonbrechende ----- Concrete-piercing shell  
 Granate...Hohlladung (Gr. ...HL) --- Shaped charge shell  
 Grundladung ----- Base charge  
 Gusseisen ----- Cast iron  
 Hartkern ----- Hard core (often tungsten carbide)  
 Hohlladung (HL) ----- Shaped-charge; high-explosive  
     antitank (HEAT)



GERMAN (Continued)

Propaganda-----Propaganda  
 Propagandagrante-----Propaganda shell  
 Raketengeschoß-----Rocket projectile  
 Satz-----Piece; item; unit;kit  
 Schrapnell-----Shrapnel  
 Schuss-----Round (ammunition); round; shot  
 Spitzgeschoss-----Pointed bullet  
 Splittergrante-----Fragmentation shell  
 Sprenggrante (Sprgr.)-----High-explosive shell  
 Sprenggrante mit Leuchtspur  
     (Sprgr. L'spur)-----High-explosive tracer shell  
 Sprengstoff-----Explosive  
 Stahl-----Steel  
 Stahlguss-----Cast steel  
 Stück-----Piece; item; unit  
 Untersucht-----Examined  
 Werk-----Plant; factory  
 Werkzeugpatrone-----Control cartridge (testing cartridge)  
 Wurfgrante-----Mortar shell  
 Wurfkörper-----Special projectile for signal pistols  
 Zünder-----Fuze



HEBREW

דגם	-----	Model
דחוס	-----	Compressed
הקסה. ה	-----	Hexa. H
הקסוגן	-----	Hexogen
זרחן לבן	-----	White phosphorous
חנ. ב.	-----	Composition B
ט.נ.ט.	-----	TNT
יעוק	-----	Cast
ידי	-----	Shot
ל... or עם	-----	With
מהירות הלוע	-----	Muzzle velocity
מ"מ	-----	Millimeters
מס'	-----	Number
מעקר	-----	Inert
מפוקק	-----	Plugged
מצוח	-----	Parachute
מרעום	-----	Fuze
מרעום הקשה	-----	Impact fuze
מרעום קרבה	-----	Proximity fuze
משך התאורה	-----	Illumination time
נותב	-----	Tracer
נ"ט (נגד טנקים)	-----	Antitank

HEBREW (Continued)

נפיק	-----H. E.
נרות	-----Candles
סדרה	-----Lot
סימן	-----Mark
עצמת האור	-----Candlepower
עשן	-----Smoke
עשן אפור	-----Gray smoke
עשן זרימה	-----Flowing smoke
עשן אחפ רצף	-----Bursting cover smoke
פאונד	-----Pound
פגז	-----Shell
פלסטי	-----Plastic
פצצה	-----Bomb
פצצה מטול	-----Launcher bomb
קוד	-----Code
תאורה	-----Illumination
תחל	-----Primer

HUNGARIAN

Abroncs -----	Band
Acélmagvas -----	Armor-piercing
Aknagránát -----	Mortar shell
Aknavető -----	Mortar
Alumínium -----	Aluminum
Amatol -----	Amatol
Ammónia -----	Ammonium
Átüt -----	To pierce
Bádogköpeny -----	Sheet metal case
Beccsapódás -----	Impact
Bevágás -----	Cannelure
Bomba -----	Bomb
Céllövő töltény -----	Target cartridge
Csapponyús töltény -----	Ignition cartridge
Csillag -----	Stars
Cso -----	Flash tube
Detonátor -----	Booster
Éles -----	Live
Fadugós oktató töltény -----	Dummy cartridge
Femékgyújtó -----	Base fuze
Feméksavar -----	Base plug
Fémjelzős lövedék -----	Tracer projectile
Folytras -----	Iron/steel (core or body)

HUNGARIAN (Continued)

Gáz -----	Gas
Gránát -----	Shell; grenade
Gránáthüvely -----	Projectile body
Gyakorló lőszer -----	Practice ammunition
Gyár -----	Factory
Gyújtó(szerkezet) -----	Fuze(system)
Gyújtógránát -----	Incendiary shell
Hengeres rész -----	Projectile wall
Időzített -----	Time
Iskola -----	Training
Jelző -----	Signal
Kódsav -----	Smoke producing acid
Kaliber -----	Caliber
Kantács -----	Canister
Kémiai -----	Chemical
Kiképzés -----	Training
Ködgránát -----	Smoke shell
Kőzpontozó -----	Bourrelet
Lökőtöltet -----	Expelling charge
Lőpor -----	Gunpowder
Lőszer -----	Ammunition
Lőszerfajta -----	Type of ammunition
Lövedék -----	Projectile, bullet

HUNGARIAN (Continued)

Lövedékcsúcs	-----	Projectile nose
Lövés	-----	Shot
M.	-----	Model (abbr)
Megsemmi	-----	Self-destruct mechanism
Minta	-----	Model
Nyomjelzős lövedék	-----	Tracer projectile
Nyomjelző elegy	-----	Tracer mixture
Páncél	-----	Armor
Páncélgránát	-----	Armor-piercing (shell)
Páncéltörő	-----	Antitank
Páncélzat	-----	Armor plate
Pillanatgyújtó	-----	Instantaneous fuze
Rakéta	-----	Flare
Repszdarab	-----	Fragment
Repszgránát	-----	High explosive
Robbanóanyag	-----	Explosive
Robbanó töltet	-----	Explosive charge
Rombolás	-----	Demolition
Robbantó	-----	Rooster
Rövid	-----	Short
Sapka	-----	Cap (armor-piercing cap)
Süveg	-----	cap (fuze cover)
Szájcsavar	-----	Adaptor

HUNGARIAN (Continued)

Szárny -----	Fin
Szélsisak -----	Windshield
Tetрил -----	Tetryl (fuze cover)
Típus -----	Type
Toltekgolyok -----	Canister balls
Töltény -----	Cartridge
Töltet -----	Charge
Trinitrotoluol -----	TNT
Tűz -----	Flash
Vaktöltény -----	Blank cartridge
Veszély -----	Danger
Vezető abroncs -----	Rotating band
Világítólövedék -----	Star shell
Villanó elegy -----	Illuminating mixture
Zóna -----	Zone

JAPANESE

彈藥	-----	Ammunition
對空	-----	Antiaircraft
對人	-----	Antipersonnel
安全解除	-----	Arming
陸軍	-----	Army
徹甲	-----	Armor-piercing
徹甲彈	-----	Armor-piercing ammunition
工廠	-----	Arsenal
砲; 砲兵	-----	Artillery
砲彈	-----	Artillery shell
原子	-----	Atomic
原子彈頭	-----	Atomic warhead
普通彈	-----	Ball ammunition
彈底信管	-----	Base-detonating fuze
底螺	-----	Base plug

JAPANESE (Continued)

黑色火藥	-----	Black powder
彈體; 本體	-----	Body (of a shell)
爆彈	-----	Bomb (aircraft)
伝爆藥	-----	Booster
腔内安全信管	-----	Bore-safe fuze
黃銅	-----	Brass
銃彈; 彈丸	-----	Bullet
口徑	-----	Caliber
藥筒	-----	Cartridge
裝藥; 炸藥	-----	Explosive (charge)
化學	-----	Chemical
生物	-----	Biological
複合信管	-----	Combination fuze
銅	-----	Copper
一連番號	-----	Copy or serial number



JAPANESE (Continued)

対迫	-----	Countermortar
対砲	-----	Counterbattery
日	-----	Day
延期	-----	Delay
延期信管	-----	Delay-action fuze
爆破	-----	Demoliton
起爆剂; 起爆薬	-----	Detonating agent or charge
擬製弾	-----	Dummy ammunition
電気火管	-----	Electric primer
電気スキッフ	-----	Electric squib
火薬系列	-----	Explosive train
工場; 製造所	-----	Factory
仮帽	-----	False ogive
安定翼弾	-----	Fin-stabilized projectile
尾翼	-----	Fin stabilizer

JAPANESE (Continued)

耐火	-----	Fireproof
擊發裝置	-----	Firing mechanism
擊針	-----	Firing pin
照明彈; 信號彈	-----	Flare
脆	-----	Fragile
破片	-----	Fragmentation
信管	-----	Fuze
擲彈; 手榴彈	-----	Grenade
總重量	-----	Gross weight
取扱注意	-----	Handle with care
危險物	-----	Hazardous material
高性能爆藥	-----	High explosive
對戰車榴彈	-----	High-explosive antitank
榴彈	-----	High-explosive shell
粘着榴彈	-----	HESH or HEP

JAPANESE (Continued)

榴彈砲	-----	Howitzer
高速徹甲彈	-----	Hypervelocity armor- piercing
点火器; 点火藥; 点火管; 点火具	-----	Igniter
照明彈	-----	Illuminating shell
着発信管	-----	Impact fuze
燒夷彈	-----	Incendiary bomb
藥包	-----	Increment
点爆藥; 点火藥; 起爆劑	-----	Initiator
瞬発信管	-----	Instantaneous fuze
安全裝置	-----	Interrupter
地雷	-----	Land mine
導爆線	-----	Lead
液体推進劑	-----	Liquid propellant
ロット番号	-----	Lot number
火藥	-----	Low explosive

JAPANESE (Continued)

機 関 銃	-----	Machinegun
改 修; 修 正; 改 造	-----	Modification
型	-----	Model
耐 湿 性	-----	Moisture-resistant
月	-----	Month
迫 撃 砲	-----	Mortar
初 速	-----	Muzzle velocity
無 延 期 信 管	-----	Nondelay fuze
核 爆 彈	-----	Nuclear bomb
閉 塞; 緊 塞	-----	Obturator
蛋 形	-----	Ogive
擊 發 雷 管	-----	Percussion cap
彈 頭	-----	Point; nose
彈 頭 信 管	-----	Point-detonating fuze
火 藥	-----	Powder

JAPANESE (Continued)

装薬	-----	Powder charge
火道薬	-----	Powder train
演習弾	-----	Practice ammunition
雷管; 火管	-----	Primer
弾丸	-----	Projectile
発射薬; 推進薬	-----	Propellant
原型	-----	Prototype
拳銃	-----	Revolver
小銃	-----	Rifle
小銃換弾	-----	Rifle grenade
ロケット	-----	Rocket
弾帯	-----	Rotating band
送弾筒	-----	Sabot
安全	-----	Safety
指向性爆薬	---	Shaped charge

JAPANESE (Continued)

砲彈, 彈丸; 藥莢	Shell
短延期信管	Short delay fuze
彈丸; 彈子	Shot
榴散彈	Shrapnel
煙	Smoke
發煙劑	Smoke agent
煙彈	Smoke shell
旋動安定	Spin-stabilized
点火管	Squib
鋼	Steel
縮射用彈藥	Subcaliber ammunition
瞬發	Superquick
催淚劑	Tear agent
試驗品	Test equipment
時限信管	Time fuze

JAPANESE (Continued)

曳光彈 ----- Tracer

型; 式 ----- Type

單位 ----- Unit

彈頭 ----- Warhead

重量 ----- Weight

年 ----- Year

毫米 ----- Millimeter

厘米 ----- Centimeter

米 ----- Meter

千米 ----- Kilometer

毫克 ----- Milligram

克 ----- Gram

公斤 ----- Kilogram

一 ----- 1

二 ----- 2

三 ----- 3

四 ----- 4

JAPANESE (Continued)

五	-----	5
六	-----	6
七	-----	7
八	-----	8
九	-----	9
十	-----	10
十一	-----	11
十二	-----	12
十三	-----	13
二十	-----	20
二十一	-----	21
二十二	-----	22
三十	-----	30
四十	-----	40
百	-----	100



JAPANESE (Continued)

千	-----	1000
万	-----	10 000
零 ; ゼロ	-----	0

KOREAN

탄약	-----	Ammunition
고리홈	-----	Annular groove
파감소위탄환	-----	Armor-piercing incendiary
철갑탄	-----	Armor-piercing shell
조병창	-----	Arsenal
대포탄	-----	Artillery shell
보통실포	-----	Ball ammunition
탄저신판	-----	Base fuze
점포약	-----	Booster charge
탄환	-----	Bullet
구경	-----	Caliber

KOREAN (Continued)

플로후가	-----	Cap; head; nose; point
꽃	-----	Color
복동신판	-----	Combination fuze
공용탄	-----	Common shell
파괴포탄	-----	Demolition shell
폭발탄	-----	Explosive bullet
기폭약	-----	Explosive bursting charge
폭발물	-----	Explosives
공장	-----	Factory
신판	-----	Fuze
지뢰파편류탄	-----	HE fragmentation shell
고폭약	-----	High explosive

KOREAN (Continued)

원추공간  
장진탄 ----- Hollow-charge shell

조이탄 ----- Incendiary shell

순발신포 ----- Instantaneous fuze

철심 ----- Iron core; iron core bolt

대구경탄 ----- Large caliber shell

장구리탄 ----- Long pointed shell

모형 ----- Model

수정 ----- Modification

월 ----- Month

박격포 ----- Mortar

박격포탄 ----- Mortar shell

탄알 ----- Projectile

KOREAN (Continued)

환	-----	Ring; collar
자주포	-----	Rocket
발사수	-----	Rounds
포탄	-----	Shell
단연기신관	-----	Short-delay fuze
산탄	-----	Shrapnel
연막탄	-----	Smoke shell
특별탄	-----	Special shell
시한신관	-----	Time fuze
설화	-----	To ignite
티엔티	-----	TNT

KOREAN (Continued)

예광탄 ----- Tracer bullet

형체 ----- Type

연 ----- Year

POLISH

Aluminium	-----	Aluminum
Amatol	-----	Amatol
Amonowy	-----	Ammonium
Amunicja	-----	Ammunition
Azotan	-----	Nitrate
Balistyczny	-----	Ballistic
Barwa	-----	Color
Beton	-----	Concrete
Biały	-----	White
Bomba	-----	Bomb
Bomba burząca	-----	Demolition bomb
Bomba dymna	-----	Smoke bomb
Bomba odłamkowa	-----	Fragmentation bomb
Bomba oświetlająca	-----	Flare
Bomba zapalająca	-----	Incendiary bomb
Brzechwa	-----	Fin
Burzący	-----	High explosive
Chemiczny	-----	Chemical
Cieżar	-----	Weight
Cyklonit	-----	Cyclonite
Czasowy	-----	Time
Czepiec	-----	Cap

POLISH (Continued)

Czepiec balistyczny -----	Ballistic cap; windshield
Ćwiczebny -----	Practice
Detonator -----	Detonator
Doświadczalny -----	Test
Duża prędkość początkowa -----	High speed
Dym -----	Smoke
Fala -----	Wave
Fosforowy -----	Phosphorus
Gaz -----	Gas
Głowica bojowa -----	Warhead
Granat -----	Grenade
Gwiazdka oświetlająca -----	Star
Heksogen -----	Cyclonite
Jednolity -----	Monobloc
Kadłub -----	Jacket
Kaliber -----	Caliber
Kartacz -----	Canister
Kruszność -----	Brisance
Ładunek -----	Charge
Ładunek kumulacyjny -----	Shaped charge
Ładunek wewnętrzny -----	Filler
Ładunek wyrzucający -----	Expelling charge



POLISH (Continued)

Materiał wybuchowy	Explosive
Melinit	Melinite
Melinitu D	Explosive D
Miedź	Copper
Miesiąc	Month
Moździerz	Mortar
MW	Explosive(s) (abbr)
Nabój	Round
Natychmiastowy	Instantaneous
Niebezpiecznie!	Danger!
Nos	Nose
Obojętny	Inert
Odłamek	Fragment
Odprysk	Spall
Oktol	Octol
Oświetlający	Illuminating
Pancerny	Armor-piercing
Pancerz	Armor
Partia	Lot
Pentolit	Pentolite
Perchloroetan	Hexachloroethane
Pierścień	Band

POLISH (Continued)

Pierścień wiodący	-----	Driving band; rotating band
Plastyczny	-----	Plastic
Płaszcz	-----	Jacket
Płomienie	-----	Flash
Pobudzacz	-----	Initiator
Pocisk	-----	Shell; projectile; missile
Podkalibrowy	-----	Subcaliber
Proch czarny	-----	Black powder
Przeciwczołgowy	-----	Antitank
Przeciwpancerny	-----	Armor-piercing
Przeciwpiechotny	-----	Antipersonnel
Przedwczesny	-----	Premature
Przybitka	-----	Closing cup
Pusty	-----	Empty
Rakieta	-----	Rocket
Rakieta sygnałowa	-----	Signal cartridge
Rizeń	-----	Core
Rok	-----	Year
Rowek do obciśnięcia łuski	-----	Cannelure
Rozbrajać	-----	To disarm

POLISH (Continued)

Rykoszet	-----	Ricochet
Signalowy	-----	Signal
Skorupa	-----	Casing, body
Smugowy	-----	Tracer
Spłonka	-----	Detonator
Spłonka pobudzająca	-----	Igniter
Stabilizowany za pomocą ruchu obrotowego	-----	Spin stabilized
Stal	-----	Steel
Strefa	-----	Zone
Strumień	-----	Jet
Strzał bezwzględny	-----	Grazing shot
Strzał odbitkowy	-----	Ricochet
Sygnalowy	-----	Signal cartridge
Sześćchloroetan	-----	Hexachloroethane
Szkolny	-----	Training
Szrapnel	-----	Shrapnel
Tetryl	-----	Tetryl
Trotyl	-----	TNT
Uderzeniowy	-----	Impact
Ulotka	-----	Leaflet
Urządzenie zabezpieczające	-----	Safety
Uzbrajać	-----	To arm

POLISH (Continued)

Wgłębienie-----	Cavity
Wkładka kumulacyjna-----	Liner
Wkrętka pobudzająca-----	Booster
Wrażliwy-----	Sensitive
Wytwórnia-----	Factory
Wzór-----	Model
Zapalający-----	Incendiary
Zapalnik-----	Fuze
Zapalnik uderzeniowy-----	Impact fuze
Zbliżeniowy-----	Proximity
Zgrubienie środkujące-----	Bourrelet
Znakowanie-----	Code
Znak wytwórni-----	Manufacturer's identification
Zwłoka-----	Delay
Żeliwo-----	Cast iron

ROMANIAN

Armărie	-----	Arsenal
Armatura	-----	Armament
Bombă	-----	Bomb
Bucăți	-----	Rounds; pieces
Dărămătură	-----	Demolition
Glont	-----	Bullet
Incendiator	-----	Incendiary
Model	-----	Model
Mortieră	-----	Mortar
Munitiune	-----	Ammunition
Praf de pușcă	-----	Black powder
Proiectil	-----	Projectile; missile
Fușcă	-----	Gun

RUSSIAN

Агитационный снаряд -----	Propaganda shell; leaflet shell
Алюминиевый -----	Aluminum
Аммонит -----	Ammonite
Аматол -----	Amatol
Баллистический -----	Ballistic
Баллистический наконечник -----	Windshield; ballistic cap
Белый -----	White
Беспламенный -----	Flashless
Бетон -----	Concrete
Бетонобойный -----	Concrete piercing
Боевой -----	Live
Боевые припасы -----	Ammunition
Бомба -----	Bomb
Бризантность -----	Brisance
Бронебойный -----	Armor-piercing
Броня -----	Armor
Брутто -----	Gross weight
Ведущий поясok -----	Rotating band; driving band
Вес -----	Weight
Взведенный -----	Armed
Взрыв -----	Explosion; burst

RUSSIAN (Continued)

Взрыватель -----	Fuze
Радиовзрыватель -----	Proximity fuze
Взрывчатое вещество (ВВ) -----	Explosive
Волна -----	Wave
Воронка -----	Cone; liner
Воспламенитель -----	Initiator
Восстановленный -----	Restored; renovated
Выстрел -----	Round; shot
Вышибной заряд -----	Expelling charge
Газ -----	Gas
Гидроснаряда -----	Water projectile
Год -----	Year
Головная часть снаряда -----	Projectile head (ogive)
Головное зарядное отделение -----	Warhead
Гексахлорэтан -----	Hexachloroethane
Граната -----	Grenade; shell
Детонатор -----	Detonator
Дистанционная трубка -----	Time fuze
Дульное плямя -----	Muzzle flash
Дымовой -----	Smoke (adj)
Железо -----	Iron
Желобчатый -----	Fluted
Завод -----	Plant; factory

RUSSIAN (Continued)

Зажигательный -----	Incendiary
Зажигательный пристрелочный -----	Incendiary ranging
Лакированный -----	Varnished; lacquered
Замедление -----	Delay
Запальник -----	Igniter
Заряд -----	Charge
Зона -----	Zone
Индекс (инд) -----	Index; code
Калибр -----	Caliber
Картель -----	Canister
Ковка -----	Forging
Кольцевая канавка -----	Cannelure
Коническая запоясная часть -----	Boattail
Корпус -----	Casing; body
Корпус снаряда -----	Body of projectile
Крыло стабилизатора -----	Stabilizer; fin, vane
Кумулятивный бронепрожигающий -----	High-explosive antitank
Кумулятивный заряд -----	Shaped charge
Кумулятивный снаряд -----	Shaped-charge projectile
Листовая сталь -----	Sheet steel
Литая сталь -----	Cast steel
Марка -----	Mark; stamp; model



RUSSIAN (Continued)

Маркировка	-----	Code; marking
Мгновенный	-----	Instantaneous
Мелинит	-----	Melinite
Месяц	-----	Month
Металл	-----	Metal
Мина	-----	Mortar projectile; mine
Миномет	-----	Mortar
Надзор	-----	Supervision
Наконечник	-----	Cap
Наполнение заливанием	-----	Cast loading
Наполнение прессованием	-----	Press loading
На рикошет	-----	For ricochet
Незаряженный	-----	Inert; empty
Неконтактный взрыватель	-----	Proximity fuze
Нитрат	-----	Nitrate
Обезвреживать	-----	Disarm
Образец (обр.)0	-----	Model
Окончательно снаряженный (ок. сн., ок. снар.)	-----	Fuzed
Октол	-----	Octol
Опасно ВВ	-----	Danger! Explosives
Опытный	-----	Experimental; test; experienced
Осветительный	-----	Illuminating

RUSSIAN (Continued)

Осветительный снаряд -----	Flare; illuminating shell; star shell
Осколок -----	Fragment
Осколочный (оск., оско.) -----	Fragmentation; antipersonnel
Осмотрено -----	Inspected
Осмотр -----	Inspection
Основной заряд -----	Base charge
От ремонта (от ремон.) -----	Reworked
Партия (парт.) -----	Lot
Пентолит -----	Pentolite
Переупорка -----	Repacking
Плавить -----	To smelt; melt
Пластический -----	Plastic
Повышенная начальная скорость -----	High initial velocity
Поддон -----	Sabot
Подкалиберный -----	Subcaliber (arrowhead)
Подрывной -----	Demolition
Полный -----	Full
Полоса -----	Zone; stripe
Полость -----	Cavity
Поясок -----	Band
Практический -----	Practice (adj)
Предохранитель -----	Safety
Преждевременный -----	Premature

RUSSIAN (Continued)

Просмотрено (просмотр.)	-----	Examined
Противопехотный	-----	Antipersonnel
Противотанковый	-----	Antitank
Пулевая шрапнель	-----	Ball shrapnel
Раздробиться	-----	To shatter
Ракета	-----	Rocket
Ракетный снаряд	-----	Rocket projectile
Реставрированный	-----	Renovated
Рикашет	-----	Ricochet
Сердечник	-----	Core
Сигнальный	-----	Signal
Снаряд	-----	Projectile; shell
Специальный сердечник	-----	Special core
Сплошной	-----	Monobloc, continuous, solid
Стабилизатор	-----	Fin; stabilizer; vane
Стабилизация вращением	-----	Spin-stabilization
Сталь	-----	Steel
Стержневая шрапнель	-----	Bar shrapnel
Стрельба по площадям	-----	Zone fire
Тетрил	-----	Tetryl
Тэтритол	-----	Tetrytol
Трассирующий	-----	Tracer

RUSSIAN (Continued)

Тринитротолуол	-----	Trinitrotoluene
Тритонал	-----	Tritonal
Тротил	-----	Trinitrotoluene; trotyl
Трубка	-----	Fuze; tube; pipe
Ударный	-----	Impact (adj)
Усилитель детонатора	-----	Booster
Учебный	-----	Training
Фосфор	-----	Phosphorus
Фугасный	-----	High explosive
Химический	-----	Chemical; gas
Цвет	-----	Color
Центрирующее утолщение	-----	Bourrelet
Циклонит	-----	Cyclonite
Черный порох	-----	Black powder
Чувствительный	-----	Sensitive
Чугун	-----	Cast iron
Шнейдерит	-----	Schneiderite
Шрапнель	-----	Shrapnel
Штука (шт.)	-----	Piece; item; unit
Экспериментальный	-----	Experimental; test

SWEDISH

Ammunition	-----	Ammunition.
Bottenanslagsrör	-----	Base-detonating fuze.
Betonggranat	-----	Concrete piercing projectile
Basperkussionsrör	-----	Base-percussion fuze
Brandladdning	-----	Incendiary charge.
Brandprojektil	-----	Incendiary projectile
Brandspränggranat	-----	HE incendiary projectile
Delladdning	-----	Divided charge; increment; booster charge
Detonator	-----	Detonator
Fördröjt, --jning	-----	Delayed; delaying; delayed action
Fördröjningsbrisd	-----	Delaying fragmentation
Försöksmodell	-----	Experimental model
Granat	-----	Projectile or grenade
Granatkartesch	-----	Shrapnel
Högekänslig	-----	Supersensitive
Känslig	-----	Sensitive; superquick
Kaliber	-----	Caliber
Konladdning	-----	Cone charge
Kartesch	-----	Fragmentation round

SWEDISH (Continued)

Laddning-----	Charge
Lätt-----	Light (weight)
Luftvärn-----	Antiaircraft
Lysammunition-----	Illuminating ammunition
Lysgranat-----	Illuminating projectile
Lysvinggranat-----	Illuminating mortar projectile
Med-----	With
Modell-----	Model
Mätlyspatron-----	Artillery survey; signal cartridge
Nedslagarör-----	Impact fuze
Pansar-----	Armor-piercing
Parti-----	Lot
Pansarbrytande-----	Armor-piercing
Pansargranat-----	Armor-piercing projectile
Pansarladdning-----	Armor-defeating charge
Projektil-----	Projectile
Projektillåda-----	Projectile case
Projektilvikt-----	Projectile weight
Pansarspränggranat-----	Armor-piercing high-explosive projectile

SWEDISH (Continued)

Pansarvärn-----Antitank  
Pansarvärnsladdning-----Antitank charge  
Rökdetonator-----Smoke detonator  
Rökladdning-----Smoke charge  
Rökspranggranat-----HE smoke projectile  
Rökvinggranat-----Mortar smoke projectile  
Rörladdning-----Fuze charge  
Spetsanslagsrör-----Point impact fuze  
Spränggranat-----HE projectile  
Skarp-----Live; service (ammunition)  
Sprängkapsel-----Detonator  
Sprängladdning-----HE charge  
Spårljus-----Tracer  
Spårljusbrandspranggranat-----High-explosive incendiary  
tracer projectile  
Spårljushalvpansargranat-----Semiarmor piercing tracer  
projectile  
Spårljuspansargranat-----Armor-piercing projectile  
tracer  
Spårljusprojektil-----Tracer projectile

SWEDISH (Continued)

Sparljuspansar-spränggranat-----Armor-piercing HE tracer  
projectile

Sparljusspranggranat-----HE projectile tracer

Sparljusstalgranat-----Steel projectile tracer

Sparljusövningsgranat-----Practice tracer

Spårljusövningsprojektil-----Practice projectile tracer

Stalgranat-----Steel projectile

Spetstidanslagsrör-----Point delayed impact fuze

Spetstidrör-----Point delayed fuze

Sprangvinggranat-----HE mortar projectile

Svartkrut-----Black powder

Temperingsmaskin-----Fuze setter

Temperingsnyckel-----Fuze wrench

Temperingssprint-----Fuze setting pin

Temperingsstreck-----Fuze setting line

Tungt-----Heavy

Tändhatt-----Percussion cap

Tändör-----Fuze

Urverk-----Clock movement; clockworks

Vinggranat-----Mortar projectile



SWEDISH (Continued)

Zonslagsrör-----	Proximity impact fuze
Zonrör-----	Proximity fuze
Ögonblicklig-----	Instantaneous; nondelay
Ögonblickligsbrisad-----	Instantaneous blasting
Övning-----	Practice
Övningsammunition-----	Practice ammunition
Övningsgranat-----	Practice projectile or grenade
Övningsgranatkartesch-----	Practice shrapnel
Övningskonladdning-----	Practice cone charge
Övningsprojektil-----	Practice projectile
Övningsrörladdning-----	Practice fuze charge
Övningsvinggranat-----	Practice mortar projectile

VIETNAMESE

Bích kích pháo, súng cối	Mortar
Chất nổ	Explosive
Chất nổ mạnh	High explosive
Đã được tân trang	Renovated
Đai chấn hồi	Rotating band
Đạn cháy	Incendiary
Đạn dược	Ammunition
Đạn mả tú	Blank
Đạn thông	Ball ammunition
Hóa học	Chemical
Hoa pháo	Fuze
Hoa pháo chạm đích nổ	Impact fuze
Hoa pháo nổ cực nhanh	Instantaneous fuze
Hoa tiễn	Rocket
Hột chạm hóa	Primer
Kết nạp hóa pháo	Combination fuze
Kiểu	Model
Mảnh đạn, đạn văng mảnh	Fragmentation
Tạc đạn, đầu đạn (có chất nổ)	Projectile
TNT	TNT
Trong lòng	Weight

VIETNAMESE (Continued)

Vach đ̄ồng sāng-----Tracer

Viên đ̄an tōn b̄o-----Complete (fuzed) round

Xũ<sup>7</sup>ởng ch̄e' tao-----Factory

Xuyên phá' th̄ép-----Armor-piercing

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