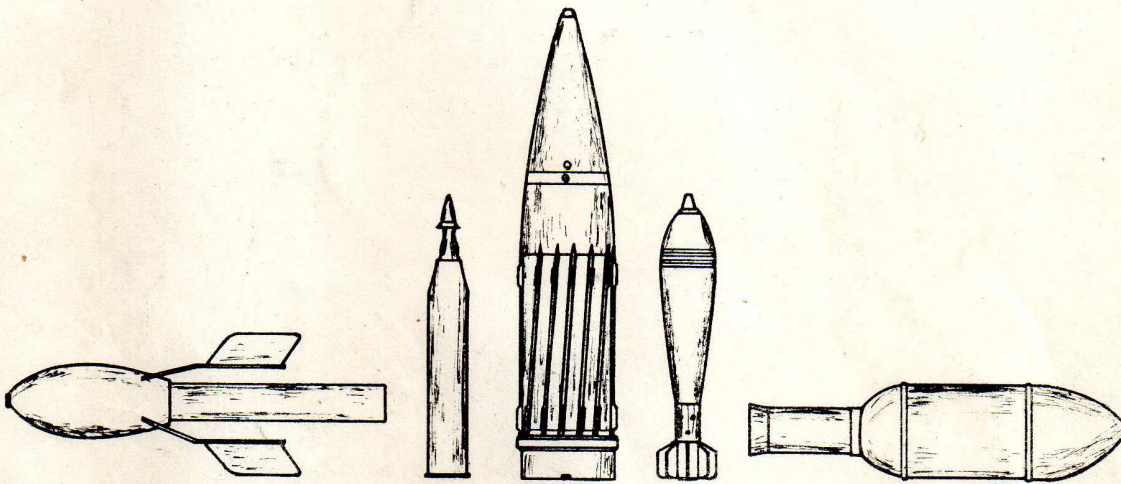


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CAPTURED AMMUNITION

13mm as 30mm prohibit.

BULLETIN



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No. 5

Date 27 MARCH 1945

Office of A.C. of S., G-2

Supreme Headquarters Allied Expeditionary Force



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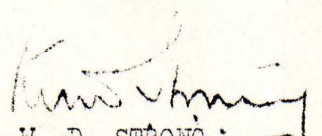
SUPREME HEADQUARTERS
ALLIED EXPEDITIONARY FORCE
Office of Assistant Chief of Staff, G-2
Main Headquarters

27 March 1945

CAPTURED AMMUNITION BULLETIN NO. 5

C O N T E N T S

This Bulletin is devoted to ammunition
which is used in German aircraft cannons and
machine guns.


K. W. D. STRONG,
Major-General, GS,
A C of S., G-2

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SUPREME HEADQUARTERS
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Office of Assistant Chief of Staff, G-2
Main Headquarters

CAPTURED AMMUNITION BULLETIN NO. 5

AIRCRAFT CANNON AMMUNITION

Apart from "breaking down", aircraft cannon ammunition can only be identified with any degree of certainty from the box label. The nomenclatures used, appear somewhat involved, but they do give a complete description of the round. Colourings and markings on the projectile are intended to aid in its identification but at times these are ambiguous and are not always strictly adhered to.

Each equipment has a wide variety of projectile types at its disposal and when there is more than one equipment of the same calibre, ammunition is not interchangeable.

Nomenclature System

This is similar to but not identical with that used in the German Army.

The nomenclature includes the following information:

1. The calibre
2. type of round, i.e. H.E.
3. the presence of tracer
(distinction is made whether the tracer is for day use (L'spur) or for night use (gl'spur))
4. Some projectiles are fitted with a self-destruction device which operates in the event of the projectile failing to meet a target.
(the presence (m. Zerl) or absence (o. Zerl.) of such is included in the nomenclature)
5. in the event of there being more than one equipment of the same calibre, the nomenclature of the equipment is also included. This may be omitted from the first type.

Interpretation of Terms Used in the Nomenclature

<u>Abbreviation</u>	<u>Full</u>	<u>Interpretation</u>
Gr. Patr.	Granatpatrone	indicates that a cartridge case is attached to the projectile.
Br.	Brand	incendiary projectile.
Spr.	Spreng	HE projectile.
Pz.	Panzer	AP projectile.
H-Pzgr.	H-Panzergranat	AP shot with a tungsten carbide core.
M-Gesch.	M-Geschoss	a thin walled projectile with a large bursting charge.
Ph	Phosphor	incendiary filling of white phosphorous.

<u>Abbreviation</u>	<u>Full</u>	<u>Interpretation</u>
E	Elektron	incendiary filling of thermite.
L'spur	Leuchtspur	tracer for day use.
Gl'spur	Glimmspur	tracer for night use.
o. Zerl	ohne Zerleger	without self-destruction device.
m. Zerl	mit Zerleger	with a self-destruction device.
Ub	ubungs	for practice
151 El) FFM) 108 El)		indicates specific equipment in which round is used.

NOTE: Equipments, in which the cartridge case is fitted with an electric cap or primer in contrast to the usual percussion cap or primer, have "El" in the nomenclature, e.g. MK 108 El.

Interpretation of Colours and Other Markings on the Projectile

<u>Colour of Projectile</u>	<u>Type</u>
Yellow	HE and HE/incendiary.
Blue	Incendiary with nose percussion fuze.
Black	AP
Black with a blue band at the shoulder.	AP/I
Black with a yellow band at the shoulder	AP/HE
Black with a blue and a yellow band at the shoulder	AP/HE/I
Black with a white tip	AP shot with a core of tungsten carbide.
Light red band above the driving band	indicates tracer for day use.
Dark red band above the driving band	indicates tracer for night use.

Special Stencillings on Body of the Projectile

"M"	indicates "M-Geschoss", a thin walled projectile with a high bursting charge content.
"ph"	indicates filling of white phosphorus.
"E"	indicates filling of thermite.

NOTE: A number of obsolete markings usually in the form of coloured rings or bands may be encountered.

Ammunition as Used in the Various Equipments

In the following, the known types of aircraft cannon ammunition is listed under the appropriate equipment. In the interpretation of the type, certain abbreviations have been used:-

HE	a high explosive projectile which is fitted with a nose percussion fuze.
HE/Tracer	a high explosive projectile which is fitted with a nose percussion fuze but, in addition, is fitted with a tracer.
HE/Tracer (S.D.)	a high explosive projectile which is fitted with a nose percussion fuze and a tracer which in the event of the projectile failing to meet a target, burns to eventual self-destruction of the projectile.
HE/I	a high explosive projectile which contains an incendiary as well as a high explosive filling and is operated by a nose percussion fuze.
AP/HE	an armour piercing projectile containing a high explosive filling and operated by a base fuze.
AP/I	an armour piercing projectile containing an incendiary filling which may be white phosphorus or thermitite. The latter is functioned by an internal fuze.
I/Tracer	a projectile containing an incendiary filling and functioning by a nose percussion fuze and containing tracer.
Practice HE	a projectile with the external lines of an HE projectile. May or may not contain a small explosive filling. Used for practice.

NOTE: Absence of reference to tracer or self-destruction indicates that such devices are not incorporated.

/For the

For the MG 131 El - 13 mm Aircraft Cannon (Solathurn)

	<u>Full</u>	<u>Abbreviation</u>	<u>Type</u>
1.	13 mm Brandspreng- granatepatrone L'spur El. o. Zerl.	13 mm Brsprgr Patr. L'spur El.o.Zerl.	HE/I/Tracer
2.	13 mm Brandspreng- granatepatrone Gl'spur El.o.Zerl.	13 mm Brsprgr Patr. Gl'spur El.o.Zerl.	HE/I/Night tracer
3.	13 mm Panzergranate- patrone L'spur El.o. Zerl.	13 mm Pzgr. Patr. L'spur El.o.Zerl.	AP shot/Tracer
4.	13 mm Sprenggranat- patrone Ub.El.o.Zerl	13 mm Sprgr Patr. Ub. El.o.Zerl.	Practice HE
5.	13 mm Sprenggranat- patrone L'spur Ub. El. o. Zerl.	13 mm Sprgr Patr. L'spur Ub. El. o. Zerl.	Practice HE/Tracer +
6.	13 mm Sprenggranat- patrone L'spur Ub. El. m. Zerl.	13 mm Sprgr Patr. L'spur Ub. El. m. Zerl.	Practice HE/ Tracer (S.D.) ++
7.	13 mm Panzergranat- patrone L'spur Ub. El. o. Zerl.	13 mm Pzgr. Patr. L'spur Ub. El. o. Zerl.	Practice AP shot/ tracer
8.	13 mm Panzergranat- patrone Gl'spur Ub. El. o. Zerl.	13 mm Pzgr. Patr. Gl'spur Ub. El. o. Zerl.	Practice SP shot/ night tracer

+ contains NO bursting charge.

++ contains small bursting charge.

/For the MG 151

For the MG 151 - 15 mm Aircraft Cannon (Mauser)

	<u>Full</u>	<u>Abbreviation</u>	<u>Type</u>
1.	15 mm Brandspreng- granatpatrone L'spur o. Zerl.	15 mm Brsprgr. Patr. L'spur o. Zerl.	HE/I/Tracer
2.	15 mm Brandspreng- granatpatrone L'spur m. Zerl.	15 mm Brsprgr. Patr. L'spur m. Zerl.	HE/I/Tracer (S.D.)
3.	15 mm Brandspreng- granatpatrone G1'spur m. Zerl.	15 mm Brsprgr. Patr. G1'spur m. Zerl.	HE/I/Night tracer (S.D.)
4.	15 mm Panzergranat- patrone L'spur o. Zerl.	15 mm Pzgr. Patr. L'spur. o. Zerl.	AP shot/Tracer
5.	15 mm H-Panzer- granatpatrone o. Zerl.	15 mm H-Pzgr. Patr. o. Zerl.	AP shot with tungsten carbide core.
6.	15 mm Sprenggranat- patrone Ub. o. Zerl.	15 mm Sprgr. Patr. Ub. o. Zerl.	Practice HE +
7.	15 mm Sprenggranat- patrone L'spur Ub. o. Zerl.	15 mm Sprgr. Patr. L'spur Ub. o. Zerl.	Practice HE/ Tracer +
8.	15 mm Sprenggranat- patrone L'spur Ub. m. Zerl.	15 mm Sprgr. Patr. L'spur Ub. m. Zerl.	Practice HE/ Tracer (S.D.) ++
9.	15 mm Panzergranat- patrone L'spur Ub. o. Zerl.	15 mm Pzgr. Patr. L'spur Ub. o. Zerl.	Practice AP shot/ Tracer
10.	15 mm H. Panzer- granatpatrone Ub. o. Zerl.	15 mm H-Pzgr. Patr. Ub. o. Zerl.	Practice AP shot

+ contains NO bursting charge.

++ contains small bursting charge.

/For the MG 151 E1

For the MG 151 El - 15 mm Aircraft Cannon (Mauser)

- propellant charge initiated electrically
instead of by percussion.

	<u>Full</u>	<u>Abbreviation</u>	<u>Type</u>
1.	15 mm H Panzer- granatpatrone El o. Zerl.	15 mm H Pzgr. Patr. El. o. Zerl	AP shot with tungsten carbide core

For the MG FFM - 20 mm Aircraft Cannon (Oerlikon)

	<u>Full</u>	<u>Abbreviation</u>	<u>Type</u>
1.	2 cm Brandspreng- granatpatrone L'spur FFM o. Zerl	2 cm Brsprgr Patr L'spur o. Zerl	HE/I/Tracer
2.	2 cm Brandspreng- granatpatrone L'spur FFM m. Zerl.	2 cm Brsprgr Patr L'spur m. Zerl	HE/I/Tracer (S.D.)
3.	2 cm Brandspreng- granatpatrone Gl'spur FFM m. Zerl	2 cm Brsprgr Patr Gl'spur m. Zerl	HE/I/Night Tracer (S.D.)
4.	2 cm M. Geschoss Patrone FFM o. Zerl	2 cm M. Gesch. Patr. FFM o. Zerl	HE with large bursting charge
5.	2 cm M. Geschoss Patrone FFM m. Zerl	2 cm M. Gesch. Patr. FFM m. Zerl	HE with large bursting charge and self-destroying nose percussion fuze.
6.	2 cm Panzergranat- patrone FFM o. Zerl	2 cm Pzgr Patr FFM o. Zerl	AP shot
7.	2 cm Panzerspreng- granatpatrone FFM o. Zerl	2 cm Pzsprgr Patr FFM o. Zerl.	AP/HE
8.	2 cm Panzerbrand- granatpatrone (Phosphor) FFM o. Zerl	2 cm Pzbrgr Patr (Ph) FFM o. Zerl	AP/I (phosphorus)
9.	2 cm Panzerbrand granatpatrone (Elektron) FFM o. Zerl.	2 cm Pzbrgr Patr (E) FFM o. Zerl	AP/I (thermite)
10.	2 cm Brandgranat- patrone L'spur FFM o. Zerl	2 cm Brgr Patr L'spur FFM o. Zerl.	I/Tracer
			/11. 2 cm Brand-

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11.	2 cm Brandgranat- patrone G1'spur FFM o. Zerl	2 cm Brgr Patr G1'spur FFM o. Zerl	I/Night tracer
12.	2 cm Sprenggranat- patrone Ub. FFM o. Zerl	2 cm Sprgr Patr Ub. FFM o. Zerl	Practice HE +
13.	2 cm Sprenggranat- patrone L'spur Ub FFM o. Zerl	2 cm Sprgr Patr L'spur Ub FFM o. Zerl	Practice HE/ tracer +
14.	2 cm Sprenggranat- patrone L'spur Ub FFM m. Zerl	2 cm Sprgr Patr L'spur Ub FFM m. Zerl	Practice HE/ tracer (S.D.) ++
15.	2 cm Panzergranat- patrone Ub FFM o. Zerl	2 cm Pzgr Patr Ub FFM o. Zerl	Practice AP shot

+ contains NO bursting charge.
++ contains small bursting charge.

For the MG 151/20 - 20 mm Aircraft Cannon (Mauser)

	<u>Percussion Fired</u>		
	<u>Full</u>	<u>Abbreviation</u>	<u>Type</u>
1.	2 cm Brandspreng- granatpatrone L'spur 151 o. Zerl	2 cm Brsprgr Patr L'spur 151 o. Zerl	HE/I/Tracer
2.	2 cm Brandspreng- granatpatrone L'spur 151 m. Zerl	2 cm Brsprgr Patr L'spur 151 m. Zerl	HE/I/Tracer (S.D.)
3.	2 cm Brandspreng- granatpatrone G1'spur 151 m. Zerl	2 cm Brsprgr Patr G1'spur 151 m. Zerl	HE/I/Night tracer (S.D.)
4.	2 cm M. Geschoss patrone 151 o. Zerl	2 cm M. Gesch Patr 151 o. Zerl	HE with large bursting charge
5.	2 cm M. Geschoss patrone 151 m. Zerl	2 cm M. Gesch Patr 151 m. Zerl	HE with large bursting charge and self- destroying nose percussion fuze.
6.	2 cm Panzergranat- patrone 151 o. Zerl	2 cm Pzgr Patr 151 o. Zerl	AP shot
7.	2 cm Panzerspreng- granatpatrone 151 o. Zerl	2 cm Pzsprgr Patr 151 o. Zerl	AP/HE
8.	2 cm Panzerbrand- granatepatrone (phosphor) 151 o. Zerl.	2 cm Pzbrgr Patr (Ph) 151 o. Zerl	AP/I (phosphorus)

/9. 2 cm Panzerbrand-

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9.	2 cm Panzerbrand- granatpatrone (elektron) 151 o. Zerl	2 cm Pzbrgr Patr (E) 151 o. Zerl	AP/I (thermite)
10.	2 cm Brandgranat- patrone L'spur 151 o. Zerl	2 cm Brgr Patr L'spur 151 o. Zerl	I/Tracer
11.	2 cm Brandgranat- patrone Gl'spur 151 m. Zerl	2 cm Brgr Patr Gl'spur 151 m. Zerl	I/Night tracer
12.	2 cm Sprenggranat- patrone Ub 151 o. Zerl	2 cm Sprgr Patr Ub. 151 o. Zerl	Practice HE +
13.	2 cm Sprenggranat- patrone L'spur Ub. 151 o. Zerl	2 cm Sprgr Patr L'spur Ub. 151 o. Zerl	Practice HE/ tracer +
14.	2 cm Sprenggranat- patrone L'spur Ub. m. Zerl	2 cm Sprgr Patr L'spur Ub. m. Zerl	Practice HE/ Tracer (S.D.) ++
15.	2 cm Panzergranat- patrone Ub 151 o. Zerl	2 cm Pzgr Patr Ub 151 o. Zerl	Practice AP shot

- + contains NO bursting charge.
++ contains small bursting charge.

For the MG 151/20 E1 - 20 mm Aircraft Cannon (Mauser)

- propellant charge initiated electrically
instead of by percussion.

Uses the same series of projectiles as the MG 151/20 but the cartridge case is fitted with an electric instead of a percussion cap for initiation.

The same nomenclatures are used except that "151 E1" is included instead of "151".

For the MK 101 - 30 mm Aircraft Cannon (Solathurn)

1.	3 cm Sprenggranat- patrone L'spur o. Zerl	3 cm Sprgr Patr L'spur o. Zerl	HE/Tracer
2.	3 cm M Geschoss patrone L'spur o. Zerl	3 cm M Gesch. Patr. L'spur o. Zerl	HE with large bursting charge/ tracer
3.	3 cm Panzerspreng- granatpatrone L'spur o. Zerl	3 cm Pzsprgr Patr L'spur o. Zerl	AP/HE/Tracer
4.	3 cm Panzerbrand- granatpatrone (Elektron) o. Zerl	3 cm Pzbrgr Patr (E) o. Zerl	AP/I/(thermite)
			/5. 3 cm H Panzer-

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5.	3 cm H Panzergranatpatrone L'spur o. Zerl	3 cm H Pzgr Patr L'spur o. Zerl	AP shot with tungsten carbide core.
6.	3 cm M Geschosspatrone Gl'spur o. Zerl	3 cm M Gesch Patr Gl'spur o. Zerl	HE with large bursting charge
7.	3 cm Panzerbrand sprenggranatpatrone L'spur o. Zerl	3 cm Pzbrsprgr Patr L'spur o. Zerl	APC/HE/I/tracer
8.	3 cm Sprenggranatpatrone Ub o. Zerl	3 cm Sprgr Patr Ub o. Zerl	Practice HE
9.	3 cm Sprenggranatpatrone L'spur Ub. o. Zerl	3 cm Sprgr Patr L'spur Ub. o. Zerl	Practice HE/ Tracer
10.	3 cm Panzergranatpatrone L'spur Ub. o. Zerl	3 cm Pzgr Patr L'spur Ub. o. Zerl	Practice AP shot/ Tracer
11.	3 cm M Geschosspatrone L'spur Ub	3 cm M Gesch Patr L'spur Ub	Practice HE/ Tracer
12.	3 cm H Panzergranatpatrone L'spur Ub. o. Zerl	3 cm H Pzgr Patr L'spur Ub. o. Zerl	Practice AP shot/ Tracer

For the MK 103 E1 - 30 mm Aircraft Cannon

Uses the same ammunition as the MK 101 except that an electric primer, type C/23, is fitted instead of the percussion primer, type C/33.

Ammunition should include "103 E1" in the nomenclature.

For the MK 108 E1 - 30 mm Aircraft Cannon

	<u>Full</u>	<u>Abbreviation</u>	<u>Type</u>
1.	3 cm M Geschosspatrone 108 E1 o. Zerl	3 cm M Gesch Patr 108 E1. o. Zerl	HE with large bursting charge
2.	3 cm M Geschosspatrone L'spur 108 E1. o. Zerl	3 cm M Gesch. Patr. 108 E1. o. Zerl	HE with large bursting charge/ Tracer

For the 3.7 cm BORDKANONE - 37 mm Aircraft Cannon

	<u>Full</u>	<u>Abbreviation</u>	<u>Type</u>
1.	3.7 cm H Panzergranatpatrone L'spur o. Zerl	3.7 cm H Pzgr Patr L'spur o. Zerl	AP shot with tungsten carbide core/Tracer
2.	3.7 cm H Panzergranatpatrone L'spur Ub. o. Zerl	3.7 cm H Pzgr Patr L'spur Ub. o. Zerl	Practice AP shot/ Tracer

For the 7.5 cm BORDKANONE - 75 mm Aircraft Cannon

Uses the same ammunition as the 7.5 cm Pak 40 anti-tank gun.

PACKING DETAILS

Equipment	Number of Rounds per Box	Weight	
		kg.	lbs.
13 mm MG 131 E1	500	51	112
15 mm MG 151	200	50	110
15 mm MG 151 E1			
2 cm MG FFM	200	48.5	107
22 cm MG 151/20	200	50	110
2 cm MG 151/20 E1			
3 cm MK 101	50	60	132
3 cm MK 103 E1			
3 cm MK 108 E1			
3.7 cm Bordkanone	12	22	49

NOTE:

Depending upon the type of projectile, there is some variation in the weight of the package.

The above represents the highest in the series.

/13 mm MG 131 E1

13 mm MG 131 EL

German Nomenclature	Weight of Projectile (gm)	Bursting Charge	Duration of Tracer (seconds) (metres)	Fuze	Weight of Complete Round (gm)	Propellant
13 mm Brspr Patr L'spur El. o. Zerl	34	0.9 gm P.E.T.N. 0.3 gm thermito	1.7 759	AZ 1531 or 1532	74	7.1 gm Nz.R.P. (1,8x1,2/0,2)
✓ 13 mm Brspr Patr Gl'spur El.o.Zerl	34	0.9 gm P.E.T.N. 0.3 gm thermito	1.7 759	AZ 1531 or 1532	74	7.1 gm Nz.R.P. (1,8x1,2/0,2)
13 mm Pzgr Patr L'spur El. o.Zerl	38.5	Bakelite plug (inert)	1.7 650	none	77.5	ditto
13 mm Sprgr Patr Ub El. o. Zerl	34	none			74	ditto
13 mm Sprgr.Patr. L'spur Ub. El. o. Zerl	34	none	1.7 650		74	ditto
13 mm Pzgr Patr L'spur Ub El. o. Zerl	38.5		1.7 750		77.5	ditto
13 mm Pzgr Patr Gl'spur Ub El. o. Zerl	38		2.5 750		76	ditto
13 mm Sprgr Patr L'spur Ub El.o.Zerl	34	1g. P.E.T.N.	1.75 750		72	ditto

NOTE: The cartridge case is fitted with an electric primer - type Zündhütchen J.

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15 mm MG 151

German Nomenclature	Weight of Projectile (gm)	Bursting Charge	Duration of Tracer (seconds) (metres)	Fuze	Weight of Complete Round (gm)	Propellant
15 mm Brsprgr Patr L'spur m. Zerl	57	1.9 gm P.E.T.N. 1.3 gm thermito	1.7 1000	AZ 1552	158	24.5 gm Nz. R. P. (2,5x2,5/0,5)
15 mm Brsprgr Patr L'spur o. Zerl	57	ditto	1.7 1000	ditto	158	ditto
15 mm Brsprgr Patr Gl'spur m. Zerl	57	ditto	1.7 1000	ditto	158	ditto
15 mm Pzgr Patr L'spur o. Zerl	72		900-1100		166	25.6 gm Nz. R. P. (2,5x2,2/0,5)
15 mm H Pzgr Patr o. Zerl	52				160	24.5 gm Nz. R. P. (3x3/0,5)
15 mm Sprgr Patr Ub o. Zerl	57				151	ditto
15 mm Sprgr Patr L'spur Ub o. Zerl	57		900-1100		151	ditto
15 mm Sprgr Patr L'spur Ub m. Zerl	57	1.1 gm P.E.Tr.N.	1.8 1100		151	25.6 gm Nz. R. P. (2,5x2,5/95)
15 mm Pzgr Patr L'spur Ub o. Zerl	72		900-1100		166	ditto
15 mm H Pzgr Patr Ub o. Zerl						

The cartridge case is fitted with a percussion cap - Zündhütchen K.

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German Nomenclature	Weight of Projectile (gm)	Bursting Charge
2 cm Brsprgr Patr L'spur FFM o. Zerl	115	2.3 gm P.E.T.N. 2.1 gm thermite
2 cm Brsprgr Patr L'spur FFM m. Zerl	115	ditto
2 cm Brsprgr Patr Gl'spur FFM m. Zerl	115	ditto
2 cm M Gesch Patr FFM o. Zerl	92	20 gm P.E.T.N.
2 cm M Gesch Patr FFM m. Zerl	92	20 gm P.E.T.N.
2 cm Pzgr Patr FFM o. Zerl	115	inert bakelite plug
2 cm Pzsprgr Patr FFM o. Zerl	115	4 gm P.E.T.N.
2 cm Pzbrgr Patr (Ph) FFM o. Zerl	115	3.6 gm phosphus in Al. capsule
2 cm Pzbrgr Patr (E) FFM o. Zerl	117	6.2 gm thermite

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Duration of Tracer (Seconds) (metres)	Fuze	Weight of Complete Round (gm)	Propellant
3.3 1200	AZ 1504	183	13.3 gm Nz. Bl. P. (2,1x2,1x0,5)
ditto	ditto	183	ditto
ditto	ditto	183	ditto
	AZ 1502	157	15 gm Nz. R. P. (2,4x1,0/0,2)
	AZ 1505	157	ditto
		183	13.3 gm Nz. Bl. P. (2,1x2,1x0,5)
	Bd.Z. 1512 1513	183	ditto
		183	ditto
	IZ 1527	182	ditto

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0	2 cm Brgr Patr L'spur FFM o. Zerl	115	Incendiary composition	3 1100	AZ 1528 A	183	ditto
1	2 cm Brgr Patr Gl'spur FFM o. Zerl	115	ditto	ditto	ditto	183	ditto
12	2 cm Sprgr Patr Ub FFM o. Zerl	115				183	ditto
13	2 cm Pzgr Patr Ub FFM o. Zerl	115	inert bakelite plug			183	ditto
14	2 cm Sprgr Patr L'spur Ub FFM o. Zerl	115		3.5 1100		183	ditto
	2 cm Sprgr Patr L'spur Ub FFM m. Zerl	115	P.E.T.N.	1.4 650		183	ditto

The cartridge case is fitted with a percussion cap - type Zündhütchen G2.

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2 cm MG 151/20

The projectiles are identical with corresponding types used in the 2 cm MG FFM. The cartridge case is, however, larger and of different shape. The propellant charge is larger, ranging from 14.8 to 19.8 gm.

The cartridge case is fitted with a percussion cap, type Zündhütchen K.

2 cm MG 151/20 E1

The ammunition is similar to the above except that the cartridge case is fitted with an electric primer, type Zündhütchen P2.

15 mm MG 151 E1

Only one type of round is issued - 15 mm H Pzgr Patr E1. o. Zerl. This is similar to the corresponding type for the 15 mm MG 151 except that the cartridge case is fitted with an electric primer, type Zündhütchen P2.

/3 cm MK 101

3 cm MK 101

German Nomenclature	Weight of Projectile (gm)	Bursting Charge	Duration of Tracer (seconds) (metres)	Fuze	Weight of Complete Round (gm)	Propellant
3 cm Sprgr Patr L'spur o. Zerl	440	27 gm P.E.T.N.	1600	AZ 1504	890	4 gm gunpowder + 107 gm Nz.R.P. (2,8x2,6/0,5)
3 cm M Gesch Patr L'spur o. Zerl	330	72 gm HAT 41 + P.E.T.N.	1200	AZ 1504	778	4 gm gunpowder + 110 gm Nz.R.P. (2,8x2,6/0,5)
3 cm M Gesch Patr Gl'spur o. Zerl	350	9 gm incendiary	1200	Bd.Z. 1583 1584	830	16 gm Np.R.P. (3x3/0,5)
3 cm Pzsprgr Patr L'spur o. Zerl	530	14 gm P.E.T.N.	1200	Bd.Z. 1583 1584	830	4 gm gunpowder + 97 gm Nz.R.P. (2,8x2,6/0,5)
3 cm Pzbrgr Patr (E) o. Zerl	500	9 gm incendiary composition		I.Z. 1595		ditto
3 cm H Pzgr Patr L'spur o. Zerl	350		1200			4 gm gunpowder + 116 gm Np.R.P. (3x3/0,5)
3 cm Pzbrsprgr Patr L'spur o. Zerl	455	5.2 gm P.E.T.N. + 6 gm incendiary composition.	1200	Bd.Z. 1583	903	4 gm gunpowder + 110 gm Nz.R.P. (2,8x2,6/0,5)

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3 cm Sprgr Patr UB
o. Zerl

3 cm Sprgr Patr L'spur Ub
o. Zerl

3 cm Pzgr Patr L'spur Ub
o. Zerl

3 cm M Gesch Patr L'spur Ub

3 cm M Gesch Patr Gl'spur Ub
o. Zerl

3 cm H Pzgr Patr L'spur Ub
o. Zerl

The cartridge case

RESTRICTED

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is fitted with a percussion primer, type C/33.

RESTRICTED

SHOAB 5

3 cm MK 103 El

The ammunition is identical with that used in the 3 cm MK 101 except that the cartridge case is fitted with an electric primer, type C/23.

3 cm MK 108 El

Only two varieties of ammunition are issued:

1. 3 cm M Geschoss Patr 108 El. o. Zerl
Bursting charge - 100 gm. HA 41
Nose percussion fuze - AZ 1502

The external and internal design is similar to that of the 2 cm M Geschoss.

2. 3 cm M Geschoss Patr L'spur 108 El. o. Zerl.

This is identical with the 3 cm M Geschoss as used in the 3 cm MK 101.

The cartridge case is 91 mm in length as compared with 180 mm for the MK 101 and 103 El.

The cartridge case is fitted with an electric primer, type Zündhütchen P 2.

/3.7 cm Bordkanone

3.7 cm Bordkanone

German Nomenclature	Weight of Projectile (gm)	Bursting Charge	Duration of Tracer (seconds) (metres)	Fuze	Weight of Complete Round (gm)	Propellant
3.7 cm H Pzgr Patr L'spur o. Zerl	405 ± 8		1.5 1200		1290	230 gm Nz.R.P. (3x2,8/0,5) + 11 gm (Nz.Str.P.(230x2x0,65) (Nz.Beil.P.(1,5x1,5/0,75)) + 3 gm lead wire
3.7 cm H Pzgr Patr	405 ± 8		1.5 1200		1290	ditto

The cartridge case is fitted with a percussion primer - C/33.

RESTRICTED
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RESTRICTED

Interpretation of Propellant Nomenclatures

1. Nz. R.P. - (1,8x1,2/0,3)
Nz. R.P. = nitrozellulose rohr pulver

This is a nitrocellulose propellant in tubular form. The figures in brackets indicate the size of the tubes in mm, e.g.:-

Length	1.8 mm
External diameter	1.2 mm
Internal diameter	0.3 mm

NOTE: The Germans use a comma to indicate a decimal point.

2. Nz. Bl. P. (2,1x2,1x0,5)
Nz. Bl. P. - nitrozellulose blattchen pulver

This is a nitrocellulose propellant in flakeform. The figures in brackets indicate the size of the flakes in mm.

3. Np. R. P. (3x3/0,5)
Np. R. P. - nitropenta rohr pulver

This is a propellant containing nitrocellulose and P.E.T.N.

/Fuzes for Aircraft

Fuzes for Aircraft CannonAMMUNITION (Diagrams 2 and 3)Nose Percussion1. AZ 1531.

In this fuze the needle is supported by two half collars. These are opened by centrifugal force and thus the needle is able to strike the detonator on impact.

2. AZ 1532

The needle is supported by a centrifugal bolt. During deceleration the needle creeps forward and the bolt can then move outwards under the action of centrifugal force. The needle is then free to strike the detonator on impact.

3. AZ 1551

The needle is supported by 2 half collars and a split spring. These open under the influence of centrifugal force, thus allowing the needle to strike the detonator on impact. This is a brass fuze.

4. AZ 1552

This is similar to (3) except that it is made of steel.

5. AZ 1502

This is similar to (3) except for slight differences in design.

6. AZ 1503

A needle holder is arranged so that the needle is out of line with the detonator. The needle pellet is kept in position by 2 bolts attached to a split ring. On firing, after set-back forces have been overcome, the split ring opens and withdraws the bolts. A small ball then creeps forward into a recess in the needle holder which then moves outwards to bring the needle in line with the detonator so that on impact, the fuze will function.

7. AZ 1504

This is similar to (6) except that it is made of aluminium.

8. AZ 1528 A

This is a strikerless fuze. Set into the nose is a large detonator probably of an igniferous type. A large central channel leads down to the incendiary mixture in the main body of the projectile.

Nose Percussion Fuze with a Self-Destruction Device

This type of fuze is designed so that in the event of the projectile failing to meet a target, it self-detonates and so destroys the projectile.

1. ZZ 1505

The needle is held in position by 2 half collars and a split spring. Under the influence of centri-fugal force, the spring and two half collars open, thus permitting the needle to strike the detonator on impact.

The self-destroying mechanism operates as follows:-

The 8 balls are thrown outwards during flight by centrifugal force and thereby compress the spring in the head of the fuze. In the event of the projectile failing to meet a target, as the rotational velocity decreases, the balls fall inwards, releasing the spring, which then drives the striker onto the detonator.

Base Fuzes1. Bd. Z. 1511

The detonator is fixed and the needle is moveable but held in place by a spring. On impact, the needle sets forward onto the detonator. A tracer is fitted.

2. Bd. Z. 1512

This is similar to (1) but no tracer is fitted.

3. Bd. Z. 1513

This consists of a fixed needle and a detonator pellet. The detonator pellet is prevented from moving onto the needle by 2 ball bearings which are located in a groove at the base of the pellet and two holes in a sleeve which surrounds the pellet. The ball bearings are kept in position by a strip of flat spring. After set-back forces have been overcome, centrifugal force causes the balls to fly outwards and so releases the pellet which will then move forward onto the needle on impact.

There is an annular space to the rear of the fuze body which accommodates the balls and spring when they are thrown out. The sleeve which surrounds the detonator pellet is incapable of any longitudinal movement owing to the construction of the fuze.

4. Bd. Z. 1583 or 1584

There is a larger version of (3) for use in 3 cm ammunition. It is either the Bd. Z. 1583 or 1584 and is fitted with tracer.

Internal Fuze1. I.Z. 1527

This internal fuze is used in the 2 cm Pzbrgr (B). It is internal but placed in the nose of the fuze. It consists of a fixed needle and a detonator pellet which is held off the needle by a shear wire. On impact the detonator sets forward onto the needle.

Fuze Magazines

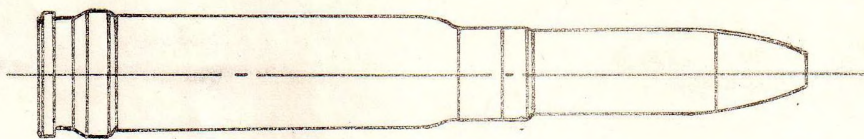
With the exception of the last two fuzes, all the above fuzes are fitted with a magazine in which is embedded a detonator. The detonator mixture consists of lead oxide, tetrazine and calcium silicide and the magazine filling of P.E.T.N./wax. The magazine is sufficient to initiate the bursting charge of the projectile without an additional explode. The following is a list of magazines:-

<u>Fuze Magazine</u> (German nomenclature)	<u>Fuzes used with</u>
13 mm Sprengkapsel	AZ 1531 : 1532
15 mm Sprengkapsel	AZ 1552
Duplex Sprengkapsel	AZ 1502 : 1504 :
	ZZ 1505 : 1506
2 cm Sprengkapsel Bd. Z.	Bd. Z. 1512 : 1513
Sprengkapsel f. 3 cm Bd. Z.	Bd. Z. 1583 : 1584
+ Verzögerungsprengekapsel VC	ZZ 1505 : 1506
+ Verzögerungsprengekapsel VD	ZZ 1505 : 1506
+ a delay is incorporated.	

GERMAN AIRCRAFT

CANNON AMMUNITION

DIAGRAM 1



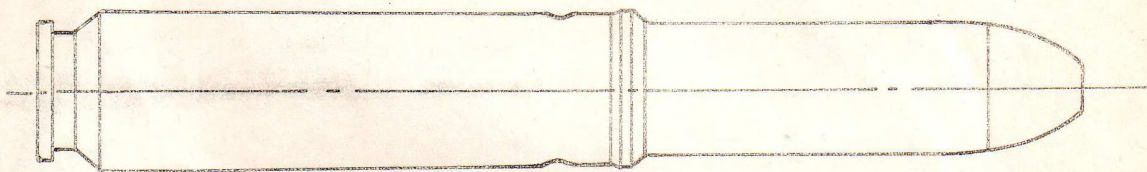
13 M.M. MG. 131 E. I. (SOLOTHURN)

ACTUAL SIZE



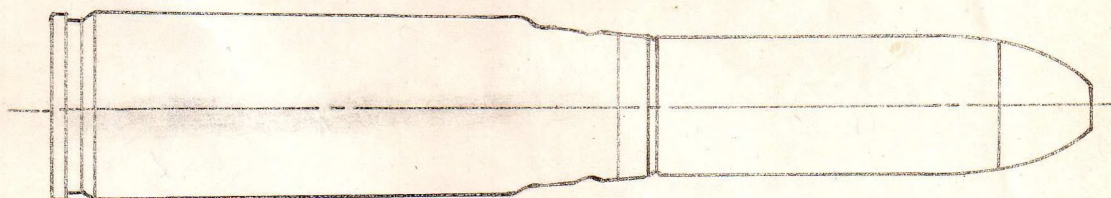
15 M.M. MG. 151 (MAUSER)

ACTUAL SIZE



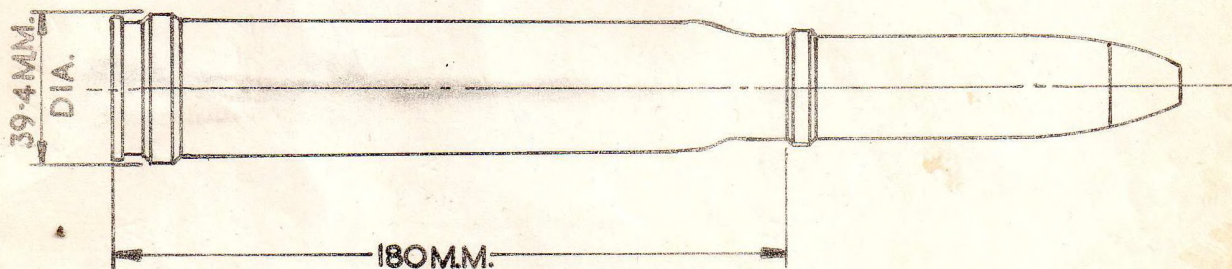
20 M.M. MG. F.F.M. (OERLIKON)

ACTUAL SIZE



20 M.M. MG. 151/20 (MAUSER)

ACTUAL SIZE

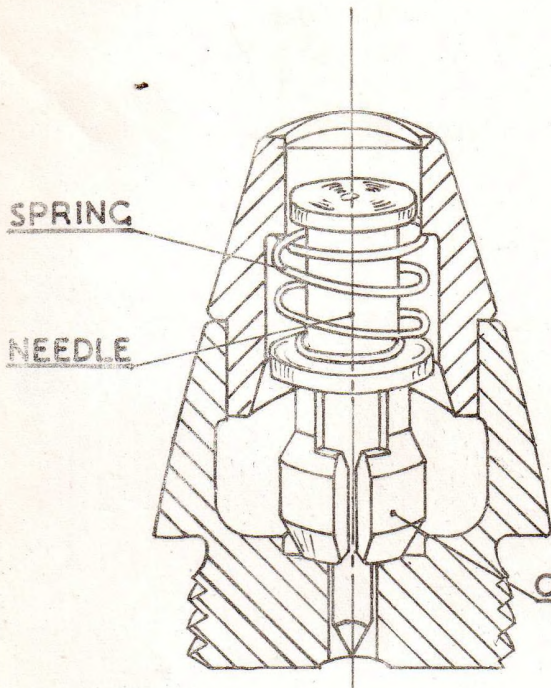


3 CM. MK. 101 (SOLOTHURN)

HALF SIZE

FUZES USED IN GERMAN AIRCRAFT CANNON AMMUNITION

DIAGRAM 2

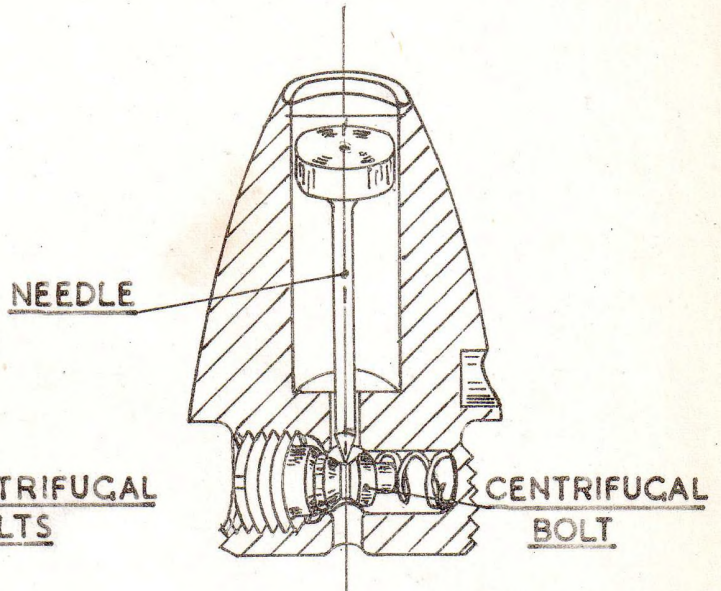


SPRING

NEEDLE

CENTRIFUGAL
BOLTS

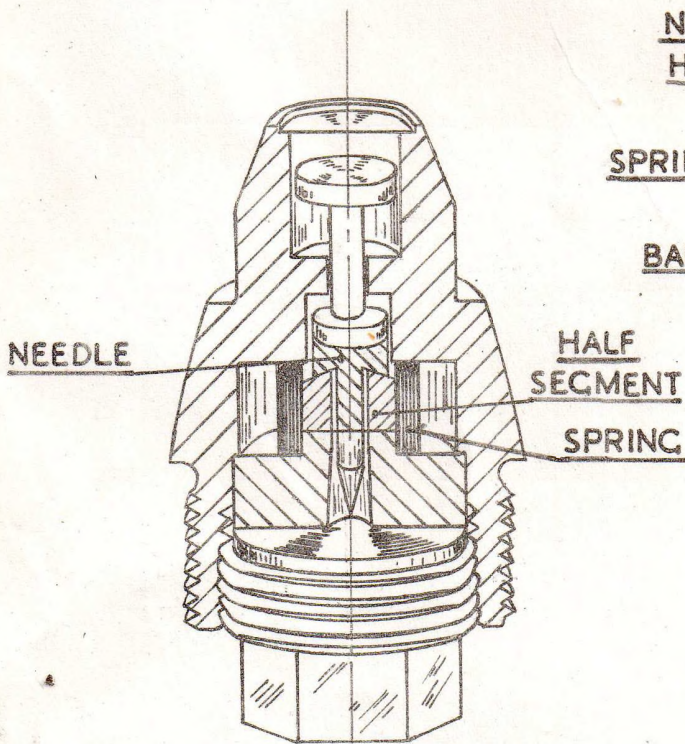
NOSE FUZE AZ.1531



NEEDLE

CENTRIFUGAL
BOLT

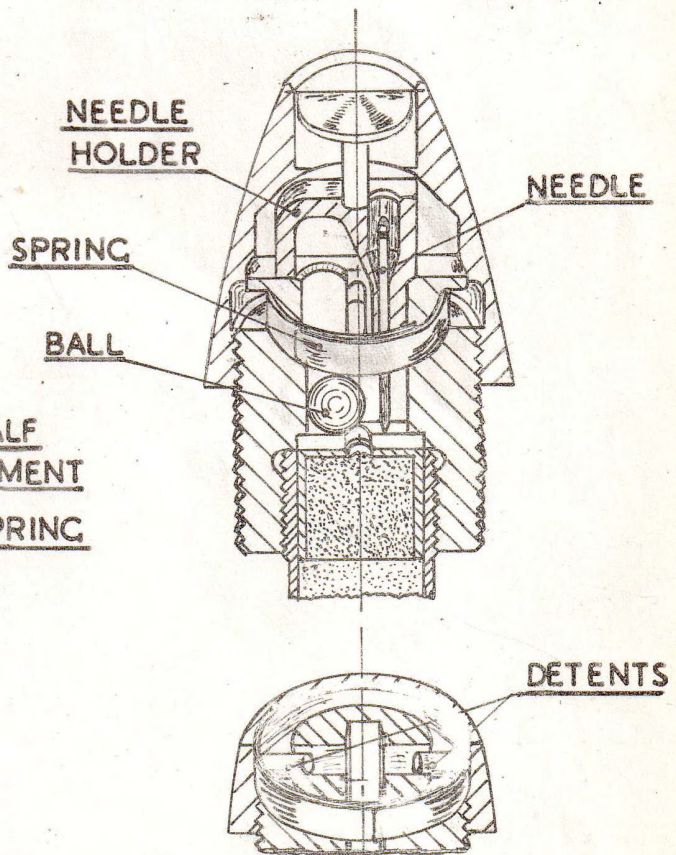
NOSE FUZE AZ.1532



NEEDLE

HALF
SEGMENT
SPRING

NOSE FUZE
AZ.1551 & AZ.1552



NEEDLE
HOLDER

NEEDLE

SPRING

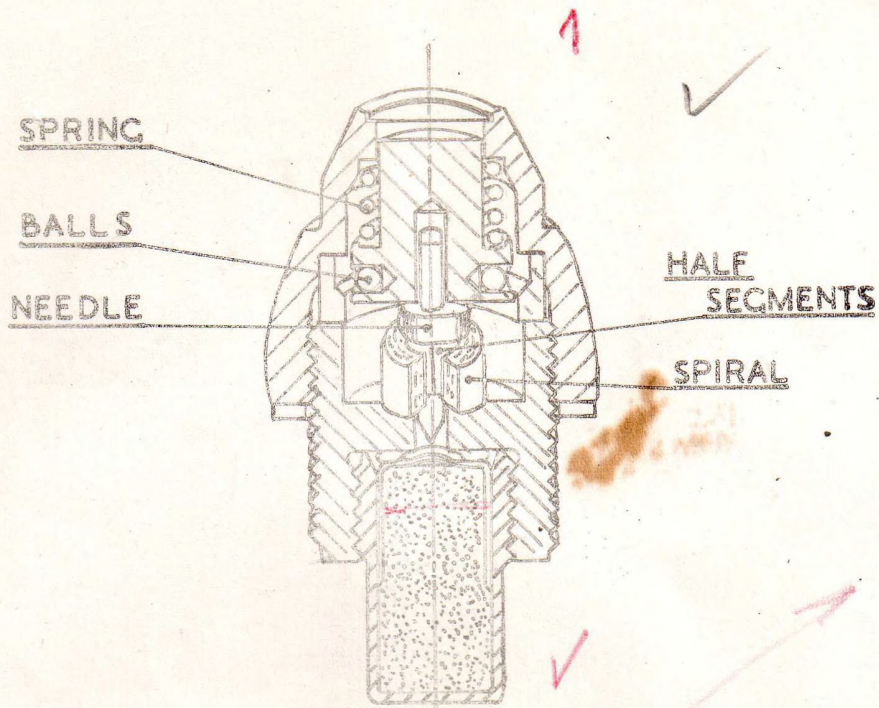
BALL

DETENTS

NOSE FUZE
AZ.1503 & AZ.1504

FUZES USED IN GERMAN
AIRCRAFT CANNON AMMUNITION

DIAGRAM 3



SELF DESTROYING NOSE FUZE

Z Z 1505

