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AMMUNITION BULLETIN Nº 41

ITEMS 1037-1086

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MINISTRY OF SUPPLY

AMMUNITION BULLETIN NO. 4 RESTRICTED

ISSUED BY:-
Chief Inspector of Armaments.

Item No.

1040 7.92 mm. Ammunition, Mixed packing.

1072 Box, ammunition, Q.F. 17 pr. C.510 Mk.I.

1051 Box, cartridge, Q.F. 25 pr. C.267 Mk.I. "OBSOLESCENT"

1038 Box, C.284 containing Cartridges 3.7 in. Mk.VI Gun, H.E.

1042 Cartridges, Q.F. 6 pr. 10 cwt. Packages.

1037 Cartridge, B.L. 5.5 in. gun, 31 lb. 9 oz. Cordite N/S 164-048, Mk I Foil. Packing.

1056 Cartridges, S.A. Drill. Omission of base markings.

1059 Charge, Demolition, No.3, 15 lb. Mk.I. Marking and Alternative Fillings.

1070 Containers, Cartridge, Q.F. 17 pr.

1060 Cover 2 in. T. and P. Fuze, No.14 Mks.II and IIs. New securing band.

1052 Exploder Bags, Shell, T.N.T. or C.E.

1069 Fuzes. Packing of.

1044 Fuze, D.A. and Percussion, No.119 Mk.II.

1053 " " " " No.119B Mk.IV.

1045 Fuze, Drill, Time, No's 207 and 208.

1064 Fuze, Percn. No.247 Mk.II. (FIG.425)

1058 Fuze, Percn. D.A., No.151. Modification to permit air dropping (FIG.424).

1062 Grenade, Hand, No.74. Instructional Mk.II. Drill Special, Mk.II.

1061 Grenade, Hand, Drill, No.75 A/T. Mk.II.

1047 Grenade, Hand, No.77. Temporary Wrapping.

1050 Grenades, Miscellaneous. Number constituting a filled lot.

1071 Implements, ammunition, Q.F. 17 pr.

1055 Primer, percn. Q.F. cartridge, No.29 Mk.I. "OBSOLETE"

1054 Projectors, 2½ in. Mks.I and II. "OBSOLETE"

1063 Reel, Box, Instantaneous fuze, Mk.VII. Package.

1068 Shell, H.E. Amatol filling.

1066 Shell, H.E. Painting.

1065 Shell, Q.F. H.E. 3.7 in. and 4.5 in. guns.

Item No.	
1043	Shell, Q.F. H.E., 95 mm. Mk.IA (FIG.419)
1046	Simulators, Gun flash, No's 4 and 5. "OBSOLESCENT".
1057	Simulator, Rifle fire { 10 Minute / ½ hour / 2 hours } Mk.I. (FIGS.422, 423)
1048	Smoke float, Distress Marine, Mk.II (FIG.420)
1039	Tracer, Shell, No.17 Mk.II. (FIG.417)
1049	" " No.21 Mk.I. (FIG.421)
1067	" " No.22 Mk.I.
1041	Weight marking on filled shell, Field Service (FIG.418)
1072A	Explosions.

GERMAN AMMUNITION

1073	Light anti-tank mine (l.Pz.M.) (FIG.426)
1077	Smoke box No.11 for H.E. shell (R.11).
1080	Fuze A.Z. 23 (v 0,15) (FIG.432).
1079	Fuze Kl. A.Z.23 Nb (PreBstoff) - plastic - (FIG.431)
1078	Fuze A.Z.2492 for rifle spigot grenade. (FIG.430)
1081	Base fuze Skoda B.Z.15 for 3.7 cm A.P.C. shell. (FIG.433)
1082	Base fuze (Skoda 15) for 4.7 cm A.P.C. shell. (FIG.434)
1083	4.7 cm Pak (t) & Pak.K.36 (t) cartridge, Q.F.,H.E. (FIG.435)
1084	4.7 cm Pak (t) & Pak.K.36 (t) cartridge, Q.F.,A.P.C. (FIG.436)
1074	5 cm mortar cartridge 39. (FIG.427)
1075	5 cm mortar H.E. bomb (FIG.428)
1076	s.10 cm K.18 and lg.10 cm K.T. (10.5 cm calibres) H.E. S/L Shell (10 cm Gr 19) (FIG.429)
1085	10.5 cm l.F.H.18, H.E., cast steel shell (F.H.Gr.38 Stg) (FIG.437)
1086	17 cm K.Mrs.Laf. Q.F. cartridge (FIGS. 438 & 439).

1037. CARTRIDGE, B.L. 5.5 in. GUN, 12 lb. 9 oz. CORDITE N/S 164-048 MK.I. FOIL & PACKING.

Reference Bulletin No. 38, Item 948, page 14. The above cartridge to DD(L)16407, is now packed in Box Ctge. C.235 to hold 4, each in Container Ctge. C.208.

Stowage dimensions of box are 46.4 x 12.4 x 6.4 inches.

1038. BOX, C.284, CONTAINING CARTRIDGES, Q.F. 3.7" MK.VI GUN, H.E.

To facilitate handling, the above cartridges in Box C.284 will in future be fitted with a lifting band placed about 6 inches from the flange. The band is made of 1" webbing, 19 inches circumference, with a plain stitched lap joint.

1039. TRACER, SHELL, No.17 MK.II (FIG.417)

Approval has been given for the above tracer to be filled to M. of F. design DD(L)17741 which incorporates a new method of closing the tracer cavity to give improved functioning. Details of this method are shown in FIG.417.

Tracers embodying this modification will become "Mark II".

1040. 7.92 mm. AMMUNITION, MIXED PACKING.

A considerable quantity of 7.92 mm. ammunition has been packed and issued, some in Mk.II and some in Mk.III belts. Owing to difficulty in Service with the Mk.III belts, boxes containing ammunition in this mark of belt have been segregated and withdrawn.

Boxes containing ammunition in Mk.II belts will be stencilled "Mk.II BELTS" on the lid.

1041. WEIGHT MARKING ON FILLED SHELL, FIELD SERVICE (FIG.418)

Reference Bulletin No. 39, Item 983. The following tables give details of standard weights and weight marking units used on each calibre of shell 3.7 in. to 18 in. in conformity with Range Table weights of normal standard projectiles and fuzes. Shell issued fuzed will be weight marked in accordance with the fuze allocated in the table, irrespective of the fuze actually in the shell. The weights to be allowed for various fuzes and fuze components, and for adapters and plugs, are shown separately.

Shell whose weight is outside the range shown in the tables will be marked with a + or - figure, according to the number of appropriate units by which the weight is above or below the mean weight at the centre of the "0" range for that calibre, e.g. :-

3.7 in. How. Shell (weight unit ¼ lb.)

Filled weight 20 lb. 8 oz. would be marked + 4.

" " 18 lb. 8 oz. " " " - 4.

MARKING ON SHELL

The weight marking is stencilled on the nose of the shell immediately below the red ring (or ring of red crosses) and above the calibre and numeral marking in 3 equidistant places for shell above 6 in. and in 2 places for shell 6 in. to 3.7 in. inclusive as shown in FIG. 418.

(A)

TABLE OF WEIGHTS.

FOR ± UNITS ON EACH CALIBRE OF SHELL 3·7 IN. TO 18 IN.

H.E. AND COMMON POINTED

(THE WEIGHTS IN ANY SQUARE ARE INCLUSIVE, THE WORDS "ABOVE" AND "BELOW" APPLYING THROUGHOUT THE RESPECTIVE LINES.)

CALIBRE.		3·7 IN. HOW.		4·5 IN. HOW.		4·5 IN. GUN STREAMLINE.		60 PR.		60 PR. (56 LB.)		5·5 IN. (100 LB.)		5·5 IN. (80 LB.)		6 IN. HOW. STREAMLINE. (86 LB.)		6 IN. GUN (6 C.R.H.) 6 IN. HOW. (6 C.R.H.)	
STANDARD FUZE.		106 E WITHOUT CAP, BUT WITH EXPR. "B"		106 E WITHOUT CAP, BUT WITH EXPR. "B"		117 WITH EXPR. "B"		101 E. WITH GAINE No 2.		106 E. WITHOUT CAP, BUT WITH EXPR. "B"		117 WITH EXPR. "B"		117 WITH EXPR. "B"		106 E. WITHOUT CAP, BUT WITH EXPR. "B"		106 E. WITHOUT CAP, BUT WITH EXPR. "B"	
UNIT OF WEIGHT.		¼ LB.		¼ LB.		½ LB.		½ LB.		½ LB.		1 LB.		1 LB.		1 LB.		1 LB.	
		LB.	OZ.	LB.	OZ.	LB.	OZ.	LB.	OZ.	LB.	OZ.	LB.	OZ.	LB.	OZ.	LB.	OZ.	LB.	OZ.
+ 3		20	6	35	6	56	12	61	12	57	12	103	8	85	8	89	0	103	0
	ABOVE.	20	2	35	2	56	4	61	4	57	4	102	8	84	8	88	0	102	0
+ 2		20	2	35	2	56	4	61	4	57	4	102	8	84	8	88	0	102	0
	ABOVE	19	14	34	14	55	12	60	12	56	12	101	8	83	8	87	0	101	0
+ 1		19	14	34	14	55	12	60	12	56	12	101	8	83	8	87	0	101	0
	ABOVE.	19	10	34	10	55	4	60	4	56	4	100	8	82	8	86	0	100	0
0		19	10	34	10	55	4	60	4	56	4	100	8	82	8	86	0	100	0
		19	6	34	6	54	12	59	12	55	12	99	8	81	8	85	0	99	0
− 1	BELOW	19	6	34	6	54	12	59	12	55	12	99	8	81	8	85	0	99	0
		19	2	34	2	54	4	59	4	55	4	98	8	80	8	84	0	98	0
− 2	BELOW	19	2	34	2	54	4	59	4	55	4	98	8	80	8	84	0	98	0
		18	14	33	14	53	12	58	12	54	12	97	8	79	8	83	0	97	0
− 3	BELOW.	18	14	33	14	53	12	58	12	54	12	97	8	79	8	83	0	97	0
		18	10	33	10	53	4	58	4	54	4	96	8	78	8	82	0	96	0

R4313

CALIBRE.		6 IN. HOW. STREAMLINE (100 LB)		7·2 IN. HOW.		5 mm.		9·2 IN. HOW.		9·2 IN. GUN.		9·2 IN. HOW. (315 LB.)		12 IN. HOW.		18 IN. HOW H.E (CYLINDRICAL BASE) C.P.B.C. STREAMLINE.	
STANDARD FUZE.		117 WITH EXPR "B"		117 WITH EXPR. "B"		117 WITH EXPR "B"		106 E. WITHOUT CAP BUT WITH EXPR. "B"		101 E. * WITH GAINE. No 2.		117 WITH EXPR. "B"		117 WITH EXPR. "B"		117 WITH EXPR. "B"	
UNIT OF WEIGHT.		1 LB.		2 LB.		¼ LB.		2 LB.		2 LB.		2 LB.		5 LB.		15 LB.	
		LB.	OZ.	LB.	OZ.	LB	OZ.	LB	OZ.	LB.	OZ.	LB.	OZ.	LB.	OZ.	LB	OZ.
+ 3		103	8	207	0	25	14	297	0	387	0	322	0	767	8	2552	8
	ABOVE.	102	8	205	0	25	10	295	0	385	0	320	0	762	8	2537	8
+ 2		102	8	205	0	25	10	295	0	385	0	320	0	762	8	2537	8
	ABOVE.	101	8	203	0	25	6	293	0	383	0	318	0	757	8	2522	8
+ 1		101	8	203	0	25	6	293	0	383	0	318	0	757	8	2522	8
	ABOVE.	100	8	201	0	25	2	291	0	381	0	316	0	752	8	2507	8
0		100	8	201	0	25	2	291	0	381	0	316	0	752	8	2507	8
		99	8	199	0	24	14	289	0	379	0	314	0	747	8	2492	8
− 1	BELOW.	99	8	199	0	24	14	289	0	379	0	314	0	747	8	2492	8
		98	8	197	0	24	10	287	0	377	0	312	0	742	8	2477	8
− 2	BELOW.	98	8	197	0	24	10	287	0	377	0	312	0	742	8	2477	8
		97	8	195	0	24	6	285	0	375	0	310	0	737	8	2462	8
− 3	BELOW	97	8	195	0	24	6	285	0	375	0	310	0	737	8	2462	8
		96	8	193	0	24	2	283	0	373	0	308	0	732	8	2447	8

C.P. SHELL, AS ISSUED, FUZED OR PLUGGED.

9·2 IN. GUN. 117 FUZE FOR 4 6. AND 8 C.R.H PROJECTILES.

(A) CONTINUED

THE WEIGHTS TO BE ALLOWED FOR STANDARD FUZES AND FUZE COMPONENTS	LB	OZ.
FUZE [illegible]	2	8
" Nº 101E AND CAINE Nº 2.	2	11
" Nº 44 (WITHOUT CAP.)		8
" Nº 106E (WITHOUT CAP.)	2	0
" Nº 106 (WITHOUT CAP.)	2	1
" Nº 83	1	11
EXPLODER, SHELL, "B" (MUST BE ALLOWED FOR IN H.E. SHELL FOR WHICH Nº 106E OR 117 IS THE STANDARD FUZE)		1
CAP FOR Nºs 106 AND 106E. FUZES (TO BE ALLOWED FOR WHEN WEIGHING FUZED SHELL.)		3
CAP FOR Nº 44. (" " " ")		4

THE WEIGHTS TO BE ALLOWED FOR ADAPTERS AND PLUGS.	DIE CAST.		METAL.		STEEL.		CAST IRON.	
	LB.	OZ.	LB.	OZ.	LB.	OZ.	LB.	OZ.
ADAPTER, 2 IN. FUZE-HOLE, Nº 2 MK. II			1	0	1	0		14
ADAPTER, 2 IN. FUZE-HOLE, Nº 2 MK. III.			1	4	1	2	1	1
PLUG, FUZE-HOLE, SPECIAL, Nº I MK. III				8		7		7
PLUG FUZE-HOLE, 2 IN. Nº 3 MK. III			1	13	1	11	1	8
PLUG FUZE-HOLE, 2 IN. Nº 3 MK. III***			1	12	1	10	1	7
PLUG FUZE-HOLE, 2 IN. Nº 3 MK. V							1	12
PLUG FUZE-HOLE, 2 IN. Nº 3 MKS. V* AND VI.							1	11
PLUG FUZE-HOLE, 2 IN. Nº 3 CONVERTED, MK. I							1	11
PLUG FUZE-HOLE, 2 IN. Nº 3 CONVERTED, MKS. I AND II.							1	10
PLUG FUZE-HOLE, 2 IN. Nº 8 MK. II.							2	0
PLUG FUZE-HOLE, 2 IN. Nº 8 MK. III.							2	4
PLUG FUZE-HOLE, 2 IN. Nº 13		13	1	10	1	9	1	6
PLUG FUZE-HOLE, 2 IN. Nº I MKS. II AND III				10				

(A) CONTINUED.

(B)

TABLE OF WEIGHTS

FOR ± UNITS ON EACH CALIBRE OF SHELL 3·7IN TO 6IN

SMOKE AND CHEMICAL.

(THE WEIGHTS IN ANY SQUARE ARE INCLUSIVE, THE WORDS 'ABOVE' AND 'BELOW' APPLYING THROUGHOUT THE RESPECTIVE LINES)

CALIBRE		3·7 IN. HOW	4·5 IN. HOW	4·5 IN HOW CHEM. BURSTING	95 M.M.	5·5 IN. GUN			
						SMOKE B.E.	CHEM. B.E. MK. I D.	CHEM. B.E. MK. II D.	CHEM. B.E. MK. III B. AND IV B.
STANDARD FUZE		✳	✳	106 E.	221	221	221	221	221
UNIT OF WEIGHT		¼ lb.	¼ lb.	¼ lb.	¼ lb.	1 lb.	1 lb.	1 lb.	1 lb.
+ 3		lb oz 20 6	lb oz 35 6	lb oz 35 6	lb oz 25 14	lb oz 105 0	lb oz 94 0	lb oz 101 8	lb oz 97 0
	ABOVE	20 2	35 2	35 2	25 10	104 0	93 0	100 8	96 0
+ 2		20 2	35 2	35 2	25 10	104 0	93 0	100 8	96 0
	ABOVE	19 4	34 14	34 14	25 6	103 0	92 0	99 8	95 0
+ 1		19 14	34 14	34 14	25 6	103 0	92 0	99 8	95 0
	ABOVE	19 10	34 10	34 10	25 2	102 0	91 0	98 8	94 0
0		19 10	34 10	34 10	25 2	102 0	91 0	98 8	94 0
		19 6	34 6	34 6	24 14	101 0	90 0	97 8	93 0
- 1	BELOW	19 6	34 6	34 6	24 14	101 0	90 0	97 8	93 0
		19 2	34 2	34 2	24 10	100 0	89 0	96 8	92 0
- 2	BELOW	19 2	34 2	34 2	24 10	100 0	89 0	96 8	92 0
		18 4	33 14	33 14	24 6	99 0	88 0	95 8	91 0
- 3	BELOW	18 14	33 14	33 14	24 6	99 0	88 0	95 8	91 0
		18 10	33 10	33 10	24 2	98 0	87 0	94 8	90 0

✳ STANDARD FUZE FOR 3·7 IN AND 4·5 IN. SMOKE BURSTING SHELL IS 106 E WITHOUT CAP.
4·5 IN B.E. SHELL IS Nº 83.
3·7 IN Nº 221.

6 IN. HOW.

CALIBRE		SMOKE BURSTING	CHEM. B.E. MK. I D.	CHEM. B.E. MK. II D	CHEM. BURSTING MK. I D.	CHEM. BURSTING MK. XI	CHEM. BURSTING MK. XIII / IX	CHEM. BURSTING MK. XII / V
STANDARD FUZE		106 E	221	221	117	106 E.	106E.	106 E.
UNIT OF WEIGHT		1 lb.	1 lb.	1 lb.	1 lb.	1 lb.	1 lb	1 lb.
+3	ABOVE	lb oz 107 0 106 0	lb oz 104 8 103 8	lb oz 102 0 101 0	lb oz 102 8 101 8	lb oz 104 8 103 8	lb oz 105 0 104 0	lb oz 104 0 103 0
+2	ABOVE	106 0 105 0	103 8 102 8	101 0 100 0	101 8 100 8	103 8 102 8	104 0 103 0	103 0 102 0
+1	ABOVE	105 0 104 0	102 8 101 8	100 0 99 0	100 8 99 8	102 8 101 8	103 0 102 0	102 0 101 0
0		104 0 103 0	101 8 100 8	99 0 98 0	99 8 98 8	101 8 100 8	102 0 101 0	101 0 100 0
-1	BELOW	103 0 102 0	100 8 99 8	98 0 97 0	98 8 97 8	100 8 99 8	101 0 100 0	100 0 99 0
-2	BELOW	102 0 101 0	99 8 98 8	97 0 96 0	97 8 96 8	99 8 98 8	100 0 99 0	99 0 98 0
-3	BELOW	101 0 100 0	98 8 97 8	96 0 95 0	96 8 95 8	98 8 97 8	99 0 98 0	98 0 97 0

(B) CONTINUED.

THE WEIGHTS TO BE ALLOWED FOR STANDARD FUZES AND FUZE COMPONENTS	LB.	OZ.	DR.
FUZE Nº 83 (WITH ADAPTING RING)	1	11	8
" Nº 221	2	2	0
" Nº 117	2	8	0
" Nº 106 E (WITHOUT CAP.)	2	0	0
" Nº 106 (WITHOUT CAP)	2	1	0
CAP FOR Nºs 106 AND 106 E FUZES. (TO BE ALLOWED FOR WHEN WEIGHING FUZED SHELL)		3	0

(B) CONTINUED

THE WEIGHTS TO BE ALLOWED FOR ADAPTERS AND PLUGS.	DIE CAST		METAL		STEEL		CAST-IRON	
	LB	OZ	LB	OZ	LB	OZ	LB	OZ
PLUG, FUZE-HOLE, 2 IN. Nº 1, MKS. II OR III				10				
PLUG, FUZE-HOLE, 2 IN. Nº 13 OR 13 CONVERTED.		13	1	10	1	9	1	6
PLUG, FUZE-HOLE, 2 IN. Nº 1, MK. IV F.								8
PLUG. FUZE-HOLE, SPECIAL 2 IN. Nº1 MK. III				8		7		7

1042. CARTRIDGES, Q.F. 6 pr. 10 cwt. PACKAGES.

Reference Bulletin No. 40, Item 1004. Approval given for the use of Box ammunition, C.264 for packing Q.F. 6 pr. 10 cwt. service cartridges, as an alternative to Box C.197, has been cancelled and Box, ammunition C.286 approved in lieu.

Stowage dimensions of Box C.286 are 29.75 x 13.75 x 9.5 inches and number of rounds packed is 6.

1043. SHELL, Q.F. H.E., 95 mm. MK.IA (FIG.419)

Reference Bulletin 39, Item 982. M. of F. Design DD(L)17865 is applicable to the above shell filled T.N.T. and details of this design are shown in Fig. 419.

1044. FUZE, D.A. AND PERCUSSION NO.119 Mk.II.

Reference Bulletin No. 36, Item 878, page 19. The abovementioned fuze has been declared "OBSOLESCENT".

1045. FUZE, DRILL, TIME, Nos. 207 and 208.

Reference Bulletin No. 37, Item 909. An amendment to design of the above drill fuzes providing for only one set of figures (the lower set) for future production, has been approved.

1046. SIMULATORS, GUN FLASH, Nos. 4 and 5. "OBSOLESCENT"

Reference Bulletin No. 32, Item 638. The No.4 Mks.I & II and No. 5 Mk.I Simulators have been declared "OBSOLESCENT".

1047. GRENADE, HAND, NO.77. TEMPORARY WRAPPING

Approval has been given for the above grenade to be wrapped in waxed paper tissue or parchment, as a temporary measure.

1048. SMOKE-FLOAT, DISTRESS, MARINE, MK.II (FIG.420)

The empty components of this store comprise a cylindrical body, lid with tear-off disc, diaphragm, igniter, perforated disc, perforated tube and a bottom lid. All are of tinned-plate except the igniter, perforated disc and tube.

The lid and diaphragm are secured to one end of the body by a folded joint, a centre hole in the lid being covered by a soldered on tear-off disc to which is secured a ring to facilitate removal. The diaphragm , positioned below the lid, is prepared with two holes, a small one near the centre locates the igniter which is secured to the diaphragm by soldering, and a larger one near the outer edge, covered by a shellacked paper disc, for the emission of smoke. The igniter used is the Igniter, percussion, Mk.I and details of the complete assembly are shown in Fig. 420.

A perforated zinc or tinned plate disc is positioned in the body, immediately below the igniter assembly, between two rolled paper tubes. The space below the disc contains two pellets of smoke composition each prepared with a central hole to accommodate a perforated zinc or tinned plate tube. Each smoke pellet consists of about 10 oz. P.N. 61, the end of the top pellet nearest the igniter being primed with about 135 grains igniter composition and covered with a disc of primed cotton cambric.

The body is closed by a bottom lid secured to it by a folded joint with thin millboard discs inserted between the lower smoke pellet and lid to make a tight package.

To ignite the smoke float remove the tear off disc in the lid, thus exposing the striker release fork with links attached. By means of the links pull or twist the release fork clear of striker and throw the float into the water immediately. Smoke is emitted about 5 seconds after ignition and continues for 2 - 4 minutes.

External dimensions are 8.15 x 3.95 inches.

Painting and Marking.

The exterior of the float is painted green with "STOW IN DRY PLACE" printed on the side in $\frac{3}{8}$" black letters. The lid bears printed descriptive and instructional legends together with Contractor's initials or recognised trade mark and date of manufacture. Details of lid markings are included in Fig. 420.

Package details are not yet settled.

1049. TRACER, SHELL, NO.21, MK.I (FIG.421)

The above internal type tracer has been approved. It is used in the Q.F. 37 mm. Shot A.P. (S.V.) Mk.I BT and Q.F. 2 pr. Shot A.P. (S.V.) Mk.II BT and is designed to commence its trace at 300 yards from the gun muzzle. Duration of trace is 2 seconds and colour Red.

Details of M. of F. and method of securing in the tracer boss of projectile are shown in Fig. 421.

1050. GRENADES, MISCELLANEOUS, NUMBER CONSTITUTING A FILLED LOT

Reference Bulletin No. 39, Item 966. The following revised list showing the number of grenades constituting a filled lot is published in substitution of the list given in Item 966 :-

Grenade, Hand, or .303" Rifle, No.36M Mk.I.	2400
Grenade, Rifle, No.68 A/T, All Marks.	1998
Grenade, Hand, No.69 Mk.I.	3400
Grenade, Hand, No. 74 A/T. Mks.I & II.	1600
Grenade, Hand, No.75 A/T Mks.I & II.	2400
Grenade, Hand, No.77 W.P. Mk.I.	6800
Grenade, Hand, No.77 F.M. Mk.II.	6800
Grenade, Hand, No.80 Mk.I.	2400
Grenade, Hand, No.81 (Duplex) Mk.I.	To be notified later.
Grenade, Hand, No.82 A/T. Mk.I.	2000

1051. BOX, CARTRIDGE, Q.F. 25 pr. C.267 Mk.I.

The abovementioned box has been declared "OBSOLESCENT"

1052. EXPLODER BAGS, SHELL, T.N.T. OR C.E.

Reference Bulletin No. 36, Item No.858, page 4. The weight of C.E. filling in the undermentioned exploder bags has been amended to 450 Grs. ± 15 Grs. in lieu of 430 Grs. ± 13½ Grs :-

Design No.	Nomenclature
S.D. 1063	Exploder, Shell, "A" Mk.VII
S.D.1056	" " "A" Mk.VIII.

1053. FUZE, D.A. AND PERCUSSION, No.119B Mk.IV.

Reference Bulletin No.36, Item 878 and FIG.342. Approval has been given for all reference to the alternative 4.8 grain detonator and its components to be deleted from the design of the above mentioned fuze.

1054. PROJECTORS, 2½ in. MKS. I and II. "OBSOLETE".

The abovementioned projectors and components, together with all ancillary stores and ammunition, have been declared "OBSOLETE".

1055. PRIMER, PERCUSSION, Q.F. CARTRIDGE, NO.29 Mk.I "OBSOLETE"

Reference Bulletin No. 34, Item 764. The above primer has been declared "OBSOLETE".

1056. CARTRIDGES, S.A. DRILL. OMISSION OF BASE MARKINGS.

The omission of base markings on all S.A.A. drill cartridges up to, but not including, 20 m.m. calibre, as a war time measure only, has been approved.

1057. SIMULATORS, RIFLE FIRE { 10 Minute / ½ Hour / 2 Hours } MK.I (FIGS. 422, 423).

The above simulator comprises a rectangular plywood frame on which is laid a train of safety fuze suitably arranged to fire 12 Detonators No.27 in succession, at irregular intervals. Ignition is by means of the Switch No.10 (as applicable) (See Bulletin No.38, Item 934) which is secured in a clip provided on the frame.

The fame consists of a base board to one side of which are screwed two end battens, a centre batten and 10 spacing blocks, the latter in two rows of five each side of the centre batten. The safety fuze is arranged on the frame as shown in Fig. 422, one end being inserted into the spring sleeve of a Switch No.10 and the connection rendered moistureproof by rolling a rubber sleeve over the end of switch and safety fuze, while the remaining 12 ends, of varying lengths, are each secured in a Detonator No.27 (No.8 Commercial) by crimping or canneluring. The six lap joints in the train are formed by notching both pieces of safety fuze to expose powder and placing the notches together so that the powder trains are in contact, and securely binding together with adhesive tape. Each detonator, with a thin strip of felt doubled around it, is pressed into the slots formed between the spacing blocks and secured by a dab of glue or shellac adhesive on the felt strip.

The Simulator is provided with a millboard or cardboard cover, paper sealing strips, reinforcing tapes, tear-off tape and 3 securing tapes. The tear-off tape is stencilled in ⅜" black letters "TEAR OFF TO EXPOSE SWITCH".

Dimensions of the Simulator are 12" x 8½" x 1".

Painting and Marking.

The exterior of the Simulator is coated with buff paint and waterproofed with a coat of shellac varnish. Stencilled markings are in black and details are included in FIG. 423.

Packing

12 Simulators are packed in Box B.166 Mk.II stowage dimensions of which are 19.7 x 9 x 13.2 inches.

1058. FUZE, PERCUSSION, D.A. NO.151 MODIFICATION (FIG. 424)

To prevent premature arming when dropped from aircraft a modification to the above fuze has been approved. Modified fuzes will be fitted with a safety pin provided with a steel wire loop and a length of adhesive tape.

When inserted in the fuze the pin secures the ball in the striker mechanism so that should the detent momentarily set back against its spring, on impact, the ball is retained in position and the fuze prevented from arming. The pin is secured by the safety cap of the fuze when the latter is screwed home. The wire loop, with tape attached, is folded back against the safety cap and the tape (12" long x 1" wide) wrapped round the exterior of the safety cap, over the loop. This arrangement ensures that the pin is not withdrawn until preparation is made for firing.

Fuze No. 151, when modified as above, will be known as "Fuze, percussion, D.A. No.161."

1059. CHARGE, DEMOLITION, No.3, 15 lb. Mk.I. MARKING AND ALTERNATIVE FILLING.

Reference Bulletin No.38, Item 932. The marking of this Charge, filled Pentolite, has been amended to provide for the green-black-green strips to be bordered top and bottom by a $\frac{1}{8}$ inch wide yellow strip and for the numeral "4" to be stencilled on the black strip instead of the fraction "25/75".

The use of R.D.X./T.N.T. 50/50 as an alternative filling has been approved. When so filled the marking will be a blue strip, instead of the green-black-green strips, with "T.N.T.3" stencilled on it in black. The blue strip will also be bordered by $\frac{1}{8}$ inch wide yellow strips.

1060. COVER, 2 in. TIME AND PERCUSSION FUZE, NO.14, Mks.II and II S.

A new design of securing band has been approved for the above fuze cover (No.222 Fuze) and will be designated "Band, securing, fuze cover, No. 3 Mk.I."

It is of tinned plate and similar in type to the No.2 Band, securing, (See Bulletin No.36, Item 846).

1061. GRENADE, HAND, DRILL, No.75 A.T., Mk.II.

The above drill grenade comprises an empty Mk.II Service grenade body containing an inert filling. It is painted a dull red colour and has a $\frac{1}{2}$" wide white strip painted on each end. One side of the body is embossed:- "No.75 II", Manufacturer's initials or recognised trade mark; Month and year of completion. The letters "H.E.S." are stencilled on in white. The Service store package is used for packing.

1062 GRENADE, HAND, No.74:- INSTRUCTIONAL, MK.II. DRILL SPECIAL, Mk.II:

Instructional Mk.II. This grenade is made up of empty rejected Service grenade components with a wood pellet representing Pellet, C.E., No.6. It is painted the same colour as the Service grenade and bears the following markings in white on the outer casing:- "INSTRUCTIONAL"; No. and Mark; Contractor's initials or recognised trade mark; Date of completion (month and year). The Service store package is used for packing.

Drill Special, Mk.II. Is similar in make up to the Instructional grenade but contains an inert filling and the flask is coated with adhesive. It is painted white and stencilled with the following markings in black:- "DRILL SPECIAL"; No. and Mark; Contractor's initials or recognised trade mark; Date of completion (month and year). The Service store package is used for packing.

1063. REEL, BOX, INSTANTANEOUS FUZE, MK.VII. PACKAGE.

Reference Bulletin No. 39, Item 960. The abovementioned Reel is packed in Box, Instantaneous Fuze, Mk.VI. The box is of tinned plate and stowage dimensions are 13.7 (dia.) x 3.71 inches.

1064. FUZE, PERCUSSION, No.247 Mk.II (FIG.425)

Details of the difference between the Mk.II and Mk.I fuze were given in Bulletin No.39, Item 964.

Fig.425, this Bulletin, shows the internal arrangement of the Mk.II fuze and includes particulars of markings.

1065. SHELL, S.F., H.E. 3.7 in. and 4.5 in. GUN.

M. of F. design DD(L)12056 for the above shell, which provides for 50/50 Amatol filling has been declared "OBSOLESCENT".

1066. SHELL, H.E. PAINTING

Approval has been given for all H.E. shell to be painted, in future, with one coat of stove dried paint.

As an interim measure, until the necessary plant is available to manufacturers for the application of stove dried paint, one coat of stoved copal varnish will be applied to the empty shell followed by a colouring coat of air dried paint to be applied at the filled stage.

1067. TRACER, SHELL, No.22, Mk.I.

The above internal type tracer has been approved. It is used in the S.F. 6 pr. 7 cwt. Shot A.P. Mks.I AF and II BT and is of a similar type to the No.21 Tracer (see FIG.421 this Bulletin), but has a slightly larger capacity, i.e. approx. 16 Grains Tracer composition S.R.372A topped with 10 grains Priming composition S.R.399. The design provides for the trace to commence at 300 yards from the gun muzzle and to be clearly visible for 2 seconds. Colour of trace is Red.

1068. SHELL, H.E. - AMATOL FILLING

Approval has been given for future filling of Amatol in H.E. shell to contain not less than 50% T.N.T., and the following M. of F. designs have been amended to provide for Amatol 50/50 only:-

DD(L) 7476
" 11556
" 12113
" 16817
" 16879

Amatol 80/20, 60/40, 70/30 and 72/28 will not be used for future filling.

1069. FUZES - PACKING OF

Approval has been given for the undermentioned fuzes, without exploders, to be packed in seamed and soldered metal cylinders. Details of the cylinders to be used will be given in a later Bulletin.

When required for use in tropical climates the fuzes, in their cylinders, will be packed in steel boxes.

Exploders, "B", shell, C.E. will be packed separately in soldered metal boxes, each holding 25. 4 boxes (100 exploders) will be packed in a steel or wood box.

Fuze, Time, No.208 } without covers.
" " No.213 }
" Percn. D.A. No.117
" D.A. and Percn. No.119
" Percn.D.A.No.231
" " " No.232
" Time and Perc... No.221 }
" " " " No.223 } with covers.
" Time, No.199 }
" " No.390 }

1070. CONTAINERS, CARTRIDGE, Q.F. 17 pr.

The following containers, in waterproofed paper, have been approved :-

No.213, Mk.II. To hold 1 round; Q.F. 17 pr. A.P.C.B.C.

No.86, Mk.III. To hold 1 round; Q.F. 17 pr. A.P.,A.P.C. or Practice Shot or H.E. Mk.II T shell.

1071. IMPLEMENTS, AMMUNITION, Q.F. 17 pr.

Design of steel Key, removing jammed Q.F. cartridge, No.10, Mk.II, 17 pr., has been approved.

1072. BOX, AMMUNITION, Q.F. 17 pr. C.310, Mk.I.

The above wood box, with packing pieces, to hold 2 rounds A.P.C.B.C. or H.E. shell, Mk.I T has been approved.

Stowage dimensions are 39.625 x 14.375 x 8.375 inches.

1072A. EXPLOSIONS.

Several explosions have occurred in recent months through the coverings used over stacks of ammunition catching fire and collapsing on the stack where it has led to the explosion of the stack. The covers have been tarpaulins or one of the many types of protection to be found in the Tropics.

Whilst it is necessary, even essential, to protect stacks of ammunition from the weather it is important to note that in the event of fire occurring in the vicinity there is a risk of hot embers falling on coverings of this kind and owing to their inflammable nature, setting them on fire. Should this occur and the burning mass fall on the stack there is a serious risk of explosion particularly with explosives in Groups I, II, III, IV, VII, VIII, IX and X. The best protective cover for stacks of ammunition in the field is the Nissen hut or trench shelter, but these are not always available.

When tarpaulins or other inflammable type covers have to be used, fire fighting procedure should require their removal from stacks of ammunition when a fire occurs in the vicinity. Some of this ammunition is in wood packages yet it is preferable to expose the packages as they are not so easily ignited as tarpaulins. Ridging tarpaulins helps to throw off anything alighting on them.

Experiments are in hand to produce non-inflammable "tarpaulins".

ENEMY AMMUNITION.

1073. GERMAN LIGHT ANTI-TANK MINE
(1.Pz.M.)
(FIG. 426)

The mine is designed specially for use by airborne troops and is functioned by pressure applied to push igniters, of which there are five fixed between the top and base of the outer casing. By removing the nuts holding the igniters at the underside of the base and placing the mine so that the protruding lower ends of the igniters are supported on an unyielding surface, the mine can be used as an anti-personnel mine. Sockets for insertion of anti-lifting devices, such as the Z.Z.35 used with the Tellermines, are not provided.

For transport purposes the mines are packed in crates which hold five. The crates are packed into containers for dropping.

The flat circular outer casing of the mine with its side radiussed at the top and bottom is approximately 10.3 inches in diameter and 2.4 inches in height. A safety plug with a milled head protrudes from the centre of the top of the casing. At equally spaced points around the top of the casing there are three small hexagonal nuts and, nearer the side, five larger hexagonal screwed plugs. The milled head of the safety plug is engraved with the word "Sicher"(safe), an arrow indicating the direction in which the head should be turned to make the mine safe and an index line which must be coincident with a mark on the top of the casing when the safety plug has been screwed fully home into the safe position. The exterior of the mine is painted grey or deep olive green and the overall height is 3.5 inches. The weight of the complete mine with its 4.75 lb. bursting charge of T.N.T. is 9 lb. A small cylindrical metal cover is fitted over the milled head of the safety plug when packed.

Body

The mine consists of a pressed steel outer casing which encloses the charge container and is in two parts, the top part being lipped to fit tightly over the rim at the top of the base part. The joint between the two parts is made waterproof with adhesive tape after the mine has been assembled. Attached to the underside of the centre of the top part, by means of five screws, is the flash chamber with the detonator retaining collar screwed to its base. Five brass radial flash tubes connect the flash chamber with the heads of five push igniters. A hole in the base of the flash chamber leads to the main detonator attached beneath. A circular plate on the top of the casing above the flash chamber has a screwthreaded hole in the centre in which the screwed safety plug is inserted. The lower end of the safety plug is enlarged and coned so that when it is screwed in it closes the hole in the base of the flash chamber. The coned head is recessed at the centre of its underside, the recess being filled with a reinforcing charge of black powder.

The charge container of tinplate is similar in shape to the outer casing inside of which it is supported, with air spacing all around it, by three bolts. The bolts pass through tubes fixed between the upper and lower parts of the container and are secured by nuts to the top of the outer casing and the base of the container. Five similar but larger tubes are fitted in the container for the push igniters. A socket for the main detonator is fitted at the centre of the top part of the container. The container is completely sealed with solder of low melting point.

Bursting Charge and Main Detonator.

The bursting charge consists of 4 lb. 12 oz. of a high grade T.N.T. having a setting point of 80.6 degrees Centigrade. The density of the filling varies from 1.42 at the outer edge to 1.48 around the detonator recess. The T.N.T. is probably milled and pressed in increments.

The main detonator is the same as that used in the Tellermine 35 and is described in Bulletin No.36, Item 882.

Push Igniter

The five igniters operate on the same principle as the S.Mi.Z.35 used in the shrapnel mine. The spring-loaded striker is held in position by two small pins housed in holes in the sleeve of the plunger where they are retained by the guide. The plunger is mutted to the base of the outer casing whilst the body, with its head which contains a percussion cap, is secured to the top of the outer casing by a screwed plug. The screwed plug contains a reinforcing charge of black powder pressed into a recess in its base. With the nut removed from the plunger at the base of the outer casing, the plunger is held away from the guide only by the supporting spring.

Action

The safety plug must be unscrewed to its full extent to unmask the hole in the base of the flash chamber when required for use. When the hexagon nuts beneath the base part of the outer casing are screwed up tightly the mine is in condition for use as an anti-tank mine and functions when the casing is crushed sufficiently to operate one of the push igniters. When the top of the casing is forced downwards it takes with it the igniter except the plunger which is supported by the base part of the casing and contains the spring-loaded striker in its sleeve. When the guide in the igniter has moved downwards sufficiently to unmask the holes in the sleeve containing the retaining pins, the pins are forced outwards by the inclined surface on the striker and the pressure of the striker spring which then drives the striker into the percussion detonator. The flash from the detonator, reinforced by the charge in the screwed plug above, passes through the brass flash tube to the flash chamber. In the chamber the flash is again reinforced by the charge in the coned head of the safety plug and enters the main detonator through the hole in the base of the chamber. The weight required to function the mine in this manner is not yet known.

When required for use as an anti-personnel mine, the hexagonal nuts securing the igniter plungers beneath the base of the casing are removed and the mine is placed in position so that the protruding base ends of the plungers are supported on an unyielding surface. When pressure is applied, the outer casing, carrying the igniters, is forced downwards compressing the supporting spring in the igniter whilst the plunger is supported by the surface on which its base end is resting. The protrusion of the base end of the plunger is such that it permits the casing, with the attached igniter, to move downwards sufficiently over the plunger to result in the unmasking of the holes in the sleeve which contain the retaining pins and the striker is released. The actual load required will depend upon the point of application and the surface on which the mine is resting. It may even be as low as that needed to compress one igniter supporting spring. Tests carried out on two igniters taken from a mine showed that the functioning load for a single igniter is from 10 to 12 pounds.

1074. GERMAN 5 cm MORTAR CARTRIDGE 39 WITH FULL CHARGE
- 5 cm Wgr. Patr. 39 (gr.Ldg) -
(FIG. 427)

The cartridge is used with the H.E. bomb (5 cm Wgr 36) described in Bulletin No.24, Item 408 and is identified by the marking "5 cm 39" at the base. The base is lacquered green to indicate the full charge. A similar cartridge with a reduced charge, the "5 cm Wgr. Patr 39 (kl.Ldg)" has a red base.

The cartridge is used without augmenting cartridges and is of the usual primary type for mortars. The rolled paper body is green and the typical 28 bore sporting cartridge base is brass plated. The dimensions are shown on the drawing.

Body

The rolled paper body is lacquered externally and is fitted with a lining tube also of rolled paper. The body is closed at the mouth by a cardboard wad which is held by the rim being turned inwards. At the base the body is strengthened by a steel liner in the form of a cup fitting externally over the end. The steel liner is covered by a copper liner which extends further up the body and is in turn covered by the brass-coated copper shell which forms the base. A wad of rolled black paper holds the cap chamber in the body within the metal liners.

Cap.

The cap chamber is of steel with a coating of copper and contains a brass cap in its lower part. The cap contains a brass anvil and a 0.73 grain filling consisting of :- 35 per cent of lead styphnate, 4 per cent of tetrazene, 43 per cent of barium nitrate, 6 per cent of antimony sulphide and 12 per cent of calcium silicide. The cap rests on a soft copper foil disc which closes the base of the cap chamber. The base is lacquered green.

Propellant Charge

The propellant charge of nitrocellulose powder consists of a priming charge of cylindrical grains in the lower part of the body and a main charge of square flake in the upper part. The two charges are separated by a paper or plastic film cup.

The priming charge has a nominal weight of 1 gram and the propellant is designated "Nz.Man.N.P.(1,5 • 1,5) f. Wgr." In the cartridge examined, the charge weighed 15.7 grains. The propellant, in the form of pale grey-green, porous chopped cords, with graphite incorporated, has the following composition :- nitrocellulose plus graphite 95.3 per cent, diphenylamine 1 per cent, potassium sulphate 1.1 per cent and included 2.6 per cent of volatile matter. The nitrogen content of the nitrocellulose is 13.1 per cent.

The main charge has a nominal weight of 3 grams and the propellant is designated "Nz.M.W.Bl.P. (2•2•0,45)". In the cartridge examined, the charge weighed 43.3 grains. The square flake propellant, lightly coated with graphite, has the following composition :- nitrocellulose (nitrogen content 13 per cent) 98.1 per cent, diphenylamine 0.6 per cent and included 1.3 per cent of volatile matter.

Both propellants burn at a faster rate than that of Ballistite B.16 and the cartridge should, therefore, be efficient under wet weather conditions.

1075. GERMAN 5 cm MORTAR H.E. BOMB 36 WITH FUZE Wgr.Z.38
(5 cm Wgr. 36 m. Wgr. Z.38)
(FIG. 428)

The following details are additional to those given in Bulletin No.24, Item 408:-

Bomb

The lower portion of the cavity for the bursting charge, where the tail unit is screwed into the body, is sealed by a coating of bitumen followed by a pad of magnesium oxychloride cement.

Bursting Charge

The T.N.T. bursting charge is a cast filling with a density of 1.60 and a setting point of 80.4 degrees Centigrade. The weight of the charge in a bomb recently examined was 3.5 oz.

Gaine

The gaine, carried in an aluminium exploder container which is screwed to the lower portion of the fuze, is a Kl.Zdlg.34 Np. This small gaine, filled P.E.T.N./Wax, is described in Bulletin No. 39 (Item 989).

Fuze.

The igniferous detonator, fitted in the base of the fuze, consists of a cylindrical copper shell closed at the head and base by a thin copper disc and containing a detonator composition over a 0.06 grain filling of gunpowder. The detonator composition weighs 2.2 grains and consists of :- potassium chlorate 51 per cent, antimony sulphide 24.1 per cent and calcium silicide and glass 24.9 per cent.

1076 GERMAN 10.5 cm. H.E., STREAMLINED SHELL FUZED A.Z.23 OR DOPP.Z.S/60s (10 cm Gr. 19) (FIG.429)

The shell is used in the 10.5 cm gun-howitzer "s.10 cm K.18" with the mechanical time and percussion fuze "Dopp. Z.S/60s" (Described in Bulletin No.38, Item 952) or with the combined D.A. and graze fuzes, with optional delay, "A.Z.23 V(0,25)" or "A.Z. 23 V (0,15)." The fuze with 0.25 second delay is described in Bulletin No.7, Item 67. A description of the fuze with 0.15 second delay is included in this Bulletin. The shell is also used in the long 10.5 cm turret gun "Lg.10 cm K.T." with the "Dopp. Z.S/60s" fuze.

The body of the shell is painted the normal deep olive green, is stencilled in black and has two driving bands. The stencilling includes the H.E. numeral near the nose ("13" indicating amatol 40/60 and"14", cast T.N.T.), the weight class in Roman numerals at the shoulder and the smoke box marking below the shoulder. (R.11 indicates the inclusion of smoke box No.11). The smoke box marking is omitted in some instances although this component is present.

The fuzed shell is 19.1 inches in length and weighs 33 lb. 9 oz.8 dr. when filled and fuzed. Each of the fuzes used has a protrusion of approximately 3.7 inches.

Shell

The shell is in two parts, the head being screwed into the body about half-way up the ogive. The body is of forged steel and is fitted with two copper clad driving bands of iron. The cavity in the upper part of the body is cylindrical. In the lower part it tapers towards the base and is machined. The head is a machined forging and is screwthreaded internally at the nose for the insertion of an adapter fitted with an exploder container and for the fuze. The exploder container is of mild steel. The weight of the empty shell is 26 lb. 2 oz. 6 drs. The diameter at the shoulder is 4.11 inches (10.44 cm).

Method of Filling.

The bursting charge consists of cast T.N.T. or Amatol 40/60 with a cavity below the fuze hole which contains a No. 11 smoke box beneath the exploder container. The weight of the Amatol 40/60 bursting charge in a shell examined was found to be 3 lb. 12 oz. 15 drs.

The smoke box, Rauchentwickler Nr 11, is described as a separate item in this Bulletin.

The gaine in the exploder container is the larger size of the 6/98 model with a filling of P.E.T.N./Wax (Gr.Zdlg.C/98 Np). Details of the gaine are included in Bulletin No. 32, Item 669.

1077. GERMAN SMOKE BOX NO.11 FOR H.E. SHELL
(Rauchentwickler Nr11)

The box consists of a bakelised cardboard cylindrical container, 4 inches long and 1 inch in diameter, closed at the bottom with a yellow disc of heavily bakelised paper. The top is closed with a red plastic cap fitted inside the container. The composition weighs 76.05 grams. (approximately 2 oz 11 drs) and consists of :-

Red phosphorus	85.4 per cent
Paraffin Wax	11.6 per cent
Magnesium phosphates	2.9 per cent

The smoke box examined had the marking "3 KOLA 3976" arranged in three lines on the top and "KOLA" at the base.

1078. GERMAN FUZE A.Z.2492 FOR SPIGOT RIFLE GRENADE

(FIG. 430)

The fuze is used with the H.E., anti-tank, hollow charge rifle grenade where it also serves as a means of uniting the vaned tail unit to the streamlined body.

The details and action of the fuze are included in the description of the grenade in Bulletin No. 31, Item 631.

1079. GERMAN FUZE Kl.A.Z. 23 Nb WITH STEEL ENCASED PLASTIC BODY
- Kl. A.Z.23 Nb (PreBstoff) -
(FIG.431)

The fuze, as indicated by the letters "Nb" in the abbreviated designation, is intended for use in smoke shell but has also been found in H.E. shell for the anti-tank equipment 7.5 cm Pak 40. The deep olive green painting of the exterior distinguishes this fuze, largely of moulded plastic with a steel casing, from the aluminium fuze of the same designation which is described with the 7.5 cm smoke shell in Bulletin No.26, Item 463.

The weight of the fuze is 5 oz. 2 drs. The dimensions are shown on the drawing.

The fuze body consists of a thin steel ogival casing attached by spot welding to an inner cylindrical steel casing both of which cover moulded brown plastic. The ogival casing has a hole at the top for the wooden hammer. The hole is closed by a brass disc overlapped by the casing. The cylindrical casing is inserted from the base of the ogival portion and attached about half way up the interior. The lower part of the cylinder protrudes and is screwthreaded for insertion in the shell. The plastic interior is in two parts. The large part, forming the centre of the body, is shaped to accommodate the graze and direct action mechanism and has an interior screwthread in the lower portion to receive the moulded plastic base plug. The smaller part of the plastic interior is in the form of a collar which surrounds the cylindrical casing within the ogival portion.

The fuze mechanism consists of a steel graze pellet carrying an igniferous detonator below a needle fitted to an aluminium pellet. The needle pellet is recessed at the base and is held away from the graze pellet by a creep spring and by five pivoted centrifugal segments. The segments are held in engagement with a shoulder on the graze pellet by a spring in the form of an expanding ring and are pivoted on the top of the plastic base plug. The plug is recessed and fitted with an aluminium liner to contain the graze pellet and has a flash hole at the base.

ACTION

The coil of the expanding spring ring is enlarged and the segments swing clear of the graze pellet by centrifugal force during flight. The needle pellet is then held in the forward position by the "creep" resulting from deceleration and is protected from air pressure by the brass sealing disc in the top of the fuze. Forward movement of the graze pellet is prevented by the creep spring.

On graze, the graze pellet sets forward, overcoming the creep spring, and impinges the detonator on the needle. With suitable impact the needle is simultaneously driven towards the graze pellet and direct action is obtained. The flash from the detonator passes through the flash channel in the detonator plug and through the flash hole in the base of the fuze to the gaine beneath. The recess in the base of the needle pellet is apparently designed to fit over the top of the graze pellet and thus prevents the flash being expended in the wrong direction.

1080. GERMAN FUZE A.Z.23 (V. 0,15)
(FIG. 432)

The fuze has a combined graze and direction action with an optional delay of 0.15 second and is used in H.E. shell of equipments as follows:-

Equipment	Shell
F.K. 16 n.A. (7.5 cm)	K.Gr.rot. K.Gr.rot (Bo.Pr.)
l.F.K.18 (7.5 cm)	K.Gr.rot
l.F.H.16 (10.5 cm)	F.H.Gr. F.H.Gr. 38 Stg.
l.F.H.18 (10.5 cm)	F.H. Gr. F.H.Gr. 38 Stg.
10 cm K.17 and 10 cm K.17/04 n.A.(10.5 cm)	F.H. Gr.rot
s.10 cm K.18 (10.5 cm)	10 cm Gr.19
m.10 cm K.K. and m.10 cm. K.T. (10.5 cm)	10 cm Gr.34
15 cm K.18, 15 cm K.39, 15 cm K.(E) and 15 cm K.Mrs.Laf.	15 cm K.Gr.18

The designation "A.Z.23" is stamped above the flange of the aluminium body diametrically opposite to the optional delay setting plug. The period of delay is stamped adjacent to the plug in the form "V. 0,15". To obtain delay the slot in the head of the setting plug is set coincident with the index marks lettered "M" and "V". For action without delay the plug is set to the "0" index.

The weight of the fuze is 15 oz.6 drs. The dimensions are shown on the drawing.

The aluminium body of the fuze is in two parts. The head portion, which is screwed to the lower part, is solid and tapers towards the nose. A channel is formed through its centre to accommodate the wooden hammer and the needle pellet. The channel is closed against air pressure at the top by a brass disc which is secured by a brass collar fitted around a step formed in the nose of the fuze. The head is secured to the lower part by a fixing screw.

The lower portion of the body is tapered above the flange to correspond to the head and is screwthreaded below the flange for insertion in the shell. Near the top it is reduced in diameter and screwthreaded to receive the head and is recessed to accommodate the graze pellet. Another recess, formed in the base, contains the delay holder with a shutter and is screwthreaded to received the magazine. The two recesses are connected by a central flash hole and an inclined flash channel. A radial channel for the optional delay assembly leads from the exterior to the lower recess.

The aluminium needle pellet, fitted with a steel needle, is supported above the graze pellet by a creep spring and by five centrifugal aluminium segments pivoted on the top of the lower portion of the body. The segments are held between the base of the needle pellet and a shoulder on the graze pellet by an expanding spring ring.

The graze steel pellet carries an igniferous detonator supported by a perforated screwed plug.

The delay holder consists of a cylindrical aluminium pellet with a flash channel through the centre and a second channel, displaced from the centre, which contains a delay filling and coincides with the inclined flash channel from the recess containing the graze pellet. A slot formed in the top of the holder to receive the shutter extends to just beyond the central flash channel. At the outer end of the slot the holder is recessed to receive the inner end of a centrifugal bolt forming part of the shutter. A tin disc with perforations corresponding to the channels in the holder is inserted above the holder.

The shutter assembly consists of a copper plate attached to a cylindrical bolt and is contained in the delay setting plug with a spiral spring which tends to retain the shutter in a position to close the central flash channel. The width of the shutter is greater than the diameter of the centrifugal bolt.

The delay setting plug is recessed from the inner end to accommodate the centrifugal bolt and the spiral spring and has two slots to receive the sides of the shutter projecting beyond the bolt. The outer end of the setting plug is closed and has a groove for the setting key. The plug is retained in the fuze body by a screwed securing ring which engages a flange on the plug but does not prevent it being turned in setting.

The magazine contains a pressed perforated pellet of gunpowder weighing approximately 2 drams and has a flash hole in the base closed by a paper disc.

Action

Before loading, the fuze is set for delayed or non-delayed action by means of the setting plug.

During flight the coil of the expanding spring ring is enlarged and the segments swung clear of the graze and needle pellets by centrifugal force. The needle pellet is then held in the forward position by "creep" whilst the graze pellet is held back by the creep spring. The action of the shutter is governed by the setting plug. With the plug set to "O", the slots at its inner end are aligned with the projecting sides of the shutter and permit the centrifugal bolt to move outwards, taking with it the shutter and exposing the central flash channel in the delay holder. With the plug set in alignment with the "M" and "V" markings, the slots in its inner end are not in a position to receive the protruding sides of the shutter. The movement of the shutter and bolt is thus prevented and the shutter remains closed.

. . . On graze, the graze pellet moves forward, compressing the creep spring, and impinges the detonator on the needle. With suitable impact, the hammer and striker pellet are driven in as the graze pellet moves forward and a more rapid action is obtained.

The flash from the detonator ignites the delay composition in the delay holder through the inclined flash channel and, if the shutter has opened, at the same time passes through the central flash hole and explodes the powder pellet in the magazine. With the fuze set for delay action, the central flash hole is masked by the shutter and the explosion of the magazine filling is brought about by the delay composition.

1081. GERMAN BASE FUZE, SKODA B.Z.15

(FIG.433)

A gaine with a different filling to that described in Bulletin No.36, Item 886, has been found in the Skoda 15 base fuze in the 3.7 cm A.P.C. shell. Details of the filling are shown in the drawing.

1082 GERMAN BASE FUZE (SKODA 15) FOR 4.7 cm Pak (t) AND Pak K.36 (t) A.P.C.SHELL

(FIG.434)

The fuze is used in the 4.7 cm A.P.C. shell of Czech origin, also described in this Bulletin, and differs from that described for the 3.7 cm A.P.C. shell in Bulletin No.36, Item 886, mainly in the addition of a delay sealing plug.

The steel needle pellet and creep spring are contained with the detonator in a cylindrical holder which is screwed into the base of the steel head of the fuze. The head contains the delay arrangement and, at its forward end, carries the gaine.

The delay arrangement consists of a sealing plug which closes the flash hole leading to the gaine and a filling of gunpowder which surrounds the plug. The cylindrical plug has a pintle and copper washer at the top to seal the flash hole and a flange near the base. The clearance between the flange and the wall of the recess in which the plug is contained is 0.015 inch. Below the flange there are four radial channels leading to a recess in the base of the plug.

Action

During flight, the needle pellet with the two steel locking balls, moves forward as the result of deceleration until the balls are in a position to be thrown outwards by centrifugal force. The needle is then held off the detonator only by the creep spring.

On impact, the needle pierces the detonator and, at the same time, the sealing plug sets forward and seals the flash hole leading to the gaine. The flash from the detonator enters the recess in the base of the plug and, passing through the radial channels, ignites the gunpowder. The pressure set up by the ignition of the gunpowder behind the flange presses the plug firmly into the flash hole above. The combustion of the gunpowder leaves the pellet unsupported and leads to the ignition of the gunpowder in front of the flange through the small clearance between the flange and the wall of the recess. The resultant pressure acting on the front of the flange pushes the sealing plug back into the recess in the forward end of the mechanism holder and thus opens the flash hole leading to the gaine.

1083. GERMAN 4.7 cm Pak (t) and Pak K.36 (t) CARTRIDGE Q.F., H.E. OF CZECH ORIGIN.

(FIG. 435)

One type of this 4.7 cm fixed Q.F. round is described in Bulletin No.26, Item 461. Details are now available of another type of this round, which is of Czech origin.

Markings and Weight

The shell is known both wholly unpainted, or in the standard German olive green shade. These markings are shown on the drawing. The total weight is approximately 6 lb.

Shell

The shell is of forged steel the nose being formed by the "bottling" process. The cavity is unmachined except for an internal

thread provided at the nose to receive the fuze. The driving band is wholly of copper, and no base plate is fitted. The total weight of the filled and fuzed shell is 3 lb. 5 oz.

Bursting Charge

The bursting charge consists of 6 oz. 5 drs. cast T.N.T. having a central exploder cavity.

Exploder.

The exploder consists of 4 pellets of pressed T.N.T. of total weight 8 drs. fitting into the cavity of the filling.

Fuze

The fuze is of the type described in Bulletin No.26, Item 461.

Cartridge Case.

The cartridge case is similar in all respects to that described in connection with the 4.7 cm A.P.C. shell in this Bulletin.

Propellant

The propellant is similar in constitution to that described in connection with the 4.7 cm A.P.C. shell in this Bulletin, but differences in charge weight and the size are as follows.

Charge weight	242 grams - 8 oz. 9 drs. approx.
Size	(0.6 x 6 x 320) mm. - (.022 x .24 x 12.6) inches

Primer.

The primer No VZ 33 is described in Bulletin No.36, Item 887.

1084. GERMAN 4.7 cm Pak (t) and Pak K 36 (t) CARTRIDGE, Q.F. A.P.C. OF CZECH ORIGIN.

(FIG. 436)

The fixed Q.F. round is fired from the 4.7 cm anti-tank guns of Czech origin. The length of the complete round is 20.5 inches and the weight, 6 lb. 14 oz. 6 dr. The penetrative cap, which is black, is tapered towards its nose where it is circular and rises slightly to a point at its centre. The body is not painted and only a narrow strip of the driving band is visible at the mouth of the case. The letters "T.T." are stencilled in red on the body to indicate a bursting charge of pressed T.N.T. The serial and filled lot markings are also stencilled in red, below the "T.T." marking. The brass cartridge case is approximately 16 inches in length and is very slightly necked. The designation "4 cm VZ 36" is stamped in the base of the case which is also stencilled "1/10 320 P.P. VZ 36" in black. These markings indicate the size, shape and nature, respectively, of the propellant.

Rounds of more recent manufacture have the shell, as well as the cap, painted black and red stencilling in accordance with the German system. With these rounds, the case is stencilled on the side in black to indicate the equipments, the weight of the propellant charge, the size, shape and designation of the propellant and places and dates of manufacture and filling. The following is a typical example of the stencilling:- "4.7 cm Pak (t), 4.7 cm Pak K36 (t), 436g, 1/10/320 Str.P M36, sem. 1940/3, pla 26.5.1941." The usual red stencilling, "P.T. + 25°C", indicating that the charge weight is based on a standard charge temperature of 25°C, is found above the flange. The German abbreviation for piercing projectiles, "Pzgr", is stencilled in white on the base of the case.

The complete round consists of the following components :-

(a) Armour piercing shell fitted with a penetrative cap and filled T.N.T.

(b) Base fuze fitted with a gaine.

(c) Brass cartridge case, "4 cm VZ 36" or "4.7 cm M36".

(d) Propellant charge of double base composition in the form of strips and a decoppering agent.

(e) Long percussion primer, VZ 33 dv or M40 dv.

Shell

The steel body is machined from rolled bar and has a hardened head. The V.D.Hardness figure for the head average about 850. The cavity for the bursting charge is small, leaving a practically solid head, and is closed at the base by the fuze which has an adapter screwed in above it and a copper washer in front of the flange. The copper driving band has three cannelures and is bigger in diameter in front of the first cannelure. When assembled in the case, the mouth of the case is coned into this cannelure and only the high diameter part of the band is visible.

The steel cap, which is hardened throughout, is machined from bar and is attached by a soldering process. The average V.D. Hardness figure is about 625.

The weight of the empty shell is 3.3 lb.

The bursting charge has a weight of 10.5 drams and consists of two pressed pellets of T.N.T. contained in a cardboard carton. The upper pellet is solid. The lower pellet is annular and contains a brass liner which receives the gainefitted to the fuze. The carton is closed at the base by a cardboard washer and has a block of the bakelite type at the nose which occupies the small end of the cavity. A brass collar is screwed into the fuze hole below the bursting charge. The weight of the shell, filled and fused, is 3 lb. 10 oz. 7 dr.

Fuze

Details of the fuze and its gaine are included in this Bulletin.

Cartridge Case.

The brass case is 15.93 inches in length and has a very slight shoulder, formed by an increase in taper, near the mouth. The primer hole is screwthreaded to a diameter of .66 inches.

Propellant Charge

The charge consists of flexible strips of a light brown colour with a glossy surface. A paper label, attached to the charge, reads "445g. 1/10/320 P.P. VZ.36 S.4/36". These details refer to the charge weight; size of the strip in millimetres, shape and designation of the propellant and the lot identification marking. The dimensions of the strip in inches are :- length 12.6, breadth .39, thickness .04. The weight of the charge examined was 15 oz. 3 dr. The propellant consists of 64.37 per cent of nitrocellulose (nitrogen content 12.3 per cent), 29.55 per cent of nitroglycerine and 6.08 of centralite.

The decoppering agent is a metal strip weighing 25.8 grains with the dimension 3.9 x .24 x .014 inches. The metal consists of 61.3 per cent of tin and 38.7 per cent of lead.

The stencilling "Str.P" on the side of the cases of rounds of more recent manufacture, is the German abbreviation for strip propellant. The original Czech designation of the propellant, "VZ 36" has apparently been changed to "M36".

Primer

A description of the long percussion primer, VZ 33 dv. is included in Bulletin No.36, Item 887.

1085. GERMAN 10.5 cm l.F.H.18 H.E. CAST STEEL SHELL (F.H.Gr. 38 Stg.)

(FIG. 437)

This shell is fired from the 10.5 cm gun-howitzer. The filled and fuzed shell weighing 33 lb. 1 oz. is painted the usual deep olive green and is stencilled with the H.E. numeral "13" indicating Amatol 40/60 and the abbreviation "Stg" indicating cast steel.

Shell

The streamlined shell is an annealed steel casting, machined externally overall. The cavity surface is unmachined except for provision of an internal thread at the nose to receive the exploder container and fuze.

The exploder container which is 2.9 inches deep, consists of a drawn steel cup pressed into a threaded collar.

The single driving band is of the bi-metallic type, no base plate is fitted. The empty shell and exploder container weigh 28 lb.

Bursting Charge

The shell is direct filled with 3.81b. cast 40/60 amatol. The central exploder cavity is 6.5 inches deep with a 1 inch diameter and carries below the exploder container, an 85 grain cardboard smoke box. This is unnumbered and contains 2 oz. 10 drs smoke mixture of the following composition -

Red phosphorus	-	85.4%
Paraffin Wax	-	11.6%
Magnesium phosphates	-	2.9%

Fuze and Gaine

The A.Z.23 fuze with an optional delay of 0.25 of a second used with this shell is described in Bulletin No.7, Item 67.

The C/98.Np. gaine is described in Bulletin No.32, Item 669.

1086 GERMAN 17 cm K.Mrs. Laf. Q.F. CARTRIDGE

(FIG. 438 & 439)

The cartridge is used in the 17 cm K.Mrs.Laf. (17.25 cm gun-howitzer mounted on the 21 cm high angle semi-mobile carriage) and consists of the case with a percussion primer of the C/12 type and the propellant charge in five sections. Only one of the sections (the Haupkart) is contained in the case when packed, the remainder being packed in metal cylinders. The sections provide four charges but are marked with abbreviated designations instead of the usual charge section numerals. These markings are also found on the packages. The designations used are as follows:-

Section 1	Sonderkart.1
Section 2	Sonderkart.2
Section 3	Haupkart
Section 4	Vorkart.3
Section 5	Vorkart.4

The combinations of sections to provide the four charges are as follows:-

Charge 1. Sonderkart.1 in the case alone.
Charge 2. Sonderkart.1 with Sonderkart 2 extending down one side. Both sections in the case.
Charge 3. Vorkart.3 loaded into the front of the chamber and followed by the Haupkart contained in the case.
Charge 4. Vorkart. 3 with Vorkart 4, contained in its central tube, loaded into the front of the chamber and followed by the Haupkart contained in the case.

Charges 1 to 3 (inclusive) are used with the H.E. streamlined shell "Gr 39" fuzed with the A.Z.35K or Dopp.Z.S/90K fuzes. Charge 4 is used with the H.E.B.C. streamlined shell "Gr.38 (Hb)" fuzed with the Hb.gr.Z.35K or the Dopp.Z.S/90K fuzes.

The case is stamped at the base with the model number 6342 and the designation of the equipment, "17 cm K.Mrs.L".

Propellant Charges

The propellant is of the Digl. double base type consisting basically of diethylene glycoldinitrate and nitrocellulose. The weight, nature and size used in the sections, as indicated by the markings, are :-

Section	Weight Kilo-grams	Nature, shape and Size.	Weight lb. oz. dr.	Size in Inches Length	External dia.	Internal dia.
1 (Sonderkart 1)	14.980 Kg.	Digl.R.P. - G2 - (980 - 7/4,2)	33 0 5	38.6	0.276	0.165
2 (Sonderkart 2)	4.890 Kg.	Digl. R.P. -G2 - (980 - 7/4,2)	10 12 8	38.6	0.276	0.165
3 (Haupkart)	16 Kg.	Digl. R.P.-G2,5- (660 - 7,6/3)	35 4 8	26	0.299	0.118
4 (Vorkart 3)	12.950 Kg	Digl.R.P.-62,5- (660 - 7,6/3)	28 8 14	26	0.299	0.118
5 (Vorkart 4)	1.350 Kg.	Digl. R.P.-G2,5- (660 - 7,6/3)	2 15 10	26	0.299	0.118

The weights of the propellant charges, as stencilled on the bags, vary considerably and are apparently adjusted charge weights based on the performance of the propellant lot at proof.

Construction of Charge Sections

Section 1 (Sonderkart.1) is approximately 40 inches in length and consists of a bundle of tubular cords of propellant contained in a white cylindrical bag. The bag is choked at the front end and carries an igniter at the base. The igniter contains approximately 100 grams of Nz.Man.N.P. (1,5 - 1,5). This is the nitrocellulose powder, in the form of cylindrical grains, normally used in German igniters.

Section 2 (Sonderkart.2) is the same length as Sonderkart 1 and consists of five comparatively small bundles of tubular cord propellant contained in separate pockets formed in a white rectangular bag. The bag is sewn from top to bottom with parallel rows of stitching to form the five pockets, the central pocket being the widest. In appearance the filled bag is similar to a cricketer's leg pad and when required for use is assembled around one side of Sonderkart 1 in a similar manner and inserted in the case. This section has no igniter.

Section 3 (Hauptkart) is approximately 26 inches in length and consists of a bundle of tubular cord propellant assembled around a central propellant cylinder and contained in a whit. cylindrical bag. The central cylinder of propellant extends through the length of the bundle and has an external diameter of 1.4 inches. The internal diameter is 1.2 inches. An igniter containing 80 grams of NZ.N.P. (1,5 - 1,5) is stitched to t. base of the bag.

Section 4 (Vorkart 3) is approximately 27.2 inches in length and consists of a bundle of tubular cord propellant assembled around a central propellant cylinder and contained in a white cylindrical bag. The central cylinder of propellant extends through the length of the bundle and has a large cork disc, in the form of a washer, placed over its front end which protrudes from the bundle. The external and internal diameters of the cylinder, which accommodates Section 5 (Vorkart 4) when the latter is used, are 2.75 inches and 2.5 inches respectively. The bag has an igniter containing approximately 40 grains of NZ.Man.N.P.(1,5 - 1,5) at the base and is choked at the front end. Near this end the bag is marked "VORN" to indicate that the section should be loaded with this end to the front.

Section 5 (Vorkart 4) is approximately 26 inches in length and consists of a small bundle of tubular cord propellant contained in a white cylindrical bag of comparatively small diameter. The choke at the forward end of the bag is marked "4". There is no igniter. This section is inserted into the propellant cylinder in Vorkart 3 when used.

The bag of each section is stencilled in black to indicate the designation of the section and the equipment, the weight, nature and size of the propellant charge, the place and year of manufacture of the propellant and the place, lot, month and year of filling. Sections suitable for use in hot climates are marked in red "AUCH FUR TROPEN" or "FUR TROPEN P.T. + 25°C."

Cases.

Three types of case are known to be used. These are 28.5 inches in length and taper from 7.8 in front of the flange to 7.4 inches at the mouth. The first is a solid drawn brass case with the model number 6324 stamped in the base. The second type is a steel case of similar construction to the first. This case may be coated with brass or be rustproofed and has the letters "St" after the model number.

The third type is a built up case of steel and is of unusual design. The case consists of a coiled body which is attached to the base by a retaining plate and screwed collar assembled on the primer boss. The body is formed from a four sided sheet of steel which is shaped and coiled so that there are three and a quarter turns at the base end and only about one and a quarter at the mouth. This is apparently intended to give the case greater strength at the base. One edge of the coiled sheet forms an inclined overlapping joint extending along the length and partially round the body. A layer of black wax is used between the overlapping coils presumably to assist in waterproofing. At the base end the coiled wall is turned inwards to form a curved internal flange corresponding to the upper side of the steel base. The body is made from low carbon rimming steel and has a Vid hardness figure increasing, rather irregularly, from 105 near the base to 133 at the mouth.

The steel base has the usual external flange or rim and primer hole. The primer boss is screwthreaded externally to receive the screwed steel collar which bears on the steel retaining plate fitting around the boss and overlapping the internal flange on the body.

The retaining plate is circular with a central hole to fit over the primer boss and has two circular grooves near its circumference where its curved upwards to correspond with the flange on the body. A cardboard disc with its surface covered with black wax is inserted beneath the retaining plate to seal the joint. The stamping in the base of the case includes the model number "6324/78C" and the designation "17 cm K.Mrs.L". Four equally spaced circular recesses are formed in the base for purpose of assembly.

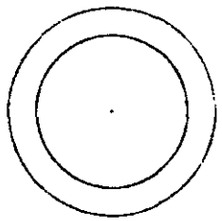
Packing.

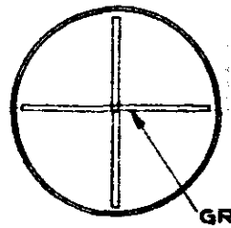
The case and charge sections are packed as follows:-

Charge Section etc.	Quantity	Package	Weight
Sonderkart.1 and 2	1 of each	Cylinder	61 lb.
Haupkart in case	1	Cylinder	84 lb.
Vorkart.3	1	Cylinder	43 lb.
Vorkart.4	24	Box	134 lb

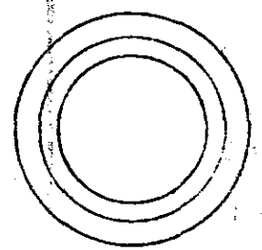
FIG. 417. (ITEM 1039)

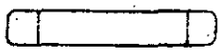
TRACER, Nº. 17, MK. II. METHOD OF CLOSING TRACER CAVITY.





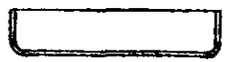
GROOVES FORMED TO GIVE A WEAKENING EFFECT.





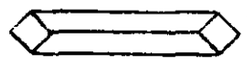
SECTION.

(1.) WASHER, STEEL.



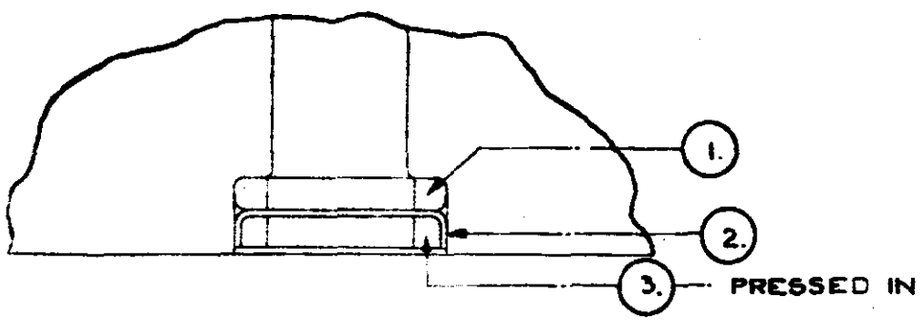
SECTION

(2.) CUP, BRASS.



SECTION.

(3.) WASHER, DIAMOND:- STEEL.

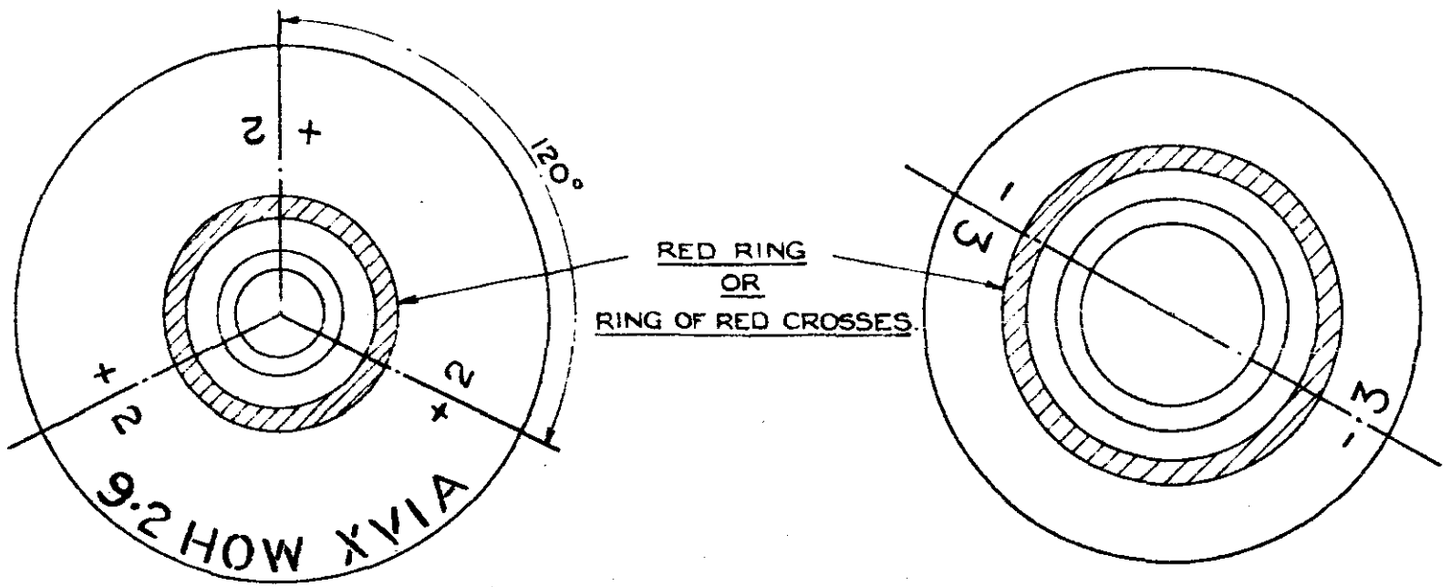


CAVITY CLOSING ASSEMBLY.

FIG. 418 (ITEM 1041)

WEIGHT MARKING ON FILLED SHELL.

POSITION OF WEIGHT MARKING ON NOSE OF SHELL.



ABOVE 6 INCH.

6 INCH AND BELOW.

R4313

FIG. 419 (ITEM 1043)

SHELL, Q.F., H.E., 95mm. MK. I A.

(M. of F. D.D. (L) 17865.)

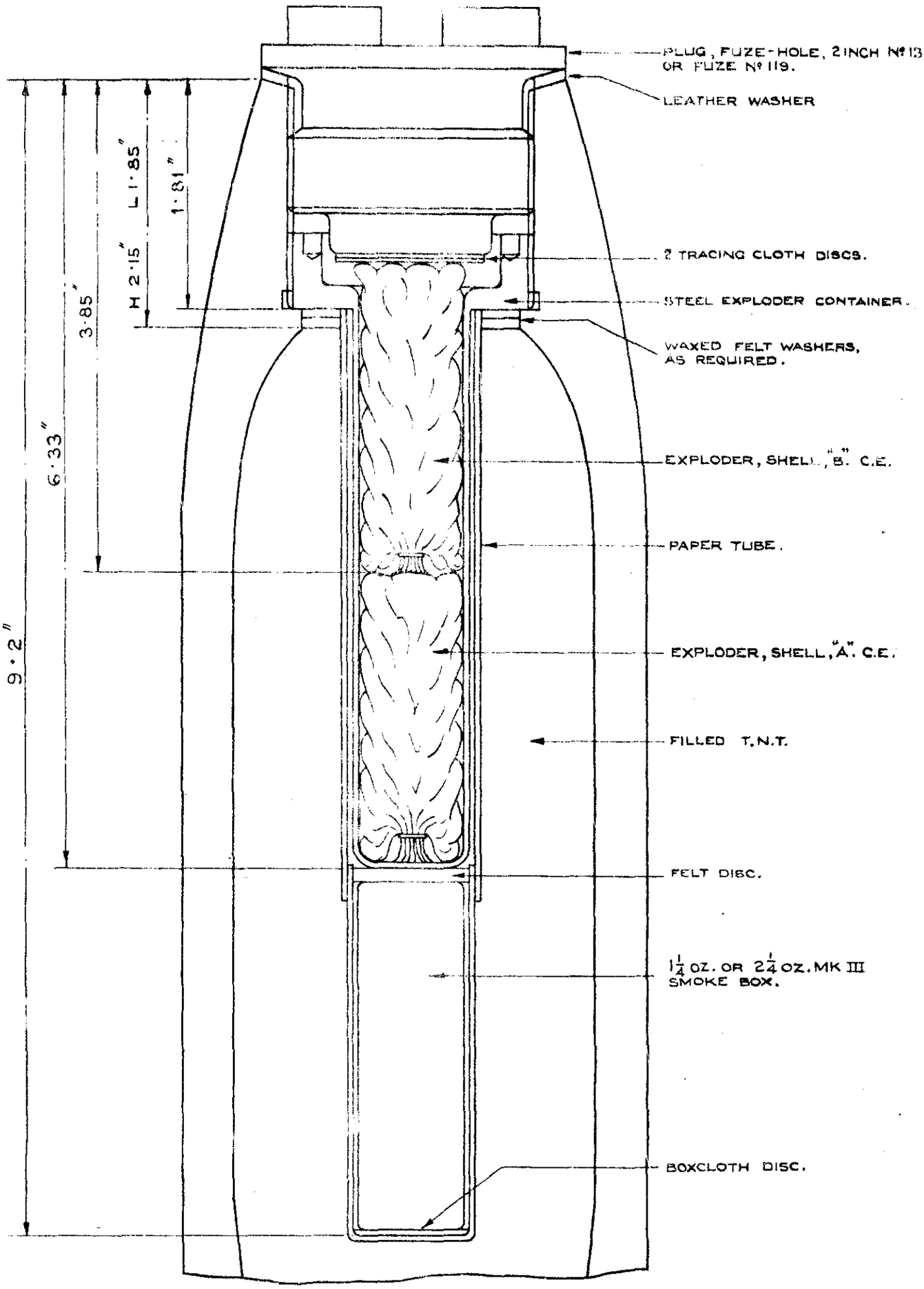
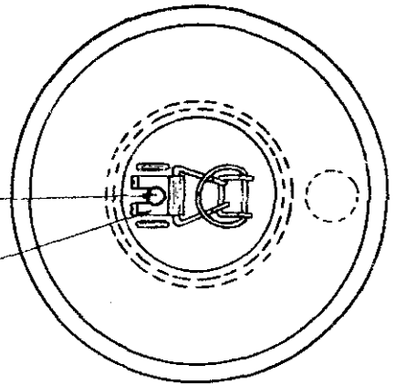
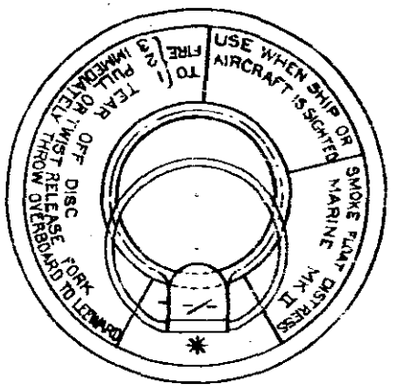
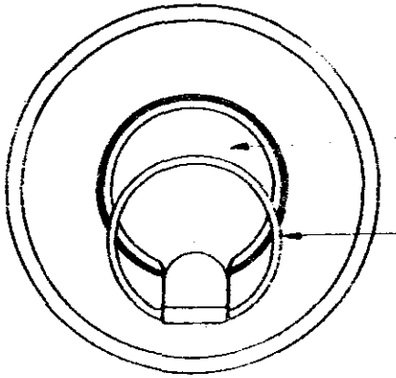


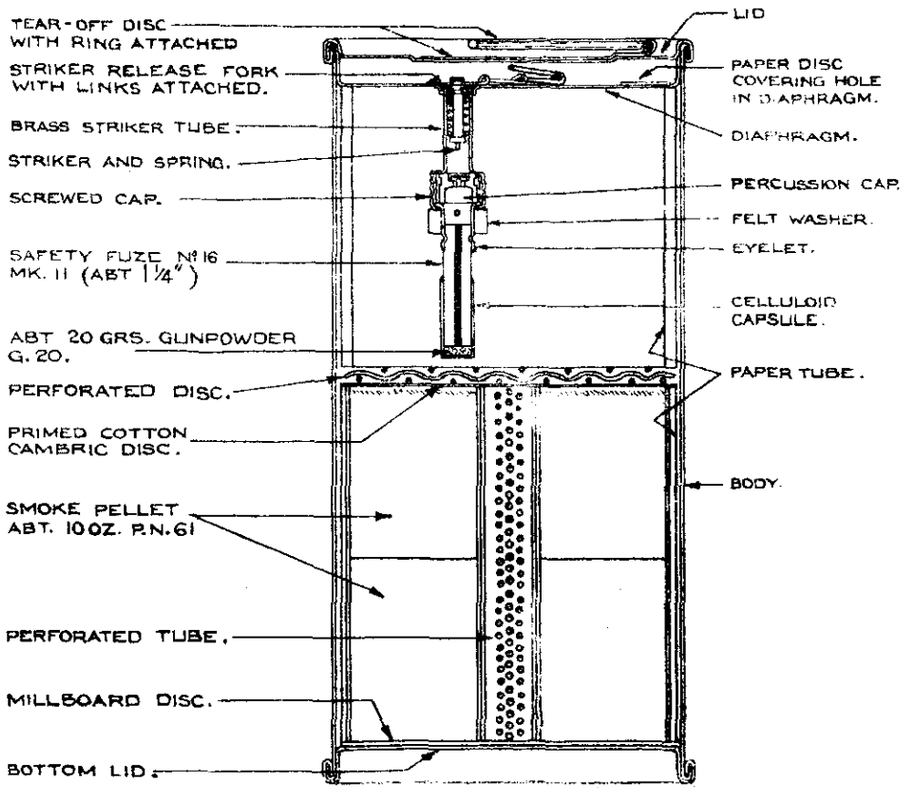
FIG. 420. (ITEM. 1048.)
SMOKE FLOAT, DISTRESS MARINE, MARK II.

VIEW WITH TEAR-OFF DISC REMOVED.









LID MARKING.

-/- DATE OF MANUFACTURE. (MONTH AND YEAR)

✱ CONTRACTOR'S INITIALS OR RECOGNISED TRADE MARK.

MARKING ON BASE:-

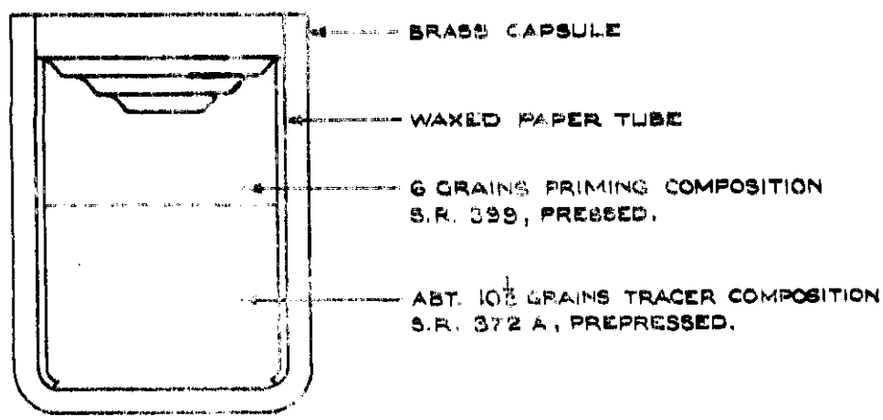
CONTRACTOR'S INITIALS OR RECOGNISED TRADE MARK.

LOT NUMBER.

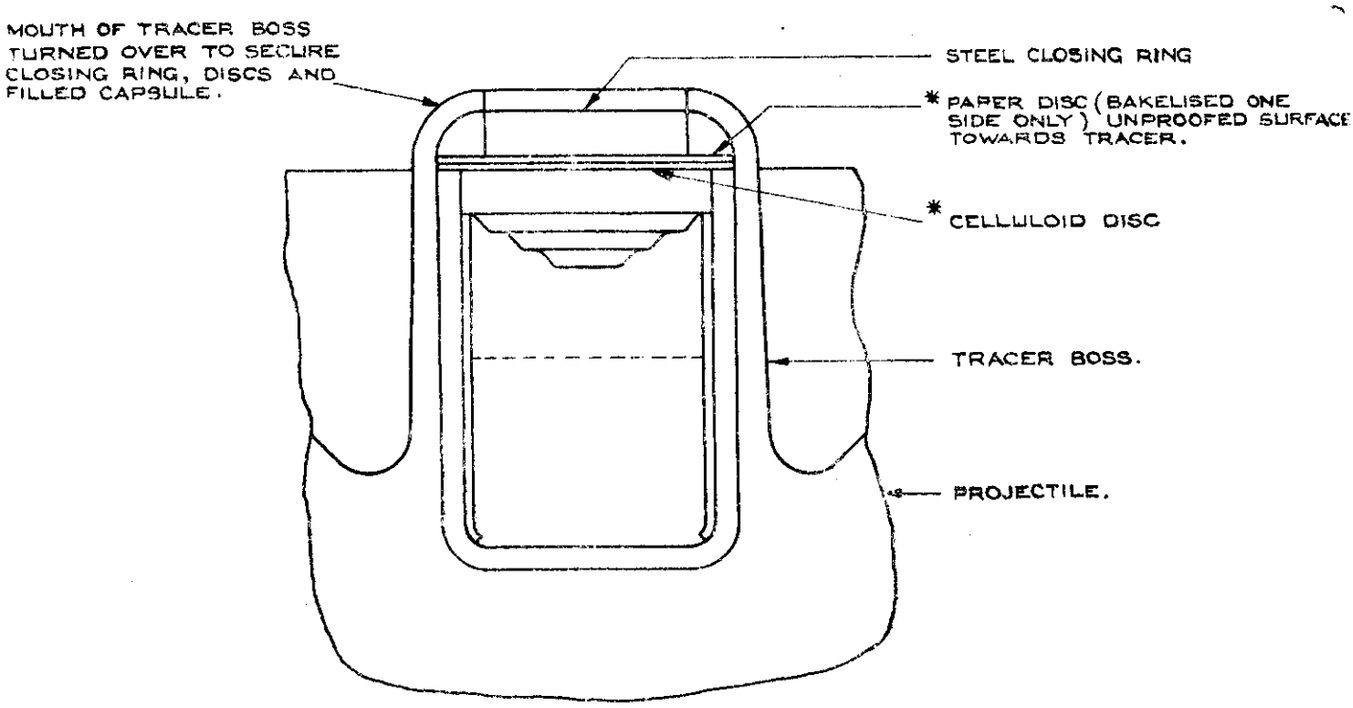
DATE OF FILLING.

MONOGRAM OF FILLING STATION OR FILLING CONTRACTOR'S INITIALS OR RECOGNISED TRADE MARK.

FIG 421 (ITEM 1049)
TRACER, SHELL, Nº 21. MK I



METHOD OF SECURING.



* DISCS SECURED TO EACH OTHER AND FILLED TRACER CAPSULE WITH APPROVED CEMENT BEFORE INSERTION.

FIG. 422 (ITEM 1057). SIMULATOR, R.F. { 10 MIN. / ½ HOUR. / 2 HOURS. } MK. I.

FILLED.

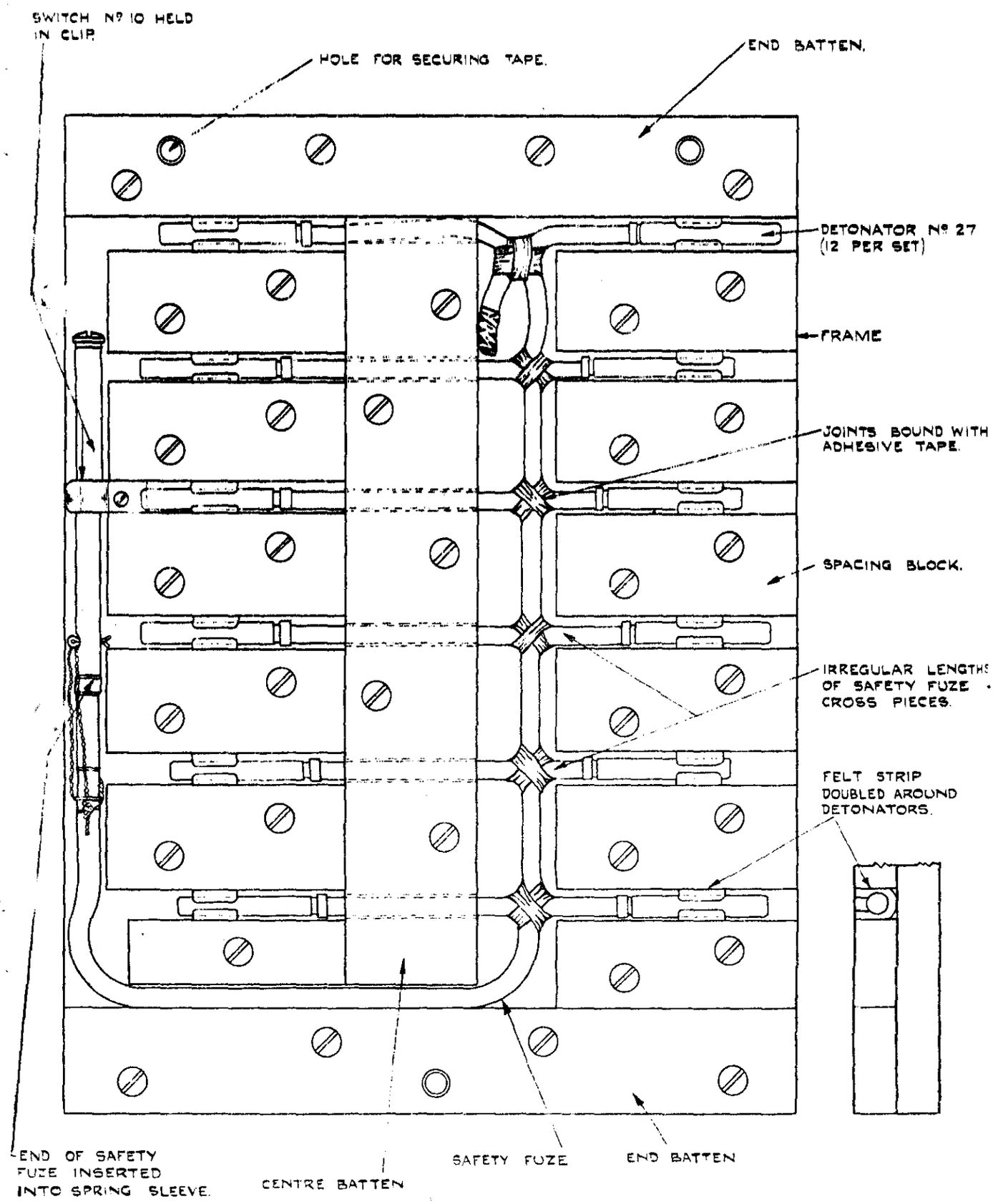
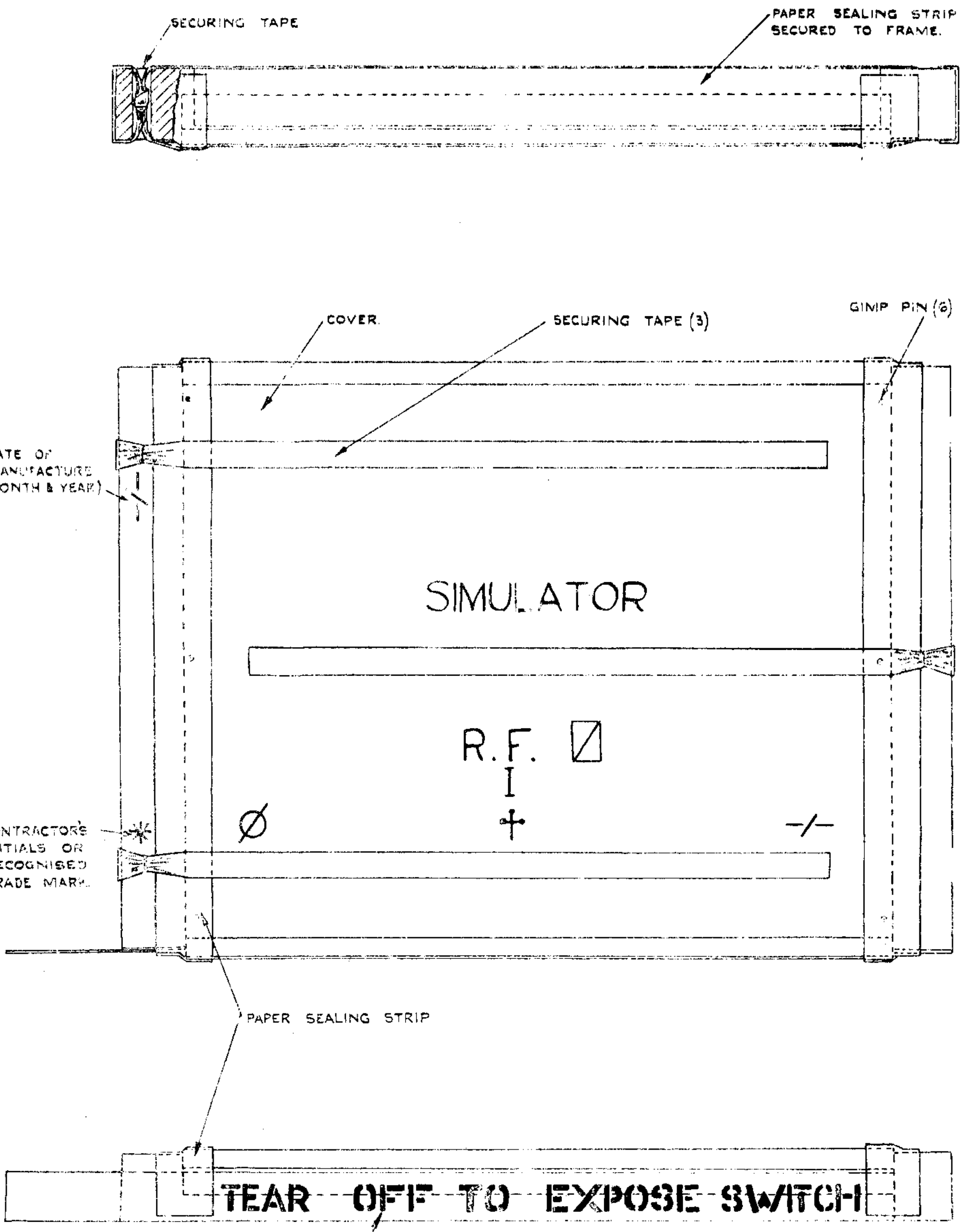


FIG. 423 (ITEM 1057) SIMULATOR, R.F. {10 MINUTE / ½ HOUR / 2 HOURS} MK. I

ASSEMBLY



FILLED MARKING ON COVER.

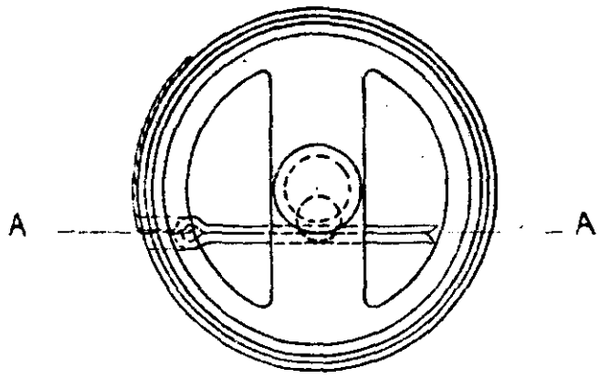
Ø MONOGRAM OF FILLING STATION OR CONTRACTORS INITIALS OR RECOGNISED TRADE MARK

LOT NUMBER

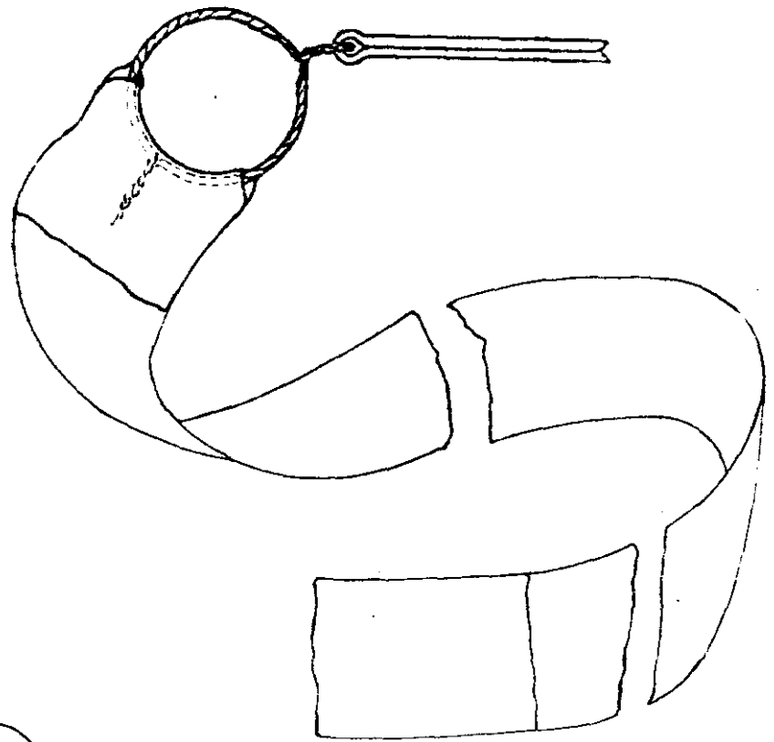
DATE OF FILLING (MONTH & YEAR)

R4313

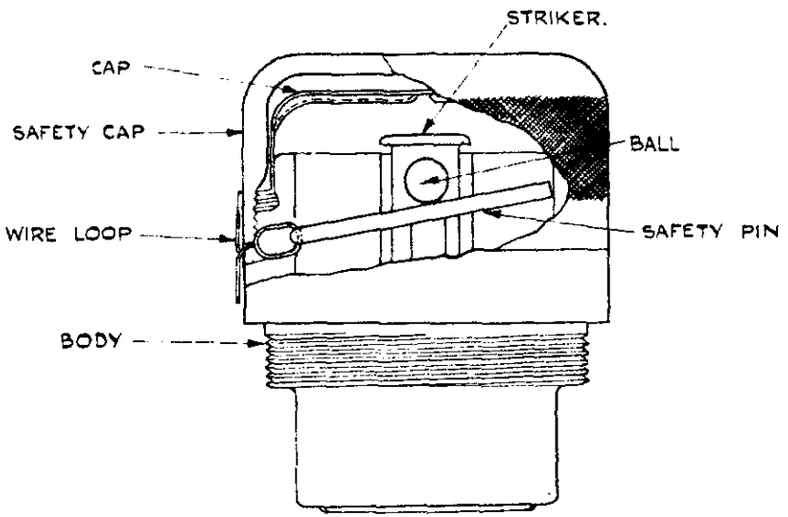
FIG. 424 (ITEM 1058) MODIFICATION TO FUZE, PERCUSSION, D.A. Nº 151 TO PERMIT AIR DROPPING



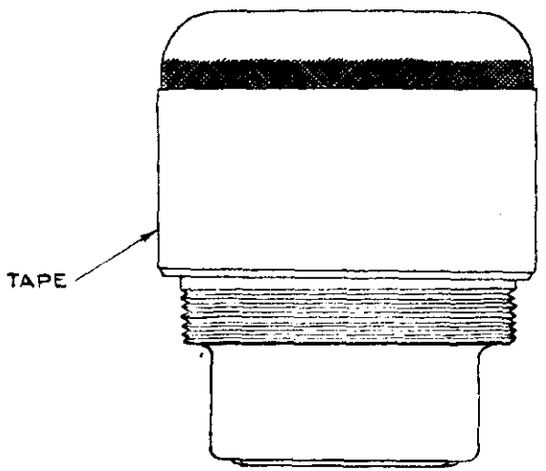
PLAN WITH CAP & SAFETY CAP REMOVED



ASSEMBLY OF SAFETY PIN, STEEL WIRE & ADHESIVE TAPE.



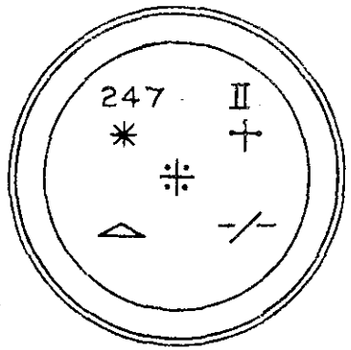
PART SECTION ON AA



OUTSIDE VIEW SHOWING TAPE IN POSITION

FIG. 425 (ITEM 1064)
FUZE, PERCUSSION, No. 247 MK II.

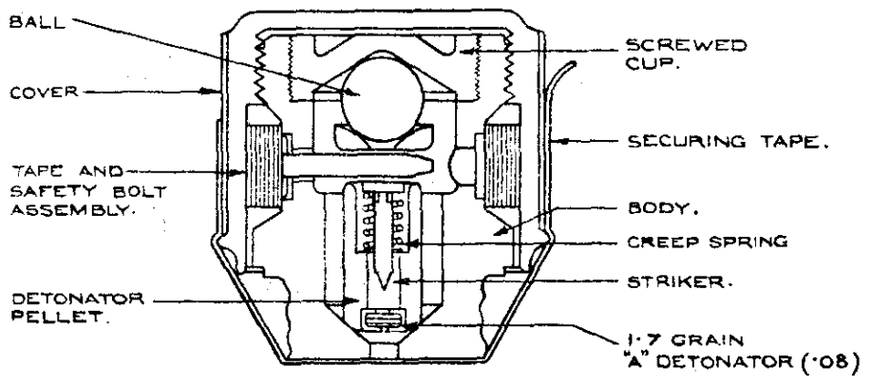
PLAN

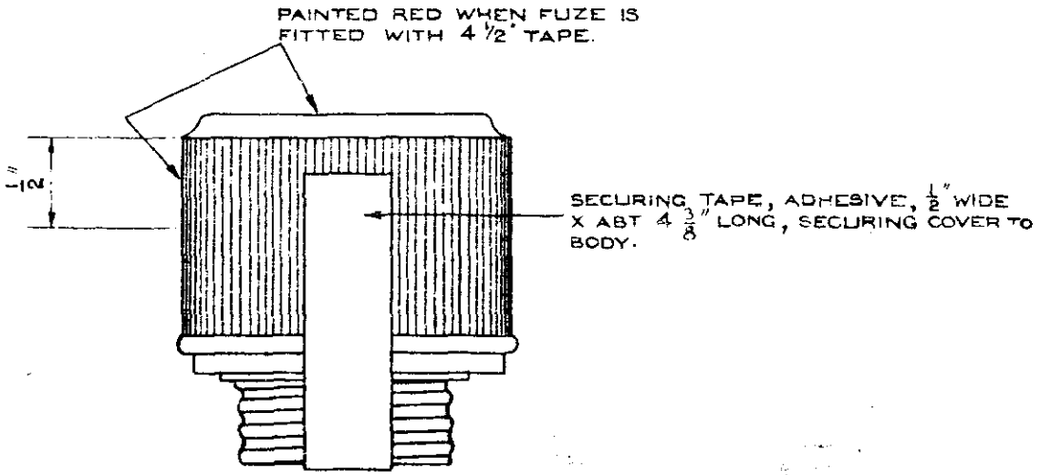


MARKING:— No. AND MARK.

- ✳ CONTRACTOR'S INITIALS OR RECOGNISED TRADE MARK.
- ⊹ YEAR OF MANUFACTURE.
- ⁜ FILLED LOT NUMBER.
- △ FILLING CONTRACTOR'S INITIALS OR MONOGRAM OF FILLING STATION.
- —/— DATE OF FILLING (MONTH & YEAR.)

SECTION.



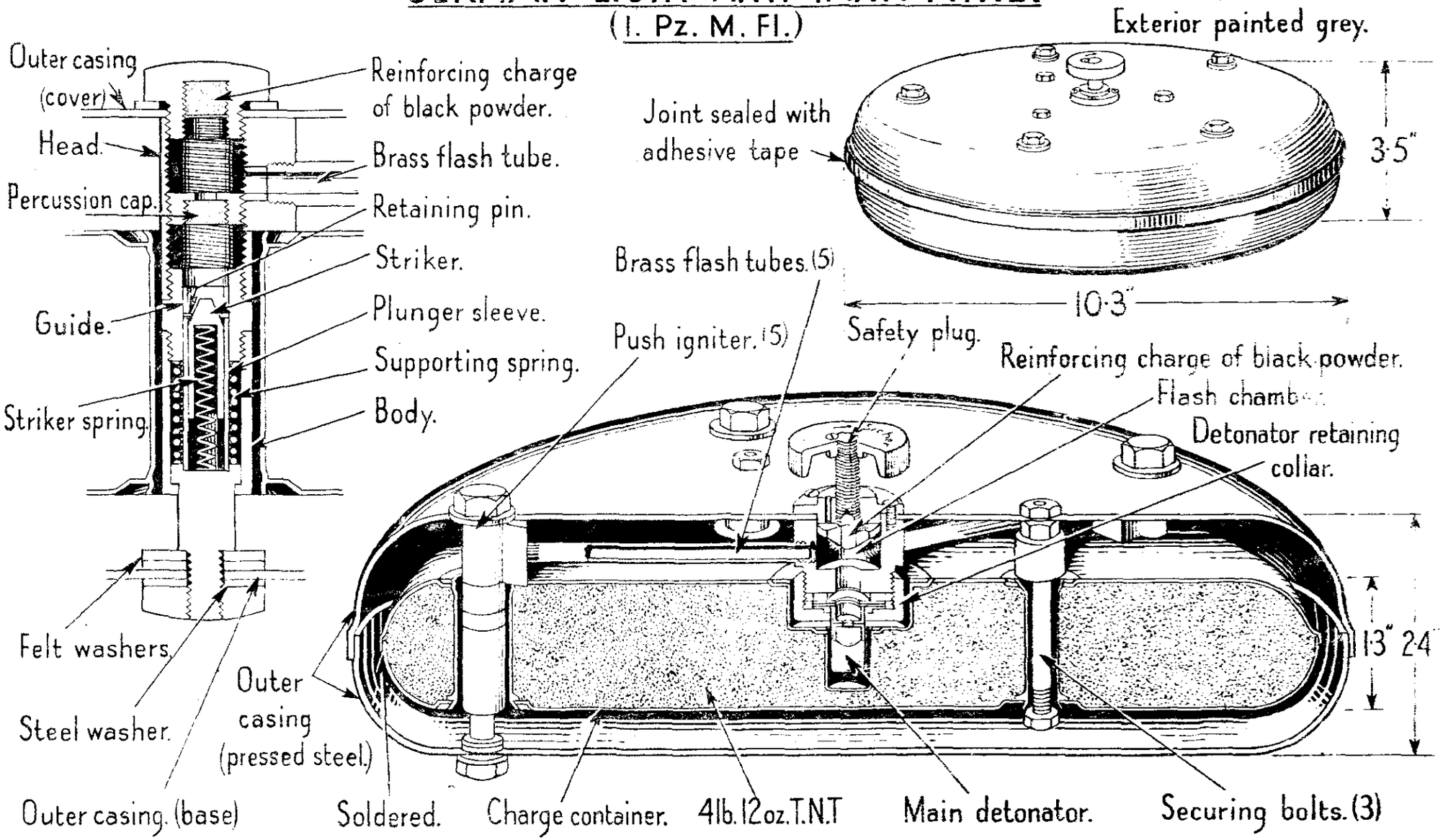


R4313.

GERMAN LIGHT ANTI-TANK MINE.

(I. Pz. M. Fl.)

Fig. 426. (Item 1073)

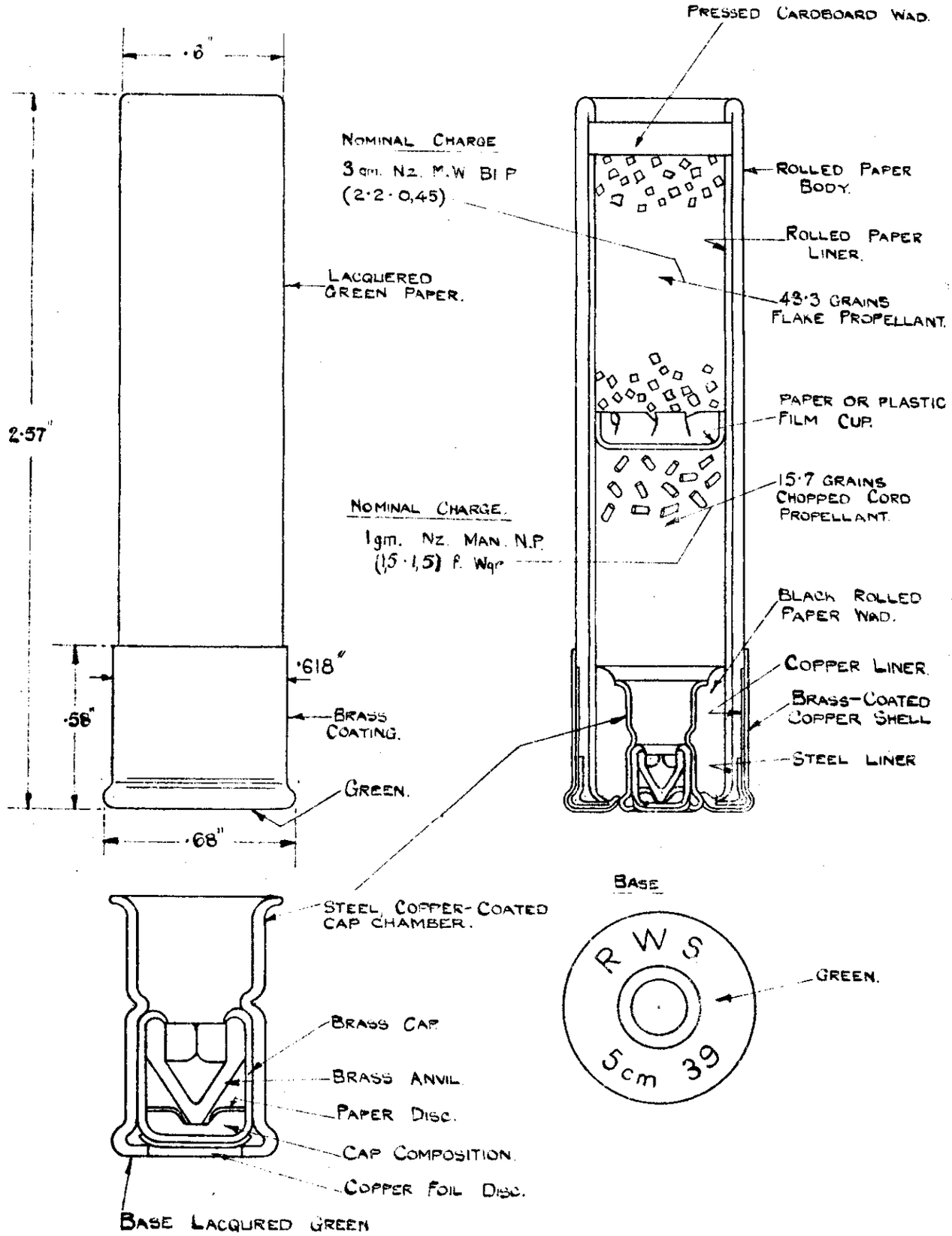


R4313.

GERMAN 5 cm MORTAR CARTRIDGE WITH FULL CHARGE.

5cm. Wgr. Patr. 39 (gr. Ldg.)

Fig. 427 (Item 1074)

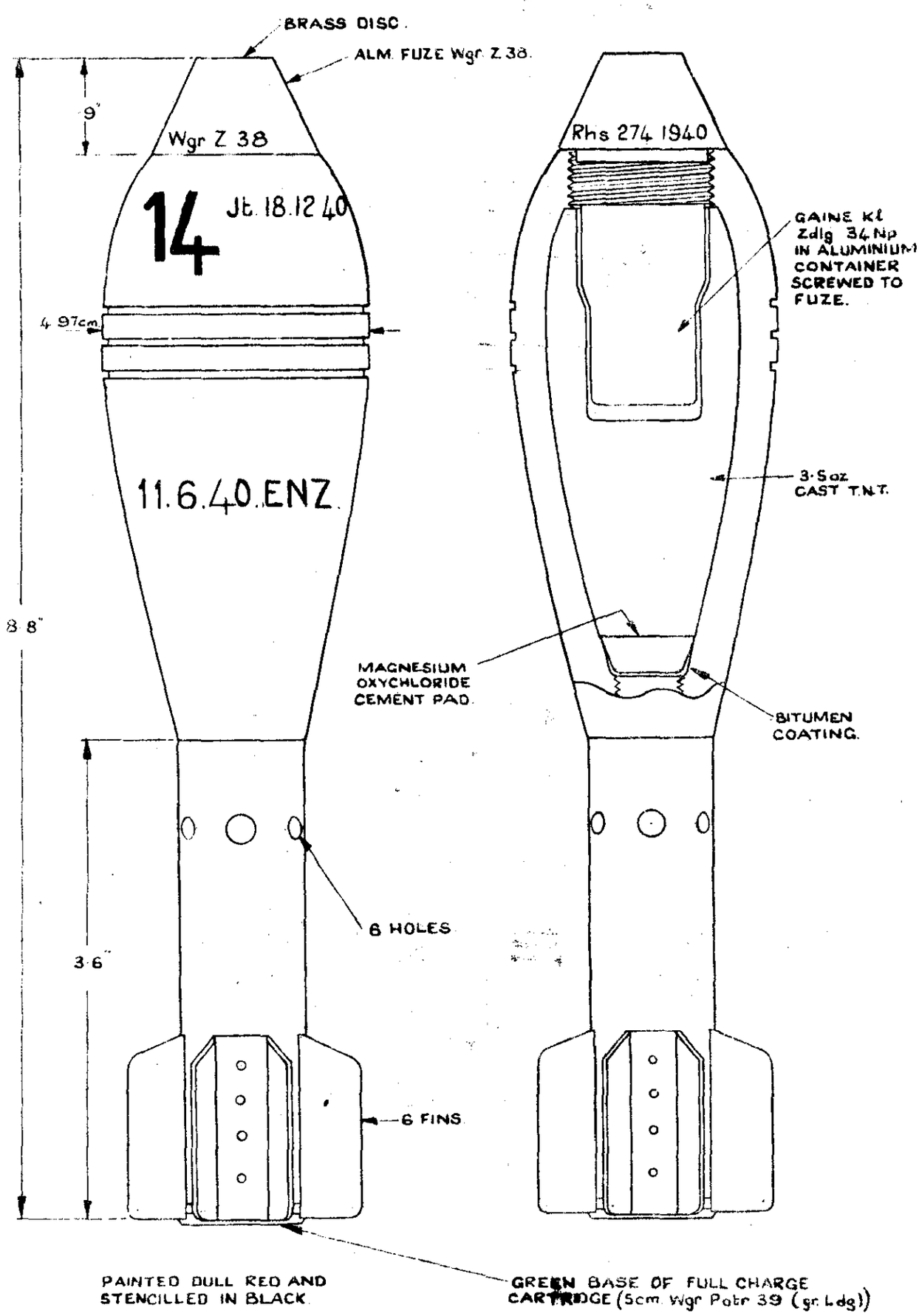


GERMAN 5cm H.E. MORTAR BOMB.

(Wgr 36 m Wgr Z.38 for 1 Gr W. 36 (5cm))

Fig. 428. (Item 1075

WEIGHT COMPLETE 1lb 15 oz. 6dr.

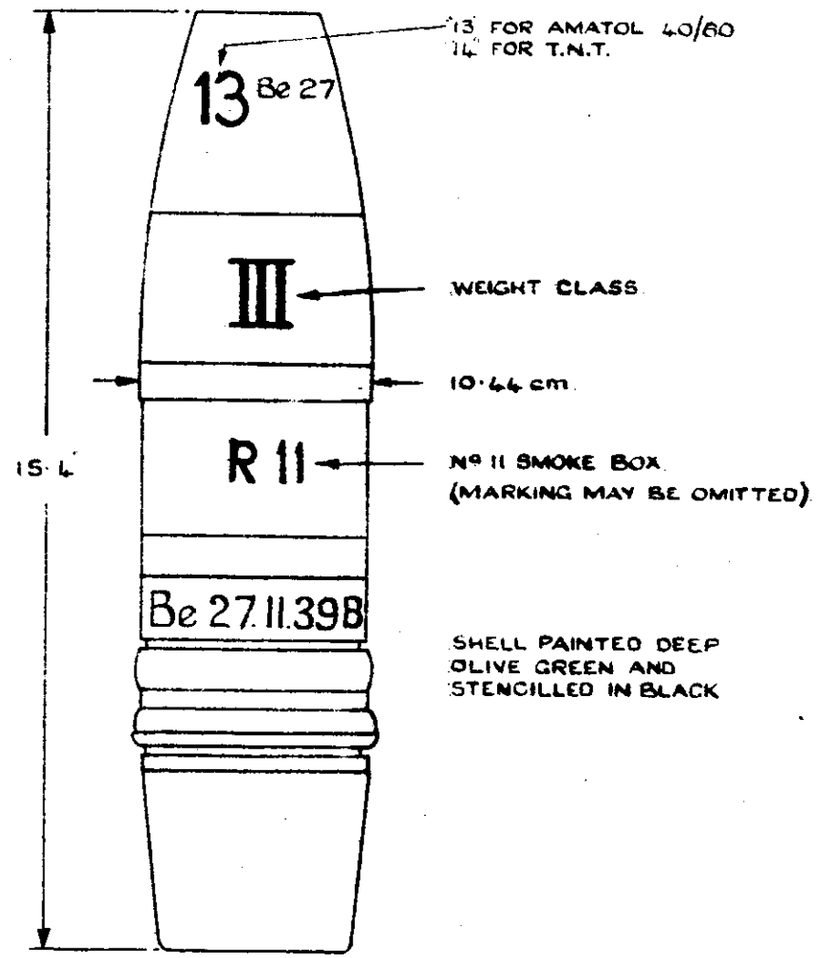


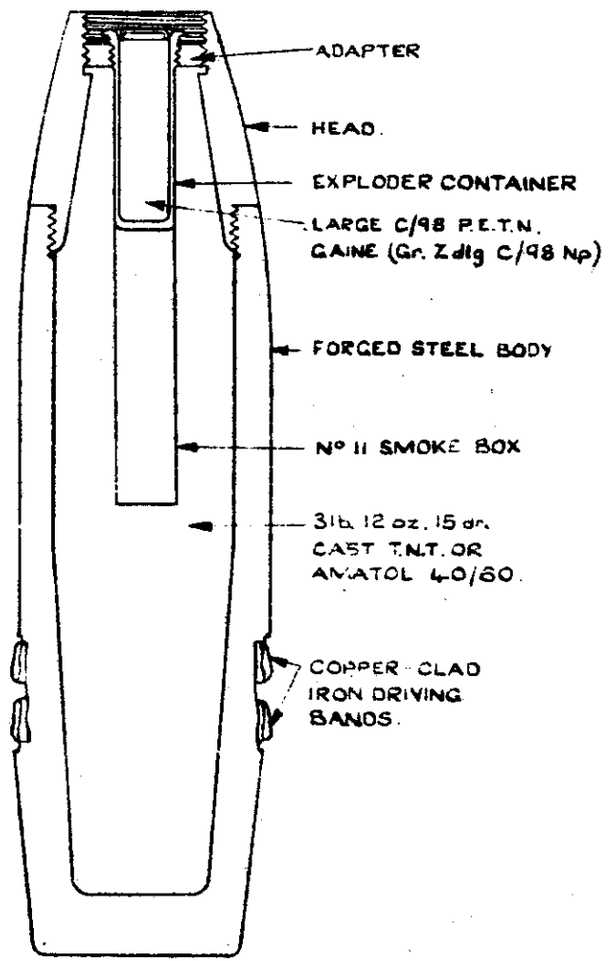
E.A.SK.Nº 68 REFERS

GERMAN 10·5 cm. H.E., STREAMLINED SHELL FUZED A.Z. 23 OR DOPP. Z. S/60s.

(10 cm Gr. 19 for s 10 cm K.18 or lg. 10 cm K.T.)

FIG 429 (ITEM 1076)



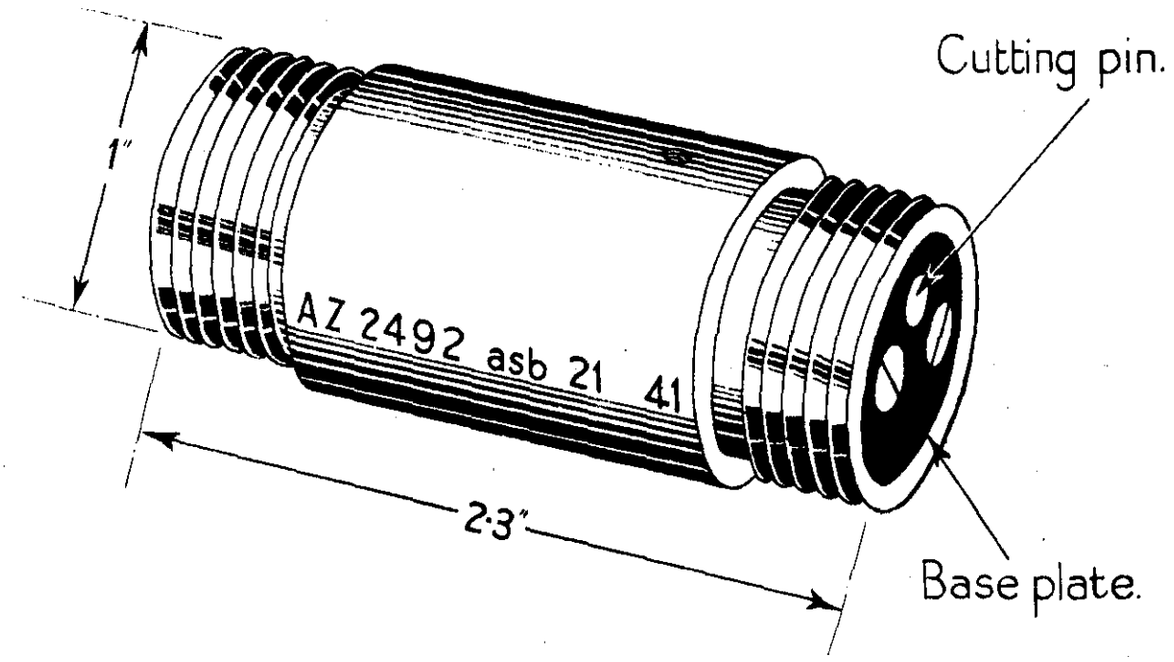


E.A. SK. Nº 89 REFERS.

GERMAN FUZE A.Z.2492.

(FOR HOLLOW CHARGE ANTI-TANK RIFLE SPIGOT GRENADE)

Fig. 430. (Item 1078).



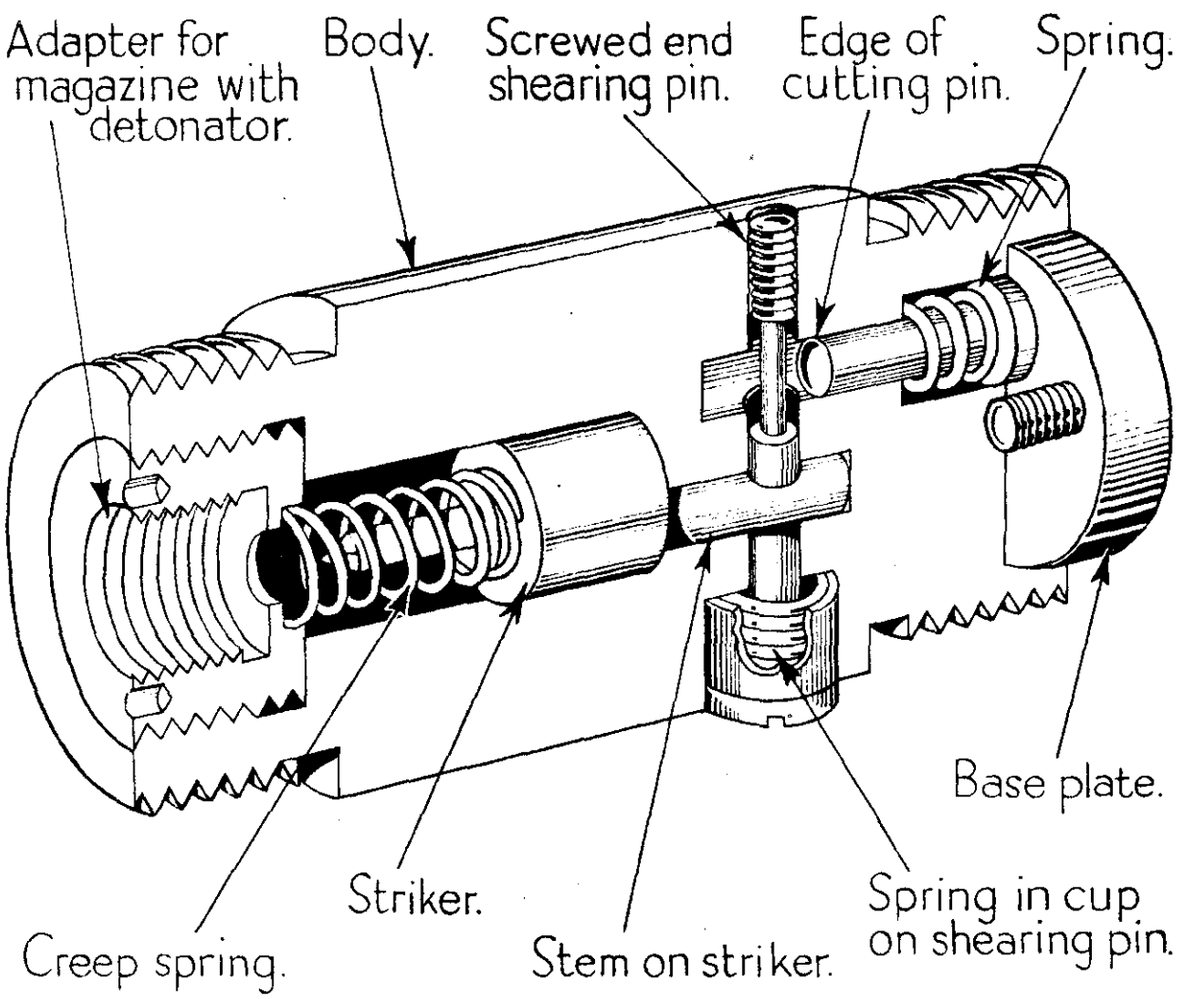


FIG 431 (ITEM 1079)

GERMAN FUZE Kl.A.Z.23 Nb WITH PLASTIC BODY.

-Kl. A.Z. 23 Nb (Preßstoff)-

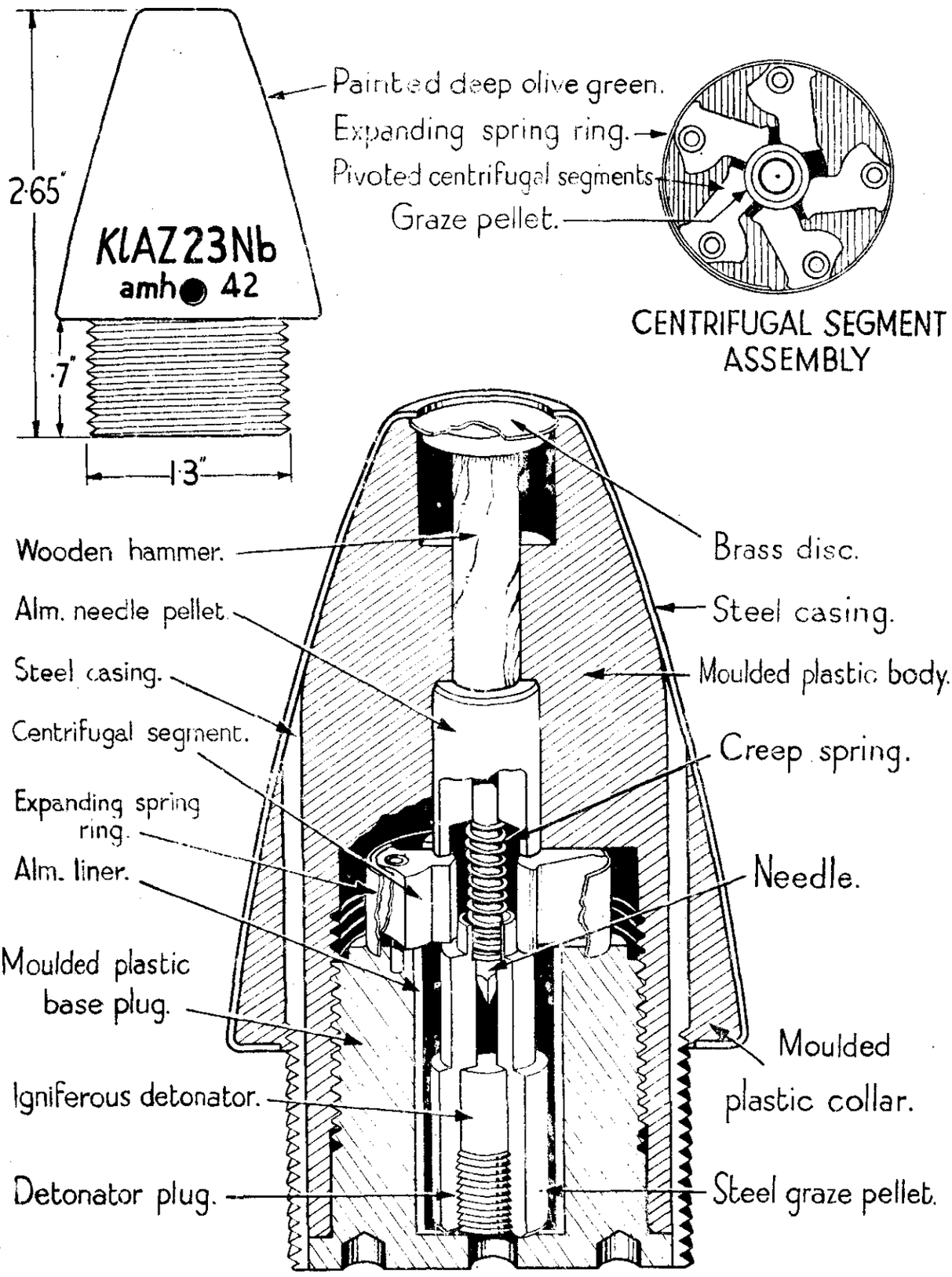
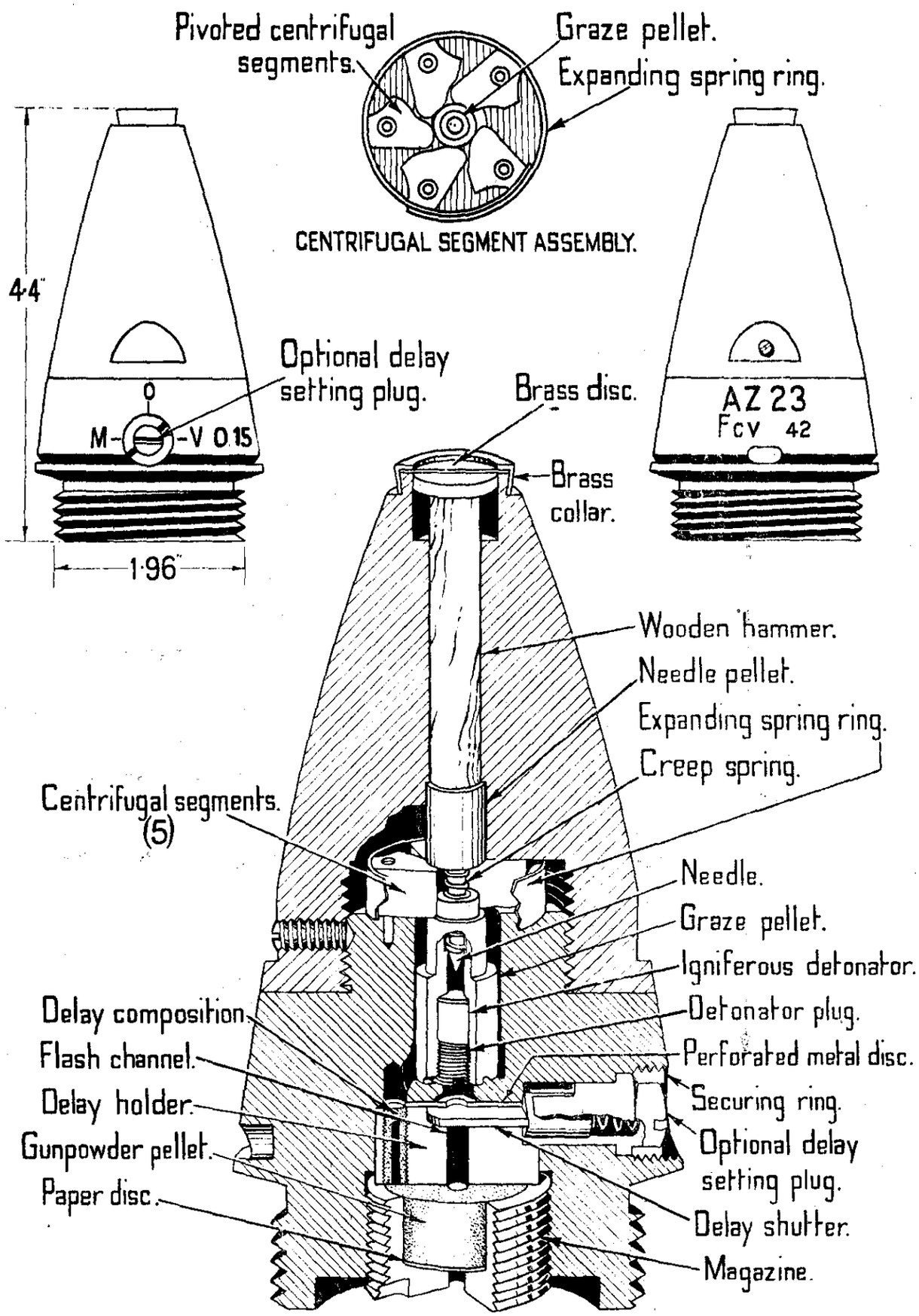


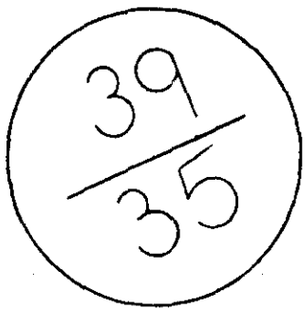
FIG 432 (ITEM 1080)

GERMAN FUZE A.Z.23 (V. 0.15)

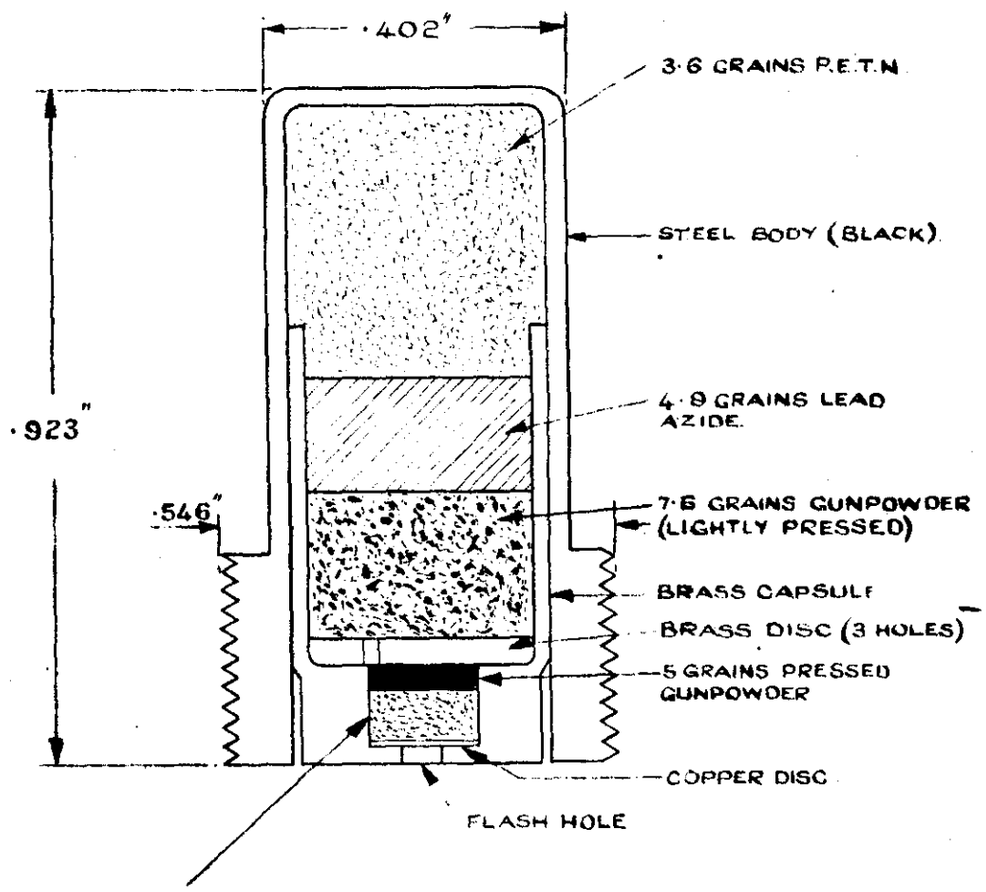


R 44313

FIG. 433 (ITEM. 1081.)
GERMAN BASE FUZE (SKODA B.Z.15) :- ALTERNATIVE GAINE.



MARKINGS ON HEAD

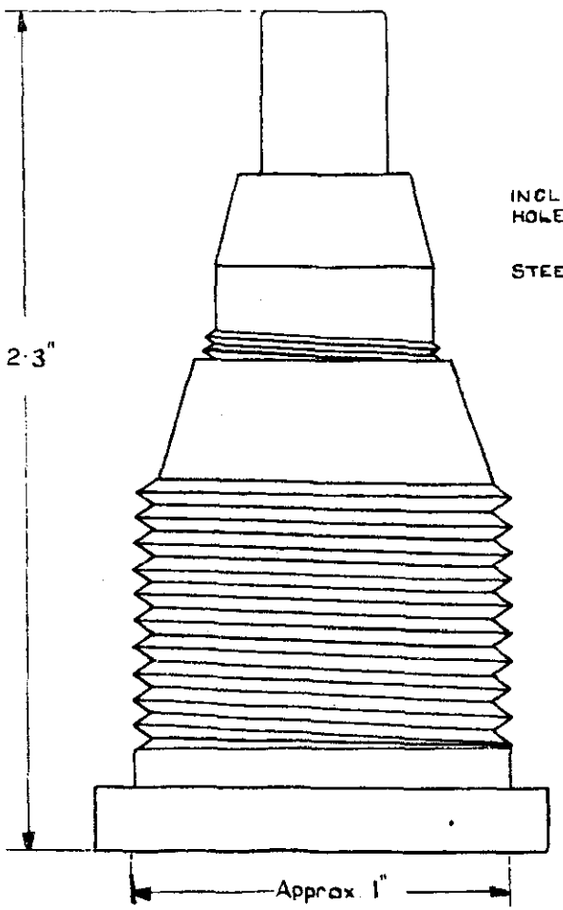


1 GRAIN DETONATOR COMPOSITION.

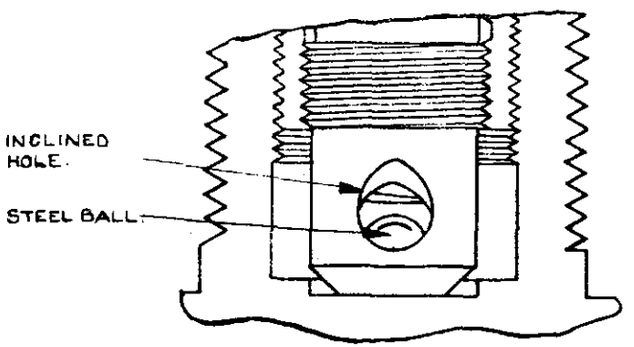
MERCURY FULMINATE	23·8%
POTASSIUM CHLORATE	43·2%
ANTIMONY SULPHIDE	32·0%
GRIT	1·0%

GERMAN BASE FUZE (SKODA 15) FOR 4·7cm Pak (t) AND Pak K.36(t) A.P.C. SHELL.

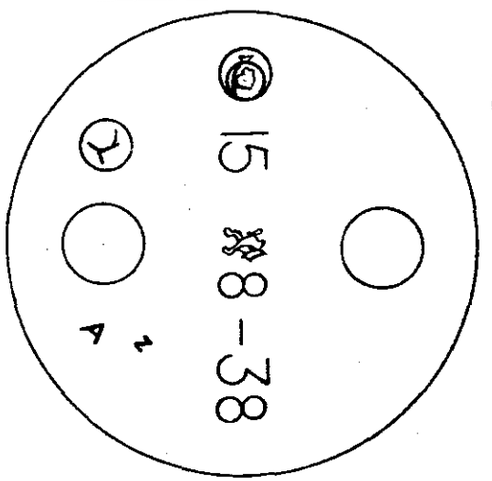
Fig. 434. (Item 1082)



SIDE VIEW



BASE STAMPINGS



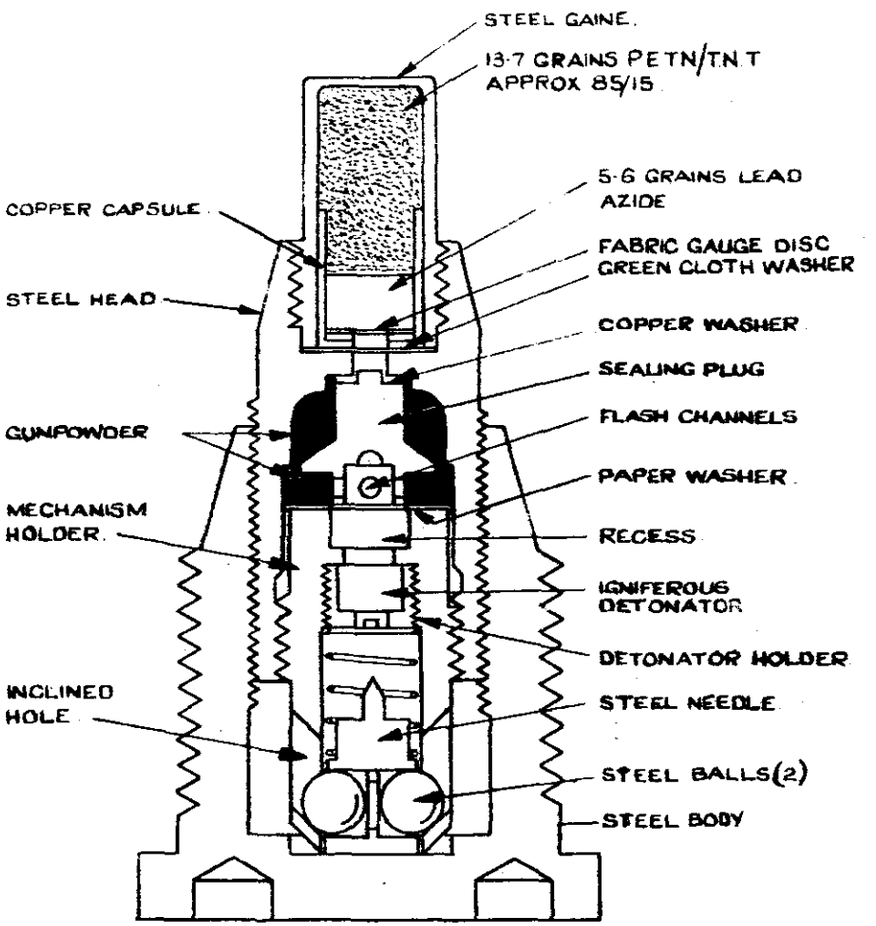
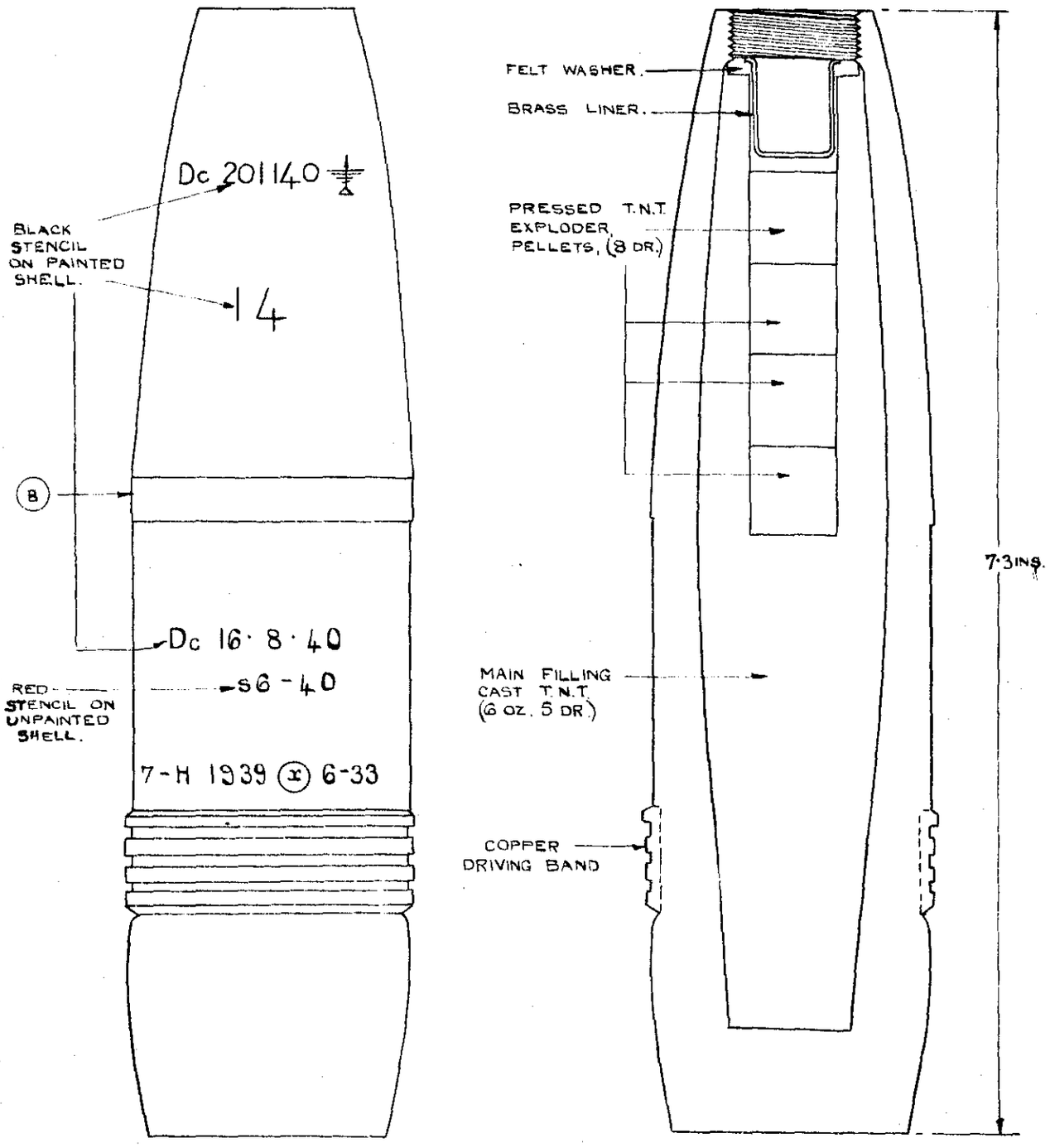


Fig. 435. (Item 1083)

GERMAN 4·7 cm. H.E. SHELL.

(Sprgr for Pak(t), Pak 36(t) or 4 cm. V.Z. 36)

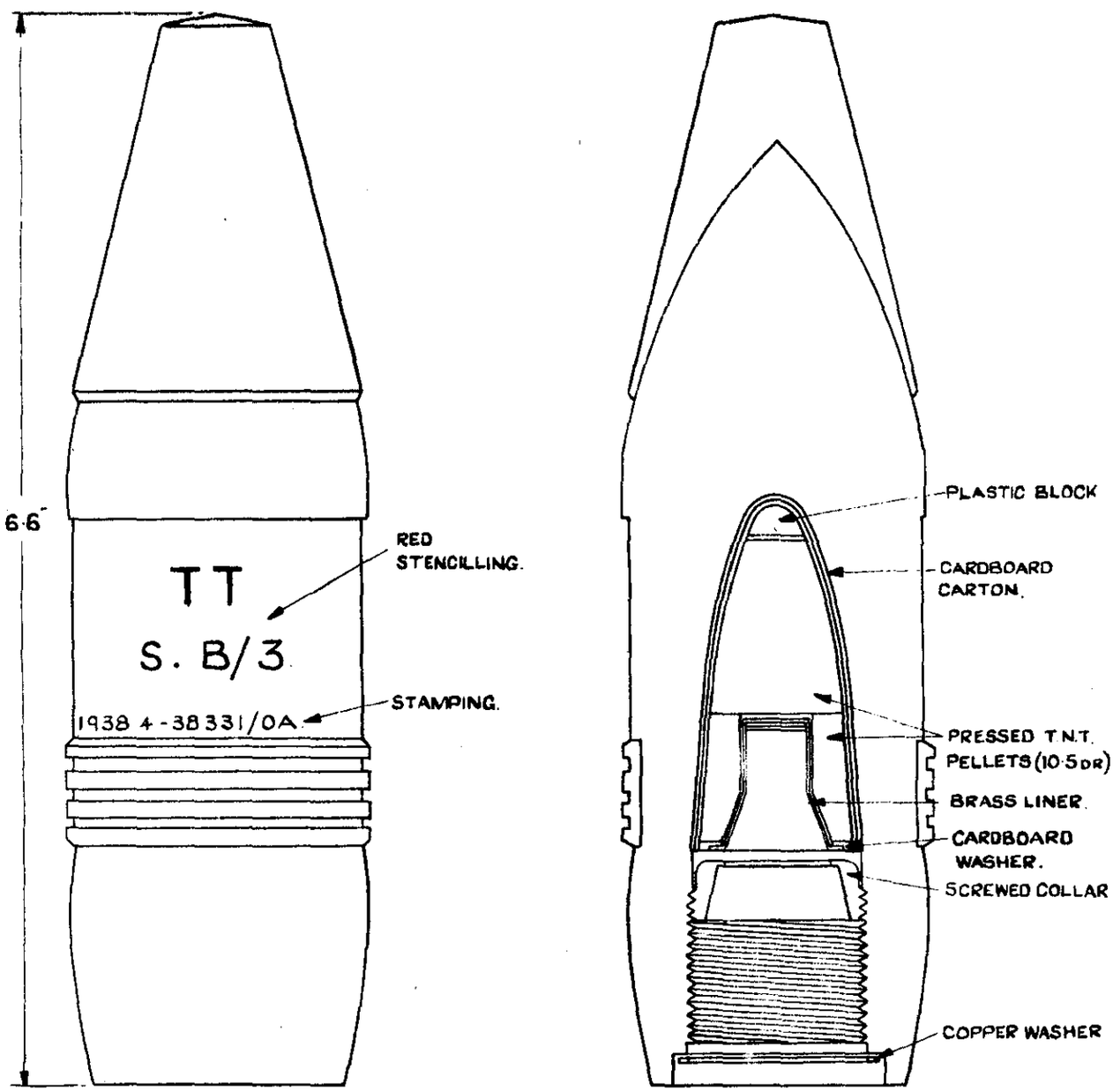


SHELL UNPAINTED AND STENCILLED IN RED OR PAINTED DEEP OLIVE GREEN AND STENCILLED IN BLACK

E.A. SK. Nº 52 & 107 REFER.

Fig. 436. (Item 1084)

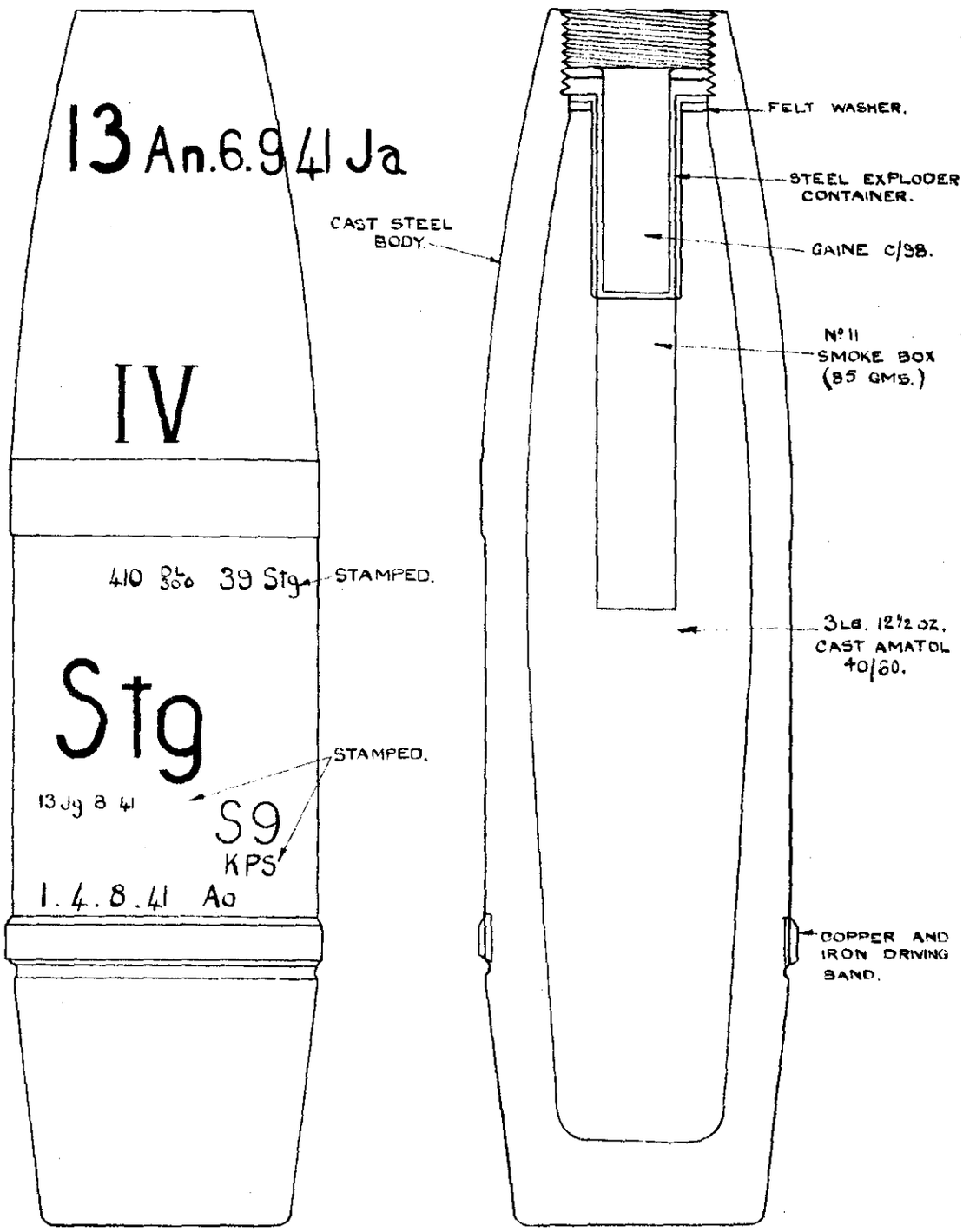
GERMAN 4·7cm. Pak (t) AND Pak K.36(t) A.P.C. SHELL OF CZECH ORIGIN



CAP PAINTED BLACK.
BODY UNPAINTED OR BLACK.
FILLED WEIGHT. 3 LB. 5 OZ. 5 DR.

E.A. SK. Nº 51 & 105 REFER.

GERMAN 10·5 cm. CAST STEEL H.E. SHELL. Fig. 437. (Item 1085)
(F.H. GRANATE 38 STG FOR L.F.H. 18)



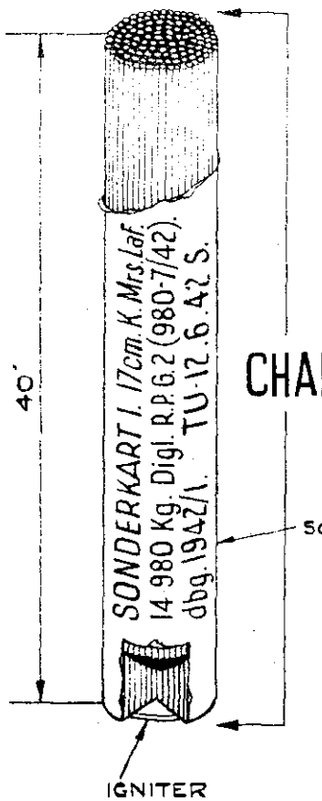
SHELL PAINTED DEEP OLIVE GREEN AND STENCILLED IN BLACK.

E A SK. No 56 REFERS.

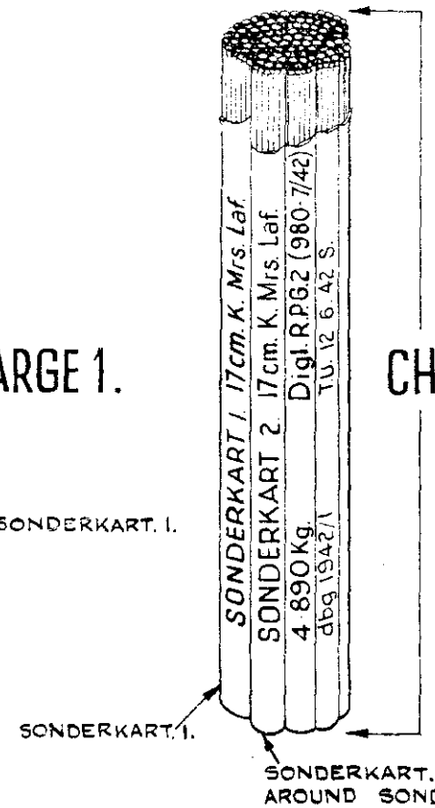
FIG. 438. (ITEM 1086.)

17 cm. K. Mrs. Laf.

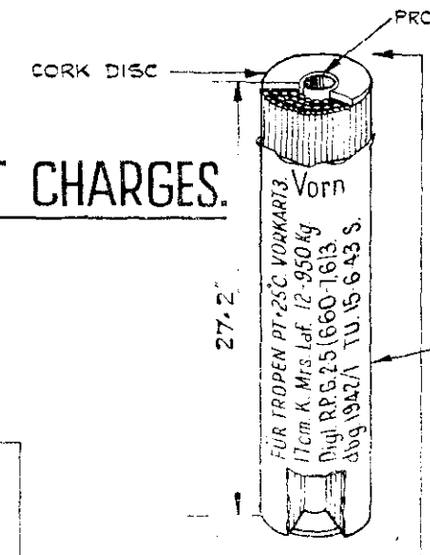
COMBINATION OF PROPELLANT CHARGES.



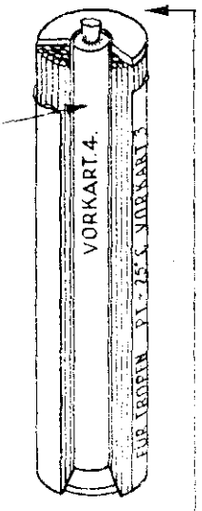
CHARGE 1.



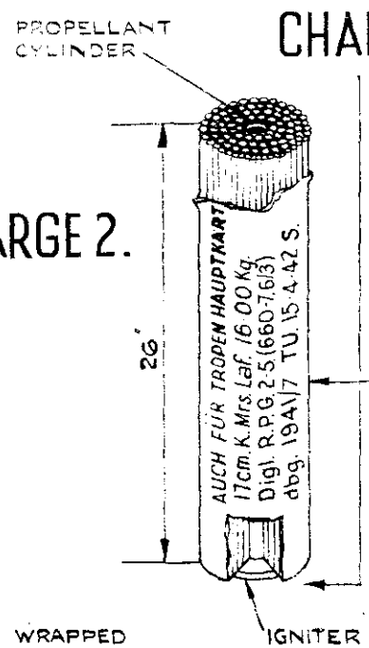
CHARGE 2.

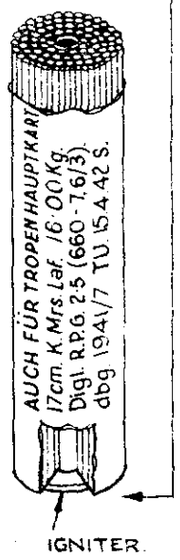


CHARGE 3.



CHARGE 4





CARTRIDGE CASE.