[S.S. 483.]

GERMAN FIELD ARTILLERY AMMUNITION AND ITS EMPLOYMENT.

1. The attached translation of a German document contains full details of German Field Gun and Light Field Howitzer ammunition.

2. It will be observed that the table on page 4 indicates what the ammunition of the two guns will consist of when the present stocks of certain types of shell have been expended.

It should, therefore, be read in conjunction with the similar table (Ia/9701) translated and issued in October, 1915, as far as the obsolescent shell are concerned.

3. The most noteworthy points contained in this translation may be summarized as follows:—

(*a*) The abolition of the Universal Shell for both Field Gun and Light Field Howitzer.

(*b*) The re-introduction of a shrapnel for the Light Field Howitzer (the 1898 Pattern Shrapnel was superseded by the Universal Shell and has not, so far as is known, been used during the war).

(*c*) The abolition of the 1896 and 1914 Patterns Field Gun H.E. Shell and of the 1914 Pattern Light Field Howitzer H.E. Shell (all these shell have very small charges and are superseded by thin-walled H.E. shell with larger charges, viz., 2 lb. and 0·8 lb. for field gun and 4 lb. and 3·3 lb. for howitzer).

(*d*) The result of (*a*), (*b*) and (*c*) will be that both the Field Gun and the Light Field Howitzer will in future be equipped with four types of projectile, viz.:—

an ordinary H.E. shell,
a more powerful long shell (H.E.),
a shrapnel,
a gas shell,

in place of the present seven types for the gun and five for the howitzer.

(*e*) The introduction of an 8th charge for the Light Field Howitzer with a resulting increase in range, 7,000 metres (7,655 yards) instead of 6,300 metres (6,890 yards).

(*f*) The introduction of delay action percussion fuzes (*L.K.Z.16 m.V.* and *K.Z.16 m.V.*) for Field Gun H.E. shell. Shell fitted with these fuzes are intended for the destruction of targets which offer resistance (trenches, observation posts, dug-outs, houses, bridges, etc.), and for "ricochet fire" against living targets in the open or behind light cover.

(*g*) The introduction of the following new fuzes:—

L.K.Z. 11 Gr. (time and percussion).
L.K.Z. 16 o.V. (percussion with direct action).
L.K.Z. 16 m.V. (percussion with delay action),
K.Z. 16 m.V. (percussion with delay action).
H.Z. 16 (percussion with or without delay action).
H.Z. 05 Schr. (time and percussion).

(*h*) The 7·7 cm. Anti-aircraft Gun will in future be equipped with the 1915 Pattern H.E. Shell, with *K.Z. 11 Gr.* fuze (time and percussion, graduated up to 7,200 metres or 7,874 yards), instead of the Universal Shell which has generally been employed hitherto.

GENERAL STAFF (INTELLIGENCE),
GENERAL HEADQUARTERS.
16th October, 1916.

ARMY PRINTING AND STATIONERY SERVICES A—10/16.

(Translation of a German Document.)

WAR MINISTRY,
GENERAL WAR DEPARTMENT,
NR. 1750/16 g. A 4.

BERLIN W. 66,
LEIPZIGER STR. 5,
11-7-16.

Secret.

This Letter is not to be taken into Front Line.

1. The Department forwards herewith new "Instructions" for "Field Artillery Ammunition and its Employment." Further copies can be obtained direct from the Field Artillery Section of the War Ministry.

Special "Instructions" will be issued for Russian guns (5·7 cm., 8·69 cm. and 10·67 cm.).

The "Instructions" issued with Nr. 2736/15 geh. A 4, dated 27-7-15,* remain in force for ammunition which is to be used up, and copies of those "Instructions" can still be obtained from the Field Artillery Section.

2. The following will be used up:—

(*a*) *Field Gun 96 n/A Ammunition.*

Universal Shell '11.
1896 Pattern H.E. Shell.
1914 Pattern H.E. Shell.

(*b*) *Light Field Howitzer Ammunition.*

Universal Shell '05.
1914 Pattern H.E. Shell.

3. The 1896 and 1914 Pattern Field Gun H.E. Shells are superseded by the 1915 Pattern Field Gun H.E. Shell, the effect of which is greater than that of the 1896 Pattern Shell.

The 1914 Pattern Light Field Howitzer H.E. Shell is superseded by the 1915 Pattern Light Field Howitzer H.E. Shell, the effect of which is not appreciably less than that of the Light Field Howitzer Long Shell.

4. The bursting charge of the Field Gun Long Shell is more than twice that of the 1915 Pattern Shell.

Its great explosive effect makes it particularly suitable for use against living targets and for the destruction of earth cover, obstacles and *matériel*. Its loud report and the size of the flash and smoke cloud produced by it, ensure its moral effect being great.

A copy of the "Instructions for Firing the Field Gun 96 n/A with Long Shell" is attached.† Further copies can be obtained direct from the Field Artillery Section of the War Ministry.

The Field Gun Long Shell (*L.F.K. Gr. Patr.*) will be packed in *long* shell-baskets, which can only be packed in the 96 n/A pattern limbers (gun and ammunition wagon). To enable them to be packed in the ammunition wagon *body*, the wagon boxes would have to be altered, but there is no intention of altering them at present. The method of packing in the 96 n/A pattern limber is shown in the Appendix†: the limber will take 8 *long* shell-baskets containing 24 Long Shell and 2 shell-baskets containing 6 Shrapnel or 1915 Pattern Shell.

The Field Gun Long Shell and 1915 Pattern Shell, as well as the 1915 Pattern Light Field Howitzer Shell will for the present be issued only in limited quantities.

5. During a certain transition period, a portion of the Field Gun Long Shell and 1915 Pattern Light Field Howitzer Shell cannot be provided with the fuzes intended for them.

During this period:—

L.F.K. Gr. will be provided with the *K.Z. 11 Gr.* or *K.Z. 14 m. V.* fuze.
H. Gr. 15 „ „ „ *H.Z. 14* fuze.

It is possible for premature to occur in the bore with the *H.Z. 14* fuze; such prematures endanger the gun detachment, consequently *H. Gr. 15* fitted with *H.Z. 14* fuze are only to be employed during phases of the action which do not demand or permit rapid fire, so that the detachments can take precautions for their safety while firing by going into dug-outs, etc.

. . . . copies of the letter with 2 instructions, and 1 appendix.

(*Signed*) V. WRISBERG.

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* These "Instructions" were translated and issued by the General Staff on 13th October, 1915, *see* Ia/9701 "Field Artillery Ammunition and its Employment."—G.S.I.

† Not reproduced. G.S.I.

Ia/20976.

War Ministry,
General War Department,
Nr. 2400/6. 16 g. A 4.

To take effect from the 1st July, 1916.

FIELD ARTILLERY AMMUNITION AND ITS EMPLOYMENT

In order to avoid bursts in the bore and defective action of ammunition, the following points should be attended to:—

I. PROJECTILES.

(*a*) Serious damage to the driving band renders a projectile unserviceable; it should be returned to store.

(*b*) Projectiles which are too full in the shoulder and cannot be loaded into the gun, should be returned to store.

(*c*) Projectiles should be stored in a clean, *dry* situation, sheltered from the sun.

II. FUZES.

(*a*) Fuzes should be firmly screwed home. *Inspection is necessary after transport.*

(*b*) The transport and use of fuzes without escape hole discs or with loose caps are *unsafe.*

(*c*) *Time fuzes which have become damp produce irregular shooting and blinds.*

(*d*) Before firing, the protective caps, when they exist, should be removed even when firing with percussion shell. If ammunition from which the protective caps have already been removed preparatory to firing has to be transported in the limbers, these caps should be attached again if possible.

Loose fuzes should be screwed home by hand.

III. CARTRIDGES.

(*a*) Cartridges and fixed ammunition should not be exposed to the direct rays of the sun, as this increases the gas pressures.

(*b*) Cartridges should be kept clean and free from damp.

(*c*) The portions of the charge of the Light Field Howitzer should be correctly adjusted.

(*d*) Steel cartridge cases which have got wet should only be fired after being dried, as the cases are otherwise liable to split.

IV. BORE.

(*a*) The bore should be well cleaned and no foreign bodies or partly burnt powder, etc., should be allowed to remain in the bore.

(*b*) Scorings, damage to lands, etc., should be removed or smoothed down by the artificers.

(*c*) In order to prevent overheating of the bore, the breech should be opened, and the gun sponged out with a wet sponge and cooled by means of wet sacks, etc., during the intervals of firing.

V. MISCELLANEOUS.

(*a*) When firing continuously for long periods, each gun in turn should be given an interval of rest for cleaning purposes.

(*b*) After rapid firing, the gun should not be left loaded with shell and cartridge. The heat of the bore is transmitted to the shell, fuze and cartridge.

(*c*) Shells should not be thrown about.

(*d*) Artificer officers (*Fenerwerksoffiziere*) must always be available with the troops, ammunition columns, refilling points and on the L. of C. in order to examine the condition of the ammunition and to supervise its handling and storage.

FIELD GUN, 96 n/A.

Ammunition.	Colouring.	Nature of Fuze.		Maximum range with time fuze.	Maximum range with percussion fuze.	Employment.	Remarks.
Long Field Gun Shell. *L.F.K. Gr. Patr.*	Blue, with yellow head: a yellow band over the "band" indicates that the charge contains an exploder of *Grf. 88* (picric acid).	*L. K. Z. 11 Gr.** (cannot cause a premature in the bore) of brass or zinc.	Percussion		8,400 m.	The same as with the *L. K. Z. 16 o.V.* fuze. Shell fitted with *L. K. Z. 11 Gr.* (*K. Z. 11 Gr.*) fuze are only to be employed for direct action percussion effect when no shell fitted with *L. K. Z. 16 o.V.* fuze are available.	*The *L. K. Z. 11 Gr.* and *K. Z. 11 Gr.* fuzes only arm at 300 metres. H.E. shell fitted with other fuzes, or shrapnel, must therefore always be available at the guns in addition to H.E. shell fitted with these fuzes.
			Time	7,200 m.		Against all living targets especially when these are close behind cover (batteries in action, protected observation posts, occupied fire trenches, communication and cover trenches, reserves, etc., behind houses, etc.).	
		L. K. Z. 16 o.V. (cannot cause a premature in the bore) of iron, painted grey.	Percussion		8,400 m.	Against all living targets in the open or concealed. Destruction of targets capable of offering resistance. Destruction of wire entanglements (in conjunction with delay action shell). Bombardment of villages, woods, camps, etc. (in conjunction with delay action and time shell).	
	As above, but a black "m. V." stencilled on it.	*L. K. Z. 16 m.V.* (cannot cause a premature in the bore) of iron, painted grey with black "m. V."	Percussion with delay action		8,400 m	(*a*) Destructive effect.—Destruction of suitable targets capable of offering resistance (levelling of trenches, and destruction of observation posts, machine gun emplacements, dug-outs, houses, bridges, and railways). (*b*) Ricochet effect (bursts in air will generally occur in sufficient numbers only at ranges up to 4,000 metres, and when the surface of the ground is suitable).—Against all living targets in the open, concealed or behind low cover such as shields (occupied trenches, batteries).	
1915 Pattern Shell. *F. Gr. Patr. 15.*	Grey, with yellow head: a green band over the "band" indicates that it is filled with *Grf. 88* (picric acid).	*K. Z. 11 Gr.** (cannot cause a premature in the bore) of electron or aluminium.	Percussion		8,400 m.	As for Long Field Gun Shell with percussion fuze, but the effect is less.	
			Time	7,200 m.		As for Long Field Gun Shell with time fuze, but the effect is less.	Ammunition used with the 7·7 cm. anti-aircraft gun (without smoke producer: shell marked "420" in black).
	As above, but a black "m. V." stencilled on it.	*K. Z 16 m.V.* (cannot cause a premature in the bore) of iron, painted grey.	Percussion with delay action		8,400 m.	As for Long Field Gun Shell with percussion delay action fuze, but the effect is less.	
1896 Pattern Shrapnel. *F. Schr. Patr.*	Blue: "St." indicates that the bullets are of steel.	*Dopp. Z. 96 n/A.* of aluminium.	Percussion		8,400 m.	Bombardment of villages, houses, woods, observation posts in haystacks, when incendiary effect is aimed at.	
			Time	7,000 m. or 6,500 m.		Against all living targets which are not under cover. Repulse of attacks at close quarters (case shot effect). Bombardment of rearward communications.	

LIGHT FIELD HOWITZER, 98/09.

Ammunition.	Colouring.	Nature of Fuze.		Maximum range with time fuze.	Maximum range with percussion fuze.	Employment.	Remarks.
Light Field Howitzer Long Shell. *L. F. H. Gr.*	Blue, with yellow head: a yellow band over the "band" indicates that the charge contains an exploder of *Grf. 88* (picric acid).	*H. Z. 05 Gr.*‡ (cannot cause a premature in the bore) of brass or aluminium, cap painted red.	Percussion		6,300 m. (7,000 m. with Charge No. 8).	The same as with the *H. Z. 16 o.V.* fuze.	‡The *H. Z. 05 Gr.* fuze only arms at 800 metres. H.E. Shell fitted with the *H. Z. 16* fuze or shrapnel must therefore always be available at the guns in addition to H.E. shell fitted with this fuze.
			Percussion with delay action		6,300 m. (7,000 m. with Charge No. 8).	The same as with the *H. Z. 16 m.V.* fuze.	
			Time	7,000 m. (from 6,000 to 7,000 m. with special setting of fuze and using Charge No. 8).	6,300 m. (7,000 m. with Charge No. 8).	The same as for the Long Field Gun Shell with time fuze,† but it has greater effect both laterally and in depth.	†By means of Appendix 1 to Range Table No. 2 (for Light Field Howitzer 98/09) time shell can be fired with high angles of elevation. (NOTE.—This Appendix gives the fuze settings for the various ranges when firing with Charges Nos. 1 to 6.—G.S.I.)
		H. Z. 16 (can be set for delay action and cannot cause a premature in the bore) of iron, painted grey.	Percussion		6,300 m. (7,000 m. with Charge No. 8).	The same as for the Long Field Gun Shell with direct action percussion fuze, but the effect is greater.	
			Percussion with delay action		6,300 m. (7,000 m. with Charge No. 8).	The same as for Long Field Gun Shell with delay action percussion fuze, but it has greater penetration and effect. As a general rule, a sufficient number of ricochets can (with Charges Nos. 7 and 8) only be relied on at ranges up to 3,000 m.	
1915 Pattern Shell. *H. Gr. 15.*	Grey, with yellow head (for meaning of yellow band *see* above).	*H. Z. 05 Gr.* (cannot cause a premature in the bore).	Percussion		6,300 m. (7,000 m. with Charge No. 8).	The same as for the Light Field Howitzer Long Shell, but the effect is less.	
			Percussion with delay action		6,300 m. (7,000 m. with Charge No. 8).		
			Time	7,000 m. (from 6,000 to 7,000 m. with special setting of fuze and using Charge No. 8).			
		H. Z. 16 (can be set for delay action and cannot cause a premature in the bore).	Percussion		6,300 m. (7,000 m. with Charge No. 8).		
			Percussion with delay action		6,300 m. (7,000 m. with Charge No. 8).		
1916 Pattern Shrapnel. *F. H. Schr. 16.*	Blue.	*H. Z. 05 Schr.*	Percussion		6,300 m. (7,000 m. with Charge No. 8).	The same as for the 1896 Pattern Field Gun Shrapnel with percussion fuze, but the effect is greater.	
			Time	7,000 m. (from 6,000 to 7,000 m. with special setting of fuze and using Charge No. 8).		The same as for the 1896 Pattern Field Gun Shrapnel with time fuze,† but the effect is greater.	

NOTE.—When changing over from one type of projectile to another, it is advisable to test the range when accurate shooting is required: this applies also when changing over to projectiles of the same type but fitted with fuzes constructed of a different metal.