

# Danish motorized field artillery 1940

## Introduction



The content of this article is essentially a copy of the chapters in *Lærebog for Hærens menige, II. Part for motorized field artillery, 1940* [1](#)), which deals with organization as well as equipment and materiel. The image material also originates from here, unless otherwise stated.

The spelling is adapted to contemporary standards.

## Organization

1. The artillery is divided into field and anti-aircraft artillery.

The field artillery is divided into regiments, divisions (light and heavy) and batteries. Heavy units and anti-aircraft units are motorized. Light departments can be horse-drawn and motorized.

A motorized department consists of: staff, 3 batteries (1st - 3rd Battery) and wagon line.

Light departments each have 4 units. 75 mm field gun. Heavy departments have 2 batteries with 4 pcs. 15 cm field howitzer and 1 battery with 4 pcs. 10½ cm field cannon.

2. *The departmental staff* is divided into: *The actual staff* (the department head's closest assistants), *the departmental squad* (with the personnel and equipment necessary for establishing observation and liaison), as well as the *kitchen trolley* and *baggage trolley*.

*The divisional troop* consists of 2 parts, in the light division called the Artillery Liaison Command and the Infantry Liaison Command, in the heavy division designated I and II. Personnel and equipment are, with one exception, the same for a light and a heavy department, and it is carried on 1 central and 1 radio wagon as well as 4 connecting wagons.

On the luggage cart are the items (archives, luggage, etc.) that can only be expected to be needed after the end of fencing and the day's march.

3. *The battery* is divided into: *battery platoon*, *cannon line*, *fencing train* and *baggage car*.

*The battery platoon*, which is most often divided into follow-on and shooting platoon, assists the battery commander in reconnaissance, basic positioning and observation, establishes the battery's connections and participates in the security service. Personnel and equipment are carried on battery squad cars 1 and 2.

*The gun line* consists of 2 half-batteries each with 2 gun platoons (1st - 4th Platoon) and 1 recoilless rifle carriage with 2 recoilless rifles, and for heavy divisions a 5th platoon with 2 ammunition carriages.

In the case of the light batteries, a gun platoon consists only of a gun carriage with operating personnel and a prodded cannon, while in the case of the heavy divisions, where the gun carriage is called an artillery tractor, each platoon also includes a personnel carriage.

*Fencing training* includes for a light battery: 5. Platoon with 1 personnel wagon and 4 ammunition wagons, 6.

Platoon with bridge wagon, mechanic wagon and medical wagon and 7th platoon with kitchen wagon; with a heavy battery: 6.

Platoon with 1 personnel wagon and 3 ammunition wagons, 7th and 8th Platoon are like 6th and 7th Platoon at a light battery.

4. *The carriage line* is divided into a number of sections including ammunition and gasoline. A recoilless rifle squad with 2 recoilless rifles belongs to the cart line.

5. In addition to the vehicles mentioned above, all of which are cargo vehicles, a number of passenger cars and motorcycles also belong to the department.

While in the light departments only light trucks (2.5 - 3 t) are included, in the heavy departments heavy trucks (4 - 5 t) are also used to pull the guard and to transport bridge material.

## Packing

### Shield

On the *75 mm field cannon*, carry: muzzle and breech cover and 1 directional stick; in the toolbox there are operating tools, directional tools etc

On *10½ cm field cannon* and *15 cm field howitzer*, carry : muzzle and breech cover, panoramic binocular case, charging bowl, 1 setter, 1 wiper, 2 muckets, 2 hoists, 6 ground spears, anchor boxes, cradle bars and 2 operating turrets; here as well as in the made box: operating clothes, spare parts and tools.

### Vehicles

In addition to the crew's truncheons, kettles, rifles and cloaks belonging to each vehicle, the following are carried:

On the *battery troop wagons* measuring instruments, telephone, radio and signaling equipment as well as tools and digging implements for use by the battery troop.

On a heavy battery *artillery tractor*: 1 set of wheel tracks, 1 tail rope, loading bucket, 2 directional sticks, half and full blocks, planks and plank pieces, hand spike, 4 rear booms, 1 jack and 50 sandbags as well as light box, tractor box, hauling equipment box, prop box and panoramic binocular box, etc.

On a light battery 's *gun carriages*: 1 rear case with cannon ammunition (48 cartridges), prop box, 10 sandbags, tools, spare parts and cleaning agents for the guns, 1 tail rope and tools for

earth worker.

On the *recoilless rifle carriage*: 2 recoilless rifles with associated anti-aircraft racks and air target sights as well as accessories, spare parts and ammunition for the recoilless rifles.

On the *bridge wagon*: tools for earthworks and material (half and full blocks, planks and railway rails) for improving roads, bridges, etc.

On an *ammunition wagon*: 120 pcs. 75 mm cartridges or 80 rounds for 10½ cm field gun or 40 rounds for 15 cm field howitzer (SH).

The *medical van carries* : sanitary equipment ( stretcher, storage box, bag for paramedics, canteen, dressing bag, etc.).

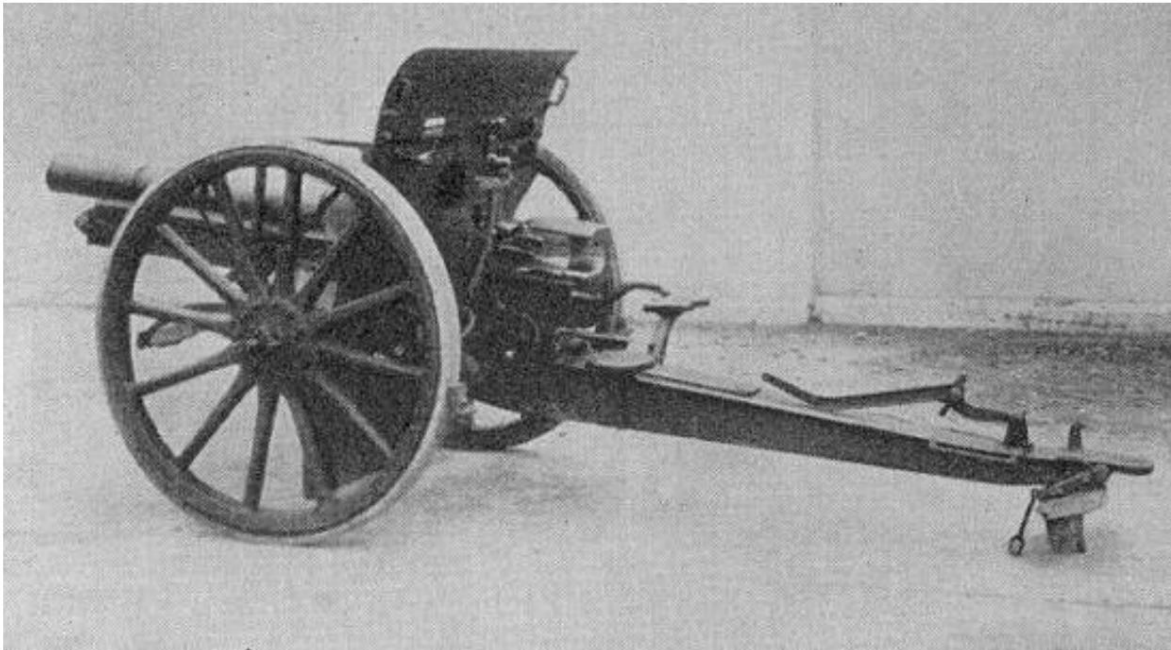
The *luggage trolley* carries: the battery's archive and luggage as well as a cobbler's box, tailor's box and spare ring.

## Equipment

### Shield

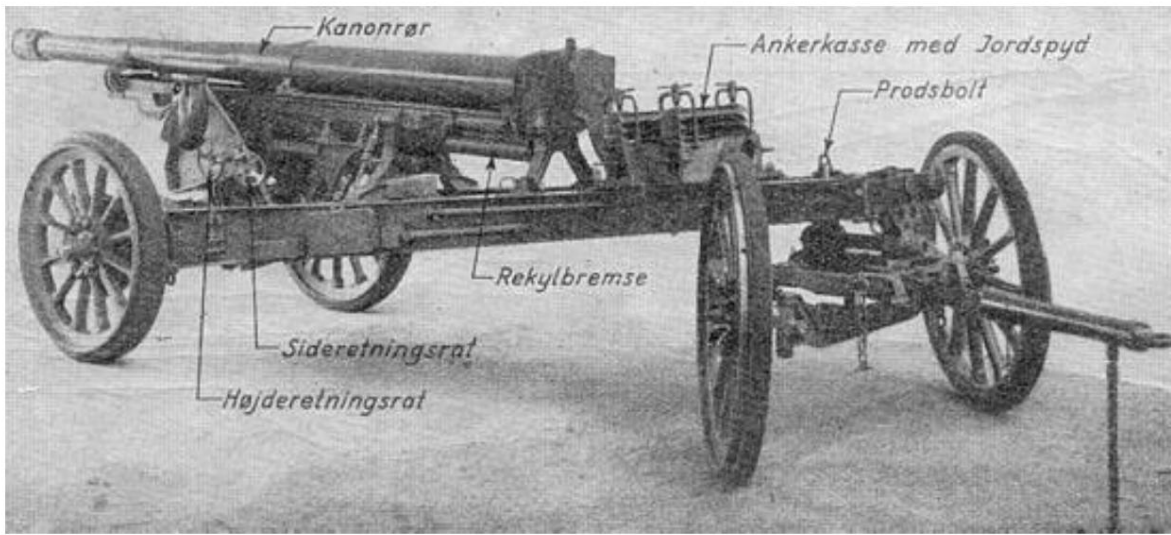
75 mm L/30 hSK M.1902 (75

mm 30 caliber long rapid-firing steel cannon Model 1902)

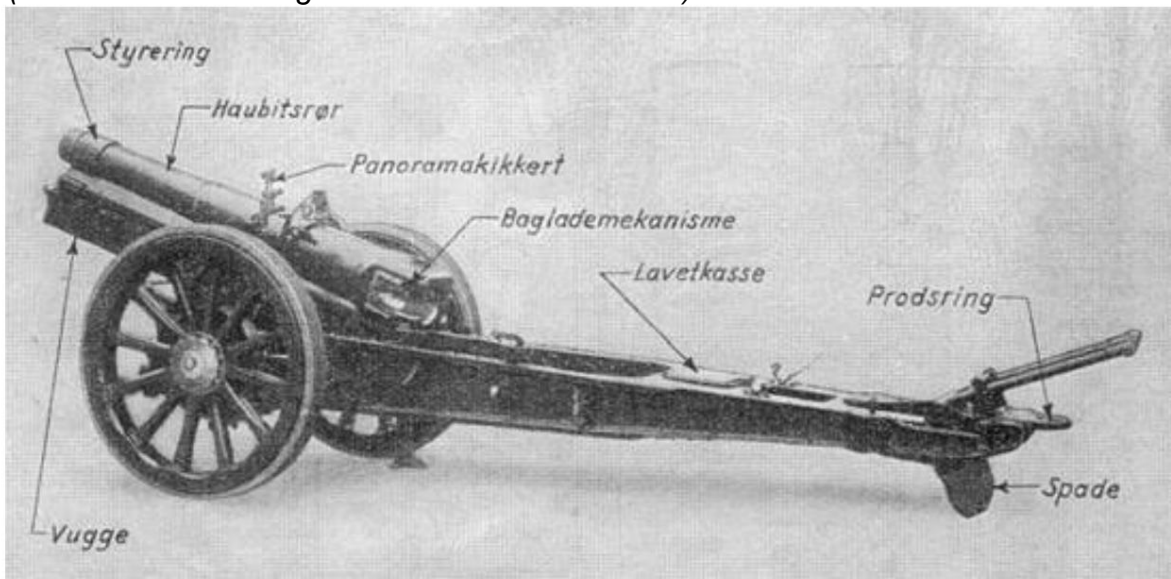


10½ cm L/48 FKNM1930 (10½

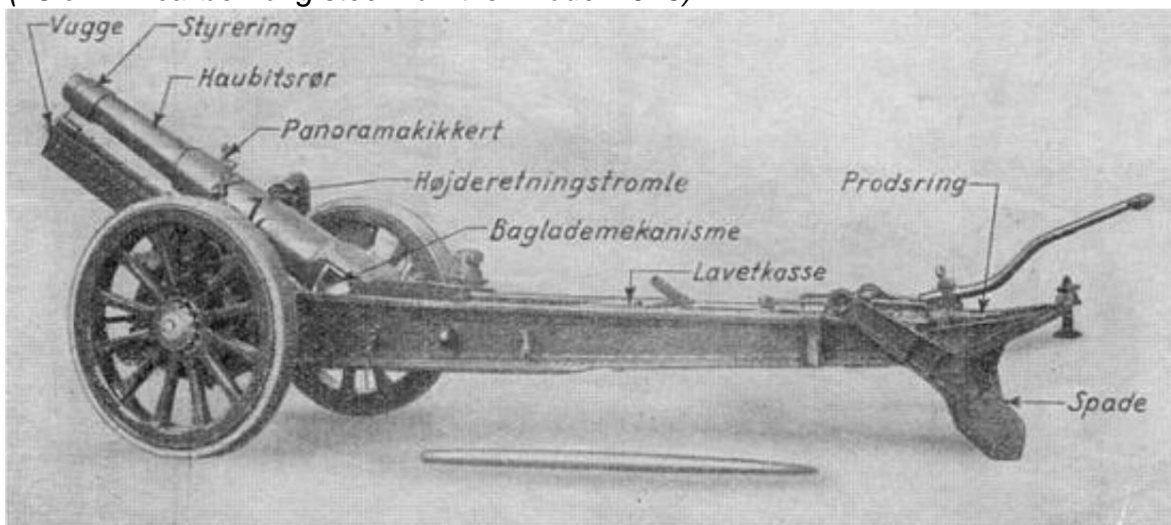
cm 48 caliber long field gun Model 1930)



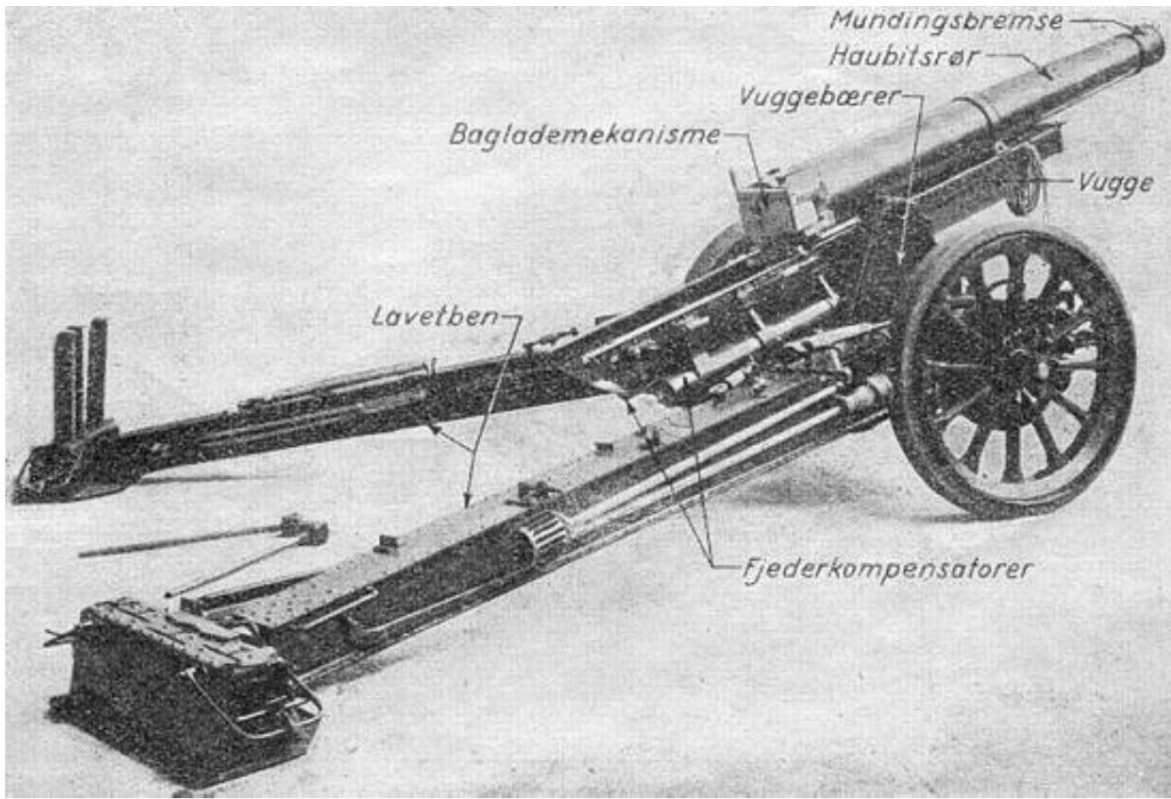
15 cm L/17 SHM1917  
 (15 cm 17 caliber long steel howitzer Model 1917)



15 cm L/17 SHM1923  
 (15 cm 17 caliber long steel howitzer Model 1923)

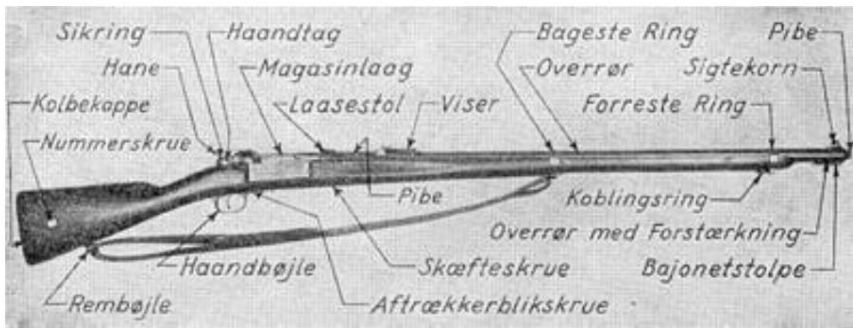


15 cm L/22 FHM1929  
 (15 cm 22 caliber long field howitzer Model 1929)



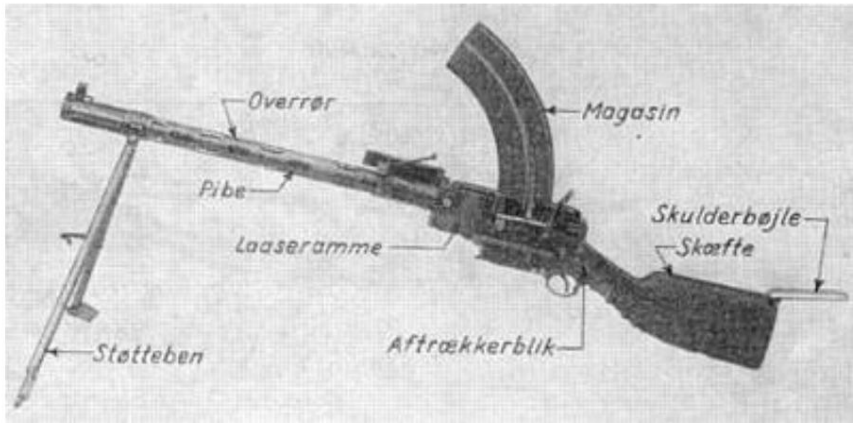
<b>Data for the individual pamphlets</b> <i>(From Source 1 and 5)</i>	<b>75 mm L/30</b> <b>hSK M.1902</b>	<b>10½ cm L/48</b> <b>FKM1930</b>	<b>15 cm L/17</b>	<b>15 cm L/17</b>	<b>15 cm L/22 SHM1917</b> <b>SHM1923 FHM1929</b>
Weight in driving position (in kg)	2,400	5,645	4,565	4,820	5,675
Weight in firing position (in kg)	1,080	5,120	4,065	4,320	5,165
Greatest firing range in connection with the biggest charge (in)	10,000	20,150	10,800	12,700	15,000
Initial speed (m/sec)	546	850	435	503	635
Elevation Limits (in °)	-9 - +15	0 - 43	0 - 41	0 - 41	0 - 45
Lateral freedom within made (in °)	7	47	6	6	40

**Handgun**



The personnel in the motorized field artillery are equipped with Gevær 1889 with the knife bayonet.

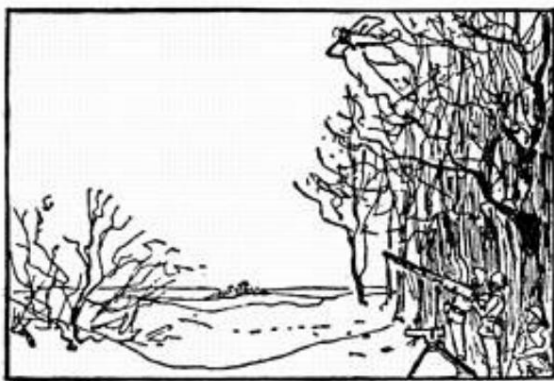
The shooter has the prospect of hitting a lying man within 250 m with the single shot, a standing man within 350 m, while at greater distances only effect against larger targets can be expected.



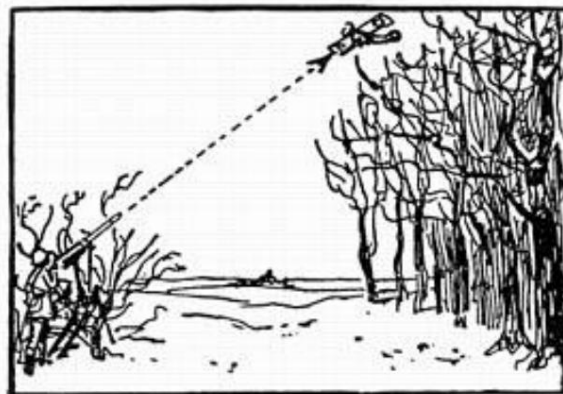
In addition, there are 2 recoilless rifles M.1903/24 per battery and carriage line.

The fire is always delivered as automatic fire either in short bursts, 4-6 shots, long bursts, approx. 10 rounds or full magazine, 20 rounds. Short bursts of 4-6 shots are the norm.

Against airplanes, the fire is delivered in bursts of 10 shots.

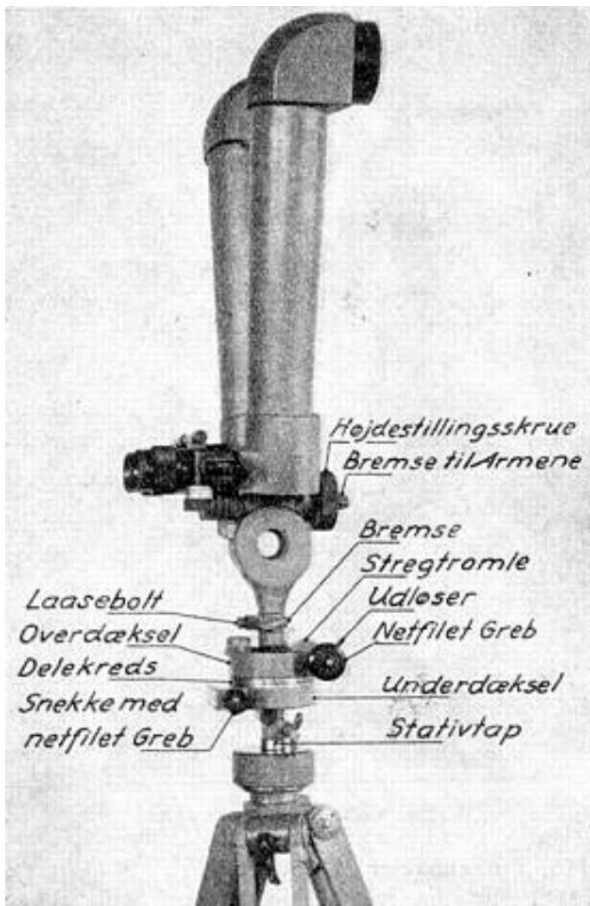


Forkert.

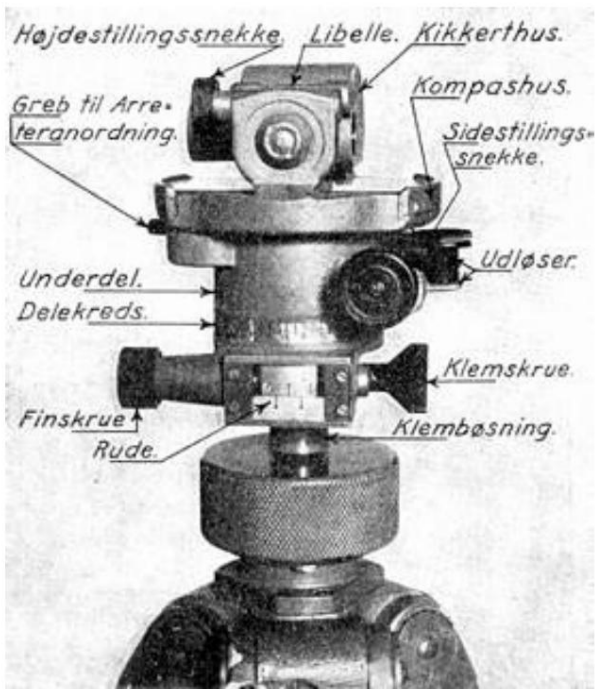


Rigtigt.

When the recoilless rifles are set up for anti-aircraft fire, they must be as hidden as considerations for free observation and a free field of fire (up in the air) allow.



Relief binoculars M.1924



Protractor M.1924

## Instruments

The relief binoculars consist of binoculars, base and stand. The binoculars are carried in a thornyster or a box, while the tripod with lower part is carried in a tripod sleeve. The binoculars magnify 10 times.

The protractor consists of binoculars, lower part, circuit board, clamping sleeve and stand. The protractor is carried in a leather sheath, the tripod in a tripod sleeve. The binoculars magnify 3 times.

# Ammunition

A "shot" consists of a projectile, charge and igniter, which can either be combined in a cartridge - 8 mm and 75 mm - or carried separately.

## Cannon ammunition

The projectiles are high-explosive grenades, grenade launchers, armor-piercing grenades and smoke grenades. The color of the front part indicates the internal arrangement of the projectile and the type of explosive charge as follows:

**Red** Explosive grenade, i.e. a grenade with a violently acting explosive.

**Blue** Grenade box.

**Red with green belt and white tip** Panzergrenat.

**Gray with red belt** Smoke grenade.

**Black** Grenade with charge of black powder for practice shooting.

The color of the cylindrical part of the projectile indicates the material it is made of as follows: Black (cast iron), white (steel) and gray (semi-steel).

The charge can be placed in a brass case (cartridge or charge case) - 75 mm hSK and 15 cm L/17 SHM1917 and 1923 - or in one or more attached charge pouches (element charge).

Of the charge pouches (cardus pouches), the main element on the side is marked with the name of the gun, powder weight, powder type, year of manufacture of the powder and batch of powder, as well as the year of completion of the charge. Furthermore, both the main and additional elements are marked on the front with the charge's number (for 10½ cm FK, however, not the number, but "main element" and "additional element"). A circular stitch of blue woolen yarn indicates that it is at this end that the *ignition charge* is placed. This end must therefore always face backwards when charging.

For the pamphlets there are:

Grenades

Weight of the grenade (approx.) Charges

<b>75 mm hSK M.1902</b>	Explosive grenade M.1927	6 kg	(grenade cartridge)
	Grenade box M.1902		
	Armored grenade M.1938		
	Smoke grenade M.1939		

<b>10½ cm L/48 FKM1930</b>	Explosive grenade M.1930	16.3 kg.	Charge 1 - 3.
----------------------------	--------------------------	----------	---------------

**15 cm L/17 SH M1917**

<b>15 cm L/17 SH M1923</b>	Explosive grenade M.1927	38.5 kg	Charge 1 - 7.
	Grenade box		



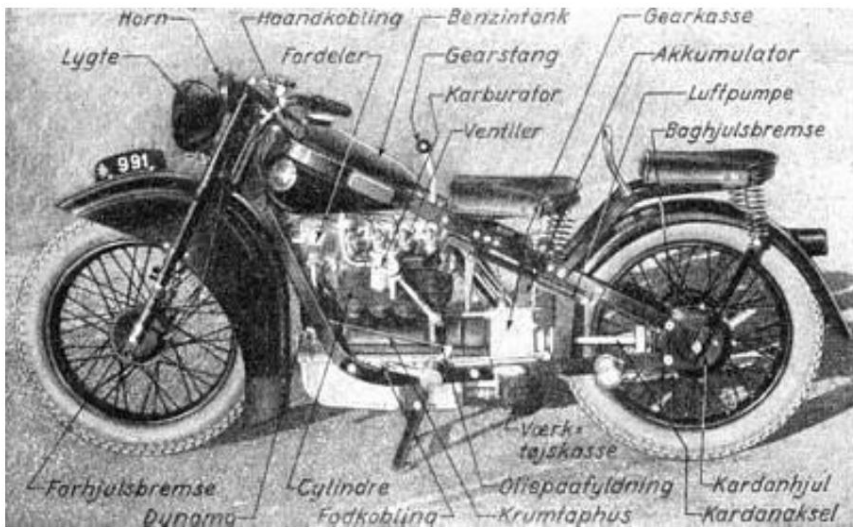
### Other ammunition

Small arms ammunition (8 mm cartridge M.1908, armor-piercing cartridge and tracer cartridge.) as well as hand grenade and hand grenade M.1923.

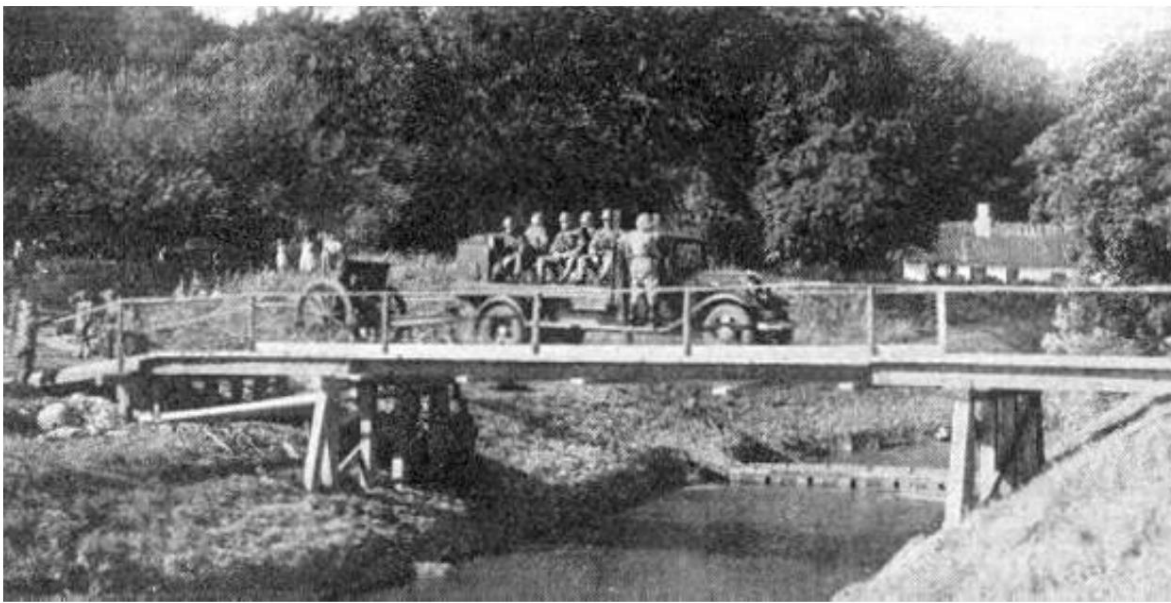
### Motor equipment



Passenger car of the type Ford V8 Mercury (1938).  
From Source 2.

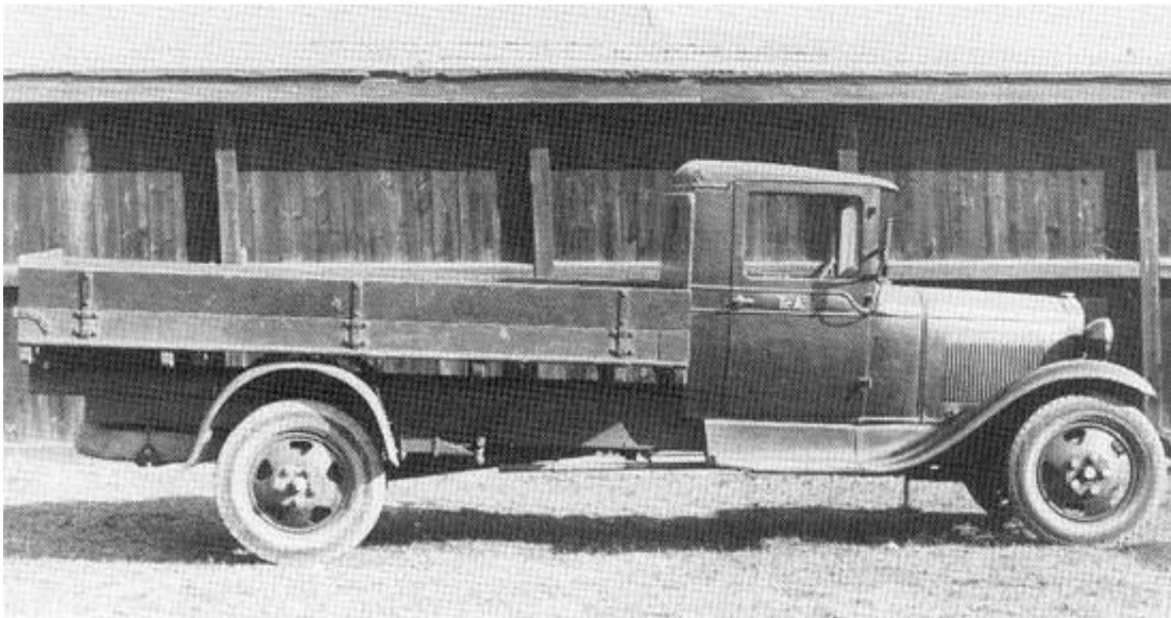


Nimbus motorcycle.



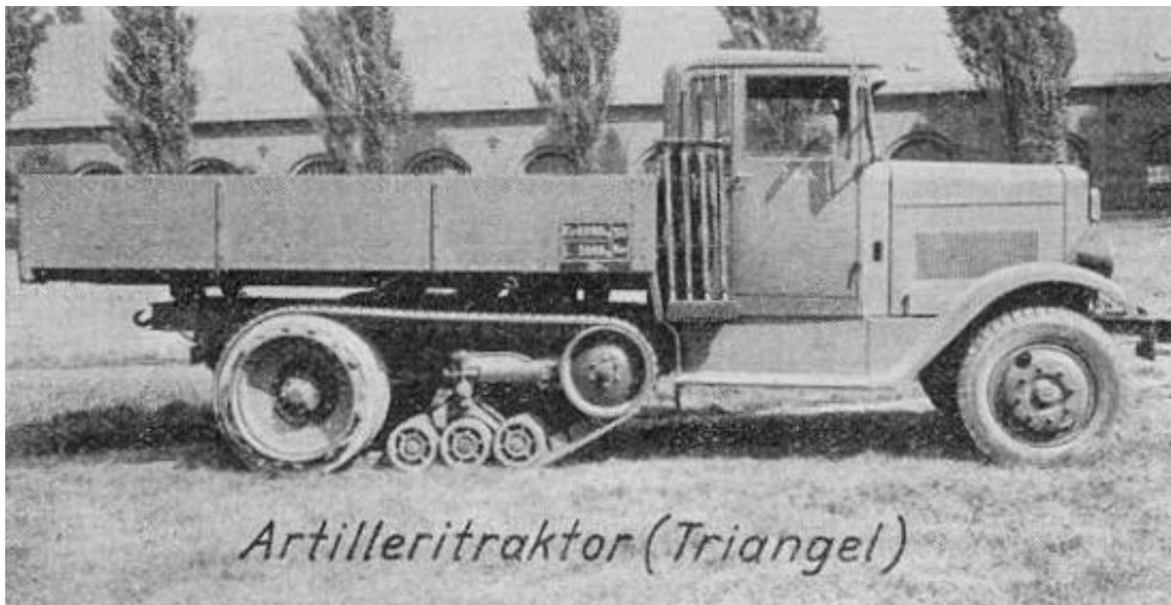
*Ford type gun carriage passes a heavy column bridge. From Source 4.*

On the barn you can see the crew, benched lengthwise, back to back. At the back of the barn is the previously mentioned *rear box* for ammunition etc.



*Ford A (1935)*

This picture of a lorry of the type Ford A (1935) gives a better impression of the lorry itself, which, however, has no special structure on the bed. (The image comes from Source 2.)

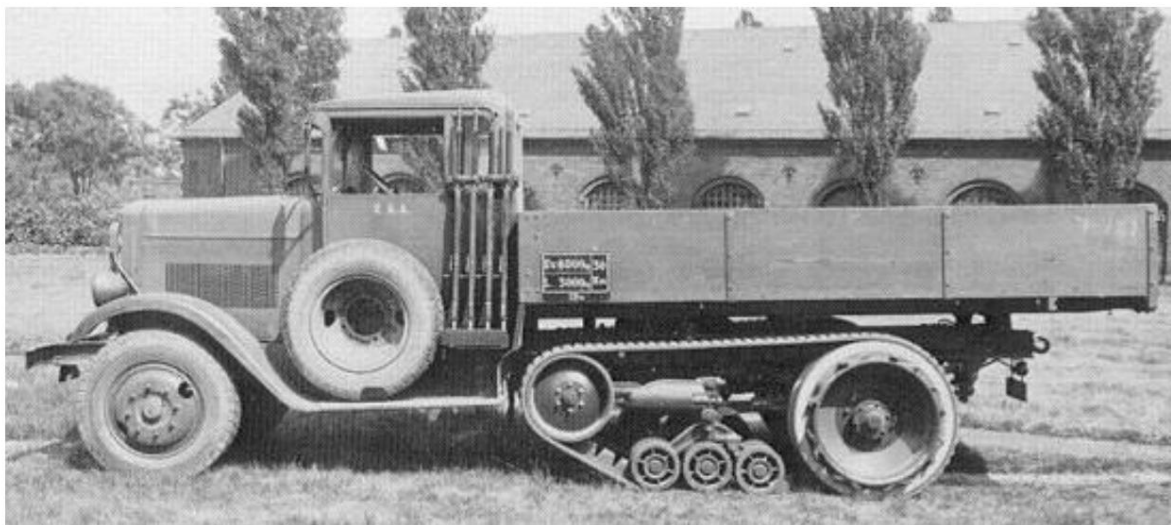


*Artillery tractor, Triangle*

The artillery tractor, which is of Danish origin in terms of both construction and manufacture, is intended for hauling the artillery's heavy projectiles both on road and off-road.

The vehicle is, by and large, an ordinary, somewhat reinforced truck (Triangle chassis "Military type", load capacity approx. 3 t payload), on which a special track device (with rubber belt) is mounted on each side, which is driven around with the rear wheels.

The belt body is made by Kornbeck.

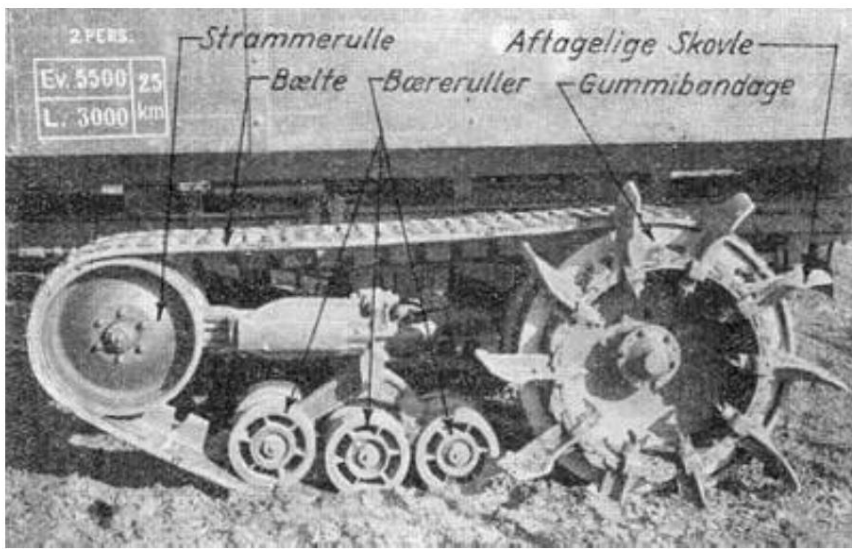


*Artillery tractor, Triangle*

While the belts are relatively ineffective when driving on country roads, these are very effective when driving on loose or soft ground, as they partly prevent the tractor from sinking into the ground, and partly contribute to producing sufficient friction between the vehicle and the ground surface.

Transition from road driving to off-road driving and vice versa usually does not require any change or adjustment of the tractor's drive mechanism.

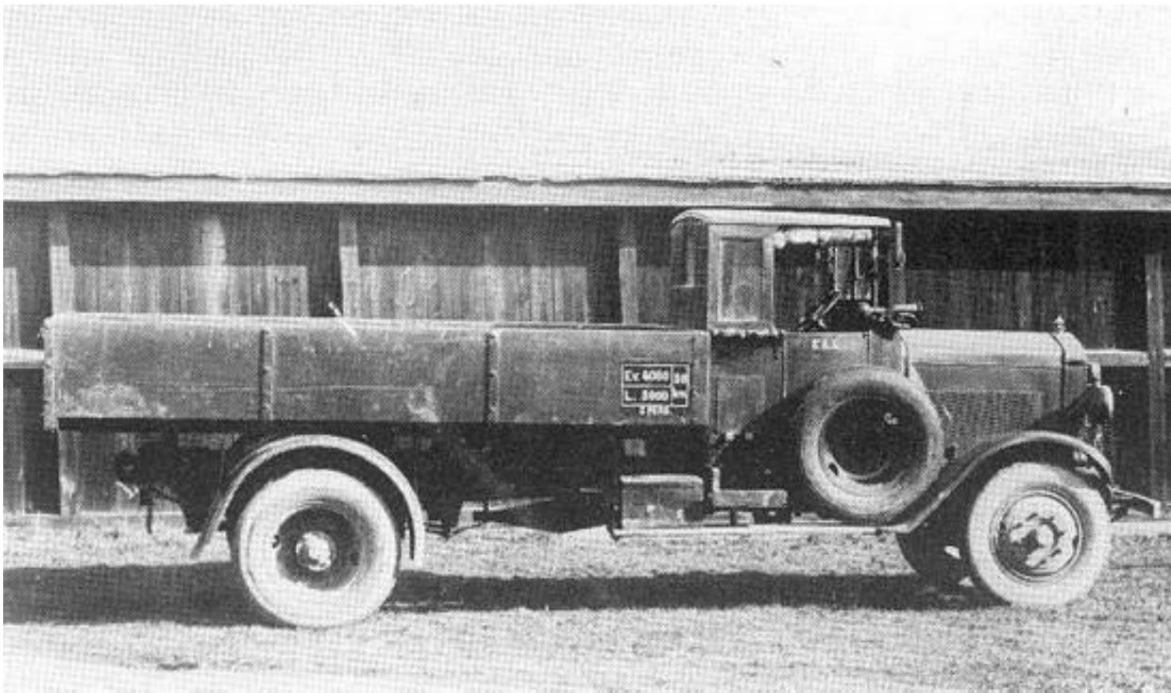
(The image comes from Source 3.)



*Artillery tractor, Triangle*

For use in particularly difficult terrain, some shovel-shaped claws are also carried on the tractor, which can be attached to the two driven rear wheels in order to further increase the friction. However, these claws are very powerful and must therefore only be used in soft or loose terrain.

In addition to the above-mentioned special belt means, the tractor is equipped with a motor-driven winch with an associated winch wire, whereby the tractor can pull the cannon to itself either from a stationary position or while driving. The game has two speeds.



*Triangle truck (1931). From Source 2.*

The belt means can be fitted to any lorry of the above-mentioned Triangel military type within approx. 10 hours.

Furthermore, in the event of a break in the belt means, these can be removed by a mechanic on site and the carriage then fitted with ordinary air rings, without changing the chassis.

## **Notification Service**

The Field Artillery's communications service is normally tasked with maintaining communication between the various units within the artillery (regiment, division and battery) as well as between these and troops of other arms, with which

there must be cooperation.

The correct functioning of the communication service is a condition for the safe management of artillery fire and thus for a successful course of battle.

The following means of communication are used:

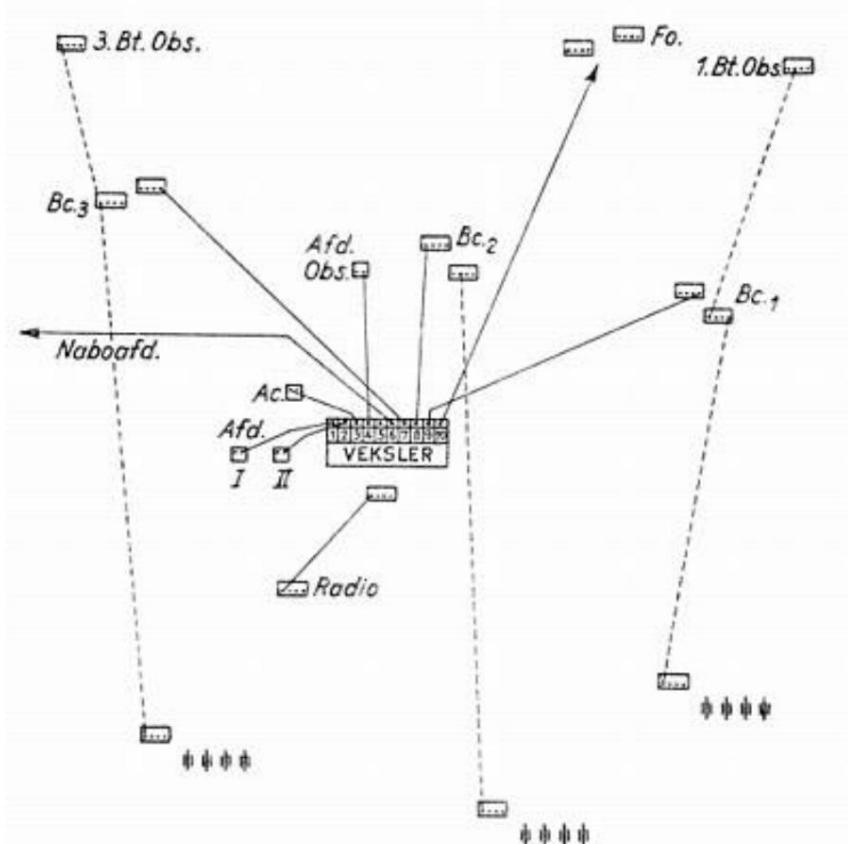
- **Telephone** used to transmit speech and, as an emergency aid, for signaling by buzzing.
- **Radio**, in which connection code must often be used.
- Signaling according to the Morse system, carried out by means of **signal flags**, electric signaling equipment (**signal lantern**) or, as an emergency aid, field lamp.
- Signaling by **firing signs**, consisting of a system of signs by which to express the commands and messages normally required in the firing of a battery. The signs are given without special means by performing certain movements, taking certain positions, etc. Shooting signs are used exclusively within the artillery.
- Signaling by **light signaling equipment** (light balls and rockets)
- Signaling by **flag** and **signal flags**.

The two latter means of communication are also used in connection with troops of other arms.

Balls of light and rockets are thus most often used as signals **for the** artillery **from** the infantry or aviators.

Flags and signal flags are laid out on the ground as signals **to** pilots, while messages **from** pilots are usually received by radio. The pilots can also drop messages in **message bags**.

The above-mentioned equipment is operated by the designated personnel who are part of regimental, divisional and battery troops.



Principle sketch, the department's telephone network

## Telephone equipment

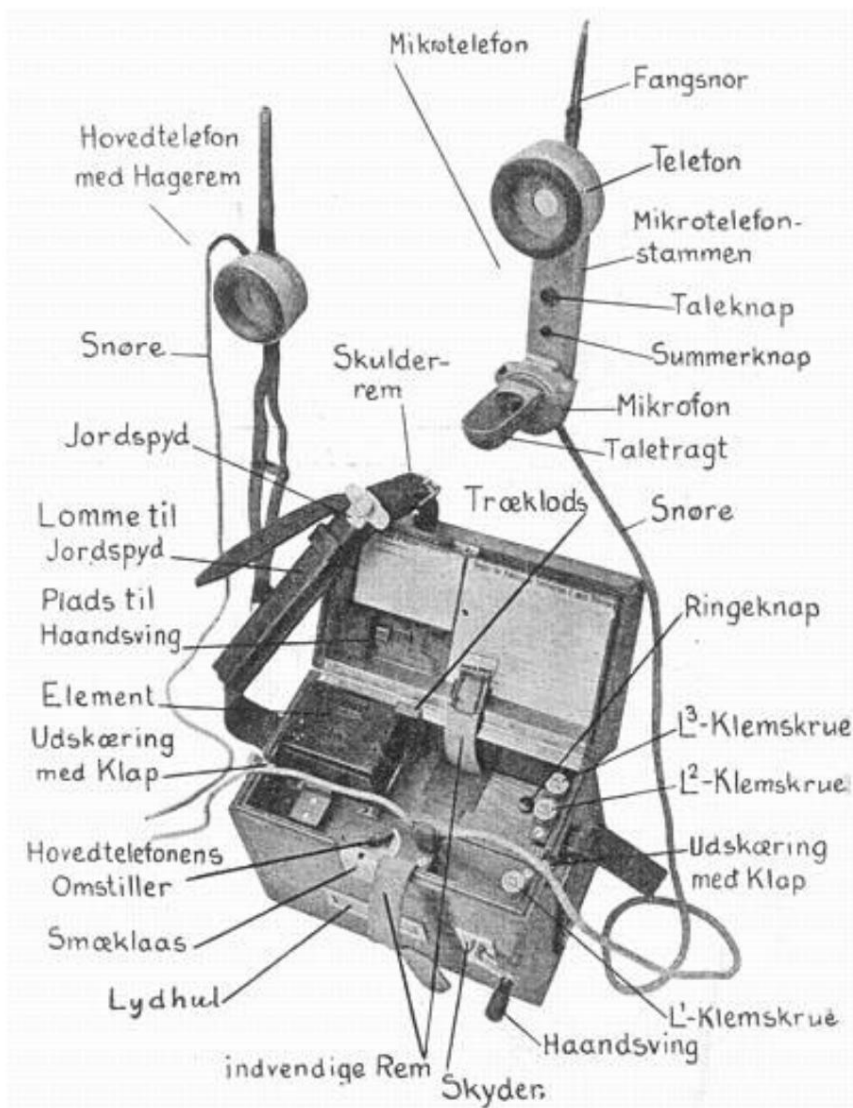
The telephone equipment consists of:

- Field telephone B (buzzer telephone)
- Field telephone E (buzzer and inductor telephone)
- Changer (= switchboard)
- Cable reel C (500 m cable, Jutland)  
Cable reel D (750 m cable, Zealand)

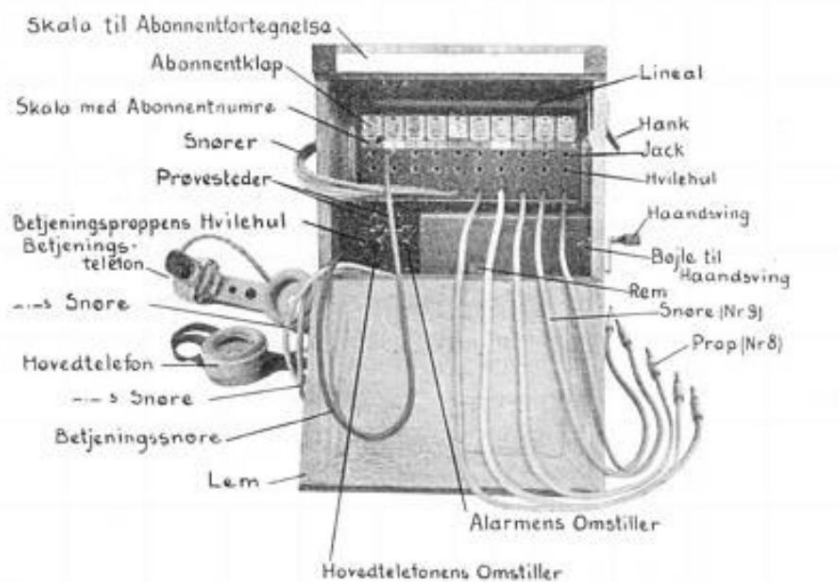
as well as associated telephone pegs, drum bags, extension poles and climbing tracks.

Field telephone B and cable drums C and D are illustrated in my article Danish air defense artillery 1940, to which reference is made.

The drawing on the right shows an example of a department's telephone network.



Field telephone E.



Changer, front view.

## Radio equipment

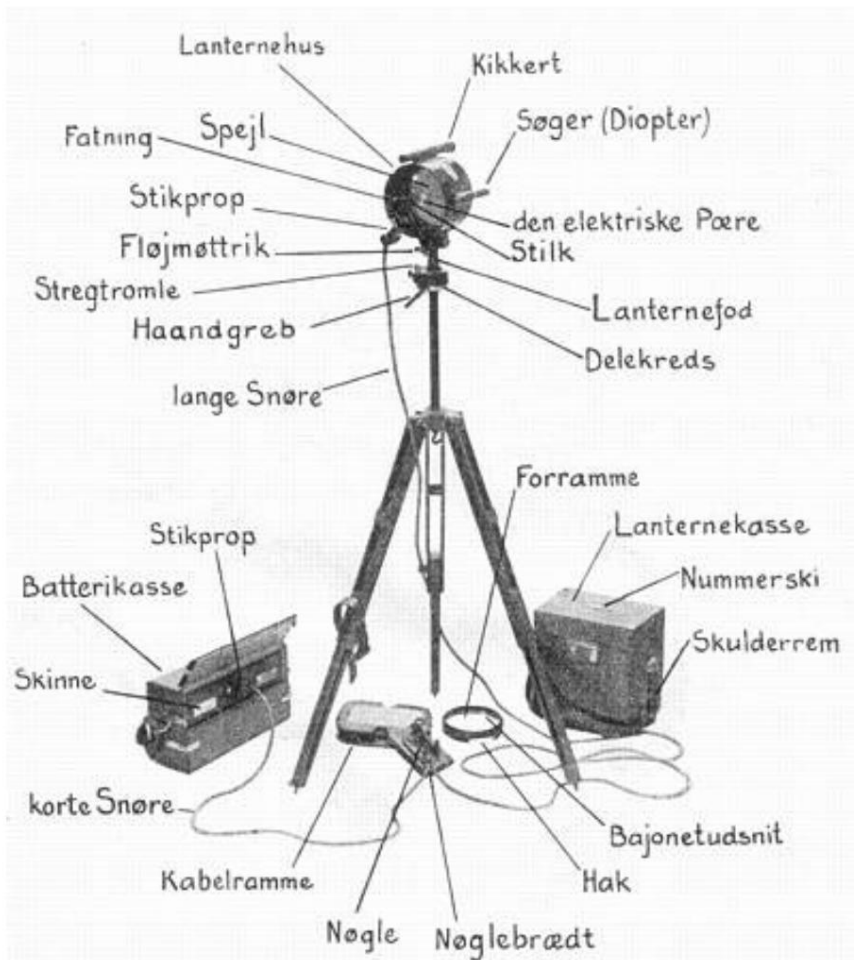
The radio SMC station (Transmitting and Receiving Station, type C) is discussed and illustrated in my article Danish Luftværnsartilleri 1940, to which reference is made.

The frequency range 2,700 - 5,000 kHz is normally assigned to the artillery.

### The range of the station for the individual frequency ranges:

2,700 - 4,000 kHz	approx. 10 km
4,000 - 5,000	approx. 6 km
5,000 - 6,000 kHz	approx. 4 km

## Electrical signaling equipment



The electric signal station.

#### Sources

1. *Textbook for Army Privates, Part II for Motorized Field Artillery*, Ministry of War, Copenhagen 1940.
2. *The automobile in the army 1908-1983* by Frank Pedersen, 1983.
3. *From Horse to Motor*, leaflet from the Tøjhusmuseet's special exhibition at Christiansborg Ridebane, 14 July - 12 August 1990.
4. *The defense book* by T. Andersen, Gyldendal, Copenhagen 1941.
5. *Memory book for use in the field, during exercises and war games* by HH Jørgensen, N. Olaf Møllers Forlag, Copenhagen 1936.
6. *Field equipment for Individuals*, Ministry of War, Copenhagen 1936, with correction sheets up to August 1941.

#### Appendix

1. Field equipment for one man 2.  
A light artillery detachment in position

Per Finsted

#### Notes

- 1) *The textbook has been kindly lent by an artillery constable, year 1943, 627 Hans A. Kamp Nielsen, 1. Polytechnic Battery, 1st Artillery Division.*



Skema Nr. 16 til Feltudrustning for Enkeltmand.

Sagerne henholder under	Artilleri.														Vedtegning.				
	Lette og tunge motoriserede Afdelingsstabe og Batterier.																		
	Afd.chef, Adjutant, Ordonn.off., Fører f. Afdtr., Forbindels.off.	Afd.skriver, Depotoff., Kmd.off.	Vognf. v. Afd.stab, Batt. og Vognl.	Batt.chef, Næstkomm. v. Batt., Off. i Batt.tr. Halvbatt.f.	Forstill.sf., Del.sf. i Kanonlinie	Ordonn.uof.	Vognlinief., Næstkomm. og Sektionsf. i Vognlinie	Res.tromp., øvr. Ukpl. og Kst.	Rekylgeværmandskab	Mot.vogn- og Traktorfører	Motorordnans, Motorykelfører	Kogunderofficer	Regnskabsfører el. Res.intendant	Kpl., Ukpl. el. mg. af Forplkps.	Læge	Sygehj., Sygeb., Kantinesoldat	Felthaandværker, Res.haandv.	Vpl. Haandværker, Haandv.hj.	
M.	Hjelm . . . . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Uniform . . . . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Personmærke, Sæt . . . . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Lærredstøj, Sæt . . . . .	.	.	1a	.	1a	1	1	1	1	1	.	1	1	1	1	1a	1	1
	Marchstøvler, Par . . . . .	.	.	.	.	1	1	1	1	1	1	.	1	1	1	1	1	1	1
	Støvler for beredne, Par . . . . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Gamacher (Viklers), Par . . . . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
I.	Feltfl. og Enmandskogekedel m. Hylster	.	.	1	.	1c	1	1	1	1	1	1	1	1	1	1	1c	1	1
S.	Enkeltmandsforbindingspakke og Gas-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	pudder . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1p	.	.	.
	Kantinetornyster <sup>2)</sup> . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.
	Armbind med Genferkors . . . . .	.	.	.	.	.	.	.	.	1d	.	.	.	.	1	.	.	.	.
V.	Gevær M. 1889 . . . . .	.	.	1	.	.	1	1	1q	1	.	1	.	1	.	.	1c	1	1
	Pistol M. 1910/21 (1910) . . . . .	1	1	.	1	1	.	1	.	.	.	.	1	.	1	.	1b	.	.
	Pistol af ældre Model . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sabelbajonet . . . . .	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.
	Kniv M. 1923 eller Knivbajonet . . . . .	1	1	.	1	1	.	1	.	1r	.	.	1	.	1	.	1b	.	.
	Pistolrem . . . . .	1	1	.	1	1b	1	1	.	.	.	.	1	.	1b	.	1b	.	.
	Livrem . . . . .	.	.	1	.	1c	1	1	1	1	1	1	1	1	1a	1	1c	1	1
	Sværdtaske <sup>1)</sup> . . . . .	.	.	1	.	1c	1	1	1	1	.	1	.	1	1a	1	1c	1	1
	Patrontaske . . . . .	.	.	1	.	1	1	1	1	1	1	1	1	1	1	1	1c	1	1
	Brødpose med Hylster og Remme . . . . .	.	.	1	.	1c	1	1	1	1	1	1	1	1	1	1	1c	1	1
	Tøjkasse <sup>2)</sup> . . . . .	.	.	1	.	1c	1	1	1	1	1	1	1	1	1	1	1c	1	1
	Signalføjte med Kæde . . . . .	1e	.	.	1f	1t	1	1	1	1	1	1	1	1	1	1	1c	1	1
	Signaltrompet med Banderole . . . . .	.	.	.	.	.	.	1u	.	.	.	.	.	.	.	.	.	.	.
	Kappebærerem og Kapperem, kort . . . . .	.	.	1	.	1c	1	1	1	1	1	1	1	1	1	1	1c	1	1
	Feltlygte <sup>4)</sup> . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Dobb. Prismekikkert 8—10 × Forst. . . . .	1	.	1g	1	1t	1	1i	1h	.	.	.	.	.	.	.	.	.	.
	Kuffert <sup>2)</sup> . . . . .	1	1	.	1	1b	.	1	.	.	.	.	1	.	1	.	1b	.	.
	Haandværkerransel <sup>2)</sup> <sup>3)</sup> . . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1j	1	1
	Rekylgeværmateriel og Ammunition . . . . .	.	.	.	.	.	.	.	o	.	.	.	.	.	.	.	.	.	.
A.	Patroner til Gevær . . . . .	25	25	40n	.	40n	40n	10q	40	40	40n	40	25	40	25	40c	40	40	40
	Patroner til Pistol . . . . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Gasmaske . . . . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

- 1) De med Sabelbajonet udrustede har Sværdtaske hertil.
- 2) Køres.
- 3) For Reservehaandværkere (Hjælper) efter deres Fag Ransel for Skytsmekaniker, Motormekaniker el. Sadelm.
- 4) Indgaar ikke fast i paagældendes Enkeltmandsudrustning, men udleveres, naar Tjenesten kræver det: føres iverigt som Vognpakning.
- a) Kornetter o. l. og Personale af lavere Grad.
- b) Officerer o. l., Befalingsm. af Officiantgruppen o. l.
- c) Faste Uoff. o. l. og Personale af lavere Grad.
- d) Kun Motorvognfører paa Lægevogn.
- e) Kun Adj. og Fører f. Afd.tr.
- f) Kun Batt.chef, Næstkomm. og Halvbatt.f.
- g) Kun Fører for Signalhold i Afd.st.
- h) Kun 1 Signaler i Afd.st.
- i) Ikke Sektionsf. i Vognlinie.
- j) Kun Res.haandværkere.
- m) Til Pistol af ældre Model.
- n) Ved hver Stab udrustes 5, ved hvert Batteri og ved hver Vognlinie udrustes 10 geværbevæbnede Befalingsm. med 20 Panserpatroner i Stedet for tilsvarende Antal Patroner M. 1908.
- o) Føres paa Rekylgeværvogn, i hvis Pakning Materiellet indgaar.
- p) Kun Kantinesoldat.
- q) Ikke Rekylgeværskytte.
- r) Kun Rekylgeværskytte.
- t) Kun Forstillingsf.
- u) Kun Res.trompeter.

## Danish motorized field artillery 1940, appendix 2

### A light artillery division in position

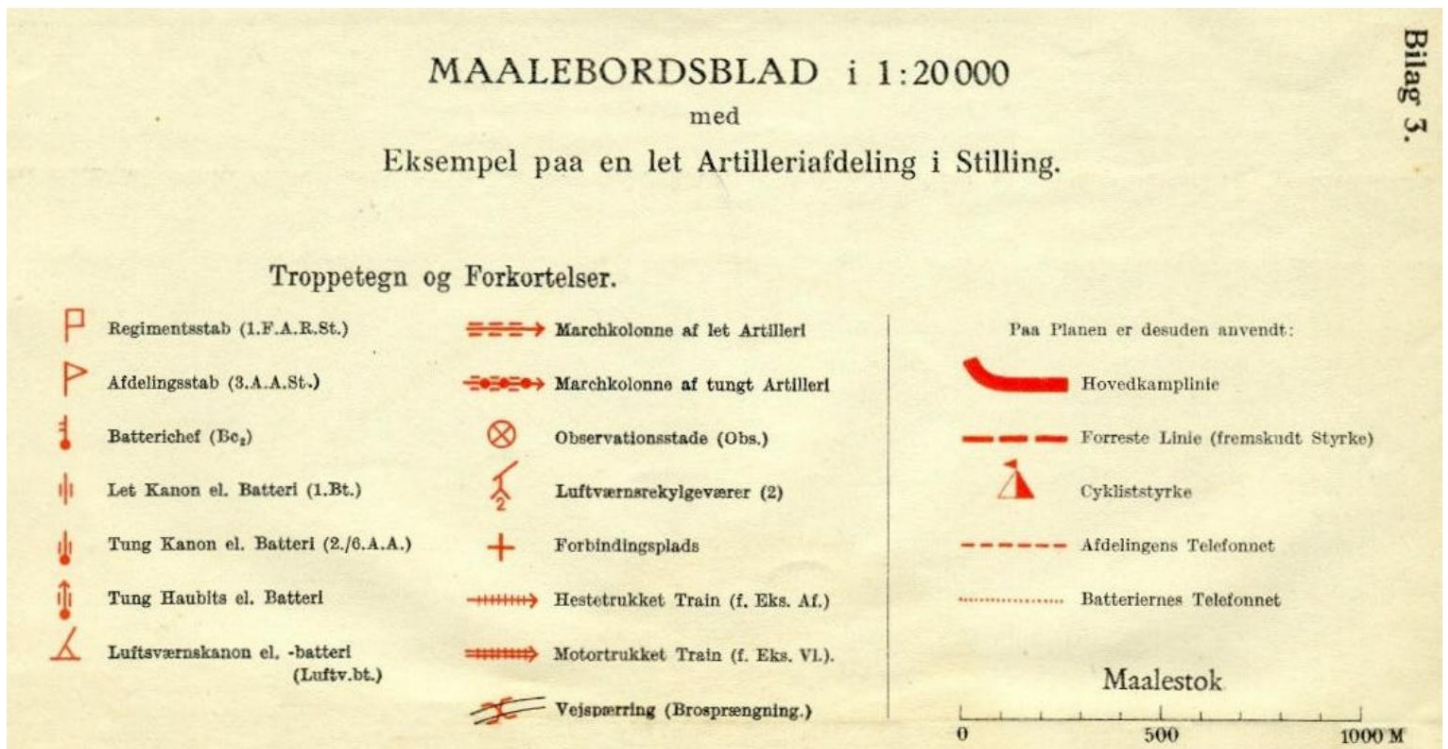
With the help of one of the maps found in *Lærebog for Hærens Menige, Part II for Motorized Field Artillery*, a good impression is obtained of how a light artillery division was intended to be positioned. The actual terrain is located northeast of SLAGELSE.

You can see the location of the individual batteries' positions, the batteries' and the division's command stations and observation posts, as well as where - in relation to the positions - the battery's fencing train and the division's wagon line were intended to be located.

Furthermore, the map also gives an impression of how the batteries were intended to be air-protected by their recoil guns - typically 100 m from the battery position, placed high. 1st Battery's recoilless guns are located 500 m from the gun line, probably because they also have the task of providing air protection for the division staff and the division squad.

It is recommended to use the sketch of the department's telephone network, which can be found in Part 2, during the study - a few meters of telephone cable must be unrolled in such a position...

### Signature explanation



Note that not all of the troop signs mentioned have been used, as well as troop signs and abbreviations that have not been explained. For example, the abbreviation is "At." (north-east of NÆSBY HUSE) not explained, but it means the "departmental troop", then it makes more sense than that.

### Example

See next page.



