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FOR OFFICIAL USE ONLY

DESCRIPTION AND INSTRUCTIONS

ON THE USE OF

SIGNAL ROCKETS

MARK I AND MARK II

PREPARED BY THE

ORDNANCE DEPARTMENT, U. S. ARMY, WASHINGTON

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WAR DEPARTMENT,

WASHINGTON, *December 15, 1917.*

The following pamphlet, entitled "Description and Instructions for the Use of Signal Rockets, Mark I and Mark II," is published for the information of all concerned.

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BY ORDER OF THE SECRETARY OF WAR:

JOHN BIDDLE,
Major General, Acting Chief of Staff.

OFFICIAL:

H. P. McCAIN,
The Adjutant General.

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SIGNAL ROCKET—MARK I.

DESCRIPTION OF THE ROCKET.

The signal rocket is used at night for signaling purposes. It rises to a height of approximately 800 feet and bursts at the top of its trajectory, throwing out a star and parachute. The star gives off a red, green, or gold rain.

The rocket consists of:

(*a*) The rocket body (H), which contains the rocket fuse (P), the rocket charge (N), the rocket body top (M), the rocket body bottom (L), and the color fuse (A).

(*b*) The head (B) which contains the priming powder (G), the star (U), the parachute (F), and the packing (D).

(*c*) The rocket stick (R).

(*a*) The Rocket Body (H).

The rocket body is a paper case 11⅝ inches long, with an outside diameter of 1 1/16 inches and an inside diameter of 1¼ inches. The clay rocket body top (M), with the color fuse (A), is inserted in the top of the body (H), to a distance of ⅝ of an inch. The rocket charge (N) is inserted into the lower end of the body with the hollow part down so that the upper end of the charge rests against the top (M). The rocket body bottom (L) is placed over the lower end of the charge. The rocket fuse (P) is tacked to the side of the body (H). One end of the fuse is inserted into the hollow in the charge (N) and the other end left loose so that it will project from the body when the cap (K) is broken. The ends of the body are sealed by two linen rocket body caps (K).

(*b*) The Head.

The head (B) is attached to the body (H) by a paper strip (W). The priming powder (G) is placed on top of the cap (K); the star (U) and parachute (F) are then inserted and suitably packed in sawdust. The rocket top (S) is inserted into the head and fastened to it by the paper strip (E).

As is shown in the plate the shape of the rocket top is distinctive for each rocket according as it gives off a red, green, or gold rain. The head of the rocket is painted the color given off by the star.

(c) The Rocket Stick.

The rocket stick (R) is made of wood, $\frac{5}{8}$ of an inch square and 72 inches long. Two grooves are cut in one face near the upper end for the spring (T). The stick is secured to the body (H) by means of this spring and the stick socket (V). The steel spring fits between the body and the socket and catches in the grooves in the stick. The socket is a square paper case 5 inches long with a hole $\frac{5}{8}$ of an inch square through it. It is fastened to the body by a strip of paper.

OPERATION OF THE ROCKET.

Tear open the wrapper by pulling on the string. Take out the rocket and the matches. Insert the stick (R) through the socket (V), allowing the spring (T) to catch in one of the grooves on the stick. Set the rocket up in the trough or wherever it is desired to fire it. Break open the seal in the lower end of the body (H) and pull out the end of the fuse (P). Light the fuse.

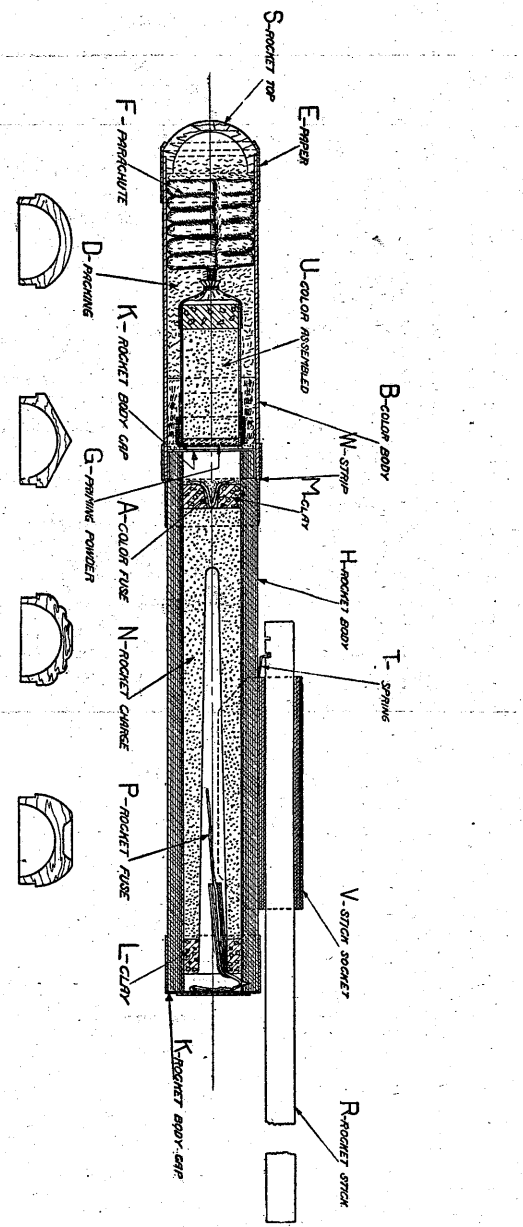
The fuse lights the charge (N), which propels the rocket. The charge when burned out ignites the color fuse (A), which in turn lights the priming powder (G). The latter ejects the parachute with the star from the top of the head (B), at the same time lighting the star.

PRECAUTIONS TO BE TAKEN.

1. See that the stick is straight and is free from knots.
2. After attaching the stick to the rocket, grasp the stick at a distance of one foot from the free end and hold it out horizontally. It should not break under this test.
3. Fire the rocket from the windward side.
4. Do not unpack rockets until necessary or unless there is a special place to keep them.
5. If unpacked, see that the sticks are attached and that they are pointed away from shelters or friendly troops.

SIGNAL ROCKET—MARK II.

The signal rocket, Mark II, is similar to rocket, Mark I, except that it is used in the daytime and gives off a yellow smoke instead of red, green, or gold rain. The top (S) is shaped to indicate this (see plate) and the head is painted yellow.


S-ROCKET TOP
E-PAPER
F-PARACHUTE
D-PACKING
U-COLOR ASSEMBLED
K-ROCKET BODY CAP
B-COLOR BODY
W-STRIP
M-CLAY
G-PRIMING POWDER
A-COLOR FUSE
H-ROCKET BODY
T-SPRING
N-ROCKET CHARGE
P-ROCKET FUSE
L-CLAY
K-ROCKET BODY-CAP
V-STICK SOCKET
R-ROCKET STICK
GREEN ROCKET TOP
YELLOW STONE ROCKET TOP
RED ROCKET TOP
GOLDEN RAIN ROCKET TOP

Nomenclature.

Symbol.	Quantity.	Name.	Material.	Location and purpose.
A	1	Color fuse	Powder	Contained in top (M). Lights priming powder (G).
B	1	Head	Paper	Attached to body (H). Contains star (U) and parachute (F).
C	6	Matches		Carried in wrapper. Used for lighting fuse (P).
D	.....	Packing	Sawdust	Packed loosely around star (U) and parachute (F).
E	1	Paper strip	Paper	Fastens top (S) to head (B).
F	1	Parachute	Japanese paper.	Contained in head (B). Holds star (U) in air.
G	1	Priming powder	Powder	Between top (M) and star (U). Expels star (U) and parachute (F) from the head (B).
H	1	Rocket body	Paper	Contains fuse (P), top (M) and bottom (L).
K	2	Rocket body caps	Linen	Fastened over ends of body (H).
L	1	Rocket body bottom.	Clay	Holds rocket charge (N) in place.
M	1	Rocket body top	do	Do.
N	1	Rocket charge	Powder	Contained in body (H). Propels rocket.
P	1	Rocket fuse	do	Attached to body (H). Lights charge (N).
R	1	Rocket stick	Wood	Attached to socket (V). Steadies rocket.
S	1	Rocket top	do	Plugs end of head (B).
T	1	Spring	Steel	Between body (H) and socket (V). Holds stick (R) in place.
U	1	Star	Chemicals	In head (B). Gives off red, green, or gold rain.
V	1	Stick socket	Paper	Attached to body (H). Holds stick (R).
W	1	Strip	do	Fastens head (B) to body (H).