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RESTRICTED

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Classification changed to **RESTRICTED**
by authority of CG ACF 1 May 44
C. M. [unclear]
Col. [unclear]

M-E5 Series
Flame Throwers.



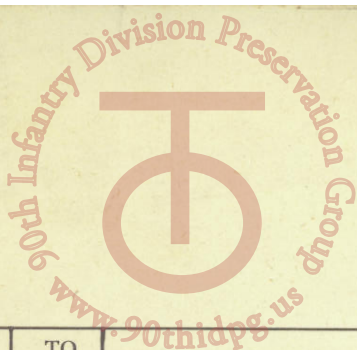
GNRQT-6/20531

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Inc #1



HEADQUARTERS
THE ARMORED SCHOOL
Fort Knox, Kentucky

10 May 44
(Date)

Suspense Date _____

2

FROM	TO	INIT.	FROM	TO	INIT.
	Commandant			Clerical Department	
	Assistant Commandant	(1) RWP		Communication Department	
	Executive			Demonstration Regiment	
✓	Secretary		✓	Gunnery Department (2)	
	S-1 Personnel			Library	
	S-2 Intelligence			Officer Candidate School	
	S-3 Operations			Reproduction Department	
	S-4			Student Officers Group	
	Supply Officer		✓	Tactics Department (3)	
	Adjutant			Tank Department	
	Academic Records			Teacher Training Department	
	Personnel Adjutant		✓	Training Literature Dept (4)	
	Records & Orders Sec			Training Group	
	Classification Officer			Wheeled Vehicle Department	
	Engineer			521st QM Bn	
	Inspector			Colonel	
	Judge Advocate			Lt Colonel	
	Officers Section			Major	
	Pers Consultant			Captain	
	Public Relations			Lieutenant	
	Special Service Officer			Chief Clerk	
	Troop Movement			WAC - Det TAS	

DISPATCHED
11 MAY 1944
HQ THE ARMORED SCHOOL

FOR	FOR
Approved	Prepare Indorsement
Disapproved	Prepare Letter
Compliance	Recommendation
✓ File (4)	Remark
Information (1)(2)(3)	Review and Comment
(2) Necessary Action	Return
Noted	See Me

REMARKS
Gunnery Dept:
Necessary action re including Flame Thrower instruction in training programs and procuring necessary equipment.
RWP
(Col. Prather)
Col. Krubbe OK'd this Dec. 1944. Instruction started Apr. 1945

HEADQUARTERS
THE ARMED BLOOD
FOR THE BLOOD

Receipts Date

NO.	DESCRIPTION	DATE	AMOUNT	INITIALS	REMARKS
1	WAD - DE TAB				
2	Chief Clerk				
3	Assistant				
4	Assistant				
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HEADQUARTERS
ARMY GROUND FORCES
ARMY WAR COLLEGE
WASHINGTON, D. C.

300.5A/139(R) (4 MAY 1944)
GNRQT-2/82275

4 MAY 1944

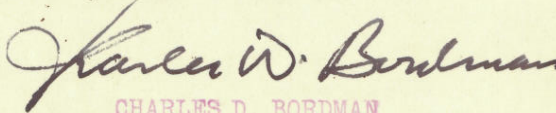
SUBJECT: Flame Thrower E 5.

TO : Commanding General, Armored Center, Fort Knox, Kentucky.

1. Inclosed herewith is copy of training circular on Flame
Thrower E 5 as forwarded for printing.

2. Classification has been reduced from CONFIDENTIAL to
RESTRICTED.

By command of LT. GEN. McNAIR:



CHARLES D. BORDMAN
Major, A.G.D.
Asst. Ground Adj. Gen.


1 Incl:
Draft WDTC

300.5 GNRET 1st Ind
(4 May 44)
HQ ARMD CENTER, Ft Knox, Ky., 9 May 1944.

TO: Comdt, Armd Sch, Ft Knox, Ky.

For your information and file.

By command of Major General SCOTT:



D. LAMPTON, JR.
Captain, A. G. D.
Assistant Adjutant General

1 Incl. n/c



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ARMY GROUND FORCES
ARMY WAR COLLEGE
WASHINGTON, D. C.

MAY 1944
MAY 1944
MAY 1944

SUBJECT: James Thayer, E. S.
TO: Commanding General, Armored Center, Fort Knox, Kentucky.

1. Enclosed herewith is a copy of training circular on James Thayer, E. S. as forwarded for printing.

2. Classification has been reduced from CONFIDENTIAL to RESTRICTED.

By command of Lt. Gen. KENNETH

James W. ...

1 Incl: 1
Draft WFO

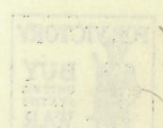
1st Lt
MAY 1944
MAY 1944

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MAY 10 1944
HEADQUARTERS
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MAY 6 1944 AM
MAY 7 1944 PM
MAY 10 1944



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TC

TRAINING CIRCULAR)

NO.)

WAR DEPARTMENT,
Washington 25, D.C. 1944

(Effective until 1945, unless previously rescinded.)

TACTICAL USE OF MECHANIZED FLAME THROWERS

E5R1-5 AND E4-5

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C O N F I D E N T I A L

1. GENERAL.--a. Mission.--(1) The principal mission of the flame thrower mounted in a tank is the demoralization and destruction of enemy infantry who cannot be attacked effectively with other tank weapons.

(2) Other missions.--Other missions of the flame thrower are --

(a) To clear a field of fire or vision through heavy vegetation or camouflage.

(b) To attack barricades and buildings in street fighting.

(c) To clear bunkers and pill boxes of enemy personnel.

(d) As an incendiary to start fires in grass, trees, bushes, or inflammable materiel.

(3) The tank flame thrower is an anti-personnel weapon of limited range particularly adapted to clearing the way for friendly foot troops and to mopping-up operations where enemy antitank weapons are absent or have been neutralized. It is an auxiliary weapon, the availability of which does not alter the tactical employment of tanks as prescribed in War Department doctrine.

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2. CHARACTERISTICS.--a. General.--For detailed technical data, and information about installation, charging, operation and maintenance, refer to War Department Technical Bulletin TB CW2, 12 February 1944.

b. Apparatus.--The installation consists of a gun unit and a fuel unit. The gun units are identical in models E5R1-5 and E4-5. The fuel units differ in capacity as shown in the data table. The E5R1-5 is designed for installation in light tanks. The E4-5 is used in medium tanks of the M4 Series.

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c. Fuel.--The 10-gallon unit permits about six 2-second bursts and the 25-gallon unit about 15 similar bursts.

d. Mounting.--The gun unit of the mechanized flame thrower is interchangeable with the bow machine gun and is mounted in the place of the bow machine gun when in use. When not in use either the machine gun or the flame thrower gun is carried in a ^{rack} ~~sheath or an improvised sling~~ near the bow gunner. Interchanging the machine gun and flame thrower gun is accomplished in about 1 minute.

e. Characteristics of the flame.--Unthickened fuel produces a dispersed, short-range flame. When the viscosity of the fuel is increased, the stream of flame becomes more "rod-like", its range increases, and the persistence of the burning fuel on the point of impact becomes greater. Thickened fuel produces less intense heat and much less smoke. A cross wind decreases the range, disperses the stream of flame and may make ignition unreliable. An experienced operator can adjust for most wind conditions.

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Figure 1.--Characteristic flame of unthickened fuel.

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Figure 2.--Characteristic flame of thickened fuel.

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f. Range.--The maximum range of the weapon is 80 yards with thickened fuel under ideal conditions. Wind, turbulence of the atmosphere and variations in fuel all tend to reduce this figure. Adverse conditions may cause a reduction of 50 per cent from the maximum. Only intensive training will teach the gunner the capabilities of his weapon under all conditions.

g. Data.--(All data are approximate.)

	<u>E5R1-5 Flame</u>	<u>E4-5 Flame</u>
	<u>thrower</u>	<u>thrower</u>
(1) <u>Elevation, depression and traverse.</u>	Within limits of bow gun (ball) mount.	Within limits of bow gun (ball) mount.
(2) <u>Range</u>		
Thickened gasoline, maximum.	80 yd	80 yd
Liquid fuel, maximum.	30 yd	30 yd
(3) <u>Firing time (excluding time between bursts).</u>	12 sec	30 sec
(4) <u>Fuel capacity.</u>	10 gal	25 gal

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3. TECHNIQUE OF FIRE.--a. Operation.--The flame thrower is operated by the bow gunner unassisted. Interchanging of the flame thrower with the bow machine gun is done by the bow gunner upon order of the tank commander.

b. Training.--(1) A flame thrower gunner is selected for demonstrated good judgment, ability to make quick decisions, and understanding of the purpose of the weapon. He learns the use and limitations of the flame thrower by actual firing on targets.

(2) He is taught --

(a) To bring fire quickly upon surprise targets in bursts of 2 or 3 seconds duration.

(b) To direct the stream of flame directly into fox holes, trenches, or embrasures of bunkers.

(c) To conserve fuel rigidly.

c. Control.--Normally the gunner attacks targets upon order of the tank commander. In an emergency he will bring fire to bear as rapidly as possible when a target comes within his field of fire. All members of the tank crew are alert for flame thrower targets and bring them to the attention of the tank commander over the interphone when sighted. Targets which are outside the field of fire limited by the ball mount are attacked as the tank commander decides.

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4. TACTICAL EMPLOYMENT.--a. General.--The mechanized flame thrower is an anti-personnel weapon, useful only in close combat. The advance of a formation of tanks with flame throwers in action is demoralizing to the enemy. The flame thrower will effect the abandonment of positions due to fear, heat and smoke and will produce casualties. The flame thrower provides the tank with a weapon which will "shoot around corners". Enemy troops are not protected from it by frontal cover alone, such as a shield, a tree or a rock. A fox hole, even with a shelf to protect it against time fire does not afford shelter from a flame attack. Flame thrower tanks, to the extent fuel supply permits, can clear an area of enemy troops, preventing them from remaining secure in fox holes ready to attack friendly foot troops after the tanks have passed. Flame thrower tanks are used to best advantage in the leading wave of the assault echelon, when conditions permit this disposition. When infantry forms the leading wave of the assault echelon, flame throwers are used in the second wave (FM 17-33 and FM 17-36).

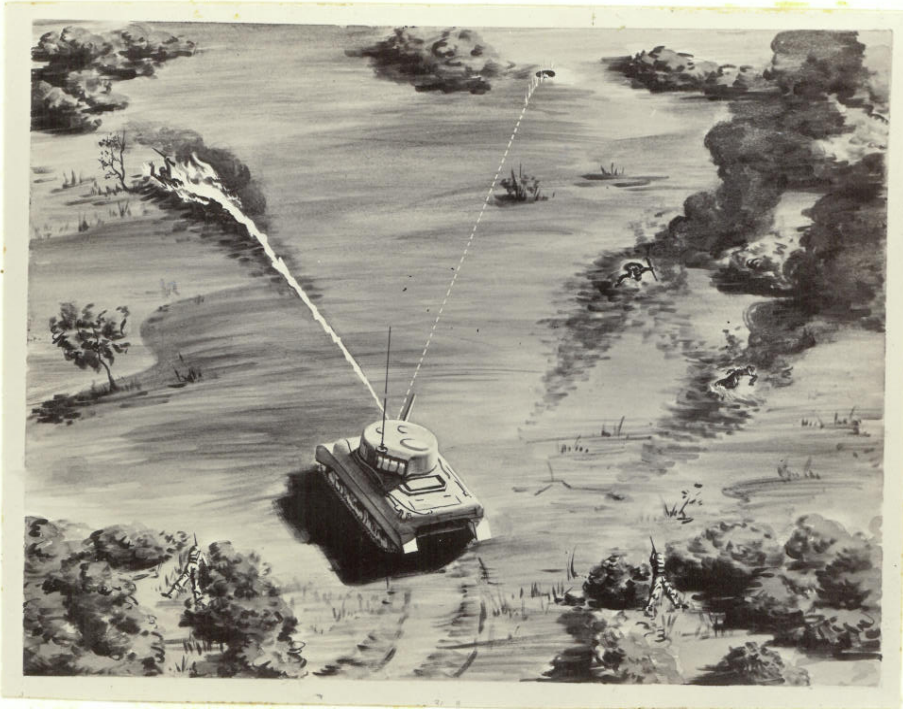


Figure 3.--Flame thrower tanks destroy enemy infantry in fox holes.

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b. Attack of targets.--(1) Each flame thrower tank is assigned a sector in the advance.

(2) When enemy positions are suspected in brush or scrub growth in the tank's sector, a limited area may be swept by the flame to flush the enemy, destroy camouflage and lay the area bare to visual inspection. Such area spraying is used sparingly because of the heavy drain upon the fuel supply.

(3) Enemy troops behind walls or similar shelter and without overhead protection are attacked by the flame thrower at maximum effective range so that the flame will envelope the reverse side of the wall. Similarly, troops on the reverse slope of a hill are attacked from full defilade with the flame thrower if within range.

5. SPECIAL OPERATIONS.--a. Jungle warfare.--(1) In jungle warfare the mechanized flame thrower is a valuable means of opening a field of fire and vision. The flame thrower shrivels or consumes foliage and vegetation for a distance of 25 yards in advance of the tank but it will not burn down trees or large branches. It is used to eliminate snipers and to clear personnel from pill boxes and fox holes. It clears the enemy from limited areas and exposes ambushes.

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Figure 4.--Flame throwers clear fields of fire and vision in jungle warfare.

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b. Street fighting.--When tanks are used in street fighting, lower floors of buildings are attacked at short and medium ranges. Fire at basements is especially effective. In the attack of street barricades, the gunner directs plunging fire of the flame thrower from maximum range onto the reverse side of the barriers.



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Figure 5.--Flame thrower tanks attack buildings and barricades
in street fighting.

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