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SHOULD THE PORTABLE FLAME THROWER BE ORGANIC TO THE
RIFLE COMPANY INFANTRY DIVISION BATTLE GROUP?

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PREFACE

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My thanks to the personnel of The Infantry School Library for their assistance in gathering research data for this monograph.

To Lt Col Walter L. Miller Jr, Chemical Committee, USAIS, my sincere appreciation for assistance rendered and information received on this subject.

The point of view expressed in this paper is that of the author--- not necessarily that of the United States Army Infantry School or the United States Army.

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INTRODUCTION

The objective of this discussion is to determine if the portable flame thrower should be organic to the Rifle Company of the Infantry Division Battle Group. All portable flame throwers are at present Class IV items of supply.

The weapons under consideration here are the M2A1 Portable Flame Thrower, the E-32 Portable Flame Thrower, and the M-8 One-Shot Portable Flame Thrower.

Assignment of a new or additional weapon in a units Table of Organization and Equipment requires considerable thought. It must be employed by the unit that can utilize its maximum potential. Many factors must be considered.

A need for a weapon of this type must be established on a rifle company level. The portable flame thrower must materially aid the rifle company in accomplishing all its assigned missions. The rifle company must be capable of effectively employing and maintaining the weapon.

The logistical support of the portable flame thrower has been a tremendous problem. The discussion will consider this problem as it pertains to the rifle company.

By discussing and analyzing the Rifle Company of the Infantry Division Battle Group in regard to the preceding requirements a conclusion will be reached as to the feasibility of the portable flame thrower being organic to this unit.

In the discussion the following assumptions have been made: in future conflicts the most economical use will be made of all available foxhole manpower, and due to the need in the Army for small, hard

striking, and mobile units the present Rifle Company Infantry Division should not be increased in size.

Information on the latest developments in the portable flame thrower field is limited. Annex B contains characteristics and photographs of the M-8 One-Shot Portable Flame Thrower. Characteristics and a photograph of the E-32 Portable Flame Thrower are contained in Annex C.

DISCUSSION

The use of flame in military conflict is not new. It has been employed by many means. As early as World War I portable flame was employed by the Germans, the British, and the French. Due to the short range of the weapon, operators had to move in very close. Operators were not given close support and operation of a portable flame thrower was considered a suicide mission. A portable flame thrower was produced for American troops in World War I. Despite the difficulties of resupply in extreme forward positions, it was a useful, though not indispensable, support weapon for the Infantry. Lack of development occurred between World War I and World War II. During World War II the M1A1 and M2-2 Portable Flame Throwers were developed and employed in combat operations. (7:9)

The following accounts of actions during World War II reflect the effective use of portable flame throwers:

"Portable flame throwers are close range weapons, more comparable to the bayonet and grenade than to the rifle and machine gun. They are essentially offensive weapons and, if used in the defense, their normal role is in counterattacks or in defense of a position. Their greatest use was against isolated centers of resistance. However, when used aggressively, they proved successful against organized defensive positions. They were found extremely useful in close country where normal support weapons were handicapped, such as jungles, mountains, wooded areas, and towns or villages." (7:228)

"The standard Engineer portable flame thrower used during the Saipan campaigns definitely performed up to all expectations. It was very effective on the enemy; there were no operational faults and it could be

used with a maximum of safety to the carrier.

Prior to the Saipan assault the soldiers grumbled about the fire weapon as being merely added weight for them to carry. After Saipan, the troops were enthusiastic about flame throwers." (4:3)

Through research and development the M2A1 Portable Flame Thrower is our standard weapon. The limitations of the portable flame thrower have remained essentially the same. It is a close range weapon. The M2A1, E-32, and M-8 Portable Flame Throwers all have a range of approximately 50 yards. The E-32 and M-8 are under field tests at present. The E-32 has the same general characteristics and capabilities of the M2A1 Portable Flame Thrower but weighs only 50 pounds. The M-8 is a one-shot weapon as it discharges all its fuel in one burst. Its weight is only 26 pounds. Fuel capacity is only two gallons and firing time about four or five seconds. "The new M7 (E32) Flame Gun is much easier to grip and provides greater ease in releasing fuel. This gun weighs three pounds less than the old one." (6:67)

A definite need for the portable flame thrower does exist. This was proven in World War II and more recently in Korea. The following report concerns use of flame in Korea: "Throughout the Korean Conflict, napalm-fueled flame throwers and fire bombs have been called into use as the one sure-fire means of combating the enemy when "conventional" weapons failed. The Chinese do not like to attack a position that has liquid fire." (2:26)

The portable flame thrower has long been considered a "special purpose" weapon. I believe this is due to the fact that this weapon has not been utilized to its maximum potential. A weapon with the capabilities of the portable flame thrower is needed today and in the future more than ever. Flame is a deadly weapon. "It can burn, blind, and asphyxiate enemy personnel. It has a tremendous demoralizing effect. An enemy will often abandon his position rather than face a flame attack." (8:1)

To tactically employ the portable flame thrower requires a thorough knowledge of its limitations. These limitations require the commander to thoroughly plan and coordinate the use of this weapon. The use of the

portable flame thrower without prior planning and training has caused many operators to become casualties. This decreases the confidence of the men in the use of the weapon.

The following report represents principles of employment in the Korean Conflict: "During the three years of the Korean Conflict, flame was used advantageously by UN troops both in attack and in defense. Perhaps the three most important lessons learned about the use of flame during the three years were: (1) When you use flame, be sure to use enough of it. For example, one flame thrower will seldom do the job. It takes two or more to make sure that the target is really covered. One thrower can take over when the first is out of fuel thus prolonging the effect of the fire on the target. (2) Plan their use. You must plan the use of flame weapons, just as you plan the use of other supporting weapons. These plans must include adequate quantities of fuel, servicing of the machines, orientation of operators, and coordination with other supporting weapons as well as the supported Infantry unit. (3) Training in the use of flame throwers. Each Infantry division in Korea was authorized more than a hundred flame throwers and would have used more if they had been available. The Infantryman must be trained to use them: until he is, he will lack confidence in their effectiveness." (5:37-39)

The doctrine for the organization and employment by combat units of the portable flame thrower is limited. Many studies have been made as to the proper location of this weapon. At present it is a Class IV item of supply and is stored at Army Depots. The portable flame thrower should be located close enough to the using unit to make the weapon an asset. The using unit of the portable flame thrower is normally the rifle company. The rifle squads and rifle platoons of the rifle company are ideally organized to tactically employ the portable flame thrower effectively. The closely coordinated fire support required is readily available in the rifle platoon and company support weapons.

It has long been recognized by commanders that a unit must train together if it is to become an effective fighting team. To employ the

portable flame thrower effectively requires training in the tactical employment, operation, and maintenance of the weapon. It also requires a great amount of teamwork between the operator and supporting troops. The flame thrower operator must train with the personnel he is to assault with in combat. The level at which good tactical training and teamwork can be developed is in a rifle company. Here also is where the weapon will ultimately be employed. As long as the portable flame thrower is not organic to the rifle company, the men will not be adequately trained to employ it. The following is an example of lack of training with the present system: "During Operation Commando in October-November 1951, the 1st Cavalry Division planned to use the flame thrower extensively to clean out enemy bunkers. To do this we first had to qualify operators." (10:83)

The present training prescribed is as follows: "Flame warfare, flame thrower M2A1 qualification (2 men per rifle squad), and flame thrower M2A1 familiarization (all men except those receiving qualification course)." (1:8) "Fourteen hours is the minimum time required to properly train and qualify portable flame thrower gunners, should be included in advanced individual training for selected individuals of the using unit." (8:8) "Effective use of the M2A1 Portable Flame Thrower can be achieved only by diligent practice with the weapon. Untrained gunners should never be sent on a mission." (9:14) Flame gunners cannot become adequately trained by drawing a weapon from a depot once a year. Nor can commanders become proficient in the employment of the weapon. From personal experience I can state that over a period of five years in TO & E Infantry units I observed the use of portable flame throwers by a rifle company just once.

At present there are not personnel available in the rifle company to be assigned as flame gunners as a primary duty. I do not believe it is necessary to add personnel for this function. There are personnel in the rifle company who maintain and are proficient in the use of two weapons. They are located in the weapons squads and maintain both a crew served

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weapon and an individual weapon. Also each vehicle driver in the rifle company maintains a vehicle and his individual weapon, the M-1 rifle. A Senior Rifleman from each rifle squad in the grade of Specialist 3 would be the flame gunner. While not being employed with his portable flame thrower he can carry out his assigned duties as a rifleman. His portable flame thrower would be carried on rifle company transportation when not in use. He would be required to be proficient in the use and maintenance of both of his weapons. During the training of the unit, the teamwork and coordination that is required for successful employment could be achieved. The rifle company commander and the small unit leaders would become proficient in the employment and many uses of the portable flame thrower.

To employ the portable flame thrower effectively requires a thorough reconnaissance be made. The rifle company has the leaders available to accomplish this task. They know the mission, route of advance, and can effectively bring the flame thrower operator forward under cover and concealment. The flame gunner receives the attack order with his squad and may also receive any special instructions from the squad or platoon leader. The rifle squads and rifle platoons are ideally organized to become an effective assault team by the addition of the portable flame thrower. The rifle company is the ultimate user of the portable flame thrower. It has the organization of personnel to employ the portable flame thrower to its maximum capability. The addition of personnel to the rifle company for the purpose of being primary flame gunners is not feasible. It is also not feasible to delete or remove a man from his present TO & E position to become a flame gunner.

The logistical requirements of the portable flame thrower are heavy. "Flame throwers expend their fuel quickly. To insure their participation in an action, fuel resupply points must be carefully planned for and closely supervised. Commanders at appropriate levels must select an adequately protected location for a refueling and pressurizing point. The refueling and pressurizing installations must be mobile enough to follow the movements of the action. Rifle company commanders make timely

requests for resupply based on frequent reports from platoon leaders, and flame thrower replacements are exchanged in forward areas whenever practicable." (8:2)

The rifle company does not have the personnel or transportation assigned at present to accomplish these requirements. The addition of personnel for this sole purpose would be uneconomical use of manpower. To add the equipment required would reduce the mobility of the rifle company. In the past the Infantry units at various levels have had to organize and operate these resupply points.

Due to experience gained in the Korean Conflict a new organization has been formed. This unit is the Chemical Combat Support Company. It is organic at Corp level.

The refueling and pressurizing of flame weapons is one of the Chemical Combat Support Company's missions. A platoon from this company will be sent to each Infantry division. It will provide necessary maintenance to supply the Infantry with a weapon that will be operative. (6:70)

The present doctrine of pressurizing and refueling well forward can be accomplished by this new unit. These supply points are mobile and can follow the tactical situation. Portable flame throwers would be exchanged on a one for one basis. With the portable flame thrower organic the rifle company would be charged with very limited logistical requirements. The rifle company would be responsible for obtaining the refueling and recharging from these forward points. This can be accomplished by the rifle company as organized at present.

The use of the portable flame thrower in the past has been in many cases a last resort. The following action took place during the Korean Conflict: "In attacking Hill 773 Company C had been held up and suffered severe casualties trying to dislodge the enemy from bunkers. The next morning the battalion commander sent several men to the rear for a quick course in the use of the flame thrower. They returned the same day with three (3) flame throwers. The flame throwers and a platoon of infantry

moved out at once. An enemy bullet pierced the pressure tank on one flame thrower, making it useless. The other two succeeded in reaching the area controlled by the North Korean grenadiers. Crawling almost to the crest of the ridge, the two operators pointed the flame-thrower nozzles up and discharged the tanks so that the burning jelly fell on the reverse slope of the ridge, forcing out the enemy." (3:221)

In the future more than ever the enemy will be dug in deep. He must dig in deep to protect himself from destruction by tactical nuclear weapons. If he survives the nuclear attack he must then be routed out or destroyed in place by the Infantryman. Flame is the weapon that can reduce these positions quickly and efficiently. Mechanized flame is effective; however, it has terrain limitations. On the nuclear battlefield the Infantry will be constantly attacking and eliminating enemy strong points. This must be done rapidly to prevent our forces from becoming vulnerable.

There are many uses for the portable flame thrower in combat. "The 1st Cavalry Division employed the flame thrower in defensive positions, mostly at night. In the 8th Cavalry Regiment a company using two flame throwers burned twenty enemy on their defensive wire. An examination of the bodies next morning showed that none of these men had been shot. Another night advantage is the three or four minutes of battlefield illumination afforded by the flame thrower." (10:83)

Commanders must work with the portable flame thrower before they can know the capabilities, limitations, and methods of effective employment of this weapon. The same is true of the flame gunners. A man who has not had sufficient training with a weapon lacks confidence in its capabilities. Only by training and actual use does he gain this confidence. The present training received by the Infantryman does not meet even the minimum requirements for producing effective flame gunners.

The rifle company can give the added training that is needed to produce effective flame gunners. The coordination and teamwork that is required to employ the portable flame thrower can be accomplished in

training. Not, as in the past, in combat at the cost of many lives. The present organization of the rifle company is ideal for tactical employment of the portable flame thrower. Logistical requirements that were formerly Infantry responsibilities have been assumed by the Chemical Combat Support Company. Portable flame throwers would not cause a logistical burden for the rifle company. The limitations of the portable flame thrower are being reduced. Development of lighter portable flame throwers is a reality, thus its mobility has been increased. With effective training in the different uses and employment of portable flame the Infantryman would recognize the capabilities of this weapon. If he had confidence in portable flame and it was readily available it would rapidly become a "general purpose" and not a "special purpose" weapon.

CONCLUSIONS

In analyzing the facts of the foregoing discussion the following conclusions have been reached:

1. There is a need for a weapon with the capabilities of the portable flame thrower in the Rifle Company Infantry Division Battle Group.
2. The rifle company has organic at present the personnel and tactical organization necessary to employ and maintain the portable flame thrower.
3. The teamwork, coordination, and training required for effective employment of a portable flame thrower are best realized in a rifle company.
4. With the advent of a Chemical Combat Support Company the logistical support required of a rifle company is negligible.
6. A portable flame thrower should be made organic to the Rifle Company Infantry Division Battle Group.

ANNEX A - Characteristics and Data of M2A1 Portable Flame Thrower

1. Range:

With thickened fuel may fire with effectiveness as far as 45 yards under normal conditions. With unthickened fuel under normal conditions effective at 20 yards. Underbrush and wind can reduce these distances.

2. Duration of Fire:

A. Fuel:

Continuous discharge of approximately 6 to 9 seconds or several short bursts totaling 6 to 9 seconds.

B. Ignition Cylinder:

Five (5) charges in each cylinder.

3. Weights:

Pounds

Portable Flame Thrower M2A1 (empty in packing chest, including chest and all contents)	110
Portable Flame Thrower M2A1 (empty)	43
Portable Flame Thrower M2A1 (filled with fuel)	68-72
Tank Group (empty)	35
Tank Group (filled with fuel)	60-64
Gun Group	8

4. Capacity of Weapon:

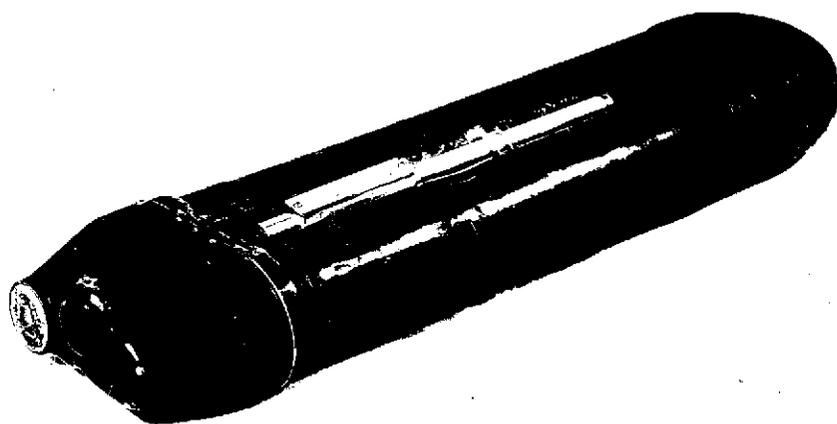
Ignition Cylinder (M1) (contains 5 incendiary charges)	1 cylinder
Fuel	4 3/4 gallons

5. Pressures:

Pressure Tank	1700-2100 psi
Fuel Tanks	350 psi

SOURCE: (Technical Manual 3-376, Portable Flame Thrower)

ANNEX B - Characteristics and Photographs of M-8 One-Shot Portable Flame
Thrower



M-8 Portable Flame Thrower

Weight: 26 pounds

Range: 50 yards

Fuel: two gallons

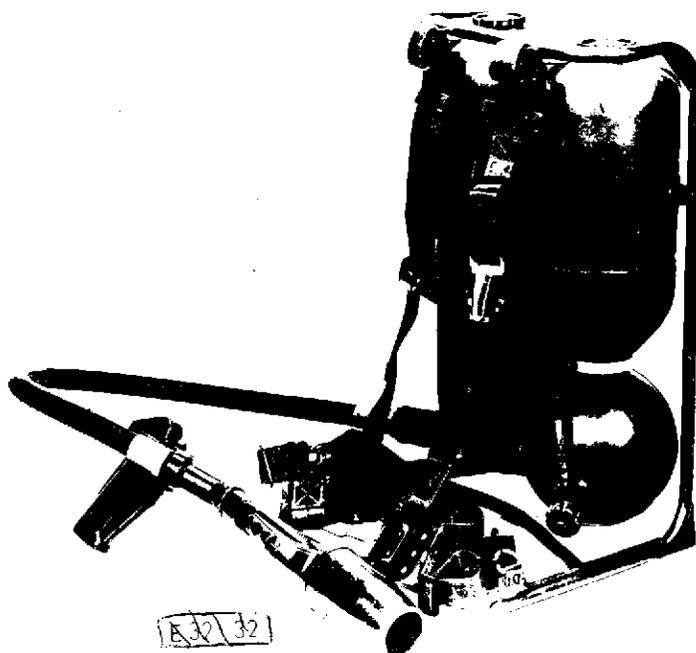
Firing Time: four to five seconds



M-8 Portable Flame Thrower in Action

SOURCE: (Lt Col Walter L. Miller, Jr., Chemical Committee, USAIS)

ANNEX C - Characteristics and Photograph of E-32 Portable Flame Thrower



E-32 Portable Flame Thrower and M-7 Flame Gun

Weight: 50 pounds

Range: 50 yards

Fuel: four gallons

Firing Time: six to nine seconds

SOURCE: (Lt Col Walter L. Miller, Jr., Chemical Committee, USAIS)

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