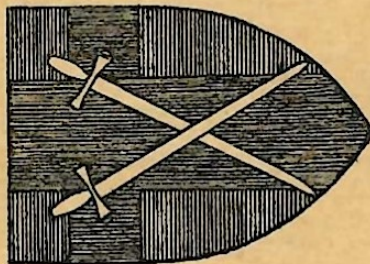


Lieut. J. A. MacEachern

RESTRICTED

The information given in this document is not to be communicated, either directly or indirectly, to the Press or to any person not authorized to receive it.

**NOTES ON THE
EMPLOYMENT OF TANKS
IN SUPPORT OF
INFANTRY IN BATTLE**



21 ARMY GROUP

OTTAWA
EDMOND CLOUTIER
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1944

(Reprinted in Canada (April 1944) by permission of the Controller
HIS MAJESTY'S STATIONERY OFFICE.) **February, 1944.**

4,500-4-44 (4237)
H.Q. 70-44-61 K.P. 5618

GENERAL CONSIDERATIONS

THE PROBLEM

1. The particular form of battle drill depicted in this pamphlet is suggested as a guide for commanders opposed by an enemy defending himself with tank obstacles such as minefields, wire, anti-tank ditches, etc. He has had time to dig an elaborate extended system of section posts, probably connected by crawl trenches. Anti-personnel mines and booby traps may be expected in large numbers.

DAY AND NIGHT ATTACKS

2. One of the first major decisions to be made by the Commander will be whether the attack is to be made in daylight or at night. If the enemy has had time to put down an elaborate system of anti-personnel mines then there are advantages in a daylight attack. Whether this attack should take place at first light or in the evening will depend on several factors. From the tank point of view the main ones are :—

- (a) With an evening attack it may be difficult to form up the attacking forces without being seen by the enemy.
 - (b) With a first light attack it may be well-nigh impossible for the infantry, anti-tank gunners and machine gunners to reorganise on the objective during daylight. The tanks must remain with the infantry until reorganisation is completed. This will entail heavy tank casualties.
 - (c) The direction of the attack. Tanks are at a great disadvantage when attacking into the sun.
- Provided the light is suitable, tanks prefer an evening attack timed so as to arrive on the objective about half an hour before last light.
3. From the infantry point of view, the advantages of a night assault are great. Unless there is strong moonlight, tanks are not able to render any direct support to the infantry until first light.

BEFORE BATTLE

INFORMATION ABOUT THE ENEMY

4. A commander must decide on his outline plan at the earliest possible moment so that an order of battle can be given out, tank units informed of the formation they are supporting, and, generally, the sector on which the attack will be carried out. Tank brigade and unit intelligence officers will then, without delay, make contact with their opposite numbers in the infantry, living and working with them until "D" day. During this period of preparation the ground and enemy defences will be studied in every detail by the officers. The tank officers will accompany infantry patrols by day and night to examine the ground and enemy defences.

It is the duty of the infantry to provide patrols to protect these

INTRODUCTION

1. In 21 Army Group all tank units are expected to be able to operate in close support of infantry in battle. This support takes two forms : (a) the "set piece" attack and (b) the exploitation of a disorganised enemy.

All forms of warfare depend for success on close co-operation and understanding between the various arms taking part. But the success of the "set piece" battle is entirely dependent on the mutual understanding and training of units and sub-units with their opposite numbers in the other branches. Only in this way will the Infantry, Tank, Gunner and Sapper junior leaders understand the capabilities and limitations of one another's weapons. From experience this has been found to be possible only by units and sub-units living and training together.

2. The contents of this document are based on practical experience of this type of warfare up to date and should be studied by all arms of the service which may be called upon to fight in a "set piece" battle.

3. The support of infantry by armour in the more fluid type of warfare is not included.

officers while carrying out their reconnaissances. Besides the tank intelligence officers, other officers from the tank units will be required to examine the ground, and every facility should be given them by the infantry to do so.

Tank officers should make a point of contacting artillery OPs, who are often in a position to pin-point enemy anti-tank, field gun, and machine gun positions.

Air photographs of the sector to be attacked must be supplied to the tank formation and units, with an air photographic interpretation officer available at call. One copy for the infantry and tanks is not sufficient. Under these conditions the tank officers rarely get a chance to study the photographs.

REHEARSALS

5. Initially, the whole operation should be discussed on a sand model, the model representing the actual ground over which the troops will carry out their attack. This should be conducted on a Divisional or Brigade level with all officers present. Later, unit COs must pass it on to the men.

At a later stage full-scale rehearsals should be carried out with all arms due to take part in the battle. Before the battle, all ranks, down to and including tank commanders and drivers, should be given a chance of seeing as much of the actual ground as possible over which they are expected to attack. All ranks must know intimately the units and sub-units with whom they are expected to fight.

In order to ensure that the more senior officers appreciate the difficulties under which the crew of a tank operate, it is desirable that the Brigade Commanders, all COs of units and, if possible, Divisional Commanders, should spend half an hour in a tank, occupying the various positions of the crew, if they have not already had this experience.

THE ASSEMBLY

6. All tanks, prior to battle, will be assembled in a suitable area some 5 to 7 miles behind their forming-up position. The move should be completed some three to four hours before it is time for the tanks to move to their forming-up positions. This practice is necessary in order to refuel the vehicles, and to give the men a meal and a little rest before going into battle. The area selected should allow for good dispersion, vehicles must be camouflaged and as little movement as possible permitted during daylight. Such transport as fitters' lorry, charging plant and petrol vehicles should accompany the unit to this area.

THE FORMING-UP AREA

7. The position selected should be out of view to enemy ground observation. It is advisable for the tanks and infantry to form up square to their objective so that there is no necessity for a pause on the

start line in order to do so. It is often advisable to tape or light the line of advance for the tanks from their assembly to the forming-up area. This is the task of the Tank Brigade Provost.

The marking out of the forming-up area is the task of the infantry and tank units' IOs. Plenty of time must be allowed to carry this out. White tape should not be used as it may be spotted from the air. Oil drums have been found suitable. The tanks approach the forming-up area from the rear. To do so from a flank leads to swinging of tanks in the area, which increases engine noise and may lead to a loss of direction.

METHOD OF ATTACK

8. A suggested method of attack when tanks are required to give direct support to infantry, that is, for a day attack or in bright moonlight, is outlined in the following paragraphs. From experience it has been found that a suitable composition for such a force is as given below; the size of the force should be increased or decreased in accordance with the task in hand:—

- One battalion infantry.
- One regiment tanks.
- Three field regiments, RA.
- A proportion of medium artillery.
- One A. tk. battery RA.
- Two troops light AA. battery RA.
- Two companies, RE.
- One company MMGs.

(See Appendix "A" for a diagram of the force ready to advance from its forming-up position.)

There are a number of points to be noted if the attack is to move forward smoothly. These are:—

- (a) If the forming-up is to be carried out in daylight, the marrying of all units and sub-units must be carried out as rapidly as possible. After rehearsals this drill can be completed in 30 minutes and has been done in less. To take longer over this phase may attract attention from the air or enemy artillery fire.
- (b) If the attack is timed for first light, the forming-up should commence soon after last light for all tracked and wheeled vehicles, so as to reduce the risk of forfeiting surprise. It is advisable for the infantry to marry-up about an hour before zero.
- (c) All tanks must be lined up on the correct bearing for passing through the gaps in our own minefields.
- (d) The gaps in our minefields must be made on the same bearing as the bearing for the attack.
- (e) It is advisable to move tanks into the forming-up area before other units as they form a convenient framework on which other units can adjust themselves.

ARTILLERY SUPPORT

9. Because the tanks are the predominant partner in this form of attack, the artillery programme should be suited to support them.

A barrage mixed with a little smoke and with lifts arranged to suit the tactical situation is usually the best form of artillery support.

A thick smoke screen is often required to cover the gapping parties while they are doing their work. Tanks should always be prepared to supplement this with smoke from their 75 mm. guns and 2 in. mortars should "windows" appear in this screen.

TASK OF THE GAPPING FORCE

10. A tank squadron can be employed to move forward with the gapping parties to assist in protecting them while the gaps are being prepared. This task should be carried out by tanks taking up suitable positions as near to the enemy minefields as possible. Some tanks must be near the gapping parties to give them immediate support.

When the gaps are completed it is often advisable for the tanks of this squadron to pass through and take up positions on the enemy side for local protection of the gaps. Carriers are also useful for this task.

As the attack progresses this squadron becomes available as a reserve at the disposal of the regimental commander and can often be usefully employed by assisting the infantry in "mopping-up" during the closing stages of the battle.

ACTION OF TANKS IN THE ASSAULT ECHELON

11. The tank squadron of the assault echelon should be timed to leave the start line so as to arrive at the gaps at the hour scheduled for their completion. The squadron leader will hear on the wireless of any delay in the completion of the gaps, and he must act accordingly. It is imperative to avoid congestion at the gaps. The squadron will be passed through the gaps and on to its objective at tank speed, synchronised with the advance of the artillery barrage. Its aim is to subdue any opposition on the objective itself and to keep it subdued until the arrival of the infantry.

The squadron leader must be prepared to switch a part or the whole of his command through a single gap should it be found impossible to complete the other gaps in time. (Normally three gaps of 24 feet each are required on each regimental frontage).

ACTION OF TANKS IN THE SUPPORT ECHELON

12. The task of tanks in the support echelon is to assist the leading infantry companies on to their objective by destroying any machine guns, or any other weapons of that nature, which may be holding them up. The squadron can best carry out this task by moving behind those infantry companies ready to rush forward or to a flank to deal with the opposition when it appears. It is considered that the tanks can best carry out this task by moving some 200 yards behind the rear of the leading infantry companies.

ACTION OF TANK REGIMENTAL HEADQUARTERS

13. The regimental commander should move wherever he can best control his command and at the same time be near the infantry battalion commander during the action. Close liaison between these two officers is essential for success.

THE APPROACH TO THE FINAL OBJECTIVE

14. It may be found that the final objective will be protected by a minefield laid close to the enemy defences. This can rarely be verified by patrols or air photographs and may only be disclosed by a tank or tanks becoming damaged by mines, or the tank crews spotting the low wire which is often laid in front of an enemy minefield. Should this occur, the infantry pass through the leading tanks while the latter do all they can to cover their advance by fire. In the meanwhile RE parties, which move close behind the leading tanks, examine the ground and if no mines are reported (a dummy field) the tanks immediately resume their advance. If mines are detected, the tanks follow the infantry on to the objective after the gapping parties have cleared and marked suitable lines through the minefield.

ACTION OF TANKS ON THE FINAL OBJECTIVE

15. The whole of the objective must be quartered by the tanks, ensuring at the same time that they do not expose themselves unnecessarily to anti-tank fire by movement on the forward slopes.

THE TASK OF THE INFANTRY

16. (a) The primary task of the infantry is the capture of, and reorganisation on, the objective as rapidly as possible. The tank is present to subdue any automatic weapon which may be preventing the infantry achieving this object.

(b) The tank soldier has difficulty in locating enemy automatics; fortunately the mere threat of appearance of a tank is often sufficient to silence the offending weapon. Infantry must take immediate steps to push on as soon as this happens and not wait for the tank to return and report "all is now clear." The tank must remain in the vicinity of the enemy automatic until the infantry are clear or the post has been "mopped-up."

(c) Should the isolated anti-tank gun, missed by the artillery barrage, open fire, then the infantry and medium machine guns can be of great assistance to the tanks by engaging it with their automatic weapons and mortars.

CARRIER PLATOON

17. Infantry carriers can be employed in two ways:—

(a) To protect the flanks of the leading echelon of tanks.

(b) To advance behind the leading tank echelon, and, on arrival on the objective, to prevent the enemy disabling the tanks with grenades.

Whichever course is taken, the carrier crews should realise that their small-arms fire will not harm our tanks, and therefore they should continue to fire even if the tanks are within their arc of fire.

While this is taking place, the squadron leaders must be examining the ground very carefully for suitable battle positions should their squadrons be called upon later to repel an enemy counter-attack directed on to the position.

Should an enemy minefield be encountered in front of the final objective, then further progress of the tanks is stopped until gaps are prepared. Under these conditions it may not be necessary for the tanks to proceed to the final objective at all, provided the infantry are satisfied with the situation. To do so may only incur unnecessary tank casualties. This decision must be made by the infantry and tank commanders in consultation.

The tank regimental command will withdraw the leading squadrons into their forward rally areas after consultation with the infantry battalion command. The tanks will be recalled to rear rally areas by orders of the infantry brigade or divisional command after the infantry on the objective are reorganised.

INTERCOMMUNICATION BETWEEN INFANTRY AND TANKS

18. The peculiar construction of tanks makes it difficult for the tank and infantry soldiers to converse easily on the battlefield without unduly exposing themselves. In order to overcome this difficulty a certain percentage of the tanks are equipped with No. 38 wireless sets, which enables the infantry battalion and company commanders to speak to the tank commanders. Remote control equipment is also carried on some tanks, which enables a man in a slit trench to speak to a tank. It must be remembered by the infantry company commander that it is difficult for a tank officer to find a company HQ in battle (which is often in a slit trench) and if he requires the assistance of tanks and cannot communicate by R/T he must make an effort to attract the tank commander's attention.

BETWEEN TANKS AND RE.

19. So as to ensure that there is no delay once the gaps through a minefield have been completed, a scout car with a wireless set must accompany the Sapper officer in charge of each gap. If the RE are unable to provide these sets they must be obtained from the tank unit. These sets are netted to the tank unit frequency. When a gap is clear the Sapper officer will himself report it immediately to the tanks.

Some gaps will be completed before others. The tank commander must decide whether he will wait for the other gaps to be completed or use the gap or gaps reported clear. His decision will largely depend on the progress of the artillery barrage at the time.

INDIRECT SUPPORT BY TANKS NIGHT ATTACKS

20. (a) Tanks are not suitable weapons to be employed in direct support of infantry in darkness. The crews cannot use their weapons because of the difficulty of sighting a target through the telescopic sights of the guns, the drivers are unable to see sufficiently to steer their tanks, and the tank commanders soon lose direction. In addition, the tank crews cannot distinguish friend from foe. On the other hand, tanks can, and must if required, be in a position to support the infantry by fire at first light whether or not the latter have succeeded in capturing their objective. This task requires careful planning and preparation on the part of the tank officers concerned. All the liaison required for a "set piece" attack is still necessary. The ground, by means of officers' patrols, must be known and all hazards located noted by all ranks. It is a great mistake to treat the indirect support by tanks as being of any less importance than direct support and therefore requiring less preparation.

(b) During the battle, arrangements for liaison become more important than ever. For example, the infantry battalion CO goes forward with his unit whilst the tank commander, quite naturally, wishes to remain with his. In many cases it will be possible for the two commanders to be together and this should be arranged. If personal contact cannot be maintained, then the tank commander must leave a liaison officer with a wireless link with the infantry battalion commander, duplicating this link whenever possible.

(c) It is the duty of the infantry battalion commander to keep the tank commander fully in the picture as to his progress. If this is not done the tanks may find themselves in an exposed position at first light and heavy tank casualties will follow.

(d) In an attack of this nature it is not desirable or necessary that the tanks and infantry should form up together. It is sounder for the tanks to form up to one flank and in rear of the infantry.

(e) On a dark night it is recommended, if the country is at all difficult, to time the tank advance at 1 m.i.h. The route forward should be illuminated, with tank commanders walking in front of their tanks.

(f) Should a halt take place word must be passed back giving the reason. Whatever happens the commander must ensure that his tanks are disposed in battle formation by first light ready to support the infantry should they be counter attacked before their reorganisation has been completed.

(g) Immediately on arrival in the infantry area it is the duty of the infantry company commander and the tank squadron leader to make contact with one another. It is imperative that the tanks should know the infantry dispositions as soon as possible and these must be pointed out.

(h) When the reorganisation of the position has been completed the tanks should be withdrawn to a rear rally where the tanks are

refuelled, etc., and the crews rested. This area will often be within range of the enemy guns and therefore all crews should dig slit trenches. If this is not done and intermittent shelling occurs, a large percentage of the crews will remain in their tanks, and no rest will be obtained.

(i) It is not advisable to station tanks near infantry for any longer than is absolutely necessary. The tanks draw shell fire and casualties amongst the infantry follow.

BY DAY

21. (a) Tanks give great moral support to our infantry. They have an equally adverse moral effect on the enemy. This factor must be considered by all tank commanders when asked to carry out some task not in accordance with tank training. Even the presence of a troop is quite sufficient to encourage the infantry to greater efforts. This factor is particularly important in defence. The moral effect on our infantry of the presence of a troop of tanks in the vicinity of a battalion HQ defending a difficult sector of the front is often out of all proportion to its material value. The tanks must be moved forward by night and remain hidden by day, otherwise they will draw fire and heavy infantry casualties may result. Alternative battle positions must be reconnoitred by all crew commanders after consultation with the infantry commander.

(b) A commander should not employ tanks in this manner until he is satisfied that it is essential to do so. It fritters away a tank force and a commander may find very few tanks in hand when they really are required for the immediate counter-attack for which they are well fitted.

DISTINGUISHING MARKS

TANKS

22. A signal of the day consisting of one or more pennants flown from a convenient mast will be used at the discretion of the Corps Commander. Each squadron leader flies a fish-tail pennant. The tank regimental commander flies a rectangular flag with the regimental crest or the number of the regiment superimposed in the centre. Each tank also will have its name painted on the hull. Tanks coming out of action should fly their distinguishing marks and have their main armament pointing in the direction of the enemy.

INFANTRY

23. In order to assist the tank gunners to distinguish friend from foe, each infantry soldier should have fixed on his back a white St. Andrew's cross. This can be arranged with white tape or whitened equipment cross straps.

APPENDIX "A"

Column "A"	Column "B"	Column "C"
One pl. inf. Gapping Party, RE.	One pl. inf. Gapping Party, RE.	One pl. inf. Gapping Party, RE.
One tp. tks. Sec. carriers	One tp. tks. Sec. carriers	One tp. tks. Sec. carriers.
Two 3-inch mortars (in carriers)	Two 3-inch mortars (in carriers)	Two 3-inch mortars (in carriers)
Tk. Sqn. HQ plus one tp. tks.	Tk. Sqn. HQ plus one tp. tks.	Tk. Sqn. HQ plus one tp. tks.
Inf. Coy. HQ.	Inf. Coy. HQ.	Inf. Coy. HQ.
RE Coy. HQ.	RE Coy. HQ.	RE Coy. HQ.
Inf. Carrier HQ.	Inf. Carrier HQ.	Inf. Carrier HQ.

Assault Echelon	One tp. tks. Two tps. tks. Tk. sqn. HQ.	One tp. tks.
Support Echelon	Rifle Coy. Arty. FOO and Line Party. One tp. tks.	Rifle Coy. Arty. FOO and Line Party. One tp. tks.
Reserve Echelon	Rifle Coy. HQ Inf. Bn. HQ. Tk. Regt. OC RE Coy. or CRE. Arty., FOO.	RE Coy (for second mine-field if located)

