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COMBINED OPERATIONS

PAMPHLETS Nos. 41A and 41B

R.E.M.E.

No. 41A.—Part I—General Considerations

Part II—Organization in Assault Force

No. 41B.—Organization for Units landing after the Assault Formations

1942

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*Prepared under the direction of
The Chief of the Imperial General Staff*

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DISTRIBUTION

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COMBINED OPERATIONS PAMPHLET No. 41A

R.E.M.E.

PART I.—GENERAL CONSIDERATIONS

1. General

1. The military portion of a force destined to carry out a landing is normally divided into an ASSAULT FORCE and FOLLOW-UP FORMATIONS. The assault force is the force detailed to make good the initial landing, and is in effect a covering force whose function it is to make room for the assembly of the follow-up formations. The position which it must secure in order to fulfil this function is termed the COVERING POSITION and should at least be far enough from the beaches to ensure the freedom of the landing places and the anchorages from ground observed artillery fire. On occasions the assault force may advance some considerable distance to meet enemy reserves and to give itself room for manoeuvre. The size of the assault force will therefore depend on the extent of this task. As speed and surprise are the essentials for a successful combined operation, any tendency to look on the covering position as a rigid defensive position must be avoided.

2. After a period of training and preparation the expedition will assemble and embark on ships and special landing craft at suitable ports. Dependent on the circumstances, the ships and craft will sail either in convoy or will be routed by lanes patrolled by fighters and naval forces. The operation may rely on tactical surprise, in which event the assault force will probably sail after dark and make the passage in the dark hours. On the other hand, it may be decided to sacrifice surprise and to make the passage by day, relying on the superiority of our own air and naval forces for the safe conduct of the force, and finally on smoke to achieve success in the initial landing.

3. On arrival at the chosen landing place, the first flights of the assault troops will disembark from special landing craft and press forward as rapidly as possible to their objective. The first flight will be followed by landing craft, tanks (L.C.T.) carrying tanks, vehicles and probably the reserve battalion; the interval between the beaching of the first flight and arrival of the L.C.Ts. will depend on the tactical consideration and progress of the operation.

4. When the whole force is ashore they will press on to their final objective, which will be far enough inland to enable the main body of the force to land and deploy without serious interference. Every possible support will be given by naval and air forces.

2. The assault force

1. The assault force will normally be composed of infantry brigades containing their proportion of support weapons and tanks, according to the nature of the enemy resources. The brigades will operate as brigade groups and the number of infantry brigade groups employed will depend upon the scale of operations and the extent of the covering position which the assault force will be called upon to secure.

2. Each brigade must be self-contained and all units must be capable of maintaining themselves with the minimum of equipment until such time as the landing places are sufficiently securely held and organized to allow reinforcements and the normal maintenance organizations to function. The scale of equipment and vehicles allowed for the assault

units in the initial assault will be very much reduced from the normal scale of equipment for these units.

3. Vehicles, guns, tanks and other equipment of the assault force may be carried from the outset in special craft, or they may be in M.T. ships which can be beached, or they may be transferred to landing craft off the enemy shore.

Use of gas by the defence

4. A possible form of beach defence which may be employed by the enemy is that of contamination by blister gas. Both sand and shingle readily absorb this type of gas and a contaminated beach may remain dangerous for some time.

Contamination of a beach will not in itself prevent attacking troops from crossing it and fighting their way to the objectives. Provided the beaches are rapidly crossed and obvious pools of contamination are avoided, assaulting troops run little risk of becoming casualties. On the other hand, the continued occupation of a contaminated beach will involve casualties both from contact with the beach itself and from blister gas vapour. Establishment of dumps on the beach may thus be impossible and ammunition, petrol, supplies, etc., may have to be carried and dumped some distance inland. This contingency will call for increased strength of beach parties and the provision of anti-gas clothing.

3. Follow-up formations

1. The number of follow-up formations to be employed will vary with the type of operation planned, the shipping available and many other factors.

Follow-up formations must be much more mobile than assault formations and capable of movement for much greater distances inland. Their transport and equipment will be reduced from normal field force scales to a working minimum known as a LIGHT SCALE. In general, their role is to move through the covering position secured by the assault force and either destroy enemy troops or seize points of tactical importance, e.g. ports, aerodromes, industrial centres, etc. In so doing they create more room for manoeuvre of succeeding formations and allow the development to the maintenance area to proceed.

4. Force maintenance area

1. As soon as possible after the landing of the follow-up formations and as soon as the tactical position permits, the maintenance area will be organized and developed. This maintenance area may be the future base area and will contain elements of the base installations such as fourth echelon workshops and base stores depots. The elements of fourth echelon workshops will be progressively developed, a nucleus of personnel and equipment landing simultaneously with the follow-up formations, while successive reinforcements will land as the operations proceed. The maintenance area, depending on the tactical situation, may or may not develop into the ultimate base area.

5. R.E.M.E. responsibilities

1. The R.E.M.E. responsibilities will consist in the main of the following:—

- i. Assistance to units of the formation concerned in the waterproofing of the equipment of the force sufficiently to prevent its being put out of action owing to short period immersion in the sea while being landed on the beaches.

- ii. Repairing and recovering equipment casualties occurring during the move of the units to the port of embarkation.
- iii. Repairing equipment casualties occurring during the embarkation of the equipment.
- iv. Providing adequate beach parties to assist units of the assault force to :—
 - (a) recover vehicles and equipment immobilized in craft in the water, on the beach or at the beach exits.
 - (b) carry out the light repair of vehicles and equipment which have been put out of action by immersion in the sea or by hostile action while being landed on the beaches. In the initial stages of a combined operation heavy repairs to equipment cannot be undertaken.
- v. Providing recovery and repair facilities for the assaulting force during its operations inland from the beaches.
- vi. Providing assistance to the supporting formations while landing on the beaches and subsequent repair and recovery for them during operations.
- vii. Providing an adequate repair and recovery organization for the operating force as it increases in size.

6. Outline of R.E.M.E. organization for a combined operation

1. When a combined operation is carried out the R.E.M.E. units and staffs concerned will be required to organize and carry out the following stages in the operation :—

- i. Personnel will be selected for the required number of beach recovery and workshop sections. These personnel will be drawn from the third and fourth echelon workshop units of the force.
- ii. The beach recovery and workshop sections will be trained with their equipment as teams in the recovery of vehicles and other equipment from water 4 to 5 feet deep and across beaches of a nature as similar as possible to those beaches on which the actual operation will take place. Training will also be carried out in putting back into action equipment that has failed due to immersion in water.
- iii. The workshop units of the formations concerned will assist units in the application of waterproofing measures to their equipment and will carry out these measures on their own workshop equipment.
- iv. R.E.M.E. officers at formation headquarters will determine, in conjunction with the " Q " staff, the order of landing of R.E.M.E. details.
- v. R.E.M.E. staff at War Office and command headquarters will arrange for recovery and repair of equipment casualties for the formations concerned as they move from the assembly area to the port of embarkation and while the equipment is being loaded into the ships. During this period the R.E.M.E. units of the formations will not be able to carry out their normal functions for their formations.
- vi. Beach recovery and workshop sections land with the first flights of L.C.Ts. and carry out repair and recovery in the beach area. L.A.Ds. land with their units and brigades.

- vii. Second echelon workshops on a very reduced scale land as soon as possible after their formations, i.e., late on D or early on D+1 for the assault force.
- viii. Second echelon workshops on a light scale land with their formations in the follow-up force.
- ix. Advanced detachments of third and fourth echelon workshops land as soon as they can be accepted in the force maintenance area, preferably about D+4 or D+5, but the actual day will depend upon the progress of the operation.
- x. All workshop units which have been landed on reduced or light scale will be brought up to strength, so that second echelon units are complete by the end of the first month and third echelon units by the end of the second month.
- xi. Fourth echelon workshops will be developed as necessary according to the trend of operations. In the initial stages the advanced elements of the fourth echelon workshops together with the increasing third echelon workshops will act as base workshops for the force. When the third echelon workshops are complete and sufficient fourth echelon personnel and equipment are in the force maintenance area the third echelon workshops will join their respective formations and carry out their normal third echelon work.

7. Training of R.E.M.E. personnel

1. While all operations require for success that the personnel taking part in them should be well trained, in combined operations it is absolutely essential that all personnel should be trained to the highest possible degree and be able to carry out their duties with efficiency in the circumstances likely to be met with during the operation. A large proportion of the R.E.M.E. personnel involved in a combined operation will probably have had little or no training suitable for combined operations, previous experience of static workshops being of little help in this direction.

2. R.E.M.E. personnel forming the advanced detachments of R.E.M.E. units, second echelon workshop units of the formation that land early in the operation and beach workshop and recovery sections will require, before the operation takes place, intensive training on the following lines:—

- i. Physical training to enable them to work for long hours often partly immersed in water.
- ii. Regimental training to enable them to be thoroughly proficient as regards weapons, self-defence, P.A.D. and anti-gas measures.
- iii. Technical training to enable them to diagnose faults and repair slight casualties quickly, especially those due to immersion in the sea. Beach recovery sections will require special training for beach and sea recoveries.
- iv. Collective training to enable workshop units and their formations to be able to operate together under field conditions without confusion and misunderstandings.

3. In order to be able to attain a sufficiently high standard of training it is essential that the majority of the personnel and equipment should be assembled early before the operation takes place, so that there is time to select and train officers and men for the jobs for which they are most suited.

PART II.—ORGANIZATION IN ASSAULT FORCE

8. General

1. The role of the assault force will be to seize landing beaches and take up a covering position so located that formations following after landing on the beach can assemble before engaging the enemy and secure more ground.

2. The assault force will consist of one or more infantry brigades with a proportion of support weapons and tanks according to the requirements of the operation.

3. The assault brigades will be accompanied by R.E.M.E. beach recovery and workshop sections, L.A.Ds. and brigade second echelon workshops, the latter being on a very reduced scale.

9. Beach recovery and workshop sections

1. The personnel forming the beach recovery and workshop sections will be selected from the personnel of the third and fourth echelon workshop units for the force. The selected personnel will be specially trained for their work on the beaches prior to the operation.

2. Beach recovery and workshop sections will be provided on a basis of one per brigade beach. The recovery equipment of the beach sections will be made suitable to deal with the type of vehicles and equipment with the brigades being landed on the beach. When tanks are being landed each brigade beach will require :—

3 Scammell tractors (or recovery tanks)

2 D.8 tractors.

3. If two brigades land simultaneously on the same or very closely adjacent beaches, two beach sections will be required, but it will be possible to reduce each slightly to two Scammells and one D.8 tractor.

4. All recovery vehicles included in the beach recovery sections must be waterproofed to withstand long periods of working in water at least 4 ft. in depth and must be provided with holdfasts suitable to the type of beach expected in the operation. It is very desirable that they should be equipped with quick release shackles for making quick attachment to the towing eyes of stranded vehicles.

5. The recovery vehicles with their crews, 50 per cent. spare crew and approximately 30 repair personnel (e.g. fitters, A.F.V., 15; fitters, M.V., 10; electricians, 5) will land with the first flight of L.C.Ts. They will operate under the orders of the R.E.M.E. officer organizing beach recovery and repair. This officer will work under the direction of the military landing officer (M.L.O.) and will co-operate closely with R.E. transportation units working on the beaches or their exits.

6. The function of the sections will be :—

i. To recover from the water and beaches bogged or drowned vehicles.

ii. To keep the beach exits free of vehicle casualties.

iii. To repair and get into action vehicles and equipments, the waterproofing of which has failed in the trip from the landing craft to the beach or which have been slightly damaged by enemy action.

It is most important that all vehicles should be drawn clear of the sea as soon as possible since the length of time required to put into action a drowned vehicle is roughly proportioned to the time it has been standing in the water. During the initial stages recovery will be to the rear of the beaches, care being taken not to block exits or cause large collections of vehicles at any one point, and repairs will be carried out on the beach. Later, when the beach workshop site has been selected, repair work on the

beach will be confined to jobs taking only about three hours or less. Longer jobs will be evacuated to the beach workshop site and carried out there.

10. Workshop sites in the beach maintenance area

1. Before the operation, provisional sites for beach workshops will be selected in conjunction with the M.L.O. from the available information of the beach area. There will be one site selected for each brigade group of the assault force. As soon as possible after landing, the actual site will be selected and reconnoitred by the O.C. beach recovery and workshop section in conjunction with the M.L.O. When the sites have been selected, the jobs taking longer than three hours to repair will be recovered to these sites and will be worked on there by the repair personnel which were landed with the recovery vehicles and which can be spared from working on shorter jobs on the beach.

2. The requirements for these workshop sites are :—

- i. Proximity to good roads or Sommerfeld tracks.
- ii. Proximity to beach ordnance depots.
- iii. A working space of approximately 100 yards by 200 yards with hard standings and cover if possible.
- iv. No two sites to be very adjacent to each other.

11. Light aid detachments

1. Light aid detachments will land at full strength and will accompany their units throughout the operation. While landing on the beach they will assist the beach recovery organization in dealing with the vehicles and equipment of their parent units. As the parent unit of the L.A.D. moves off the beach the L.A.D. will follow and will not remain on the beach to deal with stranded vehicles, which must be left to the beach recovery sections.

12. Second echelon workshops

1. Second echelon workshops will be taken on a scale of one for each brigade of the assault force. These workshops will be on an assault scale, which will reduce their personnel to about 35 per cent. of the full war establishment and all heavy equipment not likely to be able to be used in the early stages will be left behind.

2. The chief reductions in personnel will be made in clerks, storemen, general duty men, tradesmen of the ancillary trades and armourers. While it will be important to take welding and battery charging plant, machinery lorries and transporters must be left behind until the roads in the locality of operations can be made fit for their use.

3. The second echelon workshops should land immediately after their formations, preferably late on D or early on D+1. On arrival on the beach, the O.C. of a second echelon workshop will contact the O.C. beach recovery or the M.L.O. and he will be instructed to move his workshop to one of the beach workshop sites in the beach maintenance area. The first duty of the workshop will be to repair any vehicles or other equipment evacuated to the site from the beach.

4. While operating at the beach workshop sites, second echelon workshops will be under divisional control. ~~The workshops will accept and work on equipment of any unit and, when repaired, all vehicles will be despatched to the V.R.Ds. for re-issue to units from there.~~

5. When the situation permits, second echelon workshops will be ordered forward by the divisional headquarter staff to join their brigades.

6. As soon as possible, and not later than D+30, the workshops will be reinforced to their normal establishments.

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3. The second echelon workshops should land immediately after their formations, preferably late on D or early on D+1. On arrival on the Page 6, Sec. 12, para. 4.—*Delete last sentence and substitute :—*

The workshops will accept and work on equipment of any unit and, when repaired, all vehicles will be sent to an agreed parking place, which will be laid down by the ADOS of the formation or senior ordnance officer. Complete equipments other than vehicles which cannot be returned to the unit will be sent to the ordnance beach detachment.

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5. When the situation permits, second echelon workshops will be ordered forward by the divisional headquarter staff to join their brigades.

6. As soon as possible, and not later than D+30, the workshops will be reinforced to their normal establishments.

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No. 45

COMBINED OPERATIONS PAMPHLET No. 41B

R.E.M.E.

ORGANIZATION FOR UNITS LANDING AFTER THE ASSAULT FORMATIONS

1. General

1. "Follow-up" formations will be landed as soon as a suitable covering position has been taken up by the assault formations. The initial units of these follow-up formations will be landed on the beaches used by the assault formations. Since the role of the follow-up formations is to seek and destroy enemy forces inland and seize points of tactical advantage such as ports, it will be necessary for them to be much more mobile than the assault formations. In order to reduce shipping space these units will not be at full war establishment but will be on light scales of personnel and equipment. These light scales, however, will contain considerably more personnel and equipment than the scales for the assault units.

2. Third and fourth echelon personnel, in addition to those landed with the beach recovery and workshop sections with the assault force, will be landed early in the operation to work at the beach workshop sites in order to be able to deal with the increasing number of casualties taken there from the beaches.

3. When the follow-up formations have succeeded in securing the force maintenance area, i.e., the area in which will be located the future base depots, fourth echelon workshops and other installations, the third and fourth echelon workshop personnel already landed, together with reinforcements subsequently landed, will begin to develop the fourth echelon workshops as quickly as possible.

2. Light aid detachments

1. Light aid detachments will land with their parent units and will be at full strength.

3. Second echelon workshops

1. Formation second echelon workshop units will land with their formations and will be on light scales. The light scale of equipment will not seriously reduce the mobility of these workshops but will reduce the number of non-tradesmen such as batmen, cooks and general duty men. A proportion of tradesmen such as clerks, storemen, carpenters, sheet metal workers and other personnel of the ancillary trades will also be left behind. All tradesmen of the basic trades such as fitters should be taken. Tank transporters will not accompany the workshops unless it is reasonably certain that they can be of immediate use on the roads available and there is shipping capacity available for them. All second echelon workshops should be completed to full war establishment by the end of the first month after landing.

2. During the landing of the follow-up formations, the workshops belonging to these formations should as far as possible keep with them. The workshops will not spend time on the beaches or in the beach area repairing casualties belonging to their formations. These casualties will be repaired and recovered by the beach workshop and recovery sections and the reinforcements to these sections, which should be landed simultaneously with the follow-up formations. As a general principle the second echelon workshops should be kept free to follow their formations.

4. Third and fourth echelon workshops

1. The third and fourth echelon workshops of the force have two main

tasks to carry out; first, in the initial stages of the operation to provide recovery and repair in the beach areas and, second, at a later stage in the operations to carry out their normal role of providing third and fourth echelon workshop facilities for the force. Between these two stages will be an intermediate stage, when both tasks are being carried out simultaneously to a limited extent.

2. The first portions of the third and fourth echelon workshops land with the assault brigades in the form of beach recovery and repair sections and operate on the brigade beaches and at the beach workshops. The sections are assisted at the beach workshop sites by the second echelon formation workshops of the assault force until these second echelon workshops are ordered forward from these sites to join their formations. Further assistance to these beach workshop sections will be provided by landing reinforcements of third and fourth echelon workshop personnel on or about D+4 or D+5.

3. By D+4 or D+5 the area, which will eventually be developed as the force maintenance area, should have been gained and be firmly held by the follow-up formations. By the same time third and fourth echelon workshop personnel, including the original beach workshop sections, of about 30 fitters and electricians each, should have been increased to a total of about 120 men with equipment for each division landed. A proportion of these which can be spared from work on the beaches should be despatched to the future fourth echelon workshop site in the force maintenance area to start developing the site as quickly as possible. The 120 men per division landed should include personnel for the headquarters of the workshop and personnel for vehicle armament and wireless repairs, together with suitable hand tools, welding equipment, a 5-ton gantry and one machinery lorry of the "M" type.

4. The control of the force maintenance area will probably hope to include the control of one or more ports. As development of the ports proceed, work at the beach workshops will decline and thus enable third and fourth echelon personnel to be released to develop fourth echelon workshop site in the force maintenance area.

5. Reinforcements for the third and fourth echelon workshops should be despatched direct to the fourth echelon workshop, and by the end of the second month after landing the third echelon workshops should be completed to full war establishment.

6. During the period of progressive building up of the third and fourth echelon workshops they will remain under G.H.Q. control. In the initial stages mainly second echelon work will be undertaken, assisted by cannibalization, work beyond the capacity of the workshops being despatched in returning shipping to the U.K. for repair there. As soon as possible third echelon work must be undertaken to relieve the demand on the U.K. for assemblies and to save shipping space by the substitution of components for assemblies.

7. When the fourth echelon workshops have been reinforced sufficiently to be capable of operation without assistance from some of the third echelon units, the latter will be ordered by G.H.Q. to join their formations and carry out normal third echelon work.

8. It will be necessary for the R.E.M.E. staff at G.H.Q. to watch carefully the reinforcement and development of the fourth echelon workshops. It is possible that a change in the main L. of C. might make the original site for these workshops unsuitable. Until the main Ls. of C. have been firmly established it will be unwise to develop fully the fourth echelon workshops and install all their fixed machinery.



