ACC 10000|120|6306 ST/7/1 (52 BLU) TRAINING S T. COORD

Sept. 1944

2 BLU)

TRAINING S.T. COURSE (OFFRS. + NCO)

Sept. 1944

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Recd

File S.T. 93/V

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Programme No.... R.A.S.C. Training Depot

Italian Officers Supply and Transport Course.

No.	Date	0900 - 1000	1030 - 1120	1130 - 1220	1400 - 1450	1500 -
1		Lecture. Opening Address. (a)	Lecture. Organization of Transport Unit. (b)		Lecture. Road Movement & Convoy (b)	
2		Demonstration. Road Movement & Convoy Control. (c)		Lecture. (b) Organization of Company & Platoon Vehicle Maintenance	Lecture & Demonstration. The sixteen Tasks. (c)	Lectur Vehicl Docume (c)
3		Demonstration. Vehicle Maintenance. (c)	Lecture & Road Cycle Exercise. Protection of Transport Company in location & on the move. (d)			Lectur The O Tasks (b)
4		Lecture. The Operational Task. (b)		Demonstration. The Rifle - "36" & "75" Grenades. (d)	Lecture. The Ammunition Syst Technical (b)	Opera (b)
5		Lecture. The Ammunition System Operation of Systems. (b)	Lecture. Training. (b)	Lecture. The Petrol System Technical. (d)	Operation of System. (b)	
6		Lecture. The Supply System Technical. (b)	Operation of System. (b)		Lecture. Water, Blankets & Anti-Gas reserves. (b)	Lectu Moven by M (b)
7		Demonstration & Sand Table Exercise Movement of troops by M.T. (d)	Lecture. Organization of Base and Lines of Communication - Control of Supply and Transport. (b)		Lecture. Replenishment of Non-RASC Stores. (b)	Revie (c)

NOTE: Students will report for the various periods as follows:

(a) "Clarke Wing" at rear of "C" Block.
(b) "Conference Ro..." "F" Block.
(c) "Driving ... Wing" at rear

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R.A.S.C. Training Depot

Italian Officers Supply and Transport Course.

...gramme No.....

...1000	1030 - 1120	1130 - 1220	1400 - 1450	1500 - 1550	1730 - 1830.
... ...g Address. ...)	Lecture. Organization of Transport Unit. (b)		Lecture. Road Movement & Convoy Control. (b)		Lecture. Road Reconnaissance Reports. (b)
...tration. ...oad Movement & Convoy Control. ...a)		Lecture. (b) Organization of Company & Platoon Vehicle Maintenance.	Lecture & Demonstration. The sixteen Tasks. (c)	Lecture. Vehicle Documentation. (c)	Practical. Driving & Maintenance for Platoon Officers. (c)
...stration. ...le Maintenance. ...c)	Lecture & Sand Table Exercise. Protection of Transport Company in Location & on the move. (d)			Lecture. The Operational Task. (b)	Demonstration. The L.M.G. (Bren) (e)
...re. The Operational Task. (b)		Demonstration. The Rifle - "36" & "75" Grenades. (d)	Lecture. The Ammunition System Technical (b)	Operation of System (b)	Practical. Driving & Maintenance for Platoon Officers. (c)
...re. The Ammunition System ...tion of System. (b)	[illegible]ing. (b)	Lecture. The Petrol System Technical. (d)	Operation of System. (b)		Demonstration. The P.I.A.T. & T.S.M.G. (e)
...re. The Supply System ...nical. (b)	Operation of System. (b)		Lecture. Water, Blankets & Anti-Gas reserves. (b)	Lecture. Movement of Troops by M.T. (b)	Practical. Driving & Maintenance for Platoon Officers. (c)
...nstration & ...Table Exercise ...ent of Troops ...M.T. (a)	Lecture. Organization of Base and Lines of Communication - Control of Supply and Transport. (b)		Lecture. Replenishment of Non-RASC Stores. (b)	Revision. (b)	Course Disperses.

...ort for the various periods ... follows:
(a) "Clerks Wing" at rear of "G" Block. (d) "Model Room" at rear of "F" Block.
(b) "Conference Ro..." "F" Block. (e) "Rifle Range.
(c) "Driving & Ma...enance Wing" at rear of "J" Block.

R.A.S.C. Training Depot.

Programme - No.... Italian Army N.C.O's Driving and Maintenance Cour[illegible]

Day No.	Date.	0830-0915	0915-1000	1030-1115	1115-1200	1330-1415	1415-1500	1500-1545
1		Lecture Opening Address	Lecture Introduction to a Transport Coy.	Lecture VEHICLE DOCUMENTION				Lecture Introduction to Vehicle Maintenance.
2		Practical. ROAD MOVEMENT.				Practical. VEHICLE MAINTE[illegible] (16 Tasks)		
3		Practical. VEHICLE MAINTENANCE. (16 Tasks)				Lecture. Platoon Oil Stores & Accounting.	Lecture. Frost & Fire Precautions.	Lecture. Camouflage & Concealment.
4		Practical. VEHICLE MAINTENANCE. (16 Tasks)				Practical. VEHICLE INSPECT[illegible]		
5		Practical. MOTOR CYCLE MAINTENANCE. (6 Tasks)				Demonstration. TOWING AND RECOVERY.		
6		Practical. MOTOR CYCLE MAINTENANCE. (6 Tasks)				Practical. MOTOR CYCLE INSPECTIO[illegible] AD [illegible]		
7		Lecture & Demonstration. MOVEMENT OF TROOPS BY MOTOR TRANSPORT.		Revision.	Lecture. ROAD MOVEMENT.	Practical. ROAD MOVEMENT AND CONV[illegible] CONTROL.		

NOTES. (a) Model rooms in Driving and Maintenance Wing "E" Block, are open 1730-2030 hrs. daily. [illegible]

(b) At [illegible] Range ([illegible])

(c) At [illegible] Room (at back of [illegible])

R.A.S.C. Training Depot.

Programme - No.... Italian Army N.C.O's Driving and Maintenance Course.

...5-1000	1030-1115	1115-1200	1330-1415	1415-1500	1500-1545	1545-1630	1730-1830
...cture ...troduction ...a Transport Coy.	Lecture VEHICLE DOCUMENTATION				Lecture Introduction to Vehicle Maintenance.	Lecture Road Movement.	Private Study. (a)
...MOVEMENT.			Practical. VEHICLE MAINTENANCE (16 Tasks)				Private Study. (a)
...CLE MAINTENANCE. (16 Tasks)			Lecture. Platoon Oil Stores & Accounting.	Lecture. Frost & Fire Precautions.	Lecture. Camouflage & Concealment.	Lecture. AB 406 & Vehicle Inspections.	Demonstration: Light Machine Gun (Bren) (b)
...CLE MAINTENANCE. (16 Tasks)			Practical. VEHICLE INSPECTIONS - AB 406				Demonstration. Rifle - "36" and "75" Grenades. (c)
...YCLE MAINTENANCE (6 Tasks)			Demonstration. TOWING AND RECOVERY.			Revision.	Demonstration. P.I.A.T. and T.S.M.G. (b)
...YCLE MAINTENANCE (6 Tasks)			Practical. MOTOR CYCLE INSPECTIONS AB 406			Revision.	Private Study. (a)
...stration. ...OPS BY	Revision.	Lecture. ROAD MOVEMENT.	Practical. ROAD MOVEMENT AND CONVOY CONTROL				Course Disperses.

... Driving and Maintenance ... open 1730-1830 hrs. ... [illegible]

(b) At [illegible] Range ([illegible])
(c) At [illegible] Room (at back of [illegible] block).

All other periods at Driving and Maintenance Wing [illegible]

R.A.S.C. TRAINING DEPOT.

SYLLABUS ITALIAN ARMY OFFICERS SUPPLY AND TRANSPORT COURSE.

1. OBJECT.

To train Officers of Italian second line companies (organized on British Establishments) for Italian formations which will be maintained from British sources.

2. DURATION.

Seven full working days of 5 x 50 minute periods, plus an evening period devoted mainly to practical driving and maintenance, and demonstrations of British weapons.

Total 42 periods.

3. OUTLINE.

The course is divided into three consecutive portions:-

(a) Introduction and organization of the Company.
(b) Essentials for the performance of the operational task.
(c) The operational task.

4. SYLLABUS.

Subject.	Number of periods.
Opening Address.	1.
Organization of transport unit (Lecture).	2.
Road movement and convoy control - lecture.	2.
-do- practical.	2.
Road reconnaissance reports (lecture).	1.
Vehicle Maintenance (lecture).	3.
-do- (demonstration)	1.
-do- (practical)	3.
Protection - lectures and sand table exercise.	3.
Weapons - Demonstrations of LMG, PIAT, TSMG, Rifle and Grenades.	3.
The operational task - lectures.	3.
Ammunition replenishment - lectures.	4.
Petrol system - lectures.	3.
Supply system - lectures.	3.
Blankets, Anti gas Reserves and Water - lecture.	1.
Movement of troops by MT - lecture.	1.
-do- demonstration.	1.
Organization of Base and Lines of Communication - lecture	2.
Replenishment of non - RASC Stores - lecture	1.
Revision.	1.
Dispersal of Course.	1.

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(b) Essentials for the performance of the operational task.
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Subject.	Number of periods.
Opening Address.	1.
Organization of transport unit (Lecture).	2.
Road movement and convoy control - lecture.	2.
-do- practical.	2.
Road reconnaissance reports (lecture).	1.
Vehicle Maintenance (lecture).	3.
-do- (demonstration)	1.
-do- (practical)	3.
Protection - lectures and sand table exercise.	3.
Weapons - Demonstrations of LMG, PIAT, TSMG, Rifle and Grenades.	3.
The operational task - lectures.	3.
Ammunition replenishment - lectures.	4.
Petrol system - lectures.	3.
Supply system - lectures.	3.
Blankets, Anti gas Reserves and Water - lecture.	1.
Movement of troops by MT - lecture.	1.
-do- demonstration.	1.
Organization of Base and Lines of Communication - lecture	2.
Replenishment of non - RASC Stores - lecture	1.
Revision.	1.
Dispersal of Course.	1.
Total.	42.

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A.S.C. TRAINING DEPOT

SYLLABUS ITALIAN ARMY NCOs DRIVING AND MAINTENANCE COURSE.

1. OBJECT.

To train in British methods the NCOs of Italian second line companies organised on British Establishments.

2. DURATION.

Seven full working Days, each of eight 45 minute periods. In addition three evening periods - demonstrations of British weapons - LMG - Rifle - PIAT and Grenades.

Total 59 periods.

3. SYLLABUS.

Subject.	Periods.
Opening Address.	1.
Introduction to a transport company - lecture.	1.
Road movement - lectures.	2.
-do- Practical and Demonstrations.	8.
Vehicle documentation, maintenance and inspection - lectures,	6.
-do- Practical and Demonstrations.	27.
Platoon POL Stores and Accounting - lecture.	1.
Frost, Fire precautions - lecture.	1.
Camouflage and concealment - lecture. (Practical side covered during "Road Movement" outdoor periods).	1.
Weapons - demonstrations.	3.
Towing and Recovery - demonstrations.	3.
Movement of troops by MT - Lecture and Demonstration	2.
Revision.	3.
Total.	59.

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R.A.S.C. TRAINING DEPOT.

Precis (Italian): ORGANIZATION OF TRANSPORT COMPANY.

Sep 44. Precis No.

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1 Your unit is organised on lines similar to those of the British ROYAL ARMY SERVICE CORPS rather than on those of the Italian army.

2 This present British organisation is one which has been introduced since the beginning of the present war. It will require some time to find by experiment the best way to organise your company, and to weld it into a smooth-working and efficient unit. It is for this reason that our experience, covering even small points, is being given to you; it may help you with suggestions, and save your time. That is the object of this present lecture.

3 Let us suppose, therefore, that you are an English R.A.S.C. major who has been placed in command of a transport company which has just been formed. The general organisation of his new command will, of course, be familiar to him to a very large extent. All R.A.S.C. transport units are formed from certain standard sub-units:-

(a) Company H.Q.
(b) Transport Platoons
(c) Relief Driver Increments
(d) Specialist Platoons
(e) Workshops Platoons

Each company will be formed from a given number of these sub-units, according to the task allotted to it.

4 Let us suppose that this particular company is composed of the following:

(a) One - Company HQ
(b) Three - Transport Platoons
(c) Three Relief Driver Increments
(d) Two - Specialist Platoons
(e) One - Workshops Platoon

and that its task is to supply a Combat Group composed of one infantry brigade, with artillery, engineers, signals and other services.

5 COMPANY HEADQUARTERS.
The company commander's first thought will be for the organization of his headquarters, which has four main tasks to perform:

(a) The control of the operational side of the company, i.e. of the vehicles and drivers.
(b) It is the channel for the receipt of orders from higher authority, and their transmission to the sub-units concerned.
(c) The administrative organisation of the whole unit: rations, equipment, pay, hygiene; maintaining the necessary standard of training and discipline. In other words, every aspect of the company, its men, vehicles and equipment, which will make for efficiency.
(d) The provision for the personnel of Company HQ itself a local commander for administration and discipline, in the same way that the platoons of the company have their own local commander, or platoon officer.

6 The establishment of the unit provides the personnel, equipment and vehicles to enable these functions to be carried out.

7 TRANSPORT PLATOONS.
The transport platoon officers have very heavy responsibilities. They are responsible to their company commander for the platoon's operational side, the care and maintenance of vehicles, the discipline, efficiency and welfare of all their NCOs [illegible] responsible for all vehicles, stores and equipment on

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The transport platoon officers have very heavy responsibilities. They are responsible to their company commander for the platoon's operational side, the care and maintenance of vehicles, the discipline, efficiency and welfare of all their NCOs and men. They are further responsible for all vehicles, stores and equipment on charge to their platoons.

8 RELIEF DRIVER INCREMENTS.

Will not normally exist as separate sub-units, as they will be allotted to the transport platoons and function as a part of those platoons.

9 SPECIALIST PLATOONS. Responsible for the technical operation (receipt, control, distribution and accounting) of all stores and supplies distributed by the company. Its personnel must be experienced in handling food, petrol, ammunition and all other commodities which the unit may be called upon to transport.

10 WORKSHOPS PLATOON. May not in this case form an actual part of the company, but be detached to a little distance under higher control.

ROAD MOVEMENT.

16 Sept 44. 3 Periods.

1. DEFINITION. Road movement means the ability of a unit or part of a unit to move along a given route without inconveniencing or endangering the other road users, and to arrive at the destination at the right time with the loads in good order and vehicles intact.

2. GENERAL. A tpt unit requires the highest standard of road movement. Primarily it is a question of well trained drivers but the officers and N.C.O's must reach an equally high standard in their own jobs in organising such movements and in supervising and controlling the operation in its every phase.

3. TYPES OF MOVEMENT. Road movements can be (a) Tactical
(b) Strategical

(a) Tactical Moves are those which are effected in the Fwd op. zone. Personnel may be required to be deployed for battle either during or immediately after, the move. This requires a different disposition of the men and vehs in the column to guard against possible enemy attacks, even at the cost of administration.

(b) Strategical Moves are those which take place to the rear of the op. zone. These comprise normal moves for the replenishment of sups etc.

4. METHODS OF MOVEMENT. Movement of a tpt unit may fall under one of two headings (a) an independent move of the unit (b) a move as part of a fmn and under the control of that fmn. In either case it will probably involve timed movement as laid down by higher authority.

MARCH DISCIPLINE. Particularly in Fwd areas the available rds will be inadequate to deal with all the traffic wishing to use those rds. Higher authority will therefore exercise control over such rds by allotting definite times to different groups of essential type.

5. Types of moves of an individual unit,
(a) Individual vehs proceed independently. This method is very rarely used in a unit move, but may be necessary in case of emergency.
(b) Small gps of vehs, travelling together, with much larger spacing between each gp.
(c) As a continuous convoy,
Of the last two, the third simplifies control but is slower than the second.

6. SPEED. In military language this means the speed along a road allowing for small halts of not more than 10 minutes. This is expressed in miles in the hour abbreviated into m.i.h.

7. To maintain a given m.i.h. it is obvious that the leading vehicle must proceed at a speed in excess of the stated m.i.h. This higher speed is called the crushing speed and is expressed in m.p.h.

8. The speed (m.i.h.) of a convoy depends on the condition of the road, the types of vehs being used etc. Fmns will normally lay these down in standing Orders and in such cases the given speed will always be maintained unless contrary orders are issued for a particular move.

The normal speed of a convoy is about 15 - 17½ m.i.h. during the day. The m.i.h. in the hours of darkness will naturally be much less. It will depend on what lights may be used, on the state of the roads, whether there will be a moon etc.

9. SPEED OF VEHS. Speed limits for the various types of vehs will be laid down by fmns. Normally the speed limit for a 3 ton veh is 30 m.p.h. (the speed at any given moment

(a) Tactical moves are those which are effected in the fwd op. zone. Personnel may be required to be deployed for battle either during or immediately after, the move. This requires a different disposition of the men and vehs in the column to guard against possible enemy attacks, even at the cost of admin - istration.

(b) Strategical moves are those which take place to the rear of the op. zone. These comprise normal moves for the replenishment of supp etc.

. METHODS OF MOVING. Movement of a fmn unit may fall under one of two headings (a) an independent move of the unit, (b) a move as part of a fmn and under the control of that fmn. In either case it will probably involve tactical movement as laid down by higher authority.

. ROAD SPACE. Particularly in fwd areas the available rds will be inadequate to deal with all the traffic wishing to use those rds. Higher authority will therefore exercise control over such rds by allotting definite times to different groups of essential type.

. Types of moves of an individual unit,

(a) Individual vehs proceed independently. This method is very rarely used in a unit move, but may be necessary in case of emergency.

(b) Small gps of vehs, travelling together, with much larger spacing between each gp.

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Of the last two, the third simplifies control but is slower than the second.

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. The speed (m.i.h.) of a convoy depends on the condition of the road, the types of vehs being used etc. These will normally lay these down in standing Orders and in such cases the given speed will always be maintained unless contrary orders are issued for a particular move.

The normal speed of a convoy is about 16 - 17½ m.i.h. during the day. The m.i.h. in the hours of darkness will naturally be much less. It will depend on what lights may be used, on the width of the roads, whether there will be a moon etc.

. SPEED (M.I.H). Speed limits for the various types of vehs will be laid down by fmns. Normally the speed limit for a 3 ton veh is 30 m.p.h. (the speed at any given moment NOT the average speed in an hour).

. DENSITY. By density is meant the number of vehs (excl. m/cycles) on a given length of rd i.e. the distance between two vehs measured from the radiator of one to the radiator of the other. Density is given in vehs to the mile (v.t.m.) and denotes the number of vehs to one mile of rd (a mile equals 1610 metres).

The density for convoy depends on various factors and especially the like - lihood of an attack. As in the case of speed, the question of a fixed density will probably be laid down in fmn standing orders.

12. Normal densities for rd moves in Italy are:-

(a) on the open rd 17 v.t.m. = 95 metres between vehs.

(b) in hills 30 " " " "

(c) passing through towns the convoy is split up into gps of 10 vehs with a distance between vehs of 20 metres, and between gps of 100 metres.

13. Drivers. In passing on the density to drvrs, it will be described as "so many metres between you and the veh in front".

14 CALCULATIONS OF SPEED AND DENSITY. If one knows the number of vehicles in the convoy and the density it is possible to calculate the length of road occupied by the whole convoy. Thus if one knows the speed one can work out the time necessary for the convoy to pass a definite point. Knowing all these factors and having a road map available one can work out exactly the moment at which the head of the convoy will arrive at a point situated on that road and the moment at which the tail of the convoy will pass that point.

15 THE PRACTICAL MOVE OF A UNIT. The move of a unit requires a good knowledge of the main points given above. The rest is purely a question of good training and of common sense. To give a clearer picture of the actual procedure we will imagine now that your unit is operating in a certain sector of North Italy and that in consequence of a changed Order of Battle you and the other units comprising your Div., have to move to a destination some 100 miles away to work with a new formation.

16 You will probably first receive a warning order, a message which will tell you to be ready to move and which may give you some information of the time of the move and the destination. The Convoy Commander will inform all his sub units and the officers will get their party for an early move.

17 When the Movement Order arrives the most important points to look for are:-
(a) The starting Point, the route and the destination.
(b) The time of departure and the hour at which you arrive at your destination.
(c) The speed, the density and the halts (if any).
(d) Any admin orders regarding leads, feeding arrangements, action on arrival in the new area etc. These will depend on the task of your unit, on local conditions etc but will be clearly explained to you.

18 The Convoy Commander must give the necessary orders as follows:-
(a) He will issue orders covering the Starting Point, starting time and order of march.
(b) Control during the move.
(c) Action on arrival at the destination, which will probably be the point at which the various units comprising the convoy move off independently to their individual locations. A destination of this type is called the Dispersal Point.
(d) He will run through all the points enumerated in para 17. Should time permit or if he will order an immediate recce of the route to be taken.

19 RECCE REPORT AIR/MAP. The RASC has found from experience that time spent on recce is seldom wasted. If time permits then, one should be made for each separate move. This subject will however be dealt with in a later lecture.

20 MARKING OF VEHICLES. During the day the vehicle at the head of each convoy should carry a blue flag and the last vehicle of the convoy a green flag, at night these will be replaced by blue and green lamps for the head and tail of the convoy.

21 POINTS TO NOTE.
(a) Prior to move
(i) Advance party and rear party (if necessary).
(ii) Orders for Pers.
(b) On the road
(i) Marking of convoy during the day and night
(ii) Post heading
(iii) Traffic control
(iv) March discipline
(v) Action in case of a breakdown
(vi) Procedure at halts
(c) At Dispersal Point
(i) Contact to be made with a representative of the advance party
(ii) Dispersal to the final destinations.

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17 When the Movement Order arrives the most important points to look for are:-

(a) The Starting Point, the route and the destination.
(b) The time of departure and the hour at which you arrive at your destination.
(c) The speed, the density and the width (if any).
(d) Any other orders regarding loads, feeding arrangements, action on arrival in the new area etc. These will depend on the task of your unit, or local conditions but will be clearly explained to you.

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(a) He will issue orders covering the Starting Point, starting time and order of march.
(b) Control during the move.
(c) Action on arrival at the destination, which will probably be the point at which the various units comprising the convoy move off independently to their individual locations. A destination of this type is called the Dispersal Point.
(d) He will run through all the points enumerated in para 17. Should time permit on it he will order an immediate recce of the route to be taken.

19 ROAD RECCE/AIRBANCE. The RASC has found from experience that time spent on recce is seldom wasted. If time permits then, one should be made for each separate move. This subject will however be dealt with in a later lecture.

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21 POINTS TO NOTE.

(a) Prior to move
  (i) Advance party and rear party (if necessary).
  (ii) Orders for Move.
(b) On the road
  (i) Marking of convoy during the day and night
  (ii) Rice Bowling
  (iii) Traffic control
  (iv) March Discipline
  (v) Action in case of a breakdown
  (vi) Procedure at halts
(c) At Dispersal Point
  (i) Contact to be made with a representative of the advance party
  (ii) Dispersal to the final destinations.

22 RECONNAISANCE. This may be for outstanding information about the enemy, our own troops, the suitability of roads for M.T. new areas for occupation, etc.

23 Recce for information about the enemy is usually limited to finding whether specific roads or areas are clear. Precise orders are essential and should be framed as specific questions requiring a precise answer. Recce reports will be given in a standardised form.

24 For such a recce, a light car or 15Cwt truck, with one or two N/Cs is the best. The car should be led by one m/c followed by the other, keeping visual touch but at sufficient distance to reduce the chances of all three being destroyed if contact is made with the enemy. Non driving personnel will be ready for immediate action.

25 Recce regarding our own troops will often be necessary to find the locations of units we are supplying. This can be done by a car, if safe, if tactically safe. If the situation is obscure, or contact with the enemy likely, use previous paras.

26 Convoy movement where possible will be preceded by a route recce. If time does not allow of this, recce will be made by hounds ahead of the convoy. Remember that there may be no scouts and only then once and then the recce report will be the only information on roads the Coy Comd has.

27 Coy and Pl Cmds are responsible for the recce of rds which they are likely to have to use. For this advantage should be taken of halts and other opportunities. Daylight recce of rds to be used in dark is particularly important. Mot patrols sub-unit cmdrs should also rde by daylight.

28 The officer ordering the recce should receive a written report. This falls into two parts. The first is a summary of the main points, from which the officer can make his decision. The second shows the detailed results of the recce, usually in the form of a sketch map.

29 In a recce for suitability of rds for M.T. the following should be noted:-

(a) Bridges - number of traffic lanes, weight limits, restrictions at entrance or exit.
(b) Covered stretches for halts.
(c) Whether country is flat or hilly, landmarks along the rd.
(d) Bottlenecks (those places where the normal flow of traffic will be restricted such as stretches of one way traffic, diversions, obstructions etc).
(e) Fords - depths, type of bottom, length, type of approaches.
(f) Level crossings - one way - gated or not.
(g) Towns and inhabited localities - traffic restrictions - chance of detour.
(h) Roads - type and condition of surface, width, halting places off rd (if recceable) - points requiring traffic control - round abouts, halting places, cover etc.

30 ROADS. Rds are classified by letters as regards width and by figures as regards surface and foundations.

Width 'A' rds are those wide enough to take two streams of traffic.
'B' rds are those wide enough to take one stream but on which individual and occasional vehs can pass the stream.
'C' rds are those wide enough to take one stream of traffic but on which passing is impossible except at certain definite passing places.

Surfaces 1. Rds capable of taking heavy M.T. such as 3 ton vehs etc.
2. Rds capable of taking light M.T. up to 1 - ton vehs.
3. Rds capable of taking horse traffic only.
4. Rds capable of taking pack traffic only or bridle paths.

Thus A.2 denotes a rd wide enough to allow of two streams of traffic but with a foundation only suitable for light M.T. up to 1 - ton vehs. A C.1 rd is one restricted to one stream of traffic but with a surface suitable for heavy M.T. If a rd surface is likely to deteriorate in the wet season its classification at that period will be shown in brackets after the original classification. For example A 2.(A.3) denotes a rd suitable for taking two streams of traffic in dry weather but only capable of taking horse traffic in wet weather.

31 POINTS TO BE NOTED BEFORE STARTING A RECCE.
The officer carrying it out should (a) obtain a map or maps of the area covered by the route to be recce'd (b) prepare a rough sketch of the proposed route to a scale of approx 1:250,000 (c) make certain that he is in possession of a note book and pencil before proceeding on the recce.

32 Example of a recce shown at Appx "A". This is an exact reproduction of Appx "V" on pages 40 & 41 of B.33 Pamphlet No 5 except that Italian place names have been given instead of English.

R.A.S.C. TRAINING DEPOT.

Precis; INTRODUCTION TO MAINTENANCE AND REPAIR OF VEHICLES.

Sep 44. Precis No.

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1. No machine made by man is immune from wear of its working parts and, ultimately from wearing out.

2. Systematic maintenance of a machine will, however, reduce wear to a minimum consistent with use, and will prevent the extra wear which arises from misuse or lack of maintenance. It is a fact that the wear caused by neglect is at a very much higher rate than that arising out of fair use.

3. This applies to military vehicles. These, and the goods which they carry, are an essential part of a battle, or a war. No efforts must ever be spared to keep vehicles in good mechanical condition and fit for use, and to keep them in this state for the longest possible time.

4. Of the many responsibilities falling upon the officers and NCOs of a transport company, this is the most important of all. In fact, it is absolutely vital.

5. MAINTENANCE.

The maintenance of military vehicles falls into three different stages:

(a) Regular daily care and adjustment.
(b) Regular full inspections to check the general condition and discover latent defects before they can develop seriously.
(c) Provision for the repair of defects.

The first stage is the maintenance of the vehicle by its driver; the second stage is divided between the transport platoon and the workshops platoon; the third is again divided between the platoon, in respect of smaller repairs, and the workshops platoon.

These stages are dealt with in detail below:

6. FIRST STAGE OF MAINTENANCE - DRIVER'S INSPECTION.

The system on which this is based is called "the 16 tasks". It has proved so valuable during the course of this present war that it is now the standard system for the whole of the British Army.

7. Briefly, the system is this: the whole of a mechanically-propelled vehicle is split up into 16 groups, covering motor, cooling system, carburation, fuel system transmission, etc. These groups cover every part of the vehicle.

8. Each group can be covered by the driver in half an hour, during which he can check, adjust, grease and tighten, and inspect for latent or developing defects. If a driver, therefore, carries out daily one of the 16 group or "tasks", then every nut and bolt on the vehicle will be inspected every 16 days. (In actual fact, tasks 4 and 5, and tasks 6 and 7, can be combined into one period, so that the inspection c...

chance. It is a fact that the [illegible] than that arising out of fair use.

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When the daily task has been completed, the fact is entered on the vehicle documents, and any defect which the driver is unable to remedy is reported to his platoon office. A continuous record of the maintenance of every vehicle is, therefore, always available.

9. The maintenance of motor-cycles is carried out in the same way, except that these are covered by 6, and not 16, tasks.

10. SECOND STAGE OF MAINTENANCE - PERIODICAL INSPECTIONS.

A complete inspection of every vehicle is carried out twice every month, and the result recorded in the vehicle documents. These two inspections are equally spaced, so that each vehicle has a fortnightly inspection, in addition to that carried out by the driver in the course of his maintenance.

...../ Sheet 2.

11. One inspection is carried out by the workshops platoon responsible for the vehicle, and is a complete technical examination. The other is carried out by the officer of the platoon holding the vehicle on charge, or by a NCO detailed by him.

12. THIRD STAGE OF MAINTENANCE - REPAIRS.

This is the responsibility of the workshops platoon. It has the specialist personnel and equipment for this work, in addition to a certain stock of spare parts. If any repairs cannot be carried out in the workshops platoon owing to shortage of spares or the fact that the vehicle would be immobilized for too long a time, then the vehicle is evacuated rearwards and struck off charge of the company, and a replacement vehicle is demanded.

13. SUMMARY.

The result of this system is that every vehicle has a systematic daily check by the driver, a complete monthly inspection by the platoon and another monthly technical inspection by the workshops platoon.

14. The whole system is based on the daily maintenance by the driver. The necessary standard of driver-maintenance will not be achieved without the strictest supervision.

15. Maintenance within the platoon must be carefully organized, and the following has been found the best method:

(a) The driver's daily task is examined by the section corporal, who initials the entry in the vehicle record.

(b) The platoon officer and sergeant should examine each at least 6 vehicles daily to check that the task for the previous day has been properly carried out. This step is most essential.

(c) Disciplinary action should be taken without exception in every case of negligence by the driver or section corporal to carry out their particular obligations as outlined above.

16. A definite system must be laid down for the monthly platoon inspections. The NCOs of the transport platoon are not expected to be technical specialists; nevertheless, the most capable and experienced NCO available should be used for the monthly inspections. Similarly, the platoon officer should himself undertake every month a proportion of the inspections, in order to satisfy himself that the vehicle maintenance is being properly carried out. He should inspect not less than 10% of his platoon vehicles monthly.

17. VEHICLE DOCUMENTATION.

This subject will be covered in detail in a later lecture.

[illegible] VEHICLE INSPECTION D[illegible].

PRACTICAL.

INTRODUCTION.

This is a practical lesson following on the [illegible] done. [illegible] are intended as a guide to the correct compilation of the AB 406 and are not applicable to any particular vehicle.

The main paragraphs of the [illegible] correspond to the groups into which the Vehicle Inspection Report, AB 406, is divided, e.g. Engine, [illegible] Axle, Transmission, Rear Axles etc.

The sub paras refer to the sub paras of the [illegible], e.g. Engine, Cooling System, Fuel System, Brakes, Steering etc. etc.

The object of the Vehicle Inspection is to satisfy the Inspecting officer that (a) Maintenance on the [illegible] is being carried out, (b) that the vehicle is fit for ACTIVE SERVICE.

PREPARATION.

(a) Vehicle thoroughly cleaned and engine warmed up.
(b) Vehicle on level ground – over garage pit if possible.
(c) Kit and equipment laid out on ground in front of vehicle.
(d) Bonnet opened or removed.
(e) Tail board down.
(f) Front axle jacked up (for steering test).
(g) Floor boards removed.
(h) Battery vent plugs removed.
(i) Inspection lamp ready for use.
(j) Driver in line with dash on near side.

INSPECTION.

ENGINE.

1. Sump. Note speedometer reading.
Refer to oil change book and to previous inspection report for last oil change.
Record speedometer reading at which oil is to be changed again. If due, instruct the driver.

2. Engine. A. With engine stopped.

Does the starting handle engage correctly?
Is compression good on all cylinders?
Are all gas tight joints correct :-

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i. Sparking plug joints.
ii. Cylinder head joints.
iii. Inlet manifold joints.
iv. Exhaust manifold joints.
v. Cylinder test plugs.

The object of the Vehicle Inspection is to satisfy the Inspecting officer that (a) Maintenance on the [illegible] carried out, (b) that the vehicle is fit for [illegible].

PREPARATION.

(a) Vehicle thoroughly cleaned and engine washed up.
(b) Vehicle on level ground - over pit if possible.
(c) Kit and equipment laid out on ground in front of vehicle.
(d) Bonnet opened or removed.
(e) Tail board down.
(f) Front axle jacked up (for steering test).
(g) Floor boards removed.
(h) Battery vent plugs removed.
(i) Inspection lamp ready for use.
(j) Driver in kind with dash on near side.

INSPECTION.

ENGINE.

1. Dump. Note speedometer reading.
Refer to oil change book and to previous inspection report for last oil change.
Record speedometer reading at which oil is to be changed again. If due, instruct the driver.

2. Engine. A. With engine stopped.

Does the starting handle engage correctly?
Is compression good on all cylinders?
Are all gas tight joints correct :-

i. Sparking plug joints.
ii. Cylinder head joints.
iii. Inlet manifold joints.
iv. Exhaust manifold joints.
v. Cylinder head plugs.

Are engine bearers and securings of auxiliaries tight?
Is oil level correct?
Examine oil, is it clean?
Is oil of correct type?
Are there any oil tight joints leaking?
Are there any kinks in oil pipes?

B. With engine running.

Does engine start readily (i) by hand?
(ii) by starter?
Does engine run evenly? If not are all plugs firing?
Does it "tick-over" correctly?
Does engine accelerate and decelerate correctly?

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[illegible] pressure correct?
[illegible] filter fitted
[illegible] with [illegible] till engine is hot).
Are [illegible] cut-out setting correctly as shown.
[illegible] or [illegible] lamp?
Is the exhaust free [illegible] black or blue smoke?
Does the engine knock or [illegible] at any speed?
[illegible] there [illegible] vibration [illegible] movement in the engine
or [illegible] the mountings of [illegible] (Where rubber
[illegible] fitted there [illegible] considerable
[illegible] at [illegible] speed).

3. [illegible] and Cooling System.

Are there any leaks anywhere in the cooling system?
Are the radiator, [illegible] radiator tie rod fittings, bonnet
fittings, radiator [illegible] etc. secure?
Is [illegible] belt correctly tensioned?
Is radiator filter in good condition and overflow pipe clear?
Are air passages in radiator free [illegible] dirt?
Is lubrication of fan and [illegible] drive sufficient.
Is condition of all hose joints, and flanged water
connections good?
Are the fan and fan drive, pump and pump drive secure?

4. Fuel System.

What is the average m.p.g. as per A.B. 412, 3519 or A.F.
G.[illegible]?
Is this figure reasonable?
Are the fuel tanks, autovac and pump and carburetter secure?
Are there leaks anywhere in the system?
Are pipes free from kinks?
Does petrol feed freely?
Do the carburettor controls operate correctly?
Are the control joints well lubricated?
Is pipe to air filter secure?
Does air filter need cleaning?
Is carburetter flange joint tight?
Are joints to autovac and servo tight?

5. Governor System.

Is the seal on the governor intact?
Is the governor operating and controlling the engine at
the correct speed?

6. Ignition System.

Are the mountings for the coil, contact breaker and
distributor assembly secure?
Is the insulation of all leads in good condition, and free
from rubbed or frayed portions?
Are all terminals [illegible] and tight?

Are there any leaks anywhere in the cooling system?
Are the radiator, [illegible] fittings, bonnet fittings, radiator [illegible] etc. secure?
Is fan belt correctly tensioned?
Is radiator filler in good condition and overflow pipe clear?
Are air passages in radiator free from dirt?
Is lubrication of fan and fan drive sufficient.
Is condition of all hose joints, and flanged water connections good?
Are the fan and fan drive, pump and pump drive secure?

4. Fuel System.

What is the average m.p.g. as per A.B. 412, 3519 or A.F. G. [illegible]?
Is this figure reasonable?
Are the fuel tanks, autovac and pump and carburetter secure?
Are there leaks anywhere in the system?
Are pipes free from kinks?
Does petrol feed freely?
Do the carburetter controls operate correctly?
Are the control joints well lubricated?
Is pipe to air filter secure?
Does air filter need cleaning?
Is carburetter flange joint tight?
Are joints to autovac and servo tight?

5. Governor System.

Is the seal on the governor intact?
Is the governor operating and controlling the engine at the correct speed?

6. Ignition System.

Are the mountings for the coil, contact breaker and distributor assembly secure?
Is the insulation of all leads in good condition, and free from rubbed or frayed portions?
Are all terminals clean and tight?
Are the contact breaker points clean?
Are sparking plugs clean?
Are sparking plug gaps adjusted correctly? (See makers handbook).
Are distributor segments clean?

FRONT AXLE.

7. Axles, Stub axles and Hubs.

Is there any play in the swivel pins?
Are the lubricators in good condition and all points well lubricated?
Are all nuts tight and split pinned?

8. Springs.

Are the holding down bolts and spring clips secure?
Are there any broken or rusty leaves?

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Are the shackle pins well lubricated?
Are the shackle brackets and pins secure?
Are all nuts tight and split pinned?

9 Steering.
Is the steering wheel secure?
Is there excessive backlash in the steering?
Is the steering box secure?
Is the oil level in the steering box correct?
Is there play in the steering rods and levers?
Are all nuts tight and split-pinned?

10. Road Wheels.
Is there end play or rim rock in the wheels?
Are wheel nuts tight?
Is split ring tight?
Is there any undue or irregular wear on the front tyres?

11. Tyres.
Is tread serviceable and free from stones, oil, tar etc.?
Are pressures correct? (Including spare).
Are tyre valves secure?

TRANSMISSION.
12. Clutch and Clutch Control.
Is there requisite free movement on the clutch pedal?
Does the clutch withdraw and engage completely?
Is clutch pedal lever clear of floor boards when clutch is (a) engaged and (b) disengaged.
Is the return spring of the clutch pedal acting?
Are the lubricators in good condition?
Are all points lubricated?

13. Gear Box.
Is the reverse catch operating?
Do all gears engage easily?
Is the oil in the gear box at the correct level and of the correct type?
Are all nuts and bolts on the gear box and mountings tight?
Is the level plug tight?

14. Power take off.
Not included in Section Inspection.

15. Foot brake.
Is there the requisite slight free movement on the foot brake pedal? 4554
Is the pedal free from the floor boards when in the "off" and "on" position?
Are all brackets tight?
Are all nuts and unions tight?
Are all working joints correctly lubricated?
If servo system, is it free from air leaks?
Are the gaiters in good order?
... free from leaks? Is fluid

1860

Is spare ring tight?
Is there any undue or irregular wear on the front tyres?

11. Tyres.
Is tread serviceable and free from stones, oil, tar etc.?
Are pressures correct? (including spare).
Are tyre valves secure?

TRANSMISSION.

12. Clutch and Clutch Control.
Is there requisite free movement on the clutch pedal?
Does the clutch withdraw and engage satisfactorily?
Is clutch pedal lever clear of floor boards when clutch is (a) engaged and (b) disengaged.
Is the return spring of the clutch pedal acting?
Are the lubricators in good condition?
Are all points lubricated?

13. Gear Box.
Is the reverse catch operating?
Do all gears engage easily?
Is the oil in the gear box at the correct level and of the correct type?
Are all nuts and bolts on the gear box and mountings tight?
Is the level plug tight?

14. Power take off.
Not included in Section Inspection.

15. Foot brake.
Is there the requisite slight free movement on the foot-brake pedal? 4554
Is the pedal free from the floor boards when in the "off" and "on" position?
Are all brackets tight?
Are all nuts and unions tight?
Are all working joints correctly lubricated?
If servo system, is it free from air leaks.
Are the gaiters in good order?
If hydraulic system, is system free from leaks? Is fluid level correct, is correct fluid being used?

16. Hand brake.
Is the hand brake lever secure?
Are the ratchet and pawl in good order?
Are all brackets tight?
Are all locking and adjusting nuts tight?
Are all joints and pins clean and lubricated?
Are the brake cam shafts lubricated?
Is the hand brake correctly adjusted?
Are brake shoes free from rubbing on drums?

17. Shafts, [illegible], torque [illegible].

Is there [illegible] in the universal [illegible]?
Are the locking [illegible] on the couplings secure?
Are the splines on the couplings [illegible]?
Are all nuts and bolts tight?
Are the universal joint bushes lubricated?
Is there wear in the torque [illegible] (On [illegible] wheelers).
Is the torque [illegible] well lubricated?

REAR AXLES.

18. Axles and Hubs.

Are all nuts and bolts tight?
Are there any oil leaks?
Is the filler plug secure and is the oil level correct?
Are the spring [illegible] secure?
Are all brackets supporting brake [illegible] secure?
Is there any surplus oil near brake [illegible]?

19. Springs.

Are the holding down bolts and spring clips secure?
Are there any broken or rusty leaves?
Are the shackle pins well lubricated, and with [illegible] the bogie mounting?
Are the shackel brackets and rivets secure?
Are all nuts tight and split pinned?

19a. Road Wheels.

Are wheel nuts tight?
Is split ring tight?

20. Tyres.

Is tread serviceable? Is it free from oil, [illegible], stones, nails etc.?
Are pressures (including spare) correct?
Is spare wheel securely mounted?
Are tyre valves secure?

GENERAL.

21. Chassis Frame.

Are all frame and body fittings and [illegible] tight?
Are spring buffers in good condition?
Are stop [illegible] secure?
Are rivets attaching cross members to side members tight?

22. Body.

Are holding down bolts tight?
Are door or tailboard hinges secure and well lubricated?
Are all tailboard pins and chains serviceable?
Are floor boards serviceable?

Is the [illegible] well [illegible]?

REAR AXLE.

18. Axles and hubs.
Are all nuts and bolts tight?
Are there any oil leaks?
Is the filler plug secure and is the oil level correct?
Are the spring mountings secure?
Are all brackets supporting brake operating mechanism secure?
Is there any surplus oil near brake linings?

1[illegible]. Springs.
Are the holding down bolts and spring clips secure?
Are there any broken or rusty leaves?
Are the shackle pins well lubricated, and with pin [illegible] the bogie mounting?
Are the shackle brackets and rivets secure?
Are all nuts tight and split pinned?

19a. Road wheels.
Are wheel nuts tight?
Is split ring tight?

20. Tyres.
Is tread serviceable? Is it free from oil, [illegible], stones, nails etc.?
Are pressures (including spare) correct?
Is spare wheel securely mounted?
Are tyre valves secure?

GENERAL.

21. Chassis frame.
Are all frame and body fittings and brackets tight?
Are spring buffers in good condition?
Are step clips secure?
Are rivets attaching cross members to side members tight?

22. Body.
Are holding down bolts tight?
Are door or tailboard hinges secure and well lubricated?
Are all tailboard pins and chains serviceable?
Are floor boards serviceable?
Does trap door open?
Are tool boxes clean, and serviceable?

23. Cab and Superstructure.
Do the doors open and close properly?
Can the windows be operated easily?
Are the windows in good order?
Is the canopy weather proof?
Are the eyelets, hooks and ropes in good order?
Are the frame, [illegible] and the straps and fasteners of the driver's canopy in good condition?
Are [illegible], [illegible], [illegible] brackets serviceable?
Is the windscreen serviceable?

24. Condition of tools and equipment.
Are the items of tools and equipment as enumerated in the A.F.M. 112?
Are the items serviceable?
Are defective articles carefully listed?
Are fire extinguishers in good order, filled with the correct fluid, correctly mounted, and when were they last tested?

25. Water pump.
If power driven, does it run smoothly, and does it give good pressure?
Are all pipes and unions right and not leaking?
Is the rubber connection in good condition?

26. Electric equipment.
Are the battery terminals clean, tight and covered with petroline?
Is the battery in good order and the electrolyte level correct?
Is the battery box clean and dry?
Does the battery box hold the battery securely?
Do the lights, horn, windscreen wiper, trafficators, inspection lamp and other electrical devices work correctly?
Are the lamps properly timed?
Are all terminals (switchboard), dynamo and starter motor) clean and tight?
Are there any frayed leads?
Is spare fuse or fuse wire being carried?

27. Lubrication.
Are there any lubricators missing or all ways clogged?
Are all parts of the vehicle properly lubricated?

28. Cleanliness.
Is the vehicle clean in all parts:-
Are the undersides of the engine, transmission, the axles clean?
Is the vehicle clean externally?

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29. Remarks on road test.
(1) Does the engine pull well in all gears?
(2) Are there any signs of clutch slip?
(3) Is the acceleration and deceleration good?
(4) Does the engine respond to the governor lever (if fitted). If not fitted is there excessive pinking under reasonable road conditions).
(5) Is the steering good?
(6) Is there any undue noise in the intermediate gears?
(7) Are the brakes operating efficiently?
(8) Is the driving mirror correctly adjusted?
(9) Are there any noises, rattles etc.?

Is the rubber connection in good condition?

26. Electric Equipment.

Are the battery terminals clean, tight and smeared with Vaseline?
Is the battery in good order and the electrolyte level correct?
Is the battery box clean and dry?
Does the battery box hold the battery securely?
Do the lights, horn, windscreen wiper, trafficators, inspection lamp and other electrical devices work correctly?
Are the lamps properly dimmed?
Are all terminals (switchboard), dynamo and starter motor) clean and tight?
Are there any frayed leads?
Is spare fuse or fuse wire being carried?

27. Lubrication.

Are there any lubricators missing or not ways clear of?
Are all parts of the vehicle properly lubricated?

28. Cleanliness.

Is the vehicle clean in all parts:-
Are the undersides of the engine, transmission, the axles clean?
Is the vehicle clean externally?

4553

29. Remarks on road test.

(1) Does the engine pull well in all gears?
(2) Are there any signs of clutch slip?
(3) Is the acceleration and deceleration good?
(4) Does the engine respond to the ignition lever (if fitted). If not fitted is there excessive pinking under reasonable road conditions).
(5) Is the steering good?
(6) Is there any undue noise in the intermediate gears?
(7) Are the brakes operating efficiently?
(8) Is the driving mirror correctly adjusted?
(9) Are there any noises, rattles etc.?
(10) Is there undue vibration?
(11) Do the brake drum or wheel run hot?

30. General condition.

Is the vehicle satisfactorily maintained?
Is it fit for ACTIVE SERVICE?

NOTE:- Initial remarks should be written in a note book carried for the purpose. When the inspection is completed the remarks should be transferred from the note book to the A.F. 406. The complete records of inspection will be thus kept clean.

REFERENCES:-

Manual of Driving and Maintenance for Mechanical Vehicles (Wheeled) 1937.

Notes on the Care and Maintenance of Mechanical Vehicles.

RASC TRAINING DEPOT

Precis (Italian)
Sep. 44. Precis No. ______

PROTECTION

PART I - GENERAL

1. INTRODUCTION

(a) "Every comd of a body of tps is at all times responsible for its protection; this applies equally to a div under a Major General as to a patrol under an NCO.
(b) Definition of Protection - All measures adopted by a comd to safeguard his comd against surprise and to conceal his disposition from the enemy.
(c) We may get some protection afforded by disposition of fighting troops - may be allotted AFV escort or may work along protected corridors.
(d) "The object of a comd of Tpt Unit will be to hold off the enemy while extricating his unit and to avoid becoming engaged unnecessarily."
(e) "No body of tps can be regarded as secure unless protection is furnished in all directions from which attack is possible, whether from the front, the flanks, the rear or the air."
(f) In the event of ground attack the object is to keep the enemy out of effective range of vehs.
(g) In the event of air attack, superior offr and [illegible] of nearest fighting tps should be infm.

2. INFM.

Adequate and timely infm is one of the surest means of protection.
Infm can be obtained in three ways:-

(a) RECCE and subsequent dissemination of infm to all personnel.
Remember "Time spent in RECCE is seldom if ever wasted".
(b) Int infm from staff, obtained through G & T rep of HQ concerned.
(c) Gds and Sentries.
Air, Gas and ground sentries.
Patrols by day and by night.
All gds and sentries must be regularly relieved and be given definite and concise instrs.

System of Alarms.

Infm acquired by (c) must be passed on to all concerned by a system of alarms which must be easily understood and, when sounded, all personnel must know exactly what they are to do. Examples of warnings:-

(i) EA in sight - succession of short blasts on whistle and both arms [illegible] above head and hands waved. 4952
(ii) Air attack under - two long blasts at interval of 5 secs.
(iii) General Alarm - succession of alternate long and short blasts.
(iv) General Gas Alarm -
(a) Gas other than spray - [illegible] rattle OR [illegible].
(b) Gas spray - series of short blasts on whistle when aircraft are sighted and the word "Spray" shouted and passed on by mouth when Gas spray is detected.
(v) Gas Detectors - Detector Gas Spray, Detector Gas Ground } Used to detect:-

(c) [illegible] may be selected ADV except on main routes along [illegible] corridors.

(d) "The object of a coml of Dpt Units will be to hold [illegible] the enemy while withdrawing its unit and to avoid [illegible] engage unnecessarily."

(e) "The body of the Coy can be regarded as secure under protection if provided in all directions from which attack is possible, whether from the front, the flanks, the rear or the air."

(f) In the event of ground attack the object is to keep the enemy out of effective range of vehs.

(g) In the event of air attack, movement will cease and [illegible] fighting tps should be info.

2. INFO.

Adequate and timely info is one of the [illegible] for success.

Info can be obtained in three ways:-

(a) R.CCE and subsequent dissemination of info to all concerned.
Remember "time spent in R is not wasted".

(b) Int info from staffs, obtained through S I T reps of HQ concerned.

(c) Own sources.
Air, Gd and ground reconn.
Patrols by air and by night.

All gd and contacts must be reptd by veh/wireless and be given definite and concise instns.

System of Alarms.

Info acquired by (c) must be passed on to all concerned by a system of alarms which must be easily understood and, when sounded, all personnel must know exactly what they are to do. Examples of warning:-

(i) Air alert - succession of short blasts on whistle and both arms raised above head and [illegible] waved.

(ii) Air attack imminent - [illegible] succession of 5 secs.

(iii) General Alarm - succession of alternate long and short blasts.

(iv) General Gas Alarm -
(a) Gas other than spray - 3 [illegible] of bell.
(b) Gas spray - series of short blasts on whistle when aircraft are sighted and the word "Spray" shouted and passed on by runner when Gas spray is detected.

(v) Gas Detectors - Detector Gas Spray, Detector Gas Liquid, Detector Gas Individual, Detector paint on vans, Detector Paper Type "A" - Used to detect:- Blister Gases. Arsine.

(vi) Fire alarm - banging of improvised gong.

In cases where coys are dispersed over a large area, it will be necessary [illegible] its own system of alarm posts and when one post has raised the alarm, it will be taken up by the other posts in turn. It may be necessary to have a visual method (e.g. by [illegible]) of passing on the alarm.

4 POINTS OF ATTACK AND PROTECTION AGAINST [illegible].

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3. FORMS OF ATTACK AND PROTECTION AGAINST THEM.

Type of Attack	Protection to be adopted
A. Attack from the air.	
(i) High altitude bombing	(a) Air sentries and alarm system. (b) Dispersion. (c) Protection - slit trenches and weapon pits as soon as possible.
(ii) Dive bombing and strafing by MG and cannon fire	(a) as above. (b) EA engaged by LMGs and rifle secs.
(iii) Incendiary bombing - most probably directed against base installations, hutments camps or wooded areas.	(a) as above. (b) Organised fire parties and fire drill.
(iv) Recce flights as a preliminary to arty or aerial bombardment.	(a) As above. (b) No mov. Absolute concealment.
(v) Airborne attack.	(a) Early alarm. (b) Speed of action. (c) Pass on info to nearest fighting tps.
B. Land Attack.	
(i) AFVs.	(a) Timely recce. (b) Protective dets. (c) Rd blocks where practicable, to be covered by fire from PIATs which must themselves be covered by rifle or LMG fire.
(ii) Arty.	(a) Dispersion. (b) Protection - slit trenches and weapon pits as soon as possible. (c) Move to previously reconnoitred posn. (d) Report.
(iii) Inf.	(a) Gen alarm. (b) Engage with LMG and rifle secs. (c) Report.
C. Gas Attack. From air or land.	(a) Gas sentries - gas alarm and detectors. (b) Individual gas knowledge and ability to recognise gases and take necessary action. (c) First aid against all war gases. (d) Care and use of eqpt. (e) Unit decon centre - trg of decon squad.

4. STANDING ORDERS.

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(iv) Recce flights as a preliminary to arty or aerial bombardment. | (a) As above. (b) No AA. Absolute concealment.

(v) Airborne attack. | (a) Early alarm. (b) Speed of action. (c) Base on this to nearest fighting tps.

B. Land Attack.

(i) AFVs.
(a) Likely routes.
(b) Protective dets.
(c) Rd blocks where practicable, to be covered by fire from PIATs which must themselves be covered by rifle or MG fire.

(ii) Arty.
(a) Dispersion.
(b) Protection - slit trenches and weapon pits as soon as possible.
(c) Move to previously reconnoitred posn.
(d) Report.

(iii) Inf.
(a) Gen alarm.
(b) Engage with LMG and rifle ...
(c) Report.

C. Gas Attack.
From air or land.
(a) Gas sentries - gas alarm and detectors.
(b) Individual gas knowledge and ability to recognise gases and take necessary action.
(c) First aid against all war gases.
(d) Care and use of eqpt.
(e) Unit decn centre - tps of decn squad.

4. STANDING ORDERS.

It is essential that standing orders are laid down, cover as many emergencies as possible and that the action to be taken in every eventuality is clearly stated. Personnel must be frequently practised in carrying out such orders.

Declassified E.O. 12356 Section 3.3/NND No. 785020

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[illegible]RT II - PROTECTION [illegible] LOCATION.

1. Objectives.

(i) To allow the bulk of the force to rest or continue their normal duties in safety.
(ii) To prevent the enemy from obtaining infm.
(iii) To give warning of an attack and to offer resistance.

2. Concealment.

[illegible]emy air recce will be carried out by the aerial observer and his aerial camera. In both cases objects on the ground will be identified chiefly by virtue of their relative shape or colour. Colours as seen from an aeroplane are varying shades of black or white. Remember the darkest object to be seen on the ground is always a shadow. A dark object on a dark background will not show up nearly so obviously as a light object on a dark background, e.g. a white tent, an upturned face, a light coat etc.

(1) Selection of site, type of ground.
Make use of natural cover, trees, hedges, hillsides. You must consider your disposition as viewed from the air as well as from the ground. Try and make your vehs, sups, etc., merge into the texture of the natural background.

(2) Artificial Camouflage. Is used to blend the outline of vehs, stacks of sups, pet etc., into the natural background and to break up shadows. This can be done by the intelligent use of a garnished net. Remember that shadows move round with the sun.

(3) Dispersion during hours of daylight, all vehs, food stacks, personnel should be dispersed as far as possible, taking into consideration the type of ground and the cover it affords.

(4) Deception - practise the art of deception and avoid :-
(i) Regular [illegible] or straight lines.
(ii) Reflections from shiny surfaces, windscreens, lamps, pet tins, etc.
(iii) Creation of tracks.
(a) Use existing tracks and make tracks follow natural contours of ground (e.g. ridges of fields, hedges, etc.)
(b) Make dummy tracks.
(c) Never let tracks end at a HQ or anywhere that would make a good bombing target.
(d) Lead tracks past area concerned.
(iv) Smoke from wood fires and lights.
(v) Unnecessary [illegible].
(vi) Unnatural use of camouflage - e.g. impression of a brush in the middle of a large open area.
(vii) Indiscriminate fire at aircraft - MG crews and rifle secs must have [illegible] orders about the [illegible] of AA which may differ with [illegible] [illegible]. The vital importance of withholding the opening of [illegible] [illegible] aircraft is well within range must be stressed upon [illegible].

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3. Morale.

A [illegible] for the morale of his [illegible] and during [illegible], this question is vitally important. It is [illegible] to set [illegible] example for his men.

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(1) Selection of site, [illegible] ground.
Make use of natural cover, [illegible], hedges, hillsides. You must consider your [illegible] as viewed from the air as well as from the ground. Try and make your vehs, [illegible], etc., merge into the texture of the natural background.

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4. Defence of Location.

The [illegible] of a defensive scheme is to provide the following:-

(a) [illegible]
(b) [illegible], [illegible] of defensive positions.
(c) [illegible] whilst holding off the enemy.

5. Defensive Layout.

[illegible] location. The defence of a Company is in fact [illegible] of platoon locations. [illegible] of the platoon [illegible], the defence of the [illegible] of the Company.

([illegible] Platoon Defence.)

6. Platoon Defence.

Involves the creation of:-

(a) A Platoon Command Post.
(b) Weapon pits - usually one per section.
(c) A mobile reserve under control of the Platoon Command Post.
(d) Vehicle drivers who should be kept as a last central reserve unless required to stand by vehicles in readiness to evacuate.

7. Platoon Command Post.

Normally staffed by Pl Sjt and a runner.

8. Weapon Pits.

One per section manned by the two men from the Relief Driver Increment (RDI) and controlled by the section Cpl. If the vehicles are likely to be evacuated, the section Cpl should accompany them, driving the vehicles of the senior driver who assumes command of the section post.

9. Mobile reserve.

Consists of the Platoon defence team, with their weapons, and all other non-driving personnel. Depending on the conditions it may be possible to withdraw some of the section weapons (LMG & PIAT) to strengthen the mobile reserve.

10. Siting of LMG.

LMGs suitably sited and concealed should form the main small arms def. Concealment from view is of the utmost importance, a 360° arc of fire may have to be sacrificed in favour of concealment.

By night. LMGs will be given area of fire covering their localities. A ft of fire from 100 to 200 yds will suffice. Guns will not normally fire on fixed lines.

By day. The majority of the LMGs should be sited so that each gun fulfils dual purpose wherever possible.-

(1) to cover the harbouring area with AA fire.
(2) to provide covering fire to PIATS located around the harbouring area.

The remaining LMGs should be held as a mob and so be available for increasing the volume of fire at any particular pt in the area.

11. Siting of PIAT.

The principal function of the PIAT is defence against armoured fighting vehicles. Because of its short range (about 110 metres) it may be necessary to site well forward to hold enemy tanks before they are in effective range of the Platoon vehicles. Effective concealment of its position is essential. It should be located within the arc of covering fire of the LMG of the section

normally stationed by Pl Sjt and a runner.

8. Vehicles.

One per section manned by two men from the Relief Driver Increment (RDI) and controlled by the section Cpl. If the vehicles are likely to be evacuated, the section Cpl should accompany them, driving the vehicles of the senior driver the remaining members of the section pool.

9. Mobile Reserve.

Consists of the Platoon defence team, with their weapons, and all other non-driving personnel. Depending on the circumstances it may be possible to withdraw some of the section weapons (LSW & PIAT) to strengthen the mobile reserve.

10. Siting of LSW.

LSWs suitably sited and concealed should form the main small arms act. Concealment from view is of the utmost importance, a 360° arc of fire may have to be sacrificed in favour of concealment.

By night. LSWs will be given area of fire covering their localities. A fd of fire from 100 to 200 yds will suffice. Guns will not normally fire on fixed lines.

By day. The majority of the LSWs should be sited so that each gun fulfils dual purpose wherever possible.-

(1) to cover the harbouring area with AA fire.
(2) to provide covering fire to PIATS located around the harbouring area.

The remaining LSWs should be held as much rear as to be available for increasing the volume of fire at any particular pt in the area.

11. Siting of PIAT.

The principal function of the PIAT is defence against armoured fighting vehicles. Because of its short range (about 110 metres) it may be necessary to site well forward to hold enemy tanks before they are in effective range of the Platoon vehicles. Effective concealment of the position is essential. It should be located within the arc of covering fire of the LSWs of the main section defence, and to operate in conjunction with road blocks established on the most likely lines of approach to platoon location.

12. Company Defence Scheme.

(a) All round defence of Company HQ and Specialist Platoon on the same basis as the other Platoons.
(b) Individual Platoon defensive schemes are co-ordinated with over-lapping lines of fire to provide the maximum amount of internal support.
(c) The provision of a Company Mobile reserve from the personnel of the Specialist Platoon.
(d) A motor cyclist or runner from each platoon to report to Company HQ on the sounding of the alarm for Liaison duties.

PART III - PROTECTION ON THE MOVE

1. CONCEALMENT.

(a) Mov can only be concealed by moving at night or in bad weather.
(b) Possible to deceive enemy by:-
(i) Moving across country.
(ii) Moving in daylight by a route calculated to mislead the enemy and completing the move at night.
(iii) Moving at low density, well dispersed.

2. RECCE.

(a) Prior to the move
In addition to recce of route and destination, recce parties will be required to obtain info about the enemy and our own tps.
(b) At Halts
Make full use of halts for recce.

3. ORDER OF MARCH - SUGG STRUCTURE.

(a) Adv gd:-
(i) Vang. 1st MC) in visual
2nd MC) touch.
(ii) Main Gd. Spare veh - in case of breakdown and as rd block.

(b) Main body. In order of pls with def trucks and rifle secs spread out along the convoy.

(c) Breakdown det (incl spare vehs).

(d) Rear gd. Def truck or rifle sec.
Spare veh.
MC.

4. FLANK PROTECTION.

(a) By recce - lt vehs should always move wide of convoy and give warning by visual sigs.
(b) Picketting.
(c) AFV or inf escort as screen. Closest possible liaison must be maintained between BASC comd and comd of escorting tps.

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5. ACTION IF ATTACKED BY AIRCRAFT.

(a) High level attack - Likely to be of short duration. Increase dispersion if possible and keep on the move.

(b) Low level attack -
(i) In close country with limited road space, density will be great and traffic may have to keep moving. All LMGs in convoy must always be ready to open fire against AA and personnel not driving must open

(a) Prior to the move.
In addition to route of route and destination, recce parties will be required to obtain info about the enemy and our own tps.

(b) At halts
Make full use of halts for recce.

3. ORDER OF MARCH - SUGGESTION FOR.

(a) Adv gd:-
(i) Vans — 1st MC) in visual
2nd MC) touch.
(ii) Main bd. — Spare veh - in case of landmines and as rd block.

(b) Main body — In order of pln with def trucks and rifle sect spread out along the convoy.

(c) Broadway Gd — (incl spare vehs).

(d) Rear gd. — Def truck or rifle sec.
Spare veh.
MC.

4. FLANK PROTECTION.

(a) By recce - 1t vehs should always move side of convoy and give warning by visual sigs.
(b) Picketting.
(c) AFV or inf escort as screen. Closest possible liaison must be maintained between R/SO comd and comd of escorting tps.

5. ACTION IF ATTACKED BY INFANTRY.

(a) High level attack - Halts to be of short duration. Increase dispersion if possible and keep on the move.

(b) Low level attack -
(i) In close country and limited road space, density will be great and traffic may have to keep moving. All MVs in convoy must always be ready to open fire against AC and personnel not driving must open fire with personal weapons.
(ii) In open country - may be possible to halt dispersed - personal leave vehs and open fire with all available weapons.

6. ACTION IF ATTACKED BY ARMD.

(a) On ms.
(i) Block rd with spare veh or concertina wire.
(ii) Manoeuvre PlAts and Tank.
(iii) Take up cover.
(iv) Convoy comd should try and extricate convoy by moving back or to a flank.

(b) In open country.
An organised protective fire should be ready to join the enemy AFV.

7. ACTION IF AMBUSHED/

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7. ACTION IF AMBUSHED.

Do not halt unless fire at sky or rd blocked.
LMGs can reply to fire on the move.

8. ACTION IF APTY FIRE IS PUT DOWN ON CONVOY.

Keep on the move and will spread out.

9. ACTION IF CONC OF GAS HAS TO BE PASSED THROUGH.

(a) Warn all personnel to don respirators (MC wearing respirator rides down convoy blowing horn).
(b) Reduce speed and spread out.

ACTION IN ABOVE EVENTUALITIES SHOULD BECOME A DRILL.

[illegible] TRAINING PAPER.

Precis (Italian): SUPPLY AND TRANSPORT ORGANIZATION IN MOUNTAIN AREA.

Sep. 44. Precis No: _____

1. OBJECT. To show the organization of the supply and transport system in the areas occupied by corps, division and the fighting troops.
2. LAYOUT. The complete system is shown as covering one Brigade, but will be the same for the two formations into which the present Italian division will probably be divided.
3. SUPPLY AND TPT. The supply and transport organization has to provide for:
   (a) Provision of the daily requirements of the various commodities.
   (b) Transport to carry above.
   (c) The creation of reserves to prepare for large attacks, etc., and to guard against unforeseen delays in the transportation of all supplies from the base.
4. TRANSPORT. Transport in the forward areas falls in three classes:
   (a) The transport of the fighting units. This is named FIELD UNIT TRANSPORT. This is divided into two groups. GROUP A transport is that required continually by the unit and whose presence is necessary during the battle. It includes mules carrying weapons, ammunition reserves, etc. Vehicles of this group remain with the unit.
   GROUP B is the section of unit transport whose presence is not essential during battle. It is mainly administrative transport, and includes a part of the unit's reserves of ammunition, petrol, etc. This is normally withdrawn into units during battle, and is concentrated under control of Brigade HQ. It is usually located near Brigade HQ.
   (b) The transport company itself, and is named BROAD LINE TRANSPORT. It is responsible for transport between [illegible] delivery is made to the fighting units, and the point at which it draws new supplies.
   (c) A pool of transport under command of Army (ARMY TRANSPORT POOL), which is responsible for the transport of supplies forward from the lines of communication terminal to the point at which the second line transport takes delivery.
5. RESERVES. Reserves are held at almost every link in the chain of supply which runs from the ports where goods reach a theatre of war to the extreme forward troops. Those reserves held in the base and lines of communication areas are not dealt with in this lecture, which is intended to cover only the forward area.
6. FORWARD AREA AND LINES OF COMMUNICATION. The forward point where the system of supply along the lines of communication ends is called the HEAD OF COMMUNICATION (HQ). If by rail, it is called RAIL HEAD (RH). If by road, ROAD HEAD. If by air, AIR HEAD. For convenience, it will be assumed that the terminal of the lines of communication dealt with in this lecture is the RAIL HEAD.
7. MAIN ROAD MAINTENANCE AREA. This is the area surrounding (and including) the RH. Its purpose is to maintain the field formations (divisions, etc.) served from the terminal concerned. It will usually hold stocks of ammunition, petrol, supplies and other selected items. This reserve will serve:
   (a) As a reserve to ensure the maintenance of the fighting troops in the event of a breakdown of the lines of communication, or other acci-

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guard against interruption delays in the transportation of all supplies from the base.

4. TRANSPORT. Transport in the forward area falls in three classes:

(a) The transport of the fighting units. This is named FIELD LINE TRANSPORT (FLT). This is divided into two groups. GROUP A transport is that required immediately by the units and whose presence is necessary during the battle. It includes trucks carrying weapons, ammunition, reserves, etc. Vehicles of this group remain with the units.

GROUP B is the portion of unit transport whose presence is not essential during battle. It is mainly administrative transport, and includes the unit's reserves of ammunition, petrol, etc. This is normally withdrawn with units during battle, and concentrated under control of Brigade HQ. It is usually located near Brigade HQ.

(b) The transport necessary itself, and is named MAIN LINE TRANSPORT. It is responsible for transport between [illegible] delivery i
(b) and the fighting units, and the point at which it drops now run [illegible].

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6. RESERVES AT END OF MAIN LINE OF COMMUNICATION. The forward point where the transportation system along the lines of communication ends is called the [illegible] If communication is by rail, it is called RAIL HEAD (RH). If by road, ROAD HEAD. If by air, AIR HEAD. For convenience, it will be assumed that the terminal of the lines of communication dealt with in this lecture is the RAIL HEAD.

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(a) As a reserve to ensure the maintenance of the fighting troops in the event of a breakdown of the lines of communication, or other emergency.

(b) As stocks which will be required during a period of intensive operations in order to supplement the normal daily receipt of commodities from the usual sources.

The reserve to be held by RH MAINTENANCE AREA will be decided by the Army Commander.

8. FORWARD MAINTENANCE AREA. Established by Corps in the area. Their establishment has been normal during the course of the present campaign in Italy, but there may be circumstances in which they are not essential, or practicable. In general, they will be required in mobile operations when second line transport cannot [illegible] usually, according to a time table, direct from MAIN HEAD MAINTENANCE AREA.

9. Its primary object is to economise in transport. The pooling of transport behind second-line units (e.g. the ARMY TRANSPORT POOL) is only made possible by the existence of FORWARD MAINTENANCE AREAS which hold and adjust stocks of all items likely to be required, and notify for early and suitable transfer into second line transport units.

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10. Apart from acting as a reserve, the functions of FMA are:
    (a) To form a refilling area for the second line transport company, where condition permit, i.e. - when the running time for the transport company down to the FMA, having regard to by road and other factors, is not too great.
    (b) To control such units as transit and reception camps for (postal unit, personnel, prisoner of war transit camps, field cashier, salvage unit, etc . These will normally be centralised in FMA for ease of administration and defence, and for convenience of access by second-line transport on one journey. (Transport coy vehicles coming down to FMA to draw normally bring back mail and parcels for onward transmission, salvage and, in some cases, prisoners of war).
11. The reserve held in FMA is fixed by Corps, subject to approval by the army commander. The exact figures will depend upon anticipated requirements, but will usually not exceed the following scales:

    Petrol. . . . . 50 miles for the formations being served.
    Ammunition. . . About twice the amount held in second line transport.
    Rations . . . . 2 Days (preserved).
    Ordnance and other stores.
    Selected items for specific operations.

12. SECOND LINE RESERVE. The next reserve is that held by the transport company. Definite scales of the various commodities are held, but these are not necessarily kept on the vehicles. They may be dumped on the ground to enable vehicles to be used for other purposes. For the same reason, it is not possible in one company to allot platoons for the transport of definite commodities. Any vehicle in any company may have to carry, not only the normal loads of ammunition, petrol and supplies, but also troops, bridging equipment, construction materials or anything else which may be needed.
13. To a certain extent, therefore, the location of the second line transport company may function like a smaller FMA. If the distance is not greater than about 10 miles, front line unit vehicles may come here to collect their requirements. Otherwise; stores are sent further forward in second line vehicles.
14. UNIT RESERVES. Finally, every unit carries its own reserves of all commodities on a fixed scale. A portion of these will be carried in B GROUP as a battalion reserve. The remainder is held by companies, platoons and with the weapon.
15. CONTROL.

    Division. A branch of the divisional staff will be responsible for dealing with supply and transport matters. This branch will be the channel through which orders reach the transport company.

    Brigade. An officer of the transport service is attached to the headquarters of a brigade. His task is to act as a link between the units of the brigade and the transport company responsible for supplying that brigade.

    Transport Company. Under the company commander, the specialist platoon officer is responsible for the technical aspect of the unit . . . i.e. accounting, demanding, etc., for the commodities carried, and for providing the supplies to meet indents received.

16. OPERATION OF THE SYSTEM. The principle is that anything expended by a front line unit (i.e. a round of ammunition) is replaced from the unit reserve. The unit reserve is, in turn, replenished from the reserve held by the transport

commander. The exact figures will depend upon anticipated requirements, but will usually not exceed the following scales:

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Ammunition. . . About twice the amount held in second line transport.
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16. OPERATION OF THE SYSTEM. The principle is that anything expended by a front line unit (i.e. a round of ammunition) is replaced from the unit reserve. The unit reserve is, in turn, replenished from the reserve held by the transport company, which replaces this from its own source of supply. The system is that each link in the chain operates almost automatically to keep full the reserve in front of it.

17. ALTERNATIVE SYSTEM. The system described in the foregoing page has assumed the establishment of a FMA, and that front line units will draw from the location of the transport company.

18. REPLENISHMENT BY SECOND LINE. If no FMA has been established, and the RAIL HEAD MAINTENANCE AREA is too far back, commodities required by the transport company are sent forward in the vehicles of the ARMY TRANSPORT POOL. They are handed over to the transport company at an agreed point known as REFILLING POINT. If conditions permit, the two lots of vehicles will arrive together and transfer loads tailboard to tailboard. If this is not possible, the ARMY TRANSPORT vehicles unload on to the ground and leave. The transport company vehicles arrive as soon as possible afterwards

19. TRANSPORT UNIT LOCATION. Normally, the distance between unit location and the fighting troops may be too great to enable collection to be made by the vehicles of GROUP B first-line transport, at the company location.

20. In this case, it will be necessary for the transport company to send forward the stores required. There is normally a separate POINT for each commodity, - i.e. AMMUNITION POINT, PETROL POINT, SUPPLY POINT.

21. AMMUNITION POINT. Will normally hold a fixed scale of ammunition. Empty vehicles, after issue of ammunition, are automatically replaced by full vehicles from the transport company location. When established, an AMMUNITION POINT is open continuously, 24 hours a day, since ammunition must always be available. Except in the case of artillery units, first-line units normally send their vehicles to AMMUNITION POINT to collect. Artillery units usually send a guide to lead our vehicles to the actual delivery point in the artillery unit location.

22. PETROL POINT. Holds a fixed amount of petrol and lubricants. Is normally open for a fixed period daily (usually about 2 hours), and unit first-line vehicles take delivery at the point.

23. SUPPLY POINT. Rations, etc., are sent up already prepared in detail loads for each unit. First-line units collect at this point in their own transport. As with petrol, SUPPLY POINTS are normally established at a fixed time daily, and are not open continuously.

24. DIFFERENCE BETWEEN BRITISH & ITALIAN ORGANIZATION.
The British second-line system caters for a larger formation, and there is therefore more than one transport company responsible for serving the formation concerned.

25. These are usually located together in an area known as the DIVISIONAL MAINTENANCE AREA (DMA), which functions on similar lines to the FORWARD MAINTENANCE AREA (FMA). Where possible, units draw at this point, and facilities will exist for dealing with salvage, post, prisoners of war, etc.

26. It is likely that the Italian transport company location may function in the same way, i.e. - that detachments to deal with salvage, post, etc., may be attached, and that the company location may act as a divisional maintenance area.

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R.A.S.C. TRAINING DEPOT

Precis: AMMUNITION : TECHNICAL, HANDLING AND OPERATION OF SYSTEM.

Sup No. Precis No.....

PART I - TECHNICAL.

1. DEFINITION.

Ammunition is a general name for all stores containing explosives, ranging from the heaviest artillery ammunition down to the smallest rifle cartridge or booby-trap mechanism.

It is usually divided into the following 5 main types:-

(a) Artillery ammunition.
(b) Small arms ammunition (S.A).
(c) Mines, grenades and mortar ammunition.
(d) Explosives for demolitions.
(e) Pyrotechnics, i.e. - coloured flares and signal cartridges.

2. ARTILLERY AMMUNITION.

Described by (a) calibre of the gun (b) the weight of the shell.

Artillery ammunition consists of four parts:
(a) The shell itself, which may be filled with explosives.
(b) The fuse, which is the mechanism that explodes the shell.
(c) The propellant, i.e. the means by which the shell is expelled from the gun.
(d) The primer (in quick-firing arm) / The tube (in breech-loading arm) — The means by which the propellant is ignited when firing the gun.

3. Ammunition is divided into two main types:
(a) Quick-firing (QF)
(b) Breech-loading (BL)

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In QF ammunition, the propellant is contained in a brass cartridge case. This expands on firing, and seals the breech of the gun against the backward escape of the gas from the burning propellant.

In BL ammunition, the propellant is in silk bags. The gun contains its own special mechanism for sealing the breech against the escape of gas.

4. Q.F. AMMUNITION.

As the name "quick-firing" implies, this ammunition is ready for almost immediate firing. It is used in the smaller calibres of artillery weapons of ground use, and in

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As the name "quick-firing" implies, this ammunition is ready for almost immediate firing. It is used in the smaller calibres of artillery weapons of ground use, and in all calibres of anti-aircraft artillery.

There are two types of QF ammunition:-
(a) QF Fixed: All four parts are assembled in complete rounds, ready for immediate firing.
(b) QF Separate: For weapons designed to be fired with a variable charge of propellant. The best example of this is ammunition for the 25-pounder gun-howitzer, in which 4 fused shells are packed in one box, while another box contains eight propelling charges in brass cartridge cases, already fitted with primers.

...../ Sheet 2.

5. BREECH-LOADING AMMUNITION.

All parts are separate:

(a) The shell is unboxed. The orifice for inserting the fuse is plugged, and the driving band is protected by a rope ring (GRUMMET).
(b) The fuses are packed in sealed tins.
(c) The charges are contained in silk bags, boxed individually.
(d) Tubes are packed separately in boxes or tins.

6. IMPORTANT NOTICE.

The transport company is responsible, when supplying ammunition, for providing sufficient of each component to make up the complete number of rounds required.

7. Artillery weapons fall into three classes:

(a) Guns - a high-velocity flat-trajectory weapon.
(b) Howitzers - a low velocity, high-trajectory weapon.
The angle of descent of the shell is nearly vertical, and enables targets behind cover to be attacked.
(c) Combined gun-howitzers. Many modern weapons (25-pounder, 4.5inch gun) are of this class, and can be used for either purpose.

8. It should be noted that there are guns and howitzers of the same calibre. Care must be taken not to confuse their respective ammunition.

9. EXPLOSIVES.

The following are the explosives commonly used for shell fillings. The nature of the filling is indicated by the colour of the shell, and other markings. The basic colour for a shell filled with high explosive is YELLOW.

(a) LYDDITE. Shell painted yellow.
(Not in very general use)
(b) AMATOL. Shell painted yellow, with green band.
(The standard British shell filling).
(c) T.N.T. As for AMATOL, but green band is marked TNT in black.
(Some shells, mortars and grenades).

All filled (as opposed to empty) shells are marked with a red ring around the nose. If this is a solid band, it denotes shells suitable for temperate climates only. Shells filled specially for tropical countries have a ring of red crosses. This applies to all shells, not only those filled with explosives.

10. OTHER SHELL MARKINGS.

(a) Smoke. Shell painted green. Where the smoke compound is phosphorus, the letters PHOS are marked on the shell in black letters.
(b) Gas. Grey. The nature of the gas will be marked on the shell.
(c) Solid shot. Black shell, with white tip. Other types of shell

Barrel one of each component to make up the complete number of rounds required.

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(b) Gas. Grey. The nature of the gas will be marked on the shell.
(c) Solid shot. Black shell, with white tip. Other types of shell designed for piercing armour are marked by two white rings around the nose (A.P. and armour-piercing HE shell).
(d) Shrapnel. Black, with red tip.
(e) Star shell. Black, with a white circle on the shell and, in the circle, a red star.

11. AMMUNITION PACKAGES.

Ammunition delivered by second-line transport companies is always in complete, sealed packages. There is no necessity for opening these, as all markings necessary for identification are shown on the outside of the boxes. With practice in handling, it becomes easy to recognise all types, even at night.

...../ Sheet 3.

12. The more important ammunition packages are as follows:-

(a)	B.L. Ammunition.	See para 5 above. It is important to remember that lorries must be loaded in complete rounds.
(b)	25 POUNDER.	4 shells and fuses in on box. 4 Propelling charges and primers in another box.) One 3-ton lorry holds 164 complete rounds.
(c)	ANTI TANK. ARTILLERY	Q.F. FIXED ammunition packed in metal boxes.
(d)	SMALL ARMS AMMUNITION.	Packed in tin-lined wooden boxes, labelled to show the contents. At night, they may be recognised by a system of raised letters and numerals on the box.
(e)	MORTAR BOMBS, GRENADES, &c.	Packed complete in boxes.
(f)	ANTI TANK MINES.	Mines and fuses in separate boxes.
(g)	EXPLOSIVES.	In tins or boxes.

PART II - CARE AND HANDLING

1. Ammunition has numerous safeguards against premature explosion, and is safe if handled properly. It must, however, be handled with care to avoid damage to the ammunition itself. The general principles are:-

(a) It should be kept dry.

(b) It should be protected from the direct rays of the sun, and from extremes of temperature.

(c) It should be kept clean. Damage to shells, cases, driving bands, etc. must be avoided.

2. PRINCIPLES OF STACKING AND LOADING.

The following types, given in their order of importance, should be separated from each other, and from all other types of ammunition.

(i) Chemical ammunition.
(ii) Phosphorus-filled smoke ammunition.
(iii) Explosives for demolitions.

4546

Comparatively inert ammunition (such as small arms ammunition) may be used to separate stacks of the above types.

3. When stacking,

(a) Stacks should be not more than 3-feet high, and contain not more than 15 tons of ammunition (i.e. the loads of 5 3-ton lorries).

(b) Stacks should be built on dunnage (i.e. a firm flooring to keep the ammunition away from mud and surface water), and should be covered by tarpaulins, etc.

(c) MORTAR BOMBS, GRENADES, &c. — Packed complete in boxes.
(d) ANTI TANK MINES. — Mines and fuses in separate boxes.
(e) EXPLOSIVES. — In tins or boxes.

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(c) The rope grummets on BL shells must be kept in position to protect the driving band.

(d) Fire precautions must be kept at a high degree of efficiency.

4. When loading,

(a) The load should be spread evenly over the floor of the vehicle. The vehicle must not be overloaded.

(b) Ammunition should be handled carefully. Containers should not be thrown about, or dropped from lorries, but should be lifted down. A strong plank of wood form the tailboard of the lorry to the ground is convenient for loading or unloading BL shells.

...../ Sheet 4.

5. SALVAGE. This is of great importance. Boxes in which ammunition is packed often cost almost as much as the ammunition itself, and are so strong that they can be used many times. Brass cartridge cases may be refilled several times.

The term "salvage", in effect, covers everything which remains after the round has been fired. All this should be returned for re-use

6. EMERGENCY POOL. Live ammunition of any sort must never be returned in a load of salvage. If empty boxes are used for this, they must be marked clearly as containing live ammunition. The transport company commander is held personally responsible that this is carried out.

PART III. - AMMUNITION REPLENISHMENT SYSTEM.

1. PRINCIPLES.

(a) Ammunition is passed automatically from rear to front to replace that expended in battle.

(b) In emergency, a fighting unit can draw ammunition from any point at which it is held.

2. OPERATION OF THE SYSTEM.

The situation assumed to exist for the purpose of this lecture is as follows: FORWARD MAINTENANCE AREA has been established in the corps area, and the transport company reception area. The transport company location is too far from B GROUP of the first-line units, so an AMMUNITION POINT has been established 15 miles forward of the transport company location.

3. AMMUNITION POINT.

An AMMUNITION POINT is a forward detachment of the second-line transport company. Its location is selected by higher authority, which also orders the amount and types of ammunition to be held here. Once established, the AP remains open 24 hours a day until the need for it has passed. Its holding is maintained constantly at the required level by replenishment from the transport company.

The ammunition held at AP is normally kept in the lorries, and not dumped on the ground.

The operation of AP is the responsibility of the transport company. The normal procedure, on orders being received to open an AP, is for the company to carry out a reconnaissance of the location ordered, and select a suitable site. The following requirements should be borne in mind:

(a) Good traffic circuits. Roads wide enough for 2 vehicles to pass.
(b) Hard standing for the number of vehicles to be held at AP.
(c) Cover from air observation.

The officer in charge of AP is responsible for (i) marking the route to the AP from the actual point given by higher command in the order establishing the AP. (This order is, of course, circulated to all units drawing ammunition from the company). (ii) He will also mark the route through the ammunition point to be used by vehicles drawing. This should, if possible, be a one-way circuit. (iii) He will establish [illegible] ammunition will

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6. AMMUNITION STATES.

Detailed accounts, supported by vouchers, are not required in respect of ammunition. In order that the transport company commander and higher command may be kept informed of the ammunition situation, a system of STATES showing the position at selected times of the day will be adopted by the transport company. One will be maintained in respect of the ammunition held centrally by Platoons and one for every AP at which ammunition

...../ Sheet 5.

in hand. These will be consolidated into a Coy State by the specialist Platoon. These states will show the amounts of ammunition on hand, by natures and sub-varieties, and the amount required to complete the holding to the normal figure. The form of an ammunition state is shown in Appendix I to this precis.

7. REPLENISHMENT OF AMMUNITION.

(a) Artillery Units. Send demands to AP by motor-cyclist. (Note that three motor-cyclists are held in the Specialist Platoon of the transport company who may be detached to units for this purpose). The demand should, where possible, be made out in complete lorry loads.

On arrival at AP, the motor-cyclist reports to the report centre. The officer i/c AP will detail the necessary lorries to accompany the motor-cyclist back to the delivery point of the artillery regiment concerned.

8. He will obtain particulars of the route to be used, the location of the delivery point and the approximate time which the journey will require, and before he can expect his empty vehicles back. This is important, so that if a vehicle breaks down or becomes a casualty, he knows where to look for it.

9. (b) Infantry Units. Ammunition expended by units is replaced from the first-line reserve in GROUP "B". GROUP "B" vehicles are then sent down to AP, with a demand for the ammunition required. This is collected from the lorries of the AP.

10. DEMANDS. There is no official form of demand for ammunition, but written demands should be sent where possible. A verbal demand, however, must be accepted. Receipts will be obtained for all ammunition issued.

11. SALVAGE.

Units sending empty vehicles to collect ammunition should use them to send back ammunition salvage (see Part II, para 5). In the same way, vehicles of the transport company going forward to deliver ammunition should collect salvage at the delivery point before returning. Drivers should be trained to ask for salvage.

12. REPLENISHMENT OF A.P. AFTER ISSUE.

4845

After delivery has been made at AP, empty vehicles will return to the transport company location. When they arrive, full vehicles will be sent up automatically to replace them. No demand is necessary for this purpose.

13. Vehicles from which more than half their load has been issued will be considered as empty, and sent back in accordance with para 12 above. The officer i/c AP may, however, economise transport by making up the loads from other partially empty vehicles.

PART IV. DUMPING PROGRAMME.

1. During the initial stages of a large- scale attack, the expenditure of artillery ammunition will be larger than can be replaced immediately through the normal operation of the ammunition system. Preparations for the attack must therefore include placing at the guns or at forward dumps sufficient ammunition to ensure that, after the initial expenditure, the normal ammunition reserves are still

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2. Delivery of ammunition preparatory to an attack will almost invariably be limited to the hours of darkness.

3. This operation is known as a DUMPING PROGRAMME. Each such programme will involve varying factors, and therefore no standard programme can be prepared for use at all times.

4. The main factors to be considered in a dumping programme are:-

(a) The number of rounds per gun to be dumped.

(b) Transport available, subject to the maintenance of existing AMMUNITION POINTS. Transport will probably include the first-line transport of artillery regiments.

...../ Sheet 6

(c) Factors of time and space:

(i) Total number of hours available; the number of hours of darkness available, if all or part of movement is limited to those hours.
(ii) Weather and state of roads.
(iii) Distance between delivery points and the RAIL HEAD at which the ammunition is received.
(iv) Restrictions on the use of routes; restriction on the use of lights in the forward areas.
(v) The state of preparedness of the ammunition-carrying units involved.

5 A warning order should be issued to all units concerned as soon as the necessity for a dumping programme becomes apparent.

6 The orders issued by higher authority for the dumping of ammunition will include the establishment of an AMMUNITION REGULATING CENTRE or CENTRES. The function of this is to regulate the flow of ammunition to the different delivery points, and to control the progress of the whole dumping programme.

7 REGULATING CENTRE must be located well forward on the main traffic routes, and in such a position that the officer or NCO in command of every group of ammunition vehicles arriving in the forward area can conveniently report for instructions.

8 REGULATING CENTRE will normally be staffed by:
(a) Officers from Div HQ (including an artillery officer for liason work with the artillery regiments being served.)
(b) An officer from the transport company to control the marshalling of vehicles, traffic control, etc.
(c) Motor-cyclists to act as guides in the delivery area.
(d) Military police to assist in traffic control.

9 The routes between REGULATING CENTRE and the delivery points are normally fixed by higher authority, and traffic control and marking of the routes will be carried out by the military police. The transport company commander must, however, be prepared in emergency to reconnoitre and decide traffic circuits, if he should be ordered to do so.

10 A thorough reconnaissance of the routes chosen should, be carried out by every officer and NCO of the transport company who will be engaged in the dumping programme. It is essential that the motor-cyclists to be employed in guiding ammunition vehicles from regulating centre to the various delivery points should be familiar with the routes to be used, and should be able to find them in the dark, and usually without lights. Every opportunity should be taken to enable the routes to be reconnoitred in the day light before the programme begins.

11 Ammunition vehicles arriving at REGULATING CENTRE are marshalled as required, and taken forward by motor-cyclist to the delivery point.

12 If there is more than one delivery point for each artillery regiment, it may be necessary to form REGIMENTAL REGULATING CENTRES beyond the main REGULATING CENTRE. Vehicles are despatched from the regimental regulating centres to the various delivery points. After delivery, empty vehicles are assembled again at the regimental centre before being led out on to the main routes to the rear.

13 Before leaving the main delivery area, empty vehicles report to a RETURN CONTROL POINT situated on the main rearward route. Here information is collected as to loads delivered, and units to whom delivered. This information is given to the motor-cyclist guide, who returns with it to REGULATING CENTRE to enable the progress of the programme to be noted. The motor-cyclist is then available for

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14 The return control point is normally staffed by an officer of the transport company, with a staff which should include one or more motor-cyclists.

15 It may be convenient to establish a refreshment point on the return route so that drivers, after delivery, may obtain a hot drink and some food.

16 The following times may be taken as guides when making a dumping programme:

(a) It takes approx. 45 minutes to load a lorry with ammunition at rail head or a forward dump.
(b) It takes approx. 30 minutes to unload a lorry, or to transfer a load, tailboard to tailboard, to another lorry.

These times are for one lorry, but may be taken as timings for as many vehicles as can be loaded or unloaded simultaneously.

APPENDIX 1.

AMMUNITION STATE. . . . .Mar. 1944

. . . . . .(Name of Unit).

Platoon, Gun Point, etc.	Location.	Types of ammunition as required.	Remarks

APPENDIX 11 - AMMUNITION LOAD TABLES.

The figures given represent the load of a 3-ton lorry.

ARTILLERY.

2 POUNDER.	960 rounds.	25 POUNDER.	104 rounds
37 MM.	1340 "	17 POUNDER.	106 "
6 POUNDER.	520 "	3 INCH M.10 SELF-PROP . . .	126 "
75 MM	240 "	4.5 INCH.	85 "
105 MM	106 "	5.5 INCH	60 "
3 INCH HOWITZER - HE.	300 "	155 MM	45 "
ditto SMOKE	555 "	7.2 INCH HOWITZER	26 "
20 MM	3400 "	3.7 INCH HOWITZER	228 "
40 MM	960 "		

MORTARS, ETC.

PIAT	894 "	2INCH BOMB THROWER	2042 "
MORTAR 2 INCH, HE	1764 "	REAR EJECTOR	960 "
ditto SMOKE	1854 "	GROUND DISCHARGER 4 INCH . .	960 "
MORTAR 3INCH, HE	456 "	GRENADE No. 75	2016 "
ditto SMOKE	420 "	MINES ANTI TANK Mk.IV . .	440 "
MORTAR 4.2 INCH, HE OR SMOKE .	246 "	ditto Mk. V . . .	580 "

APPENDIX 11 - AMMUNITION LOAD TABLES.

The figures given represent the load of a 3-ton lorry.

ARTILLERY.

2 POUNDER	960 rounds.	25 POUNDER	112 rounds
57 MM.	1340 "	17 POUNDER	106 "
6 POUNDER	520 "	3 INCH M.10 SELF-PROP	126 "
75 MM	240 "	4.5 INCH	85 "
105 MM	106 "	5.5 INCH	60 "
3 INCH HOWITZER - HE	300 "	155 MM	45 "
ditto SMOKE	555 "	7.2 INCH HOWITZER	26 "
20 MM	8400 "	3.7 INCH HOWITZER	228 "
40 MM	960 "		

MORTARS, ETC.

PIAT	894 "	2 INCH BOMB THROWER	2042 "
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ditto SMOKE	420 "	MINES ANTI TANK Mk. IV	440 "
MORTAR 4.2 INCH, HE OR SMOKE	246 "	ditto Mk. V	580 "

SMALL ARMS AMMUNITION

PISTOL .38 INCH	154,200 "	BROWNING .30 INCH	91,000 "
RIFLE .303 INCH	68,000 "	L.M.G. .5 INCH	30,000 "
SUB MACHINE GUN .45 INCH	106,800 "	BROWNING .50 INCH	29,000 "
L.M.G. .303	80,000 "	BESA 7.92 MM	56,250 "
SIGNAL PISTOL	30,000 "	BESA 15 MM	7,800 "

APPENDIX III. SCALE OF RESERVE (ROUNDS PER GUN) IN DIVISIONAL ARTILLERY

Field Regiment.

	H.E. & SMOKE	ARMOUR-PIERCING
First line	160 rpg	12 rpg
Second line	70 rpg (inc 7 Smoke)	5 rpg

Anti-Tank Regiment

	ARMOUR-PIERCING 6 POUNDER	17 POUNDER	3 INCH M.10 SELF PROPELLED
First line	96 rpg	90 rpg	90 rpg
Second line	48 rpg	36 rpg	36 rpg

Light Anti-Aircraft Regt.

	HIGH EXPLOSIVE	ARMOUR PIERCING
First line	264 rpg	48 rpg
Second line	120 rpg	24 rpg

RASC TRAINING DEPOT.

Precis (Italian): PETROL - TECHNICAL & REPLENISHMENT IN FORWARD AREAS.
Sep. 44. Precis No.....

Part I - TECHNICAL.

1 RESPONSIBILITY.
The Transport Company is responsible for the provision of (i) petrol (ii) fuel for Diesel engines (iii) lubricants (iv) kerosene and (v) anti-freeze fluids.

2 PETROLEUM PRODUCTS.
(a) Petrol.
Is divided into two types: (i) Aviation spirit, for aeroplanes.
(ii) M.T. spirit for mechanical transport.
There are various grades of petrol within each of these types, the grades being divided according to their OCTANE NUMBER, that is to say, its anti-knock or anti-detonation value. 100 OCTANE is the highest octane value.
The various grades can be identified by the colour of the petrol, and by the markings on the containers. This information is given below for the types of petrol in common use in the Italian theatre of war:

(i) Aviation Petrol. (marked AV)

GRADE.	COLOUR OF PETROL.	MARKING ON CONTAINERS.
100 Oct AV	Green	100 AV
87 Oct AV	Light Blue	87 AV

(ii) Petrol for Vehicles (marked MT).

87 Oct MT	Dark Blue	87 MT
80 Oct MT	Red	80 MT

80 Octane MT petrol will be used for all vehicles except certain armoured fighting vehicles with special engines, which use 87 Oct MT.

(b) Fuel for Diesel Engines.
This is known as DERV (Diesel-engined road vehicles), and must only be used for oil engines of the compression-ignition type. It is easily distinguished from petrol by its smell, colour and the fact that, if agitated, a white froth appears on top of the fuel. The colour may vary from a light straw to dark brown. Containers of DERV are painted black, or have a black band around them. They are marked with one of the following:

D-A
D-B
D-X

4343

(c) Lubricating Oils and Greases.

Various grades are in use by the army, as follows:

1. Oils for engines.

Grade.	Colour of package.	Description.
10D	Yellow.	Engine oil, light.
30 HD	Grey	do medium.
50 HD	Red	do heavy.

2. Oils for gear-boxes.

High pressure gear oil, light.

The various grades can be identified by ... markings on the containers. This information is given below for ... petrol in common use in the Italian theatre of war:

(i) Aviation Petrol (marked AV)

GRADE.	COLOUR OF PETROL.	MARKING ON CONTAINERS.
100 Oct. AV	Green	100 AV
87 Oct AV	Light Blue	87 AV

(ii) Petrol for Vehicles (marked MT).

87 Oct MT	Dark Blue	87 MT
80 Oct MT	Red	80 MT

80 Octane MT petrol will be used for all vehicles except certain armoured fighting vehicles with special engines, which use 87 Oct MT.

(b) Fuel for Diesel Engines.

This is known as DERV (Diesel-engined road vehicles), and must only be used for oil engines of the compression-ignition type. It is easily distinguished from petrol by its smell, colour and the fact that, if agitated, a white froth appears on top of the fuel. The colour may vary from a light straw to dark brown. Containers of DERV are painted black, or have a black band around them. They are marked with one of the following:

D-A
D-B
D-X

4643

(c) Lubricating Oils and Greases.

Various grades are in use by the army, as follows:

1. Oils for engines.

Grade.	Colour of package.	Description.
10 HD	Yellow.	Engine oil, light.
30 HD	Grey	do medium.
50 HD	Red	do heavy.

2. Oils for gear-boxes.

Hypoid 80	Black, stencilled blue	High pressure gear oil, light.
Hypoid 90	Black, stencilled white	do. medium
S.600	Blue	Ordinary gear oil.

Containers are coloured as above, and marked with the grade of oil.

3. Greases.

No. 1	(No special colour for containers, but the grade number will be marked on each tin	Grease soft.
No. 2		Grease, hard.
No. 3		High melting-point grease.
No. 4		Special grease for water pumps.

(d) Kerosene. Normally supplied in 5-gallon drums, painted light grey, and marked with the letter "K".

.....Sheet 2 /

3 CONTAINERS IN WHICH PETROL & OILS ARE CARRIED.
A variety of containers is in use. These fall into two classes - returnable containers (which, after emptying, are sent back by the unit for refilling and re-issue) and expendable containers, which are used only once.

(a) Containers for petrol or DERV.

(i) Corrugated welded 4-gallon Drum (Returnable).

Heavy drum of corrugated steel. Is very robust.
Approx. weight filled: M.T. petrol 36½ lbs. DERV 40. lbs.

(ii) Rectangular 4-gallon can (Returnable).

Petrol containers with pressed joints.
Approx. weight filled: M.T. petrol 40 lbs. DERV 44 lbs.

(iii) [illegible] 4-gallon Container (Returnable).

Small, welded metal container with clip-type fastener.
Approx. weight filled: M.T. petrol 43½ lbs. DERV 48 lbs.

(iv) Barrels, returnable, 40 or 50 gallons.

Heavy steel welded barrels. Very strong, and easily repaired if damaged.

(v) [illegible] 4.2 gallon Can (Returnable).

(b) Containers for DERV.

(i) [illegible], 2 or 5 gallons (Returnable).

Galvanised metal construction.

(ii) Containers for Anti-freeze Oils.

Petrol, 2½ gallon (Expendable).

Weight filled 21 lbs.

(iii) Containers for Grease.

Grease is packed in expendable tins containing 7 lbs. (weight filled 8½ lbs), and 24 lb. metal kegs, (weight filled 34 lbs), which are also expendable.

4 LOAD CARRIED.
The figures given are in gallons, and represent the load of a 3-ton lorry.

	Petrol.	DERV.
Corrugated 4-gallon drum	640	660
Rectangular 4-gallon can	648	612
Jerricans	675	621
Drums, 40-gallons	720	-
Barrels, 50 gallons	750	-
Oil Drum, 5-gallon		660

(xiii) [illegible] 4-gallon Container (Returnable).

Small, welded metal container with clip-type fastener.
Approx. wt. when filled: M.T. petrol 4½ lbs. DERV 4½ lbs.

(xiv) Barrels, 4-gallon, 40 or 45 gallons.

Heavy steel welded barrels. Very strong, and easily repaired if damaged.

(xv) [illegible] 4-5 gallon Can (Returnable).

(b) Containers for DERV.

(i) [illegible] 45 gallons (Returnable).

Normal metal construction.

(c) Containers for Lubricating Oils.

[illegible] 1 gallon (Expendable).

Weight filled 9½ lbs.

(d) Containers for Grease.

Grease is issued in expendable tins containing 7 lbs. (weight filled 9¼ lbs), and in expendable boxes, (weight filled 5½ lbs), which are also expendable.

4 [illegible].
[illegible] are in gallons, and represent the load of a 3-ton lorry.

	Petrol.	DERV.
Cylindrical [illegible] drum	640	660
Rectangular [illegible] can	645	612
Jerrican	675	621
Drum, 40-gallons	720	-
Barrels, 50 gallons	700	-
Oil Drum, 5-gallon	-	660

Part II - [illegible].

1 SITING.
Petrol stacks should be located not less than 150 feet from any occupied premises, public highways etc.
It is important in the forward areas that stacks should be small, and dispersed as widely as conditions allow, since they have proved very vulnerable to anti-personnel fragmentation bombs.
Since conditions vary so widely, it is not possible to give definite instructions on this point. In the case of a petrol dump in the transport company location, the company commander must strike a balance between the safety considerations and other factors such as space available, ease of access and administration, etc. As a general guide, stacking on the basis of 3 3-ton loads to each stack in suitable formation, with an interval of 150 feet between stacks.

2 CONSTRUCTION OF STACKS.
The ground space should be cleared of vegetation and, if necessary, levelled. To keep the bottom row of containers clear of mud and surface water, each stack should

...../Sheet 3

be built on dunnage, i.e. timber, bricks, concrete slabs, sand or any other material available locally. Ash must never be used owing to the corrosive effect on petrol tins, nor must any sharp-edged material likely to puncture the tins.
When constructing or breaking down stacks, personnel must never be permitted to stand on the lower rows of containers.

3 METHOD OF STACKING.

4-gallon cylindrical drums:	The base of one tin is designed to fit into the top of another. Three layers are made in this way. The fourth layer is inset half a tin all round, and the fifth layer is flush with the fourth.
4-gallon rectangular cans:	Stack on the long sides, with the filler cap to the [illegible] and with the line of each layer of cans at right angles to the layer below. Not more than eight layers high.
Jerricans & Ameri-cans.	Stack upright, not more than 5 cans high.
5-gallon oil Drums:	[illegible], with the filler cap uppermost. (If [illegible], rain collects in the hollow round the filler [illegible] the drums, contaminating the oil [illegible].)
7-lb. Tins of grease	[illegible] in cases of 6 tins. Stack cases upright, not more than eight layers high.
20-lb. Kegs of grease	[illegible] upright, not more than five layers high, and [illegible] each layer. Or may be stacked on [illegible] 5-gallon oil drums), not more than eight high.

NOTE. The maximum heights of stacks given above are designed to limit the weight on the bottom layers of stacks and avoid unnecessary damage.
Other considerations (camouflage, etc.) will probably mean that stacks will have to be lower.

4 PROTECTION OF STACKS.
All stacks should be covered as a protection against wet weather, using any materials which may be available locally. Air spaces must be left between stacks and their covers to allow ventilation. Full advantage should be taken of any natural cover, supplementing this with camouflage netting. In areas where attack by low-flying aircraft is likely, stacks should not be built in a straight line, but must be suitably staggered.

5 LOADING AND HANDLING OF PETROL.
Careless handling is the [illegible] cause of leakage and loss. All personnel must be instructed in the need for care in this respect.
Containers must always be lifted on [illegible] a lorry, and never thrown or dropped.
The interior of lorries should be kept clean, and free from sharp projections which might puncture the cans.
Containers must be carefully loaded, stacked upright and packed tightly.
Drums and kegs must be belly-[illegible].
A layer of dunnage should be placed between layers of uncased tins.
Empty tins or other materials should be used to fill in any vacant spaces to prevent movement and damage to the containers.

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6 CONTROL OF LEAKAGES.
A rigid system must exist for the detection of leaking containers at every stage of their storage and transport. These must be set aside when loading or unloading vehicles. Stacks should be examined regularly, and all leaking containers withdrawn. The contents of leaking containers must either be used immediately (placed in vehicle tanks) or decanted into clean, sound containers.
A daily record will be kept of leakages, showing details and numbers of leaking containers, the quantity salvaged, and the nett loss.

7 FIRE PRECAUTIONS.
Very important in the case of petrol. Fire Orders should be issued, and known to all concerned, and an officer of the transport company detailed as Company Fire

7-lb. Tins of grease

28-lb. Kegs of grease

NOTE. The maximum heights of stacks given above are designed to limit the weight on the bottom layers of stacks and thus avoid cargo damage.
Other considerations (camouflage, etc.) will probably mean that stacks will have to be lower.

4 PROTECTION OF STACKS.
All stacks should be covered as a protection against wet weather, using any materials which may be available locally. Air spaces must be left between stacks and their covers to allow ventilation. Advantage should be taken of any natural cover, supplementing this with camouflage netting. In areas where attack by low-flying aircraft is likely, stacks should not be built in a straight line, but must be suitably staggered.

5 LOADING AND HANDLING OF PETROL.
Careless handling is the principle cause of leakage and loss. All personnel must be instructed in the need for care in this respect.
Containers must always be handled gently, and never thrown or dropped.
The interior of lorries should be kept clean, and free from sharp projections which might puncture the cans.
Containers must be carefully loaded, packed upright and packed tightly.
Drums and kegs must be bung-side up.
A layer of dunnage should be placed between layers of uncased tins.
Empty tins or other materials should be used to fill in any vacant spaces to prevent movement and damage to the containers.

4942

6 CONTROL OF LEAKAGE.
A rigid system must exist for the detection of leaking containers at every stage of their storage and transport. These must be set aside when loading or unloading vehicles. Stacks should be examined regularly, and all leaking containers withdrawn. The contents of leaking containers must either be used immediately (placed in vehicle tanks) or decanted into clean, sound containers.
A daily record will be kept of leakages, showing details and numbers of leaking containers, the quantity salvaged, and the nett loss.

7 FIRE PRECAUTIONS.
Very important in the case of petrol. Fire Orders should be issued, and known to all concerned, and an officer of the transport company detailed as Company Fire Officer.
The fire orders should deal (a) with precautions to prevent fire and (b) with action to be taken in the event of a fire.

8 Fire appliances should be dispersed through all petrol dumps. These will generally have to be improvised from materials available locally. Containers for sand (NOT WATER) are those most easily obtained.

9 A trench should be dug around the base of every petrol stack. It should extend all the way round it, about three feet from the base. The trench should be not less than 9 inches deep, and the earth piled outside the trench to make a retaining wall. This assists in slowing the spread of a fire, and isolating it to one stack.

...../Sheet 4

[illegible] - OPERATION OF THE SYSTEM

1 PRINCIPLE.
The guiding principle of petrol replenishment is that, at the start of an operation or march, all vehicles are fully replenished and all reserves complete.

2 ABBREVIATION. POL (petrol, oil and lubricants) is the abbreviation which indicates all commodities included in petrol replenishment.

3 PROPORTION. Oils and greases are carried in proportion to the petrol, and vehicles should be loaded accordingly (i.e. each load of petrol having its corresponding amounts of oils and greases).
The actual proportions carried in this theatre of war, expressed as percentages, are as follows:-

Petrol		82%
DERV		11%
Kerosene		3%
Lubricants:	[illegible]	0.08%
	[illegible]	.12%
	[illegible]	3.00%
	[illegible] 30	0.40%
	[illegible] 50	0.40%
	[illegible] 70	0.60% 4%

4 OPERATION OF SYSTEM.
Units of all arms of the service normally have as part of their first-line transport one or more vehicles for the carriage and distribution of POL within the unit. As POL is consumed by unit vehicles, it is replenished from this unit reserve. The unit POL vehicles in turn replenish from the second-line transport company.

5 Units are not required to indent in advance for petrol, but they will send a written demand in duplicate when drawing POL, and will give a receipt at the time of issue.

6 As far as possible, first [illegible] transport will draw from the location of the transport company. [illegible] conditions make this impossible, the transport company will be ordered to establish a forward REFUEL POINT [illegible]. This petrol point operates on similar lines to the AMMUNITION POINT dealt with in a previous paragraph, except that the replenishment is normally required only once daily, and it will be open for a limited period daily only (usually about 2 hours). The amount to be held at each point will be given by higher command when ordering the point.

7 Except as noted [illegible] procedure and responsibilities in a FP are the same as [illegible] AMMUNITION STATES). In addition,

8 ACCOUNTING. [illegible] it is desirable to have some form of accounting for the returnable containers in which POL is issued, and which must be returned by the unit to the transport company. The normal procedure [illegible] POL on a " can for can " basis, i.e. - a unit bringing back empty cans is given full cans in exchange.

9 This involves [illegible] of cans issued to and returned by the units being served.

10 REPLENISHMENT BY TRANSPORT COMPANY. Will normally be at FMA or RAIL HEAD MAINTENANCE AREA, according to conditions. The company will normally be allotted a time for drawing. Vehicles are sent down with a written indent for the amount of POL required.

11 ALTERNATIVE SYSTEM.
As is the case with ammunition, conditions may make the establishment of FMA impracticable. In such circumstances, the transport company will be replenished at a PETROL REFILLING POINT, where it will take over from the vehicles of the ARMY [illegible] is the same as for AMMUNITION REFILLING POINT (see

1903

Lubricants:	[illegible]	0.08%	
	[illegible]	.12%	
	[illegible]D....................	0.80%	
	[illegible] 90..............	0.40%	
	[illegible]	0.60%	4%

4 OPERATION OF SYSTEM.
Units of all arms of the service normally have as part of their first-line transport one or more vehicles for the carriage and distribution of POL within the unit. As POL is consumed by unit vehicles, it is replaced from this unit reserve. The unit POL vehicles in turn replenish from the second-line transport company.

5 Units are not required to indent in advance for petrol, but they will send a written demand in duplicate when drawing POL, and will give a receipt at the time of issue.

6 As far as possible, first line transport will draw from the location of the transport company. Where conditions make this [illegible], the transport company will be ordered to establish a forward PETROL POINT [illegible]. This petrol point operates in similar manner to the AMMUNITION POINT dealt with in a previous [illegible], except that, as replenishment is normally required only once daily, it will be open for a limited period daily only (usually about 2 hours). The amount to be held at [illegible] will be given by higher command when ordering the point.

7 Except as mo[illegible] procedure and responsibilities in a PP are the same [illegible] for AMMUNITION STATES). In addition,

8 ACCOUNTING. [illegible]
It is desirable to have some means of accounting for the returnable containers in which POL is issued, and which must be returned by the unit to the transport company. The normal procedure [illegible] POL on a " can for can " basis, i.e. - a unit bringing back empty cans is given full cans in exchange.

9 This involves [illegible] of cans issued to and returned by the units being served.

10 REPLENISHMENT BY TRANSPORT COMPANY. Will normally be at FMA or RAIL HEAD MAINTENANCE AREA, according to conditions. The company will normally be allotted a time for drawing. Vehicles [illegible] sent down with a written indent for the amount of POL required.

11 ALTERNATIVE SYSTEM.
As is the case with ammunition, conditions may make the establishment of FMA impracticable. In such circumstances, the transport company will be replenished at a PETROL REFILLING POINT, where it will take over from the vehicles of the ARMY TRANSPORT POOL. The procedure is the same as for AMMUNITION REFILLING POINT (see precis on AMMUNITION).

12 PROTECTION AGAINST GAS.
Petroleum products are unaffected by contamination with gas, and the only precautions required to be taken to nullify the effects of gas attacks are:-
(a) To prevent contamination of personnel, as a result of handling packages.
(b) To prevent corrosion of containers.
Blister gases have no effect on metals, but if the containers are contaminated by liquid, they become dangerous to handle and must be decontaminated.
Measures must be adopted at all times to give the maximum possible protection against the effects of gases, especially blister gases.
ACTION NECESSARY AFTER EXPOSURE TO GAS.
All metal containers can be made safe to handle by wiping with a rag soaked with petrol, or by covering with bleach paste, and leaving for 24 hours. The rags should be burnt.
Containers in cases should be removed from contaminated cases at the earliest opportunity and the cases burnt. Wooden cases can be rendered safe to handle by covering with bleach paste, but such cases should be burnt at the earliest opportunity.

RAC TRAINING DEPOT

Front (Italian): SUPPLIES - TECHNICAL AND OPERATION IN FORWARD AREA

Dep 4A Precis No.

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1 DEFINITION

The term SUPPLIES includes the following:
(a) Food for men.
(b) Forage for animals.
(c) Fuel, light and disinfectants.
(d) Water-purifying chemicals.
(e) Hospital supplies (i.e. extra rations for invalid diets, etc., and NOT medicines or technical medical stores.

2 RAIL HEAD MAINTENANCE AREA

The section of the RHMA dealing with SUPPLIES will also include facilities for handling Ordnance and Engineering stores, EFI (Expeditionary Forces Institute, dealing with canteen goods), MFO (Military Forwarding Organization - dealing with parcels service), mail, salvage, etc., whilst a transit camp and prisoner of war cage will also be found in the vicinity.

3 ROAD AND MAINTENANCE AREA.

The section of the RMA dealing with supplies will normally be operated by a small Supply Issuing Unit known as a DID (Detail Issue Depot), responsible for issuing in BULK to second-line transport companies, and also issues in DETAIL to local units.

4 GENERAL PRINCIPLES

(a) Supplies to be replenished daily at a time and place convenient to units.
(b) Forward units must have two days rations within easy reach; in addition, every man carries on him an emergency ration.
(c) Period of ration is normally midnight to midnight.

5 PROCEDURE AT RMA

One days supplies are normally delivered daily by vehicles of the ARMY TRANSPORT POOL. These are unloaded at RMA to form commodity stacks.
Vehicles from each transport company proceed daily to RMA to collect bulk supplies under arrangements made by higher command, who usually fix a routine drill for drawing bulk requirements. 4541
The transport company draws in bulk the requirements for the formation which it is serving. This is known as GROUP BULK.

6 PROCEDURE AFTER COLLECTION AT RMA.

The next step for the transport company is to break down its bulk loads into a series of loads, each one representing a day's complete rations for one unit. This process is known as BREAKING BULK, and the place where it is carried out is known as BULK BREAKING POINT (BBP). It is normally [illegible] in or very close to the location of the transport company.

7 BULK BREAKING POINT (BBP).

2 [illegible] AREA

The section of the [illegible] dealing with [illegible] will also include facilities for handling Ordnance and Engineering stores, EPI (Expeditionary Force Institute, dealing with canteen goods), MPO (Military Forwarding Organization - dealing with personnel matters), mail, salvage, etc., whilst a transit camp and prisoner of war cage will also be found in the vicinity.

3 [illegible] AREA.

The section of the [illegible] dealing with supplies will normally be operated by a small Supply Issuing Unit known as a DID (Divisional Issue Depot). Responsible for issuing in BULK to intermediate transport companies, and also issues in DETAIL to local units.

4 GENERAL PRINCIPLES.

(a) Supplies to be replenished daily at a time and place convenient to units.
(b) Forward units must have ten days rations within easy reach; in addition, every unit carries on him an emergency ration.
(c) Period of return is normally limited to eighteen hours.

5 PROCEDURE AT RMA.

One days supplies are normally delivered daily by echelon of the ARMY TRANSPORT POOL. These are unloaded at RMA to form commodity stacks.
Vehicles from each transport company proceed daily to RMA to collect bulk supplies under arrangements made by higher command, who usually lay a routine drill for drawing bulk requirements.
The transport company draws in bulk the requirements for the formation which it is serving. This is known as DRAWN BULK.

6 PROCEDURE AFTER COLLECTION AT RMA.

The next step for the transport company is to break down the bulk loads into a series of loads, each one representing a day's complete rations for one unit. This process is known as BREAKING BULK, and the place where it is carried out is known as BULK BREAKING POINT (BBP). It is normally sited in or very close to the location of the transport company.

7 BULK BREAKING POINT (BBP).

(a) Its location and layout are the responsibility of the transport company. It is normally operated by the Specialist Platoon.
(b) The question of concealment from the air must be considered when siting it.
(c) Commodities should be unloaded on arrival in the area in which they will be reloaded into vehicles, i.e. - tinned and cased goods, packed goods, fresh meat, bread. The heavier and non perishable commodities will be loaded first into vehicles and distributed over the whole area.
(d) Before breaking bulk commences, indents are detailed to the various commodity stacks and given blocks showing the quantities of each item to be issued to each unit.
(e) Before the arrival of the supplies, the sites for breaking bulk should be prepared, shelters set up, dunnage provided as a base for stacks and technical equipment (scales, butchers implements, etc.) made ready.

...../Sheet 2.

(f) Sites should have hard ground suitable for vehicle standings. There should be a traffic circuit, suitably signposted, and with one entrance at entrance and exit.

8. DELIVERY OF SUPPLIES TO UNITS.

After bulk has been broken, supplies remain in the transport company location until

(a) They are collected by the first-line vehicles in the location, or
(b) They are sent forward in transport company vehicles to a SUPPLY POINT.

9. SUPPLY POINT.

Operates in a similar way to PETROL POINTS. Location is selected by higher authority but detail layout is responsibility of the transport company. Delivery is made at SP to unit first-line vehicles. Alternatively, unit representatives may rendezvous there and guide second-line vehicles to unit locations. After delivery of supplies, second-line vehicles load salvage and return to their company location.

10. A SP should not be closed until the officer of the second-line company in charge is satisfied that delivery has been made to all units.

11. The supply vehicles also deliver mail, parcels, ordnance returns, etc., which are collected at RMA with supplies, and sorted at SP into unit lots.

12. SEQUENCE OF OPERATIONS.

Will depend on local conditions, but might be:

(a) Transport company collects in bulk from RMA in early afternoon.
(b) Breaks bulk in late afternoon.
(c) Delivery made to units on the following morning.

Depending on the air situation, delivery may have to be made at night. Personnel concerned should be trained in doing this.

13. DUTIES OF OFFICERS.

(a) COMPANY SUPPLY OFFICER (Supply Captain in Specialist Platoon)

(i) Controls system of demand and issue of supplies to the units which his company serves, subject to the general supervision of the branch at Divisional HQ dealing with supplies and transport.

(ii) Supervises loading of bulk supplies at RMA. Controls breaking bulk at company location, and reloading into unit detail loads.

(iii) Responsible for layout and operation of SP, and for the general technical supply duties in his company.

9. SUPPLY POINT.

Operates in a similar way to RENDEZVOUS POINTS. Location is selected by higher authority but detail layout is responsibility of the transport company. Delivery is made at SP to unit first-line vehicles. Alternatively, unit representatives may rendezvous there and guide second-line vehicles to unit locations. After delivery of supplies, second-line vehicles load salvage and return to their company location.

10. A SP should not be closed until the officer of the second-line company in charge is satisfied that delivery has been made to all units.

11. The supply vehicles also deliver mail, parcels, ordnance stores, etc., which are collected at RMA with supplies, and sorted at ASP into unit lots.

12. SEQUENCE OF OPERATIONS.

Will depend on local conditions, but might be:

(a) Transport company collects in bulk from RMA in early afternoon.
(b) Breaks bulk in late afternoon.
(c) Delivery made to units on the following morning.

Depending on the air situation, delivery may have to be made at night. Personnel concerned should be trained in doing this.

13. DUTIES OF OFFICERS.

(a) COMPANY SUPPLY OFFICER (Supply Captain in Specialist Platoon)

(i) Controls system of demand and issue of supplies to the units which his company serves, subject to the general supervision of the branch at Divisional HQ dealing with supplies and transport.

(ii) Supervises loading of bulk supplies at RMA. Controls breaking bulk at company location, and reloading into unit detail loads.

(iii) Responsible for layout and operation of RDP, and for the general technical supply duties in his company.

(b) OFFICER OF SUPPLY SERVICES AT BRIGADE HQ.

(i) Is responsible to Brigade Commander for ascertaining and remedying any shortcomings in the supply services to that Brigade.

(ii) Gives assistance to the supply and transport branch of Divisional HQ.

(iii) Assists the Brigade staff in arranging replenishment of supplies, ammunition and petrol. If required, will assist in the selection of ammunition points, petrol points and supply points in the area of his Brigade.

(iv) Maintains personal liaison with the second-line transport company.

...../Sheet 3.

(v) Will forecast the requirements of his brigade, particularly for ammunition and petrol. In the case of anticipated abnormal requirements, he will send early warning to the second-line company and to the divisional RE supply branch.

(vi) Will normally account at supply points, petrol points, ammunition points, etc., to give any assistance required.

14. ACCOUNTING.

The full accounting procedure will be learned by the Company Supply Officer during his period of attachments to supply units after the conclusion of this present course. For the present, therefore, only a brief outline will be given of the indenting procedure.

On Day D. (a) Unit prepares indent in duplicate for rations required three days ahead. This indent passed to Coy Supply Officer when collecting rations.

(b) Coy Supply Officer prepares in duplicate a document known as the FORMATION SUMMARY. This is a summary of the indents of the unit, showing the total number of rations required. In addition it shows these in terms of the actual amounts of the various commodities which will be issued by the FMA, and of which the Coy Supply Officer has a forecast.

(c) One copy of this FORMATION SUMMARY is passed to FMA as a demand for the issue of the rations on the following day.

On Day D + 1. (a) Coy Supply Officer proceeds with the necessary vehicles to FMA, where issues of supplies are made by the DID (see para 3 above). The Coy Supply Officer and DID agree the actual poundage of commodities for issue, and loading takes place. Coy Supply Officer signs a receipt for these commodities, and retains one copy of the FORMATION SUMMARY, endorsed by the DID as having been issued.

(b) The loaded vehicles return to the BSP. Meanwhile, the sergeant clerk in the Specialist Platoon has prepared on the back of each unit indent the actual quantities of the various commodities which are to be issued, and commodity lists for each stack. Bulk is broken under supervision of the Coy Supply Officer.

Day D + 2. (a) Delivery is made as described in paras 8 and 9. The load is checked off by a representative of the unit against the loading list on the back of the indent, who signs a receipt on the duplicate copy of the indent and gives it to the Coy Sup Offr. The Coy Sup Offr, in turn, certifies issue on the original copy of the unit indent, and gives this to the unit representative for retention.

(b) On return to location after delivery, the Coy Sup Offr pins the receipted copies of the ration indents to the FORMATION SUMMARY.

Day D + 3. Rations are consumed.

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ahead. This indent passed to Coy Supply Officer when collecting rations.

(b) Coy Supply Officer prepares in duplicate a document known as the FORMATION SUMMARY. This is a summary of the indents of the unit, showing the total number of rations required. In addition it shows these in terms of the actual amounts of the various commodities which will be issued by the FMA, and of which the Coy Supply Officer has a forecast.

(c) One copy of this FORMATION SUMMARY is passed to FMA as a demand for the issue of the rations on the following day.

On Day D + 1.

(a) Coy Supply Officer proceeds with the necessary vehicles to FMA, where issues of supplies are made by the DID (see para 5 above). The Coy Supply Officer and DID agree the actual poundage of commodities for issue, and loading takes place. Coy Supply Officer signs a receipt for these commodities, and retains one copy of the FORMATION SUMMARY, endorsed by the DID as having been issued.

(b) The loaded vehicles return to the BBP. Meanwhile, the sergeant clerk in the Specialist Platoon has prepared on the back of each unit indent the actual quantities of the various commodities which are to be issued, and commodity lists for each stack. Bulk is broken under supervision of the Coy Supply Officer.

On D + 2. (a) Delivery is made as described in paras 8 and 9. The load is checked off by a representative of the unit against the loading list on the back of the indent, who signs a receipt on the duplicate copy of the indent and gives it to the Coy Sup Offr. The Coy Sup Offr, in turn, certifies issue on the original copy of the unit indent, and gives this to the unit representative for retention.

(b) On return to location after delivery, the Coy Sup Offr pins the receipted copies of the ration indents to the FORMATION SUMMARY.

Day D + 3. Rations are consumed.

15. PROTECTION OF SUPPLIES AGAINST GAS.

The possibility exist that gas may be used in this war. If this comes about, the responsibilities of the transport companies are two-fold. Firstly, to protect supplies against contamination by gas. Secondly, to ensure that no contaminated supplies are issued.

16. Protection of supplies involves covering against liquid gases, since most forms of supplies, except when packed in sacks or paper containers, are little likely to be affected by vapour, except that of LEWISITE.

17. The covering of supplies must be at all stages in their transit or handling. It is not enough, say for bulk to be broken in good cover, if supplies become contaminated whilst being unloaded from the lorry at BBP.

...../Sheet 4.

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18. The general principle in dealing with contaminated supplies is:

(1) Canned foods or those in glazed jars are not affected, but the exteriors should be decontaminated with rags soaked in petrol or paraffin.

(2) Goods in sacks, and meat, bread, fish, vegetables and fruit are unfit for issue if contaminated by liquid gas.

(3) Goods in wooden cases must be considered on their merits. The cases themselves cannot be decontaminated, and should be destroyed by burning. Contents should be emptied out, and weathered for 24 hours. If no smell is present and the taste is palatable, they should be safe for issue. (It must be remembered that the process of cooling will assist in restoring fitness for consumption.)

BASC [illegible]

PRECIS (ITALIAN) - ANGLO - AMT (AB) - [illegible]

Precis No ..... Sep 44.

PART I - BLANKETS

1. GENERAL

Blankets of the working personnel of infantry battalions (on a scale of one per man) are carried by the transport companies serving formations, and are delivered as required when the infantry bivouac. (In practice, it is often found that battalions prefer to take a mule available for this purpose in their first line transport, but we must be prepared to do this when called upon.)

2. CAPACITY

One 3-ton lorry will carry 800 blankets if rolled lengthways in bundles of ten. But if issue and collection are frequent, it will be found more convenient when the transport situation permits, to use one vehicle for each battalion. However they are carried, it is desirable that blankets used by one battalion should be issued to it again.

3. DISTRIBUTION OF BLANKETS.

(a) When required, blankets are taken by the transport company to a central point (known as blanket point) in the billeting area, where, if carried in bulk, they are collected by unit first line transport. The provision of vehicles for loading and unloading is the responsibility of the infantry.

(b) If the blankets are carried on vehicles allotted to specific battalions and if conditions permit, then battalion guides are sent to Blanket Point and the vehicles guided to the delivery points of battalions. The detailed distribution of the blankets within the battalion is a battalion responsibility.

(c) Blankets are not usually required by a battalion which is marching or in close contact with the enemy. During the day Brigade HQ inform Division which battalions will require blankets and if possible suggest a suitable location for Blanket Point. Division then issue orders to the transport company, stating the time and place and whether the blanket lorries will remain in the Brigade area during the night. This latter is usually done if the battalions are due to start very early the next morning, otherwise blanket lorries will return to their company location for the night.

(d) Unless ordered by Division, blanket lorries do not remain with battalions during the day.

(e) Blankets are collected on the following morning under orders of Division, the procedure outlined above being reversed. Battalions will roll up blankets in bundles of ten before they are handed over to the transport company. Blankets may be damp when collected and every opportunity must be taken to dry them before they are reissued.

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for this purpose in their first line transport, but we must be prepared to do this when called upon.)

2. CARRIAGE

One 3-ton lorry will carry 600 blankets if rolled lengthways in bundles of ten. But if issue and collection are frequent, it will be found more convenient that the transport fitted, normally, to use one vehicle for each battalion. However they are carried, it is desirable that blankets used by one battalion should be issued to it again.

3. DISTRIBUTION OF BLANKETS.

(a) When required, blankets are taken by the transport company to a central point (known as blanket point) in the billeting area, where, if carried in bulk, they are collected by units first line transport. The provision of vehicles for loading and unloading is the responsibility of the infantry.

(b) If the blankets are carried in vehicles allotted to specific battalions and if conditions permit, then battalion guides are sent to blanket point and the vehicles guided to the delivery points of battalions. The detailed distribution of the blankets within the battalion is a battalion responsibility.

(c) Blankets are not usually required by a battalion which is marching or in close contact with the enemy. During the day Brigade HQ informs Division which battalions will require blankets and if possible suggests a suitable location for Blanket Point. Division then issues orders to the transport company, stating the time and place and whether the blankets lorries will remain in the Brigade area during the night. This latter is usually done if the battalions are due to start very early the next morning, otherwise blanket lorries will return to their company location for the night.

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(e) Blankets are collected on the following morning under orders of Division, the procedure outlined above be reversed. Battalions will roll up blankets in bundles of ten before they are handed over to the transport company. Blankets may be damp when collected and every opportunity must be taken to dry them before they are reissued.

PART II - ANTI - GAS EQUIPMENT AND RESERVE CLOTHING

1. PROTECTION.

Each unit carries in its first line transport a fixed scale of reserve clothing and equipment and ammunition equipment, for the rapid replacement of that contaminated by gas. Second line and Line and Corps reserves must (in the same way that reserves of, say, petrol, are held in successive stages).

2. WHEN NO GAS ATTACKS ANTICIPATED.

Second line reserves (i.e., those of the transport company) are not carried by the company, but are held in the Corps area under the control of Corps HQ.

3. WHEN AN ATTACK IS EXPECTED.

Second line reserves will be taken over and held by the transport company.

4. DISTRIBUTION.

(a) From the tactical situation demands, transports carrying these reserves will be held near Divisional HQ. The purpose of this is two-fold. (i) vehicles are available for quick despatch, (ii) the Officer or NCO in charge of the vehicles can be quickly given instructions as to the order in which units are to be served.
(b) The transport company vehicles will be ordered to a central point(Clothing Point) within the area to be served. Units will collect here with their first line transport, or send guides, whichever is the more practicable.
(c) If only a few units are to be served and the way in which vehicles are loaded permits, then vehicles may be ordered direct to units.

5. REPLACEMENT OF SECOND LINE TRANSPORT.

No furnishment will be arranged by Corps HQ.

6. COLLECTION OF CONTAMINATED CLOTHING AND EQUIPMENT.

(a) All units are provided with gas-proof paper sacks in which to place contaminated clothing and equipment. These are passed to the second line transport company for transport to a mobile laundry or other decontamination centre. If these do not exist in forward areas, they will be handed over to Army Transport Pool Vehicles for disposal elsewhere.
(b) Socks containing contaminated clothing must not be carried in vehicles normally used for the transport of supplies.
(c) Owing to operational conditions units may not be able to carry out the procedure in para 6 (a) above. In this case, the clothing or filled socks will be dumped, and the dumps marked as containing gas-contaminated articles. The dumps will be cleared by or under arrangements made by Divisional HQ.

PART III WATER.

1. GENERAL.

When a theatre of war, or any part of it, has an insufficient supply of water for men, animals and vehicles, an organization must be provided to meet the daily demand. This water is normally delivered to units in 4 gallon returnable containers.

2. Water may be obtained from sources in the forward area, or may have to be brought in bulk along the lines of communication to RAIL HEAD.

3. Cans may be filled at RAIL HEAD, or water may be sent forward in water

collect both with the 2 Tonner Lry. Transport, or send guards, whichever is the more practicable.

(c) If only a few units are to be early and the way in which vehicles are loaded permits, then vehicles may be ordered direct to units.

5. REPLENISHMENT OF SECOND LINE TRANSPORT.

Replenishment will be arranged by Corps HQ.

6. COLLECTION OF CONTAMINATED CLOTHING AND EQUIPMENT.

(a) All units are provided with gas-proof zipper sacks in which to place contaminated clothing and equipment. These are passed to the second line transport company for transport to a mobile laundry or other decontamination centre. If these do not exist in forward areas, they will be handed over to Army transport Pool Vehicles for disposal elsewhere.

(b) Sacks containing contaminated clothing must not be carried in vehicles normally used for the transport of supplies.

(c) Owing to operational conditions units may not be able to carry out the procedure in para 6 (a) above. In this case, the clothing or filled sacks will be dumped, and the dumps marked as containing gas-contaminated articles. The dumps will be cleared later under arrangements made by Divisional HQ.

PART III WATER.

1. GENERAL.

When a theatre of war, or any part of it, has an insufficient supply of water for men, animals and vehicles, an organization must be provided to meet the daily demand. This water is normally delivered to units in 4 gallon returnable containers.

2. Water may be obtained from sources in the forward area, or may have to be brought in bulk along the lines of communication to RAIL HEAD.

3. Cans may be filled at RAIL HEAD, or water may be sent forward in water tank lorries of the RASC to FMA and filled there.

4. From FMA the delivery of the cans, their collection after use by units and, possibly, the refilling of the cans will be the responsibility of the second line transport company. This process will follow the organization for the delivery of supplies.

5. A daily scale of 1 gallon per man is usually allowed for drinking and cooking purposes.

P.A.S.C. TRAINING DEPOT.

Precis (Italian): CAMOUFLAGE AND CONCEALMENT.

Sep 44. Precis No.

1 Enemy air reconnaissance can be carried out either by air observers or by means of aerial photographs. In either case, objects on the ground are identified either by their shape or colour, or a combination of both. Colours as seen from the air become gradations between black and white. Remember that the darkest object to be seen in a landscape is always a shadow.
A dark object on a dark background does not show up as clearly as a light object on the same background - e.g.- a light-coloured coat, face, bright metal work, etc.

2 CHOICE OF LOCATIONS FOR CONCEALMENT.
Use natural cover, such as woods, hedges, folds in the ground, trying always to visualize your position as it will appear from the air as well as to the ground observer. Try to disperse your vehicles, dumps, etc., so that they conform to, and merge in, the existing landscape.

3 ARTIFICIAL CAMOUFLAGE.
Used to merge vehicles, store dumps, etc., into the natural background of a locality, and to disguise the shadows. This can be done by the intelligent use of camouflage nets.
Remember that shadows change throughout the day, as the sun moves.

4 USE OF ROADS.
During daylight all vehicles, personnel, stores should be dispersed as much as possible, according to the type of country, the cover available and the conflicting requirements of ease of control.

5 DECEPTION.
Practise deception, and avoid the following:
(a) Regular patterns or lines.
(b) Shiny from smooth surfaces (windscreens, roof racks, etc.).
(c) Making tracks. Instead,-
(i) Use existing tracks, or lay new tracks into the pattern of the landscape by following hedges, etc.
(ii) Make many tracks to deceive the enemy.
(iii) Do not allow tracks to lead to a headquarters or any other place which would be a valuable target to you. Extend them beyond your own area.
(d) Smoke by day, fire and lights by night.
(e) Unnecessary movement.
(f) The use of unnatural camouflage, such as the erection of a clump of bushes in a large, bare expanse.
(g) Uncontrolled fire against enemy aircraft. L.A.A. teams and riflemen must have definite orders on this point, the nature of which will, of course, depend on local conditions.

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identified either by their shape or colour, or a combination of both.
Colours as seen from the air become gradations between black and white.
Remember that the darkest object to be seen in a landscape is always a shadow.
A dark object on a dark background does not show up as clearly as a light object on the same background - e.g. - a light-coloured coat, fence, bright metal cans, etc.

2 CHOICE OF LOCATION AND CONCEALMENT.
Use natural cover, such as trees, hedges, folds in the ground, trying always to visualize your position as it will appear from the air as well as on the ground whenever. Try to disarrange your vehicles, dumps, etc., so that they conform to, and merge in, the old time landscape.

3 ARTIFICIAL CAMOUFLAGE.
Used to merge vehicles, store dumps, etc., into the natural background of a locality, and to disguise the shadows. This can be done by the intelligent use of camouflage nets.
Remember that shadows change throughout the day, as the sun moves.

4 USE OF NETS.
During daylight all vehicles, personnel, stores should be dispersed as much as possible, according to the type of country, the cover available and the conditions, regardless of state of control.

5 DECEPTION.
Practise deception, and avoid the following:
(a) Regular patterns or straight lines.
(b) Shine from smooth surfaces (windscreens, roof tops, etc.).
(c) Making tracks. Instead,-
(i) Use existing tracks, or fit new tracks to the pattern of the landscape by following hedges, etc.
(ii) Make them as old to deceive the enemy.
(iii) Do not allow tracks to end at a bomb crater or any other place which would be a vulnerable target to you. Extend them beyond your own area.
(d) Smoke by day, fire and lights by night.
(e) Unnecessary movement.
(f) The use of unnatural camouflage, such as the erection of a clump of bushes in a large, bare expanse.
(g) Uncontrolled fire against enemy aircraft. L.A.A. teams and riflemen must have definite orders on this point, the nature of which will, of course, depend on local conditions.

6 CONCLUSION.
The points above are the basic principles of camouflage. With energy and intelligence, they can be applied equally well in an English countryside, the deserts of North Africa or a snow-covered Iceland plain.

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RESTRICTED

MOVEMENT OF TROOPS BY MT.

Precis (Italian) _____

1. Mov of dismtd tps may be carried out by air, rail or MT.
   Advantages of air - speed, range.
   Advantages of rly - comfort, economy, does not congest rds.
   Advantages of MT - more flexible as regards TC, route and destination..
   More suitable for tactical moves.
   MOVEMENT DEALS WITH MOVES OVERT.

2. TYPES OF MOVE.

   (a) Strategical - Takes place on the L of C and behind fighting area, e.g. withdrawal of exhausted units to a resting area or moving up of fresh tps from base camps to take up protective duties on the L of C. Is comparable to a rail move - ground protection effected by disposition of own tps - tech and adm considerations of first importance.
   (b) Tactical - Takes place in fwd areas where tps may be required to debus at any time and engage the enemy. Tactical considerations of first importance. Group sizes etc may have to be reorganised to conform with tactical requirements. Final destination may not be known and protection will be essential. Move may be from protected area or from bound to bound during an op. Such moves may have to be made at night.

3. TP CARRYING TRANSPORT.

There is now no special troop carrying transport in Italy. Specially equipped vehs or not coaches which can be used for no other purpose are a waste of tpt. The tpt pl which is the basis of the Italian Transport Coy is designed to carry 30 tons of supp, ammn, stores, etc., or the dismtd personnel of an inf bn. Consequently as all second-line transport units are general transport coys, any of them could be used for tp carrying. A Bersaglieri coy of 2 pls is the most convenient organisation to lift an inf bn.

4 AUTHORITIES INVOLVED.

   (a) Staffs. Responsible for:-
      (i) Issuing orders for the move incl speed, density, halts, routes, TC posts etc. by means of a mov table. (Appx "A").
      (ii) Appointing a coln comd.
   (b) The Carrier Transport Coy. Responsible for:-
      (i) Providing the required number of lorries.
      (ii) Arriving at embussing pts at times and in the order detailed in the mov table.
      (iii) Numbering all vehs forcibly.
      (iv) Breakdown arrangements.
      (v) Spare vehs.
      (vi) March discipline.
      (vii) Interior economy as far as the RASC unit is concerned.
   (c) The Carried. Responsible for:-
      (i) Arrival at embussing pts as required in the mov table.
      (ii) Forming up under cover at side of rd in veh parties at intervals

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(a) Strategical - Takes place on the L of C and builds fighting area, e.g. withdrawal of exhausted units to a resting area or moving up of fresh tps from home areas to take up prot objve duties on the L of C. Is comparable to a unit move - ground protection effected by disposition of own tps - tech and adm considerations of first importance.

(b) Tactical - Takes place in the battle where tps may be required to debus at any time and engage the enemy. Tactical considerations of first importance. Troop lift capacities may have to be reorganised to conform with tactical requirements. Final destination may not be known and protection will be essential. Move may be from one road head area or from bound to bound during an op. Such moves may have to be made at night.

3. TP CARRYING THE SPORE.

There is now no special troop carrying transport in Italy. Specially equipped vehicles which can be used for no other purpose are a waste of tpt. The tpt on which the bulk of the Italian Transport Coy is designed to carry 90 tons of supply, amn, stores, etc., or the dismtd personnel of an inf bn. Consequently on all second-line transport units are general transport coys, any of them could be used for op purposes. A description of 3 pls in the most convenient organisation to lift an inf bn.

4 AUTHORITIES INVOLVED.

(a) Staff. Responsible for:-
(i) Issuing orders for the move incl speed, formation, halts, routes, TC posts etc. by means of a mov table (appx 'A').
(ii) Appointing a coln cmdr.

(b) The Carrier Transport Coy. Responsible for:- 4537
(i) Providing the required number of lorries.
(ii) Arriving at embussing pts at times and in the order detailed in the mov table.
(iii) Numbering all vehs serially.
(iv) Breakdown arrangements.
(v) Spare vehs.
(vi) March discipline.
(vii) Interior economy as far as the RASC unit is concerned.

(c) The Carried. Responsible for:-
(i) Arrival at embussing pts as required in the mov table.
(ii) Moving as under cover of rd in veh parties at intervals previously arranged.
(iii) Rapid and orderly embussing.
(iv) Debussing.

5. PRELIMINARY ARRANGEMENTS.

The closest co-operation between the three parties concerned (para 4) is essential for the efficient performance of an embussing mov. Preliminary conference is normally held at which details can be finally agreed for inclusion in the Mov Table. Embussing pts must be agreed before the table can be issued, also debussing pts if possible. Warning order - early warning very important.

/__ 6 POINTS TO BE ARRANGED.

6. ROUTE TO BE FOLLOWED.

Destination and route - units to be embussed - strength and composition of units and number of vehs required for each unit. Div into unit gps and parties. Method of embussing - direction vehs are to face. Times of embussing at each pt or time of passing a single starting pt. 1st Line Tpt. Routes to Embussing Pts. Stores to be carried. Spare vehs. Adv and rear parties (if any). Protection. Speed and density. Traffic Control (TC) Halts and feeding arrangements. Action of Transport on after debussing.

7. EMBUSSING AND DEBUSSING PTS - POINTS TO BE OBSERVED.

(a) Proximity to comp in which tps to be carried are stationed.
(b) Cover from air recce and attack.
(c) Avoidance of defiles, bridges, narrow rds with ditches or hedges on both sides. There must be sufficient space to allow tps to form up in vehs under cover and off the rd.

Actual ground recce of embussing pts should be carried out as early as possible before the move is due to take place by reps of both parties whenever circumstances allow. Selection of pts by map alone should not be relied upon.

(i) Simultaneous Method. Quick and easy to control but needs long stretch of concealed rd (700 yds for each bn). Difficult to conceal and traces good air target. If dispersed by, say coys, it can be used for a bn making use of available cover. For a bde it would be unwieldy and difficult to control.

(ii) Platform Method. Shorter length of rd used successively by a smaller number of vehs like a fly platform. Tps under concealment move up as required. Slower method but facilitates concealment - needs careful staff work and timing.

(iii) Dispersed embussing. For move of an inf bde or larger fmn. Several embussing pts at which either of the above methods may be used. Obviates initial marshalling of tps and unnecessary mov but complicates control. Requires careful timing if common Starting Point (SP) is to be used.

8. DETAILS OF EMBUSSING.

(a) Fmn to be embussed will be divided into unit gps.
(b) Vehs will be divided accordingly - each veh (except spare vehs) will be numbered.
(c) Leading veh of each gp will be marked by a distinctive flag.
(d) The pt at which leading veh of each gp is to be drawn up will be marked by a similar flag.
(e) Vehs will be drawn up in blocks of about 5 vehs (60-70 yds) - blocks dispersed according to available cover.
(f) Forming up of vehs must be done as quickly as possible - recce essential.
(g) Unit gps told off into parties for each veh - each party given the number of the veh in which it will embus.

9. CMD CONTROL AND CONTROL.

all matters

(b) Cover from air recce and attack.
(c) Avoidance of defiles, bridges, narrow rds with ditches or hedges on both sides. There must be sufficient space to allow tps to form up in veh gps under cover and off the rd.

Actual ground recce of embussing pts should be carried out as early as possible before the move is due to take place by reps of both parties whenever circumstances allow. Selection of pts by map alone should not be relied upon.

(i) Simultaneous Method. Quick and easy to control but needs long stretch of concealed rd (750 yds for each bn). Difficult to conceal and makes good air target. If dispersed by, say coys, it can be used for a bn making use of available cover. For a bde it would be unwieldy and difficult to control.

(ii) Platform Method. Shorter length of rd used successively by a smaller number of vehs like a rly platform. Tps under concealment move up as required. Slower method but facilitates concealment - needs careful staff work and timing.

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(c) Leading veh of each gp will be marked by a distinctive flag.
(d) The pt at which leading veh of each gp is to be drawn up will be marked by by a similar flag.
(e) Vehs will be drawn up in blocks of about 5 vehs (60-70 yds) - blocks dispersed according to available cover.
(f) Forming up of vehs must be done as quickly as possible - noise essential.
(g) Unit gps told off into parties for each veh - each party given the number of the veh in which it will embuss.

9. COND COLUMN AND CONTROL.

Coln Cond appointed for the move is the deciding authority on all matters. He and his offrs will be responsible for taking action in the event of tactical emergency, viz attack from the air, by AFVs, parachutists, crossing enemy minefields, etc.

He must consult the Transport Coy Cond on all matters affecting the proper working of the tpt. He should avoid interference in all technical matters.

The Transport Coy Cond during the move is responsible for tech control, march discipline, maintaining correct speed and density, dealing with breakdowns etc.

Coln Cond and Transport Coy Cond should travel in the same veh or in vehs closely following each other as should also unit comds with their respective tpt comds.

/ After debussing,

After debussing, the Tpt Coy Officer is still under comd of the Fmn or unit concerned and will remain with that HQ until other orders are received, if not previously issued, or, if orders have been previously issued, until the Fmn Comd notifies that he considers the move completed.

++++++

<u>Suggested use of a Transport Coy employed to lift an inf bde.</u>

HQ

- A Pl
  - Pl HQ — 3 X 3 ton (spare)
  - No 1 Sec — 6 X 3 ton
  - No 2 Sec — 6 X 3 ton
  - No 3 Sec — 6 X 3 ton
  - No 4 Sec — 6 X 3 ton
  - No 5 Sec — 6 X 3 ton
- B Pl (same as A)
- C Pl (same as A)
- 3 Relief Driver Increments
- 2 Specialist Platoons.

Each Pl lifts dismtd personnel of an inf bn (415 men).
Each Sec 1 - 4 of Pl lifts dismtd personnel of an inf coy (92 men).
No 5 Sec of each pl will be responsible for carriage of extra stores and personnel from Bn HQ (22 men) and HQ Coy (25 men).

4536

1921

1922

APPENDIX "A"

SPECIMEN MARCH TABLE

APPENDIX ..... to ..... OPERATION ORDER No. .....

Serial No. (a)	Date (b)	Formation or Unit. (c)	Number of Vehicles. (d)	Place From (e)	Place To (f)	SP (g)	Time Past SP (h)	Route (j)	Speed to SP (k)	Speed and density during March (l)

SPECIMEN BUS TABLE.

APPENDIX ..... to ..... OPERATION ORDER NO. .....

Serial No. (a)	Unit Group Commander. (b)	Unit. (c)	Bus (or Lorry) Riders (d)	Bus (or Lorry) Loads. Personnel (e)	Bus (or Lorry) Loads. Stores (f)	Total of Unit. (g)	Housing Pt. (h)	Time Ps due at Housing Pt. (j)

1923

SPECIMEN MARCH TABLE. SECRET

APPENDIX ..... to ..... OPERATION ORDER No. ..... Copy No. .....

on	Number of Vehicles. (d)	Place From (e)	Place To (f)	SP (g)	Time Past SP (h)	Route (j)	Speed to SP (k)	Speed and Density during March mih (l)	Speed and Density during March vpm (m)	Dispersal Point. (n)	Remarks. (o)

SPECIMEN WEB TABLE. SECRET.

APPENDIX ..... to ..... OPERATION ORDER NO. ..... Copy No. .....

	Unit. (c)	Time (or Serial) Letters (d)	Nos (or Load) Loads. Personnel (e)	Nos (or Load) Loads. Stores (f)	Point of Unit. (g)	Debussing Pt. (h)	Time Tps due at Debussing Pt. (j)	Route to Debussing Pt. (k)	Time of Start (l)	Remarks. (m)

Declassified E.O. 12356 Section 3.3/NND No. 785020

1924

[illegible]

PRECIS [illegible] ORGANIZATION IN [illegible]

Sep 44. Precis No.........

PART I - GENERAL

1. GENERAL PRINCIPLES.

Supply of material to forces in the field effected from:-

(a) The United Kingdom.
(b) The Empire and foreign countries.
(c) Local resources in theatre of operations.

2. PROCEDURE WITHIN A THEATRE OF OPERATIONS.

The following chain of communications and depots will remain identical in principle wherever the forces are fighting. The organization, however, may vary in detail in different theatres of operations depending upon such factors as climate, topographical conditions, state of railways, roads, etc. Normal chain is therefore as follows:-

(a) A port, or ports of entry into the theatre.
(b) Base depots in the neighbourhood of such ports.
(c) Forward depots, if required, on or near the line of communication.
(d) Line of Communication terminals (already dealt with in other lectures)

PART II - FORWARD DESPATCH FROM BASE TO L OF C TERMINALS.

1. GENERAL.

War materials are composed of:-
(a) Supplies - Food, Forage and Petrol, Oil and Lubricants, etc.
(b) Stores - Ordnance, Royal Engineers, Medical Stores, etc.
Except in the case of Ammunition, and where a separate organization is established for their carriage, stores are transported with supplies.

2. SUPPLIES(EXCLUDING PETROL, OIL AND LUBRICANTS) AND ALLIED STORES.

4635

(a) Supplies from overseas taken to two main installations i.e.
(i) All supplies excluding meat and fresh items to a Base Supply Depot (BSD).
(ii) All frozen and chilled meat, butter, etc to a Cold Storage Depot(CSD). These installations hold reserves of all commodities excepting in the case of bread and fresh items, when the tinned equivalent is held. They deal in bulk only.
(b) Supplies from local contractors are obtained from:-
(i) Contractors.
(ii) War Department Farms.
Local cattle is slaughtered at a Field Butchery (Fd Bchy)
Fresh items(fruit and vegetables, etc) [illegible]

2. PROCEDURE WITH A PARK OF O.R. VEHS.

The following chain of communications and duties will remain identical in principle wherever the forces are fighting. The organisation, however, may vary in detail in different theatres of operations depending upon such factors as climate, topographical conditions, state of railways, roads, etc. Normal chain is therefore as follows:-

(a) A port, or ports of entry into the theatre.
(b) Base depots in the neighbourhood of such ports.
(c) Forward depots, if required, on or near the line of communication.
(d) Lines of Communication terminals (railhead, dump etc) (see in other lectures)

PART II - FORWARD DEPOTS AND LINES OF COMMUNICATIONS.

1. GENERAL.

War materials are composed of:-
(a) Supplies - Food, Forage and Petrol, Oil and Lubricants, etc.
(b) Stores - Ordnance, Royal Engineers, Medical Stores, etc.
Except in the case of Ammunition, and where a separate organisation is established for their carriage, stores are transported with supplies.

2. SUPPLIES(EXCLUDING PETROL, OIL AND LUBRICANTS) AND ALLIED STORES.

4635

(a) Supplies from overseas taken to two main installations i.e.
(i) All supplies excluding meat and fresh items to a Base Supply Depot (BSD).
(ii) All frozen and chilled meat, butter, etc to a Cold Storage Depot(CSD). These installations hold reserves of all commodities excepting in the case of bread and fresh items, when the demand equivalent is held. They deal in bulk only.
(b) Supplies from local contractors are obtained from:-
(i) Contractors.
(ii) War Department Farms.
Local cattle is slaughtered at a Field Butchery (Fd Bcy)
Fresh items(fruit and vegetables, etc) sent either to a Base Supply Depot(for onward transmission to forward troops) or to a Detail Issue Depot (DID).
(c) Bread is baked at a field bakery or mobile field bakery.
(d) Detail issues to units in the base and lines of communications made by Detail Issue Depots which receive all supplies in bulk from above bulk installations, contractors, etc.
(e) Bulk issues for formations in advance of line of Communication railhead despatched daily by bulk installations, normally in sealed railway trucks, to a Base Marshalling Yard. At this yard trucks are joined by others from Base Ordnance Depots, Base Store Depots, Base Post Office, etc, and are made up into a Pack Train which goes forward daily to Supply Railhead. At Supply Railhead there is normally a Railhead Supply Depot which will receive supplies in bulk from Pack Train and will issue in bulk to Army Troops Columns and in detail to Local units.
(f) A Forward Supply Depot may be established in vicinity of Supply Railhead.

3. PETROL, OIL & LUBRICANTS.

(a) General aim is to distribute in bulk to as near unit as is possible in non-operational areas and as far forward as possible in operational areas.

(b) Petrol in bulk (ex tanker ships) conveyed to the storage tanks of a Bulk Petroleum Storage Company (BPSC).

(c) 'BPSC' issues in bulk as follows:-

(i) by pipeline to a Base Petrol Filling Centre (BPFC)
(ii) by road or rail tankers to Petrol Supply Points (PSP)
(iii) by road or rail tankers to Base Marshalling Yard
(iv) Occasionally by pipeline along the Line of Communication to Line of Communication Terminal.

(d) 'BPFC' fills containers and sends to a Petrol Depot (PD)

(e) 'PDs' are depots holding stocks of packed Petrol Oil & Lubricants.

(f) Detail issue of Petrol Oil & Lubricants in base areas made by PSPs.

(g) Petrol can be taken forward to Line of Communication Terminal either in bulk (by rail or road tanker or pipeline) or cased in petrol trains made up at Base Marshalling Yard.

(h) At Petrol Railhead there is normally a Railhead Petrol Depot which will receive cased petrol in bulk from petrol train and will issue to Army Transport Columns and local units.

(i) If petrol arrives at Railhead in bulk it is normally taken over by a Mobile Petrol Filling Centre (MPFC) which fills returnable containers and sends to Railhead Petrol Depot (Unless petrol is taken forward further than FRH in bulk in which case the MPFC will be located not at FRH but further forward).

(j) A Forward Petrol Depot may be established in vicinity of Petrol Railhead.

4. AMMUNITION.

(a) Ammunition arriving from overseas taken to Base Ammunition Depots (BAD). This installation holds a reserve of all types needed in theatre of operations.

(b) Ammunition as required is sent from Base Ammunition Depots to Base Marshalling Yard and from thence to Ammunition Railhead to a Railhead Ammunition Depot.

(c) Railhead Ammunition Depots keep a small reserve and issue to Army Transport Columns and local units.

(d) Mobile Ammunition Trains are also normally kept in reserve at the Marshalling Yard in addition to the normal ammunition trains going forward to Ammunition Railhead.

(e) Forward Ammunition Depots may be established in vicinity of Railhead.

(f) NOTE that ammunition is an MAOC responsibility from Base to Railhead and an R.A.C. responsibility in advance of Railhead.

5. MEDICAL STORES.

(a) Medical & Veterinary Stores are normally sent forward to Supply Railhead on daily supply trains. In advance of supply railhead, however, these stores are normally taken forward by medical channels i.e. by the ambulances of Mobile Ambulance Columns to the forward medical units requiring such stores.

(b) Normally, the forward Field Ambulances will send their First Line transport to Casualty Clearing Stations for such stores, although on [illegible] from Casualty Clearing Stations

(f) Detail issue of Petrol Oil & Lubricants in base areas made by PoPs.
(g) Petrol can be taken forward to Line of Communication Terminal either in bulk (by rail or road tanker or pipeline) or cased in petrol trains made up at Base Marshalling Yard.
(h) At Petrol Railhead there is normally a Railhead Petrol Depot which will receive cased petrol in bulk from petrol train and will issue to Army Transport Columns and local units.
(i) If petrol arrives at Railhead in bulk it is normally taken over by a Mobile Petrol Filling Centre (MPFC) which fills returnable containers and sends to Railhead Petrol Depot (Unless petrol is taken forward further than FRH in bulk in which case the MPFC will be located not at RHH but further forward).
(j) A Forward Petrol Depot may be established in vicinity of Petrol Railhead.

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(a) Ammunition arriving from overseas taken to Base Ammunition Depots(BAD). Base installation holds a reserve of all types needed in theatre of operations.
(b) Ammunition as required is sent from Base Ammunition Depots to Base Marshalling Yard and from thence to Ammunition Railhead to a Railhead Ammunition Depot.
(c) Railhead Ammunition Depots keep a small reserve and issue to Army Transport Columns and local units.
(d) Mobile Ammunition Trains are also normally kept in reserve at the Marshalling Yard in addition to the normal ammunition trains going forward to Ammunition Railhead.
(e) Forward Ammunition Depots may be established in vicinity of Railhead.
(f) NOTE that ammunition is an RAOC responsibility from Base to Railhead and an RASC responsibility in advance of Railhead.

5. MEDICAL STORES.

(a) Medical & Veterinary Stores are normally sent forward to Supply Railhead on daily ASC trains. In advance of supply railhead, however, these stores are normally taken forward by medical channels i.e. by the ambulances of Mobile Ambulance Columns to the forward medical units requiring such stores.
(b) Normally the forward Field Ambulances will send their First Line transport to Casualty Clearing Stations for such stores, although on occasions, Second Line RASC may draw from Casualty Clearing Stations themselves and deliver forward to the Field Ambulance.

RASC TRAINING DEPOT.

ORGANIZATION OF SUPPLY AND TRANSPORT SERVICES OF THE BRITISH ARMY

Precis No..... Oct 44.

1. STAFF.

There are three branches of the Staff:-

"G" (General Staff) Branch - controls operations, intelligence, etc.

"A" (Adjutant General) Branch - controls personnel, pay, discipline, etc.

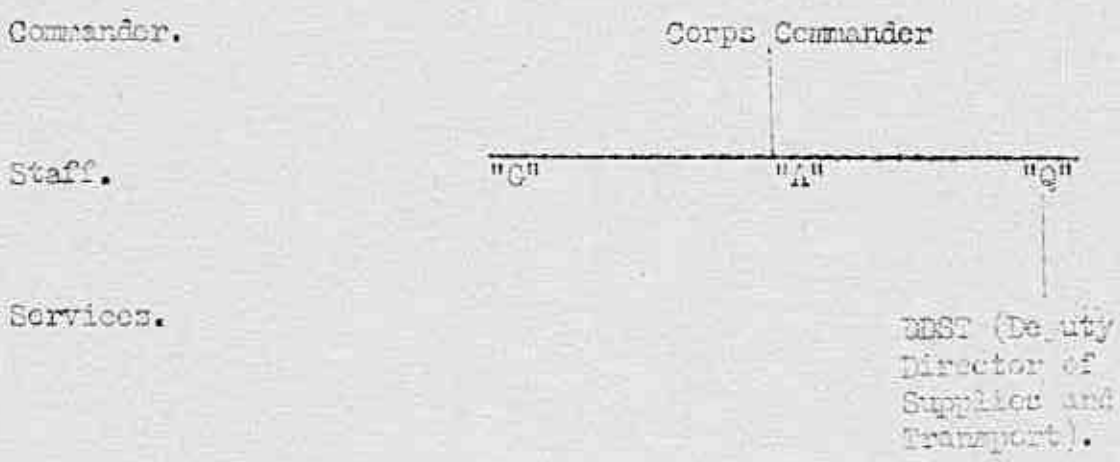
"Q" (Quartermaster General) Branch - controls questions of supply and transport.

Each branch controls the corresponding services - for example "G" Branch controls the FIELD SECURITY POLICE. "A" Branch controls the Medical and Pay Services, and "Q" Branch controls the working of the Royal Army Service Corps and Royal Army Ordnance Corps.

2. EXERCISE OF CONTROL.

At every formation headquarters, in addition to the Staff representatives of "G", "A" and "Q", there are the heads of the various services, working under their corresponding branches of the Staff, and responsible to the Staff for the operation of their own services. In the case of the RASC, this is known as the DIRECTORATE OF SUPPLY AND TRANSPORT.

3. CORPS HQ.



DDST is normally of the rank of COLONEL. The department which he commands has officers who will each be responsible for certain sub-divisions of the work i.e. a DADST (Deputy Assistant Director of Supplies and Transport) for Petrol, one for Supplies and one for Transport, etc.

4. DIVISIONAL HQ.

(i) At Divisional HQ the "A" and "Q" Branches of the staff are controlled by one officer - the AA&QMG (Assistant Adjutant and Quartermaster General).

"Q" (Quartermaster General) Branch controls the Supply and Transport.

Each branch controls the corresponding services - for example "G" Branch controls the FIELD SECURITY POLICE. "A" Branch controls the Medical and Pay Services, and "Q" Branch controls the working of the Royal Army Service Corps and Royal Army Ordnance Corps.

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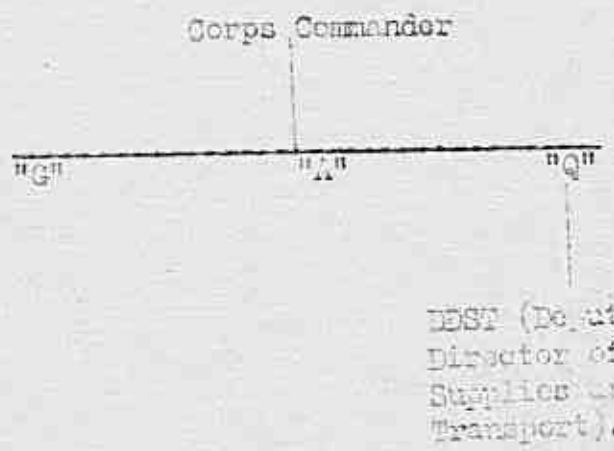

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4. DIVISIONAL HQ.

(i) At Divisional HQ the "A" and "Q" Branches of the staff are controlled by one Officer. The AA&QMG (Assistant Adjutant and Quartermaster General).

(ii) The head of the SUPPLY AND TRANSPORT DIRECTORATE is CRASC (Commander Royal Army Service Corps). He has three responsibilities:-

(a) To advise the Divisional Commander on technical matters connected with the operation of his service.

(b) To Command the RASC units within the Division and to be responsible to the Divisional Commander for their operation, administration and efficiency.

(c) To be responsible to the DST at Corps that the Supply and Transport Services within the Division are administered in accordance with the policy of the higher command, and with such technical instructions as may be issued by the DST.

R.A.S.C. TRADING DEPOT.

Precis: REPLENISHMENT OF NON-R.A.S.C. STORES IN FORWARD AREAS.

Sep 44. Precis No.....

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1. OBJECT.

To indicate the sources of supply which may be wanted by the Transport Company. These fall into three groups:-

(i) Non-operational stores (clothing, boots, equipment etc.).
(ii) Vehicles.
(iii) Spares for vehicles.

2. These all involve the ROYAL ARMY ORDNANCE CORPS, which is responsible for the provision of all major materials of war except those supplied by the R.A.S.C., and the ENGINEER SERVICES.

3. ORDNANCE ORGANIZATION IN A THEATRE OF WAR.

(i) In the Division. Controlled by the ASSISTANCE DIRECTOR OF ORDNANCE SERVICE (ADOS), at Div H.Q.
Each Div has its divisional ORDNANCE FIELD PARK (OFP), which functions as a forward reserve of ordnance stores.

(ii) In the Corps. Controlled by the DEPUTY DIRECTOR OF ORDNANCE SERVICES (DDOS), at Corps HQ.
Each Corps has its CORPS ORDNANCE FIELD PARK (OFP).
Holds a reserve of vehicle spares and complete vehicles.

(iii) In the L. of C. and Base. Advanced Ordnance Depots (AODs) are established. Their various sections hold all Ordnance stores except complete vehicles.
Vehicles are held in a Vehicle Company (Veh Coy), forming an integral part of an AOD, and divided into the various VEHICLE PARKS, with one of its parks probably in the forward area.
Each VEHICLE PARK holds reserves of vehicles for issue, and also maintains a RETURNED VEHICLE PARK (RVP) to which vehicles beyond repair are evacuated by units.

4. CLOTHING AND GENERAL STORES.

Units pass indents through ADOS at Div HQ, who transmits them to AOD for supply through the normal transportation channels along the lines of communication.

On arrival at the L of C terminals (railhead or road head), stores are taken with the supply vehicles of the ARMY TRANSPORT POOL up to FMA, and follow the normal channel for supplies to the units.

Urgent operational requirements may be issued form the Corps ORDNANCE FIELD PARK under authority of DDOS at Corps HQ.

(iii) Spares for vehicles.

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(ii) In the Corps. Controlled by the DEPUTY DIRECTOR OF ORDNANCE SERVICES (DDOS), at Corps HQ.
Each Corps has its CORPS ORDNANCE FIELD PARK (CFP).
Holds a reserve of vehicle spares and complete vehicles.

(iii) In the L. of C. and Base. Advanced Ordnance Depots (AODs) are established. Their various sections hold all Ordnance stores except complete vehicles.
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CLOTHING AND GENERAL STORES.

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On arrival at the L of C terminals (railhead or road head), stores are taken with the supply vehicles of the ARMY TRANSPORT POOL up to FMA, and follow the normal channel for supplies to the units.

Urgent operational requirements may be issued form the Corps ORDNANCE FIELD PARK under authority of DDOS at Corps HQ.

5. VEHICLES.

A vehicle requiring repairs beyond the capacity of the transport company workshops is evacuated to the RETURNED VEHICLE PARK (RVP), and a demand is made through ADOS at Div HQ. This passes to DDOS at Corps and on to Army HQ., who arrange issue from the VEHICLE PARK.

The vehicles from VEHICLE PARK are sent forward via Corps OFP to the point at which they are handed to units (normally the Div OFP).

6. VEHICLE SPARES.

Indents are prepared by the officer of the Workshops Platoon, and are sent direct to the Corps OFP, where issues are made. Certain major assemblies (complete engines, etc.) may be controlled by Army HQ., but orders will exist in every formation as to this point.