

DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS

PART II - FIELD OPERATIONS

CHAPTER 1 - THE ADMINISTRATIVE SYSTEM

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DOS PROCEDURE INSTRUCTIONS  
PART II - FIELD OPERATIONS  
CHAPTER 1 - THE ADMINISTRATIVE SYSTEM

SECTION 1

GENERAL

Administrative Aim

1.1 The aim of administrative planning is to achieve a situation in which the administrative resources required by the combat forces are provided so as to meet the need of these forces in a timely and economic manner and with a reasonable degrees of certainty, while at the same time leaving them free to pursue their operational objectives. Combat forces cannot produce operations and at the same time be administratively self-sustaining on a continuing basis.

Characteristics of the Administrative System

1.2 Units and fighting formations should be lightly stocked, usually on wheels. The usual transport means needs to be road transport, both because of a paucity of air transport and in order to overcome the necessity of tying the combat forces to the few available airfields or to the coast. Administrative units organic to the fighting formations require sufficient mobility to match their formations. Arrangements are necessary for the rapid removal of men and material no longer required on the battlefield.

1.3 The administrative system must provide the supported force with a high degree of self-sufficiency. Limited quantities of administrative resources will be located with or near combat elements. In the main, major resources are held as far back in the area of operations as possible but provisions must be made to deploy adequate resources forward. The maximum use if made of all available transport to deliver forward, and to recover rearward, supply and transport units being jointly tasked wherever possible.

1.4 Supplies are carried forward in bulk with the maximum use being made of containers, palletised cargo and materials handling equipment to conserve manpower and streamline supply and transport operations.

The Administrative Structure

1.5 The main components of the administrative structure are illustrated as Annex A.

1.6 A communications zone is established behind the combat zone to provide the organisation and the military infrastructure needed to implement the administrative support for the total force deployed. The communications zone will usually cover an extensive area in order:

- a. to incorporate sufficient points of entry to enable the required flow of resources into the area of operations;
- b. to reduce costs by making use of whatever established facilities are available (these will usually be located at points of entry); and

- c. to ensure the security of the bulk of administrative resources by locating them well back.

1.7 Because of its depth and the likelihood of disruption of supply routes within the area of operations, the communications zone will often be subdivided into:

- a. the rear maintenance area, containing the bulk of the administrative resources; and
- b. a forward maintenance area within reasonable reach of the combat zone and containing limited high priority resources.

1.8 The term communications zone is applied both to the area known by that title and to the group of headquarters and units which man and operate that area. The headquarters and units on the communications zone order of battle are commanded by a headquarters communications zone. For force sizes of less than a corps, the communications zone organisation is usually titled:

- a. for a divisional-sized force, a logistic support force; and
- b. for a lesser-size force, a logistic support group or company.

1.9 Within and to the rear of the combat zone, a maintenance area is established to provide immediate support to the fighting formations who otherwise usually operate with administrative rather than maintenance areas. In a corps setting, this area is termed the corps maintenance area.

1.10 Forward of the corps maintenance area, administrative areas will be established, and these take their titles from their parent formation, eg 4 New Zealand Division will establish 4 New Zealand Division Administrative Area.

1.11 Reserved.

1.12 Reserved.

## SECTION 2

### DEVELOPMENT OF THE ADMINISTRATIVE SYSTEM

#### Introduction

1.13 The administrative support of a force deployed in an area of operations entails the supply, repair, recovery and movement of material, movement of personnel, quartering and works, and personnel administration of the force. The development of the administrative system will be planned in conjunction with planning for the build-up and deployment of the combat forces it is to support. The initial establishment of the administrative system may require the deployment of units additional to operational requirements. These may be withdrawn from the area of operations on completion of their tasks.

#### Enemy Threat

1.14 When there is no immediate enemy threat, some administrative elements should precede the combat forces to prepare the administrative base. When an enemy threat is present, the administrative build-up will need to occur after the initial deployment of the combat force and its organic logistic elements.

#### Entering the Theatre

1.15 The introduction of personnel and material into the area of operations will be through points of entry, sited as close as practicable to the combat elements being supported. These points of entry may be ports, beaches, airfields, railheads or road terminals. Existing terminals may need to be improved and new terminals opened as operations develop.

1.16 Material is handled by terminal organisation into administrative installations established in the communications zone. It is then distributed forward into the combat zone. Although road will be the principal means, movement may also be by rail, sea, pipeline or air, or, as far as possible, a combination of these methods to gain efficiency with economy. Personnel in transit need to be catered for, and staging area may be required to provide accommodation and meal facilities. The staffing and organisation of staging areas is a personnel branch responsibility.

#### Communications Zone

1.17 The structure of the communications zone, and the land routes within it, will depend primarily on the nature and level of operations. Where practicable, the communications zone should have only one maintenance area to provide support for the combat zone. The build-up of the administrative structure is a gradual process. It is usually accomplished by phasing in administrative units and establishing additional installations and facilities, in concert with the build-up of combat forces. Combat formations deploying into the area of operations will usually be self-sufficient in selected items of supply for a period long enough to permit the initial establishment of the administrative support organisation.

Dispersion

1.18 The threat of enemy air will necessitate dispersion of depot and stocks. The degree of dispersion will be influenced by the physical characteristics of the area, the ability to retain control and the need to ensure that the administrative system remains effective.

1.19 The outline administrative system is shown at Annex B.

1.20 Reserved.

1.121 Reserved.

## SECTION 3

### THE COMMUNICATIONS ZONE

#### General

1.22 The communications zone is defined as the rear part of the theatre of operations (behind but contiguous to the combat zone) which contains the lines of communications, establishments for supply and evacuation, and other agencies required to the immediate support and maintenance of the field forces. The communications zone may be divided into a rear maintenance area, and a forward maintenance area, and these areas may be further divided into sub-areas.

1.23 The communications zone provides the organisation required for the continuing administrative support of the force deployed. It contains the land, air and water routes along which reinforcements and material are moved and casualties are evacuated. In a joint force, the commander of the communications zone is responsible to the land component commander.

#### Functions of the Communications Zone

1.24 The units in the communication zone:

- a. handle all material and personnel arriving in the communications zone from the support areas and those being evacuated to the support area;
- b. obtain local resources, if available;
- c. provide administrative support to the elements of other Services and allies as prescribed, and to army units;
- d. provide personnel services support;
- e. construct, develop and maintain facilities;
- f. provide electronic and courier communications facilities;
- g. effect rehabilitation of personnel and refurbishment of material within the area of operations;
- h. perform designated corps maintenance area functions, when a lesser size of force than a corps is deployed and support is provided by a logistic support force or group, for example, hold combat supplies within reach of combat forces.

#### The Rear Maintenance Area

1.25 The rear maintenance area includes the point of entry, terminals and installations. The main function of units in the rear maintenance area is to receive stocks and men from the support area, to replenish forward into the forward maintenance area and to hold a portion of force stocks in accordance with the administrative plan and policy. They also evacuate men and material, unwanted for any reason in the area of operations to the support area. The commander rear maintenance area is responsible to the headquarters communications zone.

## The Forward Maintenance Area

1.26 The units in the forward maintenance area, if established, provide support direct to the formations and units in the combat zone. Like the rear maintenance area, the forward maintenance area forms an integral part of the system of evacuation of men and material from the combat zone. Its units hold a portion of force stocks in accordance with the force commander's policy. The commander forward maintenance area is responsible to the headquarters communications zone.

### Sub-Areas

1.27 On occasions, units will be grouped under command of sub-area headquarters. These headquarters are under command of headquarters rear or forward maintenance area, when appropriate, or directly under headquarters communications zone. Their duties will usually be limited to matters of local administration and defence, Service representation will be provided on these headquarters should they have to undertake any responsibilities for technical operations.

1.28 Reserved.

1.29 Reserved.

## SECTION 4

### SUPPLY UNITS IN THE COMMUNICATIONS ZONE

#### General

1.30 The supply units deployed in the communications zone will be those required to meet particular requirements of the supply system where material is transferred from one method of supply or one echelon to another, where stocks are locally generated, and where stocks are accumulated or deliberately held. The number and types of supply units in the communications zone are therefore related to the size of the force to be supported, the supply system to be used, and the degree of flexibility required.

1.31 The stock levels to be held, and thus the required bulk supply units, depend on the reliability of the supply system which is affected by the transport available, conditions of terrain and climate, local resources and enemy action. It is the task of the supplying service to ensure that there is enough of the right material at each local point to ensure that it can be forwarded when required and as transport is available. This must be done without over insurance which wastes manpower and material.

1.32 Supply units for employment in the communications zone are so organised that functional sub-units may be placed under control of either:

- a. An ordnance headquarters to form part of an ordnance installation planned to undertake a specific task.
- b. The headquarters of a unit of another corps to undertake an ordnance task for that unit.

1.33 Ordnance units in the communications zone are built up on the “brick” system of functional companies, platoons or sections which can grow or diminish as the logistic requirement varies. However, it does not follow that the increase in functional units is a simply multiplication of the manpower dependency. The supply units in the communications zone must be structured in relation to the logistic requirement.

#### Supply Headquarters

1.34 A headquarters communications zone supply (HQ Comm Z Sup) will normally be established within the communications zone. The headquarters communications zone supply will usually be collocated with and act as a staff branch of headquarters communications zone. The headquarters communications zone supply commands the supply units assigned to it in the communications zone, provides advice on supply matters and technically controls the supply functions within the communications zone. The headquarters communications zone supply is commanded by the Director General Supply (DG Sup) with rank of Brigadier.

1.35 Senior Ordnance appointments and staff are found at each level of command in the communications zone as follows:

- a. Rear and forward maintenance area headquarters, a Deputy Director General Supply (DDG Sup) with rank of Colonel.



- b. Sub-Area, a Staff Officer, Grade one. Supply (So1 (Sup)) with rank of Lieutenant Colonel.

#### Ordnance Battalion Headquarters

1.36 A battalion headquarters (headquarters, field supply battalion) is provided where regimental and technical command and control or two or more ordnance companies is required, or where an ordnance headquarters is needed in support of a new formation.

#### Ordnance Company Headquarters

1.37 A company headquarters will normally be allotted to command, control and co-ordinate the activities of not more than three functional platoons or their equivalent in sections. Company headquarters may be allotted on a geographical basis to control a number of different ordnance functions. Dependent on the distances and the forces involved it may be more efficient for certain functions (such as POL supply) to be the responsibility of a single functional company.

#### Ordnance Units

1.38 The following ordnance units may be deployed in the communications zone in the numbers required to meet the logistic supply requirement:

- a. Field supply battalion (composite).
- b. Field supply company.
- c. Supply platoon, food and POL.
- d. Field bakery platoon.
- e. Field butchery platoon.
- f. Petroleum platoon.
- g. Mobile petroleum laboratory.
- h. Field supply battalion (ammunition).
- i. Ordnance ammunition repair platoon.
- j. Ordnance ammunition platoon.
- k. Field supply battalion (vehicle).
- l. Ordnance vehicle platoon.
- m. Field supply battalion (stores).
- n. Supply platoon, medical and dental.

- o. Preservation, inspection and packaging sections.
- p. Ordnance stores platoon.
- q. Ordnance supply control platoon.
- r. Ordnance local purchase section.
- s. Air maintenance platoon.
- t. Ordnance laundry section.
- u. Hospital laundry platoon.
- v. Field supply battalion (salvage).
- w. Field supply battalion (communications zone troops).
- x. Terminal ordnance platoon.
- y. Stores section (workshops).

#### Field Supply Battalion (Ammunition)

1.39 The field supply battalion (ammunition) is designed to hold up to 20,000 tons of ammunition dispersed in accordance with force policy. The unit consists of a battalion headquarters, ammunition company headquarters and functional platoon and sections. The functional elements will include:

- a. Ordnance ammunition platoons. For general ammunition duties related to the receipt, storage and issue of stocks of conventional ammunition.
- b. Ordnance ammunition repair platoons. For inspection, repair and modification of conventional ammunition.
- c. Ordnance guided missile sections. For inspection, repair, modification, testing, receipt, storage and issue of specialist guided missiles, and free flight rockets.
- d. Traffic sections. For arranging the movement of stocks outside the unit, and coordinating materials handling equipment requirements within the unit.

#### Field Supply Battalion (Stores)

1.40 The field supply battalion (stores) is designed to hold a comprehensive range of ordnance stores required to support the force. The range of ordnance stores held will include:

- a. Technical stores, including weapons and instruments, engineer, signal, radio, machine tools, radar and other technical equipment and their spares.
- b. Spare parts and assemblies for A, B and C vehicles, Army aircraft and small craft.

- c. General stores, including tentage and accommodation stores, personal equipment, tools and workshop material.
- d. Medical and dental stores.
- e. Project stores.

1.41 The field supply battalion (stores) comprises a battalion headquarters, company headquarters, and functional platoons and sections. The functional elements will include:

- a. Ordnance stores platoons,
- b. ordnance supply control platoons.
- c. Ordnance local purchase sections,
- d. supply platoons, medical and dental, and
- e. traffic sections.

1.42 The field supply battalion (stores) may also include the following functional elements:

- a. Printing section. For the production of printed matter and documents peculiar to the force.
- b. Industrial gas section. For the manufacture of oxygen, nitrogen, acetylene, compressed air and dry breathing air.
- c. Returned stores section. For the receipt and sorting of ordnance stores returned from forward units.
- d. Laundry section. For the washing of reusable items prior to return to stock.
- e. Preservation, inspection and packaging section. For the inspection, preservation and packaging of returned and locally procured items prior to return to stock.
- f. Local resources section. For the identification and procurement of items from local sources, including fresh rations.

#### Field Supply Battalion (Vehicle)

1.43 The field supply battalion (vehicle) receives, holds and issues A, B and C vehicles. The unit can hold a total of 400 serviceable A and C vehicles, 1800 serviceable B vehicles, including motor cycles and trailers, and 400 unserviceable vehicles of any type. The unit consists of a battalion headquarters, company headquarters and ordnance vehicle platoons. Ordnance vehicle platoons are organised to hold only one type of vehicle (A, B or C) and contain the following functional elements;

- a. Receipt and issue sections, and

- b. stock and maintenance sections.

#### Field Supply Battalion (Salvage)

1.44 The field supply battalion (salvage) provides the supervisory and handling personnel for the receipt, storage, reduction to produce, disposal, issue or serviceable and recovered items, and backloading of salvage. The unit consists of a battalion headquarters and companies organised to handle salvage according to group class.

#### Field Supply Battalion (Composite)

1.45 The field supply battalion (composite) consists of a battalion headquarters, company headquarters, and a number of ordnance platoons which may include stores, vehicles and ammunition platoons. A field supply battalion (composite) is formed to meet a particular commitment, and possible tasks can include:

- a. Ordnance support to independent formations and their administrative units.
- b. Expansion to provide support necessary for a large force.
- c. Planning and preparing for the deployment of larger specialist field supply battalions.
- d. Support in the rear and forward maintenance areas of communications zone units.

1.46 Functional elements, apart from stores, vehicle, ammunition and supply control platoons, which may be deployed as part of a field supply battalion (composite) include:

- a. Field bakery platoon. This platoon is equipped with transportable trailer bakery ovens and equipment for mixing and handling dough. The platoon can produce the daily requirement of break for a division.
- b. Field butchery platoon. For the slaughter and dressing of livestock to provide fresh meat for 6,000 troops daily.
- c. Cold storage platoon. This platoon is equipped with refrigeration to hold frozen commodities as required.
- d. Supply platoon, food and POL. For the supply of combat rations and packaged POL.
- e. Petroleum platoon. This platoon is equipped with rigid and flexible bulk fuel holding equipment, pipelines, pumps and meters. The platoon can hold, pump and kerbside refuel petroleum, as well as wash and fill fuel tanks and jerrycans.
- f. Mobile petroleum laboratory. To conduct tests in the field, using portable petroleum testing equipment, as a check against specifications, or contamination of ground and aviation fuels.

- equipment,  
equipment.
- g. Air maintenance platoon. To support army air supply operations with advice, stores support, and stock control, and handling personnel and
  - h. Ordnance laundry section. To launder blankets, linen, personal items and underwear, in support of deployed shower sections, and stores installations.
  - i. Ordnance local purchase section. To provide the skilled staffs and systems to arrange, conduct and record procurement from local sources.
  - j. Preservation, inspection and packaging section. To provide specialist personnel and equipment to support stores and salvage installations in the preservation, inspection and packaging of ordnance stores.

### Specialist Companies

1.47 Companies may be formed under ordnance company headquarters to perform specialist or composite functional tasks. Within the communications zone it would be usual to find a number of independent ordnance companies under command of either the forward or rear maintenance area headquarters, or of a sub-area headquarters. Such ordnance companies could include, for example, a petroleum company, comprising a petroleum company headquarters, two petroleum platoons, and a mobile petroleum laboratory.

### Detached Ordnance Elements

1.48 The following ordnance elements in the communications zone are usually placed under control of headquarters of another corps to undertake an essential ordnance task for a non-ordnance unit:

- a. Stores section (workshops). These are allotted to certain larger workshops to provide ordnance stores support by the supply of repair parts, assemblies and materials required by the workshops to carry out its repair tasks. Stores sections (workshops) hold specific scalings of items to ensure immediate availability. Some smaller workshops have an ordnance stores cell within their establishment instead of a section attached.
- b. Hospital laundry platoon. These platoons are allotted to appropriate medical units (such as general hospital) to wash and dry patients laundry, hospital linen, blankets and similar items.
- c. Air maintenance platoon. These platoons are allotted to transport corps squadrons tasked with providing air supply. The air maintenance platoon holds operating stocks of aerial delivery equipment, receives and prepared ordnance stores for air movement, arranges local distribution of ordnance stores received by air, receives returned aerial delivery equipment and arranges its repair or disposal, and carries out limited modification, repair or fabrication of aerial delivery equipment.
- d. Terminal ordnance platoon. This unit is provided to terminal groups to:

- (1) Provide technical personnel to supervise or advise on handling ammunition, including if necessary limited inspection,
- (2) Arrange the clearance from the terminal area of vehicles brought into the force as ordnance stocks, and
- (3) Provide technical assistance in the recognition and handling of ordnance stores.

1.49 Reserved.

1.50 Reserved.

## SECTION 5

### THE COMBAT ZONE

#### General

- 1.51 The combat zone is:
- a. The area required by combat forces for the conduct of operations.
  - b. The territory forward of the army rear area boundary.

The combat zone contains the corps rear area and those areas allocated the combat formations necessary for the conduct of the battle.

#### The Corps

1.52 A corps has no fixed organisation and is structured to meet the requirements of a particular situation. A corps consists of a headquarters, subordinate divisions (and occasionally independent task forces) and corps troops. Some of the corps troops will normally be allocated to subordinate formations for specific operations or periods, but there is no fixed scale of allocation.

#### Corps Troops

1.53 Corps troops are troops assigned or attached to a corps, but are not a part of one of the combat formations which make up the corps. Corps troops for a corps of two divisions in limited war would normally number between 15,000 and 20,000 of whom approximately half would be administrative units and headquarters.

- 1.54 The responsibilities of corps administrative troops may be summarised as;
- a. To provide direct support to corps troops, arms and service units wherever deployed, and
  - b. to provide general support to the corps as a whole; to back up, both in amount and level of work, the divisional and corps troops direct support units.

#### Corps Rear Area

1.55 The corps rear area is the area between the corps rear boundary and the rear boundaries of the divisions. It contains:

- a. The corps main and rear headquarters; and
- b. corps troops units which are not deployed forward, including:
  - (1) administrative units and installations to provide administrative support to combat formations and units and to other corps troops units,

- support
- (2) administrative units and installations to provide administrative only to corps troops units, and
  - (3) communications units.

1.56 The corps rear area is designated to define the areas of responsibility between divisions, corps and communications zone, and will tend to include areas of little tactical importance. Corps rear headquarters (Corps Rear HQ) commands the corps rear area, and is responsible for the administrative support of the corps including the operation of the corps maintenance area.

#### Corps Maintenance Area

1.57 Corps administrative units in the corps rear area usually grouped to facilitate co-ordination of functions, control, flexibility and defence. This grouping is called the corps maintenance area and will be sited to allow the administrative units to best perform their work. The stocks held in this area by elements such as the corps field supply battalion, including corps reserves, are usually held on the ground due to the large tonnages involved. The area, by definition, is therefor a maintenance area. A commander corps maintenance area will be appointed, responsible to corps rear headquarters.

#### Corps Administrative Area

1.58 Only in most unusual situations will a corps administrative area be formed, when no stocks are held on the ground. This situation will only occur in mobile operations when the distances between the forward maintenance area and divisions is short, and transport links are highly reliable.

#### The Division

1.59 A division is a tactical and administrative formation which combines in itself the necessary arms and services required for sustained combat, and which is larger than a task force and smaller than a corps.

1.60 The organisation of a typical infantry division, as used for training purposes in the NZ Army, is shown at Annex C.

#### Divisional Maintenance Area

1.61 Administrative units and elements organic to, or allotted in support of, a division will usually be grouped to allow effective functioning and control, and to facilitate defence. Stocks and reserves held on the ground in such an area identify it as a divisional maintenance area. Divisional maintenance areas are located to the rear of the forward combat units, and are sited near supply routes. Divisional rear headquarters is usually located in the divisional maintenance area, and the rear echelons of the arms units are grouped there by formations.

#### Divisional Administrative Area

1.62 When divisional administrative elements are grouped, but are kept, including stocks, on wheels, the area occupied is defined as a divisional administrative area.



## The Task Force

1.63 A task force is a group of units under one commander, formed for the purpose of carrying out specific operations or missions. A task force is not normally administratively self contained.

## Task Force Administrative Area

1.64 A task force may form a small administrative area containing, for example:

- a. Unit A echelons,
- b. distribution points,
- c. a forward element from a field ambulance,
- d. a forward support group from a field workshop and
- e. an element of the divisional postal unit.

1.65 Reserved.

1.66 Reserved.

## SECTION 6

### SUPPLY UNITS IN THE COMBAT ZONE

#### General

1.67 Supply is the function of providing the material needed by users at the time and place required. It includes planning, financial programming, identification, requirement determination, provision, procurement, receipt, inspection, storage, distribution, stock recording, accounting and disposal. In the area of operations all corps have responsibilities for supply, in varying degrees, RNZAOC units in the combat zone have the prime function of second line supply support holding facilities, and provide limited specialist services to units in the combat zone.

1.68 Second line supply support is defined as that direct supply support organic to a formation and provided on a fixed scale as a back-up for first line, that is internal unit, supply support. Second line supply support is provided by field supply companies, replenishment park companies and stores sections.

#### Supply Units organic to the Corps

1.69 The following ordnance units will usually be organic or allotted to the corps, and located in the corps rear area;

- a. headquarters corps supply,
- b. three replenishment park companies,
- c. one corps supply battalion,
- d. one field supply company (corps troops), and
- e. stores sections and stores platoons.

#### Headquarters Corps Supply

1.70 The role of the headquarters corps supply is to command ordnance units organic to or allotted the corps, other than those under command of formations or divisions, and to exercise technical control of the supply function within the corps rear area. Headquarters corps supply is normally located with corps headquarters (rear) in the corps maintenance area.

#### Replenishment Park Company

1.71 A replenishment park company can establish and operate up to three replenishment parks. Replenishment parks are established to facilitate the distribution of combat supplies to the divisions. They hold a limited tonnage (up to 4,000 tonnes) of combat supplies, at maximum four days consumption for a division, and are sited within convenient daily turn round of divisional transport. Replenishment parks are kept stocked by resupply from the forward maintenance area by third line transport.

1.72 Replenishment parks are usually located forward of the corps maintenance area, close to the divisional rear boundary. Three replenishment parks, one operating, one stocked ready to operate and one moving or stocking, provide a division with easy access to combat supplies and obviate the need for the division to hold stocks by establishing a divisional maintenance area which would inhibit divisional mobility.

#### Corps Supply Battalion

1.73 The Corps supply battalion holds the heavy lift back-up for the field supply companies plus the corps and divisional reserves of combat supplies and controlled items such as vehicles, guns and radios. The corps supply battalion also holds the corps repair pools.

1.74 The corps supply battalion is not part of the normal resupply chain. Because the unit holds heavy lift items, reserves and repair pools, it is relatively static and cannot be moved quickly.

#### Field Supply Company (Corps Troops)

1.75 The field supply company (corps troops) provides a range of second line supply support and ancillary services to support specified corps troops. The unit is established on the basis of providing support for up to 6,000 personnel in corps troops units.

#### Supply Units Organic to the Division

1.76 The following RNZAOC units are integral to the division:

- a. One headquarters divisional supply,
- b. three field supply companies,
- c. one field supply company (divisional troops),
- d. three combat supply platoons, and
- e. stores sections, platoons and cells.

1.77 Within the division the combat supplies platoons are frequently placed under command of transport squadrons. In these circumstances the staff officer grade two combat supplied from headquarters divisional supply is allotted to headquarters divisional transport to assist and advise on combat supplies. In situations where units collect their requirements of combat supplies from divisional supply units, the replenishment of combat supplies is an RNZAOC (commander divisional supply) responsibility. The combat supply platoons will then be under command of divisional supply companies and the staff officer grade two combat supplies remains with headquarters divisional supply.

#### Headquarters Divisional Supply

1.78 Headquarters divisional supply is located with headquarters division (rear) in the divisional administration area or divisional maintenance area. The headquarters divisional supply commands all RNZAOC units and sub-units organic to the division and not otherwise grouped or

allocated. Headquarters divisional supply also provides advice on supply matters, and exercises technical control of all RNZAOC functions within the division.

#### Field Supply Company

1.79 The field supply company provides a range of second line supply support and ancillary services for a task force (brigade) of up to 6000 troops.

#### Field Supply Company (Divisional Troops)

1.80 The field supply company (divisional troops) provides a range of second line supply support and ancillary services for divisional headquarters and units, not allocated to a task force, for up to 6000 troops.

#### Combat Supplies Platoon

1.81 The combat supplies platoon receives, holds and issues combat supplies for up to 6000 men.

ANNEX A TO  
CHAPTER 1  
TO NZ P107

ANNEX B TO  
CHAPTER 1  
TO NZ P107

ANNEX C TO  
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DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS

PART II - FIELD OPERATIONS

CHAPTER 2 - THE ORGANISATION OF ORDNANCE IN THE COMBAT ZONE

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- B. Replenishment Park Company.
- C. Corps Supply Battalion.
- D. Field Supply Company (Corps Troops).
- E. HQ Commander Divisional Supply.
- F. Field Supply Company.
- G. Combat Supply Platoon.
- H. Field Supply Company (Divisional Troops).

## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 2 - THE ORGANISATION OF ORDNANCE IN THE COMBAT ZONE

##### SECTION 1

##### ROLES, TASKS & ORGANISATIONS

###### Role

2.1 The role of the RNZAOC is to provide ordnance support and services.

2.2 In fulfilling this role the RNZAOC is responsible for:

- items
- a. Ordnance Support. The provisioning, receipt, storage and issue of all Army of supply, with the exception of:
- (1) Engineer stores and signal project stores in the combat zone;
  - (2) the holding of combat supplies within the division when distribution effected by the RNZCT; and
  - (3) communication security equipment and material.
- b. Ordnance Services. The provision of the following specialist services:
- (1) The repair and maintenance of :
    - (a) ammunition;
    - (b) clothing; and
    - (c) non-electrical and non-mechanical general stores, such as tentage.
  - (2) Ancillary supply support including:
    - (a) bakery;
    - (b) cold storage;
    - (c) printing;
    - (d) industrial gas supplies;
    - (e) the treatment and packaging of supplies;
- is

- (f) local resources exploitation, except where this is the responsibility of the RNZE or RNZ Sigs; and
  - (g) quality surveillance of foodstuffs and petroleum, oils and lubricants.
- (3) Supplementary ordnance support including:
- (a) bath and laundry, including nuclear, biological and chemical decontamination of personnel and personal equipment;
  - (b) salvage; and
  - (c) explosives ordnance disposal in conjunction with the RNZE.

### Headquarters Corps Supply

2.3 The role of headquarters corps supply is to command ordnance units organic to or allotted to the corps, other than those under command of formations or divisions. Headquarters corps supply exercises technical control of all supply units within the corps.

2.4 The tasks of headquarters corps supply are:

- a. The provision of advice on supply matters to the corps commander and his staff;
- b. to develop the corps supply plan for current and future operations;
- c. control of the distribution and replacement of principal items in accordance with the corps staff requirements;
- d. co-ordination of the supply function with the corps commanders plan; and
- e. technical control of all supply units within the corps.

2.5 The organisation of the headquarters corps supply is at Annex A.

### Replenishment Park Company

2.6 The role of the replenishment park company is to hold on the ground limited quantities of operating stocks of combat supplies.

2.7 The tasks of the replenishment park company are to:

- a. Receive, hold and issue up to four days consumption of combat supplies for a division;
- b. deploy up to three replenishment parks.

2.8 The replenishment park company does not have sufficient organic transport to move its unit equipment and manpower. Depending on the location, substantial engineer effort for hardstanding, circuit and stock dispersal may be required for its establishment. The organisation of a replenishment park company is at Annex B.

### Corps Supply Battalion

2.9 The role of the corps supply battalion is to hold the heavy lift back-up for the field supply companies plus the corps and divisional reserves of combat supplies, regulated items, repair pools, project stocks and medical and dental stores.

2.10 The tasks of the corps supply battalion are:

- a. To exercise stock control of the combat supplies, regulated items, repair pools and project stores;
- b. to receive, store and issue reserves, pools and special holdings of stocks as directed; and
- c. to receive, hold and issue special stocks of heavy lift items including regulated assemblies for corps workshops, as directed.

2.11 The organisation of the corps supply battalion is shown at Annex C.

### Field Supply Company (Corps Troops)

2.12 The role of the field supply company (corps troops) is to provide a range of second line ordnance support combat supplies and ancillary services for up to 6,000 corps troops.

2.13 The tasks of the field supply company (corps troops) are:

- a. To exercise stock control of second line stocks held;
- b. to receive, store and issue combat supplies and frequently required unit repair or replacement stores, assemblies, clothing, personal equipment and miscellaneous stores required by corps unit allotted as its dependency;
- c. to hold special reserves of regulated stores available for, but not allotted to its dependency;
- d. to operate salvage collection points and undertake limited battlefield clearance work;
- e. to receive, hold and issue combat supplies for up to 6000 men;
- f. to receive, hold and issue medical and dental stores for its dependency;
- g. to provide shower and underclothing changes for up to 1600 men per day; and
- h. to provide laundry facilities for returned clothing and some personal items.

2.14 The organisation of a field supply company (corps troops) is shown at Annex D.

#### Headquarters Divisional Supply

2.15 The role of the headquarters divisional supply is to command RNZAOC units organic to or allotted to the division, and to advise on and provide the technical control of RNZAOC functions with the division.

2.16 The tasks of the headquarters divisional supply are to provide:

- a. Advice to the commander and staff on RNZAOC matters;
- b. development of the divisional supply plan for current and future operations;
- c. control of the distribution and replenishment of the principal items of equipment, weapons and vehicles in accordance with divisional staff requirements;
- d. co-ordination of the supply function with the divisional commander's tactical plan, obtaining such additional supply support from non-divisional sources as may be required; and
- e. technical control of combat supplies matters including accountancy detailed forecasts to meet the staff requirement and quality control.

2.17 The organisation of headquarters divisional supply is at Annex E.

#### Field Supply Company

2.18 The role of the field supply company is to provide a range of second line ordnance support and ancillary services for a task force up to 6000 troops.

2.19 The tasks of the field supply company are:

- a. To exercise stock control of second line stocks held by the company;
- b. to receive, store and issue frequently required unit repair or replacement spares, assemblies, clothing, personal equipment and miscellaneous stores required by units allotted as its dependency;
- c. to hold operationally important items which may be required at short notice but which are not held by the combat unit, for example, flame-throwing equipment;
- d. to hold that portion of the division's reserve of controlled stores, other than signals project stores and engineer-controlled items, allocated to a task force;
- e. to operate salvage collection points and when supplemented undertake battlefield clearance work;
- f. to provide shower facilities and a change of underclothing for up to 800 men per day at each of two detachments; and
- g. to identify and redirect stores in transit when necessary;

h. carry out monthly clothing bulk breaks.

2.20 The characteristics of the field supply company are as follows:

- line
- a. The stock in the company enable the immediate supply of 60 to 70 percent of items required for unit repair and fast-moving general stores items.
  - b. It holds a limited reserve of clothing and personal equipment. (Approx one coy scaling).
  - c. It can command:
    - (1) A detachment of the medical/detail platoon of the field supply company (divisional troops), and
    - (2) a combat supplies platoon as an integral sub-unit when the unit is not under command of the commander divisional transport.
  - d. Its scaling is usually based on an average 60 days stocking level.
  - e. It does not have the capacity to hold bulk or heavy lift items on wheels to the 60 days level.
  - f. It provides shower facilities and a change of underclothing for 1600 men per day.

2.21 The organisation of a field supply company is shown at Annex F.

### Combat Supplies Platoon

2.22 The role of the combat supplies platoon is to receive, hold and issue combat supplies for up to 6000 men.

2.23 The tasks of the combat supplies platoon are:

- collection
- a. To prepare combat supplies for distribution by second line transport or by unit transport;
  - b. to conduct the detailed issue of combat supplies;
  - c. to perform stock control activities for combat supplies held on either vehicles or the ground;
  - d. to exercise quality control of combat supplies; and
  - e. to receive and store combat supplies when applicable.

2.24 The characteristics of the combat supplies platoon are:

- a. It can hold in bulk 500 tonnes of combat supplies with daily issues and receipts totalling 75 tonnes.
- b. It can operate on a composite of commodity basis.
- c. It does not have the capacity to move its own stocks but is otherwise self-contained.

2.25 The organisation of the combat supplies platoon is shown at Annex G.

#### Field Supply Company (Divisional Troops)

2.26 The role of the field supply company (divisional troops) is to provide a range of ordnance support and ancillary services for divisional headquarters and units up to a level of 6000 men.

2.27 The tasks of the field supply company (divisional troops) are the same as those performed by the field supply company, with the following additions:

- a. It receives stores and issues second line holdings of medical and dental stores.
- b. It holds that portion of the division's reserve of regulated stores, other than engineer or signal project stores, which have not been allocated to task forces.
- c. It provides a detachment to a terminal within the divisional area for the identification and, where necessary, the redirection of stores in transit. This terminal is termed the divisional RV.

2.28 The characteristics of the field supply company (divisional troops) are the same as those of a field supply company, with the following additions:

- a. It can hold the divisional reserve of industrial gases.
- b. It can launder up to 1000 kilograms, dry weight, per day.

2.29 The organisation of the field supply company (divisional troops) is at Annex H.

#### Workshops Stores Platoons/Sections/Cells

2.30 The role of workshops stores platoons/sections/cells is to carry and provide the dedicated holdings of repair parts, assemblies and material for the supported workshop or technical support unit.

2.31 The platoons/sections/cells are integral elements of the establishment of the unit that they support. Those elements holding items required to support unit level repairs are scaled on an average of 15 days stocking level. Those holding items to support field level repairs are scaled on an average of 60 days stocking level.

2.32 Reserved.

2.33 Reserved.

2.34 Reserved.



## SECTION 2

### ORDNANCE STAFF AND RESPONSIBILITIES

#### Head of Service

2.35 The officer holding the senior RNZAOC appointment within a formation acts as head of service for the formation and:

- a. Advises commanders, their staff, and units on all matters relating to ordnance support;
- b. exercises technical control of all RNZAOC units and elements organic and/or allotted to that formation; and
- c. commands all RNZAOC units allotted to him.

#### Headquarters Corps Supply

2.36 The senior RNZAOC officer at Headquarters Corps supply is Commander Corps Supply, in the rank of Colonel.

#### Commander Corps Supply

2.37 Commander Corps Supply is responsible for:

- a. Advice to the Corps Commander and his staff on ordnance matters;
- b. ensuring that ordnance services within the Corps are efficient;
- c. ensuring that the technical methods employed are efficient;
- d. the technical control of RNZAOC units within the Corps, either through subordinate RNZAOC headquarters representatives in the case of organic units, or directly in the case of non organic units within the Corps; and
- e. the maintenance of combat reserves as may be required.

#### Headquarters Divisional Supply

2.38 The senior RNZAOC staff appointments at Headquarters Divisional Supply are:

- a. Commander Divisional Supply, with the rank of Lieutenant Colonel;
- b. Staff Officer Grade Two Ordnance, with the rank of Major; and
- c. Staff Officer Grade Two Combat Supplies, with the rank of Major.

#### Commander Divisional Supply

- 2.39 The Commander Divisional Supply is responsible for;
- a. The command of all divisional RNZAOC units not otherwise allotted;
  - b. the technical control and efficiency of all RNZAOC resources within the division;
  - c. providing advice to the Divisional Commander and staff on matters relating to ordnance support;
  - d. informing Commander Corps Supply of tactical plans and giving him early advice of operational changes or other considerations likely to affect the provision of ordnance support;
  - e. advice and assistance to divisional troops units and ensuring that each unit receives its entitlement of ordnance services;
  - f. co-ordination and organisation of ordnance support to the division; and
  - g. other technical duties as may from time to time be delegated to him by Commander Corps Supply.

#### Staff Officer Grade Two Ordnance

- 2.40 The Staff Officer Grade Two Ordnance is responsible for:
- a. Understudying Commander Divisional Supply and deputising for him on his absence;
  - b. the co-ordination of divisional supply headquarters staff;
  - c. ensuring the Headquarters Commander Divisional Supply has input into all divisional administration orders;
  - d. the preparation of Commander Divisional Supply's orders and instructions;
  - e. promulgation of Commander Divisional Supply's policy to all RNZAOC units within the division;
  - f. all technical support matters including the provision, control and supply of;
    - (1) ordnance stores;
    - (2) regulated items;
    - (3) vehicles;
    - (4) repair and maintenance pools.
  - g. ensuring correct office procedures are maintained within the headquarters.

## Staff Officer Grade Two Combat Supplies

2.41 The Staff Officer Grade Two Combat Supplies is responsible for:

- rations
- a. Advice on matters concerning combat supplies including quality control of and petroleum, oils and lubricants;
  - b. calculation of supply requirements in accordance with authorised levels and unit demands;
  - c. supervision of holdings and issue of combat supplies within the division;
  - d. formulation of plans for forward delivery of combat supplies, in conjunction with Commander Divisional Transport; and
  - e. the maintenance of stock levels.

## Brigade Headquarters

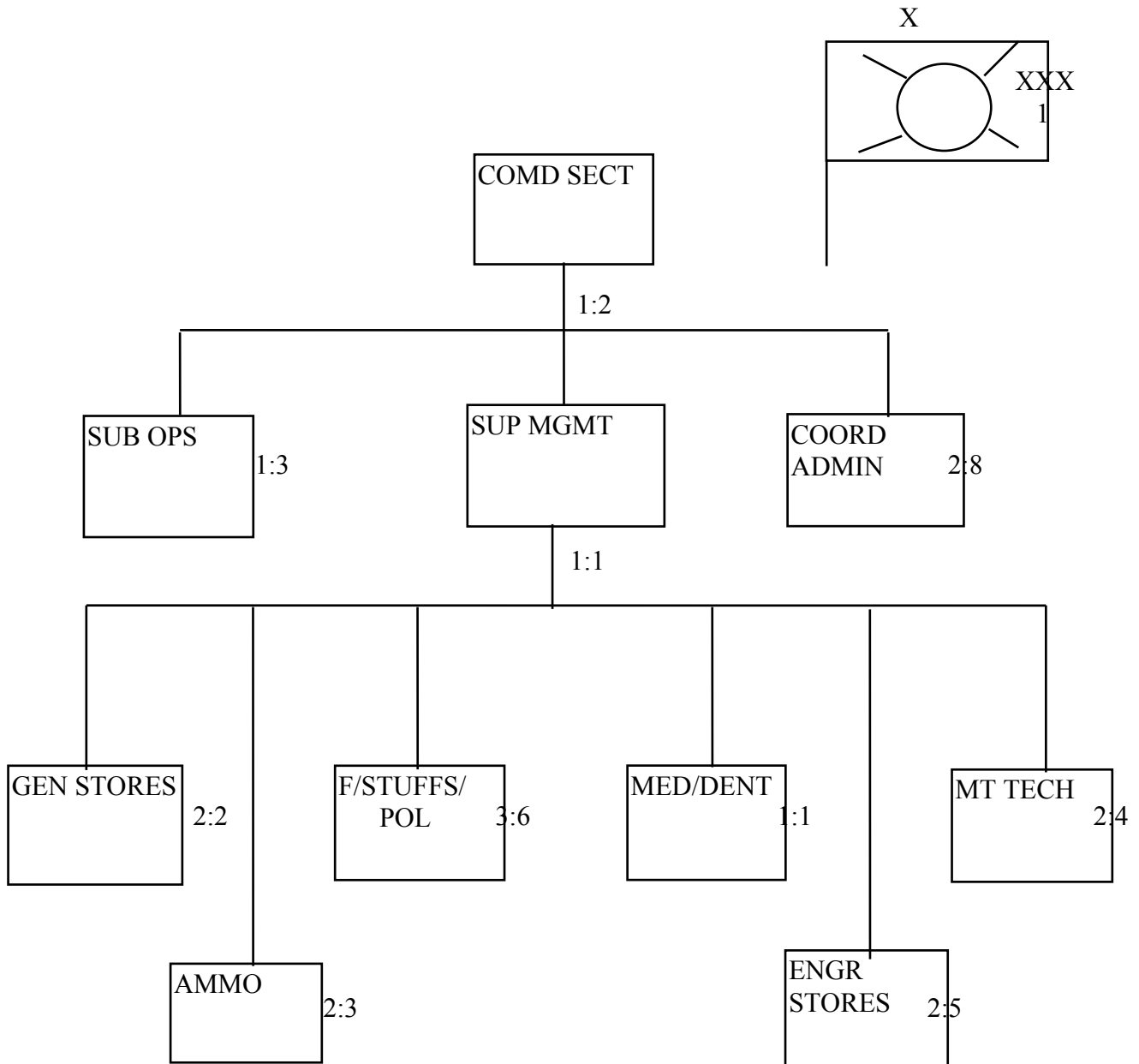
2.42 When appointed, the senior RNZAOC staff appointed at Brigade Headquarters is the Brigade Ordnance Officer, in the rank of major. When a Brigade Ordnance Officer is not appointed, the Officer Commanding the Field Supply Company in support of the brigade assumes the responsibilities of Head of Service for the supported brigade.

## Brigade Ordnance Officer

2.43 The Brigade Ordnance Officer is responsible for:

- a. Technical advice to the Brigade Commander and his staff on ordnance matters;
- b. advice and assistance to brigade units on ordnance matters, and ensuring that each unit receives the ordnance support required;
- c. the technical efficiency of brigade ordnance services;
- d. policy matters connected with the control of ordnance services in the brigade;
- e. liaison with Headquarters Commander Divisional Supply on technical matters;
- f. routine personal liaison with brigade unit commanders on ordnance services matters;
- g. the identification and reporting to Brigade Headquarters staff of misuse or extravagant use of ordnance services;
- h. the publication of administrative instructions as required to keep brigade units informed on relevant ordnance matters; and
- i. the production of routine reports and returns as required to Commander Divisional Supply.

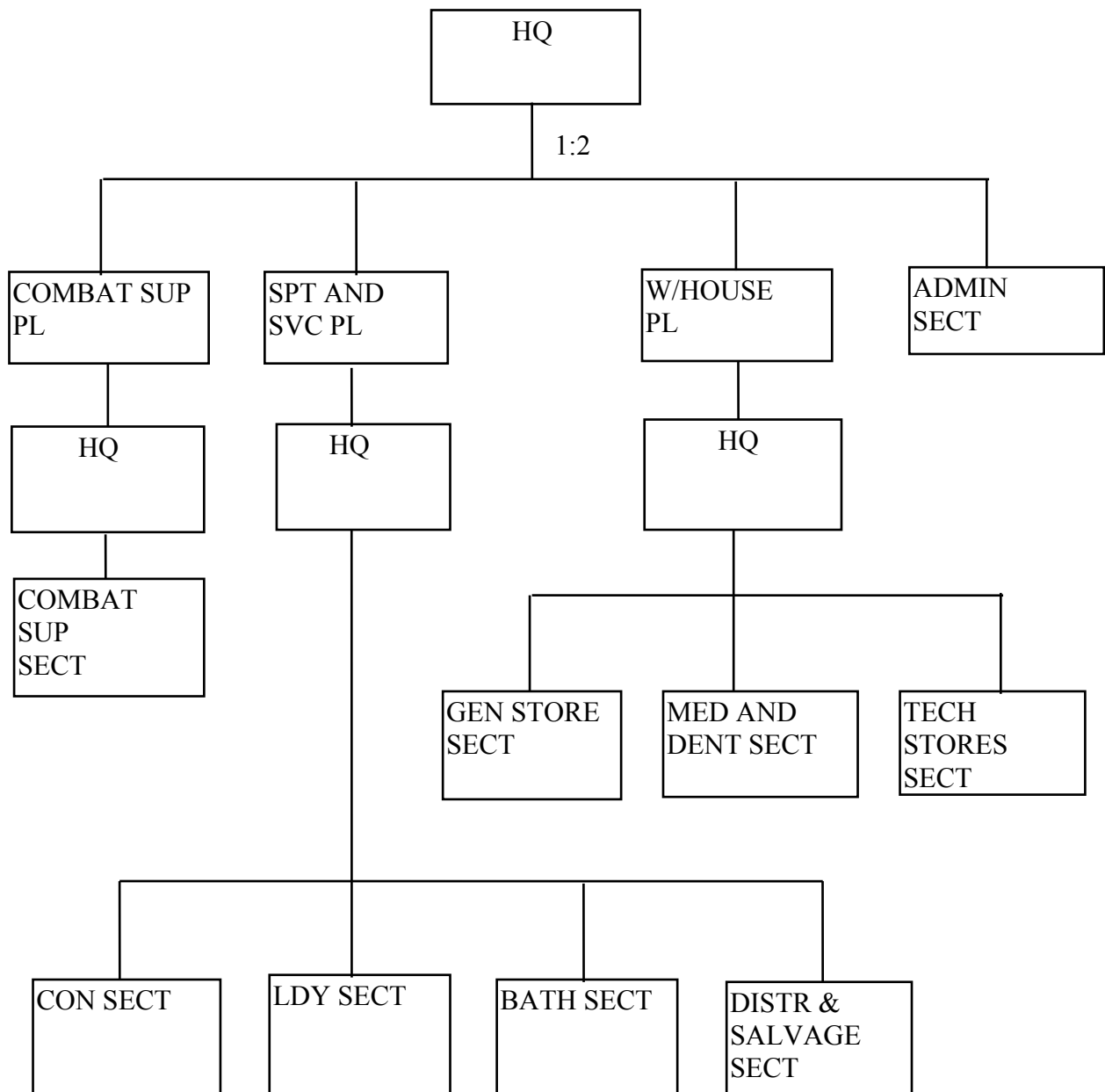
HEADQUARTERS CORPS SUPPLY



Offr	OR	TOTAL	Lt Veh	Med Veh	LMG
17	35	52	15	1	1

REPLENISHMENT PARK COMPANY

FIELD SUPPLY COMPANY (CORPS TROOPS)



Offr	OR	Total	Lt Veh	Mdm Veh	Hvy Veh	C Veh	Mdm Tlr	Hvy Tlr	LMG
6	84	90	6	35	4	4	31	4	8

DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS  
PART 11 - FIELD INSTRUCTIONS

CHAPTER 3 - SYSTEMS OF SUPPLY IN THE COMBAT ZONE

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- A. Supply of Routine and Priority Demand Stores
- B. Supply of Operational Demand Stores
- C. Supply of Staff Demand Stores
- D. Supply of Class 1, 3 and 5 Supplies
- E. Supply of Class 4 Stores
- F. Outline System of Armoured Vehicle Replacement
- G. Supply of Class 7 Stores
- H. Supply of Class 8 Stores
- I. Supply of Class 9 Stores

DOS PROCEDURE INSTRUCTIONS  
PART II - FIELD OPERATIONS

CHAPTER 3 - SYSTEMS OF SUPPLY  
IN THE COMBAT ZONE

SECTION 1 - GENERAL

Lines of Stockholding

3.1 In an area of operations, stocks are usually divided into:

- a. First Line Stocks. First line stocks are stocks of supplies regularly required and held by units for their own use/ They include unit, technical support sub-unit and unit workshop stocks of repair parts required to support unit repair and maintenance activities.
- b. Second Line Stocks. Second line stocks are fast moving items, usually held under the control of the formation headquarters conducting the operations for:
  - (1) replenishment of first line stocks,
  - (2) direct issues to meet unit requirements which are not stocked at first lines, or
  - (3) direct issues for field repair and maintenance activity.
- c. Third Line Stocks. Third line stocks are held under communications zone or force control for:
  - (1) replenishment of second line stocks;
  - (2) direct issues to meet unit requirements which are not stocked at first or second line, or
  - (3) force repair activity.
- d. Fourth Line Stocks. Fourth line stocks are those held within the support area.

3.2 Reserve Stocks. Reserve stocks are held to ensure against an emergency, unforeseen fluctuations and expenditure, delays in production and transit, misfortune etc. In the area of operations, reserve stocks are divided as follows:

- a. Unit Reserve Stock. Unit reserve stocks comprise; emergency rations, a limited stock of petroleum, oils and lubricants and one or more, first lines of ammunition, being constantly replenished.
- b. Combat Reserve Stocks. Combat reserve stocks are held under the control of



the senior combat formation headquarters and are usually located in the rear of the combat zone. A portion may be allotted to subordinate formations.

- c. Force Reserve Stocks. The remaining reserve stocks in an area of operations are termed force reserve stocks. They are held under the control of the force commander and managed by designated units.

### Range of Items at Each Line of Stockholding

3.3 An item will be held in a line of stockholding only if there is a regular demand for it, that is, the item is fast moving or it is considered vital. It follows that the demand characteristic of an item will determine:

- a. at what line of stockholding that item is best held, and
- b. the range of items to be held at a particular level.

3.4 If items are not held, deliveries must be arranged from a rearward line of holding on either a scheduled or a demand basis. Signal demand systems are necessary to obtain items quickly from rearward stockholdings, including fourth line. The efficiency of these systems depends on good communications, expeditious handling in supplying depots and rapid transport.

3.5 When deciding the range to be held at each line of stockholding, the staff will determine a balance between stocking too high a proportion of slow moving items against the need to bring forward too high a proportion of requirements by high priority means. The staff expresses its decision by specifying the percentage of demand which is to be satisfied by each line of stockholding. The percentage of demand satisfaction required is usually between 65 and 85 percent.

3.6 Responsibilities. The staff specifies the percentage of demand satisfaction required, using the advice of the supply and transport services. The supply service establishes the range and monitors the demand satisfaction rate achieved. The transport service provides advice on transport modes available and likely delivery times.

### Stock Levels

3.7 Operating Stocks are those stocks required at each level of stockholding to enable routine issues to be maintained between replenishment deliveries. They consist of consumption period stocks and supply margin stocks, and avoid the use of reserve stock to support activities other than those for which reserves have been designated. Certain important items will be given close staff and service supervision; this is termed intensive management. Operating stocks of intensively managed items usually consist of only consumption period stocks. The usual operating stocks for RNZAOC units are:

- a. fd sup coy : 30 days
- b. combat sup pl : variable, but normally 3 days,
- c. fd wksp stores sect : 30 days,
- d. replenishment park company : 3 days

## Classes of Supply

3.8 Supplies include all items needed for equipping and maintaining the operations of a force including food, clothing, equipment, arms, ammunition, fuel, materials and machinery of all kinds. For general planning and administrative purposes, supplies are divided into classes. Subdivision into subclasses is used by logistic services by the addition of a standard letter to the class number. For example, the letter 'A' indicates an aircraft application and may be used with Class 1 for in-flight rations, Class 7 for aircraft themselves and Class 9 for aircraft spare parts. The classes of supply are described as follows:

- welfare
- a. Class 1 - Subsistence, including foodstuffs, gratuitous health and items and water when this commodity is provided in packed form through the supply system.
  - b. Class 2 - General stores including clothing, individual equipment, tentage, tool sets and kits, hand tools stationery and other general administrative and housekeeping items.
  - c. Class 3 - Petroleum, oils and lubricants.
  - d. Class 4 - Construction items including construction materials and all fortification and barrier materials excluding explosive devices.
  - e. Class 5 - Ammunition.
  - f. Class 6 - Personal demand items including canteen supplies and non-scaled military items.
  - g. Class 7 - Principal items. A final combination of end products which is ready for its intended use including vehicles, weapons and major technical equipments. These items are held with complete equipment schedules (CES).
  - h. Class 8 - Medical and dental stores.
  - i. Class 9 - Repair parts.
  - j. Class 10 - Material to support non-military programmes.

3.10 - 3.11 Reserved.

## SECTION 2 - THE SUPPLY SYSTEM

### Processes of the Supply System

3.12 The supply system in the field consist of three fundamental processes:

- a. demanding,
- b. supply control, and
- c. distribution.

3.13 Demanding. Demanding includes all those actions taken by headquarters, units and installations to obtain initial entitlements of supplies or to replenish stocks.

3.14 Supply Control. Supply control includes the procedures necessary to determine the availability and location of supplies, as well as the control exercised by the formation headquarters staff and designated arms and service representatives. It is used to ensure that stocks are replenished to the authorised levels with the minimum amount in the distribution system. Supply control includes stock accounting procedures. While these must be designed to be adequate to serve the supply control process, they must also be as economical as possible.

3.15 Distribution. Distribution is the action necessary to effect the issue and subsequent resupply, transportation of supplies to destinations.

### Placing of Demands

3.16 All units placing demands on RNZAOC units are where possible to use the MD 315 Series Demand, Issue and Receipt Voucher forms, with the exception of RNZEME Workshops when demanding on attached stores sections. When necessary because of the tactical situation, time or distance, demands can be made by:

- a. teleprinter message,
- b. telephone,
- c. radio, or
- d. any other suitable means.

3.17 Demand Procedures. The following is a summary of the types of demand procedures used and the purpose of each.

- a. Routine Demands (ROUDEM). Used for normal unit maintenance requirements.
- b. Priority Demand (PRIDEM). Submitted when the requirement is urgent, but

not of OPDEM status.

- c. Operational Demand (OPDEM). Submitted only when the need is operationally vital and the lack of the required item is likely to adversely affect the outcome of the battle.
- d. Staff Demand (STADEM). Used when a unit has an urgent operational need for items to which it has no current entitlement or authorisation.
- e. Equipment Casualty Report (ECR). Submitted by units on occurrence of destruction, loss or damage declared beyond local repair of any of the following:
  - (1) vehicles,
  - (2) crew served weapons,
  - (3) STAND equipment, and
  - (4) communications equipment.

3.18 ROUDEM Procedure. Units raise routine demands on the appropriate supporting supply agency. The supply agency will process these in order of receipt, and will advise units to collect items when ready for issue. Release of scaled ROUDEM items should be achieved within 72 hours.

3.19 PRIDEM Procedure. Any item required to be released within 36 hours, but which is not of OPDEM status, is classified as a PRIDEM. On receipt of the supporting supply agency the PRIDEM is to be given priority of action over all routine demands. PRIDEMS are processed in order of receipt. If the supply agency cannot fulfil the demand, it is to advise CD Sup who will arrange or authorise cross-servicing from other supply units as necessary. Supply agencies are to advise units when PRIDEM stores are available for uplift.

3.20 With the exception of combat supplies most ordnance stores subject to ROUDEM or PRIDEM procedure will be demanded by unit 'B' Echelons in the DMA from the supporting field supply company. Unit 'B' Echelons uplift from the field supply company and delivery forward is by unit first line transport. Where first line transport is not available, delivery may be by second line transport through a distribution point to unit 'A' Echelons.

3.21 OPDEM Procedure. OPDEMs are forwarded by units through command channels to HQ Div Rear with an information copy to HQ Div Main. After acceptance by HQ Div Rear, OPDEMs are given immediate attention. HQ Div Rear is responsible for the following action for all OPDEMs:

- a. Locating the source of supply and arranging for technical inspection when needed.
- b. obtaining release for divisional controlled items, or passing the request back to  
Corps HQ for corps controlled items;

- c. arranging delivery forward to the required location by the fastest means available. Where necessary, delivery may be direct to 'A' or 'F' Echelon areas. In the event of air delivery HQ Div Rear is to raise any NARATs necessary; and
- d. advising the unit (via formation HQ) of means of delivery and ETA.

3.22 Because of the nature of OPDEM requirements and other intangible factors such as availability of supply, the tactical situation, etc, no specific timeframe can be detailed for action of OPDEMs. OPDEMs are to be given priority handling over all other demands.

3.23 STADEM Procedure. Stadems are submitted via command channels using the most appropriate means, ie, written submission, teleprinter message, MD 315 etc. On receipt of a STADEM, HQ Div Main will consider the request and if supported will provide for authority for issue and will pass the STADEM to HQ Div Rear for supply to be made. STADEMs are to be handled in line with the priority afforded to PRIDEMs.

3.24 ECR Procedure. Units submit ECRs direct to HQ Div Rear, info formation HQ as necessary. In the case of a command critical item, the occurrence is also notified to HQ Div Main via command net means. When indicated in the body of the format that a replacement is required the ECR will be treated as a demand and necessary action will be initiated by HQ Div Rear. Apart from OPDEM requirements, the ECR is the only means of initiating routine replacement of A, B and C vehicles.

### Supply Control

3.25 Control of certain items is exercised by the staff at formation or divisional headquarters. The types of control exercised and channels of demand in those cases are detailed in Section 11 to this Chapter.

3.26 Items not subject to staff control may be controlled by the supply agency concerned. Maintenance of stock levels and demanding for replenishment is carried out routinely.

### Distribution

3.27 Except in the case of combat supplies OPDEMs and other exceptions such as engineer stores, unit 'B' Echelons will uplift stores from the supporting field supply company. Delivery forward is by unit first line transport where available, or by second line transport bid for by the unit, with delivery through a distribution point.

3.28 The distribution of combat supplies is detailed in Section 4 to this Chapter.

### Outline Systems

3.29 The outline systems for specific classes of stores are detailed in Sections 3-7 to the Chapter. Annex A to this Chapter outlines the supply of routine and priority demand stores. The supply to operational demand and staff demand stores are at Annexes B and C respectively.

3.30 - 3.34 Reserved.

SECTION 3 - SUPPLY OF CLASS 2 STORES  
(CLOTHING AND GENERAL SUPPLIES)

Introduction

3.35 The requirement for each item in class 2 will vary considerably, and will often be small or unpredictable. It is usual therefore to hold only a limited range of the most commonly used or vital items in the combat zone, while a wider range is essential in the rear areas.

Responsibilities

3.36 Field supply companies only hold a range of fast moving replacement items for units in their dependancies. In addition they hold a range of expendable stores and clothing, sufficient to outfit the equivalent of one rifle company.

3.37 Units hold sufficient clothing and expendable stores to enable issues to be made to subunits and personnel. This holding is replenished by monthly bulk breaks.

Outline System

3.38 Monthly Bulk Demand. Unit requirements for clothing and expendable stores are consolidated on a monthly basis, and forwarded through formation headquarters to HQ Div Rear. CD Sup consolidates the total divisional requirement and forwards this to HQ Corps to effect supply. A specific field supply company is designated to receive the monthly bulk supply, and break it into unit lots as advised by CD Sup. Unit 'B' Echelons uplift their monthly bulk supply when notified by the field supply company.

3.39 Small quantities of clothing and expendable stores may be demanded by units from their supporting field supply companies to meet unforeseen circumstances at times other than monthly bulk demand.

3.40 The supply system for other general stores follows the normal system outlined in Section 2. Unit 'B' Echelons submit demands for non-controlled class 2 items directly on the supporting field supply company. Demands for medical items are submitted as detailed in Section 8.

3.41 Provided adequate stocks are available, unit demands are satisfied by the field supply company. Unit 'B' Echelons uplift from the field supply company and delivery forward is by unit first line transport. Second line stocks are replenished by demands submitted on the supporting field supply battalion in the Communication Zone, and delivery is by third line transport.

3.42 - 3.43 Reserved.

## SECTION 4 - SUPPLY OF CLASS 1, 3 AND 5 STORE (COMBAT SUPPLIES)

### Introduction

3.44 Combat supplies is the collective term used to describe ammunition, rations, and petroleum, oils and lubricants. The term also encompasses water when this is supplied in packaged form. An outline of the supply system is at Annex D to this Chapter.

### Responsibilities

3.45 Logistic staff are responsible for forecasting requirements, establishing policy, providing resources and ensuring that requirements are met.

3.46 RNZAOC are responsible for:

- a. accounting, issuing and holding combat supplies as far forward as the Replenishment Park; and
- b. technical control and accounting within the divisional area.

3.47 RNZCT is responsible for transportation into and within the combat zone, and for their distribution forward of the Replenishment Park.

### Corps Rear Area

3.48 Replenishment Parks. To achieve dispersion, and to permit the ready turnaround of divisional transport, the logistic staff of corps headquarters selects sites where combat supplies can be held to await divisional second line transport. These sites are called replenishment parks, and are established by RNZAOC replenishment park companies. Replenishment parks are normally sited behind but close to the divisional rear boundary.

3.49 Exchange Points. Where it is not possible to site replenishment parks within daily reach of divisional second line transport, Corps or force transport is used to deliver combat supplies to a point within reach of divisional second line transport. The point at which the two transport systems meet is known as an exchange point. At the exchange point, stock is transferred from Corps or force transport to divisional second line transport. An alternative to transferring stock, is to transfer vehicles. There is no facility to hold stock at an exchange point.

### Divisional Area

3.50 Distribution Points. Within divisional area, Distribution Points are established to support brigades and divisional troops. At a Distribution Point, each units combat supplies are transferred from divisional second line transport to unit Echelon vehicles. Empty RNZCT vehicles from the Distribution Point return, through their parent squadron location (for control), to the replenishment park or exchange point where they are reloaded, and return full to the squadron location. Empty RNZCT vehicles leaving the Distribution Point location are replaced with a vehicle containing a similar load from the squadron location.

3.51 The term Distribution Point may include specific commodity points such as Ammunition Points, Petroleum Points or Composite points holding all commodities.

#### Emergency Supply

3.52 Emergency or unforeseen requirements for combat supplies can be provided for from reserve stock held in the Corps area. Transport for such stock is by arrangement with the various transport agencies.

#### Ammunition (Class 5)

3.53 The standard ammunition supply system covers all conventional ammunition including mines, explosives and grenades. The principles on which the supply of ammunition is based are:

- a. ammunition is passed automatically from rear to front;
- b. ammunition is available from ammunition points in the combat zone on a 24 hour basis; and
- c. formal demands are not required from units. Issues are effected on unit authorisations and receipts obtained.

3.54 In addition to the normal scaling of Ammunition points, operations staff may require dumping of ammunition to meet a fire plan or mine laying tasks, or may require additional quantities held in Ammunition Points.

3.55 The number of Ammunition Points will depend on the tactical situation. Normally, one 'all natures Ammunition Point' will serve a brigade administrative or maintenance area. The size of Ammunition Points will vary with quantity and commodities held. Ammunition Points may be established for specific types of ammunition or operation.

3.56 Artillery gun ammunition and mortar ammunition is normally either:

- a. dumped at a location convenient to existing or proposed gun or mortar sites; or
- b. delivered direct to gun or mortar lines.

When possible, Corps or force transport should be requested to complete this task.

3.57 Resupply of tank ammunition and petroleum, oil and lubricants is normally direct to RNZAC Echelons. As with artillery gun ammunition, the use of Corps or force transport to effect delivery is encouraged.

3.58 Units are not required to forecast requirements for ammunition since replenishment is automatic and ammunition is continuously available. Artillery gun ammunition, mines and explosives are however normally subject to staff forecasts. On occasions, certain natures of ammunition may be in short supply, or subject to restricted movement facilities. In these circumstances some degree of staff control may be necessary.

#### Petroleum, Oil and Lubricants (Class 3)



3.59 The term petroleum, oils and lubricants includes all types of petroleum fuels, lubricants, hydraulic and insulating oils, temporary protectives, liquid coolants, de-icing and anti-freeze compounds together with components and additives of such products.

3.60 The division of responsibility between Corps is:

- a. RNZAOC is responsible for accounting, issuing and holding Petroleum, Oils and Lubricants as far forward as the Replenishment Park, and technical control, accounting and issuing within the divisional area.
- b. RNZCT is responsible for holding and distribution of Petroleum, Oils and Lubricants into and within the Combat Zone, and for their distribution forward of the Replenishment Park.
- c. RNZAOC is responsible for the provision of pipeline, pumping equipment, fittings, flexible bulk storage tanks and containers and for their operation and installation, except as outlined in 3.61.d.
- d. RNZE is responsible for the provision and installation of bolted steel storage tanks and associated pipelines, ship to shore delivery systems and the ground preparation for flexible equipment used by RNZAOC.

3.61 The principles on which supply of petroleum, oils and lubricants are based are:

- a. In addition to operating stock, units hold a designated reserve of liquid fuels. For vehicles and plant this reserve is expressed in kilometre per vehicle or running hours per plant equipment;
- b. units hold in addition to operating stocks, two days reserves of oils and lubricants;
- c. oils and lubricants are subject to formal demands and issued through Distribution Points;
- d. fuel issues to unit vehicles, including the refilling of vehicle jerrycans are normally at pre-arranged times daily;
- e. the exchange of empty Unit Bulk Refuelling Equipment fuel pools for bulk user (RNZE, RNZAOC and RNZCT) is normally on a one for one basis at Distribution Points. Special arrangements may be necessary from time to time.
- f. jerrycans for other than routine vehicle refuelling purposes (see 3.61.d) are subject to formal demand and supply through Distribution Points.

## Rations (Class 1)

3.62 Rations are the balanced daily entitlement to food for personnel and animals. Operational rations are classified as:

- a. Field. Field rations are the basic ration for group feeding when kitchen facilities are available in combat and non combat areas. Field rations may be fresh food, tinned equivalent food or, a combination of both.
- b. Combat. Combat rations are ration packs for feeding where the tactical situation precludes the use of field rations.
- c. Special. Special rations are those for use in specialised operations, different racial or religious groups, prisoners of war and hospitals where field or combat rations are unavailable or unacceptable.
- d. Survival and Emergency. Survival and emergency rations provide subsistence when no other rationing means is available.

3.63 Rationing policy will be established by corps or divisional staff dependant on the tactical situation and the availability of food type. The general concept of rationing is based on the principle that troops should be fed on fresh field rationing whenever possible. Centralised cooking of fresh food is practised whenever possible.

3.64 Rations are collected daily from Replenishment Parks by divisional second line transport. Units may uplift rations at either Distribution Points or from the Combat Supply Platoon locations. When necessary Combat Supply Platoon personnel may be required to break rations into unit loads. The effort needed to break into unit loads diminishes when issuing combat, special, or survival and emergency rations as these are prepacked.

3.65 Formation staff prepare a forecast of rations four days in advance of the requirement to enable provisioning action. Daily fighting strength states are used as a basis for monitoring the ration requirements.

3.66 Unit Echelon vehicles are responsible for uplifting rations. Where a unit is unable to uplift rations for tactical reasons, Commander Divisional transport is responsible for arranging delivery.

## Water (Class 1)

3.67 All units are responsible for provision of their own water. When local supplies are not available, or are not potable, water is issued in accordance with logistic staff directions, either direct to units or more usually in packaged form as a combat supply commodity.

3.68 Where potable water is not available, and logistic staff assume responsibility for water supply, the responsibilities are:

- a. Staff. The staff is responsible for:

- (1) The allocation of water resources;
- (2) the control of water points; and
- (3) the arrangements for any additional requirements such as bulk water vehicles, containers or labour.

b. RNZE. RNZE is responsible for:

- (1) advice to the staff on water availability;
- (2) the establishment, operation of and purification at water  
and
- (3) the development of permanent and semi permanent water installations as required.

c. RNZCT. RNZCT is responsible for:

- (1) the operation of bulk water vehicles; and
- (2) delivery to units either directly or through Distribution Points.

d. RNZAMC. RNZAMC is responsible for testing water and advice on purification methods.

e. RNZAOC. RNZAOC is responsible for:

- (1) the provision of purification of chemicals;
- (2) the provision of water jerrycans as required; and
- (3) the storage, accounting and issue of water in packaged form.

points;

3.69 - 3.70

Reserved.

## SECTION 5 : SUPPLY OF CLASS 4 STORES (CONSTRUCTION)

### Introduction

3.71 Class 4 stores are those construction stores utilised by RNZE for the construction of buildings, repair of roading and bridging, and preparation of field defences. The system of supply for Class 4 is diagrammatically outlined at Annex E.

### Holdings

3.72 Stocks of Class 4 stores are held as follows:

- a. RNZE
  - (1) Field Engineer Regiment (Divisional Area);
  - (2) Engineer Support Squadron (Divisional Area); and
  - (3) Corps Engineer Support Regiment (Corps Rear Area).
- b. RNZAOC
  - (1) Field Supply Company; and
  - (2) Field Supply Battalion (Communications Zone).

3.73 Minimal stocks will normally be held within the Combat Zone. Stocks held by RNZE units are primarily for engineer taskings. Stock held by Field Supply Companies are normally limited to small quantities of defence stores, sandbags, pickets, etc.

### Demand

3.74 For a given operation, Commander Divisional Engineers will allocate Class 4 stores in accordance with operations staff requirements. The allocation may be based on either:

- a. unit bids;
- b. allocation where a shortage is envisaged; or
- c. a compromise of a and b above.

3.75 The allocation is normally advised as part of the Operation Order published by Divisional Headquarters (Main).

3.76 Minor requirements at times other than during the preparatory stage of an operation are available through supporting field supply companies.

## Supply

3.77 Units are responsible for the uplift of Class 4 stores demanded from field supply companies, as for Class 2 stores.

3.78 Class 4 stores for specific operations will be supplied from either:

- a. engineer dumps within the Combat Zone; or
- b. from Field Supply Battalion stocks in the Communications Zone.

## Delivery

3.79 Class 4 stores for specific operations will be delivered to units by either:

- a. Second Line Transport, where stock is issued from Combat Zone resources;
- b. Third Line Transport, where stock is issued from the Communications Zone.

3.80 - 3.81 Reserved.

## SECTION 6: REPLACEMENT OF ARMOURED VEHICLES

### Armoured Replacement Vehicles

3.82 The following units are available within the Corps to provide armoured replacement support:

- a. Forward Delivery Troop (Divisional Troops).  
This unit is organic to the division and is normally located in the divisional maintenance/administrative area. its role is to provide crewed replacement armoured fighting vehicles to armoured units organic to the division.
- b. Forward Delivery Troop (Corps Troops). This unit is a detachment from Corps troops Forward Delivery Squadron, and when provided will be located in the divisional maintenance/administrative area. Its role is to provide  
crewed replacement armoured fighting vehicles and fire support vehicles to armoured units allocated to the division from corps.
- c. Forward Delivery Squadron. This unit is a Corps unit (the parent unit of 3.82.b above), and is located in the Corps maintenance area. Its role its to deliver vehicles to units or forward delivery troops with a minimum crew of two.

### Reserve Vehicles

3.83 Scale of Reserves. The normal initial scale of reserves, as a percentage of combat unit entitlement is:

- |    |   |     |
|----|---|-----|
| a. | Main Battle Tanks and Fire Support Vehicles   | 25% |
| b. | Armoured Command Vehicles, Armoured Personnel Carriers (including derivatives). Tracked Load Carriers | 20% |
| c. | Specialist Armoured Fighting Vehicles   | 10% |
| d. | Self Propelled Guns   | 15% |

3.84 Distribution of Reserves. Distribution of reserve holdings within the area of operations is normally:

- a. Communication Zone. Held by Field Supply Battalions, as a percentage of total combat unit entitlement in the area of operations:
  - (1) Main Battle Tanks and Fire Support Vehicles 4%
  - (2) Armoured Command Vehicles, Armoured Personnel Carriers (including derivatives), Tracked Load Carriers 10%

- |     |     |   |     |
|-----|-----|---|-----|
|     | (3) | Specialist Armoured Fighting Vehicles   | 5%  |
|     | (4) | Self Propelled Guns   | 5%  |
|     | b.  | <u>Forward Delivery Squadron (Corps Maintenance Area).</u> The percentage is of combat unit entitlement of armoured units within the Corps;   |     |
|     | (1) | Main Battle Tank and Fire Support Vehicles  | 8%  |
|     | (2) | Armoured Command Vehicles, Armoured Personnel Carriers (and derivatives), Tracked Load Carriers   | 10% |
|     | (3) | Specialist Armoured Fighting Vehicles   | 5%  |
|     | (4) | Self Propelled Guns   | 10% |
|     | c.  | <u>Forward Delivery Troop (Divisional Troops).</u> Located in the divisional maintenance/administrative area. The percentage is of combat unit entitlement of armoured units organic to the division:           |     |
| 13% | (1) | Main Battle Tanks and APC's   |     |
|     | d.  | <u>Forward Delivery Troop (Corps Troops).</u> Located in the divisional maintenance/administrative area. The percentage is of combat unit entitlement of scaled corps armoured units allocated to the division; |     |
|     | (1) | Main Battle Tanks   | 13% |
|     | (2) | Fire Support Vehicles   | 13% |

### Responsibilities

3.85 Corps Area. Within the Corps area, responsibility for replacement of armoured vehicles are:

- a. RNZAOC. RNZAOC is responsible for:
- (1) receipt, storage and issue of vehicles, to the Forward Delivery Squadron located in the Corps Maintenance Area;
  - (2) the kitting out of replacement armoured vehicles; and
  - (3) the provision of CES items.
- b. RNZEME. RNZEME is responsible for the installation of fixed CES items, and pre-receipt and pre-issue serviceability checks.

c. RNZCT. RNZCT is responsible for the delivery of armoured vehicles to the Forward Delivery Squadron where this is effected by road trailer.

d. RNZAC. The Forward Delivery squadron is responsible for:

(1) reception of vehicles from supply and repair organisations;

(2) fitting loose items of CES to armoured fighting vehicles;

(3) servicing of vehicles;

(4) maintaining holdings at approved levels;

(5) reception of crewmen from reinforcement holding unit or hospital;

and

(6) delivery of vehicles to units or forward delivery troops, as directed by the staff, ready for combat with a minimum crew of two.

3.86 Divisional Area. Within the divisional area, responsibility for replacement of armoured vehicles rests with the forward delivery troops:

a. reception of vehicles from the forward delivery squadron;

b. maintaining holdings at approved level;

c. reception of crewman from field ambulances/field hospitals;

d. completing the manning of vehicles where necessary;

e. servicing;

f. completing combat preparation as necessary; and

g. delivering fully crewed, equipped and combat ready vehicles to combat units as directed by the staff.

3.87 Staff Responsibilities. Staff as appropriate levels are responsible for:

a. establishing the levels of holdings within the supply and forward delivery organisations;

b. siting forward delivery units;

c. releasing men and vehicles from forward delivery units to combat armoured units in accordance with tactical requirements; and

d. directing the distribution or repaired vehicles from the repair organisation to either the supply system or forward delivery organisations.

## Replacement System



3.88 The replacement system for armoured vehicles is:

- a. Demand Action. Vehicles destroyed, lost or classified beyond local repair (to be evacuated beyond divisional rear boundary) are reported, on occurrence, to headquarters Division (Main). The report is followed by the submission of an equipment casualty report by the owner unit to

Headquarters

Division (Rear). When indicated in the body of the form that a replacement is required, the equipment casualty report will be treated as a replacement demand, and staff action for release of a replacement vehicle. Where the vehicle belongs to a unit under command of corps, the same system is used, but the equipment casualty report is sent to Headquarters Corps Main and Rear.

- b. Repaired Vehicles. Repaired vehicles from workshops within the Combat Zone, where the vehicle has already been replaced in the combat unit, are delivered to either the forward delivery squadron or one of the forward delivery troops, as directed by the staff. Normally, the repaired vehicle will be delivered to the forward delivery squadron.

3.89 The outline system of armoured replacement is at Annex F.

3.90 - 3.91 Reserved.

## SECTION 7 : SUPPLY OF CLASS 7 STORES (PRINCIPLE ITEMS)

### EXCLUDING ARMoured FIGHTING VEHICLES

#### Stocking

3.92 Class 7 stores are not normally held within the divisional area. Limited holdings of specific items may be held from time to time, however as a repair and maintenance pool, (normally held by Field Supply Company, Divisional troops) depending on the tactical situation.

3.93 Replacement Class 7 stores are more usually held in the Corps Supply Battalion, under the control of Corps Headquarters, as combat reserve stock. This stock, by nature of its size, the difficulty of moving it on one move, and its critical nature, is usually minimal. Some stock may be held by communications zone Field Supply Battalion under the control of Corps Headquarters.

#### Demand System

3.94 The equipment casualty report is the means of demanding for replacement Class 7 stores. The equipment casualty report is submitted to Headquarters Division (Rear) for information commanding Brigade Headquarters. In the case of a divisional troops unit not allocated under the command of a brigade, the information copy is passed to Headquarters Division (Main).

#### Release Authority

3.95 The authority to release replacement Class 7 stores is controlled by two factors:

a. the existence of a repair and maintenance pool within the divisional areas;  
and

b. class 7 stores are normally subject to some form of staff control. (See  
Section 10 of this chapter).

3.96 Where stock is held within a divisional repair and maintenance pool, authority for release is necessary from Division Headquarters, in accordance with the degree of staff control imposed.

3.97 Where no repair and maintenance pool exists, or when stock is not available from the repair and maintenance pool, release authority from Corps Headquarters is required. Stock is then issued from the Corps Supply Battalion, or Corps stock held in the communications zone.

3.98 The system of release authority is repeated back through the communications zone until stock is located and release provided or withheld.

## Supply System

3.99 Annex G to this chapter outlines the supply of Class 7 stores, excluding engineer Class 7 stores.

3.100 Where stock is held in a divisional repair and maintenance pool (Field Supply Company, Divisional Troops) the item is issued to the unit. Delivery is effected either:

- a. by unit uplift, (first line transport); or
- b. in the case of a vehicle, (excluding engineer C vehicles and plant) by RNZAOC driver to a vehicle rendezvous point; or
- c. if a small item, through the distribution point system.

3.101 Where stock is issued from Corps or communications zone holdings, the item is passed forward by second line, third line or a combination of second and third line transport to the divisional area, and delivery effected as outlined in 3.88a-c.

3.102 The choice of delivery means is largely dependant on the tactical importance of the item under supply.

## Replacement of Engineer Class 7 Stores

3.103 Within the Combat Zone an Engineer Park will be established. This park is manned by RNZE personnel. Engineer plant and C vehicles will be replaced through this park. RNZAOC is not involved in the replacement of Engineer Class 7 Stores forward of the communications zone.

3.104 Engineer units requiring replacement Class 7 stores other than specifically engineer use plant and C vehicles utilise the system outlined in paragraphs 3.81 and 3.90.

3.105 Control of the Engineer Plant will be according to the brigading policy in force for the operation.

3.106 - 3.107 Reserved.

SECTION 8 : SUPPLY OF CLASS 8 STORES  
(MEDICAL STORES)

Introduction

- 3.108 For the purpose of supply, Class 8 stores are divided into two categories:
- a. Non controlled expendable medical stores. This includes common user items such as:
    - (1) bandages;
    - (2) band aids;
    - (3) lotions (antiseptics, insect repellent etc);
    - (4) sterilisation tablets; and
    - (5) mid analgesic;
  - b. Controlled medical consumable stores, such as:
    - (1) drugs;
    - (2) blood products;
    - (3) anaesthetics; and
    - (4) sutures.

System of Supply

3.109 Stores in 3.97.b are supplied through the medical system. Medical units demand on the next medical unit behind it. These stores are not handled by RNZAOC within the Combat Zone. The outline system of supply for Class 8 stores is at Annex H to this chapter.

3.110 Stores in 3.97.a. are supplied through the supply system to demanding units. These stores may be passed forward either:

- a. from the Replenishment Park through Distribution Points. This method is likely to be used for high consumption items such as individual field dressings;  
or
- b. through the Field Supply Company (Divisional Troops).

### Demands and Issues

3.111 Units submit demands on the Field Supply Company (Divisional Troops) except as indicated in paragraph 3.99.a. Unit Echelons uplift stores from the Field Supply Company (Divisional Troops) and deliver forward by first line transport. Where first line transport is not available, stores may be moved to distribution points by second line transport.

3.112 Where the item demanded has a control imposed by staff, see Section 10 of this Chapter.

### Urgent Requirements

3.113 Where a unit has an urgent requirement that cannot be met by the priority of operational demand system, small quantities of stores may be issued through medical units.

### Replenishment

3.114 The Field Supply Company (Divisional Troops) replenishes its stock by demanding on the supporting Field Supply Battalion in the communication zone. Delivery is by third line transport.

### Reserves

3.115 Combat reserves of Class 8 stores are held by the Corps Supply Battalion.

3.116-3.117 Reserved.

SECTION 9 : SUPPLY OF CLASS 9 STORES  
(REPAIR PARTS AND COMPONENTS)

Introduction

3.118 Repair parts and components numerically make up the major part of the army inventory. The range of items held will vary depending on the scale of operations and the equipment repair and recovery policy. The requirement for each item will vary considerably, and will often be small or unpredictable. It is usual to hold only a limited range of the most commonly used or vital items in the Combat Zone, with a wider range held in the Communications Zone, Annex I diagrammatically outlines the system of supply for Class 9 stores.

Holdings

3.119 Stocks of Class 9 items are held as follows:

a. RNZAOC

Company

- (1) Field Supply Company Divisional Troops. The Field Supply (Divisional Troops) holds Class 9 stores for the light aid detachments and 'B' Echelons of divisional troops, less the Infantry Brigades.
- (2) Field Supply Company. The Field Supply Company holds Class 9 stores, for supported Brigade Headquarters, signals squadron and assigned Infantry Battalions.
- (3) Field Workshops Stores Section. The Field Workshop Stores Section holds Class 9 for their parent workshops. These consist of parts for second line repairs, the range of Class 9 stores held is therefore wider than those held by field supply companies.

Demands

3.120 The demand system for Class 9 stores is as follows:

- a. Brigade Headquarters, Signals Squadron and Assigned Infantry Battalions. A Brigade Headquarters, Signals squadron and its assigned Infantry Battalion's demand on a supporting Field Supply Company. Where the Full Supply Company cannot meet the requirement, the Field Supply Company will either:
  - (1) place a demand on the supporting Field Supply Battalions (Communications Zone); or
  - (2) through Commander Divisional Supply, obtain the required stores from another Field Supply Company. This process is known as cross servicing.

b. Divisional Troops. Divisional troops, less Infantry Battalions assigned to Brigades, demand on Field Supply Company (Divisional Troops). Field Supply Company (Divisional Troops) will react as detailed in 3.120a. (1) (2) above.

(Divisional

c. RNZAOC Units. Field Supply Companies, Field Supply Company Troops) and Field Workshops Stores Section place demands on the supporting Field Supply Battalion (Communications Zone) to replenishment and inscaling of Class 9 stores. Third line transport effects delivery.

3.121 Demands for Class 9 stores over which staff have placed a degree of control are dealt with as detailed in Section 9 of this chapter. Cross servicing between RNZAOC units is actioned through Commander Divisional Supply.

### Delivery

3.122 Units are responsible for uplifting stores from the supporting Field Supply Company. Where unit First Line transport is not available Class 9 stores may be delivered through Distribution Points by Second Line Transport.

### Field Workshops Stores Section

3.123 Stores Sections of Field Workshops operate an over the counter service to their parent workshop. No formal demands are necessary, and as the Stores Section is located as an integral part of the workshop, no delivery is required.

3.14-3.125 Reserved.

## SECTION 10 : PROVISION OF ORDNANCE SERVICES

### General

3.126 Commander Divisional Supply commands assets to provide the following ordnance services to the division:

- a. shower;
- b. laundry; and
- c. bakery.

3.127 All Field Supply companies have an organic shower facility, capable of showering up to 1600 troops daily. The shower unit also has the capability to provide a nuclear, biological and chemical decontamination facility.

3.128 A Field Supply Company (Divisional Troops) has an organic laundry facility, capable of laundering up to 900 kilograms (dry weight) per day.

3.129 Reserved.

### Shower

3.130 Each Field Supply Company operates two shower detachments, each capable of providing shower facilities and a change of underclothing for 800 troops.

3.131 A field supply company in support of a brigade will provide priority of effort to that brigade. Brigade Headquarters will allocate shower taskings to the Supply Company based on:

- a. unit bids for shower facilities; and
- b. known operational priorities.

3.132 Divisional troops in support of a brigade will normally use the showering facilities provided for that brigade.

3.133 Field Supply Company (Divisional Troops) will provide shower facilities for:

- a. troops in the Divisional Maintenance/Administrative Area; and
- b. Divisional Troops not allocated to brigades, nor in the Divisional

Maintenance/

Administrative Area.

3.134 Shower unit taskings for the Field Supply Company (Divisional Troops) will be controlled through Headquarters Divisional Supply. Priority for the showering tasks will be allocated by Headquarters Divisional (Rear).



### Laundry

3.135 The laundry section of Field Supply Company (Divisional Troops) will normally be located with the Field Hospital, and provide priority of effort to that unit. Surplus laundry capacity is used to launder uniforms etc returned from Field Supply Companies.

3.136 The laundry unit does not provide laundry facilities for the personal clothing of servicemen.

### Bakery

3.137 - 3.140 Reserved.

## SECTION 11 : CONTROL OF STORES

### General

3.141 Distribution of supplies, equipment and stores in the Combat Zone is in accordance with entitlement documents, instruction and usage. From time to time it is necessary to restrict or control the issue and holding of certain items. The method of achieving control is by declaring an item as one of the following:

- a. Critical Item, Supply or Material. Those supplies vital to the support of operations, which owing to various reasons are in short supply or expected to be in short supply.
- b. Regulated Item. An item over which a designated authority exercises close supervision of the distribution to individual units or commands because the item is scarce, costly or of a highly technical or hazardous nature.
- c. Command Critical Item. An item selected by the commander as operationally vital to the success of his plan. Critical items, supplies or material may be declared critical if their scarcity threatens the conduct of operations.

### Critical Item, Supply or Material

3.142 A list of critical items, supplies and material is produced on a routine (usually fortnightly) basis by Headquarters Division (Rear).

3.143 Commander Divisional Supply constantly monitors the bulk holdings of critical items, supplies or material. Supply organisations within the Division report transactions of critical items, supplies and material on a daily basis, to Commander Divisional Supply.

3.144 When a critical item, supply or material warrants closer monitoring, Commander Divisional Supply will inform the Staff Officer Grade One, Personnel and Logistics so that unit holdings can be assessed to provide the total divisional asset. If necessary, Headquarters Division (Main) may be informed so that the item can be added to either the regulated or command critical item listings.

3.145 Commander Divisional Supply, in consultation with Staff Officer grade One Personnel and Logistics is responsible for the production of the critical item list.

3.146 Demands for critical items, supplies or material are forwarded through normal channels to the supply agency. The supply agency will meet the demand as if the item had no measure of control imposed on it, and carry out reporting action (paragraph 3.143) on a daily basis. No specific authority other than that provided by entitlement documents is required for the release of critical items.

### Regulated Item

3.147 A list of regulated items is produced on a routine (usually fortnightly) basis by Headquarters Division (Rear). Items that in peace are controlled stores can reasonably be expected to be designated regulated items. The regulated items listing will include unit entitlements and holdings.

3.148 Operations staff at Headquarters Division (Main) identify items to be regulated. Headquarters Division (Rear) is responsible for promulgating changes to the regulated item list, maintaining accurate records of regulated items and promulgation of the routine listing.

3.149 When an item is declared regulated unit holdings and entitlements will be established, and bulk stock levels checked. Where necessary, redistribution will be made. Holdings will then be confirmed by the routine regulated item listing.

3.150 All demands, issues and requests for redistribution are forwarded through command channels (unit to Brigade Headquarters, who forward it to Headquarters Division (Rear)) for operations staff approval.

3.151 Loss of a regulated item must be reported through command channels to operations staff.

### Command Critical Items

3.152 A list of command critical items will be distributed by Headquarters Division (Main) prior to each operation.

3.153 Once an item is declared command critical all stock movements, distribution, replacement use or consumption, other than as ordered for the operation, must receive prior authority from the Divisional Commander.

3.154 When an item is declared command critical either the entire holding, or a portion of it may be so designated. In the case of a portion of assets (for example 80%) being declared critical, the unit must immediately report to the commander when entitlement, holding or allocation is reduced by loss or consumption by more than 20%. Thereafter all losses or consumption are to be reported via the command net to the Divisional Commander and followed up with an equipment casualty report.

3.155 Bulk holding units will report stock status on command critical items to Headquarters Division (Rear) on a daily basis. Headquarters Division (Rear) reports the bulk stock status to Headquarters Division (Main) on a daily basis.

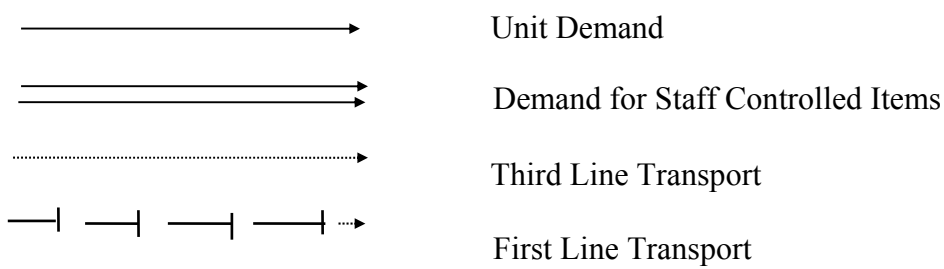
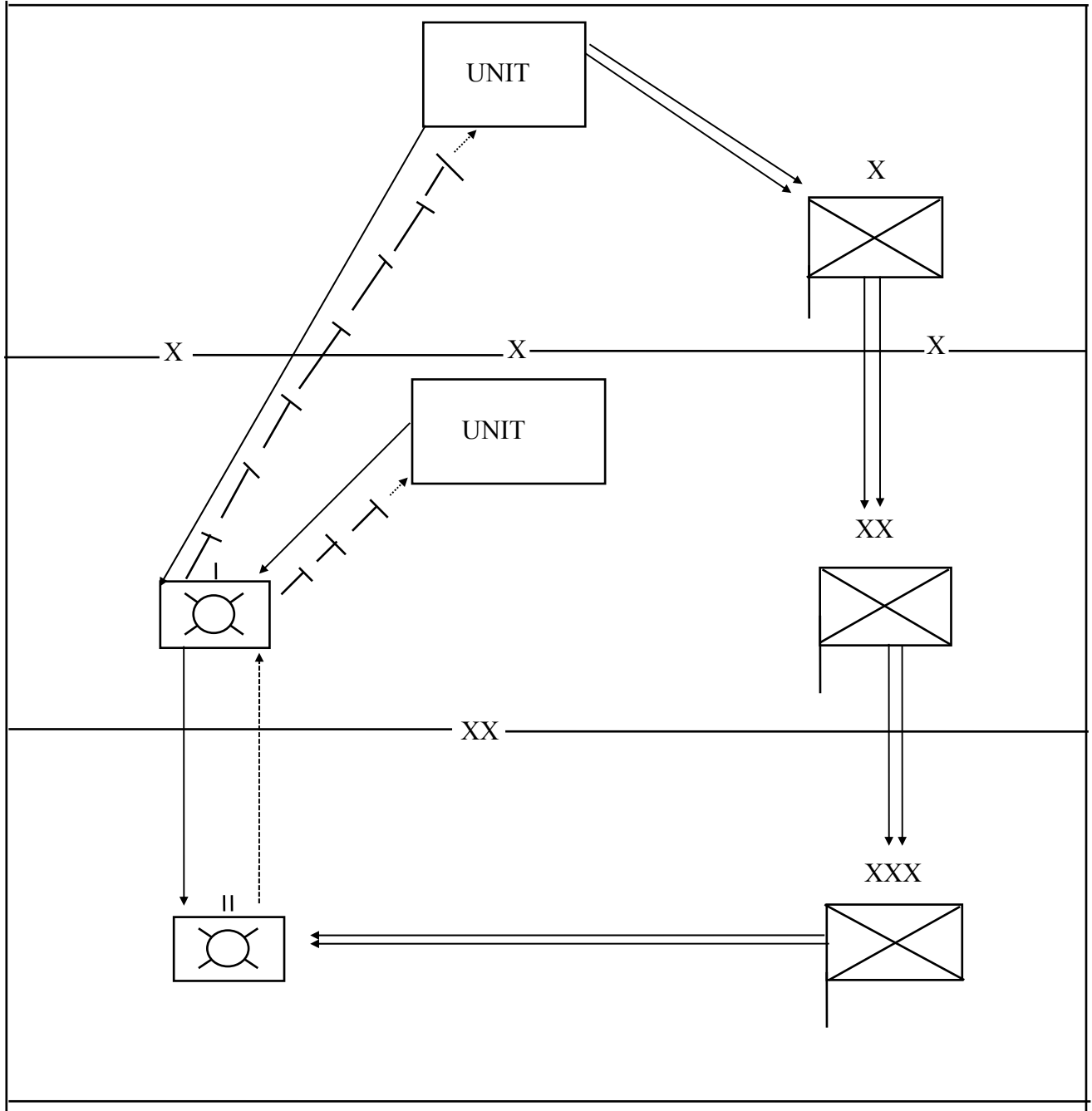
3.156 Demands for command critical items are forwarded through normal channels to Headquarters Division (Main) for release authority. The demand will then pass to Headquarters Division (Rear) for supply action.

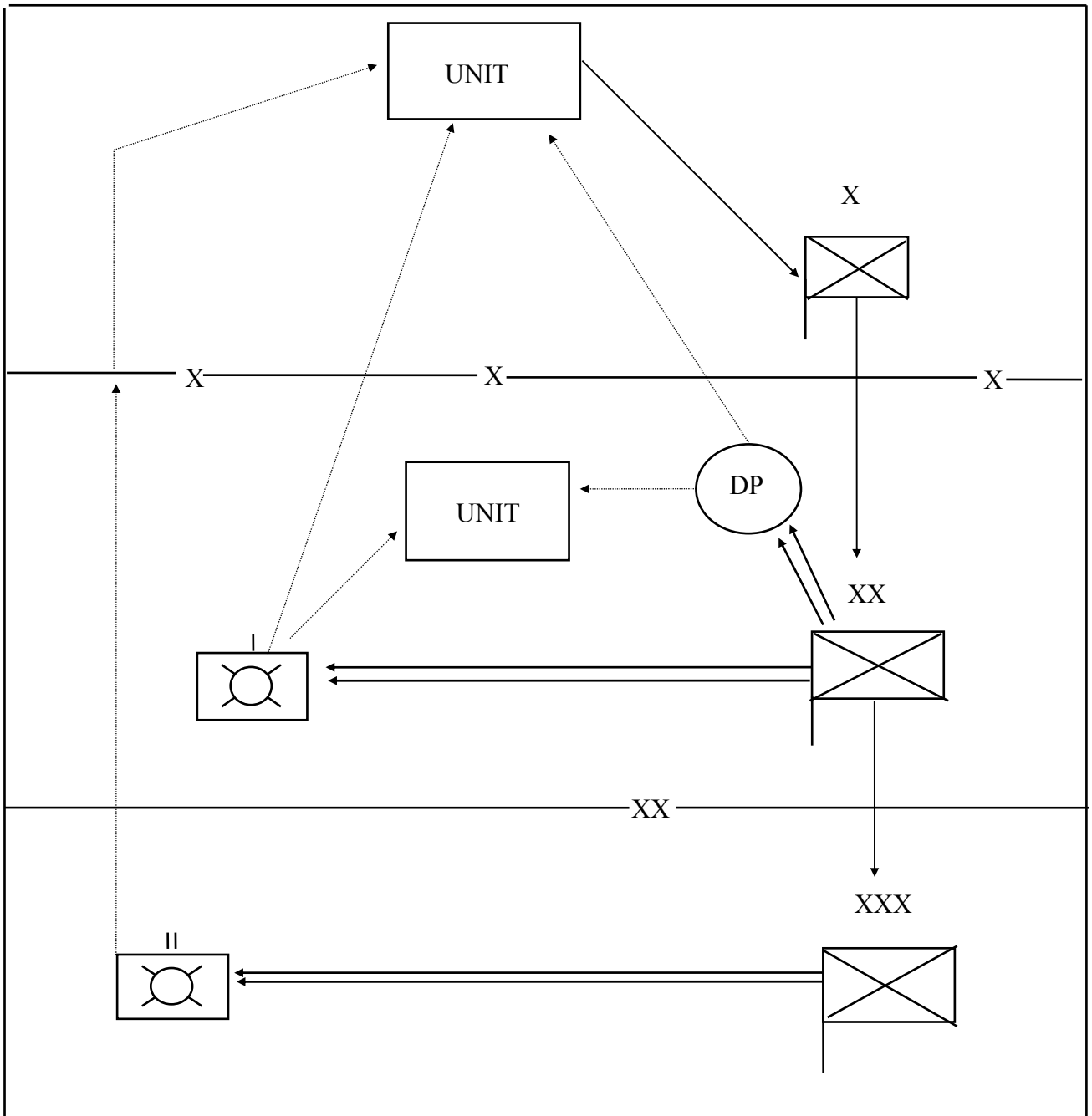
3.157 - 3.158 Reserved.


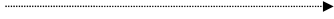

SECTION 12 : SYSTEM OF SUPPLY RRF AND IEF

3.159 To be issued later.

SUPPLY OF ROUTINE AND PRIORITY DEMAND STORES





-  Demand
-  Issue
-  Release Authority

DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS

PART II - FIELD OPERATIONS

CHAPTER 4: FIELD SUPPLY COMPANY OPERATIONS

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## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 4 - FIELD SUPPLY COMPANY OPERATIONS

##### SECTION 1 - ROLE, CHARACTERISTICS, ORGANISATION AND TASKS

###### General

4.1 The field supply company is a mobile stores holding unit, designed to provide direct, intimate ordnance support to units of up to brigade size. It is a direct support unit, providing on hand, a range of fast moving second line stores.

4.2 The Role, Characteristics, organisation and tasks of a field supply company are provided at Chapter 2, paragraph 2.18 - 2.21 to this Volume.

4.3 The tasks of the elements of a field supply company are as follows:

- a. Company Headquarters. Company headquarters provides the command and administration of the company.
- b. Stores Platoon.
  - (1) Headquarters. The headquarters of the stores platoon implements provision and accounting functions for the four stores holding sections.
  - (2) Defence and Camouflage Stores Section. The Defence and Camouflage Stores Section provides a limited range of defence stores and camouflage stores (Classes 2 and 4) to the supported formation.
  - (3) Vehicle Spares Section. The Vehicle Spares Section provides vehicle spares (Class 9) to the supported formation.
  - (4) Clothing/General Stores Section. The Clothing/General Stores Section provides clothing and general stores (Class 2 stores) to the supported formation.
  - (5) Technical Stores Section. The Technical Stores Section provides technical stores (Class 9) to the supported formation.
- c. Services Platoon.
  - (1) Headquarters. The headquarters of a service platoon controls the operation of Distribution and Salvage, and Bath sections to the supported formation.
  - (2) Distribution and Salvage Section. The Distribution and Salvage section provides for:



- (a) the distribution of stores in transit either directly consigned to supported units, or stores subject to routine bulk breaks; and
  - (b) the operation of salvage collection points.
- (3) Bath Section. The Bath Section provides showering facilities and arranges for a change of underclothing for up to 1600 men per day.

4.4 - 4.6 Reserved.

## SECTION 2 - COMMAND AND CONTROL

### General

4.7 A field supply company may be employed at any location within an area of operations. Command and control relationships will vary depending on the nature of the force supported. It is envisaged that the field supply company will be deployed in a divisional setting but can be in support of an independent brigade.

### Divisional Operations

4.8 When operating in a divisional setting, the field supply companies will be under command Commander Divisional Supply. Commander Divisional Supply will allocate field supply companies in support of specific brigade and/or additional division troops.

4.9 Within a divisional operation it is possible that an independent force may be created for a specific mission. For this type of operation, a field supply company may be placed under command of that independent force, but with technical control retained by Commander Divisional Supply. In this type of operation the field supply company commander is the senior RNZAOC representative and will assume the responsibilities of Head of Service detailed in Chapter 2, Section 2, paragraph 2.35.

### Independent Brigade Operations

4.10 When an independent brigade does not form part of a divisional operation, an SO2 Ordnance will usually be appointed to the brigade headquarters. The Brigade Ordnance Officer has technical command only of the field supply company. Operational command would normally be exercised by the brigade commander through his logistic branch.

4.11-4.13 Reserved.

## SECTION 3- SITING AND LAYOUT

### General

4.14 A field supply company is usually located with other service units in a maintenance area. (Descriptions of maintenance areas are found in the Manual of Land Warfare Part 1 Vol 1 Pamphlet 6).

4.15 When two or more field supply companies are in a maintenance area they may be co-located with all field supply companies in the same area, or they may be grouped with the service units of the brigade they would normally support. The former allows for a ready inter-change of stores between field supply companies, whereas the latter enables a brigades service support units to be withdrawn, if required, without disruption to the maintenance area layout. The decision to layout the maintenance area in either method rests with the divisional headquarters staff advised by Comd Divisional Supply.

### Siting

4.16 A field supply company will be allotted ground within a maintenance area by the officer appointed by division or brigade headquarters to command and co-ordinate the maintenance area. Because the layout of a maintenance area should be closely co-ordinated, the area allotted to a field supply company will rarely be ideal, nor may it allow for many variations of layout.

4.17 The requirements for a field supply company site are:

- a. reasonable concealment from ground or air surveillance,
- b. hardstanding for vehicles and stores,
- c. space for the dispersal of stocks and personnel,
- d. adequate parking area for visitors' vehicles,
- e. ready access to main supply routes or to an airfield, and
- f. internal tracks or ground suitable for development as internal tracks.

### Layout

4.18 There is no standard layout for a field supply company and the circumstances existing at the time, ground, nature of the threat, proximity of roads and airfields will all influence the layout adopted. Whether the field supply company is mobile or static will not greatly effect the general concept of a layout. In general, the layout should be in accordance with the following principles:

- a. Unit administrative areas must be separated from technical areas.
- b. There should be only one access route to, and one exit route from the field supply company.
- c. Traffic within the field supply company must be controlled and kept to a minimum.
- d. The layout should be functional, so that vehicles collecting or

delivering stores follow a logical flow.

- e. Sub sections of the unit should be grouped together.
- f. The stores platoon headquarters should be convenient to stores areas and visitors entrance points.
- g. Adequate work areas must be allowed for sorting stores at maximum activity periods.
- h. The layout must incorporate the principles of defence.

4.19 A diagram showing one possible layout for a field supply company is shown at Annex A.

4.20 Efficient deployment of a field supply company in a new location is primarily dependent on the efficiency of the reconnaissance and advance parties. The reconnaissance party should select the site for each vehicle and shelter, which are to be indicated by a marker stuck into the ground. On the occupation of the site, the removal of foliage is to be kept to a minimum.

### Signs

4.21 Military Police will signpost the field supply company along the main supply route. The field supply company is required to signpost from the main supply route and within the unit.

4.22-4.24 Reserved.

## SECTION 4 - DEPLOYMENT PROCEDURES

### General

4.25 Deployment may involve the movement of all or part of the unit from one location to another. Field supply company deployment procedures are essentially the same as those of any other unit or sub-unit. The following paragraphs provide a general description of deployment procedures as they apply to field supply companies. They should be modified to suit each particular situation.

### Groupings for Deployment

4.26 Normal deployment groupings apply to a field supply company. These are as follows:

- a. Reconnaissance Group. The reconnaissance group is based on a reconnaissance officer, normally the company commander. He may be assisted by any or all of the following elements:

- (1) One of the staff of this headquarters;
- (2) a protective party;
- (3) a communications element.

- b. Orders Group. The orders group consists of those who directly receive the commander's orders and take action to implement his plan. It normally includes the reconnaissance group plus the platoon commanders or second in command

as

applicable.

- c. Main Body. The main body consists of the remainder of the unit less the reconnaissance group.

- d. Harbour (Reconnaissance) Party. On arrival at the new location, or when it is necessary for the company to harbour during deployment, a harbour party will

be

detailed. This party usually comprises of the Company 2IC and section guides. The functions of this party may vary but normally include:

- (1) detailed reconnaissance of an area to be temporarily occupied;
- (2) preparation of the area, including signposting if required;
- (3) guiding the main body into the area; and
- (4) protection of the area, including provision of clearing patrol, sentries and pickets.

### Sequence of Deployment

4.27 If deployment is to proceed smoothly, time must be allowed for planning, reconnaissance and issue of orders at all levels as well as the actual movement involved. Before any deployment or operation, no matter how small, all ranks involved must know exactly what they have to do, where they have to go and what support, if any, is involved. Deployment procedures generally consist of five stages:

- a. Issue of warning order;
- b. Issue of preliminary orders to the orders group;
- c. Commander's reconnaissance;
- d. Issue of final orders to the orders group or to a co-ordinating conference; and
- e. Execution of deployment.

4.28 An aide-memoire depicting activities associated with the execution of deployment is shown at Annex B.

### Warning Order

4.29 The first action of the commander on receipt of an order is to alert his own subordinates. This is done by means of a warning order. The essential elements are that it must:

- a. start with the words 'warning order';
- b. give the task and date;
- c. give the approximate timings or degree of notice to move;
- d. give the time and place for orders, and;
- e. give any other information which will allow subordinates to plan ahead.

4.30 During this warning stage the unit should commence preparation to move. Matters which should be attended to on receipt of the warning order include:

- a. Road Movement Planning. Road movement planning detail is included in the Australian Army Manual of Land Warfare, Part 1, Volume 6, Pamphlet No 1, Staff Duties in the Field, Section 28. In a field supply company the following should occur:
  - (1) In the case of an independent movement the company is to calculate movement data and obtain road clearance and the like for the movement.
  - (2) If the road movement plan has been issued by the staff, as in the case of a major movement, then calculations should be checked and any variation notified to the appropriate higher authority.

- b. Administration. The administration involves:
- (1) striking of tents,
  - (2) meals,
  - (3) packing of stores and equipment,
  - (4) additional servicing,
  - (5) necessary adjustments of loads or vehicle configurations,
  - (6) arrangements for non-running vehicles,
  - (7) adjustments to defences, including salvage defence stores, and
  - (8) removal of camouflage.

#### Preliminary Orders

4.31 The commander should consider giving preliminary orders before leaving on his reconnaissance. Such orders will assist action by subordinates and should, where possible include:

- a. type of movement;
- b. routes;
- c. timings;
- d. order of march;
- e. command and groupings for move;
- f. rendezvous, and;
- g. deployment at the destination.

#### Reconnaissance

4.32 After receiving initial orders and before departing on his reconnaissance, the company commander should ensure that he obtains the maximum possible information concerning the proposed task and location. An aide-memoire covering the reconnaissance preparation and execution is shown at Annex C.

#### Movement of the Main Body

4.33 The main body will often move while the reconnaissance group and orders group are moving to, or are in, a new location. The company 2IC moves the main body to the location designated in preliminary orders. If it has not been practicable to give adequate orders to cover action on arrival and a rendezvous is specified, the unit harbours to await final orders.

#### Movement of the Main Body

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#### Final Orders

4.34 Final orders may be given at the old location or at a rendezvous point. Following these orders, subordinates carry out their own reconnaissance (if nominated) and issue their own orders.

#### Completion of Deployment

4.35 Deployment is not complete until:

- a. the new area is occupied;
- b. superior headquarters have been notified; and
- c. rear parties (if nominated) have rejoined the unit.

4.36-4.38 Reserved.



## SECTION 5 - DEFENCE

### General

4.39 The field supply company will normally form part of a maintenance or administrative area. The responsibility for defence of the area will be delegated to a local commander who will in turn group various units for defence purposes. The company will normally form part of a defence sector and will be delegated specific defence responsibilities.

4.40 Well-balanced participation by unit members in area defence tasks can do much towards proportion of unit and individual morale in that it creates a feeling of tactical awareness. It should, however, be remembered that the tactical function of the unit is paramount and that over-commitment to extraneous tasks will, over long periods of time, reduce technical efficiency.

### Problems Associated with Defending a Field Supply Company

4.41 The field supply company normally requires assistance in defending itself. Defence of the company location and stocks depends on a combination of the following factors:

- a. Security of Stock. In order to carry out its technical or primary role, the field supply company holds a wide range of stocks. Without such stocks the supported formation cannot achieve operational objectives. Defence of the location must therefore be designed to ensure the security of stocks.
- b. Early Warning. In the mobile role, that is, within the division, sufficient notice of enemy intention should be received to permit the withdrawal or redeployment of the company.
- c. Size of Area. The supply company is normally part of a maintenance or administrative area. As the field supply company could cover between three to five grid squares it may not be practicable to employ standard perimeter defence procedures. Reliance should be placed on mobile defence and maximum use should be made of the anti-aircraft and counter-battery capabilities available to the area.

### Defensive Measures

4.42 The defence of a field supply company will involve the following:

- a. Active Measures.
  - (1) Defence posts;
  - (2) security pickets;
  - (3) area or local ready reaction force;
  - (4) obstacles and minefields;
  - (5) patrolling; and
  - (6) all arms air defence.
- b. Passive Measures.

- (1) Dispersion of vehicles and stock;
- (2) camouflage and concealment;
- (3) command and communications;
- (4) cleared fields of fire;
- (5) pits for protection from air attack or bombardment; and
- (6) system of early warning.

### Ground Defences

4.43 Ground defence will vary, as follows, according to the type of operation, the likelihood of enemy activity and the company deployment pattern:

- a. Defence Posts. The external perimeter defences should be based on a system of mutually supporting strong points which may be manned at short notice. The following factors are to be observed:
  - (1) The strong points must be sited by the area defence officer before detailed construction begins.
  - (2) The strong points must have clear fields of fire to cover designated primary and secondary arcs.
  - (3) Access paths to strong points from work areas must be clearly defined and free of undergrowth.
  - (4) Permanent land-line communications should be established from company headquarters to the strong points.
  - (5) The strong points should be supported by a network of individual weapon pits.
- b. Ready Reaction Force. The field supply company, under normal circumstances, is not capable of deploying an effective ready reaction force without depleting defence posts and security pickets. The company may be required to contribute manpower to an area ready reaction force. Individuals should be nominated for this task and informed of:
  - (1) the composition of the force, including command structure;
  - (2) the allocation of equipments, weapons and ammunition; and
  - (3) mobilisation drills.

Because of rotation of personnel it is essential to frequently practise the ready reaction force in mobilisation and deployment drills.

- c. Camouflage and Concealment. The area defence officer will implement camouflage policy. All commanders must continually supervise the maintenance and improvement of camouflage.
- d. Obstacles. Obstacles, such as wires, minefields and booby traps may be used to supplement ground defences.
- e. Patrolling. The unit may be required to provide personnel to assist in patrolling duties.

### Air Defence

4.44 Air attack is to be accepted as a constant threat. Such attacks may be made by ground attack fighter aircraft, medium bomber or helicopter. The aims of enemy air actions are twofold:

- a. To inflict casualties to both personnel and stocks. This may cause extensive loss of stocks.
- b. To disrupt logistic effort. Logistic units under direct air attack or air attack warning are unable to carry out their normal technical functions.

4.45 Both passive and active measures are used to defend against air attack. Passive measures, are suitable as defence against all forms of air attack, and are comparatively easily implemented by all units. They are the main means of defence. The effectiveness of passive air defence is directly related to the level of training of unit personnel and to the time spent in preparing the unit location. Essential measures are as follows:

- a. Passive.
  - (1) High standard of camouflage.
  - (2) Dispersion.
  - (3) Rehearsed passive air defence drills.
  - (4) Early warning system.
  - (5) Overhead cover.
- b. Active.
  - (1) Low level air defence, which is the responsibility of RNZA anti-aircraft units. RNZA detachments may be located with the administrative area.
  - (2) Very low level air defence is a unit responsibility. Training and employment of field supply company personnel in this role should be continually practised.

### Deception

4.46 Deception may be used as a passive countermeasure against air attack. However, this form of defence would not be initiated by unit commanders. The form and extent of deception measures to be used in an area of operations will be determined by the force commander. The most important aspect of any deception plan is that the resultant measures must appear to be real when viewed by enemy observers. Some of the likely deception measures are:

- a. the establishment of dummy locations;
- b. widening or extending a part of the company perimeter with dummy stacks; and
- c. vehicle movement in a dummy location.

4.47-4.49 Reserved.

## SECTION 6 - COMMUNICATIONS

### General

4.50 The Field Supply Company is provided with radio and line communications equipment. Included on the equipment table are sufficient telephones to establish internal line communications. In the maintenance area the field supply company will be connected with line to other units by RNZSigs. Also on the equipment table are sufficient radios to allow the field supply company to be a station on the administration net and the Commander Divisional Supply command net. It has sufficient left over to maintain contact with elements of the company detached for specific tasks.

### Maintenance Area Communications

4.51 Within the maintenance area, divisional or brigade headquarters will be responsible to implement a courier system for the collection and delivery of all routine mail, signals and vouchers. In addition, it may be necessary for the field supply company to organise a supplementary courier system for urgent mail collections and deliveries.

### Urgent Stores

4.52 It would be unusual for the field supply company to collect and deliver urgent stores within or outside the combat zone. It would be only in a case of the most extreme emergency that the OC Field Supply Company would authorise unit transport to uplift or deliver stores. Most urgent issues would be part of an OPDEM and the delivery would be organised by the Divisional Staff.

4.53-4.55 Reserved.

## SECTION 7

### FIELD SUPPLY COMPANY (DIVISIONAL TROOPS)

4.56 The operation of a field supply company (Divisional Troops) is essentially the same as a field supply company. Instructions on the operation of additional services provided by the field supply company (divisional troops) are contained in either specialist service chapters of this volume and in Chapter 13, Field Warehousing.

ANNEX A TO  
CHAPTER 4 TO  
NZ P107

FIELD SUPPLY COMPANY LAYOUT

DEPLOYMENT PROCEDURE AIDE-MEMOIRE

1. The sequence of deployment procedure is covered in detail in Chapter 4. This annex details activities, not necessarily in chronological order, which may assist in the preparation of a unit SOP. Activities are divided as follows:

- a. Action before departure from the present location;
- b. action during transit; and
- c. action on occupation of the new location.

Action Before Departure From the Present Location

2. The following actions should be planned and executed prior to departure from the present location:

- a. Camouflage. During the entire period camouflage will be gradually reduced by stages to Stage 1.
- b. Vehicle and Equipment Casualties. Repair or replacement action initiated or expedited.
- c. Attachments/Detachments. Process attached personnel out of the unit, and recall detached personnel or reinforcements as required.
- d. Establish a timetable for final issue of:
  - (1) clothing and equipment,
  - (2) personal and section ammunition,
  - (3) rations,
  - (4) water,
  - (5) medical kits, and
  - (6) vehicle fuels.
- e. Recover, refurbish and pack:
  - (1) personal accommodation,
  - (2) ablutions,
  - (3) company personnel and logistic tentage and surplus equipment,



- (4) signposts,
  - (5) toilet equipment , and
  - (6) fire-fighting equipment.
- f. Rubbish and Waste. Initiate disposal action.
  - g. Weapon Pits. Remove defence stores, and if, necessary, fill pits.
  - h. Mines, Wire and Early Warning Devices. Recover and pack. RNZE may direct the task. However, company staff will be required to assist.
  - i. Land-line and Communication Cord. Recover and pack.
  - j. Strong Points. Depending on the stage of development, the task of filling these points may require RNZE support.
  - k. Operations and Control Offices. Recover and repack tentage, furniture, operations boards, communications, etc.
  - l. Complete Stores Loading. Check the area, security of loads and allocation of personnel to transport.
  - m. Demolitions. If demolitions and booby traps are to be set on surplus stocks of heavy loft items, a rear party of guides may have to be nominated.
  - n. Notify Departure. Notification of departure to superior headquarters will normally be covered by SOP.

### Action During transit

3. During the move of the mina body, the designated commander, is responsible (within the unit) for co-ordination and control of the following:

- a. Security.
  - (1) The positioning of sentries during halts;
  - (2) camouflage procedures;
  - (3) ambush drills;
  - (4) all arms air defence drills; and
  - (5) communications security.

- b. Administration.
  - (1) Ammunition;
  - (2) POL;
  - (3) rations;
  - (4) water; and
  - (5) recovery procedure.

Action on the Occupation of the New Location

4. After call forward to the new location, elements will be met by guides and directed to their technical work areas. The basic sequence of events is as follows:

- a. Security. Post sentries at proposed strong point locations.
- b. Install Land-line. This is to be laid to the area defence command post immediately upon arrival in a new location.
- c. Site Vehicles. While general locations have already been decided, commanders must now physically locate vehicles.
- d. Camouflage. Immediately vehicles and equipment have been sited, work on Stage 1 camouflage must commence. Development and maintenance of camouflage is a continuous process.
- e. Confirmation of Tactical Siting. The company commander is to co-ordinate the strong point sites with the area defence officer. Once this has been obtained, the strong points should be developed to Stage 1, land-line run from the headquarters plan to the strong points and work commenced on individual weapon pits. Track and night tapes should be established.
- f. Concurrent Activity. Once the area has been secured and detailed technical approved by the company commander, the following concurrent activity may commence:
  - (1) establish the operations office and control office;
  - (2) clear traffic circuits and signpost the area;
  - (3) establish work areas; and
  - (4) install land-line within the company.

g. Defence. Development of area defences is a continuous process which must proceed to the point where strong points are developed to Stage 2 and personal pits to Stage 1 before work commences on administrative areas. At the same time, wire, mines and early warning systems should be installed at vulnerable points.

h. Administrative Development.

- (1) Erect personnel/logistic tentage;
- (2) establish mess; and
- (3) establish and signpost toilets and ablutions.

i. Notification to Superior Headquarters. Superior headquarters are to be notified as soon as the unit is ready to commence operations. This notification and the subsequent operations will invariably be before the completion of area development. During the initial stages of any operation it may be necessary to employ soldiers for extended periods.

to

left.

j. Liaison. The company is responsible for providing liaison with the unit on its boundaries and with detachments sited within the company area.

RECONNAISSANCE PLANNING AND EXECUTION

AIDE-MEMOIRE

1. The nature of a reconnaissance will vary depending on tactical considerations. The primary requirement is to achieve a logical sequence of events.
2. The sequence depicted in this aide-memoire may need to be altered to fit local circumstances and information availability. The sequence commences with the receipt of a warning order or preliminary orders from superior staff. The company reconnaissance officer must commence activity with the issue of his own warning order.

Action Prior to Reconnaissance

3. Issue a Warning Order, containing:
  - a. the task and date;
  - b. degree of notice to move/timings;
  - c. nomination of reconnaissance group including transport, rendezvous and time of departure;
  - d. nomination of time and place for preliminary orders.
4. Obtain:
  - a. the time of closure in present location;
  - b. arrangements for disposal of surplus stock from present location;
  - c. the task in new location;
  - d. the type and duration of proposed operations;
  - e. the grid reference of proposed location;
  - f. maps and air photographs;
  - g. information on topography, meteorology and geography of new location; and
  - h. information on routes (both main and secondary).
  - i. decision on clearing or demolition of salvage.

5. Determine:
  - a. if any existing facilities in the proposed location are available for use;
  - b. what RNZE support is available for development of new location;
  - c. any expansion requirements for new location, that is, future plans for the area;
  - d. the method of administration in new location, that is, with major unit or independently;
  - e. the time for commencement of operations in new location.
6. Plan:
  - a. the reconnaissance including timings, routes, etc;
  - b. the method of deployment, for example, call forward, harbour; and
  - c. the location for final orders.
7. Prepare and issued preliminary orders and advise customers of latest time to collect stores.

#### Action During Reconnaissance

8. En route:
  - a. prepare a 'going' map which is to include new route detail and updating of information on topography, etc: and
  - b. select a harbour area, if not previously nominated, and advise company (main) of this location.
9. On arrival at new area:
  - a. confirm map accuracy (especially access routes); and
  - b. in conjunction with superior unit/formation representative:
    - (1) clearly define the company harbour; and
    - (2) confirm adjacent unit location.
10. On arrival at new location:
  - a. post security picket(s);
  - b. determine communication potential, that is
  - c. walk the entire area and, subject to security requirements, mark the extremities;

- d. conduct note form appreciation;
- e. prepare plan including field sketch showing proposed defences, technical/administrative areas and traffic circuits;
- f. have preliminary signposting completed; and
- g. brief guides on traffic control duties for arrival of main body.

### Action After Reconnaissance

11. According to the deployment procedure being used, the final orders may be given at the old location, main body harbour area or new location.
12. Once the section commanders have received their orders the deployment is, in the main, executed by them. After initial entry into the area and prior to commencement of development, the company commander should confirm the detailed siting which has been undertaken by platoon commanders, and direct adjustments as necessary.

DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS

PART II - FIELD OPERATIONS

CHAPTER 5 - ACCOUNTING PROCEDURES IN  
STORES PL, FIELD SUPPLY COMPANY

INDEX

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## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 5 - ACCOUNTING PROCEDURES:

##### FIELD SUPPLY COMPANY STORES PLATOONS

###### SECTION 1 - ACCOUNTING GENERAL

###### General

5.1 The system of accounting in field supply companies is designed to record all movement and changes in condition of stores held:

- a. receipts from all sources;
- b. identification;
- c. condition;
- d. storage location;
- e. issues;
- f. returns to supply battalions and action in accordance with Board of Survey and Inspecting Officers reports;
- g. receipt and issue discrepancies; and
- h. stocktaking and adjustment of discrepancies revealed at stocktaking.

###### Stock Records

5.2 The stock record is to be maintained on Stock Control Card AFNZ 162, illustrated at Appendix One to Annex A. Transactions are to be completed as detailed at Annex F.

5.3 A separate card is to be maintained for each item of stock and filed in NATO stock number sequence.

5.4 Each Stock Record Card, AFNZ 162 is to be complete with:

- a. section;
- b. stock number;
- c. maximum asset;
- d. reorder level;



## SECTION 2 - SCALINGS, HOLDINGS AND REPLENISHMENT OF STOCK

### Principles of Scalings

- 5.9 The principles governing the range of stores held by field supply companies are:
- a. items are limited to those in frequent demand by units of the supported brigade, other than RNZEME workshops and their attached RNZAOC stores sections, and allotted divisional troops;
  - b. the range must initially be in accordance with authorised scalings for the equipment and vehicles held within the brigade. Issue history will subsequently supersede this initial scaling;
  - c. holdings of spares for current vehicles and equipment must be continuously reviewed to eliminate redundant stock and inscale required stock; and
  - d. repair parts for uncommon vehicles and equipment are not likely to be in great demand. Centralised stockholding for these items may be advisable.

### Cross Servicing

5.10 Cross servicing is the issue of stock from one bulk holding unit to another, or to the supported units of another bulk holding unit. Cross servicing may occur between field supply companies, or between fire workshop stores sections and field supply companies. The principle of cross servicing within the division to provide a rapid service is sound. Care must be taken to ensure that the issuing unit's ability to provide support to its dependant units is not prejudiced.

### Field Supply Company Scalings

5.11 Field supply companies are initially scaled on a theoretical 30 day maintenance requirement for supported units. This initial scaling is based on the predicted mix and quantity of equipment and vehicles held by supported units and is likely to contain inaccuracies brought about by last minute changes. Field supply companies should at the earliest opportunity relate scale holdings to actual equipment and vehicles supported. Surplus stock should be advised to Commander Divisional Supply who will direct its re-issue to another RNZAOC unit within the division, or return to the supporting supply battalion. Stock deficiencies should be demanded for.

### Establishing Scalings

- 5.12 Initial scalings are each type of store are established as follows:
- a. Vehicles. A percentage of the sum totals of each make and type of vehicle held by all units in the formation as related to the relevant RPS.
  - b. Technical Equipments. A percentage of the sum total of each major technical equipment held by all units in the formation as related to the relevant RPS.

- c. Bulk Break Items. The items of clothing and necessities, and general stores to be subject to unit forecasted monthly demands must be decided by the senior RNZAOC representative in the formation in conjunction with the staff, or by the senior RNZAOC representative in the theatre. Initial scaling of these items should be kept to a minimum as units should be completely equipped with one month's reserve.
- d. General Stores. Scalings of other general stores items must then be established by reference to unit equipment tables for all units of equipment and each make and type of vehicle, and Block Scales used by supported units. Particular care must be exercised in the selection of items to be included in this range. It is essential that the range be a constant demand and the decision of the senior RNZAOC representative should be requested for doubtful items.
- e. Expendable Stores and Industrial Gases. The range of these items is calculated from the relevant scales. Usage of these items can fluctuate tremendously with little or no pattern being obvious.
- f. Stores not covered by Existing Scales. In the case of any equipment or type of vehicle not covered by RPS, holdings will be established by reference to any application documentation observing the principles laid down in an existing RPS for a similar type of equipment or vehicle.

5.13 Replenishment of stock is effected by submission of detailed demands direct to the supporting supply battalion.

5.14 Non-Scaled Items. Units may require certain items which are not scaled by field supply companies. The company is to pass these demands to the supply battalion for issue to the unit through the company transit section.

5.15 Reserved.

5.16 Reserved.

5.17 Reserved.

## SECTION 3 - PROVISION

### Provision System

5.18 The provision system is a composite of policies and procedures governing the initiation and scheduling of procurement and the replenishment and management of stocks.

### Definition of Provision

5.19 Provision is the system by which stocks are reviewed and replenished to maintain levels necessary to meet all estimated requirements.

### Aim of the Provision System

5.20 The aim of the provision system is to provide an economical and systematic means of maintaining the best possible balance between total supplies and total demands. The system is designed to:

- a. Ensure that needed supplies are available on time.
- b. Prevent the accumulation of excess stock.
- c. Determine quantities of total stock on hand which are available for redistribution or disposal.

### Principles of Provision

5.21 The following principles must be observed for the provision system to function effectively:

- a. Intelligent Anticipation. Provision staff at all levels must exercise intelligence and experience in estimating future requirements.
- b. Timely Review. Provision action is normally prompted by the ledger clerk checking the net stock position against recorder level after completing a transaction. Maximum asset and recorder level data is reviewed by the provisioning clerk prior to conducting provision action.
- c. Accurate Calculations. Errors in manual provision calculations can cause incorrect quantities to be demanded above or below the actual requirement.

### Application of Provision Terms

5.22 To determine whether stocks are at an acceptable level and to calculate demand quantities it is necessary to compare total assets with total liabilities. The net asset or net liability will indicate a stock surplus or stock deficiency respectively.

5.23 Assets. Assets consist of the following:

- a. Serviceable Stock. Serviceable stock is stock held in either a new or used (but fit for issue) condition.
- b. Dues In. Dues in consists of:
  - (1) stock that has been demanded;
  - (2) stock currently under procurement action.

5.24 Liabilities. Liabilities consist of the following:

- a. Stock required during lead time (lead time stock) and interval between orders (operating stock).
- b. Dues not existing at the time of the review.
- c. Reserve stock and safety stock.

5.25 The comparison of assets with liabilities is shown below:

( Lead Time Stock)	( Serviceable Stock)
(+ Operating Stock)	(+ Dues In) - Stock deficient
(+ Reserve and Safety Stock)	- or surplus
(+ Dues Out)	

### Provision Calculations

5.26 Provision calculations are performed after any necessary changes are made to Reorder Level and Maximum Asset. Provision calculations produce either a surplus or deficiency of stock. The deficit, if at or below reorder level becomes the demand quantity. Any surplus is the quantity available for disposal or redistribution. Calculations are shown at Annex B.

### Provision Reviews

5.27 Provision reviews are conducted to:

- a. identify items for which provision action is required;
- b. identify slow moving items;
- c. identify dues in and dues out;
- d. check the accuracy of maximum asset figures and reorder levels; and
- e. check arithmetical posting errors.

5.28 Coloured signals are used to identify the type of action required by the provision cell as follows:

- a. Blue Signal. A blue signal is placed on the AFNZ 162 by the ledger clerk when, after completing a transaction, net asset is equal to or less than reorder level. During quiet hours, provision cell staff review maximum asset and reorder levels and if necessary prepare demands and post dues in.
- b. Red Signal. A red signal is placed on the AFNZ 162 by the provision cell after provision action has been taken. The signal indicates dues in. Red signalled ledger cards are checked weekly and hastening action taken as required.
- c. Green Signal. A green signal indicates a slow moving item. A green signal may be attached by either ledger or provision clerks when they suspect that demand for the item is low. Green signalled ledger cards are reviewed by the NCO IC provision cell on a regular basis. Where a slow moving item is identified, it is referred to the 2IC.
- d. Black Signal. A black signal is placed on the AFNZ 162 by the ledger clerk when he posts dues out. During quiet hours provision cell staff review black signalled ledger cards and either take hastening action or provisioning action.

5.29 Additional reviews may be taken at the direction of the master stock controller, second in command, or officer commanding. Higher headquarters may direct additional reviews from time to time.

#### Non-Scale Demands

5.30 When a non-scaled item is demanded and a decision is taken not to scale at that point of time, the demand is to be forwarded to the supporting supply battalion for direct issue to the unit concerned. A copy of the demand is to be placed on the 'provision in scale file' in stock number sequence as a record of the demand.

#### In Scaling

5.31 The provision 'in scale' file is to be reviewed routine and where, as a result of a continuing demand for a non scaled item, it is apparent that the need for the item will continue, the item is to be inscaled. Generally, a history or trend indicating four or more demands over a six month period is sufficient to justify inscaling.

5.32 When the decision to inscale has been made, a Stock Control Card, AFNZ 162 is to be raised. Reorder Level and Maximum Asset are assessed and entered on the card. Provision action is then taken. Copies of units demands on the provision in scale file are then to be removed and destroyed.

5.33 Reserved.

5.34 Reserved.

5.35 Reserved.

## SECTION 4 - DEMAND PROCEDURE

### General

5.36 Demands for stores are raised to meet a requirement for stock created by the following circumstances:

- a. to inscale a new item to be held as a result of:
  - (1) a dependency change;
  - (2) a change to an entitlement document;
  - (3) increased demand for an item by supported units; or
  - (4) by direction from higher headquarters;
- b. to bring the asset of an item up to maximum asset as a result of a provision review;  
or
- c. to meet a specific requirement for an individual unit for a non scaled item.

5.37 Two types of demand may be raised:

- a. Routine Demand. Form MD 315.5M is used for all demands where the required delivery date does not preclude the use of routine mail and delivery systems.
- b. Urgent Demand. Form MD 403 (signal message) is used when the required delivery date precludes the use of routine mail and delivery systems.

### Routine Demands - MD 315-5M

- 5.38 a. Provision Control and Accounts Cell. The Provision Control and Accounts cell;
- (1) initiates provision demand from provision review,
  - (2) allocates demand number from demand register,
  - (3) prepares MD 315-5M (example at Annex X),
  - (4) posts dues in on AFNZ 162 (examples of ledger card transactions are at Annex F),
  - (5) removed the blue signal and attached red signal, and
  - (6) passes the demand to the 2IC.

- b. 2IC. The 2IC is to:
  - (1) check preparation of demand;
  - (2) sign the demand; and
  - (3) pass the demand to Provision Control and Accounts Cell.
- c. Provision Control and Accounts Cell.
  - (1) Mails the first four copies to supplying agency, and
  - (2) files copy number five on the Demand file.

### Urgent Demands - MD 403

5.39 Urgent demands are to be actioned as follows:

- a. Provision Control and Accounts Cell.
  - (1) Initiates provision demand from provision review;
  - (2) allocates a demand number from the Demand Register;
  - (3) prepares MD 403 (sufficient copies for Comm Cen plus two). Signal demand format at appendix one to Annex C;
  - (4) posts due in on the AFNZ 162;
  - (5) removes the blue signal and attaches a red signal; and
  - (6) passes demand to 2IC.
- b. 2IC.
  - (1) Checks preparation of the demand;
  - (2) enters the date time group, and priority on the MD 403;
  - (3) signs the MD 403; and
  - (4) passes the signal to the Provision Control and Accounts Cell.
- c. Provision Control and Accounts Cell.
  - (1) Delivers the MD 403 to the Orderly Room for onward transmission;
  - (2) Orderly Room date stamps the last copy of the MD 403 and returns it to the Provision Control and Accounts Cell and files the fourth copy; and

(3) files the last copy of MD 403 on the Demands File.

Hastening Action - ORD 30

5.40 When no advice has been received two months after date of despatch of demand (or sooner if demand priority is higher than 4), the provision cell is to complete the following action:

- a. Raise two copies of ORD 30 (example at Annex D);
- b. complete block 1 except for the MASTER DEPOT REPLY panel;
- c. 2IC or OC signs block 2;
- d. allocate a serial number from the ORD 30 File Register;
- e. forward copy one to the master depot;
- f. endorse the outstanding demand with the Ord 30 serial number and date; and
- g. file copy two on the Ord 30 File.

5.41 Reserved.

5.42 Reserved.

5.43 Reserved.



## SECTION 5 - RECEIPT OF STORES

### General

5.44 This instruction details the action required to receipt stores from a Master Depot or another RNZAOC unit. It does not involve receipts from salvage, which are at Section 12 to this chapter. The stores being receipts are the result of a demand or distribution and are receipted directly onto the RNZAOC units main account.

### Pre Receipts Procedure

5.45 Receipts from a Master Dept or another RNZAOC unit are usually against an MD 315/764. Copy 2 MD 315/764 arrived by mail informing the receiving unit that the item has been issued, is in transit and should be delivered in the near future. Copy 2 MD 315 is filed on the 'Receipt Vouchers awaiting packing list' file until copy 3 MD 315/764 (packing list) arrives with the stores.

### Action by Distribution Cell

- 5.46 On receipt of a consignment of stores the Distribution Cell is to:
- a. Check packages for signs of pillage or damage. Should pillage or damage be apparent, endorse the details on the Delivery Docket (MD 462) and indicate Transit Loss and Damage action. See Section 7 of this chapter for discrepancy action.
  - b. Check the number of packages against the consignment documents to ensure the full consignment has been received.
  - c. Sign the consignment documents if all is in order and if requested to do so.
  - d. Enter the consignment details on the Receipts Control Register.
  - e. Endorse the Receipts Control Register number on each package. (Example Receipts Control Register at Annex E.)
  - f. Open package and locate copy 3 MD 315/764.
  - g. Check stores against copy 3 MD 315/764 for:
    - (1) quantity;
    - (2) identity; and
    - (3) serviceability.
  - h. In the event of a discrepancy in any of the above, action in accordance with Section 7 of this chapter.

- i. Endorse copy 3 MD 315/764 with:
  - (1) Receipts Control Register number and date;
  - (2) total quantity received;
  - (3) condition of item; and
  - (4) signature of unpicker and date.
- j. Forward stores with copy 3 MD 315/764 to the appropriate section.

#### Action by Stores Section

5.47 On receipt of stores and copy 3 MD 315/764 from the Distribution Cell, the Stores Section is to action as follows:

- a. Check stores against copy 3 MD 315/764, sign and date CHECKED panel beside UNPACKED panel.
- b. Locate stores using:
  - (1) location on copy 3 MD 315/764; or
  - (2) if no location, create a new location and enter new location on copy 3 MD 315/764 in the NEW STOCK LOCATION panel.
- c. Stocktake item. See Section 8 for detailed procedures.
- d. Sign and date STORAGE AND STOCKTAKE BY panel.
- e. Forward copy 3 MD 315/764 to Headquarters Stores Platoon for stocktake action. Headquarters Stores Platoon are to conduct stocktake action in accordance with Section 8 of this chapter, and forward to Provision Control and Accounts Cell.

#### Action by Provision Control and Accounts Cell

5.48 On receipt of copy 3 MD 315/764 from the Stores Section the Provision Control and Accounts Cell is to:

- a. Extract copy 2 MD 315/764 from the 'Receipt Vouchers Awaiting Packing List' file.
- b. Compare copy 2 MD 315/764 with copy 3 to ensure all stores have been received.
- c. Destroy copy 2 MD 315/764 if all stores received, or in the event of a discrepancy action in accordance with Section 7 of this chapter.
- d. Endorse the following on copy 3 MD 315/764:

- (1) Receipt Voucher number from the Receipt Voucher Register; and
  - (2) sign and date the OFFICER RECEIVING panel.
- e. Post the receipt to the AFNZ 162, increasing stock and reducing dues in. Remove the red signal if all dues in are satisfied.
  - f. Check that the stocktake figure agrees with the stock figure on the AFNZ 162. If the figures disagree action in accordance with Section 7 of this chapter.
  - g. Initial and date the POSTED panel on Copy 3 MD 315/764.
  - h. File copy 3 MD 315/764 on the Receipt Voucher file.
  - i. Stores received without any supporting vouchers are to be brought to account by a Certificate Receipt Voucher.

#### Dues Out Release Action

5.49 If dues out exist, action in accordance with Section 6 of this chapter.

5.50-

5.52 Reserved.

## SECTION 6 - ISSUES

### General

5.53 The following types of issue are dealt with in this instruction:

- a. Normal Issue. A normal issue is a routine demand received from a unit. The demand may be received:
  - (1) on an MD 315;
  - (2) by MD 403 signal message, in ROUDEM format;
  - (3) by telephone or radio message; or
  - (4) verbally.
- b. Priority Issue. A priority issue will normally be received in OPDEM or PRIDEM signal format. The demand may be received:
  - (1) by MD 403 signal message;
  - (2) by telephone or radio; or
  - (3) verbally.

5.54 Section 2 of Chapter 3 of this volume details the supply system and demand procedures.

### Normal Issues

5.55 General. Regardless of the means of delivery, all demands are to be passed initially to Company headquarters. If the demand is received other than on an MD 315, the demand is to be transcribed on to an MD 764 Issue Voucher (Annex F), and the message form to be attached to the MD 764.

5.56 Company Headquarters Action. On receipt of demands, Company headquarters is to:

- a. Ensure the demand is on either an MD 315 or an MD 764. Where the demand is on an MD 764 ensure the original demand (signal, telephone message form, minute pad form etc) is attached to the MD 764.
- b. Log in and date stamp the demand.
- c. Pass the demand to Provision Control and Accounts Cell.

5.57 Provision Control and Accounts Cell. On receipt of the MD 315/764, the Provision Control and Accounts cell is to:

- a. ensure the following panels are completed:
  - (1) NSC;

- (2) NIIN, or PINO;
- (3) Description;
- (4) Class;
- (5) D of Q;
- (6) Consignee - CUC;
- (7) Consignee - Name and Delivery Point;
- (8) Issuing Unit - CUC;
- (9) Transaction - TQTY;
- (10) MD 764, Transaction - DOCNO contains unit demand number; and
- (11) staff approval has been obtained for issue (see paragraph 5.54).

- b. Where a demand is for a Regulated or Command Critical item, or insufficient information has been received to effect issue, or the item is outside of the demanding unit's entitlement to hold, then the demand is to be dealt with as directed in Annex G to this chapter.
- c. If all detail is correct, and the issue appears to be within entitlement, the issue is authorised by the senior clerk signing the OFFICER ISSUING panel, and allocating an issue number from the Issue Voucher number register.
- d. Locate and draw the appropriate AFNZ 612 Ledger Card. If the item is not scaled, action in accordance with paragraph 5.30 to this chapter.
- e. If sufficient stock is held to effect a full issue, proceed as detailed in paragraph 5.58.
- f. If insufficient stock is held to effect a full issue, proceed with a partial issue as detailed in paragraph 5.59.
- g. If no stock is held, but the item is scaled, proceed as detailed in paragraph 5.60.

## 5.58 Full Issue

- a. On copy 1, 2 and 3 of MD 315/764 endorse the following:
  - (1) whether demand is recurring or non recurring. MD 764 does not contain a panel for 'recurring' endorse the information in the TRAN DETAIL panel. Non recurring issues are to be indicated with the letter 'S' in red ink.
  - (2) Priority (PRTY).

- (3) Total issue quantity. On the MD 764 no endorsement is necessary for a full issue.
  - (4) Nil in TO FOLLOW panel on MD 315.
  - (5) Delete PART/COMPLETED on MD 315. Endorse MD 764 will FULL in TRAN DETAIL panel.
  - (6) Stock location from the AFNZ 162.
- b. Post the transaction on AFNZ 162, reducing stock and net asset. If the issue is non recurring, endorse the AFNZ 162 with (s) in red ink, to the right of the issue figure. Initial and date the POSTED panel (MD 315 only).
  - c. Check net position against the reorder level figure. If net position is equal to or below the reorder level figure, flag the AFNZ 162 with a blue signal in accordance with paragraph 5.28 of this chapter.
  - d. Destroy copy 4 of the MD 315.
  - e. Pass the MD 315/764 and AFNZ 162 to the senior clerk for checking.
  - f. The senior clerk is to check that the actions detailed above have been completed, and if satisfied, sign and date the CHECKED panel on the MD 315, or initial and date the TRAN DETAIL panel on the MD 764.
  - g. Pass copies 1,2 and 3 MD 315/764 to the Headquarters, Stores Platoon.

5.59 Partial Issue. The procedure for a partial issue is the same as for a full issue except for the following variations:

- a. Raise an MD 764 showing the quantity to be issue in TQTY panel, using the original issue voucher number.
- b. Amend the original demand to show the balance required.
- c. Endorse the MD 764 with 'PART ISSUE' in the TRAN DETAIL panel.
- d. Post the issue on the AFNZ 162, reducing stock and net asset. Flag the AFNZ 162 with a blue signal, indicating provision action is required.
- e. Post dues out, using the demand number from the original demand, increasing dues and reducing net asset. Flag the AFNZ 162 with a black signal, indicating dues out are held.
- f. Place the original demand on the dues out file. When stock becomes available, the original demand is processed as a dues out release.

5.60 Nil Stock Held. Where no stock is held of a scaled item to satisfy a demand, action as a full issue with the following variations:

- a. separate copy 4 of the MD 315 from copies 1, 2 and 3. If the demand is on an \

MD 764, see b(5) below.

b. Endorse copy 4 as follows:

- (1) 'Nil' in TQTY panel;
- (2) the quantity to follow and estimated supply date in the QTY TO FOLLOW AND ESD panel;
- (3) sign and date the OFFICER ISSUING panel;
- (4) post copy 4 to the demanding unit.
- (5) If the demand is on an MD 764, then signal the demanding unit with the information that would otherwise be endorsed on the MD 315. A format for this signal is at Annex H.
- (6) Raise dues out on the AFNZ 162, increasing dues out and reducing net asset.
- (7) Flag the AFNZ 162 to indicate dues out, (black signal) and provision action requirement, (blue signal).
- (8) Place the original demand on the dues out file.

5.61 Dues Out Issues. When stock becomes available to meet dues out, the demand is treated as for a full demand with the following variations:

- a. MD 315/764 is endorsed 'Completed';
- b. dues out on the AFNZ 162 is reduced, and the black signal is removed.
- c. Use a new Issue Voucher number.

### Priority Issue

5.62 Priority issues are handled the same as normal issues except that they are handled before normal or less urgent issues. Field supply companies should anticipate the requirement to 'walk through' priority issues as a matter of course.

### Headquarters Stores Platoon Action

5.63 The action by the Stores Platoon on receipt of Issue Vouchers from the Provision Control and Accounts cell is the same regardless of type or urgency of the demand, as follows:

- a. register the vouchers in the Issue Voucher Register;
- b. sort vouchers into;
  - (1) stores section lots; and

- (2) issue priority.
- c. Forward the vouchers to the appropriate Stores Section.

### Stores Section Action

5.64 On receipt of Issue Vouchers from the Stores Platoon Headquarters, Stores Sections are to action as follows:

- a. sort vouchers into location order;
- b. select the stores, ensuring they are correct by comparing the NATO Stock Number and item description on the voucher with the NATO Stock Number and item description on the bin location card;
- c. label at least one of each item showing NATO Stock Number and item description;
- d. print selector's name and date in the SELECTED panel on the issue voucher;
- e. forward stores and vouchers to checkers;
- f. if insufficient stock is held to make an issue as indicated on the issue vouchers are to be returned to the Provision Control and Accounts cell via the Stores Platoon Headquarters. Provision Control and Accounts are to initiate Part Issue or Nil Issue procedures as detailed in paragraphs 5.59 and 5.60 of this chapter. Stocktake procedures are also to be initiated.
- g. On receipt of the stores and vouchers from the selectors, checkers are to:
  - (1) check the stores against the vouchers for:
    - (a) description;
    - (b) quantity; and
    - (c) condition.
  - (2) Print name and date in the CHECKED panel of the issue voucher; and
  - (3) forward the stores and vouchers to the packers.
- h. On receipt of stores and vouchers from the checkers, the packer is to:
  - (1) print name and date in the PACKED panel:
  - (2) endorse the case numbers and date in the CASE NOs panel (MD 315) or in the TRAN DETAIL panel (MD 764), (ie 1 of 3 etc).



- (3) Pack and address the stores as shown in Annex I. Ensure the packing list (copy 3 MD 315/764) is enclosed, or securely fastened and protected on the outside of the package. Endorse the package containing the packing list - PACKING LIST ENCLOSED/ATTACHED as applicable.
- (4) Forward the stores and remaining Issue Vouchers (copies 1 and 2) to the Distribution and Salvage Section.

### Distribution Cell Action

5.65 On receipt of the stores and vouchers from the Stores Platoon, the Distribution Cell is to:

- a. Stores to be Uplifted by Units.
  - (1) Place packages in the unit uplift area;
  - (2) advise units that stores are available for uplift;
  - (3) obtain signature and date from the unit representative uplifting the stores in the OFFICER RECEIVING panel on the Issue Voucher. Ensure that the name and rank of the unit representative is legible;
  - (4) forward the issue vouchers to the Stores Platoon Headquarters.
- b. Stores to be Forwarded to Units.
  - (1) Weigh and measure packages;
  - (2) raise an MD 460 (Requisition for Freight Movement) and forward to the RNZCT Movement Control Centre;
  - (3) endorse the MD 460 number in the MODE (MD 315) or DESPATCHED (MD 764) panel;
  - (4) forward Issue Vouchers to the Stores Platoon Headquarters;
  - (5) despatch packages as directed by the Movements Control Centre.

### Headquarters Stores Platoon

5.66 On receipt of the issue vouchers from the Distribution Cell, the Headquarters Stores Platoon is to:

- a. Register the voucher out of the Issue Voucher Register;
- b. check that the stores and distribution action has been completed; and
- c. forward the vouchers to the Provision Control and Accounts Cell.

Provision Control and Accounts Cell

5.67 On receipt of the Issue Vouchers from the Stores Platoon Headquarters, the Provision Control and Accounts Cell is to:

- a. post copy 2 of the Issue Voucher to the demanding unit; and
- b. file copy 1 of the Issue Voucher on the Issue Voucher file.

5.68 Reserved.

5.69 Reserved.

5.70 Reserved.

## SECTION 7 - DISCREPANCIES

### General

5.71 All consignments received into field supply companies are to be checked against the covering vouchers, delivery docket, invoices and/or copies of orders to verify that:

- a. the consignment is intended for the unit at which it is received;
- b. the correct item has been received;
- c. the correct quantity has been received; and
- d. damage or pilfering has not occurred.

5.72 This section deals only with discrepancies in consignments from RNZAOC units.

### Definition

5.73 A discrepancy occurs when:

- a. the quantity received differs from that on the voucher;
- b. equipment listed on the voucher is found on receipt to be in a condition other than serviceable; or
- c. the stock number and/or description of the voucher differs from that of the equipment received.

### Submission of Discrepancy Reports

5.74 On confirmation of a discrepancy, action is to be taken as detailed in the following paragraphs. For items damaged or pillaged in transit, it is the receiving unit's responsibility to take action in accordance with the terms laid down in DCO(A) Volume 1, paragraphs 364 to 366 and Section 7 of this chapter.

5.75 All discrepancy reports are to be submitted within 14 days of receipt of the consignment. If a discrepancy in a consignment is not discovered within 16 days, the discrepancy report is to be forwarded under cover of a letter which is to advise reasons for delay.

### Preparation of Discrepancy Reports

5.76 The relevant blocks of the Discrepancy Report (MD 515) are to be completed up to and including block 6. IN the case of disparities in stock number and/or description, block 4 is to be utilised to show both:

- a. stock number and/or part number, description and quantity of items listed on the voucher; and
- b. stock number and/or part number, description and quantity of items received.

5.77 MD 515's are to be serially numbered from a Discrepancy Report Register, cross referenced to the relevant receipt vouchers.

5.78 Where damage has occurred or equipment is otherwise unserviceable, the MD 515 is to show pertinent details relating to the condition of the equipment.

#### Supporting Documents

5.79 The original copy of the discrepancy report is to be accompanied by the following documents:

- a. a copy of the relevant Receipt Vouchers;
- b. the supplier's Issue Voucher and/or packing slip;
- c. photographs if applicable; and
- d. any other relevant information.

#### Action on Discovery of Discrepancy

5.80 When a discrepancy occurs in a consignment the following action is to be taken:

- a. Stores Section/Distribution Cell Action
  - (1) annotate the Receipt Voucher with the quantity, condition and identification of the stores actually received;
  - (2) search all packing materials to ensure the discrepancy does exist;
  - (3) weight the package complete with stores and packaging and note any variance between consignment weight and receipt weight;
  - (4) raise two copies of a draft MD 515; and
  - (5) forward the amended Receipt Vouchers and copy 1 of the draft MD 515 to Provision Control and Accounts Cell; and
  - (6) file copy 2 of the MD 515 on the draft discrepancy report file.
- b. Provision Control and Accounts Cell Action. On receipt of the draft MD 515 and Receipt Vouchers, Provision Control and Accounts is to take the following action:
  - (1) If the discrepancy value is less than \$2.00, no discrepancy report action is required. Where the value of the discrepancy is \$2.00 or more discrepancy report action is to be taken.
  - (2) The issue quantity listed on the Issue Voucher is brought on charge in

accordance with normal receipt procedures.

- (3) A Certificate Issue Voucher is raised (MD 764) in single copy for the deficient quantity and endorsed:  
  
“FOR CONSIGNMENT SURPLUS AND DEFICIENCY REGISTER ACTION”.
- (4) The Certificate Issue Voucher is to be posted to the AFNZ 162.
- (5) The Receipt Voucher and Certificate Issue Vouchers are to be cross referenced.
- (6) Detail from the Certificate Issue Voucher is to be recorded in the Local Consignment Surplus and Deficiency Register.
- (7) The Certificate Issue Voucher is filed in t in the Issue Voucher file.

c. Surplus and Deficiency Register. A Consignment Surplus and Deficiency Register is to be maintained and cleared:

- (1) when the value of the deficiencies exceeds that of surpluses by a sum approaching \$100.00; and
- (2) at the end of each financial year.

Clearance is to be effected using Form Ty 311, actioned as a Class A Write Off.

### Surpluses

5.81 Surpluses are to be dealt with the same as deficiencies, except that Certificate Receipt Vouchers are raised instead of Certificate Issue Vouchers.

### Deficiency Notified by a Receiving Unit on Field Supply Companies

5.82 When a deficiency in a consignment from the Field Supply Company is notified, action is taken as follows:-

- a. Provision Control and Accounts Cell. On receipt of the Discrepancy Report, Provision Control and Accounts Cell is to:
  - (1) prepare a minute to the Stores Platoon directing the investigation of the matter;
  - (2) prepare a stocksheets (MD 738);
  - (3) advise the names of the selector, checker and packed from Copy 1 MD 315/764 Issue Voucher;
  - (4) forward the following document to the Stores Platoon under cover of the

minute:

- (a) MD 515;
- (b) Packing List; and
- (c) MD 736.

b. Stores Platoon. On receipt of the minute and forms from the Provision Control and Accounts Cell, the Stores Platoon is to:

- (1) stockcheck the items and fully investigate the matter;
- (2) advise on the minute, whether the discrepancy is admitted or not, giving reasons;
- (3) forward all documentation to the Provision Control and Accounts Cell.

c. Provision Control and Accounts Cell. In all instances other than for deficiencies under \$2.00, the adjustment of discrepancy reports is the responsibility of the issuing unit.

(1) Discrepancy Admitted.

- (a) Items over-issued. The items are to be struck off charge by a Certificate Issue Voucher.
- (b) Items under-issued. The item is to be brought on charge by Certificate Receipt Voucher.
- (c) Show the adjusting action taken in block 7 of the MD 515. Sign and return the duplicate copy to the receiving unit.

(2) Discrepancy Not Admitted.

- (a) Items over-issued. No adjusting action necessary.
- (b) Items under-issued. Bring on charge by Certificate Receipt Voucher if the result of the investigation shows a surplus in stock.
- (c) Show the adjusting action taken in block 7 of the MD 515. Sign and return the duplicate copy to the receiving unit.

5.83 Discrepancy In Condition. Where a discrepancy report advising a discrepancy in condition is received by an issuing unit a check of similar items in stock is to be arranged and remedial action taken if necessary. Normally no adjustment voucher action in respect of the particular consignment is necessary, and the MD 515 can be cleared by endorsing block 7 'Acknowledged'. The receiving unit is to arrange the repair or disposal action for the stock received.

5.84 Reserved.

5.85 Reserved.

5.86 Reserved.

## SECTION 8 - STOCKTAKING

### General

5.87 This instruction details the procedures to be followed for stocktaking. It includes the action to be taken for the adjusting of stocktake surplus and deficiencies.

5.88 In peace the task of stocktaking is closely bound up with the requirements of audit. There is an underlying necessity to take stock to ensure that the true holding of stock agrees with the ledger card, and that in consequence the best service is given to supported units. There remains therefore a requirements to stocktake routinely.

### Types of Stocktake

5.89 Stocktakes are to be conducted as follows:

- a. A 100% stocktake on all items receipted, including items in stock, at the time of receipt.
- b. Stocktake on Regulated, Critical and Command Critical items unless otherwise ordered is to be conducted weekly. See also Section 11 of Chapter 3 of this manual, and NZ P85, Part 3, Section 4.
- c. Stocktakes undertaken at the direction of the Officer Commanding on an as required basis.

### Stocktake on Receipt

5.90 General. Stocktake on receipt is the principle means of verifying stock against the ledger card, and is conducted on receipt of stock into the Field Supply Company.

5.91 Action By Stores Section. On receipt of stores and Receipt Vouchers from the Distribution Cell, the Stores Section is to carry out receipt procedures as detailed in Section 5 of this chapter, and:

- a. enter stock received in the STOCKTAKE BALANCE panel of the Receipt Voucher;
  - (1) if uncompleted issues held, enter the total issues uncompleted on the right of the figures entered by the Stores Section, as a negative figure and complete the sum;
  - (2) if no uncompleted issues are held, enter (-0) and complete the sum.
  - (3) Example at Annex K.
- b. Forward the Receipt Vouchers to Provision Control and Accounts Cell.

5.93 Action by Provision Control and Accounts Cell. In addition to receipt action detailed in Section 5 of this chapter, Provision Control and Accounts Cell is to compare the final figure in the STOCKTAKE BALANCE panel of the Receipt Voucher with the stock figure on the ledger card. If there is a discrepancy between the figures, the Receipt Voucher is passed to the Master Stock Controller endorsed STOCKTAKE ON RECEIPT DISCREPANCY for investigation. If no



discrepancy exists, no further action is to be taken. If, after investigation, the deficiency cannot be explained, the matter is to be referred to the Officer Commanding who may either:

- a. determine further investigation is required;
- b. if the discrepancy is minor and of no significant value, adjust the ledger by Certificate Receipt or Issue Voucher; or
- c. refer the matter to higher headquarters.

#### Stocktake on Regulated, Critical or Command Critical Items and Commanding Officer Stocktakes

5.94 General. Stocktakes undertaken to furnish information for Regulated, Critical or Command Critical Item returns, and stocktakes undertaken at the direction of the Officer Commanding are to be handled in the same manner.

5.95 Action By Company Headquarters. Company headquarters is to advise Provision Control and Accounts Cell is to:

- a. raise an MD 738 Stocktake and Adjustment Record form;
- b. endorse the MD 738 as follows:
  - (1) Unit;
  - (2) Category of Stores (Class);
  - (3) Types of stocktake, either:
    - (a) OC Stocktake; or
    - (b) Controlled Stores Stocktake.
  - (4) Sheet numbers;
  - (5) Serial number, from the Stocktake Register File;
  - (6) NATO Stock number;
  - (7) Description;
  - (8) Location;
  - (9) Denomination of Quantity; and
  - (10) Completion date/time.
- c. Under no circumstances is the MD 738 to be endorsed with the Ledger Balance at this stage.
- d. Pass the MD 738 to the Distribution Cell.

5.97 Action by Distribution Cell. On receipt of the MD 738, the Distribution Cell is to:

- a. Check receipts held for forwarding to the Stores Platoon and enter the stock figure in the first STOCK sub panel. This panel is to be endorsed DIST CELL; and
- b. Initial the CHECKING OFFICER panel;
- c. forward the MD 738 to the Stores Platoon Headquarters.

5.98 Action by Stores Platoon Headquarters. On receipt of the MD 738, the Stores Platoon Headquarters is to:

- a. Arrange the counting of stock in the appropriate Stores Section; and enter the stock figure in the second STOCK sub panel. This panel is to be endorsed STORES SECT.
- b. Check the Issue Voucher Register and in the third STOCK sub panel enter the quantity of stock awaiting issue. This panel is to be endorsed ISS.
- c. Initial the CHECKING OFFICER panel.
- d. Pass the MD 738 to the Provision Control and Accounts Cell.

5.99 Action by Provision Control and Accounts Cell. On receipt of the MD 738 from the Stores Platoon Headquarters, Provision Control and Accounts is to:

- a. Add STOCK sub panels one and three, from this figure subtract the figure in STOCK sub panel three. Enter this figure in the TOTAL sub panel.
- b. From the ledger card enter the stock figure in the LEDGER BALANCE panel.
- c. Extend the calculation of surplus or deficiency to the SURPLUS or DEFICIENCY panel.
- d. Forward the MD 738 to Company Headquarters.

5.100 Action by Company Headquarters. On receipt of the MD 738 from Provision Control and Accounts Cell, Company Headquarters is to:

- a. Stocktake For Returns. Extract the relevant information for the return. If a discrepancy exists, action as detailed in paragraph 5.93 of this section.
- b. Officer Commanding Stocktake. Action as detailed in paragraph 5.93 of this section.

5.101 Reserved.

5.102 Reserved.

## SECTION 9 - PURCHASE OF STORES

5.103 The purchase of stores and services with New Zealand finance, is subject to the same controls and procedures as are applicable in New Zealand. Detailed procedures contained in NZ P106, Chapter 3, Section 3 are to be adhered to.

5.104 Reserved.

5.105 Reserved.

5.106 Reserved.

## SECTION 10 - BULK BREAK PROCEDURES

### General

5.107 The expenditure of some items of general stores and clothing can be forecast with reasonable accuracy. These items are frequently issued on a monthly bulk break basis, as opposed to dealing with smaller, individual unit demands received at random times. Items subject to the bulk break system will be notified through the senior RNZAOC Staff Officer in theatre.

### Procedure

5.108 On receipt of unit monthly demands, the demands are not to be met from stock. Demands are consolidated, and a single MD 315 demand for each bulk break item is raised on the supporting Field Supply Battalion. Unit demands are not posted as Dues Out, but held on a separate Bulk Break File.

5.109 On receipt of stock, issues are prepared against unit demands and stock issued.

5.110 Receipt Vouchers and Copy One of the MD 315 are endorsed NOT FOR LEDGER CARDS, cross referenced and filed on the Bulk Break File maintained for the item.

5.111 Any surplus stock is to be brought to charge by Certificate Receipt Voucher, which is cross referenced with the original Receipt Voucher.

5.112 Where insufficient stock is received to meet the bulk break requirement, units are to be advised to redemand for items short supplied in the next monthly demand.

5.113 A suggested schedule of items suitable for the Bulk Break System is at Annex K.

5.114 An alternative means of Supply is through the operation of a self-service store for use by local units.

5.115-

5.116 Reserved.

## SECTION 11 - ACCOUNTING FOR STORES BY DETACHMENT

### General

5.117 On occasions, a Field Supply Company may be required to provide a detachment with stock, to service an independent group of units.

### Procedure

5.118 When a detachment is required, the Field Supply Company will be advised of the range and quantity of stock required for the detachment.

5.119 The Field Supply Company issues the detachment with stock in accordance with normal procedures using MD 315 or MD 764.

5.120 The element receiving the stores is to receipt the stores in accordance with normal procedures after first raising AFNZ 162 Ledger Cards.

5.121 Issues made by the detachment are to be made in accordance with normal procedures.

5.122 Stock levels in the detachment are maintained by demanding on the parent Field Supply Company.

5.123 Demands made on the detachment that cannot be met are to be redirected to the parent Field Supply Company.

5.124 On completion of the task, the detachment is to return with remaining stock to the parent Field Supply Company. The following action is to be taken:

- a. All items are subjected to stocktake;
- b. Detachment Ledger Cards are reconciled with stocktake results;
- c. stock balances are issued back to the parent Field Supply Company, who take receipt action in accordance with normal procedures; and
- d. detachment records are to be packed and retained.

5.125 Reserved.

5.126 Reserved.

5.127 Reserved.

## SECTION 12 - SALVAGE

5.128 Stock salvaged from either Salvage Points or unit returns of stock is to be subjected to technical inspection and brought to charge (if serviceable) by Certificate Receipt Voucher. Items that are repairable are to be advised to the supporting Workshop on an AFNZ 456 or backloaded to the Supply Battalion.

FORMS LIST

Serial	Description	Form Number
(a)	(b)	(c)
1	Outstanding Voucher Reminder Notice	Ord 30
2	Expense and Conversion and Transfer Voucher	MD 514
3	Report of a Board of Survey	AFNZ 37
4	Variation to Demand for Stores	AFNZ 92
5	Stock Record Card	AFNZ 162
6	Discrepancy Report	MD 515
7	Stocktaking Report	AFNZ 243A
8	Requisition for Repair	AFNZ 456
9	Demand, Issue and Receipt Voucher for stores	MD 315/5M
10	Daily Receipt Sheet	MDA 317
11	Message Form	MD 403
12	Application for Provisional Write Off	TY 311
13	Consignment Surplus and Deficiency Register	MD 779
14	Requisition for Freight Movement	MD 460
15	Stocksheet	MD 738

APPENDIX ONE TO  
ANNEX A TO  
CHAPTER 5 TO  
NZ P107



PROVISION CALCULATIONS

1. The basis of provision calculation is the Forecast Monthly Demand. Examples of provision calculations are at Appendix One to this Annex.

Forecast Monthly Demand

2. The Forecast Monthly Demand is the estimated future normal monthly requirement of an item, based on demand history and the past rate of recurring issues, taking into account other known factors which may have an effect on future consumption. To assess the Forecast Monthly Demand, an average of the past recurring issues is made. Ideally a period of 24 months should be covered, this will not always be possible.

3. The calculation of Forecast Monthly Demand is based on the following formula:

$$\frac{\text{TRI} + \text{TDO(E)} - \text{TDO(S)}}{N} = \text{FMD}$$

where:

- a. TRI is the total issues over the review period;
- b. TDO(E) is the total dues out at the end of the review period;
- c. TDO(S) is the total dues out at the start of the review period.
- d. N is the total number of months during the review period; and
- e. FMD is the forecast monthly demand.

4. This calculation provides only the past average monthly issues. This figure must be adjusted to anticipate future requirements. This is done by assessing two factors:

- a. Dependency. Factors affecting dependence are:
  - (1) Increases or decreases in the number of dependant units.
  - (2) Variations in establishments or scales.

The effect of a change in dependency can be calculated as follows:

$$\frac{\text{FMD}}{\text{Old Dependency}} \times \text{New Dependency} = \text{New FMD}$$

- b. Trend. Trend is the measurement of the rate of change. The calculated rate of change indicates either a rising trend of issues or a falling trend of issues. Either should be applied to the forecast monthly demand as part of the intelligent anticipation of future requirements. Trend is calculated as follows:

(1) Obtain issues for last four months, eg:

<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>
60	200	100	150

(2) Average issues for first three month period:

$$\frac{60 + 200 + 100}{3} = 120 \text{ (1<sup>st</sup> average)}$$

(3) Average issues for last three month period:

$$\frac{200 + 100 + 150}{3} = 150 \text{ (2<sup>nd</sup> average)}$$

(4) Compare first average with second average:

$$120 : 150$$

Difference = +30

(5) New anticipated average is therefore:

$$150 + 30 = 180$$

(6) If, when the two average issues are compared with a falling trend is indicated, assessment of the FMD should be influenced by the second average without any trend reduction.

### Maximum Asset

5. Maximum asset is the total theoretical asset to be held, including both stock and dues in. The calculation for maximum asset is as follows:

$$\text{FMD} \times (\text{INBO} + \text{PLT}) + \text{RS?SS} = \text{MA}$$

where:

- INBO is the interval between orders.
- PLT is the provisioners lead time.
- RS?SS is reserve stock/safety stock.

### Interval Between Orders

6. The interval between orders is expressed in months and represents the time between successive demands. This interval will vary according to the stock holding policy. The quantity of stock used during the interval between orders is referred to as operation stock. To calculate operating stock:

$$\text{FMD} \times \text{INBO} = \text{Operating Stock}$$

### Provisioners Lead Time

7. Provisioners lead time is the lead time set by the provisioner, expressed in months. It is the time from the initiation of procurement action to the physical receipt into stock. Provisioners lead time is flexible and consists of:

- a. Administration Lead Time. This is the period between initiation of a requirement and receipt of the demand by the supplying unit.
- b. Production Lead Time and Delivery Lead Time. This is the time between the posting of dues in and the physical receipt of the stock.

8. Total lead time stock is the product of the forecast monthly demand and the provisioners lead time:

$$\text{FMD} \times \text{PLT} = \text{TLTS}$$

where:

- a. TLTS is total lead time stock.

### Reorder Level

9. The reorder level is the level at which it is not safe to allow net assets to fall to or below without procurement action taking place. Reorder level is calculated as follows:

$$\text{FMD} \times \text{PLT} = \text{RS/SS} = \text{ROL}$$

where:

- a. ROL is the reorder level.

### Procurement Quantity

10. Procurement action is required when assets are at or below reorder level. The calculation to establish procurement quantity is as follows:

$$(\text{MA} + \text{TDO}) - (\text{Serviceable Stock} + \text{TDI}) = \text{Procurement Quantity}$$

11. The procurement quantity figures will be varied to take account of carton unit quantity.

## Net Position

12. Net Position is that figure which represents the stock position if all dues in were received and all dues out issued. The Net Position is calculated after each transaction on the AFNZ 162, and is shown on the AFNZ 162 in the right hand column.
13. The aim of the Net Position is to demonstrate without further calculation the efficiency or otherwise of procurement action taken.
14. If the Net Position is below reorder level, the Net Position figure is shown in red on the AFNZ 162. When the Net Position is below zero, a minus sign is placed before the figure, both being in red. A Net Position below reorder level indicates that provision action has not occurred in a timely manner and urgent procurement is required.
15. If the Net Position is above Maximum Asset, the Net Position figure is shown in red on the AFNZ 162. A Net Position above the Maximum Asset indicates that either:
- a. the Maximum Asset figure is in error; or
  - b. provision action has been taken unnecessarily.
16. Net Position is calculated as:
- $$(S + TDI) - TDO = NP$$
- where:
- a. S = Stock;
  - b. TDI = Total Dues In;
  - c. TDO = Total Dues Out; and
  - d. NP = Net Position.

EXAMPLE PROVISION CALCULATIONS

Forecast Monthly Demand

1.            Formula.             $\frac{\text{TRI} + \text{DO(E)} - \text{DO(S)}}{N} = \text{FMD}$

a.        TRI            =        144

b.        DO(E)        =        24

c.        DO(S)        =        48

d.        N             =        12

2.                             $\frac{144 + 24 - 48}{12} = 10$

Dependency

3.            Formula.             $\frac{\text{FMD}}{\text{Old Dependency}}$         New Dependency = New FMD

a.        Formation holdings of a vehicle increases from 20 to 30. Average monthly tyre usage has been 8. Therefore:

(1)        FMD            =        8

(2)        Old Dependency        =        20

(3)        New Dependency        =        30

b.        New FMD is:

$$\frac{8}{20} \times 30 = 12$$

Rising Trend

4.	<u>Issues.</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>
		75	83	76	91

a. Average issues first three months:

$$\frac{75 + 83 + 76}{3} = 78$$

b. Average issues second three months:

$$\frac{83 + 76 + 91}{3} = 83.3$$

c. Comparison - 78 : 83.3  
Difference = +5.3

d. New anticipated average is:

$$83.3 + 5.3 = 89$$

### Falling Trend

5. Issues.                      May   Jun   Jul   Aug  
    97     91     86     92

a. Average issues first three months:

$$\frac{97 + 91 + 86}{3} = 91.3$$

b. Average issues second three months:

$$\frac{91 + 86 + 92}{3} = 89.6$$

c. Comparison - 91.3 : 89.6  
Difference = -1.7

d. New anticipated is 90.

### Maximum Asset

6. Formula.                      FMD X (INBO + PLT) + RS/SS = MA

a. FMD = 10

b. INBO = 4

c. PLT = 5

d. RS/SS = 2

7. 10 x (4 + 5) + 2 = 92

### Reorder Level

8.        Formula.         $FMD \times PLT + RS/SS = ROL$

a.        FMD        =        10

b.        PLT        =        5

c.        RS/SS     =        2

9.         $10 \times 5 + 2 = 52$

### Net Position

10.       Formula.         $(S + TDI) - TDO = NP$

a.        S            =        1

b.        TDI        =        8

c.        TDO        =        5

11.       a.         $(1 + 8) - 5 = 4$

b.        Compare with ROL and MA.

ANNEX C TO  
CHAPTER 5 TO  
NZ P107



HASTENING ACTION

FORM ORD 30					Serial .....
From ..... <u>Outstanding Demands on</u> .....					Date .....
1. The items listed below are still outstanding.					
Demand Number	Date of Demand	NSN	Item Name (Noun Only)	Quantity	Master Depot Reply
2. Please advise when supply may be made.			3. Anticipated delivery dates and other information is shown in the reply column above.		
OC			OC/CO		

RECEIPTS CONTROL REGISTER

UNIT \_\_\_\_\_

DATE \_\_\_\_\_

SHEET NO \_\_\_\_\_

Serial	Time of Delivery	Delivery Agency	Delivery Docket Number (MD 462)	No of Packages	Demand No	Stores Platoon Signature
(a)	(b)	(c)	(d)	(e)	(f)	(g)

AFNZ 162 LEDGER TRANSACTIONS

1. Transactions on the AFNZ 162 are to be actioned in accordance with the following appendices:

- |    |                  |  |
|----|------------------|--|
| a. | Appendix One.    | Card opening and initial receipt.                        |
| b. | Appendix Two.    | Normal Issue.  |
| c. | Appendix Three.  | Normal Issue, reducing Net Position below Reorder Level. |
| d. | Appendix Four.   | Demand, stock to Maximum Asset.                          |
| e. | Appendix Five.   | Special Issue.   |
| f. | Appendix Six.    | Receipt against Dues In.                                 |
| g. | Appendix Seven.  | Part Issue.  |
| h. | Appendix Eight.  | Catering Dues Out.                                       |
| i. | Appendix Nine.   | Demand to Maximum Asset with Dues Out Recorded.          |
| j. | Appendix Ten.    | Changing Card Side.                                      |
| k. | Appendix Eleven. | Receipt against Dues In where Dues Out are held.         |
| l. | Appendix Twelve. | Issue to satisfy Dues Out.                               |

Note: Some detail omitted for clarity.

DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS

PART II - FIELD OPERATIONS

CHAPTER 6 : COMBAT SUPPLY PLATOON OPERATIONS

INDEX

<u>SECTION</u>	<u>TITLE</u>	<u>PARAGRAPHS</u>
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2	Scaling Holding and Replenishment of Stock	6.9 - 6.15
3	Combat Supply Platoon Layout	6.16 - 6.25
4	The Supply Office	6.26 - 6.37
5	Distribution Point Operations	6.38 - 6.61
6	Fresh Rations	6.62 - 6.67

ANNEX:

- A. Schematic Layout : Distribution Point
- B. Master Commodity State Record
- C. Distribution Point State Record
- D. Combat Supply Platoon Duty Statements
- E. Vehicle or Stack Stock State Record
- F. Commodity States Report
- G. Example: Drivers Issue Order Releasing Stock in a DP
- H. Distribution Point Consumption Report

## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 6 COMBAT SUPPLY PLATOON OPERATIONS

##### SECTION 1 : ROLE AND ORGANISATION

###### Role, Tasks and Characteristics

6.1 The role, tasks and characteristics of a Combat Supply Platoon are at paragraphs 2.22 and 2.24 to this manual.

###### Organisation

6.2 The organisation of a Combat Supply Platoon is at Annex G to Chapter 2 of this manual.

###### Command Status

6.3 Normally, Combat Supply Platoons will be placed under command of a Transport Squadron Headquarters, RNZCT. In this situation, the Combat Supply Platoons are under operational Command of Commander Divisional Transport. Technical control is retained by Commandeer Divisional Supply.

6.4 When not under command of a Transport Squadron Headquarters, the Combat Supply Platoons will be under operational command of Commander Divisional Supply, and placed under command of Field Supply companies.

6.5 Personnel within the Combat Supply Platoon report to the Platoon Commander, Combat Supply Platoons.

6.6 - 6.8 Reserved.

## SECTION 2 : SCALING, HOLDING AND REPLENISHMENT OF STOCK

### Scaling

6.9 A Combat Supply Platoon will normally be scaled to hold the equivalent of one days operating stock for its dependency. This scaling may be changed by the staff as required to meet the tactical situation.

### Holding

6.10 Combat Supply Platoon stock is normally held on the vehicles of a Transport Squadron. Where the scaling is too large to hold on vehicles, or if the tactical situation dictates, the stocks may be grounded. When stock is grounded, the Combat Supply Platoon will normally be placed under the command of a Field Supply Company.

### Replenishment

6.11 Replenishment requirements are calculated as the difference between scalings and current holdings.

6.12 Replenishment is effected by second line transport uplifting stock from the Replenishment Park and delivering forward to the Combat Supply platoon.

6.13-6.15 Reserved.

## SECTION 3 : COMBAT SUPPLY PLATOON LAYOUT

### General

6.16 Unless a Maintenance Area is to be established to hold additional second line stock, the Combat Supply Platoon will not normally hold stock in its area. The normal scaling of second line stocks are held in the Transport Squadron and at Distribution Points.

6.17 As a principle, Combat Supply Platoon Headquarters and the Supply Office will be located adjacent to the Transport Squadron Operations Office, and not separated by a road or vehicle access.

6.18 When the Platoon is issuing fresh or canned equivalent rations, bulk will be broken into unit lots at a bulk break point located in the platoon area, adjacent to the Supply Office.

### Ground Requirements

6.19 The Combat Supply Platoon location requires ground for:

- a. platoon headquarters;
- b. supply office;
- c. Bulk Break Points;
- d. accountable containers area;
- e. salvage area;
- f. messing, cleaning and sterilising area, (cooking will be done by the parent transport squadron), and
- g. expansion areas.

6.20 When required to hold additional stocks on the ground adequate ground is required for:

- a. separate commodity circuits,
- b. internal safety distances between classes of POL and POL stocks;
- c. internal safety distances between classes of ammunition and ammunition stacks;
- d. safety distances between ammunition and POL;
- e. external safety distances between ammunition and POL and administrative areas outside the platoon area;
- f. ready access to the MSR other than through the squadron circuit, and
- g. salvage and returnable containers areas for each commodity.

6.21 Chapters 13 and 14 contain specific information on storage.

## Layout

6.22 An example layout of a Combat Supply Platoon is at Annex A to this chapter. When stock is on vehicles a similar layout will be required within the Squadron.

6.23-6.25 Reserved.



## SECTION 4 : THE SUPPLY OFFICE

### General

6.26 The Supply Office of the Combat Supply Platoon is responsible for the technical accounting of combat supplies held in either the Platoon areas, or within Distribution Points. In achieving this responsibility, the Supply Office:

a. maintains:

- (1) Master Commodity State Record. The Master Commodity State Record records total assets available by commodity, held in either Distribution Points or within the Platoon/Squadron area. This record represents the stock ledger (Example at Annex B).
- (2) Distribution Point State Records. Distribution Point State Records are maintained for each Distribution Point deployed, recording the stock held within that particular Distribution Point. These boards are updated by routine stock states from the Distribution Points.  
(Example at Annex C.)

b. Ensures that stock levels are maintained to scale.

### Responsibilities

6.27 Overall responsibility for the technical efficiency and correct functioning of the Supply Office rests with the Platoon Commander Combat Supply Platoon. Day to day supervision of the Supply Office is exercised by the Chief Clerk, located in the Supply Office.

### Duty Statements

6.28 Duty statements for the Platoon Commander, 2IC and Chief Clerk are at Annex D.

### Stock Replenishment

6.29 The Supply Office maintains a watch on stock levels by reference to the Master Commodity State Record. When stock replenishment is required the following action is taken:

- a. The Supply Office raises an AFNZ 10 for stock required, and files one copy of the demand.
- b. The AFNZ 10 is passed to the transport Squadron Operations Office with a 'time required by'.
- c. The Transport Squadron Operations Office dispatches a vehicle to the Replenishment Park with the AFNZ 10 to uplift stock. At the same time the Transport Squadron Operations Office advises the Supply Office of despatch and anticipated time of return.  
time
- d. On return, the driver passes the AFNZ 10 to the Supply Office.

- e. The Supply Office verify the quality and quantity of the load.
- f. The Supply Office post the stock receipt to the Master Commodity State Record and file the receipt copy of the AFNZ 10.
- g. Stock is put to storage either on a vehicle or on the ground.

#### Stock Issue to Distribution Points

6.30 To issue stock to a Distribution Point for wither initial scaling or stock replenishment the Supply Office proceeds as follows:

a. Initial Scaling

- (1) Raise a Distribution Point State Record, in duplicate. The original is given to the senior RNZAOC Supplier in the Distribution Point for the Report Centre.
- (2) Raise a Vehicle/Stack state, in triplicate in conjunction with the Transport Squadron Operations Office. The original and duplicate accompanies the vehicle. The triplicate remains with the duplicate copy of the Distribution Point State Record (Annex E).
- (3) In conjunction with the Transport Squadron Operations Office, arrange the transfer of stock to appropriate vehicles.

b. Replenishment Stock. On advice that the Distribution Point requires replenishment.

- (1) Add the additional stock requirement to the Distribution Point State Record as a separate serial. Where a vehicle is despatched to the Distribution Point as a complete vehicle load replacement, raise a vehicle/stack state for that vehicle.
- (2) In conjunction with the transport Squadron Operations Office, arrange the loading of the vehicle.

#### Stock State Returns from the Distribution Point

6.31 On receipt of the four hourly, or as required stock state from the Distribution Point, the following action is to be carried out.

- a. Amend the appropriate Distribution Point State Record.
- b. Reduce the stock balance of the Master Commodity State Record.
- c. Review the holding of stock and take provision action in accordance with paragraph 6.29 of this chapter.

#### Stock State Returns to Higher Headquarters

6.32 Stock State Returns are to be submitted to higher headquarters as follows:

- a. as at 0600 hours, submitted by 0800 hours duty;
- b. as at 1800 hours, submitted by 2000 hours daily, and
- c. as required.

6.33 Stock State Returns are not to be transmitted by radio, without prior authority from higher headquarters.

6.34 Annex F details the format for the Stock State Return.

6.35-6.37 Reserved.

## SECTION 5 : DISTRIBUTION POINT OPERATIONS

### General

6.38 The Distribution Point forms the forward link to units in the replenishment chain for the daily distribution of combat supplies.

6.39 Distribution Points are the points at which a units requirements are handed over to unit first line transport. Distribution Points may be established as follows:

- a. for the distribution of ammunition, petroleum and rations, on either a single commodity or composite basis.
- b. Alongside dropping or landing zones to facilitate speedy quality checks and subsequent issue to units.
- c. To distribute monthly bulk breaks of general stores, normally in conjunction with rations.

6.40 Distribution Point stock is normally on vehicles, but may be grounded.

### The Distribution Point Plan

6.41 The Distribution Point plan is promulgated by the staff and includes:

- a. the number, type and identification of Distribution Points;
- b. Distribution Point scalings;
- c. rendezvous locations;
- d. the units to be served by each point;
- e. timings for opening and closing;
- f. unit collection times if required;
- g. communications, and
- h. movement details.

6.42 The detailed planning, reconnaissance, siting, layout and operation of the Distribution Point is a transport squadron responsibility.

### Number and Location of Distribution Points

6.43 The number and general location of Distribution Points to support a force is a staff decision taken in conjunction with Commander Division Transport and Commander Divisional Supply, and is made with the following consideration:

- a. providing the necessary response to the forecast of operations and unit requirements;
- b. providing flexibility in replenishment, so that a force can manoeuvre and be regrouped without major administrative change;
- c. providing dispersion suitable to the concept of operations; and
- d. preventing route congestion or target concentrations.

#### Command, Control and Movement of Distribution Points

6.44 Command of Distribution Points is normally retained by the transport Squadron except that command for movement may be given to the supported formation.

6.45 The Transport Squadron headquarters maintain control over the operation of Distribution Points through the Distribution Point stock state record and commodity states record held by the Supply Office.

6.46 Distribution Points may be established for prescribed timings each day. This is the normal method of operation for Ration Points. Ammunition Points will normally operate continuously. POL Points may operate either way depending on anticipated movements within the support formations area.

#### Allocation of Combat Supply Personnel

6.47 The number of Combat Supply Platoon personnel allocated to a Distribution Point depends on:

- a. the commodity held in the point;
- b. the duration of the operation;
- c. the quantity of stock carried.

6.48 It is advantageous to allocate as many personnel as possible to the Distribution Point, thereby effecting greater control. Where stocks are held on the ground, or there is a need to conduct bulk breaks, the availability of personnel for allocation to Distribution Points is likely to be limited. In this situation, priority should be given to providing personnel to Ammunition Points and POL Points.

#### Responsibilities of Combat Supply Platoon Personnel

6.49 The Combat Supply Platoon personnel within a Distribution Point are responsible for the following:

- a. maintaining a record of issues conducted within the Distribution Point;
- b. maintaining the Distribution Point Stock State record;
- c. maintaining an accountable containers account for all units;
- d. authorising stock issues;
- e. conducting frequent spotchecks to ensure that the stock state record is current and task vehicle loading records are accurate;
- f. passing stockholding records to the Supply Officer as required, so that the Office records reflect an accurate statement of overall stockholdings within the platoon;
- g. advice to the transport unit operating the Distribution Points on technical matters, in particular, safety;
- h. advice to receiving units on technical matters;
- i. quality control over stock held within the Distribution Point; and
- j. other duties, such as guides, as required.

#### Requirements for Siting a Distribution Point

6.50 Requirements for the siting of a Distribution Point are:

- a. access to the MSR;
- b. good traffic circuits;
- c. concealment;
- d. transport waiting area;
- e. commodity circuits or areas;
- f. traffic control point;
- g. administrative area for:
  - (1) reception; and
  - (2) resting;
- h. suitable for radio communication to squadron headquarters; and
- i. sufficient are to allow for stock dispersal and safety distances.

6.51 Safety and storage criteria are contained in Chapters 14 (POL Operations) and 15 (Field Warehousing).

### Report Centre

6.52 The Report Centre controls and regulates the Distribution Point operation, it contains:

- a. Distribution Point Commander;
- b. Communications;
- c. Runners;
- d. RNZAOC Suppliers;
- e. Distribution Point State Record;
- f. Vehicle/Stack states;
- g. Circuit Plan; and
- h. Distribution Point Log.

6.53 RNZAOC personnel in the Report Centre are responsible for:

- a. authorising and maintaining a record of issues within the Distribution Point;
- b. conducting spotchecks to ensure that the stock state record and vehicle loading records are accurate;
- c. forwarding returns to the Supply Office as required;
- d. exercising quality control over stock held within the Distribution Point; and
- e. advice to the Distribution Point Commander and dependent units on technical/safety matters.

6.54 The Report Centre maintains the following records:

- a. Distribution Point State Record. The Distribution Point State Record is maintained by each Distribution Point and records the total asset available by commodity held by the Distribution Point. The record represents the stock ledger for the Distribution Point. (Annex C).
- b. Vehicle/Stack State Record. Vehicle/Stack State Records are maintained for each vehicle/stack in the Distribution Point. The records are maintained in both the Report Centre and the vehicle or stack location. (Annex E).

6.55 Issues from the Distribution Point are directed by the Report Centre and actioned as follows:

- a. the unit representative arrives at the Report Centre with a list of unit requirements. The list may be either:
  - (1) written on a proforma, plain paper, or message form;
  - (2) written on an AFNZ 10 or MD 315; or
  - (3) verbal.
- b. Report Central Staff:
  - (1) check the unit is entitled to draw from that Distribution Point. If they are not on the list of authorised units, issues are still to be made if possible, and the Supply Office advised.
  - (2) check stock availability and location;
  - (3) raise a Drivers Issue Order (Annex G);
  - (4) reduce stock figures on both the Distribution Point Stock Record and the Vehicle/Stack State Record;
  - (5) give the Drivers Issue Order to a guide who will accompany the unit representative around the Distribution Point;
  - (6) Release the unit representative and guide.

6.56 Receipts into the Distribution Point are actioned as follows:

- a. The driver reports to the Report Centre with the duplicate copy of the Vehicle/Stack State Record.
- b. The stock is added to the Distribution Point Stock State record as a new serial, and the duplicate copy of the Vehicle/Stack State Record is retained.
- c. The driver and his vehicle, under the control of a guide is escorted to the appropriate place in the Distribution Point, where, either the vehicle occupies the space vacated by a depleted vehicle or stock is transferred. Maximum use is to be made of empty vehicles returning to the squadron/platoon location to return salvage, stock returns, etc.

### Unit Replenishment

6.57 Unit replenishment at the Distribution Point occurs in the following manner;

- a. Unit vehicles follow the Distribution Point sign from a rendezvous point on the Main Supply Route and into the lying up area.



- b. Unit vehicles halt in the lying up area and unload salvage into the salvage bay.
- c. Unit representative reports (on foot) to the Report Centre where:
  - (1) the unit demand is presented. Formal demands are not required. Any entitlement queries are resolved.
  - (2) The Distribution Point Commander nominates the particular vehicle the items required are to be taken from.
  - (3) The RNZAOC representative prepares the applicable documentation for the unit as authority to uplift stock.
  - (4) The Distribution Point Stock State and Vehicle/Stack State records are amended.
  - (5) Unit vehicles are called forward from the lying up area on to the circuit and are guided to the bays indicated on the documentation.
  - (6) The RNZCT driver or RNZAOC supplier issues from his vehicle in accordance with the issue documentation.
  - (7) The vehicle stock state is adjusted and the issue recorded.
  - (8) The Unit representative checks out through the Check Point and is subject to a final check to ensure;
    - (a) the correct commodity and quantity has been issued;
    - (b) any adjustments to documentation are finalised; and
    - (c) The Driver Issue Order is completed, signed and retained by the Check Point personnel.
    - (d) Once replenishment is completed, unit vehicles and the unit representative marry up in the assembly area and convoy to their unit locations.

depart as a

### Account Consolidation

6.58 Daily at a predetermined time, all Drivers Issue Orders are to sent to the Supply Office. On receipt of the Drivers Issue Orders, the Supply Office is to:

- a. total all issues by commodity and Distribution Point.
- b. Deduct the issue totals from stock issued to the Distribution Point. This figure is to be compared to the latest Stock State Return from the Distribution Point. Any serious or manor anomalies are to be queried and where necessary, investigated.

- c. Forward to Commander Divisional Transport a Consolidated Distribution Point Consumption Report. (Annex H)

6.59-6.61 Reserved

## SECTION 6 : FRESH RATIONS

### General

6.62 This section deals with the procedures to be used when the Combat Supply Platoon is issuing fresh or canned equivalent rations. In most instances, stock will only be held for one day's consumption. The Combat Supply Platoon in this case is acting as a transit and bulk break facility, and will not maintain a ledger for fresh/canned equivalent rations.

6.63 Where stock is held in excess of one days consumption, the stock will generally be grounded. In this situation, the rations are treated (for accounting purposes) the same as other combat supply commodities.

### Bulk Break Procedures

6.64 On receipt of fighting strength states, the Supply Office is to prepare three copies of form AFNZ 637A Loading Lists for each unit.

6.65 On receipt of the bulk stock from the Replenishment Park, the Combat Supply Platoon is to:

- a. Break the stock into unit loads. Surplus stock is to be issued to the supported units to best advantage.
- b. Advise the Transport Squadron Operations Office of loads for each Distribution Point.
- c. Co-ordinate with the Transport Squadron Operations Office to ensure correct loading of rations.
- d. Ensure that copies 1 and 2 of the AFNZ 637A are held by the Report Centre of each Distribution Point.

6.66 The following procedure is to be followed at the Distribution Point:

- a. The Report Centre issue Copies 1 and 2 of the AFNZ 637A to the unit representative and guide. No Drivers Issue Order is raised in this instance.
- b. The unit representative uplifts and checks the rations against the AFNZ 637A, and signs the RECEIVED panel on the AFNZ 637A.
- c. At the Check Point, the unit representative hands in Copy 2 of the AFNZ 637A.
- d. The Check Point action the AFNZ 637A as a Drivers Issue Order.

6.67 Storage and handling procedures for fresh rations are contained in Chapter 13 of this manual.



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## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 7 - REPLENISHMENT PARK COMPANY OPERATIONS

##### SECTION 1

##### ROLE, CHARACTERISTICS AND ORGANISATION

###### General

7.1 A replenishment park company (RP) is a corps troops unit responsible for supplying combat supplies (C Sups) forward to the divisions being supported.

###### Role

7.2 Primary Role. The primary role of an RP is to provide a 'corps day' worth of C Sups. This means that it can issue forward sufficient C Sups to satisfy the demands of a corps for one day or a division for up to four days. The support to divisions may be met by the deployment forward up to three replenishment park platoons.

7.3 Subsidiary Roles. Subsidiary roles of an RP include:

- a. Inspection and repair of ammunition,
- b. it is widely dispersed making control both critical and extremely difficult, and
- c. it cannot depend itself.

###### Organisation

7.5 The outline organisation of an RP is given at Annex B to Chapter 2.

7.6 - 7.8 Reserved.

## SECTION 2

### COMMAND AND CONTROL

#### Command

7.9 Command over an RP is exercised by the Commander Corps Supply (CC Sup). He is normally located at Headquarters Corps (Rear).

7.10 Occasionally local command and administration may be developed to a rear area headquarters. This headquarters would take much of the burden of low level administration from the Corps Headquarters. Technical direction remains with CC Sup in this situation.

7.11 Reserved.

7.12 Reserved.

7.13 Reserved.

## SECTION 3

### SITING AND LAYOUT

#### Siting

7.14 General. The RP is located in the Corps Support Area (CSA). It is normally positioned approximately 80km to the area of the divisions it supports. Where topography precludes siting the RP this close an exchange point (XP) is established either midway between the RP and the divisional maintenance area (DMA) or on the divisional rear boundary.

7.15 Factors. Factors which affect the siting of an RP include:

- a. The assessment of Enemy Intentions. In an advance RPs are likely to be sited forward whilst in a withdrawal they will be sited as far to the rear as practicable.
- b. Availability of Transportation Systems. Due to the large tonnages moved through an RP it is an advantage to site it close to rail systems especially good sidings. Certainly the RP should be sited close to the main supply route (MSR).
- c. Air Activity. If enemy air activity is likely then dispersal, camouflage, track discipline and movement by night become extremely important.
- d. Ground. RPs may be located either in wooded country or built up areas. Both have certain advantages although on balance built up areas are better. The advantages attached to each type of location are:
  - (1) Built Up Areas
    - (a) Good existing stores and garages can be utilised.
    - (b) Road systems already in existence reduce the need for track discipline.
    - (c) Buildings provide good concealment from aerial reconnaissance especially infra red photography and thermal imagery.
    - (d) Telephone systems, especially with line laid underground, proved to be very resistant to war damage. Accordingly, they can be used to supplement other means of communications.
  - (2) Woods.
    - (a) Good cover from view is possible.
    - (b) Woods offer better defence than towns.

have



- e. Expansion. If an RP is likely to be static for some time the site must be large enough to allow for expansion. This may be necessary to accommodate increased stocking or allow the unit to carry out its secondary roles.

## Layout

7.16 There is no standard layout for an RP. In practice the layout must be adapted to the terrain encountered.

7.17 Important points to be considered when laying out an RP include:

- a. Two Point Dispersal. Due to the vulnerability of RP stocks to both air and ground attack, planners should ensure that every item held is stored in at least two locations. This reduces the likelihood of losing all stocks of an item in a single attack. Up to four point dispersal should be considered for POL products.
- b. Loop Circuits. Control within a large dispersed RP, poorly equipped with integral communications equipment, is difficult. Many of the difficulties can be reduced by ensuring that vehicles enter and leave the circuit by passing a control point. Normally separate loops will exist for ammunition, POL and foodstuffs.
- c. One Way Traffic. Traffic must be one way only within the traffic circuits for an RP. This becomes critical when operating at night without lights.

7.18 Reserved.

7.19 Reserved.

7.20 Reserved.

7.21 Due to the need to widely disperse RP personnel to carry out the primary role of the unit, it is not possible for an RP to depend itself.

7.22 Outside Assistance. The Corps Commander may allocate an infantry battalion from his Corps reserve to defend an RP. Alternatively other corps units may be co-located with the RP. These can be called upon to provide local area security, ready reaction and counter attack forces if necessary.

7.23 Air Defence. An RP can only offer passive air defence. This is provided by attention to camouflage and concealment, dispersal and track discipline.

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## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 8 - REPLENISHMENT PARK ACCOUNTING PROCEDURES

##### General

8.1 A Replenishment Park is established to provide third line combat supply support to a force. Stock holding levels are established by Corps staff, based on a combination of forecasts, known future activities and experience, with due consideration given to factors as likely threat, terrain, transport availability and environmental conditions. Stock is delivered into the proposed park by fourth line transport, with additional stock from exhausted parks being delivered by third line transport.

8.2 Replenishment Parks are not normally replenished in location. Accordingly no replenishment action is needed, except where insufficient stock of particular items have initially been forecast. Accounting action in Replenishment Parks is therefore limited to:

- a. authorisation of stock issues;
- b. accurate recording of stock issues and balances;
- c. accurate recording of stock locations; and
- d. the provision of consumption data to Corps staff.

##### Authorisation of Issue

8.3 Issues of stock from a Replenishment Park are authorised by the senior person present at the park to ensure:

- a. denomination of quantity is correct (ie, rounds not boxes, rations not packs of rations etc). This ensures that actual requirements are met, and under or over issues are avoided,
- b. that unusual issues or trends are identified at the earliest opportunity.

##### Recording of Stock Issues and Balances

8.4 Stock issues and balances are maintained in the same way as stock held by Combat Supply Platoons. The size and relatively low manpower of a Replenishment Park make it essential that stock balances are accurately maintained.

##### Stock Location

8.5 Stock within a Replenishment Park is likely to be dispersed over a large area. This dispersal means that the accurate recording of stock locations may be the only way to find stock for issue.

8.6 A detailed Park Plan, in conjunction with signposting and a site stock identification system are critical to the functioning of the park. The Park Plan should identify:

- a. stock locations, by commodity and site;
- b. access routes;
- c. administrative and work areas; and
- d. the defensive plan.

### Consumption Data

8.7 The provision of consumption data complements the initial forecast and provides staff with valuable information on:

- a. the likely length of time the park can operate effectively;
- b. opening times for future parks;
- c. historical data for the stocking of future parks.

8.8 Reports and returns are to be furnished to Corps staff as follows:

- a. Six hourly. A stock status return is to be forwarded every six hours. This return is to be in the format contained in Chapter 6.
- b. 24 hourly. A consumption report for each Combat Supply Platoon is to be forwarded every 24 hours, summarising issues. This report is to be in the format contained in Chapter 6.

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PART II - FIELD OPERATIONS

CHAPTER 9 - STORES SECTION OPERATIONS AND ACCOUNTING

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## DOS PROCEDURE ISNTRUCTIONS

### PART II : FIELD OPERATIONS

#### CHAPTER 9 : STORES SECTION OPERATION AND ACCOUNTING

##### SECTION 1 : GENERAL PRINCIPLES AND RESPONSIBILITIES

###### Introduction

9.1 RNZAOC Stores sections are part of the RNZEME workshops and provide the stores required for the repairs which they carry out. These stores sections are manned by RNZAOC personnel who have the necessary technical knowledge to provide the stores required both speedily and in correct quantities.

9.2 The basic methods and procedures described in this instruction apply to all stores sections. However, there is a wide variety in the type of RNZEME workshops and in their dependencies, so their work and that of their stores sections will vary accordingly. Each stores section is designed to enable it to support its parent workshop.

9.3 The accounting instructions laid down in this section are those to be followed on operations. Where any procedure contravenes that laid down in NZ P106, the NZ P106 procedure is to be used in peace.

###### Role

9.4 The role of RNZAOC stores section is to provide dedicated support in the form of spares and associated items to meet the needs of a dedicated RNZEME Workshop.

###### Command

9.5 A stores section is under the command and administration of the officer commanding the workshop. The officer or NCO in charge of the stores section will have direct access to the OC workshop in all matters affecting the internal functions of the stores section.

###### Technical Control

9.6 The technical control of stores sections is vested in the senior ordnance officer of the appropriate formation headquarters. He is responsible for monitoring the service provided to RNZEME by the stores sections in the formation. He will exercise this responsibility by giving technical direction and carrying out technical inspections.

###### Siting, Defence and Movement

9.7 These problems are the responsibility of the OC Workshop. The principles to which the OC stores section should adhere are the same as the Field Supply Company operations.

###### Responsibilities

9.8 While the organisation of each stores section will vary according to the type of workshop it is supporting, the officer or NCO in charge of each stores section is responsible to both the OC workshop and the senior ordnance officer at formation headquarters, for the following common functions:

- a. Receipt and issue of stores.
- b. Provision, control and accounts.
- c. Stock maintenance.
- d. Local purchase (where authorised).
- e. Organisation, control and training of staff.

9.9 The Senior SNCO of each stores section is to be the accounting officer.

9.10 The officer or NCO in charge of each stores section is to be conversant with, and have access to, DEME Instructions.

9.11 As unlimited stocks in range and quantity cannot be held, it is the responsibility of the officer or NCO in charge of each stores section to use foresight to ensure that stores required but not held in stock are obtained quickly, and that provision action is taken in anticipation of future requirements.

9.12 The NZET account in each stores section is to be controlled by the workshop accounting officer.

### Organisation

9.13 Each stores section establishment is designed to enable the unit to carry out its functions in support of the type of workshop to which it is attached. Thus the establishment is drawn up to cope with the declared role of the workshop at that particular time. The establishment must be amended to correspond with any significant change in the role or establishment of the workshop.

9.14 Other factors which will affect the organisation of a stores section are as follows:

- a. The deployment of the workshop effort and the distances involved.
- b. The type of operation and the means of maintenance.
- c. The workshop role.

9.15 When the organisation, role or deployment of the workshop is significantly changed it is essential for the stores section establishment of men and vehicles to follow suit. It is the responsibility of the OC workshops, advised by the officer or NCO in charge of the stores section, to request any change in the stores section establishment and sealings.

9.16-9.18 Reserved.

## SECTION 2

### TECHNICAL FUNCTIONS

9.19 The type of workshop and its role will dictate the composition of the stores section, its range of spares, the degree of its inherent mobility and its accommodation.

9.20 Stores sections activities comprise:

- a. provision of spares, assemblies and stores to cover the appropriate levels of repair of the workshop;
- b. issue of expendable/consumable stores in bulk to the workshops; and
- c. backloading of selected repairable assemblies.

9.21 When a repair programme of a particular range of vehicles, equipments or major assemblies is to be undertaken by a workshop, it will normally be pre-planned since it generally necessitates the provision of special scales and stores. The OC workshop is responsible for giving the maximum notice of any special programme so that the required stores may be available. The officer of NCO in charge of the stores section must maintain close liaison with him on this aspect. If this is not done, delay and unnecessary disruption of the workshop output will result.

9.22 Stores sections obtain their stores either direct from the base area or through an intermediate base. In the case of normal stock replenishment, this is a routine matter, but there will always be a number of items urgently required and not in stock at the time. The efficiency of the service provided by a stores section will largely depend on an effective system for conveying demands quickly to the source of supply and the rapid delivery of the stores. The system will be supplemented by a 'search' system designed to explore the availability of urgently required items in other stores holding units of the formation. The details of the 'search' and subsequent cross servicing system will depend on local conditions and will therefore be incorporated in standing operating procedures or other appropriate orders.

#### Scalings

9.23 Scalings are based on the vehicle and equipment dependency and the stock holding period. Initial scales must therefore be constantly amended in the light of issue experience. The range of items held should match the makes and types of vehicles and equipments held by the formation which the workshop serves. The senior RNZAOC officer at formation headquarters is responsible for the issue of technical direction on in-scaling and out-scaling policy. Stores sections are usually scaled for a two month (60 day) period.

#### Stocks

9.24 Stocks consist of detail, bulk and major or minor assemblies which may be heavy and cumbersome. As stores sections are mobile units and carry their own stores, stocks must be kept within the carrying capacity of the vehicles. To achieve this a constant watch must be kept on items which are no longer required or have a low priority. An efficient system must be devised for the rapid clearance of these items from stock.



## Stock Maintenance and Location Systems

9.25 This involves the maintenance of an accurate location system, the avoidance of multi locations, keeping a system of recording supersessions and parts changes up to date. If stock maintenance is bad the stores section cannot give efficient service. All stock maintenance activity has one purpose to facilitate the efficient issue of stores; officers or NCOs in charge are to be continually mindful of this important function.

9.26 Each stores section is to employ an efficient location system which is to be similar to that employed by the Field Supply Company. Location records are to be maintained for all items, either detail or bulk.

## Major and Minor Assemblies

9.27 Assemblies are to be issued to the workshops on a one-for-one basis. The supply of serviceable assemblies is directly dependent on an efficient system for the backloading or repairable assemblies. The operation of such a system is the responsibility of the officer or NCO in charge of the stores section.

9.28-9.30 Reserved.

## SECTION 3

### RECEIPTS PROCEDURE

#### Outline Action

- 9.31 The receipt procedure is as follows:
- a. Receive consignment, and check packages, against documentation.
  - b. Check in detail against voucher identification, quantity and condition.
  - c. Vouchers to control and accounts for:
    - (1) location,
    - (2) entry on receipt voucher register,
    - (3) check against dues out, and
    - (4) posting.
  - d. Vouchers returned to stores which are put to stock or issued if due out.
  - e. After stores put to stock, voucher returned with location amended if necessary. If location has been amended by the stores cell the stock record card is to be amended accordingly.

#### Special Cases

9.32 Initial Receipt. Stores received for the first time will be given a location by the storeman in charge of the section or cell who will enter the location on the receipt voucher before passing it to accounts for posting.

9.33 Stores Received Without Voucher. The storeman will make out two copies of a certificate receipt voucher (CRV). If vouchers arrived later they will be cross references to the CRV.

9.34 Stores Obtained by Local Purchase or Manufacture. These items are to be brought to charge by CRV/TY 125. The information is essential for future provision.

#### Detailed Procedure

- 9.35 The detailed procedure for the receipt of stores is as follows:
- a. The quantity of cases, parcels, boxes etc will be checked to ensure that the correct quantity of containers have been received.
  - b. The quantities of stores actually received will be checked against the packing

list.

- c. If the quantities agree, the packing list will be registered in the receipt voucher register and the receipt voucher number inserted in the appropriate space on the packing list.
- d. If the demand has been supplied in full, the demand copy will be taken off the demand file and destroyed. If the demand has been supplied in part, the demand will be registered as in c. and the details transposed to the demand file copy; ie; the issuing unit issue voucher number, quantities issued and relevant dates etc. The receipt voucher number is to be recorded in the appropriate column of the demand register.
- e. The receipt voucher will then be posted to the stock Record Card (see para 9.36) and the postings checked by another person. Locations of the stores received will be noted on the voucher if the items are for stock and the items located in their correct places in the trucks. If the items are due out, the voucher will still be posted, then the stores will be issued off to the particular job or section they were due out to, as detailed in the issues procedure.
- f. Upon receipt of the receipt voucher copy the receipt voucher number on the packing list will be transferred to the top copy to be endorsed with details showing how the stores were expended and signed by the AO of the stores section. This copy is then filed on the receipt voucher file.

### Posting a Receipt

9.36 When a receipt voucher is posted, the following details are to be shown on the stores record card AFNZ 162 (see example in Section 4).

- a. The date of the receipt in column 1.
- b. Receipt voucher No in column 2.
- c. The unit who issued the stores in column 3.
- d. The quantity received in column 4.
- e. Stock balance in column 6.
- f. If received, in full, the quantity in the dues in column 8 must be amended.

9.37 Discrepancies. When stores are checked against vouchers and a discrepancy is found, the items showing damage or discrepancy should be segregated, the receipt voucher amended to agree with the quantity of nomenclature received and the amended figure brought on charge. For exercises held during peace and full peace-time procedure for dealing with discrepancies will then be followed in accordance with DOS Procedure Instruction Part 1. In an operational situation, once the amended quantity is brought to charge no further action need take place unless more stock is to be demanded to meet the original requirements.

9.38-9.39 Reserved.



## SECTION 4

### ISSUES PROCEDURE

9.40 To meet the wide variety of stores issued by the Stores Section it is necessary to adopt issues procedures to deal with them. These issues procedures are given below:

- a. Expendable/Consumable. These are issues of expendable/consumable stores which do not have a job number and not accountable items. The issue of these items are 'Bulk issues' with the AFNZ 714 being endorsed. These stores are written off on an AFNZ 714 Workshops stores issue voucher, which in turn, is posted to the ledger as an issue. The person drawing the stores will sign for them on the AFNZ 714.
- b. Non-accountable Stores. These are all other items which are not classified as either expendable consumable or accountable. The issues of these items are recorded on the Stores Section copy of the AFNZ 456, and the AFNZ 456 job number is posted to the ledger. If there is no AFNZ 456 then they are issued on the AFNZ 714.
- c. Accountable Stores.
  - (1) These are, in the main, attractive items of a reasonably costly nature, or are the minor or major assemblies. The OC Workshop or IC Stores Section may require any item to be deemed accountable if circumstances so warrant such action.
  - (2) When accountable stores are issued they will be issued from an AFNZ 714 which is stamped "Accountable" and registered as an issue voucher. The AFNZ 714 will be cross referenced to the job number and the person drawing the stores will sign for them in the column provided. All accountable stores will be recovered and minor or major assemblies will be issued on a one-for-one basis. The ledger will then be posted using the AFNZ 714 reference as an issue number. If for any reason such as destruction by enemy action, an accountable item cannot be produced for exchange, Column 8 of the AFNZ 714 is to be endorsed accordingly.
  - (3) Upon receipt of the unserviceable stores the stores section will raise an AFNZ 456 if it is within the capability of the workshop to repair the item. Upon call up, the items will be forwarded to the workshop and after repair, will be returned to stock using AFNZ 456 number as a receipt voucher number. If the item cannot be repaired the workshop will condemn the item and the item will then be written off in column 9 of the AFNZ 714. If the item is beyond the capability of the workshop to repair, it will be backloaded to the sup agency who will take the required action to have the item repaired or condemned.
  - (4) It is the responsibility of the stores section to transfer issue of accountable items to the stores copy of the AFNZ 456.

## Issues to the Supply Agency

9.41 Issues to the sup agency will be one of two types of issue:

- a. Outscaling. To be issued when reviews show that items are not receiving sufficient issue experience to warrant their retention in stock. Issues will be made by MD 315 showing the reason for the issue.
- b. Backloading. Unserviceable stores which are beyond the capability of the parent workshop will be issued to the supply agency for further repair action. Care must be taken to show that the stores are unserviceable. The issue voucher and the AFNZ 714 on which the replacement item was issued are to be cross-referenced.

## Posting an Issue

9.42 When posting an issue voucher, the following procedure must be followed. The ledger must be filled in as follows on the AFNZ 162:

- a. The date of the issue in column 1.
- b. The issue voucher number in column 2.
- c. How the issue was made, eg AFNZ 714, AFNZ 456, or the unit the stores were issued to in column 3.
- d. The quantity actually issued in column 5.
- e. The new stock balance in column 6.
- f. If the items were due out, the quantity shown in column 10 is to be reduced accordingly.
- g. The new net position in column 11.

9.43-9.45 Reserved

## SECTION 5

### PROVISION

9.46 There are three main terms covering the provision of stores. They are as outlined below:

- a. The MA - Maximum Asset
- b. The MMF - Monthly Maintenance Figure
- c. The ROL - Reorder level

9.47 The MMF is reached by adding the total numbers of normal issues over 12 months and dividing the total by 12.

9.48 Provision replenishment action will be taken when the stock figure is at, or below ROL.

9.49 The MA is tow times the MMF.

9.50 When demanding on the supply agency, the quantity demanded will be equal to the MA plus dues out.

9.51 Provision action will be taken when the stock figure is at, or below the ROL. If provision action is required and the demand cannot be raised immediately then the ledger will be signalled with a coloured mark in the bottom right hand corner. These colours have different applications and the following colour code will apply:

- a. Blue - provision action is required.
- b. Green - stocks are surplus to requirements.

9.52 At the end of each day the clerk will prepare demands on the Supply agency for the MA plus dues out shown on the card. Owing to modifications, seasonal fluctuations etc the MMF will vary and provision reviews should be carried out progressively with the aim of reviewing each item once every six months. Where replenishment action is required more than twice during a three-monthly period, the indication is that the MMF and ROL are too low, and an interim review may be necessary to adjust this.

9.53-9.55 Reserved.



## SECTION 6

### STOCKTAKING

9.56 Stocktakes within the stores section should take the form of a cyclic stocktake with the ultimate aim of ensuring that every item of stock is counted as often as the situation dictates. If the stock discrepancy rate is high the stocktaking cycle must be increased. A stocktake report (MD 738) will be prepared in duplicate. Stock number, item names and locations only will be entered. The stocks and quantities will then be checked and entered on the MD 738.

9.57 When the section is completed, the ledger balances will be entered on the MD 738 and surpluses and/or deficiencies will be shown. The persons carrying out the stocktake will examine the items for condition as they count them. Only serviceable items will be recorded; unserviceable items will be segregated for either AFNZ 456 or write off action. If preservation or other stock maintenance is needed, the fact should be recorded and action taken as soon as possible.

9.58 Ledger cards will be posted from the stocktaking reports. A red line will be drawn across the ledger card. Immediately below the line will be entered the date of the stocktaking report, its serial number, and the actual serviceable stock held. Discrepancies will be investigated.

9.59 Distribution. The MD 738 is to be used as follows:

- a. Copy 1. Held pending return of copy 2. On return of copy 2, the stock figures will be transcribed to copy 1. This will be used to adjust the ledger. It is filed in serial number order on the stocktake file.
- b. Copy 2. This copy is used when the physical stocktake is carried out, as a working copy. After action is complete it is destroyed.

9.60-9.62 Reserved.

DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS

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CHAPTER 10 - MOBILE SHOWER UNIT OPERATIONS

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## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 10 - MOBILE

#### SHOWER UNIT OPERATIONS

#### SECTION 1 - INTRODUCTION

##### General

10.1 The bath section provides shower facilities and a change of underclothing for its dependency. It comprises two detachments, each capable of processing 800 men per day. Although the bath section is part of the field supply company, it will normally operate away from the parent unit and should not therefore be considered in any area defence play or ready reaction roles. The section gives valuable and appreciated service and its careful use can contribute considerably to the maintenance of good morale of troops in the field.

##### Technical Equipment

10.2 Currently, a Fd Sup Coy has one shower section. The current shower equipment for a detachment comprises the following elements, which can be carried on a Unimog 1700L and 1 ton trailer:

- a. Water pump.
- b. Power generator.
- c. Hot water generator and heat exchanger.
- d. Two shower stand platforms each with four shower heads.

The vehicle also carries the detachment personnel, a scaling of underclothing, two 11 ft x 11 ft tents with extensions and duck boards.

10.3 Each equipment uses 1080 gallons of water per hour on continuous use.

##### Command

10.4 The shower section operates under the technical control of the RNZAOC staff officer on the formation HQ. The NCO IC section is his representative on the ground. The Ordnance responsibilities for the operation of the shower section are:

- a. Control and co-ordination of the operations of the section.
- b. Allocating the unit and advising opening and closing times.
- c. Co-ordinating any repair requirements for the shower equipment.

- d. Providing a change of underclothing for personnel being showered.
- e. Provision of fuel for the generator.

10.5 The unit being showered, or that which the shower section is attached to, is responsible for:

- a. Local defence of the section including, when requested, escort to and from the unit area.
- b. R and Q of the section personnel.
- c. Discipline and organisation of personnel being showered after being briefed by the NCO IC Shower Sect.
- d. Providing soap and footpowder.

10.6-10.8 Reserved.

## SECTION 2 - SITING AND LAYOUT

### Siting

10.9 The shower unit is very portable and therefor may be operated either from the deck of its truck or on the ground. During most operations it will be operated from the ground. The equipment is fully air portable.

10.10 Factors which must be considered in sighting the section are:

- a. Good availability of water.
- b. An adequate, medically acceptable, means of sullage disposal.
- c. Proximity to units being supported.
- d. Adequate protection arrangements for the section (provided by the unit being supported).
- e. Provision of hard standing.

10.11 The section can operate away from a water source by using tanks or rubber bladders, provided water can be piped or carried to the storage containers. The task of carrying the large quantities of water needed for showering is usually prohibitive, except after a long period of development of the area.

### Layout

10.12 A suggested layout for a shower section is shown at Annex A.

### Sanitary Measures

10.13 The following sanitary measures should be observed in the shower section area at all times:

- a. Duck boards are required, if possible there should be two sets for use on alternative days. On days when they are not being used they should be scrubbed and allowed to dry in the sun.
- b. Drainage ditches must be dug in the showering area to avoid the accumulation of water.
- c. Operating personnel should pay particular care to their own personal hygiene.
- d. Containers should be provided for discarded soap wrappers.
- e. Latrines should be provided for personnel using the showering facilities. These must be located down stream from the bathing area.

- f. As a general rule soap and footpowder will not be provided by the shower section.
- g. In areas where water supplies are not chlorinated (ie when water is being taken from a stream or lake etc), a warning sign should be erected at the entrance to the bathing area stating “water NOT chlorinated - DO NOT DRINK”.

Safety Precautions

10.14 Smoking is not permitted in the following areas:

- a. Changing tent or area.
- b. Showers.
- c. Within 30 feet of the bath truck (equipment is gasoline fired).

10.15 The NCO IC shower section will ensure that appropriate signs are displayed in conspicuous places.

10.16-10.18 Reserved.

## SECTION 3 - OPERATION

### General

10.19 A workload programme is prepared by the ordnance officer of the formation in consultation with the SO2 Log of a divisional headquarters or the SO3 Log of a brigade headquarters. The programme is based on a number of factors including the number of troops to be bathed, their location relative to suitable shower sections, sites and the capacity of the equipments.

10.20 Providing the water supply is adequate, the capacity of each shower section is determined by the time each man is allowed to shower, which is normally 2-5 minutes.

10.21 The programme should be so arranged that each shower section receives a party of eight men every 2 -5 minutes.

### Procedure

10.22 On arrival at the shower section, men proceed as follows:

- a. To a change tent or area to undress and place soiled underclothing in the appropriate receptacle, and their outer garments in bundles in areas indicated.
- b. To the shower, each man taking his towel with him.
- c. Bathe, dry and return to the change tent or area.
- d. Collect clean underclothing from the change tent or area (arranged by size).
- e. Dress and Leave.

### Co-ordination of Planning

10.23 The following table shows how work is co-ordinated to achieve maximum output for a bath section detachment:

<u>Time</u>	<u>Party No 1</u>	<u>Party No 2</u>
0800	Enter change area	
0805	Enter shower	
0810	Leave shower	Enter change area
0815	Enter shower	
0820	Depart	
0825		
0830		Depart

Party No 3 arrive at 0820 hours and the cycle would continue.

### Accounting for Underclothing

- 10.24 The shower section will take the following action on receipt of soiled underclothing:
- a. Total number of garments by each type are to be entered on MD 315.
  - b. Items will be forwarded, vest and shorts packed separately, in bags to the laundry section of the Div Tps Fd Sup Coy.
- 10.25 Replenishment of the shower section stocks will be on a one for one, size for size, basis.
- 10.26-10.28 Reserved.



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PROCEDURE INSTRUCTIONS

PART II - FIELD OPERATIONS

CHAPTER 11 - MOBILE LAUNDRY UNIT OPERATIONS

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	B. Laundry Unit FW37	

# DOS PROCEDURE INSTRUCTIONS

## PART II FIELD OPERATIONS

### CHAPTER 11 MOBILE LAUNDRY UNIT OPERATIONS

#### SECTION 1 - INTRODUCTION

##### General

11.1 In the NZ Army, laundry services are operated by the Laundry Section of the Divisional Troops Field Supply Company. Currently, the laundry equipment comprises two trailer mounted laundry units, Model FW37 of West German manufacture.

##### Aim

11.2 The aim of this DOS Instruction is to detail the role, siting, handling and operation of the laundry section in the field.

##### Tasks

11.3 The tasks of the laundry section are as follows:

- a. The provision and operation of laundry facilities for the Medical Unit being supported.
- b. To launder soiled clothing received from the shower sections.
- c. To provide such other laundry facilities as may be directed.
- d. Assistance if necessary in the decontamination of clothing after chemical or nuclear attack.
- e. To stock and maintain replacement under-clothing for the immediate replenishment of the Shower Section and Fd Sup Coy.

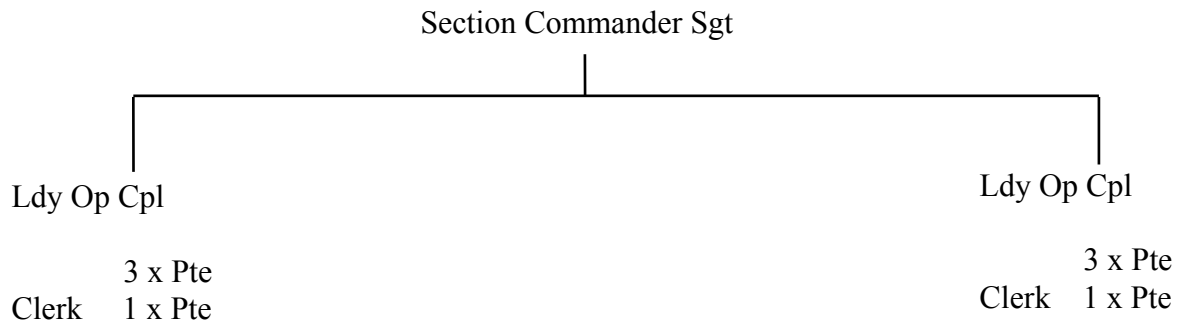
##### Command and Control

11.4 The laundry sect is one of the four sections that make up the Service Platoon and thus is directly controlled by the Platoon Headquarters which in turn is controlled by the OC Fd Sup Coy (Div Tps).

11.5 The commander of the service platoon has control over all personnel employed in, or moving in or attached to, the laundry section, however he uses the Section Commander's technical expertise in his handling of the laundry section.

##### Functional Organisation

11.6 The laundry section is capable of forming two separate operating sub units each with a laundry equipment. Each sub unit would be manned by a Cpl, three operators and one clerk. The overall control of both sub units is the responsibility of the section commander who is a Sgt.



11.7-11.9 Reserved.

## SECTION 2 - SITING, LAYOUT AND INSTALLATION

### Siting

11.10 Although the laundry units are trailer mounted and fully mobile, they should be sited in a semi-permanent position because the units being supported will usually be of the more static type. The units do not have the capability of providing sufficient water, therefore siting close to a water supply is essential and they must be sited on reasonably firm and level ground.

11.11 Good drainage of the waste water is necessary and the FW37 has the capability of being connected to mains electrical power and carries a 40 metre power supply line. If mains power is not available the unit can be operated with its own generator.

### Site Selection

11.12 The following factors are to be considered when selecting a site:

- a. The availability of water.
- b. Good drainage.
- c. The proximity of the unit being supported.
- d. Firm and level standing.
- e. The availability of mains power.
- f. Good access routes.
- g. The utilisation of standing buildings.
- h. The availability of open air drying facilities when operationally possible.

### Water

11.13 If a water mains supply is available, there is a 1¼ inch water connection with a special 'quick coupling' located on the front side of the washing unit.

11.14 If a pool or river is used to supply water then the pump is to be located on the bank and positioned so that the pump is not higher than seven metres above the water level and the suction hose is as short as possible. A suction filter device is provided for connecting to the rubber suction hose to ensure water is provided as clean as possible. Depending upon the condition of the water it may be expedient to hook the suction filter to the float and fix it to the bank with a special cord, which is supplied with the unit. In this position the pump sucks the water from a depth of 40 centimetres.

11.15 When the pressure hose is connected from the pump to the washing machine the pressure hose is to be turned three times counter clockwise to prevent loosening during operation. Protection clamps are provided for these couplings. Two pressure hoses are available each having a length of 20 metres.

11.16 Water equipment is to be maintained as follows:

- a. During winter the pump is to be emptied after use.
- b. During transportation the pressure, suction and waste water hoses are to be coiled up on a reel mounted on the drying unit.
- c. The two pressure hoses are to be coiled up in the two compartments in the middle of the reel.
- d. The 5 metre and one ten metre suction hoses are to be coiled up together.
- e. It is very important that the rubber suction hoses are never bent, squeezed or used as pressure hoses.

### Effluent

11.17 The effluent consisting of dirty water, and detergent suds discharged by the laundry units, can contribute towards a health hazard, particularly if discharged into sources of drinking water. Adequate drainage is essential.

11.18 At the front of the washing unit there is a 2 inch connection for the waste water (below the connection for the water supply). A waste water hose is also provided from the hydro-extractor and both these hoses can be joined by means of a T junction. When fitting the T junction it is important that the waste water of the washing machines flows in a straight line, therefore the waste water hose of the hydro-extractor is to be connected at a right angle.

### Electricity Supply

11.19 The mobile field laundry is provided with an electrical connection of 3 phase current of 380 volts and 50 cycles with a neutral conductor circulated to earth. There is a 40 metre mains cable with the mains plug connected at the drying unit. The fuses for the main cable must be set at 15 amps.

11.20 If mains power is not available the unit can then be powered by its own generator. To install the generator carry out the following sequence:

- a. Connect the main plug connection on the drying unit to the generator using the short cable.
- b. Plug the 10 metre cable from the generator plug marked "supply for washing trailer" to the washing unit plug marked "supply".
- c. Plug the 40 metre cable for the pump into the plug marked "pump" on the left side of the washing unit and into the plug fitted to the pump.

- d. Push the earthing rod into the ground and connect it to the generator by means of the earth wire. Fill the earthing rod with water.
- e. Attach the flexible metal tube onto the exhaust outlet of the generator securing with a fixing screw.

### Fuel Burners

11.21 The three fuel burners of the two washing machines and tumble dryer are equipped with a separate fuel tank each having a capacity of 50 litres.

11.22 During transportation, the burners of the washing machines are fastened to the front panel of the tumble dryer and the burners fuel pipes are fixed onto the washing machines by means of their quick release couplings.

11.23 In operation the washing machine burners are fitted to the side of the stove of the washing machine. They are secured in place by fixing pins.

### Lighting

11.24 Two hand lamps are provided for the lighting of the field laundry and can be fixed to the framing of the canvas. Four plugs are available for the connection of the lamps, two on the generator and one each on the washing machines.

### Operational Layout

11.25 The operational layout of the laundry sect should include the following areas:

<u>Areas</u>	<u>Remarks</u>
a. Section HQ	Visitors report centre Daily state board.
b. Stores	Holdings of replacement items for shower units, decontamination etc
c. Plant	Located for easy movement in emergency. Tidy work area.
d. Vehicle Parks	Laundry Sect Visitors
e. Bivouac	This area may be within the Service Pl area or the lines of the Medical unit being supported.

### Security

11.26 The laundry facilities will always be deployed for defence, in conjunction with a larger unit such as the Service Pl or the Medical Unit being supported. The laundry section will probably

be responsible for a sector of the combined units perimeter. The co-ordination of defence will normally be the responsibility of the OC Service Pl or the Medical Unit being supported.

11.27-11.29      Reserved.

## SECTION 3 - OPERATION OF THE EQUIPMENT

### Operation of the Laundry Platoon

11.30 The laundry section will normally operate as a single section using both machines at the one side. This will greatly ease the workload in the section and will permit the continual operation of both equipments for two eight hour shifts each day.

11.31 The laundry units should preferably be sited alongside each other to enable maximum use to be made of their canvas covers for shelter. Siting should be commensurate with quick evacuation in the event of fire, flooding or tactical movement.

11.32 The detailed operation policy for the section will be decided by the OC Fd Sup Coy (Div Tp) in conjunction with the CO of the Medical Unit being supported and service platoon commander.

11.33 Detailed instructions as to the brand names and special quantities of commercial detergents, bleaches and soaps, as well as treatment for various types of clothing, fibres and materials will be issued in special instructions from DOS as required.

### First Aid and Fire Fighting

11.34 First aid kits will be carried with each of the laundry units. The First Aid Instructions as laid down in the parent unit Standing Orders will be strictly followed. These should include treatment for electric shock, burns, exhaust gas poisoning and skin diseases.

11.35 Foam and chemical fire extinguishers of the appropriate type will be carried with each laundry unit. Care should be taken that the burner exhausts from the plants are not placed in the proximity of any flammable material. The Unit Standing Orders regarding fire precautions must be closely followed in the unit area. Tents, spare fuel and vehicles are to be adequately covered with fire fighting equipment.

### Safety Precautions

11.36 Do not operate the unit in an enclosed area unless the exhaust gases are piped outside. Inhalation of exhaust fumes can cause death.

11.37 Do not make any electrical connections or perform any electrical maintenance on the unit while it is in operation. The unit operates on high voltage and amperage which can cause death.

11.38 The unit must be suitable grounded. Electrical faults in the unit can cause death if the ground connection is inadequate.



## The Electrical Supply

11.40 Switch on the mains circuit or put the generator into operation according to the special instruction manual for the generator.

## The Water Supply

11.41 Switch on the pump with the protection switch which is found on the small switching board below the fuel tank on the left side of the washing unit.

11.42 Open the water valves on the washing machines until the water is free from air bubbles, ie; until the whole water pressure line is completely full of water.

11.43 Between the water supply line and the waste water line is a valve with a special seal with a small hole which allows a continuous flow of water to pass from the water supply line to the waste water line. This prevents the temperature of the pump becoming too high in the case of water valves being shut. To keep this valve in good condition open and close it once every day. If the water is supplied by means of a water mains, the special seal in this valve can be exchanged for a normal packing which is supplied with the equipment. The valve is then shut tightly, however this should only be done in cases of water shortage. If during operation the efficiency of the pump decreases then the suction filter device is to be cleaned.

## The Fuel Burners

11.44 The burners must only be ignited if the washing machines are filled with water or if the exhaust fan of the tumble dryer is switched on. Swing out the burner. Switch on the suction fan and check for correct operation. The magnetic valve for the fuel opens when the suction fan is switched on. Open the fuel stop cock of the fuel tank.

11.45 If the burner is in its swung out position and the exhaust fan is switched on the fuel can be lit by inserting a burning slow match into the ignition opening of the burner. If Diesel-oil is used a piece of absorbing paper may be helpful for the lighting. Shut the lighting opening of the burner. When the flame of the burner becomes steady pull up the fixing bolt on the frame of the burner and swing the burner inwards until it snaps securely. When using petrol the lighting of the burner takes only about half a minute. If Diesel-oil is used ignition time is about four minutes.

11.46 The heating capacity of the burner can be adjusted as needed by turning the whole burner. The adjustment can be operated from the working platform of the unit. When turned clockwise the burner is at its lowest capacity. When turned counter clock-wise the burner is at its highest capacity. The position of high capacity heat output has to be adjusted so that the waste gas does not give off any smoke and the position of low capacity should be at least high enough that the burner keeps burning over a long period. The maximum and minimum position of the burner can be altered by two adjusting screws.

11.47 To put the burner out of operation shut the fuel taps at the tank and turn the burner to its maximum position to use up the fuel which is still left in the burner. The suction fan and the dryer fan on the drying unit should not be disconnected until the burner and the combustion chamber have cooled down.

11.48 Should the suction fan or the dryer fan fail or there is a lack of water in the washing machine, immediately turn the burner to its low position and close the tap at the tank.

## The Wash

11.49 Each washing machine, the carriage for washing, the hydro-extractor and the dryer can accommodate 18kgs dry weight. The washing which is to be processed is to be divided into quantities of 18lgs by means of the spring-balance. Put the washing into the machine, shut the filling door and switch it on. Pour the detergent for the pre-wash into the washing machine.

11.50 Turn the programme indicator on step from the zero position in a clock-wise direction by means of the black knob on the switch board of the washing machine. The red signal lamp will go out. Open the water valve and allow the water to flow into the machine until the indicator for the water level reaches the point which is marked "wash". After some minutes the water level will drop because the washing will absorb some of the water, open the water valve and refill the machine up to the point "wash". At the end of the pre-wash the red signal lamp will light up and the programme indicator stop. The temperature in the machine should be about 60 to 70 degrees centigrade.

11.51 Drain the water used for the pre-wash by opening the waste tap on the switch board of the washing machine. Afterwards shut the waste water valve. Pour in more detergent for the main wash into the washing machine and move the pointer of the programme indicator one step further on until the red signal lamp goes out. Fill water into the machine until the indicator for the water level reaches the mark "wash".

1.52 When the water in the machine has reached a temperature of about 85°C rotate the burner to its minimum position. For this purpose set the pointed of the thermometer to 85°C. When the adjusted temperature is reached, the green signal lamp lights up.

11.53 At the end of the main wash drain the water from the machine and shut the waste tap. Move the pointer of the programme indicator one step until the red light goes out then open the water valve and leave it open until the following rinse.

11.54 By opening the waste tap two or three times during the rising cycle, this process can be speeded up. At the end of the rinsing process switch off the washing machine. Water should always be kept in the washing machine, because the burner is still burning. Unload the washing machine into the small carriage which is to be placed in front of the machine.

11.55 Immediately put in a new load to wash and repeat the process. Note that at the beginning of the wash cycle the temperature of the water in the machine must not be higher than 35°C. If the temperature is already higher than that, the water is to be cooled down by opening the water valves or draining the hot water.

11.56 The washing machine on the right side is equipped with a two-speed motor which is controlled by a special switch. The position 2 is for the normal speed. The position 1 is for low speed, which is half the normal speed. Note than on Position 1 the speed of the programme indicator is also only half of the normal speed. This low speed is for the wash of woollens. Woollens are to be washed with a high water level and a temperature below 35°C. The load when washing woollens is reduced to 10kgs.

## The Hydro-Extraction

11.57 Put the clean washing from the carriage into the drum of the hydro-extractor. Take care that the loading of the hydro-extractor is spread very evenly and the washing is pressed into the drum. Even the centre of the drum should be filled carefully. Cover the washing items with the special cover cloth which must be placed carefully under the rim of the drum. Shut the lid of the hydro-extractor and switch it on by turning the knob of the timer clockwise and set it to minute 15. The lid of the hydro-extractor is now automatically locked and the red signal lamp will light up.

11.58 During acceleration, the drum of the hydro-extractor reaches its critical speed and deflection of the machine rises to its maximum. If the deflections become too large and if the drum of the hydro-extractor cannot pass the critical speed it is to be braked immediately by turning the knob of the timer counter-clockwise and setting it to position 0. Do not open the lid of the machine before the red signal lamp has gone out and NEVER try to open the lid when it is still locked.

11.59 After having re-arranged some clothes so that the load in the drum is spread equally, switch on the hydro-extractor again and set the time to minute 15. When the timer has run down the hydro-extractor brakes automatically and the drum comes to a standstill. Do not open the lid before the red signal lamp goes out. The washing items in the drum of the hydro-extractor can now be loaded directly into the tumble dryer. If the washing items pressed around the circumference of the hydro-extractor are loosened the loading time of the tumble dryer can be shortened.

11.60 An overload circuit breaker for the motor of the hydro-extractor is located on the switch board under the fuel tank on the left side of the washing unit. This overload circuit breaker is to be switched on during all operations.

### The Tumble Dryer

11.61 Put the washing from the hydro-extractor into the tumble dryer and close the filling door. Switch on the drive motor and set the timer to the desired drying time. After running down the timer gives a signal.

11.62 For loading or unloading of the tumble dryer, only the drive motor of the drum is to be switched off. The suction fan and dryer fan are to be kept switched ON and the heat output of the burner is to be regulated so that the drying temperature never rises over 140°C.

11.63 When drying woollens the loading capacity is only 10kgs and it is very important to ensure that the drying temperature never rises over 50°C.

11.64-11.66 Reserved.

## SECTION 4 - ACCOUNTING

### General

11.67 The laundry facilities will only handle the following types of transactions:

- a. Receipts from and issues to the shower sections of underclothing.
- b. Receipts and issues to other units of underclothing.
- c. Receipts and issues to other units of other items where:
  - (1) The unit has its own replacement stock.
  - (2) The unit has no replacement stock.

### Underclothing from the Shower Sections

11.68 All items of underclothing received from the shower sections for laundry will be accompanied by two copies of an MD 315. Both copies of the MD 315 will be stamped:

CERTIFIED THAT THE ABOVE ITEMS AND QUANTITIES AS SHOWN WERE  
ISSUED TO THE SHOWER SECTION (UNIT) AS STOCK REPLENISHMENT

.....  
(Signature of Shower Sect Rep)

.....  
(Signature of Laundry Sect Rep)

11.69 The shower section representative will sign both copies of the voucher, and retain once copy as the shower section copy. The laundry section copy of the voucher will then be given a laundry section IV Number (the shower section IV Number being struck out but remaining legible) and an appropriate entry will be made on the Receipt and Issue Record (see Annex A to this Section). The voucher will then be filed as an IV.

11.70 Immediate replacements will be made to the shower section on a one for one basis as per size on each voucher. The items received from the shower section will be inspected for serviceability and will be treated as follows:

- a. Unserviceable items will be destroyed or converted to produce as applicable. One copy of a CIV on MD 315 will be raised and a Certificate of Destruction or Conversion entered on it. This copy will then be filed on the IV file and an entry will be made in the Receipt and Issue Record.
- b. Repairable items will be laundered and then repaired within the units resources, or passed to civil trade in accordance with local policy. After repair the items will be put with laundered serviceable items in stock.

- c. Laundered Produce from unserviceable items will be returned to the Stores Platoon of the Fd Sup Coy (Div Tp).

Underclothing from Other Units

11.71 The laundry unit will receive in some cases, underclothing from other units, other than the Fd Sup Coy. As with underclothing from the shower sections two copies of an MD 315 will be received, however each copy will be stamped on receipt with:

CERTIFIED THAT THE ABOVE ITEMS AND QUANTITIES AS SHOWN WERE ISSUED AS STOCK RELACEMENT TO:

.....  
(Unit Name)

.....  
(Signature of Unit Representative)

.....  
(Signature of Laundry Section Representative)

All receipts and issues will be recorded by quantity and size in the Receipt and Issue Record.

Laundry Section Replacement

11.72 A daily check will be carried out on the Receipt and Issue Record File. In addition a weekly check will be carried out to ensure that the section ME is maintained. A weekly consolidated demand will be placed on the Stores pl through HQ Fd Sup Coy (Div Tp) for the replenishment of stock.

Other Items to Units

11.73 Units such as the supported Medical Unit will require items other than underclothing to be laundered. The procedure for this is as follows:

- a. For Units with their Own Replacement Stock

- (1) All items received in the laundry section will be accompanied by three copies of an MD 315. A signature will be given by the laundry section representative on the third copy and this will be returned to the unit.
- (2) On completion of the items being laundered, the items laundered and serviceable or repairable will be listed on the two copies of the voucher still retained by the laundry section. A Certificate will be entered onto the vouchers to cover the unserviceable items as follows:

CERTIFIED THAT THE DIFFERENCE IN THE ABOVE QUANTITIES SHOWN WERE UNSERVICEABLE AND HAVE BEEN DESTROYED/CONVERTED TO PRODUCE

.....  
(Signed Laundry Sect Rep)

(3) One copy will be forwarded with the laundered items to the unit as a unit IV. The other copy will be filed by the laundry section.

b. Units without Stocks. The same procedure will apply as for the laundry of Unit underclothing.

Laundry Section demands for Necessities

11.74 Each week the laundry section will place a consolidated demand on the HQ Fd Sup Coy (Div Tp) for:

- a. Soda.
- b. Soap powders.
- c. Detergents.
- d. Bleaches.
- e. Fuel.
- f. NZET items as required.

11.75-11.77 Reserved.

Annex: A. Receipt and Issue Record

RECEIPT AND ISSUE RECORD

DATE	TO/FROM	SM			M			OS			XOS			REMARKS
		ME .....	Issue	Receipt Stock	ME.....	Issue	Receipt Stock	ME.....	Issue	Receipt Stock	ME.....	Issue	Receipt Stock	
eg 11 May 87	Bath Sect	200	100	1000	300	300	2000	100	100	1000	100	100	1000	Issue/Receipt
eg 12 May 97	CIV 9/73	100		900	150		1850	50		950	50		950	Write off





DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS

PART II - FIELD OPERATIONS

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Annexes:

A. File Register

B. Cyclic Reports and Returns to CD Sups

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F. Spec Headings for Orders

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## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 12 - CD SUPS SOPS

##### SECTION 1 - GENERAL

###### Introduction

12.1 These SOPs are designed to assist RNZAOC personnel in maintaining an Ordnance Command Post at Divisional level during exercises in NZ.

12.2 Some of the information is repeated from other chapters throughout this volume to facilitate the continuity of orders. The Systems of Supply in Chapter three should also be read in conjunction with these orders.

###### Levels of Operation

12.3 Although these orders are designed at Divisional level they can be easily adapted to smaller organisations and personnel should seek guidance from DOS if any conflict arises.

12.4-12.6 Reserved.

SECTION 2 - CD SUPS ESTABLISHMENT

Ser	Appointment	Rank	Op Duty
(a)	(b)	(c)	(d)
	Comd and Admin		
1	CD Sups	Lt Col      TF	Comd
2	SO2 Sups	Major        RF	On call
3	Adjt	Capt         RF	HQ Shift 1
4	Ord Rm Sgt	Sgt          TF	Spare duty
5	Driver/Op	LCpl        TF	Comds Dvr
	Tech Stores Cell		
6	Staff Captain Tech Stores	Capt         RF	HQ Shift 2
7	Senior Clerk Tech	WO2         RF	HQ Shift 3
8	Clerk Tech	Cpl          TF	HQ Shift 1
9	Clerk Tech	Pte          TF	2 <sup>nd</sup> Standby
	General Stores Cell		
10	Staff Captain Gen Stores	Capt         TF	HQ Shift 3
11	Senior Clerk Gen	SSgt         TF	HQ Shift 2
12	Clerk Gen	Cpl          TF	1 <sup>st</sup> Standby
	Combat Supplies		
13	SO2 Combat Sups	Major        RF	On call
14	SO3 Combat Sups Ammo	Capt         TF	1 <sup>st</sup> Shift
15	Clerk	WO2         RF	2 <sup>nd</sup> Shift
16	Clerk	SSgt         TF	3 <sup>rd</sup> Shift
	Ammo Staff		
17	ATO	Capt         RF	On call
18	AT	Sgt          RF	On call (1)
	(1) May be attached to combat sups for duty shift.		

12.8-12.10 Reserved.

SECTION 3 - STANDING OPERATING PROCEDURES  
COMMAND POST OPERATION

General

12.11 The day to day op sys of CD Sups CP is to be con and org by SO2 Ord HQ CD Sups. The CP is to be continually manned and op by three watches, each of eight hours duration in ops.

Aim

12.12 The aim of this SOP is to detail the way the CO op and functions.

Function

12.13 At all times the CP is to fol the op proc set out in NZ P85 HQ NZ DIV SOPs, in particular Office Procedures.

CP Tasks

12.14 The CP is to be manned at all times. Watches are not to stand down until a handover to the incoming watch has been effected.

a. Log.

(1) The CP is to main an AFNZ 620, Ops Log.

(2) Each day's log is started at 0001 hours no, and ser no, through to 2359 hours. Each individual log sheet when completed should be avail to the Div (Rear) CP for info, and collation into the Div (Rear) Log.

(3) For continuity purposes unresolved items on a Log should be noted during the handover period of a watch.

12.15 Battle Map. A battle map is to be maint showing the fol:

a main bdrys.

b. div unit loc, current and proposed when known,

c. gp,

d. route info,

e. log dumps incl RV info, and

f. log instl locs.

12.16 Comms. HQ CD Sups is prov with the fol comms facy:

- a. A sub-sta on the Div Admin Net.
- b. NCS on the Ord Comd Net (for net diagram see Annex E).
- c. Four tel links into Div Rear exchange.
- d. VDU : a terminal on the Div Rear sub-sys (when required).

12.17 Def Net. A def net to co-ord def if the HQ Div (Rear) area will be prov and con by HQ Div (Rear) CP.

### Files

12.18 The CD Sups File Register is attached at Annex A. Separate files will be maint for each file for the HQ.

### Reports, Stock States and Returns

12.19 Repts, returns and stock states fwd by Fd Sup Coys and Combat Sup Pls to HQ CD Sups are detailed in Annex B. Repts, returns and stock states fwd by HQ CD Sups to higher fmns are detailed at Annex D. An up to date loc, pers and stock states board is to be maint for all RNZAOC units.

12.20 Con of Stores. Stores state are to be main based upon returns from Fd Sup Coys in the format of Ser 3 to Annex B, this incl the fol:

- a. Critical Items. Critical items are items, Sup or material essential for the spt of ops and which are in short sup or likely to be in short sup. Corps Critical Items automatically become Div Critical Items.
- b. Regulated Items. Regulated items are items whose iss or distr because of scarcity, cost, tech or hazardous nature, must be approved by Div Main.
- c. Comd Critical Items. Comd critical are items selected by the Div Comd as op vital to the success of his plan. Critical items, sups and materials may be declared comd critical if their scarcity threatens the conduct of ops. Once declared Comd critical and until cancelled by the Comd, all stock mov, distr, replacement, use of consumption other than ordered for the op, must receive prior auth from Div Comd.

12.21 Clothing. A Stock state, updated weekly is to be maint showing items held in Fd Sup Coys by heading and qty. The signal format at Appendix 3 to Annex B is to be used.

12.22 R & M Pools. The stock levels of R & M pools are set by the log staff and are the responsibility of CD Sups to control, except where items are regulated or comd critical. Returns are to be in the format at Appendix 3 tto Annex B.

### Returned Stores, Salvage and BLR Vehicles

12.23 An overall con is to be kept on the BL of rep assy and veh, and the need for a salvage policy and collection area.

### Control of Bath Sections

12.24 Bde S02 Ord offrs are to submit their bde units reqs one day in adv to HQ CD Sups. The shower prgm is to be compiled by CD Sups and notified to bde and div tps. A locstate and timetable is to be maint in the CP.

### Preparation of Orders

12.25 Duty staff are to prov ord input into orders and instrs when requested by the staff. Separate orders are to be iss by CD Sups for mov ops and admin when required. See Annex F for spec headings for orders.

- Annexes:
- A. File Register
  - B. Cyclic Repts and Returns to CD Sups
  - C. Cyclic Repts and Returns from CD Sups to Higher Fmns.
  - D. Handover Procedure for Ops offrs.
  - E. Ord Comd Net.
  - F. Spec Headings for Orders.



DIRECTOR OF ORDNANCE SERVICES

PROCEDURE ISNTRUCTIONS

PART II - FIELD OPERATIONS

CHAPTER 13 - FIELD WAREHOUSING

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## DOS PROCEDURE INSTRUCTIONS

### PART II - FIELD OPERATIONS

#### CHAPTER 13 - FIELD WAREHOUSING

##### SECTION 1 - GENERAL PRINCIPLES

###### Introduction

13.1 The maintenance of supplies in a serviceable condition when stored in the field is an integral part of the RNZAOC operational function. Unless the principles of field warehousing are adhered to, stock cannot be maintained in a serviceable condition, and therefore the role of RNZAOC, Supply in Peace and War, cannot properly be met.

###### Basic Principles

13.2 Regardless of commodity, certain principles apply. These basic principles endeavour to create a storage environment that is similar to the conditions available in peace. The basic principles of field warehousing are:

- a. Development Planning. The main points in development planning are:
  - (1) The outline plan should be created from a map reconnaissance, and confirmed at the site reconnaissance stage.
  - (2) Development must cover the utilisation of ground, the layout of storage sites, the maximum use of existing buildings and facilities and potential traffic usage of access routes.
  - (3) Detailed plans must be made to cover each stage of development up to, and including, the occupation of permanent accommodation. The plans must allow for expansion, should the force being supported or scalings increase.
- b. Protection From the Elements. Bright sunlight, high humidity and temperature, heavy rainfall, vermin and insects, dust and awkward terrain all increase the rate of deterioration of stock. Before deciding on the warehousing methods to be used the following factors should be considered:
  - (1) Bare metal and plastics must be protected from direct sunlight. Some chemicals and pharmaceuticals are rendered useless by sunlight and wide temperature changes.
  - (2) All stock must be protected from rain and ground water as soon as possible.
  - (3) Any items which can become unstable when heated must be kept cool.

moulds

- (4) Extremes of temperature will damage most painted items and create condensation in most sealed packets. It will also promote the growth of fungus in all untreated textiles and enclosed containers.
  - (5) Dust can render instruments and mechanical items unserviceable.
  - (6) Insects, moulds, vermin and bacteria destroy most foodstuffs, POL and textiles. Good ventilation and protection will deter most and bacteria.
  - (7) Annex A illustrates ways to achieve protection from the elements.
- c. Stable Floorings. The ground must be firm, well drained, level and stable for the stacking of stock. Waste oil may be used as bonding material on sandy or dusty ground, but presents a hazard if used in ammunition, POL or ration storage area. RNZE assistance to identify a suitable bonding material may be necessary. Dunnage should be treated for protection against termites and fungi. See also Annex A.
  - d. Stable Stacking. Stable stacking will eliminate double handling and damage to stores. Three pallets high is the safe working limit.
  - e. Adequate Space. Adequate space in working areas will provide for an even flow of work during peak periods. Sufficient space must be allowed for expansion in all work areas.
  - f. Roads and Hard-standing. To prepare roads and hard standing engineer assistance is necessary. All field force units will be competing for their limited resources. To be successful the supply unit must make a modest bid supported by good arguments. The bid must be put in early (ideally at the reconnaissance stage), and must be consistent. To be consistent, it must be accurate in the first place. Priorities should be allotted and maintained, unit resources and local labour should be used within the framework of the overall plan. No amount of engineer or unit effort will convert unsuitable ground into a good unit location. Objections must be raised at the reconnaissance stage and incorporated into a second key plan or an alternative site. Good roads in and out of the site and access by roads or hard tracks to individual stacks is desirable.
  - g. Adequate Space. Sufficient space must be available for future development and expansion, and working space between stacks and sites.
  - h. Threat. Information on the enemy threat must be obtained as early as possible. This factor has the greatest effect on the layout of a supply installation. The extremes are detailed below:

- (1) If there is no enemy threat the distances given for vehicles may be relaxed. Ammunition inside and outside distances should never be relaxed as these are principally for the safety of our own troops and installations. If there is little or no defence commitment, more men will be available for development at the various stores areas.
- (2) If there is an enemy air threat the overriding requirements may be for concealment and even greater dispersion. The carrying out of technical functions will be slowed. The priorities of work to be undertaken on occupying the new areas are detailed when the reconnaissance takes place.

### Field Warehousing Areas

13.3 Stores may be housed in buildings of standard types, in underground stores, or temporary structures made from available materials in the field, and in permanent buildings hired or requisitioned from civilian sources. Stores may also be stacked in dumps in the open whilst awaiting movement of the erection of overhead cover, or in vehicles.

13.4 Stores Stacked in the Open (Dumps). The site of the dump must be level, well drained and cleared of grass etc. Dunnage foundations are essential and ventilation must be provided.

13.5 The upper part of all stacks should be given a pyramidal structure. Cover using waterproof tarpaulins, sheets of tin or even bags is essential. Lashing tarpaulins tightly over or placing tin directly on a flat topped stack is bad practice, as it not only allows moisture to collect but also reduces ventilation. Clearance between overhead cover and stack stocks must always be created to reduce the likelihood of damp, rot and rust.

13.6 Shelters. It is important that shelters and tarpaulins arrive at least with, if not before, the stores and that the stores are put under cover as soon as possible. The shelter should provide complete protection from the rain and adequate protection from sunlight and dust.

13.7 Shelters should also be erected in working areas so that work can continue in adverse weather conditions, eg a shelter for the checking of stores in the receipts area.

13.8 Temporary Structures. Temporary structures are made from available materials for the dual purposes of providing shelter for stocks from climatic conditions and for procuring tolerable working conditions for personnel. Materials used include timber, sheet iron, flattened drums and cans, tarpaulins and canvas, bags, brushwood, grass, thatches, etc.

13.9 In hot climates, many temporary structures can provide better storage conditions than buildings of a standard design, chiefly because of the better ventilation and air flow.

13.10 In wet climates, emphasis is laid on selecting a well drained site or in digging good drains and in providing a waterproof roof with wide overhang.

13.11 For all climates, flooring is not usually provided. This means that the earth must be cleared of all grass and debris, levelled and packed down if necessary. Dunnage is essential.

13.12 Underground Stores. Underground storage is chiefly used to obtain protection against aerial or ground fire etc, but consideration of coolness in hot dry climates may lead to the use of tunnels or cellars, or the utilisation of conveniently located canvas and quarries.

13.13 Although underground stores provide good cool storage conditions, dampness and condensation are often present consequently there is danger of mould, rot and rust.

13.14 Provision of ventilating shafts is essential and the use of fans greatly assists in keeping the air dry. Where seepage and drip exists, it is necessary to protect stacks by erecting a sloping roof.

13.15 Open stacking and slatted type floor dunnage are essential for all commodities. Stacks must be kept away from the walls, with air space between tiers and surrounding each stack, and should be kept under surveillance for signs of dampness.

### Site Selection

13.16 Pre-reconnaissance. Prior to reconnaissance of a new storage site, the ordnance commander needs to know:

- a. Scaling. A good knowledge of the stock to be held in terms of tonnes of ordnance stores and ammunition, litres of fuel and number of storage tents and vehicles is necessary. This will provide an indication of size and shape of the unit on the ground.
- b. The Threat. The degree of enemy threat and the nature of the threat will dictate the dispersal, concealment and protection requirements.
- c. Duration of Stay. The amount of time the unit is to remain in the one location provides an indication as to the need to allow for expansion and priorities for work.
- d. Force to be Supported. The dependency must be defined as this has a direct effect on the scaling.
- e. Location of the Main Supply Route. This will affect the internal layout of the unit; it may not be resolved until the reconnaissance takes place.
- f. Location of Adjacent Units. This is especially important where medical and aviation units are as it affects siting of ammunition and fuel storage areas. This may not be able to be resolved until the reconnaissance takes place.

13.17 Ground. Ground should be firm, well drained and stable. A light slope is beneficial as it aids drainage. Too great a slope is expensive in manpower and resources to achieve stable stacks. Land subject to flooding should be avoided, as should hollows, the foot of a hill or dry swampland. High water levels should be identified in coastal and river areas.

13.18 Roads. Access to and from the Main Supply Route should be identified, and examined to verify suitability.

13.19 Concealment. Sites should be away from potentially important air or ground attack targets. Maximum use of natural foliage should be made.

13.20 Water Supply. Water is needed for administrative and fire fighting purposes.

13.21 Rail Facilities. The proximity of suitable rail facilities provides a further means of moving stock.

13.22 Space. Sufficient space should be available for the efficient use of mechanical handling equipment. Minimum safety distances for ammunition and POL must be observed. Expansion areas and temporary storage areas are essential ingredients of an effective storage plan.

### Improvements to Field Storage Sites

13.23 Planning and activity should constantly be underway to improve the storage sites, on the basis that even if one supply unit moves from an area another may move in, or the position may be reoccupied at a later stage.

13.24 Stable Flooring. Stacks cannot be built safely to a useful height if floors are uneven. Concrete floors are desirable, since they are easily kept clean and they afford protection against termite and rodent attack. Wooden floors raised on piles aid ventilation. All floors must be capable of supporting the load to be imposed on them including the live load, the moving materials handling equipment and the dead load; the stock.

13.25 Artificial Flooring. If it is thought that the ground is liable to erosion or any other defects, it is essential that provision be made for the flooring of shelters. If the site is to be used for a long period of time all stores shelters should have floors constructed. Spaces should be left between shelters for the construction of floors so that the final movement of stores is minimised.

13.26 Stable Stacks. Stable stacks are essential so that a location system can be maintained and aisles and working spaces kept free for their prime purpose. Collapsed stacks in the comparatively small space of a shelter will vastly increase the selection time and will lead to boxes and their contents being damaged.

13.27 Assuming that the flooring is stable and level, it is possible to strengthen stacks by ensuring that pallet loads are sound by using dunnage between boxes to bind them together or to tie-in the boxes.

13.28 If the ground is sloping, it is possible to put extra dunnage under the lower side of the stack or to undercut the higher side of the slope or a combination of both. Unless the dunnage is carefully placed, the stack is still potentially unstable; undercutting the slope however, is expensive in manpower but a permanent solution. A possible solution is to use dunnage initially and undercut as time and labour permits. One factor affecting the choice would be the expected length of occupation of the location.

13.29 Accommodation of Personnel and Labour. The requirement of labour will depend upon the daily weight of issues plus receipts and upon general factors such as the quality of labour, number and distance of lifts and labour saving equipment (MHE) available.

13.30 As an average it can be taken that one man can handle five tons of stores per day, but this figure can be greatly increased using experienced men and MHE.

- 13.31 Labour must be given some instruction in:
- a. general nature and uses of the stores handled,
  - b. care in handling,
  - c. precautions against fire and other hazards, and
  - d. use of portable fire equipment.

Lack of interest and the consequent low output is very often due to the lack of knowledge. Every effort must be made, therefore, to keep labour as well informed as possible.

13.32 A warrant officer of senior NCO should be detailed as labour superintendent and should be made responsible for allocation, control and supervision.

13.33 An accommodation area should be allocated for labour. This area should be set aside from the storage area, where a minimum amount of supervision is required during rest breaks. Labour personnel should not be allowed to wander from the designated rest area during authorised test breaks.

### Field Stacks

13.34 Size of Stacks. As a general rule for ease in handling, turnover, surveillance and prevention of rot and infestation, etc, it is better to build a number of small stacks than one large one. However, if correct stacking practice is used as regards segregation of incompatible stocks, accessibility of the various items, provision of ventilation throughout the stack and the need for two point dispersal is observed, there is no major objection to the building of large stacks. Long narrow stacks are preferable to wide stacks, since they are more easily inspected.

13.35 General Stacking Rules. All components of a stack must consist of packages be they loose boxes or SULs uniform in dimensions wherever possible. Identifying marks must be turned to the outer surfaces of the stack.

### Field Stacking Systems

13.36 The various systems of stacking cased stock are discussed below. They are illustrated at Annex B to this Chapter.

13.37 Pillar Pile. Pillar pile is the most useful method of stacking giving good binding, strength and vertical ventilation. Protection against incendiary devices and other objects falling down the ventilation shaft is attained by stacking three cases round the top of the shaft leaving one side of the “chimney” open, and placing a fourth case across the top of the other three.

13.38 Tower Stacking in Twos, Fives or Sevens. Where cases have become wet in transit, they should be dried out prior to stacking. If this cannot be done, good horizontal as well as vertical ventilation should be provided in the stack. Horizontal as well as vertical ventilation is essential in humid climates and may be achieved by the use of pallets combined with several inches of air space between each tier. Where pallets or slatted dunnage between pillar pile layers are not available, very good horizontal and vertical ventilation is obtained by tower stacking in twos, fives or sevens, leaving air spaces between the tiers.

13.39 Tower Stacking in Threes. Where the length of cases is approximately three times their width or height, solid stacks are built by tower stacking in threes. This method gives practically no ventilation through the stack and while acceptable in cold dry conditions, should not be used with damp cases nor in warm or humid climates. However, since “long” cases, due to their tendency to skewing, give poor mechanical performance, increasingly few commodities are packed in containers of this shape.

13.40 Square Case Stacking. Although, other factors being equal, cube shaped cases give the sturdiest performance, they are in disfavour because of difficulties in procuring stable, well ventilated stacks in non-palletised stores. In non-humid conditions, tea chests can be square stacked without the need for producing ventilation by air spaces and the use of layers of dunnage.

13.41 Drummed Goods. In transit and storage conditions that are unprotected from rain, dew, spray etc, in humid tropic conditions, and in any situation where moisture condensation can take place, drums must be stacked on their side to prevent accumulation of moisture on their upper ends. Since drums are constructed to take crushing loads on their ends rather than their sides, there is a lower mechanical limit to the height to which filled drums can be stacked on their sides. This is normally two layers high without causing crushing in the lower layers. In dry conditions, under permanent cover, drums are stacked on their ends.

13.42 Sacked Goods. All sacked commodities, other than waterproof types, require protection from wet and are liable to attack by rodents. Forage commodities such as chaff and oats require no special stacking precautions other than the need for dunnaging, keeping dry and free from rodents. Stacks should not be against walls and should be kept reasonably small and surrounded by a space of several feet. Stacks should be pulled down, cleaned and rebuilt if there are signs of rodent nesting.

13.43 SUL Stacking. Because of their larger size bonding of stacks of SULs is not necessary. The SUL block stacks should normally be no more than four SULs high. The levelness and evenness of the ground may limit this to two SULs high. The pallet forming the base of the SUL usually provides built in dunnage, however in some instances it may be necessary to use long run dunnage to achieve stable stacks and adequate ground clearance.

### Location Systems

13.44 Owing to the dispersion of stock, it is essential that an effective location system be implemented. Location systems for field use fall into the following categories:



- a. binned vehicles;
- b. binned tentage/shelters;
- c. bulk sites of two or more commodities; and
- d. bulk carrying vehicles of two or more commodities.

13.45 Binned Vehicles. Stock locations within binned vehicles are identified as follows: example at Annex C

- a. each vehicle is allocated a number;
- b. each binpack is allocated a letter;
- c. each shelf on the binpack is allocated a number;
- d. each bin on each shelf is allocated a letter.

13.46 Binned tentage. Stock locations within tentage containing binpacks follows the same rules as for vehicles. When dismantling binpacks from vehicles to tentage/shelters, care must be taken when renumbering stock locations to ensure that stock locations are not lost. One option to avoid having to renumber binpacks is to keep vehicle loads segregated. Thus, within a tent/shelter may have two or more location numbers.

13.47 Bulk Sites. Within bulk sites, only one commodity should be allocated to a stack. The bulk site is numbered, and stacks lettered.

13.48 Bulk Carrying Vehicles. Bulk carrying vehicles may carry two or more commodities. As these commodities are in bulk, and therefore their location on the vehicle is obvious, it is suffice to identify the vehicle only. This is done by numbering the vehicle.

13.50 Definitions. The following definitions are used in connection with field storage:

- a. Stack. A stack consists of approximately 1t gross weight of ammunition and explosives (often corresponding to tone or two pallets).
- b. Field Stack Module. A field stack module is a site containing approximately 10t gross weight of ammunition and explosives.
- c. Field Storage Site. A field storage site is a group of field stack modules containing a maximum of 200t gross weight of ammunition and explosives, except that when the ammunition or explosives contain more than 50 per cent explosives quantity of the gross weight when the gross weight should be limited to 40t maximum.
- d. Field Storage Area (Location). A field storage area (location) consists of a group of field storage sites containing a total of approximately 5000t gross weight or ammunition and explosives.

13.51 Site Selection. The following additional siting requirements are to be taken into account:

- a. The site should be located clear of trees, telegraph poles, pylons etc so that a lightning strike to a tree etc would not cause damage to the ammunition.
- b. A water supply source should be available for fire fighting.
- c. Variations in terrain should be exploited to provide natural traversing.
- d. Fire breaks must be planned and maintained to prevent a potential spread of fire.

#### Special Principles - POL

13.52 Special principles for the siting and storage of POL are contained in Chapter 14 of this manual.

#### Special Principles - Rations

13.53 In addition to the principles of site selection and storage, the following principles should be observed when storing rations:

- a. Hygiene of personnel, stock carrying vehicles and storage sites is critical to the quality of rations;
- b. Provision must be made in daily routines for the inspection of sites and work areas for pest control;
- c. An effective pest control programme must be instituted;
- d. Pallets of rations must be stored in such a way to facilitate detailed inspection and stock rotation;
- e. Personnel handling unpackaged rations are to be free from infectious diseases, cuts, sores or other skin lesions.

#### Special Principles - Vehicle Storage

13.54 The following principles are additional to the principles detailed earlier in this chapter:

- a. Storage is normally in the open, using internal circuits;
- b. Stock is subject to two point dispersion;
- c. Vehicles are sited in packets of no more than five vehicles, each packet being not less than 50 metres apart;

d. Areas are to be allocated for the following facilities:

- (1) receipt and issues;
- (2) wash points;
- (3) kit stores;
- (4) RNZEME facilities (if required); and
- (5) POL

e. A and C class vehicles can be sited to utilise rougher ground.

13.55 Reserved.

13.56 Reserved.

13.57 Reserved.

## SECTION 2 - FIELD STORAGE OF GENERAL STORES

### General

13.58 Warehousing of general stores in a field supply Company is normally a matter of operating off unit vehicles. Situations can arise when it is necessary to dismount stores.

### Stock Holdings

13.59 Stocks of general stores are normally either:

- a. repair parts and small items, stored in binpacks, usually in group class sequence;  
and
- b. bulky items such as clothing, webbing, large sub assemblies, batteries etc.

### Tentage-Shelters

13.60 Tentage or shelters provide the best storage and working environment. Suggested layouts for 11ft x 11ft, 30ft x 20ft and 40ft x 20ft tents are illustrated at Annex D.

13.61 Reserved.

13.62 Reserved.

13.63 Reserved.

## SECTION 3 - FIELD STORAGE OF RATIONS

### General

13.64 Rations in the field consist of three basic types:

- a. fresh rations;
- b. canned equivalent rations; and
- c. ration packs.

13.65 In addition to the general storage principles discussed in Section 1 of this chapter, certain additional precautions, checks and means of storage are necessary for rations to ensure they are stored and issued in a fit for consumption condition.

### Fresh Rations

13.66 A guide for the inspection of fresh rations is at Annex E to this chapter.

13.67 The storage and handling of refrigerated fresh rations is discussed at Annex F to this chapter.

### Canned Equivalent Rations

13.68 The main threats to canned food are:

- a. Moisture. Moisture formed through condensation or rain causes rust to form. Ventilation and protection from rain by the use of dunnage and tarpaulins provide the best protection.
- b. Heat. Direct sunlight or exposure to heat sources causes the gases in canned food to expand, eventually resulting in rupture.
- c. Mishandling. The mishandling of canned foods leads to dented cans. When a can is badly dented, the internal lining is broken, and can lead to spoilage of the contents.

13.69 Inspection. Prior to issue, canned foods should be inspected as below:

- a. Rust. Cans should be rust free and dry.
- b. Dents. Cans should be free of sharp dents and creases.
- c. Air Space. Generally, an air space should be present at the top of the can. To check, gently depress the top of the can, if a resistance is met, check to see if the top or bottom of the can bulges upward. A bulging top or bottom indicates that bacteriological action has taken place in the can and the contents are spoiled.
- d. Labels. The contents of the can must be clearly evident.

### Ration Packs

13.70 In general, ration packs require little special handling. Care should be taken however, to avoid direct sunlight and moisture.

### Pest Control

13.71 A guide to pest control and infestation is at Annex G.

13.72 Reserved.

13.73 Reserved.

13.74 Reserved.

#### SECTION 4 - FIELD STORAGE OF VEHICLES

13.75 An example layout of vehicle field storage is at Annex H. Care should be taken when siting vehicles that skylining is avoided, and camouflage is applied in such a way as to prevent shine, reflection etc during the complete day.

13.76 Reserved.

13.77 Reserved.

## SECTION 5 - FIELD STORAGE OF AMMUNITION

### Separation of Hazard Divisions

13.78 A Field Storage Site should contain ammunition of one hazard division only except that any unoccupied portion of the site may be filled with ammunition belonging to Hazard Division 1.4. When this is not possible then the following principles should apply:

- a. When items of ammunition in Hazard Divisions 1.2 and 1.3 are stored together in accordance with para 13.79 the quantity distance for each hazard division is assessed independently and the larger distance is observed.
- b. When ammunition of Hazard Division 1.2 and/or 1.3 is stored in the same site as ammunition in Hazard Division 1.1 in accordance with para 13.79, then the whole site is to be regarded as Hazard Division 1.1 for the purpose of quantity distances.

### Segregation of Different Compatibility Groups

13.79 Ammunition of each compatibility group should be stored in a separate field storage site except that:

- a. Items of Compatibility Groups C,D and E may occupy the same site.
- b. Items of Compatibility Group S may occupy the same site as any other items except those in Compatibility Group L.
- c. Fuses may be stored in the same site as their parent round.
- d. Items in Group G may be stores with C,D,E and F.

13.80 The following types of ammunition must be stored in separated field storage sites:

- a. Detonators in Compatibility Group B.
- b. Ammunition in Compatibility Group F.
- c. Ammunition in Compatibility Group H.
- d. Ammunition in Compatibility Group K.
- e. Ammunition in Compatibility Group L. (Within this group, different types of ammunition should be stored separately).
- f. Rockets, rocket motors and missiles in a propulsive state.



### Additional Requirements for Segregation

13.81 Ammunition should be stored so that not all one type of ammunition is lost in a fire or explosion involving a single field storage site. Individual stacks are limited to ammunition of one type and preferably of one batch or lot.

13.82 The following ammunition is not to be stored with combat serviceable ammunition in the same field storage site:

- a. Ammunition which has been returned from units which has not been inspected.
- b. Ammunition in incomplete or damaged containers awaiting inspection and repacking.
- c. Unserviceable ammunition.
- d. Ammunition, the use of which is forbidden.
- e. Ammunition awaiting disposal.
- f. Ammunition of unknown origin.
- g. Recovered ammunition.

13.83 Field storage sites should not be used for the storage of other commodities (including the empty containers, accessories, and stacking materials) and the sites should be separated from other dangerous goods by adequate quantity distances, (see para 13.97).

### Isolated Storage

13.84 Ammunition in Compatibility Group H (white phosphorus) should be at a site adjacent to a readily available supply of water. If water is not readily available from natural sources, then buckets and containers must be kept filled with water. A reserve of earth, or preferably sand, must also be provided in the immediate vicinity.

Rockets, rocket motors, and missiles in a propulsive state should be stored in a traversed site. If this is not possible then they should be stored in the most isolated parts of a field storage area and if possible, pointing away from other storage sites.

### Layout of Sites

13.85 A Field Storage Area for 5000t comprises 25 field storage sites each containing 200t ammunition. However, certain factors may restrict the tonnage in the field storage site and consequently increase the required number of sites. Such factors are:

- a. The necessity for at least two point dispersion for each type of ammunition.
- b. The need to store incompatible groups separately.

- c. The limitation of 40t gross weight of mines and explosives with 50% Net Explosives Quantity or more.

13.86 The minimum length of roadway for a field storage site is 50m, with verges suitable for stacking on each side of the road. Field stack modules may be on both sides of the road. The value of 50m is based on a row of 10 modules each of 10t, on each side of the road, with 1 to 2m separation of the modules. The calculation assumes that an average module for 1ot of ammunition has dimensions 3m x 7m x 1.5m high. If possible, a distance of at least 25m between field stack modules should be observed as a firebreak. However, this considerably increase the size of the field storage sites and in consequence the field storage area. Such an increase may not be acceptable for security or operational reasons.

13.87 The advantages of a field stack modules with the above dimensions are:

- a. Ease of Handling. Small modules can be quickly built and broken down without excessive lifting; they do not require the meticulous care in building which is necessary for large modules to prevent their collapse.
- b. Speed of Issue. Several vehicles can be loaded simultaneously from a number of small locations without congestion.
- c. Ventilation. Small modules are generally more easily ventilated than large ones.

### Building of Field Stack Modules

13.88 Ammunition must always be stored in its approved container unless the ammunition is normally held and transported without a container, for example loose shell and large aircraft bombs. Markings must always be legible, so that ammunition can be easily identified. Dirty containers must be cleaned prior to stacking. All ammunition, except palletised ammunition, should be stacked on dunnage, normally timber or brick. The ammunition should be at least 0.1m from the ground. Loose shell, unless palletised, should normally be piled on dunnage with alternate layers reversed for stability. Grummets to protect driving bands should be firmly secured before stacking. Chocks should be nailed to the dunnage to prevent collapse of the stack.

### Provision of Protection Against the Weather

13.89 Some form of cover should be provided to protect ammunition against rain and the heating effect of sunlight. In tropical conditions ammunition can be severely affected by the direct rays of the sun, and some degree of shade should be provided for all types of ammunition, the most effective protection being allotted to propellants, especially rocket motors.

13.90 When covered storage is not available for all types of ammunition, those likely to deteriorate most rapidly from the effect of the prevailing weather conditions should be given first priority. The following priority order should be adopted when damage from exposure to rain is the main consideration:

- a. Water-activated ammunition.
- b. Guided missiles.

- c. Anti-tank, ranging and spotting ammunition (one shot ammunition).
- d. Propelling charges.
- e. Pyrotechnics.
- f. Mortar ammunition.
- g. Grenades.
- h. Boxed shell.
- i. Small arms ammunition.
- j. Loose shell.

13.91 Notwithstanding the priority as listed, the use of covered storage may vary according to the packing of individual items, the overall storage requirements and the type of climate in which situated. Rigid adherence to a fixed guideline may not always be possible. Covers and improvised shelters should fulfil the following conditions:

- a. The roof should protect against rain and sunlight.
- b. Protective sides should be provided unless roof overlaps sufficiently to prevent driving rain, direct sunlight affecting the ammunition.
- c. All covers must be supported clear of the ammunition to allow full ventilation.
- d. Materials should be as far as possible non-flammable or fire retardant.

13.92 Normal means of protection are:

- a. Tarpaulins.
- b. Locally improvised structures suitable for the theatre of operations.
- c. Galvanised iron shelters.

### Destruction of Ammunition

13.93 Ammunition beyond economic repair and no longer required and dangerous items must be destroyed as soon as possible.

## Traffic Circuits

- 13.94
- a. One-way Traffic. Ideally, all road circuits should be on a one-way traffic basis. Two-way traffic should only be permitted where there is sufficient width to give freedom of movement in both directions in addition to the space required for stationary vehicles loading or unloading ammunition.
  - b. Routing of Vehicles. A comprehensive system of road and traffic circuit identification is essential particularly when night loading is expected. All roads must, therefore, be separately identified and sign-posted.

## Administrative Area

- 13.95 This should be chosen bearing in mind the following factors:
- a. Easy access to working areas.
  - b. Quantity distance(s).
  - c. Water supply and drainage.

## Quantity Distances

13.96 Ammunition in field storage is vulnerable to both covert and overt enemy action and inadequate protection and insufficient separation distances may cause loss of ammunition from secondary fires and explosions. Consideration should always be given to the provision of overhead protection and traverses; however, this consideration depends upon the availability of resources, the stability of the situation and the permanency of the field storage. In all cases distances are measured from the nearest point to the Potential Explosion Site to the nearest point of the Exposed Site.

## Inside Quantity Distances for Field Storage Sites

13.97 Field storage sites should be separated from each other by at least the distances given in Annex J Table 1. These distances prevent direct propagation by blast, flame and radiant heat. They also give some measure of protection against firebrands, projections and lobbed ammunition. Field storage sites containing serviceable ammunition must be separated from:

- a. Storage sites for packing material, stacking and site material by 100m.
- b. Field storage sites containing ammunition which has not been inspected or which is awaiting destruction by 300m.
- c. Field storage sites containing other dangerous goods (for example POL) by 400m.

### Inside Quantity Distances for Field Storage Areas

13.98 A field storage area containing not more than 1000t of ammunition should be separated by at least 1000m from any other field storage area and a field storage area containing more than 1000t of ammunition should be separated by at least 2000m from any other field storage areas.

### Outside Quantity Distances

13.99 A field storage area should be located at distances from inhabited buildings, barracks and public traffic routes etc that prevent such Exposed Sites from being endangered more than is unavoidable under the circumstances. A field storage area should be separated from the nearest Exposed Site outside the area by at least the distance given in Annex J Table 2.

### Small Holding Areas (Max 600t)

13.100 The principles given in previous paras also apply to small quantities except that for small holdings certain quantity distances may be reduced. A field storage site should contain a maximum of 50t gross weight of ammunition and explosives except that when ammunition or explosives contain more than 50% Net Explosives Quantity of the gross weight, then the gross weight should be limited to 10t. The Inside Quantity Distances and the Outside Quantity Distances are given at Annex J Tables 3 and 4.

### Inspection and Repair Procedure

13.101 This section does not deal with the detailed procedures for the inspection or repair of ammunition. This will be found by reference to A and ERs Volume 3 Pamphlet 41 Part 1 and TAIS. It will not be possible in field storage to engage in large-scale sampling of each batch or lot. Neither will it be practicable to inspect at a central location, since this would entail excessive movement of ammunition within the field storage area. The rate of turnover in war is normally such that the inspection is mainly confined to the older and slower moving stocks and ammunition in exposed storage sites. The ATO of a Field Storage Area is responsible for:

- a. The inspection, repair and modification of ammunition, and control of priorities in accordance with operational and technical factors.
- b. Ensuring that inspection, repair and modification are carried out with proper regard for safety in accordance with current regulations.
- c. Inspection of storage sties which have been affected by explosion, fire or enemy attack, and decisions on which ammunition is fit for immediate issue and which ammunition must be repaired or destroyed.

### Returned Ammunition Group

13.102 A Returned Ammunition Group (RAG) is to be established in the field storage area so that ammunition returned by units may be received, sorted and inspected before being put out to stock or re-issued. A RAG, for the purposes of Quantity Distances, is to be regarded as a separate Field Storage Site.

#### Demolition Area

13.103 Great care is to be exercised in the handling and transport of unserviceable ammunition to the demolition area and in the preparation for destruction which will be carried out in accordance with A and ERs Volume 3 Pamphlet 21 Part 1 and TAIS. It is imperative that the destruction of unserviceable ammunition be completed as soon as possible after it is sentenced, as accumulations of such ammunition present a needless danger.



DIRECTOR OF ORDNANCE SERVICES

PROCEDURE INSTRUCTIONS

PART II - FIELD OPERATIONS

CHAPTER 14 - POL OPERATIONS

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## DOS PROCEDURE INSTRUCTIONS

### PART II FIELD OPERATIONS

#### CHAPTER 14 : POL OPERATIONS

##### SECTION 1 : INTRODUCTION

14.1 Notwithstanding any instruction contained in this Chapter, NZ P40 Manual of POL remains the principle authority for POL operations. Whilst every endeavour is made to ensure these introductions are in accordance with current practices, NZ P40 is to be consulted as the prime reference for POL operations.

14.2 Static storage within NZ is designed to provide conditions under which safety, quality control and personal health are maximised, with margins for human error.

14.3 Field storage provides a minimum of controls with little room for human error. The establishment of approved procedures and the application of stringent controls are essential to achieve the necessary standard of safety, quality control and personal health.

14.4-14.5 Reserved.

## SECTION 2 : SITING

### Types of Sites

14.6 POL is normally stored in one of the following four locations:

- a. Distribution Points;
- b. Kerbside refuelling sites.
- c. Combat Supply Platoon areas; or
- d. Tank farm locations.

14.7 The general considerations for these sites are discussed in Chapter 15. There are some additional considerations that require emphasis or inclusion in the planning of POL sites, these are discussed below.

### Distribution Point

14.8 The location and siting of distribution points is normally an RNZCT responsibility. The following considerations require emphasis and are to be brought to the attention of the RNZCT officer responsible for the allocation of space within the distribution point:

- a. POL vehicles are to be sited downhill and downwind of other distribution point vehicles.
- b. POL requires 4 point dispersal.
- c. Safety distances at Annex B are to be observed between POL vehicles and other distribution point vehicles.
- d. Access to a water supply is essential if fire fighting pumps are available. If hand held fire extinguishers are the sole fire fighting means, proximity to a water supply is not critical.
- e. POL vehicles are not to be sited in such a manner that any fuel spill would drain into a water course/river.

### Kerbside Refuelling Site

14.9 Kerbside refuelling sites are established on a semi permanent or as required basis to service individual vehicles or convoys of vehicles with fuel. Oils and other lubricants are not normally available at kerbside refuelling sites as this additional service would slow down the through put of vehicles.

14.10 The following points are to be considered:

- a. waiting area before refuelling site;
- b. assembly area after the refuelling site;

- c. control points before and after the refuelling site;
- d. firm level ground with easy access to formed roads;
- e. on the route of the vehicles to be served;
- f. vehicles being served should not be required to cross the traffic flow to gain access;
- g. refuelling equipment is sited to allow access to vehicle fuel tanks without the hoses crossing in front of, or behind vehicles; and
- h. natural concealment provided by the use of existing roads, tracks, buildings and tree lines.

14.11 Annex A demonstrates possible sitings of kerbside refuelling sites. These are examples only and do not represent necessarily the best solution for any given piece of ground. Safety distances at Annex B are to be applied.

14.12 At times it may be necessary to establish a temporary helicopter refuelling site, using the same equipment as is used for ground vehicle refuelling. The following site requirements are in addition to those above:

- a. Spacing between helicopters. The spacing between helicopters varies with the type of helicopter, depending upon fuselage width and rotor diameter. As a rule of thumb, 100 ft is required between refuelling points for UH, and 75 ft for LOH. These distances allow for hot refuelling.
- b. Wind Direction. In an area with a prevailing wind direction, layout the site at a right angle to the wind so that helicopters can land, refuel and take off into the wind. This also disperses fumes away from the site with the minimum risk.
- c. Fume Collection. Because of the heat and static developed by helicopters, particularly during hot refuelling, it is essential that fumes are dispersed from the site as fast as possible. This can be achieved by placing the site on higher ground so that fumes will travel downhill and away. POL standards where sites are placed on lower ground to avoid the accumulation of fumes away from the site.
- d. Passenger Area. If personnel are embarking or disembarking ensure that the passenger assembly area is at least 50 ft upwind of the refuelling site. This will normally mean that their approach to the helicopter is from the helicopters front, and they are away from any dangerous atmosphere.
- e. Ground Clearance. Ensure all loose ground debris is removed from the area.

14.13 Suggested layouts are at Annex A.

#### Combat Supply Platoon Site

14.14 Combat Supply Platoons are normally co-located with transport units. The specific area for the Combat Supply Platoon will normally be given by Higher HQ.

14.15 Stock held by a Combat Supply Platoon will normally be on vehicles. In this situation, the same considerations and safety distances apply as for POL within a distribution point.

14.16 Where stocks are held on the ground the following additional considerations are to be made:

- a. covered storage for packaged products;
- b. no more than 25% of any commodity in one stack;
- c. no more than 200 tonnes per stack with a 3ft walkway between each 50 tonnes; and
- d. stack bases are to be well drained, level ground, clear of vegetation. Ashes or material producing grit or dust are not to be used as bedding for dunnage or as dunnage.

14.17 Safety distances are at Annex B.

#### Tank Farm Siting

14.18 A tank farm normally forms part of a larger installation containing various other POL activities. These activities may include:

- a. packaged product storage;
- b. decanting and filling operations;
- c. container cleaning operations;
- d. vehicle and aircraft refuelling sites;
- e. accommodation facilities;
- f. maintenance and repair facilities; and
- g. fabric tank sites (several sites constituting a tank farm).

14.19 The size of a tank farm and its associated activities require that initial planning is conducted by man reconnaissance to establish:

- a. the routing of pipelines;
- b. hydraulic limitations;
- c. the availability of a water supply and potential fire pond locations;
- d. potential fabric tank areas that provide concealment and minimum groundwork to establish bundage; and
- e. maximum utilisation of existing track and road networks.

14.20 A sequence of events for planning a petroleum platoon installation is at Annex C.

14.21 The principles of site selection detailed in Section Two of this chapter are applicable. Particular importance must be given to level sites for fabric tanks.

14.22 Fabric tank sites are dispersed as mixed product stacks or single product stacks.

14.23 Mixed product sites have the following advantages and disadvantages:

a. Advantages.

- (1) Maximum dispersion of product;
- (2) each mixed tank site can give a full service, and operate independently of other tank systems.
- (3) only one site need be operational at any one time, allowing other sites to remain 'hidden' and therefore more secure.

b. Disadvantages.

- (1) Control of uplift and quality are more difficult.
- (2) Greater administrative effort is required.
- (3) Increased manpower is required to provide required quality control.
- (4) Greater risk of contamination of stock.
- (5) Increase in equipment requirement.

14.24 Single product sites have the following advantages and disadvantages:

a. Advantages.

- (1) A reasonable degree of dispersal is possible in that each product is confined to one area.
- (2) Product interface control is easier.
- (3) Receipts and issues can be made concurrently.
- (4) Less administrative effort is required.
- (5) Construction time is less.
- (6) Manpower requirement is less.
- (7) Equipment requirement is reduced.

(8) Issue rate is higher.

b. Disadvantages.

(1) Product dispersal is not as wide.

(2) Increased risk of all holdings of a single product being destroyed.

(3) Since there may be a need for all sites to be operational at the same time there is an increased risk that they may be compromised.

14.25 Safety distances are at Annex B.

14.26 Annex D is a diagrammatic illustration of a mixed product and a single product site.

14.27-14.28 Reserved.

## SECTION 3 : HAZARDS

### General

14.29 The main hazards in handling and storage of POL products are those of fire and explosion.

14.30 Other hazards are:

- a. toxicity;
- b. asphyxiation; and
- c. damage to material.

14.31 Spillage and leakage are the main causes of accidents and are to be avoided at all times.

14.32 With careful handling and by strict application of the relevant instructions there need be little cause for any accidents from POL products.

### Fire Risk

14.33 The fire hazard involved in the storage and handling of petroleum products arises mainly from their volatility, ie their tendency to change from liquid to vapour.

14.34 The vapour pressure of all gasoline is high and such products give off considerable quantities of petroleum vapour which being heavier than air may spread some distance before dispersing. In the right concentration with air this vapour is highly flammable and will explode or burn if it comes in contact with a naked flame, a spark or a hot surface. The range between the minimum and maximum proportions of vapour to air that will support combustion, the explosive range, is widened by the presence of dust, especially mineral dust such as dry dust. The explosive range of gasoline vapour is approximately between one and eight per cent by volume of vapour in air, but this range can be widened by changes in temperature and pressure.

14.35 Owing to their high vapour pressure gasolines will form flammable mixtures with air at a greater distance from the vapour source than such fuels as kerosene or aviation turbine fuel of low vapour pressure, but at normal atmospheric temperatures and pressures these gasolines form a very rich mixture directly above the surface in confined spaces such as bulk storage tanks and refuellers. However, in the case of turbine fuel aviation wide-cut type, the vapour pressure of which is between those of gasoline and the kerosene type of fuel, the vapour-air concentration in the immediate vicinity of the fuel is normally within the explosive range.

### Toxicity

14.36 The vapours of POL products are poisonous and if inhaled may cause giddiness, asphyxiation or death. Personnel are not to be allowed to work alone in a confined space where POL has been stored. This applies even where breathing apparatus is worn.

14.37 Most gasolines contain lead alkyls which are highly poisonous and can be absorbed through contact with the skin and can be inhaled. Too great a concentration in the body will cause death.

14.38 Ethylene glycol anti-freeze and certain brake fluids are poisonous.

### Asphyxiation

14.39 Where an oxygen deficiency exists due to any cause there is a danger of asphyxiation, for example:

- a. deficiency caused by fumes from a cleaning solvent;
- b. deficiency resulting from rust formation in a closed tank; or
- c. fuel or fumes entering through cracks or holes.

### Damage to Materials

14.40 POL products may cause damage to rubber, paint, fabrics, clothing etc.

### Dangerous Conditions

14.41 Dangerous conditions may exist where a product can produce a dangerous atmosphere at ambient temperature, or where leakage or spillage of such a product can occur. The Following are examples of dangerous conditions and can serve as an indication in assessing where precautions are necessary:

- a. kerbside pumps and fuelling points;
- b. packaged stock stores;
- c. bulk road filling or discharging points;
- d. can filling or decanting sheds;
- e. rail tank car filling or discharging points;
- f. aircraft fuelling and defuelling points;
- g. ship-to-shore filling or discharging points;
- h. fuel interceptors, pump houses, pipelines and tankage; and
- i. any space where there is spillage or leakage.

14.42 It should be noted that any tank, vessel or container that has contained product remains in a dangerous condition when empty, until it has been gas freed and a gas free certificate issued. Any other location may also be classified as dangerous at the discretion of the appropriate authority.

### Dangerous Areas



14.43 A dangerous area is an area where there exists or may exist a dangerous atmosphere. The classification and extent of the dangerous area as described in NZ P40 are the essential minimum and in the following circumstances a wider area would probably be necessary.

- a. at hydrant fuelling points;
- b. at filling and decanting sheds;
- c. if the ground slopes away from a dangerous area;
- d. if there are vehicles or equipment in the vicinity capable of emitting flames or sparks, for example coal fired locomotives, also sparks from bogie/track abrasion.
- e. if there are any vapour traps which might prevent the dispersal of petroleum vapour.
- f. where any excessive spillage occurs; and
- g. where a tank is being gas freed.

#### Static Electricity

14.44 It must always be assumed that static electricity can build up in equipment which carries POL products. Therefore, in no circumstances is POL to be pumped or gravity fed unless the equipment in use is adequately earthed and there is electrical continuity between tanks, pumps, pipes, vehicles etc. Additional precautions, such as the use of relaxation sections may be required. The free fall of fuel is to be avoided. Contaminants increase the potential build-up of static electricity. Where it is not possible to earth non-metallic tanks, steps are to be taken to ensure that metal inlet and outlet lines are suitably bonded.

14.45 Protective clothing and certain types of underwear (nylon etc) are possible generators of static electricity, the sparks from which can initiate an explosion in mixtures of petrol vapour and air. Such static charges are particularly dangerous if the wearer is insulated from the ground by means of non-conductive footwear, or is standing on a non-conducting surface.

14.46-14.47 Reserved.

## SECTION 4 : CLASSIFICATION OF AREAS

### General

- 14.48 The classification of areas takes account of two factors:
- a. the probability of a dangerous atmosphere arising at any time, and
  - b. the probability of a spark or source of ignition occurring at any time, and it is the probability of these two factors occurring simultaneously which determine the degrees of fire or explosion risk.

### Dangerous Areas

- 14.49 Dangerous Areas are divided into divisions as follows:
- a. Division 1. An area in which a dangerous atmosphere is likely to occur under normal operating conditions; and
  - b. Division 2. An area in which a dangerous atmosphere is likely to occur only under abnormal conditions.

The application of these divisions is mainly to electrical equipment.

14.50 Division 1. Only equipment and associated wiring which is flameproof or intrinsically safe is to be employed.

14.51 Division 2. Non-sparking equipment conforming to the appropriate civilian New Zealand Standard may be employed in addition to equipment which conforms to the requirements of Division 1.

### Extent of Dangerous Areas

14.52 Heavier-than-air gases when escaping into atmosphere will tend to spread outwards and downwards depending on local conditions. General examples of the practical application of the above classification are given below, but for greater detail NZ P40 Manual of POL should be consulted.

14.53 Open Air Situations. For heavier-than-air gases and vapours where a dangerous atmosphere may arise only under abnormal conditions, the dangerous area is classified as Division 2 and extends vertically 25 feet above the source of the hazard and horizontally 50 feet in all directions from the source of the hazard. Beyond 25 feet from the source of the hazard in the horizontal plane, the vertical extent of the Division 2 may be reduced to 25 feet above ground level.

14.54 For petroleum pipelines, the extent of the Division 2 area above ground may be reduced to 10 feet in all directions from the possible source of hazard, created by the pipeline system.

14.55 Any trenches, or pits below ground level, located within the areas defined above, are to be classified as Division 1 areas.

14.56 If the source of the hazard described above should give rise to a dangerous atmosphere under normal working conditions the areas defined above as Division 2 are to be classified as Division 1.

#### Enclosed Premises and Surrounding Areas

14.57 When a source of hazard within enclosed premises can give rise to a dangerous atmosphere under abnormal conditions, the whole of the inside of the buildings are to be classified as Division 1 and the area surrounding the buildings as Division 2. The Division 2 area extends vertically 25 feet above any openings in the buildings and horizontally 50 feet in all directions. Any trenches or pits below ground level and located within the area defined are to be classified Division 1.

14.58 Storage Tanks. For heavier-than-air gases or vapours the space above the roof and within the shell of the tank is to be classified as Division 1. The area surrounding the tank is classified Division 2, and extends vertically 10 feet above the tank shell and horizontally 50 feet from the tank or to the bund wall whichever is the greater. Beyond 10 feet from the tank shell in the horizontal plane, the vertical extent may be reduced to 15 feet or the height of the bund wall whichever is the greater.

14.59 In the case of fixed roof tanks, anything which can give rise to a dangerous atmosphere in the area surrounding the tank is to be classified as Division 1. Any trenches or pits below ground level within the area defined above are to be classified Division 1.

#### Safe Areas

14.60 All areas which are not classified dangerous areas are safe areas. In safe areas normal industrial types of electrical equipment can be installed. General speaking safe areas can be ascertained without difficulty, but the following examples are given of causes where this classification may not be immediately apparent:

- a. in closed premises in which a plenum or purging stream of safe atmosphere is continuously maintained, so that no opening therein can be a point of ingress of gases or vapours coming from an external source of hazard, should be classified as safe; and
- b. pipes carrying petroleum or petroleum products laid in the open outside dangerous areas should be classified as safe.

14.61-14.62 Reserved.

## SECTION 5 : SAFETY PRECAUTIONS

### General

14.63 The following general precautions are to be taken in all dangerous areas where appropriate:

- a. The extent of all dangerous areas is to be clearly indicated. A dangerous area or group of dangerous areas is to be bounded by a fence or other barrier. Notices such as “PETROLEUM SPIRIT - HIGHLY FLAMMABLE” - “NO SMOKING - “NO NAKED LIGHTS” are to be displayed so as to be visible from all approaches;
- b. all personnel entering or working in dangerous areas are to be fully conversant with the dangers, and fully understand the precautions that have to be taken, including the use of the fire equipment provided;
- c. open fires, naked lights, oil heaters, open electric and gas heating elements and stoves are not permitted;
- d. matches and cigarette lighters are not to be carried;
- e. footwear studded or tipped with ferrous metal are not to be worn;
- f. rags used for cleaning purposes are to be removed from the area immediately after use. Cotton waste is not to be used for cleaning purposes;
- g. any spillage is to be mopped up immediately with rags or sand; such material is to be disposed of as at f. above;
- h. any leakage is to be reported immediately. Any action immediately possible to reduce leakage to a minimum is to be taken, although repair may only be temporary, and a permanent repair is to be affected as soon as possible.
- i. when packaged products are handled in a dangerous area adequate precautions are to be taken to avoid the risk of sparks being caused by movement of either the packages or any ancillary equipment.
- j. grass or wild vegetation is to be cut and removed. Trees which could be considered a potential fire hazard are to be removed from a dangerous area. Where weed killers are used for the control of vegetation they must be approved by the DSIR for the purpose and must not contain sodium chlorate;
- k. welding , cutting and the use of naked flame and the creation of sparks are not to be permitted. Before welding or any work requiring a naked flame can be carried out the areas is to be certified gas free;
- l. no unauthorised person, plant, vehicles or locomotives are to enter a dangerous area. No maintenance or repair work is to take place in a dangerous area unless Permit to Work with its supporting documents has been issued;

a

- m. no equipment is to be used unless specified on the Permit to Work;
- n. all electrical equipment and associated wiring and portable lighting is to be flameproof or approved by a competent authority for the intended use;
- o. all power cables are to be laid underground;
- p. telephones and associated cables are to be either flameproof or intrinsically safe;
- q. all rusted iron articles are to be removed;
- r. safety tools only are to be used in dangerous areas. Steel tools are not to be used.

#### Precautions to be Taken in Petroleum Installations and Depots

##### 14.64 Personnel.

- a. All personnel working in the installation are to be fully conversant with their duties in order that correct operating procedures are followed.
- b. All personnel working in or entering an installation are to be fully instructed in and have easy access to the safety regulations concerning the installation. In particular they are to be fully conversant with what action to take in the event of an emergency. Attention is also drawn to Section 6 for matters of hygiene.
- c. Smoking is not to be permitted in the installation except in such buildings or areas as may be set aside for the purpose, and for which express authority to smoke has been given. Means of ignition is to be provided therein and should be of a type that cannot be removed.
- d. Footwear of personnel working in or entering the installation is not to have projecting nails, studs, or metal tips, which are liable to cause sparks.
- e. Matches, cigarette lighters or any other means of causing ignition are to be withdrawn into safe custody from personnel entering an installation.

##### 14.65 Inspections

- a. Dangerous areas are to be inspected at least weekly by an officer delegated by the Commanding Officer to ensure necessary precautions are being observed.
- b. All equipment, apparatus, tanks, pipelines etc, are to be inspected at frequent and regular intervals, be well maintained and are to be checked to ensure earthing continuity.

##### 14.66 Administration

- a. When it is known, suspected or expected that a dangerous atmosphere exists or may exist in what is normally a safe area immediate action is to be taken to isolate the area and treat it as a dangerous area. If such an area is outside the

jurisdiction of the Services the co-operation of the police is sought in enforcing the appropriate precautions.

- designated
- b. Administrative convenience may require that the whole of or major part of an installation is designated a dangerous area even though parts of the area may lie more than 50 feet from the outer limits. Adequate notices are to be displayed to indicate which are dangerous areas and which are safe areas.
  - c. A fire plan is to be prepared and the drill regularly practised.
  - d. A good “housekeeping” standard is to be maintained. Rubbish and refuse of any kind is not to be allowed to accumulate. Vegetation is to be controlled so as not to become a fire hazard.
  - e. Installations are to be protected by a security fence.
  - f. No vehicle is to be allowed to enter an installation unless it has been authorised by a responsible person.
  - g. Pipeline and fittings are to be marked for identification purposes according to Service practice.

14.67 Bulk Storage Installations. In addition to other precautions necessary in a dangerous area as detailed in paragraph 14.63 the following precautions are to apply to bulk storage installations.

- a. All mechanical defects in the installations or associated equipment are to be reported immediately;
- b. if any leakage is detected during the operation of the installations the defect is to be kept under observation and rectified at the earliest possible opportunity;
- c. replacement of fuses and other repairs is to be effected only by authorised personnel;
- d. filling, sampling and dip hole covers are to be replaced tightly after use. It is important that no orifices, other than the normal venting arrangements, are open while tanks are being filled except for essential dipping by an approved method where no fixed measuring devices are fitted. The introduction of conducting objects to tanks is to be prohibited until adequate time has been allowed for charge relaxation in the tank contents. Gaskets on filling, sampling and dip hole covers are to be kept in good repair and replaced when necessary. Where tanks are vented, open air apertures are to be fitted with flame traps and these are to be inspected at prescribed intervals;
- e. bonding connections on stand pipes and hydrant points are to be kept free from paint and corrosion and be subject to periodic test;
- f. traffic and powered equipment other than fuel transporters or refuellers are not to operate within the dangerous area unless this is specifically authorised. Engines of delivery vehicles are to be switched off before transfer to the installation

- starts unless the engine acts as a prime mover for a pump and the use of this pump for Class 1 products is not forbidden by local regulations;
- g. where a pressure and vacuum valve, relief pipe or floating suction is fitted to a tank it is to be inspected at prescribed intervals to ensure that it is operating efficiently;
- h. any drain that may contain spillage of POL products is not to be connected to the general drainage except through an efficient interceptor. Such interceptors are to be fitted with isolation valves to control the rate of flow or shut it off completely if necessary; and
- to
- i. In order to reduce the risk arising from static electricity charges when products are passing through a pipeline careful control must be exercised over the rate of flow used. In this respect turbine engine fuel of the turbine fuel aviation widecut type warrants particular care. Where it is thought that there is a risk of dangerous static charges not being dissipated before reaching the liquid surface in a tank, flow rates are to be reduced to a low value. This will apply especially when starting to fill any empty tank where the inlet nozzle is not covered by at least six inches of liquid and when there is a risk of contamination of the product within the pipeline. Particular care is to be taken if water is believed to be present in fuel. The free fall of fuel should be avoided.

14.68 Kerbside Pumps. The following precautions additional to those described in paragraph 14.63 are to be observed at kerbside pumps and vehicle filling stations:

- a. The extent of the dangerous area is to be clearly indicated;
- b. vehicle engines are to be kept switched off while refuelling is in progress;
- c. while refuelling is in progress, radio or electrical apparatus installed in vehicles is not to be switched on or off. This applies to all radar and radio transmitters which, irrespective of their rated mean output, are not to be used while fuelling is in progress (see paragraph 14.123);
- d. all mechanical or electrical defects in the installation itself are to be reported immediately to ensure quick repair. Where a fault is considered dangerous the equipment is to be taken out of service. Frequent inspections are to be made of all equipment;
- place.
- e. if tank covers are removed for any purpose no issues or receipts are to take. When replaced they are to be bolted down tight with all bolts in position. Dip hole covers are to be replaced and screwed down hand tight immediately a dip has been taken. In no circumstances is the dip cap to be left off;
- f. vehicle inspection pits or similar low level working centres that would act as vapour traps are not to be located within the dangerous area associated with kerbside pumps; and
- g. due precautions are to be observed to prevent access to the tanks, fittings and products by unauthorised personnel.

Loading and Unloading Bulk Fuel Carrying Road Vehicles

- 14.69 The operation of filling or emptying the carrying tank of a bulk-fuel carrying vehicle must be attended by and in the constant view of a competent person.
- 14.70 The vehicle is to, where possible, approach directly, never backing into position, and is to be so stationed that it can get away quickly without obstruction in case of emergency. Nozzles and couplings are not to be dragged along the ground.
- 14.71 The vehicle is to be earthed before any dip cap, manhole or valve is opened or the discharge hose is connected.
- 14.72 The fuelling point and the delivery nozzle is to be bonded for electrical continuity.
- 14.73 It is important that any temporary bonding connections that are made make good connections and not be liable to accidental breakage while loading and unloading is in progress.
- 14.74 As soon as the vehicle is in position, engines not required to drive pumps are to be switched off and not restarted until the loading or unloading is complete and hoses disconnected.
- 14.75 Where it is necessary to transfer fuel from one refuelling vehicle to another, both vehicles are to be fully bonded for electrical continuity before the operation takes place.
- 14.76 Electrical apparatus on the vehicle is not to be switched on or off during the operations and if a battery master switch is fitted, this is to be turned off before starting to discharge.
- 14.77 The delivery hose is not to be left unattended while loading or unloading.
- 14.78 Any spillage or leakage is to be investigated and remedied as soon as possible.
- 14.79 After operations the following actions are to be taken in the order given:
- a. close any valves and vehicle vents;
  - b. disconnect hose;
  - c. replace vehicle manhole cover;
  - d. mop up any spillage;
  - e. Disconnect bonding wires, nozzle to filling point, installation to vehicle, vehicle to vehicle, and/or vehicle to ground; and
  - f. switch on battery master switch if fitted.
- 14.80 Before loading or unloading operations are started, adequate fire fighting appliances are to be placed at suitable points.

### Loading

14.81 Where bulk vehicles are not filled through bottom loading connections filling is to be by means of an internal filling pipe in the vehicle or tanks, together with a screwed connection to the filling hose. Where such internal filling pipes are not fitted the filling hose or filling pipe is to be



lowered through the manhole to within an inch or two of the bottom of the tank and filling is to be at a reduced rate until the level of the liquid in the tank covers the end of the filling pipe by at least six inches.

### Unloading

14.82 Before any delivery of fuel is made from bulk-fuel carrying vehicles a competent person must be put in charge of the operation.

### Loading and Unloading of Rail Tank Cars

14.83 All machinery for shunting or handling rail cargoes containing Class 1 products is to be of a safe standard. There is to be no shunting operations within 30 feet of a rail car during transfer operations involving Class 1 and 2 products.

14.84 Before work is commenced on a rail car or cars they are to be uncoupled from any other non-petroleum rolling stock on the sidings and the brakes fully applied.

14.85 A red warning flag is to be displayed by day and red warning lights by night at the approaches to the site during the whole time that cars are being loaded or unloaded.

14.86 Adequate precautions are to be taken to avoid any dangerous accumulation of static electricity; the siding and the loading gantry are to be earthed and swivel joints and gaps between sections of pipelines and hose are to be bonded to provide electrical continuity throughout their length.

14.87 Only safety tools are to be used in opening or fastening the manhole covers on rail cars. The manhole covers are not to be allowed to fall heavily on the tank when being opened or on the dome when being closed.

14.88 Before loading or unloading operations are started adequate firefighting appliances are to be placed at suitable points.

14.89 Where rail cars are not filled through bottom loading connections filling is to be by means of an internal filling pipe in the vehicle or tanks, together with a screwed connection to the filling hose. Where such internal filling pipes are not fitted, the filling hose or filling pipe is to be lowered through the manhole to within an inch or two of the bottom of the tank and filling is to be at a reduced rate until the level of the liquid in the tank covers the end of the filling pipe by at least six inches.

14.90 Immediately after loading, all openings on the tank car are to be securely closed.

14.91 Before discharge the tank car manhole is to be closed down and the vent aperture examined to ensure that there is no obstruction.

14.92 The receiving tanks are to be dipped to ensure that there is sufficient ullage to take the whole of the quantity to be received.

14.93 As soon as discharge is completed the tank car is to be examined to see that it is completely empty. The manhole cover is then to be securely fixed down and the vent pipe and discharge pipe caps screwed on.

### Fuelling of Launches and Small Craft

14.94 If possible fuelling is to be carried out in daylight while the vessel is moored alongside a quay, wharf or jetty set aside for the purpose. So far as possible vessels are to be berthed in such a manner that vapour will be blown straight overboard by the wind. Fuelling by dinghy with cans is not to be allowed.

14.95 Before fuelling the vessel's engines are to be stopped and switched off. When practicable the engine room is to be allowed to cool.

14.96 Rope soled shoes or rubber soled boots or shoes are to be worn during fuelling.

14.97 Fuelling apparatus, including funnels, are to be maintained in good order. Makeshift arrangements are not to be permitted. During fuelling, the delivery tank hose and receiving tank are to be bonded together and earthed.

14.98 Fuel tanks are to be filled only to 95 percent of capacity. Caps are to be replaced and screwed well down and precautions taken to ensure that vents are not obstructed. If POL is spilled into the bilges or elsewhere it is to immediately be isolated, the spillage mopped up and the area thoroughly ventilated.

14.99 Ventilation and extraction fans, if installed, are to be left running while refuelling is taking place. Such apparatus is to be flameproof.

14.100 Lights used in the immediate vicinity of fuelling operations or to inspect bilges and other compartments after fuelling are to be approved flameproof pattern. Such equipment is to be maintained in good condition.

### Fuelling and Defuelling of Aircraft on the Ground

14.101 The refueller is to approach the aircraft from an oblique angle and be so stationed as to be able to get away quickly in case of emergency. It is never to back into position or drag nozzles or couplings along the ground.

14.102 As soon as the refuelling vehicle is in a position for the operation, engines not required to drive the pumps are to be switched off and not restarted until refuelling is complete and hoses are disconnected, except when authorised for operational reasons.

14.103 Fore extinguishers are to be placed in position where they can be reached easily in an emergency.

14.104 The driver of the vehicle is to stand by during the operation.

14.105 The aircraft is to be bonded to the ground.

14.106 The refuelling vehicle is to be bonded to the ground.

14.107 When open line fuelling, the special bonding socket provided at each fuelling point on the aircraft must be connected to the bonding wire and the delivery nozzle by means of an approved clip or fitting. An approved type of fuelling hose is to be used.

14.108 The refueller is to be bonded to the aircraft to ensure equalisation of electrical potential.

14.109 When fuelling is effected by funnel this is to be provided with a suitable connection for bonding it to the aircraft or its tanks and to the fuelling hose.

14.110 When fuelling is effected by hand from small containers, means are to be provided to connect the filling can to the funnel and to some other metallic part of the aircraft or its tank that is known to be earthed. A firm continuous connection is to be made by braided copper wire with clips at each end may be used for this purpose.

14.111 Precautions are to be taken to ensure that during refuelling operations no danger will arise from taxiing aircraft, particularly jet exhaust. As a guide, no fuelling operations are to take place within 120 feet of the wake of an aircraft with engine running.

14.112 Before fuelling starts the quantity that can be received by the aircraft is to be ascertained.

14.113 Aircraft are not normally to be fuelled or defuelled in a hangar. Approval may be given by a competent person to permit fuelling and defuelling aircraft in hangars provided the following precautionary measures are taken:

- a. all electrical power to the aircraft and other operations nearby is switched off;
- b. power driven servicing equipment is not operated at the particular aircraft or adjacent aircraft;
- c. the fuel tanker and the aircraft are correctly earthed;
- d. the fuel tanker is positioned facing the entrance so that in an emergency it can quickly be driven clear of the hangar; and
- e. a fire truck is positioned outside the hangar with a hose line and foam-making branchpipe laid to the vicinity of the aircraft.

14.114 Aircraft are not to be fuelled or defuelled with engines running unless specific instructions are issued to the contrary.

14.115 No radio or electrical apparatus installed in the aircraft or refueller, with the exception of that essential for the fuelling operation, is to be switched on or off while operations are in progress.

14.116 Operations are to be suspended if another aircraft comes within dangerous proximity.

14.117 The delivery hose is not to be left unattended during fuelling.

14.118 All spillage or leakage is to be investigated and remedied immediately. IN the event of serious spillage the following action is to be taken. Immediately call for the fire service, stop pumping and remove the aircraft and the refuelling vehicle from the affected area by hand pushing or by means of a long tow rope attached to another vehicle only when the area is considered safe for this activity. All spilled fuel is then to be cleared and the area vapour free before recommencing operations. If the refueller is directly affected by spillage it is, after removal, to be cleaned down and when vapour free be started up in a safe area. Serious damage to bituminous surfaces will result if spillage is not washed away.

14.119 It is important that any temporary bonding connections that are made are not liable to accidental breakage while fuelling is in progress. A charge at a potential sufficient to cause a spark may be built up very rapidly.

14.120 During fuelling or defuelling no vehicle is to be allowed within 120 feet of the aircraft except those designed so as not to constitute a danger when in proximity to fuelling operations.

14.121 Steel tools or any objects likely to cause sparks are not to be used in the vicinity of fuelling operations.

14.122 The following operations are to be undertaken on completion of refuelling or defuelling:

- a. stop pumps;
- b. disconnect hose;
- c. replace tank cap covers;
- d. disconnect the bonding wires. Firstly from nozzle to filling point; secondly from refueller to aircraft; and thirdly from refueller to ground; and
- e. mop up any spillage.

#### Radar and Radio

14.123 The following precautions in respect of radar and radio equipments are to be observed:

- be
- a. before radar or radio equipment is operated near a dangerous area advice must be sought from the appropriate technical and Service fire officers. In any case the operation of such equipment within 100 feet of a dangerous area is prohibited; and
  - b. before fuel tanks or aircraft, vehicles, plant etc are filled, or open metal cans which contain products are brought near to a radar set which is in operation, advice must be sought from the appropriate technical and Services fire officers. In any case these operations are prohibited within 100ft of a radar set which is operating.

14.124 Reserved.

14.125 Reserved.

## SECTION 6 : HEALTH

### General

14.126 Hydrocarbon fuels are carcinogenic substances. For this reason it is essential that all personnel involved in POL operations observe the most stringent personal precautions. In general, these precautions fall into the following categories:

- a. protection of the respiratory system;
- b. protection of the skin; and
- c. general precautions.

### Hygiene

14.127 The following rules are to be observed by all personnel who come into contact with POL. Adequate facilities are to be provided for this purpose. These rules provide minimum criteria:

- a. personnel with open cuts and abrasions or eczematous lesions of the skin are not to handle POL;
- b. hands are to be covered with ointment, prophylactic, industrial, before handling POL;
- c. face and hands are to be washed frequently with hot water and soap, nails scrubbed with a nail-brush and mouth rinsed with water. Hot baths or showers are to be taken at the end of each working day during which contamination has occurred;
- d. working clothes are not to be worn out of working hours and are to be washed at least once a week;
- e. food is not to be taken into a dangerous area;
- f. hands and lips are to be washed and nails scrubbed before eating;
- g. teeth are to be well brushed with a toothbrush at least twice daily;
- h. personnel permanently employed on POL duties are to be examined at quarterly intervals by a medical officer;
- i. when clothing is splashed with POL products the clothing is to be removed as soon as possible and then washed before re-use;
- j. personnel must not smoke while wearing working clothing if it is contaminated in the slightest degree with POL nor go near any naked flame/fire in huts, workshops or quarters;

- k. the practice of cleaning hands with POL is forbidden; and
- l. the consumption of alcohol is to be avoided in all cases prohibited during working hours.

### Gasoline Poisoning

14.128 The toxic effects on the individual of excessive exposure to gasoline are many and varied. In mild poisoning there may be excitement superficially indistinguishable from being “high” from alcohol. With higher concentrations there is, in addition, a dry tickling cough and signs of constriction in the throat. If exposure is continued there is a failure of muscular coordination and the subject becomes drowsy and dull, the vision is blurred and a burning pain is felt in the chest. In still greater concentration there is mental confusion, the victim shouts abuse and adopts a pugnacious attitude so that the rescue is fraught with danger both for himself and for his rescuer. If the concentration is very high, a man falls to the ground unconscious almost immediately and, if not promptly rescued, dies.

14.129 If a supervising officer suspects that any man is suffering from gasoline poisoning, the man is to be taken into the fresh air, and medical advice obtained at once. Where practicable, all other personnel employed in the location are to be withdrawn to the fresh air and artificial respiration administered as necessary. Speed of removal is essential as it is probable that he has fallen into a heavier concentration than that which caused his collapse. In rescue operations a casualty’s head should be kept as high as possible. The increase of concentration required to cause death, over that which caused unconsciousness, is small. If delay in removing the man is unavoidable a respirator is to be placed over his face. If the clothing is soaked in gasoline it is to be removed at once and the skin washed. The patient is to be kept warm, and evacuated to medical attention.

### Gasoline Blistering

14.130 Gasoline blistering occurs when gasoline, or clothing saturated with gasoline is allowed to remain in contact with the skin. Clothing is to be removed, after saturating with water and the body washed with cool water. The patient is to be evacuated to medical attention.

### Breathing Apparatus

14.131 Approved breathing apparatus is to be worn before entering a dangerous atmosphere or a suspected dangerous atmosphere. The fresh air line type of respirator preferably supplied by a mechanical blower is the best type of breathing apparatus for use in atmospheres which contain, or may contain, petroleum vapours. For rescue work a self-contained set may be used, but the limitations as to its effective life must be carefully observed.

14.132 General service respirators and light type respirators are to be used only in an emergency as they give very little protection against petroleum vapours. They are effective only where there is sufficient oxygen present to maintain respiration and no monoxide is present. Immediately after use, the canister is to be detached and discarded and replaced by a new one. The limitations of these two types of respirator must be realised and it is recommended that 10 minutes

only is allowed to personnel occupied in rescue work, necessitating the use of these types of respirators.

14.133 Breathing apparatus particularly self-contained apparatus is to be used only by personnel trained in its use and is to be carefully fitted to the particular wearer before use. All breathing apparatus together with rubber face masks or air tubes will deteriorate if brought into contact with POL; these substances act as a solvent for rubber. Breathing apparatus is to be serviced after each use.

14.134 Where an inert gas has been discharged, personnel are to wear self-contained breathing apparatus or the fresh air type respirator before entering the area or until such time as it is established that a safe atmosphere exists.

### First Aid

14.135 Resuscitation. Rescued personnel in whom breathing has ceased are to be given artificial respiration as soon as possible. Personnel working in dangerous situations are to be conversant with the indications for, and techniques of mouth to mouth resuscitation and external cardiac massage.

14.136 Burns. In no circumstances should ointments or crease be applied to burns. Burns of the face should be left exposed. Burns on other parts of the body should be covered with sterile or clean dressings only as a first aid measure. Limbs which have suffered from petrol burns should be elevated.

14.137 Medical advice is to be sought as soon as possible after any accident of the types outlined in paragraphs 7 and 8 above.

14.138 Reserved.

14.139 Reserved.

## SECTION 7 : PACKAGED PRODUCTS

### General

14.140 Packaged products are products packaged in containers (both returnable and non returnable) of less than 209 litres.

14.141 Returnable containers must be accounted for at all times, whether full or not, and should be returned for refilling as soon as possible.

### Types of Container

14.143 The following are the main types of containers in use:

a. Returnable.

- (1) Jerrycan; and
- (2) 200/210 litre drums.

b. Non Returnable.

- (1) small drums, 25l capacity;
- (2) grease tins;
- (3) cans oil;
- (4) kegs grease;
- (5) bottles; and
- (6) tubes.

### Container Markings

14.144 Within NZ, all containers other than jerrycans are obtained from commercial sources, there is therefore little military control over markings.

14.145 During operations, a greater control over stocks from commercial sources is likely and therefore containers are more likely to conform to military requirements.

### Jerrycan Markings

14.146 Jerrycans, when used for fuel other than KERO are to bear no identification other than the identification clip. No product other than that stated on the identification clip is to be put into the jerrycan. Identification tags are only to be removed by authorised personnel as part of a jerrycan inspection, cleaning and filling operation.

14.147 Jerrycans may be marked for transportation or storage purposes as follows:



- a. by stencilling on the side of the jerrycan:
  - (1) consignee (name of packing unit);
  - (2) packing date;
  - (3) batch number;
  - (4) movement markings; and
  - (5) safety markings (only when moved by third line or civilian transport).

14.148 Kerosene jerrycans are dedicated to this product. In no circumstances are kerosene jerrycans to be utilised for any other product, nor is kerosene to be held in any other jerrycan. In addition to the jerrycan clip, the entire face below the aperture is to be painted grey and stencilled 'KERO ONLY' in black letters 1.5ins (40mm) high.

#### 200/209 Litre Drum Markings

14.149 The main indication of contents is product stencilling on the bung end of the drum. Additionally, 200/209 litre drums should have stencilled on the bung end:

- a. packing date;
- b. batch number;
- c. consignee; and
- d. litreage/gallonage.

14.150 Movement and safety markings, as and when applicable are to be stencilled on the drum sides.

#### Non Returnable Containers

14.151 As the size of non returnable containers varies considerably, no set rules can be applied. However, as a minimum these containers should have marked on them:

- a. packing date;
- b. batch number;
- c. consignee;
- d. content volume;
- e. product identification; and
- f. safety markings.

#### Stacking Methods

14.152 Chapter 15 details stacking methods. Particular attention should be given to the correct stacking of drums:

- a. on the side, unless permanent cover such as buildings;
- b. bungs at 9 o'clock at 3 o'clock; and
- c. on dunnage to facilitate movement and prevent rusting.

### Stock Control and Inspection

14.153 Control and inspection is essential to ensure:

- a. correct balance of stock is held;
- b. loss by theft is prevented;
- c. correct rotation of stock is conducted; and
- d. leakage losses are minimised

### Security

14.154 During loading and unloading adequate safety measures are to be taken.

14.155 A physical check of stocks on a vehicle is to be conducted prior to unloading.

14.156 After unloading, a physical check is to be made of the delivery vehicle to ensure no stock has been left in the vehicle.

14.157 After loading a vehicle, a physical check is to be made of the vehicle.

### Stock Control

14.158 Stocks are to be serially numbered. Tally cards should be kept at each stack and a record of quantities in each stack maintained in the office.

14.159 Stacks should be inspected daily for leaks. Stock rotation is to be practised.

14.160 Containers of a product filled at separate dates, or with differing expiry dates should when possible be segregated.

## Issues

14.161 A simple procedure for making issues must be constituted. Issues should be supervised by a SNCO. Loading must be supervised to ensure:

- a. Vehicle interiors are clean and free from nails or other sharp objects;
- b. leakers or unsound containers are not to be loaded.
- c. loading begins from the side or end furthest away from the entrance;
- d. containers must be packed lightly and empty space filled with dunnage. Dunnage should also be placed between layers of uncased containers;
- e. containers should not protrude more than 3 ins above the sides of an open vehicle;
- f. part truck loads should be placed the length of the truck, not across it, or stacked;
- g. fuel is not to be loaded into a vehicle containing ammunition or rations. The carriage of fuel with general stores is to be discouraged and not permitted where there is doubt regarding the safety of the fuel; and
- h. after loading a physical check is to be conducted to ensure that the correct stock has been loaded and is secure.

## Leakage

14.162 The main causes of leakage and waste are:

- a. rough handling;
- b. improper storage;
- c. improper vehicle loading; and
- d. failure to decant promptly when leakers are discovered.

14.163 Careful handling will minimise leakage, therefore:

- a. all movement of containers must be supervised by a responsible person;
- b. handling should be minimised and where possible, MHE should be used;
- c. damage external protection on containers must be avoided;
- d. adequate training in MHE and vehicle driving must be conducted; and
- e. every opportunity to practice field storage methods should be taken.

14.164-14.165 Reserved.

## SECTION 8 : QUALITY SURVEILLANCE

### General

14.166 Quality surveillance of POL is defined in the Army as the proper application of technical experience and military organisation to the storage, handling and testing of petroleum products so as to ensure that they arrive at the ultimate point of consumption suitable for their required use, and includes the following activities:

- a. Proper construction and maintenance of distribution facilities including pipelines, valves, pumps, tankage, bulk and container filling and discharging arrangements, and decanting.
- b. Adequate training of operating personnel to ensure against the contamination and deterioration of petroleum products during storage and handling, and adequate instruction of suitable personnel in sampling duties.
- c. Regular inspection of bulk and packed storage, handling facilities and stocks, so as to ensure a continuous high level of control.
- d. An efficient laboratory service for testing petroleum products, on acceptable at ports, depots or from local producers, and for regular testing of products during transit and storage.
- e. Technical investigation of all cases of breakdown or undue wear of equipment which may be attributed by the user to the inadequate quality of the POL products used.
- f. The distribution of petroleum products being made only from batches which have passed the necessary inspection tests.
- g. The efficient identification and recording of all bulk and packed products so that their origin and history can be traced at any time.

14.167 This section of NZ P107 does not attempt to provide a full statement on quality surveillance, but rather, provides for those quality surveillance matters that require little or no technical input. Further details are contained in NZ P40.

### Acceptance, Inspection and Testing

14.168 Before acceptance, all liquid fuels, lubricants and allied products supplied by contractors will have been inspected and tested under arrangements made up Support Branch, Defence Headquarters of the Government Stores Board. All products so inspected will be accompanied by a release note. Products not so covered are to be inspected on receipt and documented so as to conform to the requirements for quality control whilst in storage.

### Disposal of Off Specification Stocks

14.169 The normal methods of disposal of off-specification stocks are:

- a. Blending with fresh stock, provided such action will bring the blended stock within specification requirements.
- b. Downgrading.
- c. Re-processing.
- d. Disposal by sale.
- e. Destruction.

#### Conditions Government the use of NATO Symbols

14.170 The use of a NATO symbol for the identification of petroleum products is to be adopted only if the product is listed in the appropriate standardisation agreement, and has been handled in accordance with the NATO Quality Surveillance Agreement (STANAG 3149).

14.171 Any product identified with a NATO symbol must be within its specification limits for quality or the permissible deterioration limits.

14.172 If a product bearing a NATO symbol becomes off specification in any respect, but is still suitable for its normal Army use, a line of colour contrasting with that of the NATO symbol and the background colour of the container, is to be drawn diagonally across and beyond the rectangle enclosing the NATO symbol. The NATO symbol is then to be considered cancelled and the product becomes a NATO emergency substitute.

#### Pipelines

14.173 Pipelines are to be used wherever possible for one grade of fuel only. However, if multi-product pipelines are used, they will normally be employed between bulk terminals only, where adequate facilities exist for the storage and examination of separate batches.

14.174 Fuel is to be suitably checked before entry into and upon discharge from a pipeline.

14.175 For multi-product pipelines the following provisions are to apply:

- a. Adequate provisions are to be made for removal of mixed products and water.
- b. Product velocities in pipelines are to be maintained so as to minimise mixing of products.
- c. Pumping operations will normally be continuous until cut-off or product has been made so that no interface is allowed to come to rest in a line.
- d. Pumping operations are to be conducted in accordance with NZ P40.

14.176 Single product pipelines, pumps and valves are to be marked in such a way as to indicate clearly the identity of the grade or product carried. For multi-product pipelines, connections at point of entry and valves at any discharge points are to be suitably identified by a

flag or sign indicating the product in the line. On all lines permanently transporting a single grade this can be best effected by means of a 6 inch coloured band superimposed centrally on an 18 inch background coloured band; in addition the product is to be identified by lettering. The following colours are to be used:

Ser	Product	Background 18 in wide band	Identify Band 6 in wide	Lettering (see Note)
(a)	(b)	(c)	(d)	(e)
1	F-12, AFGAS 80/87	Red	Yellow	80 F-12
2	F-18, AVGAS 100/130	Red	DK Green	100 F-18
3	F-32, AVGAS 115/145	Red	Violet	115 F-22
4	F-34, AVTUR/FSII	Red	Grey	AVTUR F-34
5	F-35, AVTUR	Red	Grey	AVTUR F-35
6	F-44, AVCAT	Red	Blue	AVCAT F-44
7	F-46, COMBATGAS	Green	Red	MT F-46
8	F-76, 47/20 DIESO	Yellow	-	DIESO F-76
9	F-58, KERO B	Grey	-	KERO F-58
10	F-77, 50/50 FFO	Brown	-	F-77

### Road Tanker Trucks

14.177 Road Tanker Trucks are to be clearly marked with the NATO Code Number where applicable and the designation of the product carried.

14.178 Care is to be taken to avoid partially filled Road Tanker Trucks being returned to filling points.

14.179 Wherever possible, each vehicle should carry only one grade of product and be re-used for the same product. Where this is not possible, appropriate change of grade procedure is essential before filling with a different grade.

14.180 Road Tanker Trucks are to be checked for water before filling and before discharge. If water is found, the maximum possible settling time (preferably overnight) is to be allowed, followed by complete draining of the water before release.

14.181 Blanking caps are to be fitted to all filling and discharge connections when not in use.

14.182 Whenever possible, fuel tanker trucks are to be secured and sealed immediately after filling.

14.183 Before discharge into storage, the identity and quality of the consignment is to be checked.

### Avoidance of Excessive Breathing

14.184 The weathering of gasoline stocks by loss of volatile components during storage affects their quality in several different ways. The loss of lighter components causes poor starting quality; the reduction in volume by this evaporation may result in excessive lead concentration; contact with the atmosphere assists oxidation and the formation of gum. A certain amount of weathering is inevitable, particularly in hot climates where evaporation is greater. Some deterioration due to weathering can be permitted since this factor is taken into account when specifications are compiled.

14.185 Weathering is to be reduced to a minimum by:

- a. Adequate maintenance of Pressure and Vacuum valves.
- b. Turn-round stocks in strict rotation.
- c. Reducing breathing space by keeping tanks as full as possible, however a 3% ullage is to be provided to allow free expansion of product when tanks are filled to their rated capacity.

### Change of Grade of Products

14.186 Whenever possible, storage tanks are to be used for one product only. When it is desired to change the use of any tanks from one grade of product to another the appropriate change of grade procedures is to be carried out as detailed in NZ P40.

### Cleaning

14.187 Tankage is to be cleaned when there is evidence, from the examination of product samples or internal inspection or sludge tests, that a tank is excessively dirty with rust or sludge.

### Water Bottoms in Tanks

14.188 Water is to be drawn from all fuel storage tanks at the first opportunity and at the end of any settling period.

14.189 Water bottoms are not normally to be used in Service installations and are never permitted with aviation fuels in Service land-based installations.

14.190 When, in emergency, water bottoms are authorised, the water level is to be maintained at least six inches below the bottom of the outlet pipe.

### Settling of Water and Solids

14.191 The presence of some water and solid contaminants is inevitable. It is essential, however, to ensure that the water and solid contaminants content of consignments despatched either in bulk or in containers are kept within the specification limits of the products carried.

14.192 The maximum possible settling time is to be allowed in bulk storage tanks after replenishment, in order to allow reasonable settlement of water and solid mater.



### Care of Flexible Connections

14.193 When not in use, flexible hoses and pipelines are to be protected from entry of foreign material by closing the ends by blank flanges, wood plugs, or similar closures and, where possible, by storage on racks under cover.

14.194 Where flexible connections are stored or handled at the same location for both white and black products they are to be marked for identification either "white" or "black" as appropriate.

### Filters

14.195 Adequate filters are to be incorporated as near as possible to the ends of all gasoline, aviation turbine fuel and diesel filling lines for containers, fuel tanker trucks, fuel tanks cars and refuellers of all kinds. They are to be inspected and cleaned as necessary. The minimum standards of filtration are given in NZ P40.

### Small Storage Tanks

14.196 Gasoline in small storage tanks, eg, kerbside pumps, tanks of 2,200 litres (500 gal) or less and drum stocks, are to be consumed within six months.

14.197 Arrangements are to be made for the removal of water and sludge from all tanks which have been out of use for more than twelve months and which are due to be refilled. Due attention is to be paid to the hazards involved.

14.198 Tanks containing fuels other than gasoline do not require such frequent attention, but are to be dipped every six months to ascertain the depth of any water at the bottom. Any water found is to be removed.

### Dispensing from Kerbside Pumps and Packaging Equipment

14.199 The provisions for bulk storage tanks are applicable to tanks feeding kerbside pumps.

14.200 Filters of a suitable type, to the standard laid down in NZ P40 are to be fitted as near as possible to the end of all outgoing lines. They are to be inspected and cleaned as necessary.

14.201 In any installation or equipment likely to be out of service for four months or more, pumps, fans, motors etc, are to be given adequate protection either in place or by transfer to store. Tanks are to be isolated, cleaned, dried and protected internally with a suitable water displacing fluid. However the use of water displacing fluids is not permitted in aviation fuel storage tanks.

## Packaged Products

14.202 For identification purposes different products are to be stored separately from each other.

14.203 Containers of similar dates of filling for the same product are to be stored together wherever possible.

14.204 Stocks are to be consumed on the basis of oldest stock first.

14.205 Adequate hard standing is to be provided whenever possible for all stocks.

14.206 Drums are normally to be belly stacked so that water cannot collect over orifices. All closures are to be below liquid level, the product inside forming a liquid seal to the closure washer thus preventing breathing.

14.207 Covered accommodation is to be provided where possible for the storage of lubricants and greases packed in non-returnable containers.

14.208 Stocks are to be inspected regularly to ensure cleanliness, satisfactory marking of containers and to allow early identification of leakers. Leaking containers are to be decanted immediately.

14.209 Closures are to be liquid and gas tight. Where practicable, the container closures are to be capable of being sealed by an over-seal or wire and lead seal.

## Container Marking

14.210 All containers are to be clearly marked with NATO Code Numbers, national designation, contractor's name or initials, place of filling, batch number and filling date, so that investigation concerning the quality of the product can be traced back to source.

14.211 An exception of this requirement is the filling of jerrycans with fuel, in the field, when it is only practicable to affix designation clips.

14.212 Full instructions for container marking are contained in NZ P40.

## Container Washing and Filling

14.213 All containers are to be washed immediately before being filled. The wash liquid is to be the same grade for which the containers are required, except in the case of lubricating oils (other than aircraft oils which are not to be decanted except in an emergency) when the wash liquid is to be either diesel fuel or kerosene.

## Decanting

14.214 Containers to receive decanted stock are to be sound and clean. The stocks are to be filtered during decanting, as specified in NZ P40.

14.215 Decanting of lubricants is more difficult, particularly in cold weather, because of their high viscosity. Settling out of impurities is a slow process and the necessary use of a coarse filter makes dust, rust and other impurities difficult to remove.

14.216 Decanting is always to be carried out in carefully controlled conditions.

14.217 Cleanliness of all equipment used in decanting operations is essential, and adequate supervision is to be provided at all times.

14.218 A special building should be set aside for decanting. If no building can be made available, a carefully chosen outdoor site is to be reserved for decanting. Cover and hard standing is to be provided wherever possible.

#### Sampling and Testing : Packaged Products

14.219 All POL stocks are to be sampled and tested as laid down in NZ P40.

14.220 The inspection of containers and maintenance of grade markings are an essential feature of quality surveillance.

14.221 When packaged products have been re-inspected as ‘dormant stocks’ and found fit for further use, the date of last re-inspection (month and last two figures of the year) is to be marked on the containers in the following manner “REINSPECTED - 0882” (ie, Reinspected - August 1982).

#### Sampling

14.222 Samples should be truly representative of the bulk of the stock which is being examined. It is, therefore, essential that sample containers are absolutely clean and dry.

14.223 Samples should contain such contamination present in the storage tank or container as is likely to be mixed with the product on delivery of a user.

14.224 The following paragraphs indicate the correct manner of obtaining representative sample from bulk storage tanks. The correct type of sample to be taken in any situation is indicated in NZ P40.

#### All Levels Sample

14.225 In all levels sample is to be taken in the following manner. A weighted and closed sampling container is to be submerged to approximately draw-off level. The container is then to be opened by means of the jerk cord and immediately withdrawn at a steady rate so that it is not quite full when it leaves the surface.

#### Upper, Middle and Lower Samples

14.226 Upper, middle and lower samples are to be drawn from large storage tanks (1,000 tons and upwards) such as those at main port installations, particularly when any blending has been effected or where successive receipts from different cargoes have been received in the same tank and ‘layering’ is possible.

14.227 Samples are to be taken with the same types of sampling containers as for all levels sample, but in this case, the container is to be allowed to fill completely at the desired level before being withdrawn.

14.228 Upper samples are to be taken from a point about one sixth of the depth of liquid below the top surface and lower samples from a point about five sixths of the depth of liquid level below the top surface.

14.229 If inspection and determination of specific gravity indicate no marked lack of uniformity between the three samples they are to be made up into a single tank composite sample, representative of the bulk, for complete tests is required.

Single Tank Composite Sample from Upper, Middle and Lower Samples

14.230 It is necessary to mix the individual samples in proportions equivalent to those represented by the bulk from which they are drawn. These proportions vary with the geometrical form of the containing vessel. For a tank of uniform cross-section, such as an upright cylindrical tank, the blend consists of equal parts of the upper and middle and lower samples. For a horizontal cylindrical tank, the blend consists of the three samples in the proportions shown in the following table:

Horizontal Cylindrical Tanks - Sampling

Liquid Depth, & of diameter	Sampling Level % of diameter, above bottom			Composite Sample Proportionate Part Of		
	Upper	Middle	Lower	Upper	Middle	Lower
100	80	50	20	3	4	3
90	75	50	20	3	4	3
80	70	50	20	2	5	3
70		50	20		6	4
60		50	20		5	5
50		40	20		4	6
40			20			10
30			15			10
20			10			10
10			5			10

Thief Sample

14.231 A thief sample is taken by means of a sampling tube or thief. This method is to be adopted when sampling drums, cans, aircraft and vehicle fuel tanks. The contents of the containers, where possible, are to be thoroughly mixed before sampling by rolling or shaking.

14.232 After the thief has been thoroughly rinsed with the liquid to be sampled, the sample is to be taken in the following manner. Insert the thief slowly to the bottom of the container, close the upper end with the thumb, withdraw and discharge the contents into the sample container. This process is to be repeated until the required quantity of sample is obtained.

### Bottom Settling Sample

14.233 This type of sample is withdrawn when it is desired to check for the presence of water or solids in rail tank cars, fuel tank trucks, underground tanks etc.

14.234 The bottom settling sample is also a thief sample, but, in this case, the upper end of the thief is to be closed while it is being lowered to the bottom of the liquid. The upper end is then to be opened thus ensuring that the sample is drawn from the bottom layer.

14.235 When the depth is too great for a sample thief (eg in the case of kerbside pump tank) the bottom settling sample is to be taken by the following method. The apparatus is to consist of an extended thief connected through a glass catch bottle to a hand suction pump by means of a rubber tube fitted with a screw clip. With the tube closed by means of the clip, lower the thief to the bottom of the tank, unscrew the clip and operate the pump so that the required quantity of sample is obtained in the catch bottle.

### Snap Sample

14.236 A snap sample is one drawn quickly from a sampling cock in a pipeline. The term can, however, cover any sample representative of the product at a particular moment and at a particular location.

### Grease Samples

14.237 It is necessary to take special precautions when sampling greases since their properties may be altered by working.

14.238 When the grease is contained in small tins (5lb or less) a number of tins are to be selected at random in accordance with NZ P40.

14.239 When sampling grease in larger containers the same procedure is to be followed, but samples of approximately 12lb are to be taken from each container selected. When taking the sample, the top layer of grease is to be removed by scraping to a depth of several inches, and the sample obtained by scooping the grease with the sample tin. The tin should be filled as completely as possible without disturbing the grease unduly.

14.240 Samples from different containers are not to be combined.

### Numbers of Samples Required from Packaged Stocks

14.241 The minimum number of containers to be opened at random and sampled is to be equal to the cube root of the total number in the batch NZ P40 details the number and type of samples to be collected.

### Marking of Samples

14.242 Sample containers are to be labelled, gummed labels may be used on glass surfaces, but in general tie-on labels are preferred. Labels are to be indelibly marked with the following particulars:

- a. Product.
- b. Batch No.
- c. Filling date.
- d. Quantity represented by sample.
- e. By whom sampled.
- f. Date and place of sampling.
- g. Source of sample.

### Dispatch of Samples

14.243 When exercising or conducting operations, with American, British, Canadian or Australian Forces the samples are to be dispatched to the POL Test Laboratory specified by that nation. Details should be available from the Allied Force Headquarters.

14.244 As the NZ Army does not have POL Testing Facilities, testing is carried out by the Chemistry Division of the Department of Scientific and Industrial Research (DSIR) on request. When forwarding samples to DSIR the following is to apply:

- a. samples are to be a minimum of a litre in meticulously clean, clear glass bottles. Stoppers must be of cork;
- b. each sample is to be securely labelled with a tie-on label showing the information contained in para 712 plus:
  - (1) whether sample is representative or drawn from a particular level,
  - (2) source and date of original supply,
  - (3) length of time the product has been stored.
  - (4) any other relevant information.

14.245 Samples sent to DSIR in accordance with para 79 are to be accompanied by a copy of the relevant tests required as detailed in paras 81-83 and, in the case of B2 tests a copy of the type of tests required. (See NZ P40). Where the product is NATO qualified, a copy of the mil spec is also to accompany the test request.

#### Types of Tests

14.246 Type A Tests. Type A tests are full specification tests, applied only at the time of procurement. Modified Type A Tests are Type A Tests from which the following may be excluded:

- a. Aviation Fuels - ASTM and thermal stability tests.
- b. Furnace Fuel Oils - Compatibility and thermal stability tests.
- c. Diesel Fuels - Stability Tests.
- d. Diesel Engine Lubricating Oils - Engine tests.
- e. Steam Turbine Lubricating Oils - oxidation, work factor, wear and load carrying ability tests.
- f. Hydraulic Oils for use in Submarine - Work factor and oxidation tests.

14.247 Type B Tests. Type B tests are those tests indicated in NZ P40 particular to each individual product.

14.248 Type C Tests. Type C Tests are quick, simple, visual identification checks to be performed on products to indicate that no change has taken place and are primarily applicable to segregated systems.

#### Dormant Stocks

14.249 Dormant stocks are to be Type B tested at the minimum frequency indicated in NZ P40.

#### Suspect Stock

14.250 Stock suspected at any time of being 'off-grade' are to be Modified Type A tested. This stock is to be separated from "on grade" stock, until the test results are known.

#### Multi-product Pipeline Operations

14.251 Where multi-product pipeline operations are conducted the following tests are required for products transferred:

- a. F-12, F-18 and F-22 AVGAS; F-34, AVTUR/FSH; F-35, AVTUR and F-44, AVCAT, Type B tests.
- b. F-46, CONBATGAS;

- (1) Visual check.
  - (2) See NZ P40.
- c. F-76, 47/20 DIESO:
- (1) Visual check.
  - (2) Flash point test.

### Polar Storage

14.252 Under conditions of Polar Storage testing of fuels and Lubricants may be made every three years, in lieu of any shorter period specified in NZ P40.

### Test Reports

14.253 Test results for POL products submitted for inspection are to be reported by laboratories in such a way as to give full test data and associated specification limits, followed by a statement of compliance, or otherwise, with the specification.

14.254 Certain simple field tests can be carried out by users. These are detailed in Annex E to this part. Any product considered suspect as a result of these tests is to be returned to the nearest Combat Suppliers, Platoon or 47 Petroleum Platoon for further testing or disposal.

14.255 Reserved.



## SECTION 9 : FABRIC TANK OPERATIONS

### General

14.256 The use of fabric tanks is a specialist activity and should not be undertaken by anyone who does not have relevant training and experience.

14.257 In all cases fabric tank operations are only to be undertaken as directed by a competent person.

14.258 Instructions for the use of fabric tanks are detailed in the equipment handbook for the specific equipment.

14.259 This section details common procedures, and is to be read in conjunction with equipment handbooks and NZ P40, Manual of POL.

### Installation

14.260 Fabric tanks may be installed either individually or in groups as determined by the tank farm plan. One or more fabric tanks may therefore be placed within a bund.

14.261 Where more than one tank is placed within a bund, the distance between each tank is to be not less than the diameter of the largest tank.

14.262 The distance between the sides of a tank and the centre line of the bundwall is to be diameter of the tank, but not less than 12.5ft.

14.263 The distance between the sides of a tank and the centre line of the bund wall is to be 50% of the tank length.

14.264 The distance between the inner base of the bund wall to the top of the bund, measured vertically is to be not less than the filled height of the tank.

14.265 Annex F to this Chapter illustrates bund dimensions calculations and distances. Note that the dimensions are examples, and are not indicative of distances required for any particular equipment currently in service, or likely to be placed in service.

14.266 Annex G lists the sequence of activity for the installation of fabric tanks.

14.267 Fabric tank sites are to be level, however where ground slopes slightly the tank may be positioned with its lengthwise axis lying down the slope and with the discharge outlet at the lower end. Where any doubt exists as to the safety of tank due to ground slope, the ground is to be levelled.

14.268 Due to low ground pressure, there is no necessity for a solid foundation for the tank. It may be installed on soft earth, sand or mud. However, surrounding ground must be firm for vehicles etc.

## Quick Repair

14.269 During operation of the fabric tank it may be necessary to effect a temporary repair without removing the product. The following procedure is to be followed: (See also Annex H).

- wound.
- a. Select the largest size temporary patch that can be pushed through the wound. If necessary, enlarge the wound by slitting it away from any adjacent seam with scissors or a sharp knife.
  - b. Lay the hinged stem of the patch flat against the base and insert the base through the slit in the tank, taking care not to dislodge the grommet.
  - c. Align the major axes of the base and cover the length of the slit and clamp together by screwing down the nut. Tighten the nut until the leak is sealed off. While tightening up, keep the patch centralised over the slit.

14.270 This repair method must be performed rapidly to minimise product waste.

14.271 Do not be concerned about product flowing from the slit whilst effecting the repair, this flow is unavoidable.

14.272 Beware of product ‘spurting’ out whilst enlarging the wound or when climbing on the tank to effect the repair.

## Permanent Repair Procedure

14.273 The above repair method is only temporary. At the earliest opportunity a permanent repair is to be effected.

14.274 Permanent repair requires that the tank be withdrawn from service for 30 to 36 hours.

14.275 The procedure detailed below concerns itself only with the repair procedure. Safety and other procedures are detailed elsewhere.

14.276 Annex I details repair procedure.

## Draining and Storing

14.277 To preserve the tank during storage, the procedure at Annex J is to be observed.

14.278-14.279 Reserved.

SECTION 10 : PRECAUTIONS TO BE OBSERVED WHEN ENTERING, CLEANING AND  
REPAIRING BULK POL STORAGE TANKS, RAIL TANK CARS AND BULK FUEL  
CARRYING VEHICLES

General

14.280 It is normal operating policy for tanks to be cleaned for quality control purposes at intervals dictated by usage, type of product and climate.

14.281 Precautions against the toxic effects of POL are to be observed.

14.282 Before entrance to a tank is permitted the person supervising the operation, must be a competent person and is to receive from a responsible officer either one of the following:

- a. Permit to Work in a Dangerous Area and Permit to Enter a Non-Gas Free Tank; or
- b. Permit to Enter a Gas Free Tank and a Gas Free Certificate.

Examples of forms of Permits and Certificates are contained in NZ P40.

Supervision

14.283 A trained supervisor familiar with all aspects of tank cleaning operations is to be nominated by an authorised person for each operation. He is required to exercise firm discipline to ensure compliance with the necessarily exacting standards of hygiene to ensure that full use is made of protective clothing and in particular, that breathing apparatus used is properly checked for serviceability and properly fitted before entry and is not removed in a dangerous atmosphere. He is to keep a check on any limiting factors concerned with the use of breathing apparatus. No person on any pretext whatever shall be allowed to enter an empty tank, cell or reservoir without the express authority of the supervisor.

14.284 Personnel employed on tank cleaning, are to be thoroughly acquainted with the nature of the hazards involved, trained in the use of breathing apparatus, claustrophobia, cleared and accustomed to working in Grade 1 protective clothing. Two or more members of the team, in addition to the supervisor, are to be trained to use resuscitation equipment, apply artificial respiration and carry out simple first aid. It is desirable that, wherever possible, personnel employed on tank cleaning work in pairs, however only one person may be in a fabric tank at any one time, except when rescue activity is required.

Medical Fitness

14.285 Every man employed on tank cleaning operations requiring the use of breathing apparatus is to have a medical certificate saying that he is fit to undertake petroleum tank cleaning duties and to use breathing apparatus. The certificate is to be renewed:

- a. at annual intervals; and
- b. following absence on sick leave.

14.286 A person who during the course of the work experiences skin irritation, headache, giddiness, or other illness or suffers any wound is to seek medical advice immediately. He is to tell the doctor that he cleans petroleum tanks and that he may be suffering from the effect of lead alkyls. A minor cut or abrasion of the skin is to be protected by a waterproof adhesive plaster or in circumstances where a dressing of this nature will not adhere by a plastic skin solution (cellulose cement type dressing).

14.287 Personnel engaged in frequent tank cleaning are to be medically examined every two months, personnel engaged in occasional tank cleaning are to be medically examined every six months and if necessary the certificate in para 14.285 is to be revoked.

### Equipment

14.288 Respirators/Breathing Apparatus. Four types are approved:

- located
- a. Grade I. A pressurised suit or a full face piece positive pressure line mask supplied with fresh air by hose either from a blower or compressor outside the danger area or from an air bottle carried by the wearer. This type of breathing apparatus is to be used on all cleaning operations in tanks containing explosive petroleum or lead alkyl vapours.
  - b. Grade II. A full face piece air-line mask with air supplied by an attached free ended hose not more than 30 feet long. This may be used by personnel entering small horizontal tanks, rail tank cars and bulk fuel vehicle tanks. (Grade II may be Grade I equipment used without the forced air supply).
  - c. Grade III. A full face mask with canister containing not less than 500 ccs of activated charcoal. This is to be worn for protection from low concentration or random vapours outside the tank or in any other hazardous area out of doors. This type of mask is acceptable for use by personnel who blank the pipeline and remove manhole doors of tanks containing lead spirits or who handle sludge containing lead compounds in the open air. Care is to be taken to change the canister before the end of its useful life. The safe operating hours are to be stencilled on the canister before issue and the total hours worn recorded preferably on a label attached to the canister. This type of mask may also be used, in an emergency, in rescue operations when these might be hampered by Grade I apparatus and when the exposure to high vapour concentration is of brief duration. It is also to be worn by personnel engaged in removing dry rust or scale from the interior surface of leaded spirit tanks already cleaned and certified gas free but a dust filter must be incorporated for this duty.
  - d. Grade IV. Dust mask and goggles. These should be used in a gas free atmosphere for protection against dust when chipping or scaling. Goggles are to be worn in operations involving eye hazards such as wiping down tank walls with solvent during cleaning operations or using scrapers, wire brushes or similar equipment used in cleaning down tank walls in non-leaded product tanks.

14.289 Protective Clothing. The different grades of protective clothing are detailed below:

- all
- a. Special clothing Grade I consists of a plastic suit or overalls, synthetic rubber or plastic boots (knee or thigh), acid proof type gloves and a special issue of cotton shirt, underwear, socks, cap or beret. This clothing is to be worn by personnel cleaning Class I product tanks and where there is a risk of contact with sludge or products containing lead compounds.
  - b. Special clothing Grade II consists of overalls (preferably but not necessarily plastic), synthetic rubber or PVC boots (knee or thigh), acid proof type gloves and such normal underwear as may be desired. This clothing is to be worn in Class 2 and Class 3 tank cleaning operations when it can be clearly established that the sludge and scale will not be contaminated with lead compounds.
- suits
- c. All protective clothing is to be put on clean daily and is to be changed at once if it becomes saturated, particularly with leaded gasoline. Clothing contaminated by lead sludge is to be cleaned with a solvent before being taken from the site for laundering. Respirators, boots, gloves and plastic and overalls are to be thoroughly cleaned at the end of each day's work.
  - d. Boots used are to be of electrically conducting materials to prevent static build up.

14.290 Safety Harness and Life-Liners. Personnel engaged on work within a small tank or other enclosed place in which petroleum vapour may be present are required to wear a life-line by which they can, if necessary, be hauled to safety. Harness, which at all times must be attended by safety personnel outside the tank, must be suitable to lift the man head first through a man-hole. The use of life-lines in the cleaning of large tanks is at the discretion of the supervisor since in such tanks, particularly those having columns or other obstructions, they could hamper rescue operations. Personnel are not to be permitted to enter such tanks unaccompanied.

14.291 Lighting. Lights and portable lamps used inside tanks are to be flameproof, with voltages not exceeding 55 volts to earth and bulb capacity limited to 60 watts. Supply cables are to be supported well above oil or sludge level. In large vertical tanks flameproof clusters suspended from tank top man-holes may be used. Personal lighting units actuated by compressed air are to be preferred for use in cleaning Class 1 product tanks, reflectors combined with external lights may be utilised where applicable.

14.282 Explosimeters. The concentration of combustible gases is to be measured with an explosimeter suitable for use with the vapour concerned. When readings are taken:

- a. at least two readings are to be made at the lowest practicable level;
- b. unless the explosimeter is known to have been recently calibrated, two instruments are to be used as a check. As a negative reading is expected explosimeters are to be checked before use, using a "minimum response kit", if available or by sampling a known dangerous atmosphere, eg vehicles fuel tank; and
- c. it is to be determined that the instrument is suitable for use with leaded fuels if these are concerned.

14.293 Ventilation. When normal ventilation is inadequate it is to be supplemented by:

- a. an air sail;
- b. an induced draught device;
- c. a fan - electrically, pneumatically or mechanically driven.

14.294 Resuscitation Equipment. Tank cleaning teams engaged in cleaning Class 1 and 2 product tanks are to be provided with resuscitation equipment. Personnel competent in the use of the particular type of resuscitation equipment in use are to be present whenever personnel are inside tanks.

14.295 Air Hose. Air hose used with grade I or II breathing apparatus is to be tested at intervals not exceeding three months.

### Gas Free Certificates

14.296 A Gas Free certificate is to be issued:

- a. before personnel enter a tank or confined space without breathing apparatus;
- b. before work entailing the use of a naked flame, or heat or spark producing tools are used.

14.297 The certificate is to be issued by a competent person after he has determined that the concentration of combustible vapours is less than four per cent of the lower explosive level, that is, less than 0.04 per cent by volume. A correctly calibrated explosimeter of an approved type, suitable for both the tank and the product is to be used to determine the level of combustible vapour.

14.298 Gas Free certificates are not valid indefinitely. NZ P40 stipulates specific validity times. These limitations are to be strictly adhered to.

### Tank Cleaning

14.299 Specific precautions exist according to the product stored. These precautions are summarised at Annex K. Detailed study of NZ P40 is essential prior to the commencement of tank cleaning operations. Failure to consult NZ P40 places the lives of the tank cleaning crew in jeopardy, and at a minimum is likely to result in damage to equipment.









DOS PROCEDURE INSTRUCTIONS

PART II FIELD OPERATIONS

CHAPTER 15 - OPERATIONAL LOAD TABLES

<u>Table</u>	<u>Title</u>
1.	Combat Rations
2.	Packaged Water
3.	POL Volume, Capacity and Density
4.	POL Container Details
5.	POL Transportation Data
6.	Ammo Arty UK/AS Air Movement Data
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8.	Ammo Inf UK Air Movement Data
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10.	Ammo Engr AS Explosive and Mines Air Movement Data
11.	Ammo Engr UK Explosive and Mines Air Movement Data
12.	Ammo Arty UK/AS Vehicle Data
13.	Ammo Inf AS Vehicle Data

14. Ammo Inf UK Vehicle Data
15. Ammo Armd UK Vehicle Data
16. Ammo Engr AS Explosives and Mines Vehicle Data
17. Ammo Engr UK Explosives and Mine Vehicle Data
18. Ammo Practice
19. Class 4 Engineer Defence Stores

OPERATIONAL LOAD TABLES

TABLE 1 - COMBAT RATIONS

Ser	Vehicle Types	24 hr Lightweight			24 hr Canned			Fresh Rations
		Sul	Rats	Wt	Sul	Rats	Wt	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	Unimog 1300L	10	2000	2300	7	1400	2590	1250
2	Unimog 1700L	16	3200	3680	13	2600	2990	2272
3	Truck 2228	22	4400	5060	22	4400	8140	4545
4	Truck M818	32	6400	7360	32	6400	11840	9090
5	6 Tonne Tlr	16	3200	3680	16	3200	5920	4863
6	16 Tonne Tlr	22	4400	5060	22	4400	8140	8181
7	UHID Iriquois External Load	4	800	920	2	400	740	453
8	UHID Iriquois Internal Load	5(2)	1000	1150	3	600	1110	577

- Notes:
1. Based on 2.2kg/man/day.
  2. Internal loads would not remain palletised.

OPERATIONAL LOAD TABLES

TABLE 2 - PACKAGED WATER (1)

Ser	Vehicle	SUL (3)	Vol l	Wt kg (2)	Remarks
(a)	(b)	(c)	(d)	(e)	(f)
1.	Unimog 1300L	5	2300	2530	1. Package Type =231 Plastic Jerrycan
2.	Unimog 1700L	9	4140	4554	2. Package Wt = 24.3kg
3.	Truck 2228	19	8740	9614	3. SUL = 20 packages
4.	Truck M818	32	14720	16192	4. Packages loose
5.	6 Tonne Tlr	21	9660	10626	
6.	16 Tonne Tlr	32	14720	16192	
7.	UHID Iriquois External Load	1	460	506	
8.	UHID Iriquios Internal Load	52(4)	1196	1263	



OPERATIONAL LOAD TABLES

TABLE 4 - POL CONTAINER DETAILS

Serial	Item	Density	Litres per Tonne (Bulk)		Filled	Containe	rs			Litres		Remarks
				Type	Wt (kg)	SUL	Tonne (1000) kg	Shipping Ton (40 cu ft)	SUL	Tonne (1000)kg	Shipping Ton (40 cu ft)	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
1	Combat Gas NATO F46 in standard unit load (SUL)	.75	1333	Can POL 20 litre	19.3(1)	20	51.8	40	400	1036	800	1. Empty Can = 4.3kg 2. Empty Tank = 225kg 3. Empty Drum = 15kg
2	Combat Gas NATO F46 loose cans	.75	1333	Can POL 20 litre	19.3	N/A	51.8	42	N/A	1036	840	
3	Combat Gas NATO F46 in tanks	.75	1333	Tank Steel Rigid 2200 litre	1875(2)	N/A	N/A	N/A	N/A	N/A	N/A	
4	Dieso 47/20 NATO F54 in standard unit load (SUL)	.84	1190	Can POL 20 litre	21.1	20	47.4	40	400	948	800	
5	Dieso 47/20 NATO F54 loose cans	.84	1190	Can POL 20 litre	21.1	N/A	47.4	42	N/A	948	840	
6	Dieso 47/20 NATO F54 in tanks	.84	1190	Tank Steel Rigid 2200 litre	2073	N/A	N/A	N/A	N/A	N/A	N/A	
7	AVGAS 100/130 NATO F18 drums loose	.73	1370	Drum Steel 200 litre	161(3)	N/A	5.75	4.2	N/A	1150	N/A	
8	AVTUR NATO F34 drums loose	.80	1250	Drum Steel 200 litres	175	N/A	5.3	4.2	N/A	1060	N/A	
9	AVTUR NATO F34 in tanks	.80	1250	Tank Steel Rigid 2200 litre	1985	N/A	N/A	N/A	N/A	N/A	N/A	
10	Kero NATO F58 in standard unit load (SUL)	.80	1250	Can POL 20 litre	20.3	20	49.2	40	400	984	800	
11	Kero NATO F58 loose cans	.80	1250	Can POL 20 litre	20.3	N/A	49.2	42	N/A	984	840	

OPERATIONAL LOAD TABLES

TABLE 3 - POL VOLUME, CAPICITY AND DENSITY

Serial	Item	Factor	Serial	Item	Factor		
(a)	(b)	(c)	(d)	(e)	(f)		
1.	One Cubic Foot	28.317	litres	25.	One American gallon	231.0	cubic inches
2.		0.02832	cubic metres	26.		0.13368	Cubic feet
3.		6.2288	Imperial gallons	27.		0.82368	Imperial gallons
4.		7.4805	American gallons	28.		0.023809	American barrels
5.		0.1781	American gallons	29.			
6.	One pint	0.5683	litres	30.		0.003785	cubic metres
7.	One Imperial Gallon	277.43	cubic inches	31.	One American Barrel	9702.0	cubic inches
8.		0.16054	cubic feet	32.		5.6146	cubic feet
9.		4.5461	litres	33.		34.9726	Imperial gallons
10.		0.004546	cubic metres	34.		42.00	American gallons
11.		1.20094	American gallons	35.		158.99	litres
12.		0.2859	American barrels	36.		0.15899	cubic metres
13.	One Litre	61.024	cubic inches		<u>RELATIVE DENSITY RANGES FOR</u> (Fresh Water = 1.00) <u>MINERAL OILS</u>		
14.		0.035314	cubic feet	37.		Crude Oil	0.80 - 0.97
15.		1.7597	pints	38.		Aviation Gasoline	0.70 - 0.78
16.		0.21997	Imperial gallons	39.		Motor Gasoline	0.71 - 0.79
17.		0.26417	American gallons	40.		Kerosene	0.78 - 0.84
18.		0.00629	American barrels	41.		Gas Oil	0.82 - 0.90
19.		1000.0	cubic centimetres				
20.	One Cubic Metre	35.315	cubic feet	42.	Diesel Oil	0.82 - 0.92	
21.		219.97	Imperial gallons	43.	Lubricating Oil	0.85 - 0.95	
22.		264.17	American gallons	44.	Fuel Oil	0.92 - 0.99	
23.		6.2898	American barrels	45.	Asphaltic Bitumen	1.00 - 1.10	
24.		1.000	litres				

OPERATIONAL LOAD TABLES



**TABLE 5 - POL TRANSPORTATION DATA**

Serial	Item	U1300L		U1700L		2228		M818		6 Tonne Tlr		16 Tonne Tlr		UHID Iriquios External Load		UHID Iriquios Internal Load		Remarks
		SUL/ Pack	Litres	SUL/ Pack	Litres	SUL/ Pack	Litres	SUL/ Pack	Litres	SUL/ Pack	Litres	SUL/ Pack	Litres	SUL/ Pack	Litres	SUL/ Pack	Litres	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
1.	Combat Gas NATO F46 standard unit load (SUL) (1)	6	2400	12	4800	24	9600	32	12800	16	6400	22	8800	2	800	Nil	Nil	1. SULs loaded two high.
2.	Combat gas NATO F46 loose cans (2)	120	2400	175	3500	252	5040	357	7140	175	3500	252	5040	51(4)	1020	65(4)	1300	2. Based on cans standing one high. Base area one can average = 0.055m2
3.	Combat Gas NATO F46 in Tanks (3)	1	2000	2	4000	4	8000	6	12000	2	4000	4	8000	Nil	Nil	Nil	Nil	
4.	Dieso 47/20 NATO F54 in standard unit load (SUL)	6	2400	11	4400	22	8800	32	12800	16	6400	22	8800	2	800	Nil	Nil	3. Based on ullage rate to cater for fuel expansion and density rate. 4t
5.	Dieso 47/20 NATO F54 loose cans	120	2400	175	3500	252	5040	357	7140	175	3500	252	5040	47(4)	940	60(4)	1200	veh includes pumping eqpt, 8t veh is loaded with tanks steel rigid only.
6.	Dieso 47/20 NATO F54 in Tanks (3)	1	2000	2	4000	4	8000	6	12000	2	4000	4	8800	Nil	Nil	Nil	Nil	4. Based on weight factor only.
7.	AVGAS 100/130 NATO F18 drums loose	17	3400	31	6200	60	12000	85	17000	41	8200	60	12000	6(4)	1200	7(4)	1400	
8.	AVTUR NATO F34 drums loose	15	3000	28	5600	57	11400	85	17000	41	8200	60	12000	5(4)	1000	7(4)	1400	
9.	AVTUR NATO F34 in Tanks (3)	1	2000	2	4000	4	8000	6	12000	2	4000	4	8000	Nil	Nil	Nil	Nil	
10.	Kero NATO F58 in standard unit load (SUL)	6	2400	11	4400	22	8800	32	12800	16	6400	22	8800	2	800	Nil	Nil	
11.	Kero NATO F58 loose cans	120	2400	175	3500	252	5040	357	7140	175	3500	252	5040	49(4)	980	62(4)	1240	



