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FM 9-10

WAR DEPARTMENT

**ORDNANCE FIELD
MANUAL**



**ORDNANCE FIELD
MAINTENANCE**

April 20, 1942

FM 9-10

ORDNANCE FIELD MANUAL

ORDNANCE FIELD MAINTENANCE



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WAR DEPARTMENT,
WASHINGTON, April 20, 1942.

FM 9-10, Ordnance Field Manual, Ordnance Field Maintenance, is published for the information and guidance of all concerned. It is based on the fundamentals of ordnance service contained in FM 9-5 and the pertinent Tables of Organization.

The purpose of this manual is to present a coordinated and complete picture of the problem of ordnance field maintenance, together with a logical solution of that problem. While this manual will be found to be helpful as a reference for operation of the maintenance organizations in garrison, it is intended primarily as a guide for use in field operations.

There are included in the various parts of this manual a complete discussion of a typical ordnance field shop and a method of conducting operations; a discussion of details pertaining to a typical maintenance company; and discussions of particular problems in ordnance field maintenance as they are encountered and solved in particular echelons such as the various types of divisions, the armored force, etc. Except where obviously necessary in the interests of uniformity throughout all ordnance service, it is not intended that this manual shall impose unnecessary restrictions on the imagination and initiative of ordnance personnel responsible for the operation of the units covered by this manual. On the contrary, it is intended that the thoughts and imagination of such personnel will be stimulated to evolve more satisfactory solutions to the problems of ordnance field service.

The organization of ordnance maintenance in the field army is based on the principle of progressive increases in available maintenance facilities from front to rear. The equipment and personnel assigned to each echelon are designed to carry the normal load of that echelon plus a certain peak load of the subordinate echelons.

The diagram on page IV illustrates the relation of various echelons of maintenance in the field army to each other. The specific assignments of each type of ordnance company will be found in FM 9-5.

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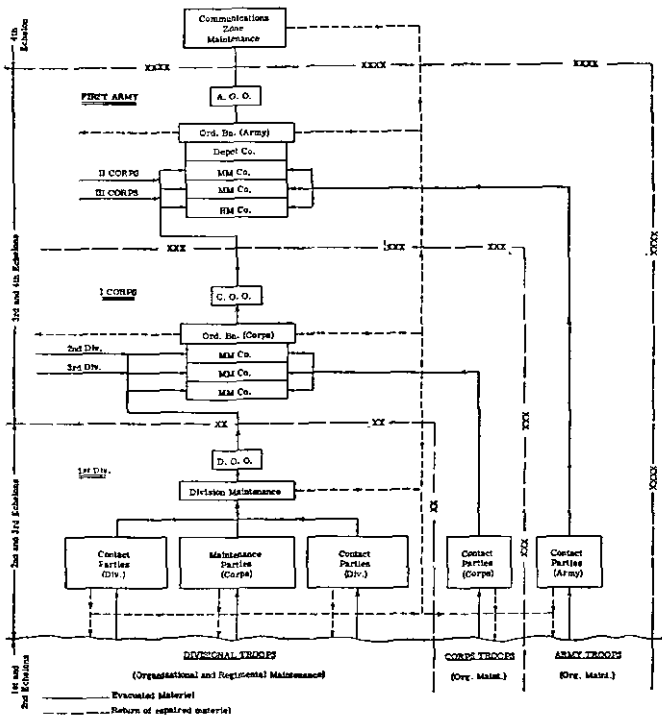


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ORDNANCE FIELD MANUAL

ORDNANCE FIELD MAINTENANCE

PART ONE

ORDNANCE FIELD SHOP

CHAPTER 1

DEFINITIONS

■ 1. DEFINITIONS.—*a. Axis of supply and evacuation.*—A principal route following the main line of advance over which supplies are brought forward to the troops and over which damaged and salvaged matériel is evacuated to the rear echelons. Whenever possible, the axis of supply and evacuation will be along main highways.

b. Basic load.—The quantities and kinds of parts and materials carried by an ordnance maintenance unit as initial stockage for the maintenance of the matériel of the unit which it is serving. It must be based on the quantities of particular types of matériel to be maintained, and other considerations. Basic data for the determination of these loads will be found in the addenda to the various Standard Nomenclature Lists (see par. 151).

c. Collecting point.—In the armored division, an area located in the vicinity of the divisional combat units and near the axis of supply and evacuation (see definition). Disabled matériel recovered from the battlefield is brought to this area by recovery sections of the combat units. The location of collecting points is designated before the units move into combat by G-4 in collaboration with the D.O.O.

d. Contact party.—A detachment of ordnance soldiers sent from an ordnance field shop to units requiring assistance. A contact party may consist of as many men and as much equipment as is considered necessary for the mission (see pars. 190-195 incl.).

e. Down time.—That period of time during which ordnance matériel is in the hands of the ordnance personnel undergoing repairs, and not available to combat units. (See par. 6.)

f. D.O.O.—Division ordnance officer.

g. Types of maintenance.—This term refers to the limits of work which are performed in the various echelons of the army from front to rear. The limits which govern the amount of work done in the various echelons are—

- (1) Skill available.
- (2) Tools available.
- (3) Time available.

For a more complete discussion see FM 9-5.

h. Expendable material.—Property which is consumed, such as cleaning and preserving material, fuel, forage, etc., and all spare parts which lose their identity when issued and installed. For a complete definition see AR 35-6620. Expendable items are indicated on Standard Nomenclature Lists.

i. Expenditure record.—The record maintained in the shop office of the parts and materials on hand. This record is the most important record in the shop. All other records and forms are designed to insure the accuracy of this record. When properly maintained it constitutes a sound basis for stockage planning and requisitioning. (See par. 72.)

j. Field service modification work order.—Modifications of ordnance matériel for the purpose of improving the functioning, the safety to personnel, and the economy in maintenance. The modifications are applied by the using arms, ordnance personnel, or an arsenal. A complete index to current ordnance field service modification work orders is published periodically by the office of the Chief of Ordnance.

k. Field shop.—In this manual a field shop is any shop established by units of the field forces and operated by soldiers, whether it be located in permanent buildings or in a field bivouac area.

l. Gun book.—A small note book (OO Form No. 5825) in which is recorded the history of the particular gun to which it pertains. It is initiated when the gun is accepted by the Government, and is continuously maintained until the end of the gun life. Particular effort must always be exerted to keep gun books up to date.

m. Liaison party.—In the armored division, a form of contact party assigned by the ordnance battalion commander for the purpose of coordinating the maintenance operations of the ordnance battalion with the activities of the

maintenance sections of the divisional armored elements. This same party may also be used in other echelons of ordnance service. The detail normally consists of the following:

(1) One officer and one noncommissioned officer, assigned a ¼-ton truck ("jeep") for their transportation.

(2) One messenger, assigned a solo motorcycle.

n. Motor book.—Same as gun book (OO Form No. 7255).

o. Nonexpendable material.—Property other than expendable property.

p. OFM forms.—These are forms illustrated and discussed in the various Ordnance Field Manuals. They are designed to solve problems peculiar to ordnance field service. In order to facilitate identification, OFM forms are numbered by blocks of numbers as indicated below:

<i>Classification</i>	<i>Number series</i>
Maintenance and repair-----	100
Inspection -----	200
Ammunition field supply-----	300
Ordnance general supply-----	400

q. Recovery party.—A form of contact party whose purpose is the recovery of disabled ordnance matériel from predesignated collecting points (see definition) and the transportation of this matériel to the ordnance shops for repairs. This party consists of one or more wrecking trucks and their crews in charge of an officer or a noncommissioned officer.

r. Section foreman.—The noncommissioned officer in charge of a shop section.

s. Shop foreman.—The noncommissioned officer assistant to the shop officer.

t. Shop officer.—The officer in charge of a shop. When the shop is operated by a maintenance company this officer is responsible to the company commander.

u. Work order.—The form issued by the shop office to authorize the performance of work. When completed it should bear, or have securely attached thereto, all pertinent, information pertaining to the job for which it was issued. When placed in the completed file it constitutes the complete record of the job. When properly maintained, work orders are a valuable basis for future planning.

NOTE.—For definitions of other subjects mentioned in this manual, see index for paragraph reference.

CHAPTER 2

GENERAL

	Paragraphs
SECTION I. General.....	2-5
II. Down time.....	6-11

SECTION I

GENERAL

■ 2. PURPOSE.—The purpose of part one of this manual is to provide a guide for the training of personnel in the operations and procedure of an ordnance field shop. No attempt has been made to distinguish between the various field shops. The expressions “higher echelon” and “parent echelon” have been used to cover all the various units which might include ordnance field shops, such as ordnance maintenance battalions and medium maintenance companies. This part covers in detail the operations and procedures necessary to accomplish work in, and to maintain the records of, an ordnance field shop.

■ 3. PLANNING.—*a. Extent of planning.*—Shop officers must continually plan to meet foreseen and unforeseen contingencies. They must constantly study their personnel with a view to strengthening the organization where it may be weak, or where losses that might affect the efficiency of the shop may be expected to occur. They must be alert for new noncommissioned officer material, and observe the conduct and efficiency of all noncommissioned officers currently holding the various grades.

b. Planning for supply.—The planning required to meet the future requirements of the shop for spare parts, materials and tools is a continuing process based on experience. Such planning merits the thoughtful attention of every responsible individual in the organization. All personnel should be encouraged to give this matter their best attention, with the end in view that valuable suggestions for improvement in technique and provision of supply may thus be evolved.

c. Maintenance of records (see pars. 36 and 37).—The maintenance of simple and complete records is a prime requisite to the maintenance of proper stock levels. There is nothing cut and dried in the problem of the supply of an ordnance field shop. Requirements of supply will constantly vary. Conditions of service will materially affect the quantities and types of materials required. Planning must be continuous and should be based on experience as nearly as possible. In this connection it is always important to make a distinction as to whether a replacement of parts or materials is due to normal deterioration, or is due to unusual wear and tear. This is important because if the replacement was made necessary by normal deterioration, it is not likely that additional replacement will be necessary on the same major item in the near future. It is likely, however, that replacements will be necessary on all other items of equal age. On the other hand, if the replacement was made necessary by unusual wear and tear incident to service, this fact must be made a matter of record as a basis for future planning for operations of a similar nature.

d. Anticipating future requirements.—The placing of comments and notes on work orders or on notes attached thereto, such as is suggested in *c* above and in paragraphs 9 and 88, are of invaluable aid to the planner who is trying to anticipate future requirements from a study of past experience. For instance, it is known that the wear and tear on under-carriage parts and tires of mobile equipment is greater in rocky terrain than in terrain that consists mostly of clay mud; whereas in wooded country, the action of trees on such equipment is noticeable on bodies and accessories attached thereto. Rain and moisture cause difficulties with ignition systems. Extreme temperature changes may cause lubrication difficulties. The effect of different types of action or operation cannot be known, with consequent expedition of supply, unless the responsible personnel study these matters.

■ 4. CHAIN OF RESPONSIBILITY.—As far as may be practicable the responsibility for each duty should be placed squarely upon the shoulders of the individual required to perform that duty. Such individual should not be unduly interfered with, but should be required and expected to solve his own problems and perform the tasks connected with his duty.

■ 5. INSTRUCTIONS TO SHOP PERSONNEL.—Except in emergencies requiring prompt action, instructions should not be given direct to shop personnel by persons other than those directly in charge of the personnel concerned. In every case where instructions are so given the responsible chief should be promptly notified.

SECTION II

DOWN TIME

■ 6. DEFINITION.—Down time is the expression used to identify that period of time during which ordnance matériel is in the hands of ordnance field shops undergoing repairs. Down time may be divided into three phases:

a. The labor time, actually expended in the performance of necessary repairs.

b. The awaiting-parts time, lost awaiting the drawing or the arrival of the necessary parts or materials.

c. The return-to-troops time, lost when the organization to which the matériel belongs does not immediately remove the matériel from the shop at the time the matériel is ready to go.

■ 7. IMPORTANCE OF REDUCING DOWN TIME.—Ordnance matériel is expensive. It can serve no useful purpose when it is not available to the troops either for training or for combat. It is part of the mission of ordnance service to reduce to the minimum the down time for any piece of matériel brought in for maintenance work. Means by which this reduction may be accomplished are discussed in the paragraphs which follow.

■ 8. REDUCING LABOR TIME.—Labor time may be reduced by a study of the best and most expeditious means of solving particular maintenance problems. It is the duty of all ordnance shop personnel to study constantly current maintenance problems with the purpose of developing methods of maintenance which will result in the saving of time otherwise lost as down time for matériel. Such methods may take one form of—

a. Replacement of complete units requiring repairs, and the repair of the faulty unit on time not charged against the major item.

b. Methods of repair that do not involve the complete removal of large units from the major item being repaired.

c. The development of two or more specialists in certain types of work such as carburetor, ignition, brakes, etc. (This method should contemplate the rotation of specialists, in such a manner as to insure against the concentration of too much specialization in certain personnel, that is, experts should be required to impart their knowledge to others.)

d. The development of preventive maintenance procedures, such as the periodic inspection of ordnance vehicles.

■ 9. REDUCING AWAITING-PARTS TIME.—Awaiting-parts time may be reduced by careful planning and by continuous, well-directed activity on the part of personnel connected with the supply problem. This time may be saved by—

a. *Maintenance of proper records.*—The maintenance of complete and accurate records of parts used (expenditure records), together with proper notes covering circumstances surrounding the need for repair. For instance, notes should indicate whether the repair was made necessary by road accidents, night driving, shell fire, excessive mud, rocky terrain, collision with trees, or falling through bridges.

b. *Cross-posting records.*—All shop records pertaining to any work for which material is requisitioned must be plainly marked with the number of the requisition on which the material was requested. The retained copy of the requisition must bear on its face after the proper item, an adequate notation of the work order for which the material is required (see par. 93).

c. *Expediting supply.*—All personnel in the supply system must be alerted to the fact that any item on a requisition bearing a notation W/O No. ----- is needed at once for current work now in a shop and the supply of the material must be made as expeditiously as possible.

d. *Use of packing lists.*—All matériel packed or shipped from depots for the supply of ordnance shops should bear on the outside of the package in a waterproof envelope or other container such that it will not be lost, a packing list, covering the items in the package.

■ 10. HANDLING OF ORDNANCE ITEMS BY SHOP PERSONNEL.—All personnel in ordnance shops should be trained to determine quickly what items are needed on current work orders, and to take immediate action to cause such items to be placed

in the hands of the personnel responsible for the completion of the work order. In general, items required for immediate use on work orders should not be binned or placed in storage, but should be placed in the hands of the proper shop section. If the shop section for any reason cannot immediately receive the items, they should be plainly tagged with the date of arrival in the shop, the section, and the work order number to which they pertain.

■ 11. REDUCING RETURN-TO-TROOPS TIME.—Time lost returning matériel to the troops may be reduced by—

a. *Scheduling work.*—Setting a time at which the matériel will be available for release to the organization to which it belongs, and notifying the organization in order that a representative may be present at the time to remove the matériel.

b. *Notifying unit.*—Notifying the organization to which the matériel belongs of the time at which it will be available, as soon as it becomes possible to determine that time.

c. *Returning matériel.*—Physically transporting the matériel to the organization to which it is assigned when such procedure seems necessary or advisable.

d. *Follow-up.*—Instituting a follow-up procedure in each section, or in the shop office, whereby, when the organization mentioned in b above is first notified that the matériel is or will be available, a notation to that effect is made on the work order or a slip attached thereto. Subsequently the organization will be repeatedly notified, at intervals to be established by the shop officer, with notations of such notification on the work order or the attached slip, until the organization calls for and removes the matériel.

CHAPTER 3

ORGANIZATION

■ 12. ORGANIZATION OF SHOP OFFICE.—*a. Purpose.*—The shop office is organized to supervise and coordinate the activities of the shop, to keep such records as may be necessary for the efficient operation of the shop, and to perform such additional clerical work as may be necessary.

b. Personnel.—The personnel of the shop office normally consists of one officer and a sufficient number of enlisted men to perform the tasks of this office. The chart shown in figure 1 may be used as a guide by the shop officer in organizing the office.

■ 13. ORGANIZATION OF SHOP SECTIONS.—Each shop section usually consists of a foreman, an assistant foreman, and additional personnel as required. These sections may be further subdivided into specialized units as deemed necessary by the section foreman. The chart shown in figure 1 may be used as a guide by the shop officer in organizing these sections.

ORGANIZATION OF THE FIELD SHOP

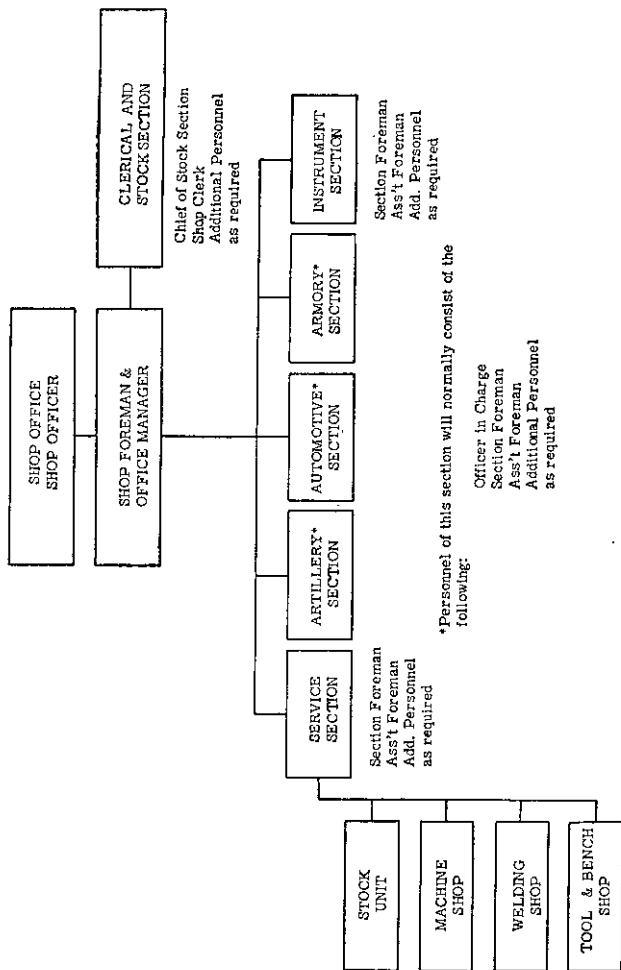


FIGURE 1.

CHAPTER 4

OPERATIONS

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SECTION I

GENERAL

■ 14. GENERAL.—The general principles underlying the operation of all sections of the shop will be the same. This section of the manual is designed to cover all matters pertinent to the operation of every section. Matters pertinent only to particular sections will be discussed under the proper sections of this chapter.

■ 15. CONSERVATION OF MATERIALS.—Every effort will be made to conserve materials. This is particularly true in the welding section.

■ 16. SHOP POLICE.—Every effort should be made to maintain a high degree of cleanliness and order in the shop. To assist in attaining this end, there should be provided numbers of cans or deep pits in which may be deposited all scraps and shop refuse. Cans should be emptied daily; pits may be burned out when the fire or smoke will not be objectionable. There should be provided a scrap metal bin. All metal scrap will be thrown into this bin. Periodically this bin should be emptied. At this time all metals having salvage value such as aluminum and other nonferrous metals should be segregated and sent to the salvage dump.

■ 17. PROPERTY RESPONSIBILITY.—*a. Responsibility of the shop officer.*—All shop property, of whatever nature, is charged to the responsibility of the shop officer or the commander of

the parent echelon. It is the duty of the shop officer and of all subordinate personnel at all times to safeguard such property against loss or destruction.

b. Suballotment of responsibility.—Since it is impracticable for one person to exercise immediate supervision over property that is as widely distributed as is the property of an ordnance field shop, this responsibility is suballotted to the section foremen and the persons actually using the tools and equipment.

c. Responsibility of section foremen and workmen.—Section foremen will sign for and be responsible for all special tools and equipment assigned to the section and not signed for by the workmen of the section. The workmen of a section will sign and be responsible for kits of tools or equipment assigned specifically to them and necessary in their work.

d. Scope of individual's responsibility.—This responsibility extends to payment (in the zone of the interior) by the individual, for such tools and equipment as he may not be able to produce when he is separated from the organization or shop assignment or goes on leave.

e. Provision for safeguarding assigned property.—Each person signed for property should be provided with a means for securing such property. No one shall without the knowledge and consent of the person responsible for the property take or borrow such property or break into or enter the container or place where this property is stored.

f. Reports of property theft.—An immediate report should be made to the shop officer whenever there exists evidence of such breaking and entering.

g. Responsibility for property lost or stolen.—In time of peace or in the zone of the interior, property lost or stolen, whether in garrison or in the field, must be replaced or paid for by the individual responsible for the same, or the loss may be made the subject of a report of survey. The decision of the surveying officer that the property was lost through the fault and neglect of the person concerned, will result in the responsible soldier being compelled to pay for the property in question.

h. Memorandum receipts.—Each soldier signing for property will receive a duplicate copy of the debit memorandum receipt, which he will keep for use in checking his property

so that he may know what he has signed for. Whenever he turns in any item of equipment he will be given a credit memorandum receipt signed by the shop officer. This he will keep with the debit memorandum receipt.

i. Inventories.—Several times each year a complete check of all property will be made by the responsible or accountable officer or his authorized representative. A new consolidated memorandum receipt will be issued to all persons holding property.

j. Action on departure of soldiers.—When a soldier who has signed for property leaves his station or organization for a period in excess of 10 days, he should be required to check all tools and equipment in to the chief of the stock section. If the property is not all turned in, the balance not turned in will be placed on a statement of charges. The shop officer will be promptly notified in all such cases.

■ 18. LOCKS AND KEYS.—*a. Custody of keys.*—All keys except those specifically assigned to individuals will be kept in a key box in the shop office (one copy of each). Extra keys should be in the custody of the shop officer and may be kept in the shop safe. All keys borrowed from the key box will be signed for on a list provided, and returned as soon as the need for them has passed. All persons charged with the security of trucks or storage cabinets will assure themselves that such places are secure before leaving them.

b. Duplicate keys.—When a key is lost the lock hasp will not be sawed. The matter will be called to the attention of the shop officer who will provide a duplicate key. Persons sawing locks will pay for them unless such sawing is authorized by the shop officer.

■ 19. GENERAL SHOP POLICIES AND PROCEDURE.—*a. Proper channels for business transactions.*—All persons having business to transact will go first to the shop office. Shop personnel will not deal directly with such persons but will direct them through the proper channels. If it is necessary for persons requesting work to consult with a section foreman they will be directed by office personnel directly to the section concerned.

b. Loitering in shop.—Persons not having business in the shop should not be allowed to loiter therein. Whenever it

is required that a soldier stay in the shop with a car or weapon, he will be allowed to do so. He should be required to assist shop personnel.

c. Tagging unserviceable matériel.—Whenever matériel is red tagged (OFM 201) and marked unserviceable as a result of inspection, the tag should show under "Defects" the specific reasons why the article has been marked unserviceable. In addition the tag will carry the usual information, including the proper nomenclature, the dates, and signature of the man making the inspection. (See pars. 21 and 130.)

d. Records in gun and motor books.—Whenever ordnance vehicles or artillery are brought to the shop for repairs, modifications, or inspections, the proper motor or gun books should be brought with them. All work of a major nature, such as overhaul, replacement or repair of large and important components, painting, or application of field service modification work orders, will be entered in the book, together with the dates, place of work, and signature of person making the entry. (See pars. 24 and 25j and k.)

e. Authority for all shop work.—No work other than ordnance maintenance will be performed by the shop without the specific authority of the shop officer in each case. (See pars. 77 and 82.)

f. Certificates of fair wear and tear.—In time of peace or in the zone of the interior, except during maneuvers, a certificate of fair wear and tear will be requested whenever it seems doubtful that an item was rendered unserviceable through fair wear and tear. In cases of matériel damaged through accident, no work will be commenced until specific orders to repair have been given by the shop officer. (See pars. 20, 83, and 84.)

g. Receipts for weapons received from troops.—In time of peace or in the zone of the interior, receipts should not be given for weapons received from the troops until inspection has shown that all principal and expensive components are present, attached in some manner to the arm to which it pertains. Any important deficiencies will be noted on the receipt given for the weapon and a notation of such deficiencies will be made on the face of the work order.

h. Replacement of nonexpendable parts.—In time of peace or in the zone of the interior, when it becomes necessary to

replace missing nonexpendable parts of a weapon, the new items will be shipped to the regimental or unit supply officer of the organization to which the weapon belongs.

i. Replacement of expendable spare parts.—Replacement of expendable spare parts in the hands of the troops will be made by direct exchange without requisition or certificate. A work order covering the transaction in detail will be issued in each case. (See AR 35-6620.)

■ 20. ACCIDENTS TO MATÉRIEL.—In peacetime or in the zone of the interior, except during maneuvers, weapons brought to the shop for repair which have been involved in an accident will be held intact as received pending the action of the shop officer who will be promptly notified. Such cases require the action of a board of officers before the weapon should be repaired and also requires the submission of certain reports to higher authority. (See AR 45-30.)

■ 21. INSPECTION OF UNSERVICEABLE ITEMS.—When items which are claimed to be unserviceable are brought to the shop with a request for replacement, an inspection will be made to determine the unserviceability of the items. (See pars. 19c, 31b, and 130.)

■ 22. INSTRUCTIONS FOR MAINTENANCE.—Instructions for the maintenance of ordnance matériel are given in the 4-series of the Ordnance Field Service Bulletins, in the Technical Manuals numbered from 1000 to 1999, and in certain of the Standard Nomenclature Lists.

■ 23. INSPECTION OF WORK.—Every job completed in each section should be checked by the foreman of the section, or the senior workman in the subsection performing the work. The individual who checks the job should place his O. K. on the work order or intershop work order, together with his name and the date.

■ 24. ACCOMPLISHMENT OF FIELD SERVICE MODIFICATION WORK ORDERS.—Whenever it becomes necessary for the field shop to accomplish an FSMWO, it is essential that adequate records of the progress of the work be maintained, and that proper entries of such modifications performed on artillery and automotive matériel be made in the proper gun or motor book. The work order covering the modification work order

should be plainly marked to indicate what FSMWO is being performed. A form (OFM 108) for the maintenance of the record of the status of FSMWO's and a discussion of its use are given in paragraph 102.

■ 25. **INTERSHOP WORK ORDERS.**—Whenever an intershop job is performed by a section, the workman performing the job will write on the face of the work order or intershop work order, the remarks "completed" with the date and his name.

■ 26. **DISPLAY OF FIRE EXTINGUISHER.**—Fire extinguishers will be prominently displayed where they may be easily reached.

■ 27. **USE OF CABINETS.**—All accessories, and parts of machines, will be kept in the cabinets provided for them.

■ 28. **RESPONSIBILITY OF WORKMAN.**—Each workman is responsible for the good order of his shop and the condition of the tools therein. No workman will perform work in other sections or use their equipment without specific authority of the shop officer or shop foreman.

■ 29. **CARE OF EQUIPMENT.**—Machines, tools, brushes, paint guns, hoses, filters, etc., will be properly cleaned and stored at the completion of each day's work.

SECTION II

SHOP OFFICE

■ 30. **FUNCTIONS OF SHOP OFFICE.**—The shop office is the coordinating agency of the shop. It is responsible to the shop officer for the efficient functioning of all phases of the technical activities of the shop. This responsibility extends to—

a. The receipt and inspection of all matériel coming to the shop for action by the shop (see par. 31).

b. The assignment of all matériel to the proper shop section for the accomplishment of the necessary work.

c. The preparation and distribution of the necessary work orders and parts thereof for the various jobs entering the shop (see pars. 77-90, incl.).

d. The supervision of the operations of the various sections, and the conduct of the necessary inspections to insure that all jobs performed by the shop are well done.

e. The conduct of studies and preparation of plans covering important phases of the future operations of the shop, such as:

(1) Requirements of the shop for spare parts and accessories for particular operations in types of terrain in which the shop may be expected to operate (see par. 3).

(2) Relative efficiency of various individuals on particular jobs.

(3) The desirability and possibility of training substitute personnel on key jobs within the shop.

(4) The causes of delay in accomplishing repairs on ordnance matériel in the shop (see pars. 6-11, incl.).

(5) The types of maintenance difficulties that may be expected in various types of terrain, and in different kinds of operations.

f. The maintenance of such records and files as are needed for the efficient operation of the shop (see pars. 32-35, 67-112, and 127-137, incl.).

g. The supervision of all spare parts and materials requirements for the shop (see pars. 36-39, incl.).

■ 31. GENERAL PROCEDURE FOR REPAIR WORK.—*a. Authorization.*—When matériel is presented to the shop for repair or other work, the first step is authorization of the work. General policies laid down by the shop officer will provide for the accomplishment of all routine work without specific authorization from him. In all special cases, approval of the shop officer must be obtained. This will frequently require the exercise of good judgment by the shop foreman. (See pars. 19-21 and 77-82, incl.)

b. Inspection.—The next step is inspection of the job by the shop foreman or a section foreman. This inspection will determine the condition of the matériel and the work to be done on it. (See pars. 19 and 21.)

c. Work order.—The work order is then prepared by the shop clerk in accordance with instructions of the shop foreman (see par. 62*a-c* incl. and pars. 77-90, incl.). All sections to work on the job should be indicated, all intershop work orders prepared (see par. 101) and the job given a priority rating. Usually only one section is concerned.

d. Doing the work.—The job and the work order then go to the section where the work is to be done. The section

foreman will assign the job to one or more workmen. During rush periods the job will await its turn, as determined by its priority rating. When the work is finished the workman notifies the section foreman. (See par. 66.)

e. Final action by section.—The work is inspected by the section foreman and, if satisfactory, the work order is completed in the section and sent to the shop office (see par. 60c).

f. Final action in shop office.—All papers and records on the job are completed and the using troops notified to call for the matériel.

■ 32. SPECIAL FORMS REQUIRED.—The following is a list of the special OFM forms required for use in the shop office, and in the sections of the shop for the usual shop procedures. (For detailed descriptions and instructions covering the use of these forms, records, and files, see pars. 67-104, incl.) These forms embrace the complete administrative details covering shop operation, which must be abridged when necessary to meet the requirements of specific situations.

a. Bill of Material (OFM 101) (par. 98).

b. Consolidation of Parts Used (OFM 102) (pars. 99, 70, and 74).

c. Work Order (OFM 103) (sec. II, ch. 6).

d. Bin Cards (OFM 104) (pars. 67c and 76).

e. Expenditure Record (OFM 105) (pars. 67b, 68, and 71-75, incl.).

f. Work Order Register (OFM 106) (par. 100).

g. Intershop Work Order (OFM 107) (par. 101).

h. Status of Field Service Modification Work Orders (OFM 108) (par. 102).

i. Consolidation of Unfilled Requisitions (OFM 109) (par. 103).

j. Section Want List (OFM 110) (par. 104).

■ 33. RECORDS MAINTAINED.—The following is a list of the permanent records maintained in the shop office:

a. Expenditure Record (OFM 105).

b. Work Order Register (on OFM 106).

c. Consolidation of unfilled requisitions (on OFM 109), kept with file of unfilled requisitions.

d. Status of field service modification work orders.

■ 34. FILES MAINTAINED.—The following is a list of the files maintained by the shop office:

- a. Work orders (current) (par. 105).
- b. Work orders (completed) (par. 106).
- c. Requisitions (unfilled) (par. 107).
- d. Requisitions (filled) (par. 108).
- e. Inspection reports (par. 111).
- f. Consolidation of parts used (on OFM 102) (par. 110).
- g. Miscellaneous files of Army Regulations and ordnance publications (par. 112).

■ 35. REPORTS TO HIGHER AUTHORITY.—From time to time various reports will be required from the ordnance shop by higher authority. The following are some that may be required:

- a. Consolidation of parts used (OFM 102).
- b. Inspection reports on matériel maintained by the shop.
- c. Status of field service modification work orders.

■ 36. STOCK SECTION.—*a. Duties.*—This section is under the direct supervision of the chief of the stock section. The section is charged with the storage, care, and issue, maintenance of records upon, and drawing from higher echelons, of all spare parts and materials required in the operation of the shop.

b. Responsibility for determination of stock levels.—The responsibility for the determination of stock levels rests with the shop officer.

c. Responsibility for the maintenance of adequate stocks on trucks.—The maintenance of adequate stocks of materials on all trucks or in other storage facilities is the responsibility of the chief of the stock section. To assist him in the performance of his task, he controls the men in the stock section of the service section, and the men assigned to the spare parts truck in each section to which a spare parts truck is attached. For clerical work in the shop office he may make use of the shop clerks.

d. Transportation of materials.—In general, with the exception of small stocks of spare parts and materials carried on the various shop trucks, all of the stocks of major items, spare parts, and accessories, and cleaning and preserving materials,

are carried on cargo and spare parts trucks pertaining to the shop.

e. Control of spare parts trucks in field.—For convenience of operation in the field, where it may sometimes be necessary for sections to be widely separated, the spare parts trucks may be decentralized to the control of the various heads of sections. However, for supply purposes, these vehicles and the personnel operating them are under the control of the shop officer through the chief of the stock section.

■ 37. RECORDS TO BE MAINTAINED IN STOCK SECTION.—A set of bin cards (stock record card OFM 104) will be maintained in the spare parts truck of each of the separate sections. A single set of bin cards will be maintained for all stocks in sections having more than one spare parts truck. There will be in each set a separate card for each item of stock carried. Each card will be complete with all the data required on its face. Every transaction will be entered on the proper card, showing date, number of voucher or work order, amount issued or received, and the balance on hand. For a complete discussion of bin cards see paragraph 76.

■ 38. ISSUES FROM STOCK SECTION.—*a. Spare parts and material.*—Such spare parts and materials as are stocked will be issued to the section requiring them on presentation of a bill of material (OFM 101) for the material or parts. This bill of material must always show the work order number for which the parts are required and should be signed by the section foreman. The stock man making the issue will mark each item issued on the bill of material and place it on the proper hook file (see par. 98c) to await posting to the bin cards at the earliest opportunity. If any items on the bill of material for a current work order are not in stock, prompt action will be taken to post the items issued to the stock card and place the incompleting bill of material in the hands of the noncommissioned officer in charge of the section for his action. (See pars. 86c, 91, and 98.)

b. Action when material is out of stock on a particular truck.—Whenever material requested on a bill of material is not in stock on a particular truck, the stock man will promptly call the matter to the attention of the chief of the stock section for his action. The chief of the stock section will

consult the expenditure record to determine whether or not the stock of the company is exhausted. If it is not, the stock man will secure the materials from another stock truck. The second stock man will post the issue to his bin card.

c. Action when material is low on a particular truck.—Whenever the total on a bin card approaches the minimum amount of stock shown on the card, it is the duty of the stock man to prepare a brief memorandum for the chief of the stock section informing him of the quantity of such items needed for the replenishment of stock in the vehicles concerned. This may be done on a want list (OFM 110). (See pars. 73 and 104.)

■ 39. ACTION ON PROPERTY RECEIVED FROM HIGHER ECHELONS OF SUPPLY.—As soon as received from higher echelons, property will be placed in the proper place in the stock section for stockage, or delivered to the section requesting it for application to the proper work order. (See par. 93.) Information indicating the disposition of the property should be found on the retained copy of the requisition or on the want list attached to the requisition. Care must be exercised that property delivered to a shop section is received by a responsible person who will know what to do with it. Items for current work orders, if not immediately acceptable by the sections, will not be binned but will be properly tagged with a distinctive tag showing the work order number and section to which it pertains and placed in a suitable place where it may be seen. Every effort will be made to keep such property moving. (See par. 10.)

SECTION III

SERVICE SECTION

■ 40. GENERAL.—This section is charged with all the miscellaneous activities not specifically assigned to other sections. Such miscellaneous activities include the following:

a. The transportation, storage, and issue of parts and materials required, but not carried by other sections of the shop.

b. The maintenance of all equipment and matériel assigned to it.

c. Machine work, within the capacity of its equipment.

d. Welding.

e. Electrical repairs to generators, motors, wiring, portable electrical tools, etc.

f. Painting of repaired matériel, signs, etc.

g. Repairs to packing boxes, tool chests, and other wood-work.

h. Construction of containers and packing of matériel for shipment. The subdivisions of the section, and discussions of their operation are given below.

■ 41. WELDING SHOP.—*a. Type of work.*—This section is equipped to do all types of electric arc and gas welding and brazing. It performs all shop welding work required by other sections on intershop work orders (OFM 107) and all other welding required in maintenance work. This section is equipped with heating torches and a forge which may be used for certain types of blacksmith work such as straightening and bending as may be required by the shop.

b. Expending materials.—Welding rods and gases issued to this section will be placed on a work order by the section foreman. This work order will be the voucher upon which the shop clerk may post these materials to the expenditure record. Thus, materials used in this section will be expended when issued and not by the job.

■ 42. MACHINE SHOP.—*a.* This section is equipped to perform a limited number of machining operations, such as turning, shaping, grinding, drilling, etc.

b. Use of equipment.—No one will use the equipment of the section except qualified personnel specifically assigned to this duty by the shop officer or shop foremen.

c. Care of equipment.—(1) The equipment of this section will be used with the greatest of care. It will be lubricated prior to each day of use, and will be thoroughly cleaned before it is left for the night.

(2) At the close of each day's operations, the machines, when cleaned, will be covered.

(3) Particular care will be exercised to keep the slides or ways of lathe beds clean. No grinding operations will be performed without precautions being taken to prevent the deposit of emory or abrasive on the machines.

d. Modifications on machine tools.—No modifications, in-

volved the removal of metal, or heating, will be made on any machine tools without the specific authority of the shop officer in each case.

■ 43. CARPENTER SHOP.—All woodworking required by the shop is performed by this section.

■ 44. PAINT SHOP.—*a. Work performed.*—All painting required by the company, including the painting of automotive vehicles, artillery matériel, signs, and miscellaneous items, is done in this shop.

b. Precautions against spontaneous combustion.—No oil-soaked rags, waste paper or other material liable to spontaneous combustion will be allowed to accumulate in the shop.

c. Use of respirator.—A respirator will be worn by the painter whenever a spray gun is used.

SECTION IV

ARTILLERY SECTION AND AUTOMOTIVE SECTION

■ 45. FUNCTIONS.—The functions of the artillery section and the automotive section include the following:

a. Periodic inspection of matériel in the hands of the organizations which the shop services and the proper disposition or repair of any found unserviceable.

b. Adjustment of improperly functioning matériel.

c. Replacement of parts which the using arms are unable to replace, and repair of matériel by other methods when necessary.

d. Repair of captured matériel, if such repair will make the matériel usable against the enemy.

e. Preparation of matériel for storage, when necessary.

f. Supply of spare parts and replacement items to troops, where applicable.

■ 46. SPARE PARTS TRUCKS.—The spare parts trucks attached to this section operate directly under the control of the subsection or unit chiefs, for operation within the section. For maintenance of stocks, and the internal management of the spare parts truck, supervisory control rests with the chief of the stock section. (See par. 36c and e.)

■ 47. ARTILLERY SECTION.—*a. Responsibility.*—This section is responsible for the inspection, repair, and maintenance of all types of artillery and 37-mm guns, and 81-mm or 60-mm mortars.

b. Preparation of inspection reports.—Whenever a gun is inspected, an inspection report with sufficient copies will be prepared. (See pars. 127 to 137, incl.)

c. Tagging matériel.—When matériel of any type, guns, caissons, limbers, etc., enter this section, each piece should be marked with a tag to show the name of the piece, the number, if any, the organization, the date the weapon entered the shop, the date the work will be completed, and the work order number covering the job. Subsequently, if the piece is held up through lack of parts, a notation will be made on the tag showing parts missing, the number of requisition on which the part was requisitioned, and date of the requisition.

■ 48. AUTOMOTIVE SECTION.—*a. Work performed.*—This section performs all third echelon maintenance work on all ordnance vehicles. It will perform such fourth echelon work as is within its ability to accomplish. In cases where the personnel of organizations having ordnance motor vehicles are unable to perform the second echelon maintenance work, this section will also perform such work. This section must be trained and prepared to perform work on vehicles supplied by other services.

b. Automotive inspector.—There should be designated in this section, a competent and responsible individual who will be called the automotive inspector. It shall be his duty to make such inspections as are indicated below. (See par. 64.)

c. Periodic vehicle inspections.—Each ordnance vehicle in the unit or area to which the field shop is nominally assigned will, when possible, be given a thorough inspection and placed in first-class condition at periodic intervals. When the vehicle enters the shop for this periodic maintenance inspection, the automotive inspector will prepare an inspection report on QMC form No. 260 which will be firmly attached to the work order. (See par. 133.)

d. Other inspections.—On each occasion that the vehicle comes in to the shop for repairs or other work, other than for the periodic inspection, it will be inspected by the automotive inspector and a short form inspection report similar

to OFM 210 (see par. 133b) will be prepared and attached to the work order. Before proceeding with his inspection, the inspector should consult the shop file of the vehicle in question to determine the work, if any, which was left unfinished on the last occasion that the vehicle was in the shop. These items of work will be transferred to the new inspection form. No vehicle will be released to the troops before the completion of all work listed on the inspection report without specific permission in each case from the foreman of the section.

SECTION V

ARMORY SECTION

■ 49. FUNCTIONS.—The functions of the armory section include the following:

a. Periodic inspection of small arms matériel in the hands of the organizations which the shop services and the proper disposition or repair of any matériel found unserviceable (see pars. 113-126, incl.).

b. Adjustment of improperly functioning matériel.

c. Replacement of parts which the using arms are unable to replace and repair of matériel by other methods when necessary.

d. Repair of captured matériel, if such repair will make the matériel usable against the enemy.

e. Preparation of matériel for storage when necessary.

f. Supply of spare parts and replacement items to troops.

■ 50. INSPECTION OF MATÉRIEL.—a. *Inspection on issue.*—In time of peace or in the zone of the interior, all small arms issued to the troops are inspected by this section prior to issue.

b. *Inspection on change of responsibility.*—In time of peace or in the zone of the interior this section will, upon change of responsible officers in combat organizations and upon request of the commanding officer concerned, inspect, repair and prepare an inspection report on all weapons not satisfactory to the new commanding officer. A list of the arms in numerical order should be presented by the organization. (See par. 122.)

c. *Condition of weapons presented by troops for inspection.*—All weapons presented by the troops for inspection or

repair should be thoroughly clean when presented; the bores and chambers of arms should be free from heavy grease and oils, and should have a light film of oil.

■ 51. **CONDITION OF WEAPONS WHEN LEAVING SHOP.**—No weapon that is not thoroughly cleaned and oiled and in first class mechanical condition should be allowed to be taken from the shop.

SECTION VI

INSTRUMENT SECTION

■ 52. **DUTIES.**—This section is charged with the inspection, maintenance and repair of all fire control and optical instruments together with their equipment and appurtenances.

■ 53. **OPERATIONS.**—The operations of the section include the following:

a. Periodic inspection of instruments for adjustment and repair. Usually, instruments in serviceable condition are exchanged for those to be inspected; the latter are then taken back to the field shop where conditions for adjustment or repair are more suitable.

b. Adjustment of improperly functioning instruments, where this can be done with the facilities available.

c. Preparation of instruments for storage, where necessary.

d. Shipping back to the depot any instruments which cannot be repaired at the field shop.

CHAPTER 5

DUTIES OF INDIVIDUALS

■ 54. GENERAL.—In this chapter will be discussed the duties of specific individuals and classes of individuals in the field shop.

■ 55. CONTINUITY OF OPERATION.—All personnel, officer or enlisted, should endeavor to insure continuity of policy and work, by keeping the next person in the chain of command or supervision informed of the current status of work or of any changes of policy affecting the echelon in question. An excellent method of crystallizing procedures, and of insuring such continuity of policy, is by the use of a "policy book." All supervisory personnel should familiarize themselves with the capabilities and limitations of the personnel under their supervision. Substitutes should be trained for each job in the shop, and men rotated from time to time to insure continuity of operation in the event that losses are experienced.

■ 56. POLICY BOOK.—*a. Description.*—A policy book is a notebook, or folder, in which is recorded for the future reference of interested personnel—

(1) The policies of the officer in charge of the echelon to which the book pertains, on problems the solutions of which are discretionary with such officers.

(2) The procedures adopted for handling matters not otherwise covered by authorized publications.

b. Uses.—Such a book is most useful in maintaining a continuity of policy in operation, on changes of command, during the absences of officers, and for the training of personnel in the desires of the officer in charge. Sections of the book should be properly titled and entries should all contain the reference which is the authority for the entry, for instance, "Co. Order No. __ date," or "Shop Order No. __ date," or "VOCO date," etc. As the book develops it should be prop-

erly indexed. If properly kept, the policy book will develop into a valuable source of information for the Office of the Chief of Ordnance concerning the operations of type organizations or sections.

■ 57. SHOP OFFICER.—*a. Responsibility and functions.*—The shop officer is responsible to the commander of the parent echelon for the operation of the shop. He will exercise immediate supervision over the shop office, through the shop foreman. He must be thoroughly familiar with the operations and status of current work of all sections of the shop.

b. Planning for future requirements.—He will prepare the necessary plans for future requirements of the shop, for trained personnel, equipment and matériel (see par. 3).

c. Inspections.—He will make such scheduled and unscheduled inspections as may be necessary to insure the readiness of all sections to function efficiently.

d. Responsibility of subordinates.—He will hold the officers or noncommissioned officers in charge of sections responsible for the efficiency of their sections.

■ 58. SHOP FOREMAN.—The shop foreman is responsible to the shop officer for—

a. Enforcement of all policies governing the operation of the shop.

b. Maintenance of all shop records (see pars. 32-34 and 67-104, incl.).

c. Preparation and transmission to proper destination of all required reports and requisitions (see par. 35).

d. Disposition of unserviceable ordnance equipment.

e. Maintenance of proper levels of stock in the stock section.

f. Preparation of work orders and designation of section to perform the work. (In general this designation is obvious except where a question arises as to whether or not the service section could best perform the work.)

g. Final form and completeness of all inspection reports (see pars. 127-137, incl.).

h. Completeness of all shop files (see pars. 105-112, incl.).

i. Readiness of the office and its equipment to operate efficiently in the field.

j. Posting of pertinent data concerning work done, in the

motor or gun books of matériel, when such posting is necessary (see pars. 19*d* and 24).

k. The return of motor or gun books to the organization to which they belong.

■ 59. OFFICERS IN CHARGE OF SHOP SECTIONS.—*a.* Officers in charge of the various shop sections are responsible to the shop officer for the efficient operation of their sections, the condition and completeness of the equipment, the training of the personnel and the state of preparation of the section to perform its mission in the field. They will make such inspections as are prescribed by higher authority. In addition to these inspections, they will make any investigations or take any measures, in furtherance of the general policies of the shop officer, deemed necessary to insure that deterioration of equipment is not due to negligence or misuse. All cases of negligence or misuse will be reported to the shop officer for his action.

b. The officers in charge of shop sections should be expert inspectors and know the best methods for repair of items for which their sections are responsible. This expertness must be obtained by actually performing some inspection and repair work, by close observation of the performance of specialists in the section, and contact with the troops using the matériel. It is not intended these officers will work as mechanics all or most of the time, for if this is done they will neglect their supervisory duties.

■ 60. SECTION FOREMAN.—The section foreman is responsible to his immediate superior for the efficient functioning of his section. In the discharge of this responsibility, he will—

a. Make such inspections of incoming matériel as may be directed by his immediate superior to—

(1) Determine the nature of the repairs required on un-serviceable matériel.

(2) Determine the suitability of new matériel to meet the requirements of the section.

b. Assign to members of the section the work required to be done by the section, both on original work orders, and on intershop work orders.

c. Inspect all jobs accomplished by the section to deter-

mine their suitability for release, and place his O. K. with date and initials on the work order.

d. Require the senior workman in each division of the section to maintain a want list for items required by the section.

e. Maintain a want list for items which from time to time come to his attention as required but are not on hand.

f. Make such inspections and issue such instructions as may be necessary to insure the maintenance of all property assigned to the section in a satisfactory state of preservation and order.

g. Be alert to eliminate any wastage of materials or misuse of machines (see pars. 41 and 42).

h. Be alert to enforce adequate safety rules in all divisions of the section.

i. Conduct a continuing study of methods of procedure in order to expedite repairs and reduce the down time (see pars. 6-11, incl.).

j. Be prepared to advise and assist members of the section in the solution of problems incident to their work.

k. Be prepared to deliver on demand to the shop foreman a considered estimate of the requirements of his section, in equipment, parts, and materials in order to fit the section for immediate departure to the field, or to bring stocks of such items up to the level determined to be necessary for initial stockage.

l. Prepare and maintain plans for the most satisfactory organization and equipment (to include stocks of materials), of type contact parties from his section.

m. Sign and be responsible for all heavy shop equipment (not to include automotive equipment) and special tools, not specifically assigned to and signed for by other personnel in the section.

n. Approve and sign bills of material, intershop work orders, and work orders, paying particular care to the use of correct nomenclature.

o. Make periodic checks of the status of stocks carried by the spare parts trucks.

■ 61. ASSISTANT FOREMAN.—*a. Duties.*—This man will assist the foreman in the performance of the duties outlined in paragraph 60. He will so apply himself as to be able, should

occasion demand, to assume the duties and responsibilities of the section foreman. He may from time to time be specifically assigned to a division of the section for study of the details of operation and technique of that section.

b. Responsibility for equipment.—He may be placed in direct charge of principal shop truck of the section, that is, the artillery repair truck or the automotive repair truck. He will then assume responsibility for the tools, equipment, and materials carried on the truck, not including the sets of hand tools assigned to and signed for by the workmen of the section. He will insure that all tools removed from the truck are returned thereto in good shape and that proper action is taken in the cases of damage to tools. In all cases replacements must be promptly secured.

c. Responsibility for workmen.—He will function as a gang boss over the workmen of the section, and will know at all times the location and occupation of all the men of the section.

■ **62. CHIEF OF STOCK SECTION.**—The chief of the stock section is responsible to the shop foreman for the efficient operation of the stock section. In discharging this responsibility he will—

a. Supervise the maintenance of the shop expenditure record (see par. 71).

b. Prepare the consolidations of parts used report (see par. 99).

c. Prepare requisitions for stockage of the stock section (see pars. 91-96, incl.).

d. Receive, check, and store all material intended for the stock section (see pars. 39 and 68).

e. Initial the duplicate of the shipping ticket or other voucher upon which stores are received in the section, and send it to the company supply sergeant (see par. 68).

f. Insure by personal supervision that material received and required for immediate use on current work orders is promptly delivered to the section requiring such materials (see par. 39).

g. Supervise the operations of the stockmen on all spare parts and stock trucks, to include storage conditions and maintenance of records.

h. Prepare the consolidation of unfilled requisitions (see par. 103).

i. Maintain the files of requisitions, filled and unfilled (see pars. 107 and 108).

j. Institute and operate a system for the follow-up of all requisitions to insure as far as possible that they are receiving the proper attention and action.

k. When directed by the shop foreman, the chief of the stock section may be assisted by the shop clerks in the performance of some of the clerical work for which he is responsible.

■ 63. STOCKMAN.—The discharge of the responsibility of the stockman to the chief of the stock section will involve—

a. Establishment and maintenance of a system of bin cards (see pars. 68, 76, and 98c).

b. Proper storage of all parts and materials assigned to his truck or trucks.

c. Issue of parts and materials requested on bills of materials (OFM 101) (see par. 98c).

d. Posting of such bills of materials to the bin cards, and transmission of the bills of materials to the shop office (see par. 98c).

e. Promptly calling to the attention of the chief of the stock section any cases where stocks are not on hand to meet demands.

f. Promptly placing requests for additional stocks when the minimum quantity listed on the card is being approached by the quantity remaining in stock.

■ 64. AUTOMOTIVE INSPECTOR.—This individual, while not specifically included in Tables of Organization, is an important assistant to the section foreman. He should be a well-qualified automotive mechanic, skilled in all phases of automotive and tank trouble diagnosis. He is responsible to the section foreman for the inspection of all ordnance vehicles upon their entry into the field shop and before they are released from the shop. In the discharge of this responsibility he will—

a. Prepare a proper inspection report form for each incoming vehicle inspected.

b. Refer to the proper vehicle file to determine what defects

found on previous inspections were not rectified. Transfer such information to the new inspection report.

c. Transmit orally to the proper section personnel, any special information not otherwise covered by the report.

d. Check all vehicles after the repairs have been made, and check off on the inspection report all those found to be satisfactory.

e. Allow no vehicle in unsatisfactory condition to leave the shop without the specific authority of the shop officer (see par. 48b).

■ 65. SHOP CLERK.—The shop clerk is responsible to the shop foreman for the typing of all correspondence for the shop office, and for the maintenance of all shop files and records. In the discharge of this responsibility he will—

a. (1) Prepare all work orders (see pars. 77-90, incl.).

(2) Secure the proper work order number from the work order register.

(3) Enter the proper data in the work order register.

b. File the duplicate work order in the work orders (current) file.

c. Send the tally-out section of the duplicate work order to the parent echelon office when required (see par. 89d).

d. Check all bills of materials against the pertinent completed work order and correct the work order when necessary.

e. Post all parts and materials used, from work orders to the shop expenditure record.

f. Check work orders to insure that pertinent data such as important work on guns and motor vehicles has been entered in the proper gun or motor book, and to insure that work orders that should be reviewed by the shop foreman or the shop officer have been so reviewed. (The initial of the interested person will indicate that this has been done.)

g. Pull the duplicate copy of the work order from the work orders (current) file, complete it to the extent required and send it to the parent echelon office, when required.

h. Make any required or proper notations on the face of the original work order to indicate that these things have been done.

i. File the completed original work order in the proper file (either by weapon, motor, or organization, as is explained in par. 106).

- j.* Prepare the consolidation of parts used report as required.
- k.* Post all retained copies of inspection reports in the proper files.
- l.* Perform such other detailed clerical duties as may be required for the efficient operation of the office.

■ 66. DUTIES OF ALL WORKMEN IN ALL SECTIONS.—All workmen are directly responsible to the section foreman or to such other person as may be specifically designated to control or supervise the individual. In the discharging of this responsibility, workmen will—

a. On routine matters, perform the necessary repairs or adjustments in the most efficient and satisfactory manner possible.

b. On problems not of a routine nature, and in the absence of specific instructions, work out a satisfactory solution, and check with their immediate superior for approval. In the absence of the immediate superior or any one else competent to approve, to proceed with the job to the best of their ability.

c. Be alert to the possibility for the development of jigs or fixtures which will expedite and simplify repairs of a routine nature. (In this connection, such jigs or fixtures must not be too elaborate and should not require action by higher authority; the whole idea here is to simplify and expedite matters, and not to become involved in expense which will defeat the basic idea of simplification and expedition.)

d. Sign for and be responsible for all tools and machines specifically assigned to them for their use.

e. Clean and properly store or cover all machine and hand tools or other equipment used.

f. Prepare the necessary bills of materials and make proper entries on work orders (see pars. 87 and 98).

g. Report unserviceable shop equipment to the section foreman for his action.

CHAPTER 6

ADMINISTRATIVE DETAILS

	Paragraphs
SECTION I. Basic property records in shop-----	67-76
II. Work order (OFM 103)-----	77-90
III. Procedure governing requisitions-----	91-96
IV. Forms and their use-----	97-104
V. Shop files-----	105-112

SECTION I

BASIC PROPERTY RECORDS IN SHOP

■ 67. **PROPERTY RECORDS.**—There should be maintained in the shop, records or accounts covering parts and materials used in the maintenance and supply of ordnance matériel to the troops. The principles outlined in paragraph 97, regarding modifications, are entirely applicable to the records listed herein.

a. The *stock record account* may be maintained by a parent echelon or the shop office. This account includes all items of whatever nature shipped to or from the parent echelon or shop on a proper shipping ticket.

b. The *shop expenditure record* is kept by the shop office. This record includes all parts and materials used in the operation of the shop in the maintenance of ordnance matériel. This record is the most important single record in the shop for operations, and must be maintained even in the combat zone.

c. The *bin cards* are kept by each section of the shop having a spare parts truck. These bin cards include every item carried by such trucks.

■ 68. **RECEIPT OF MATERIALS.**—a. *When stock record account is maintained by higher or parent echelon.*—When the stock record account for the parts and materials expended in shop operation is maintained by a higher or parent echelon, the following procedures will govern in the cases cited below:

(1) *Receipts of materials for use by both parent echelon and shop.*—The records cited in paragraph 67 will operate in the following manner: All shipments received by the parent echelon on a shipping ticket will be picked up on the stock record account. All parts and materials intended for expenditure in the operation of the shop will also be picked up by the shop office in the shop expenditure record, by shipping ticket number, in the same manner as is prescribed for entries in a stock record account. Such items will, when placed in storage in stock trucks, be entered on the proper bin card. The receipt of the chief of the stock section for such items may be given by proper entries on the face of the duplicate of the shipping ticket for the items, or the matter may be handled by the preparation of a memorandum receipt for the material for the signature of the shop officer. In general, the latter method will not be necessary.

(2) *Receipt of materials for shop only.*—Whenever shipments of materials are received which are intended exclusively for expenditure in the shop, the shipment may be sent directly to the chief of the stock section, who will check the material and initial the duplicate in the same manner as is customarily done by the office of the parent echelon for other shipments. The chief of the stock section will then pick up the material on the shop expenditures record, and the proper bin cards, and send the shipping ticket with the duplicate to the parent echelon.

b. When both stock record account and expenditure record are maintained in shop office.—In this case necessary modifications of the above-cited procedures must be made.

■ 69. **EXPENDED MATERIALS.**—Material expended on work orders will be entered in the shop expenditure record in the manner outlined in paragraphs 72 and 89.

■ 70. **DROPPING STOCKS FROM STOCK RECORD.**—Whenever consolidations of parts and materials used (see pars. 74 and 99) are prepared for higher authority, sufficient additional copies for the finance officer should be prepared. These copies, when supported by the proper certificate of expenditure and approved by proper authority, constitute the authority or voucher for dropping the material from the stock record account. (This procedure will usually be necessary only in time of peace or in the zone of the interior.)

■ 71. SHOP EXPENDITURE RECORD (OFM 105).—The shop expenditure record consists of one stock record card (QMC Form No. 424; see fig. 2) for each item of parts or kind of materials used. The cards will be arranged in the expenditure record book by groups and will be arranged among themselves in the same manner in which they appear in the Standard Nomenclature List for that particular group. This record constitutes the master record for all parts and materials that are carried by the shop for use in the maintenance of ordnance matériel.

■ 72. ENTRIES IN EXPENDITURE RECORD.—The data for the expenditure record are secured from shipping tickets and from the work orders of the shop and are posted to the record by the shop clerk who records receipts by date, shipping ticket number, quantity, and balance, and expenditures by date, work order number, the quantity issued, and balance. Whenever the clerk posts any voucher to the expenditure record he should place on the face of the voucher a notation to the effect "posted to E. R." with his initials and the date.

■ 73. STOCK LEVELS.—*a. Maximum and minimum figures.*—Each record pertaining to an item will have marked on it in the proper place the maximum and the minimum amount of the material considered necessary to have on hand. These maximum and minimum figures should not be considered as fixed beyond all change once they have been determined. The personnel of the shop office and the stock section should be constantly alert to note any necessity for change of these figures and to make recommendation to the shop officer when changes are considered necessary.

b. Basis of maximum and minimum stock levels.—The decision covering the maximum and minimum quantities of any item of stock to be carried by the shop should be arrived at only after a consideration of the following factors:

(1) Total number of major items in which the replacement item is used, in units supported by the shop.

(2) Percentage of failures which may be expected within a stated period. The period chosen may be one month or one week or any other period either prescribed or considered necessary (see par. 3).

(3) The weight or size of the item. (This is involved with the tonnage and space available to store the matériel.)

(4) The expense of the item and the difficulties of procurement. Some of the factors listed above may be evaluated accurately. Others can only be an estimate. Continuous planning is necessary to insure a completely satisfactory solution to the problem.

■ 74. BASIS FOR CONSOLIDATION OF PARTS USED (OFM 102) (see par. 99).—The shop expenditure record not only constitutes the record of the total items in storage in the shop, but also is used for the consolidation of parts used in the maintenance operations of the shop (see par. 99). In order to use this form properly for the preparation of the consolidation, two steps are necessary. In the first step the clerks must go through the entire expenditure record, draw a line under the last entry and add up the items issued during the period in question. This figure should then be placed in the space under the line drawn across the sheet and a notation of the date and consolidation number placed in the proper place. When this operation has been completed for the entire expenditure record, the clerk should then list the items directly from the expenditure record to the consolidation form. Thus, the items expended will appear on the consolidation form in the proper order by groups, and no items will be listed on the consolidation that have not actually been expended during the period.

■ 75. REPLENISHMENT OF STOCKS.—Whenever stocks within the shop approach the minimum figure listed on the expenditure record, steps should be taken to replenish such items at the earliest opportunity. In garrison it may be desirable to clip a red strip of paper or other marker to the sheet and to consolidate all such requirements at some later date. Or, it may be desirable to prepare an abstract containing the required data for inclusion in a requisition when the number of items becomes sufficient to warrant the preparation of one. In the field, however, where the shop may not remain in the same place long enough to await supply, it is best to place daily requisitions for requirements (see pars. 91-96, incl.).

■ 76. BIN CARDS (see fig. 3, OFM 104).—*a. Function.*—Bin cards are designed to maintain a running record at the point of storage of all items in storage. OFM 104 should be used

green card is furnished in quantity. A lesser number of orange cards are furnished since it is intended that they will be used principally as indicators of changes in alphabet. It is kept in a visible index metallic folder. Each folder has a capacity of 106 cards, and there are 10 folders in the metallic cabinet provided for each spare parts truck.

c. Operation.—Whenever an issue is made, or as soon thereafter as is convenient, the stockman posts to the card the quantities of materials issued. He must be constantly alert to the quantities remaining in stock. Whenever such quantities fall near the minimum prescribed on the card, he should notify the noncommissioned officer in charge that such is the case, in order that a proper request for additional stocks may be made before stocks are depleted. The use of the special markers or flags provided will assist in reminding of these needs.

SECTION II

WORK ORDER (OFM 103)

■ 77. **GENERAL.**—In the system of shop operation outlined in this manual, the Work Order (OFM 103), figures 4 and 5, is the basic shop record for all work done, and for all issues of material made to the troops by the shop. Work orders are issued by the shop office as the authority for the accomplishment of work or the issue of supplies. Except as described in paragraph 82, no work should be performed or issues made without an approved work order. Unless otherwise directed by the shop officer, the authority to issue work orders rests with the shop officer and the shop foreman.

■ 78. **RECORDING WORK ORDERS.**—A record of each work order issued is kept in the work order register (see par. 100).

■ 79. **NUMBERING WORK ORDERS.**—*a. Normal.*—Work orders issued for each regiment or separate unit should be numbered serially for that unit. Each series should begin with "One" on July 1st of each year. In order to identify the work order by unit and material, the work order number consists of three parts. A typical work order number would be "1-G-33." In this number group the first number is the code symbol which identifies the unit for which the work order was issued. The letter "G" indicates the group in which the

material is listed (see Ordnance Publications for Supply Index (OPSI) for lists of materials by groups). The number "33" indicates that this was the 33d work order issued to that organization in the fiscal year. (For work orders covering FSMWO, see par. 89c.)

b. Numbering for maneuvers in time of peace.—It is sometimes desirable to establish a separate series of work orders for maneuvers in order to readily separate garrison work orders from field work orders. In this case, the work order numbers will be started from number one, and the suffix "M" may be placed after the last number of each group. For instance, the number cited in *a* above would thus become "1-G-33M."

c. Numbering for units with which shop does not normally have contacts.—In this case work orders may be assigned an identification symbol or number in the first position which indicates that the work order is for a miscellaneous unit. The name of the unit should be written after the number group. An example of such a number would be "X-D-40M-77. F. A." This indicates that this is the 40th work order issued to miscellaneous units during the maneuvers, that the work was done on artillery matériel, and that the unit served was the 77th Field Artillery.

■ 80. ISSUANCE OF WORK ORDERS IN THEATER OF OPERATIONS.—In the combat zone, and during peacetime maneuvers when directed by proper authority, work orders will be issued on any form of request, written or oral, made by the organization requiring the performance of work or the issuance of supplies.

■ 81. ISSUANCE OF WORK ORDERS IN ZONE OF INTERIOR OR IN TIME OF PEACE.—In the zone of the interior or during peacetime, work orders are usually issued on the written request of the commanding officer of the organization desiring the work to be done. This request should state the nature of the repairs required and the cause of damage and should bear a certificate of fair wear and tear (see pars. 83 and 19f) covering the damage.

■ 82. PERFORMANCE OF WORK WITHOUT WORK ORDER.—Circumstances wherein work may be performed or supplies issued without an approved work order are as follows:

a. On the march, when emergency repairs are required.

OFM 103

WORK ORDER

No: _____

Organization: _____

Date: _____

FOR: _____

MATERIEL: _____

WORK TO BE DONE: _____

(Shop Superintendent)

TALLY OUT DATE: _____

Received the foregoing materiel from the Ordnance Shop

(Name) (Organization)

WORK DONE: _____

(Chief of Section)

COST RECORD.

LABOR: _____ HOURS: _____ PARTS: \$ _____

INSPECTED AND O.K.

(Inspector)_____
(Shop Clerk).....
W.O. No. _____ TALLY IN DATE: _____

MATERIEL: _____

(Organization)_____
(Chief of Section or Asst.)

(Obverse side)

FIGURE 4.

PARTS AND MATERIALS USED

Work Order No. _____

Date	Unit	Name of Part	Unit Cost	Total Cost

OFM 103

.....
(Reverse side)

FIGURE 5.

b. In the absence of a person in authority, when the nature of the work required will not permit of any delay.

c. In any other circumstances prescribed by the company commander.

d. In all such cases, sufficient notes should be made by the shop personnel to form the basis for a work order, and when opportunity presents itself, a work order will be prepared.

■ 83. **CERTIFICATE OF FAIR WEAR AND TEAR.**—The following is a typical certificate of fair wear and tear. "I, the undersigned, certify that the loss or damage to the items listed on this request was due to fair wear and tear in the military service and not due to the fault or neglect of anyone."

■ 84. **ACTION ON MATÉRIEL NOT COVERED BY CERTIFICATE OF FAIR WEAR AND TEAR.**—In time of peace or in the zone of the interior, except during maneuvers, whenever matériel is received at the shop for repair that appears to have been damaged by causes other than fair wear and tear, a certificate will be requested. If none is furnished, the matter will be called to the attention of the shop officer. The shop officer or his immediate superior should, through the proper channels, request of the proper headquarters, the appointment of a board of officers to determine the responsibility in the case. No work order should be issued until the board has signified that the repair or replacement may be accomplished. This will usually be as soon as the members of the board have seen the item in question.

■ 85. **PROCEDURE GOVERNING ISSUE OF WORK ORDERS BY SHOP OFFICE.**—*a. Requests to shop office.*—The matériel upon which the work is to be done is presented with the proper request at the shop office. If the question is one of making an issue of supplies, the request is presented to the shop office. If it is one of making an issue of replacement items, the un-serviceable items should, in time of peace or in the zone of the interior be presented at the shop office.

b. Inspection of matériel by shop foreman.—The matériel is inspected by the shop foreman or his representative, for a determination of the action to be taken in the case.

c. Preparing work order.—When directed by the shop foreman, or his representative, the work order is prepared in proper form and is given a number secured from the work order register.

d. Number of copies.—Each work order should be prepared in duplicate and distributed as follows:

(1) Original with certificate of organization commander attached, together with the matériel or equipment, to the section concerned.

(2) The tally-in section of the original work order is completed by the chief of section and given to the representative of the organization to which the matériel belongs, as a receipt for the matériel.

(3) The duplicate copy of the work order with a copy of the certificate of the organization commander attached, is placed in the shop office file of work orders (current).

(4) The tally-in section of the duplicate copy is completed and sent to the parent echelon as a notice that the matériel is in the shop undergoing repairs.

■ 86. WORK ORDERS ON SERIALLY NUMBERED ITEMS.—Every work order covering serially numbered matériel will show the serial numbers of such items or if the number of such items is large will bear a specific reference to the shop record (i. e., the work order request of the organization commander), where these numbers may be found.

■ 87. ACTION BY WORKMAN IN SHOP.—The workman in the shop will perform the needed repairs or replacements of parts. He should make notations on the face of the work order of the repairs actually performed. He should enter on the reverse of the work order the quantities and kinds of parts and materials used in accomplishing the work.

■ 88. ACTION BY SECTION FOREMAN.—When the required work is completed the section foreman will check the work orders for completeness, and will assure himself that all pertinent entries such as materials used, actual work performed, type of failure involved, time job was completed, etc., are entered on the work order. He should inspect the job, and assure himself that it is entirely satisfactory. If the job is an important one he should notify the shop foreman or the shop officer. When all necessary steps have been taken to insure that the job is satisfactory, the organization to which the equipment belongs should be notified. When the work is released to the using organization the tally-out portion of the form is dated and signed by the representative of the using organization. The work order is then sent to the shop office.

■ 89. ACTION BY SHOP OFFICE ON COMPLETED WORK ORDERS.—*a. Action by shop officer and shop foreman.*—The shop officer and the shop foreman should scrutinize the finished work orders for any details concerning the time the job was in the shop, the organization to which it pertained and other details which may be of interest. Whenever the shop foreman or shop officer checks a work order, he should place his initials on its face in one corner.

b. Entries in gun and motor books.—Whenever it is required that entries be made in gun or motor books, this matter may be handled in either of two ways. The various units may be required to bring the books to the shop with the matériel, and the entries may be made by the shop office personnel from the completed work order, or the necessary extracts may be made from the completed work order and sent to the organization for entry in the proper book. It will be found in practice that the former method is the better if the gun and motor books are to be of any value for future reference.

c. Entries in record of status of field service modification work orders.—All work orders should be carefully scrutinized to note whether or not the work performed was required by an FSMWO. All such work should be recorded on the proper sheet of the status record (see par. 102). The FSMWO number may be placed on the work order with the work order number.

d. Action by shop clerk.—The shop clerk should check with the chief of the stock section to insure that he has all the bills of material (OFM 101) pertaining to a given work order and should then check the bills of material against the proper work order. Any discrepancies on the work order should be corrected. The parts and materials listed on the reverse of the work order should be posted to the expenditure record. When practicable the shop time and parts and materials cost are posted to the work order register. When such postings are made, the shop clerk should make a notation in the left center or other suitable part of the work order, "posted to E/R and W. O. R." followed by his initials. The original work order together with all pertinent papers such as additional sheets and the certificate of the organization commander are filed in the proper file (see par. 106). The duplicate work order

is removed from the file of work orders (current), is then completed, and sent to the parent echelon if required.

■ 90. **ISSUES OF MATERIALS.**—Whenever ordnance general supplies are issued to the using troops by the shop, the work order (OFM 103) should be used to record the transaction. The form should be filled out in the usual manner except that it will bear in the line "Work to be done," the words "Issue of supplies," and the letter in the identification number group will be "I." The supplies to be issued will be listed on the reverse of the form. In this case the duplicate of the form will be sent to the parent echelon as soon as the transaction is completed. This work order is then posted to the expenditure record in the usual manner (see par. 72), and filed in the general file of work orders (completed) (see par. 106), pertaining to the organization to which the issue was made.

SECTION III

PROCEDURE GOVERNING REQUISITIONS

■ 91. **PRIORITY OF REQUISITIONS.**—The preparation and dispatch of requisitions should as far as practicable take precedence over all other shop office activities. This is necessary in order to cut to a minimum the "dead time" lost between the receipt of a "want list" in the shop office and the receipt of the material required.

■ 92. **PREPARATION OF REQUISITIONS.**—Upon receipt of one or more want lists, the chief of the stock section will examine them for correctness, completeness, and suitability in meeting shop requirements. He will secure the approval of the shop foreman, who should initial each approved want list. The chief of the stock section should then prepare the necessary requisition on QMC Form No. 400, and assign to it the proper requisition number.

■ 93. **NOTES PLACED ON REQUISITIONS.**—Whenever want lists bear descriptive remarks relating to the type of matériel for which the items requested are required, these remarks should also be placed in note form on the face of the requisition for such items. Whenever the want list shows work order number for which particular materials are required, the work order numbers should also be placed below the items on the

requisition. These notes are necessary to assist the supply agency and the battalion supply officer to supply the proper items and to know which items are necessary for immediate use and which may be delayed for a short time if necessary.

■ 94. ACTION BY SHOP OFFICER.—The requisition, when prepared, will be given to the shop foreman for checking and the placing of his initials on the second copy. It will then be turned over to the shop officer for his signature. The shop officer should be promptly notified whenever a requisition is awaiting his signature.

■ 95. FILING RETAINED COPY.—As soon as the requisition is signed by the shop officer, the second copy of the requisition together with the original copy of the want lists, which should be attached thereto, should be filed in the file of requisitions (unfiled) (see par. 107).

■ 96. TRANSMITTAL OF ORIGINAL.—The three remaining copies should be sent by messenger to the proper office for supply or other action. Requisitions must be delivered to responsible individuals at the higher echelon of supply, and should be given immediate attention as soon as received at such points.

SECTION IV

FORMS AND THEIR USE

■ 97. GENERAL.—The forms for use in shop operation described herein and elsewhere in this manual have been designed and coordinated one with the other, to provide a simple, complete, and efficient operating procedure for an ordnance shop operated by enlisted personnel in time of war. They are all designed to support the shop expenditure record. If the requirements of coordinated planning and continued efficient operation are to be met, practically all of the forms must be properly used. Modifications of the system may be made, both by addition and subtraction. Before such modifications are made, however, the responsible individual should carefully consider their effect upon the accuracy of the shop expenditure record.

■ 98. BILL OF MATERIALS (OFM 101, fig. 6).—*a. Description.*—This is the form used by a workman for drawing materials from the stock truck for use on a work order.

b. Use.—The form should be completely and accurately filled out giving the exact nomenclature and part number as listed in the Standard Nomenclature Lists. When approved by the section foreman, it should be presented at the stock truck where it will be filled if the material is on hand. All items drawn on a bill of materials should also be listed on the back of the work order by the workman.

c. Procedure by stockman.—The stockman should issue the materials carried on the stock trucks only on a bill of materials. When the issue has been completed, a check mark or

OFM 101		<u>BILL OF MATERIAL</u>	
*Expendable Nonexpendable Ordnance Property			
Charge to W.O. No. _____		Date _____	
Quantity	S.N.L.	Description	Unit Price
			_____ Approved Section Chief
Note: Correct nomenclature must be used. *Cross out word not applicable.			

FIGURE 6.

other notation indicating that the issue has been made should be placed on the form. As soon as is convenient without holding up other issues, the stockman should enter the issue on the bin cards. For use in cases where posting cannot be made immediately, there should be available on a board in the truck, two hooks for filing the forms. One should be marked "Unposted" and the other should be marked "Posted." Until posted to the bin cards, the bills of materials should be held on the unposted file; after posting they should be transferred to the posted file. Periodically the stockman should return all posted Forms 101 to the shop office for checking against the finished work orders.

d. Action when material is not on hand.—Whenever bills of materials are presented for stock which is not on hand, the matter should be promptly called to the attention of the chief of the stock section for his action.

e. Procedure by shop clerk.—For the procedure of the shop clerk governing the handling of these forms, see paragraphs 72 and 89*d*.

f. Filing forms.—After these forms have been checked against the work orders, they have no further use except for possible future reference. They may be sent to the office of the parent echelon.

■ 99. CONSOLIDATION OF PARTS USED (OFM 102, fig. 7).—This form is prepared by the shop office periodically as required by higher headquarters. The source of the data for this form is the Expenditure Record (OFM 105). In general it will be prepared in triplicate, two copies being sent to higher headquarters. One copy is retained on file in the shop office. A copy of this report, supported by an approved certificate of expenditure will serve as a voucher to the stock record account for dropping the material (see pars. 70 and 74).

■ 100. WORK ORDER REGISTER (OFM 106, fig. 8).—This is a record of all work orders issued. Separate sheets are maintained for each regiment and separate organization. Work orders are numbered consecutively for each unit, beginning with number one on July first of each year. The record shows the date the order was issued, the work order number, the items covered by the work order, and a consolidation of the shop time and parts and materials cost for each work order. There should be inserted in some convenient place within the binder, a code or legend index to the identification numbers assigned the various units served, and the list of letters used to identify matériel by groups. (See par. 79 and OPSI.)

■ 101. INTERSHOP ORDER (OFM 107, fig. 9).—*a. Description.*—This is a suborder to a regular work order (OFM 103). It is made out by the section foreman to secure work under a regular work order. The work required by the OFM 107 is usually to be accomplished by the service section on the material sent from one of the other sections, but it may be made out on any other section if required.

b. Use.—The intershop work order will bear the number

of the regular work order, the date, a description of the work required, and the signature of the section foreman requesting the work. It is prepared in duplicate. One copy goes to the shop office, the other to the section requested to do the work. The shop office copy should be placed in the file of work orders (current) with the work orders to which it pertains. When the work is finished, the OFM 107 will be dated and signed by the workman doing the work. This copy will be returned with the job to the foreman of the initiating section. It will then be attached to the original work order and returned with the work order to the shop office when the original is returned.

■ 102. STATUS OF FIELD SERVICE MODIFICATION WORK ORDERS (OFM 108, figs. 10 and 11).—This form is designed to provide a complete record of the status at any time of any field service modification work order, (FSMWO) being performed by the shop. This matter is one which requires constant attention on the part of all office personnel, because in the daily routine of shop operation it frequently happens that postings to this record are not properly made. This record constitutes the basis for the periodic report on this subject, required by higher headquarters. The instructions on the reverse of the form contain complete details covering the use of the form.

■ 103. CONSOLIDATION OF UNFILLED REQUISITIONS (OFM 109, fig. 12).—*a. Description.*—Delays will often be experienced in receiving supplies on requisitions. In time, numerous requisitions will be added to the unfilled requisition file. In order to simplify the problem of checking these requisitions it will sometimes be advisable to establish a Consolidation of Unfilled Requisitions (OFM 109). This form is designed to provide a quick check on the status of unfilled requisitions and to furnish the basis for action in cases of items unduly delayed. When the items listed on unfilled requisitions have been transferred to the consolidation form, these requisitions may then be placed in the filled requisition file. When such items are posted from the requisition to the consolidation a notation should be made on the requisition that such posting to the consolidation has been made, and the entry on the consolidation should bear the number of the requisition from which the entry came.

OFM 102

*EXPENDABLE
CONSOLIDATION OF *PARTS USED *ISSUED NONEXPENDABLE

Organization: _____

Issued to: _____ Period _____ to _____

Quantity	Item	Part Number	**Unit Price	**Total Price

Total Parts \$ _____

*Cross out words not applicable.

**These columns used only when a financial transaction is involved.

FIGURE 7.

OFM 106					
WORK ORDER REGISTER					
Period _____ to _____			_____ Ordnance Co.		
Organization					
Date	Work Order No.	Item	Shop Time	Parts Cost	Remarks

FIGURE 8.

b. *Action on receipt of property.*—When items are received as a result of the requisition, the date of receipt may then be posted to the consolidation. As items listed on the consolidation are checked off as having been received, it may from time to time be necessary to make a new consolidation. This will include the remaining items on the old consolidation plus such additional items as may be on other unfilled requisitions which have been submitted since the first con-

OFM 107	INTERSHOP WORK ORDER	
	_____ Ord. Co. (MM)	
From _____	Section _____	_____ 194—
To _____	Section _____	WORK ORDER NO. _____
REQUEST THE FOLLOWING WORK.		

Approved: _____	_____	_____
	Shop Foreman	Chief of Section

FIGURE 9.

solidation was made. Each consolidation should bear on its face the date on which it was made.

c. *Handling large lists of property.*—In cases where the inclusion of an unfilled requisition of several pages is required on the consolidation it will sometimes be better to cite the number of the requisition in the proper place and to retain the unfilled requisition in the unfilled file, until it is filled or reduced to a size that is more easily included in the current consolidation.

(10)		(11)	(12)	(13)	(14)						(15)
ORG.	TOTAL ON HAND	NO. OF MOD. ITEMS ON HAND	NO. ITEMS TO BE MODIFIED	NUMBER MODIFIED						DATE MOD. COMPLETED	
				DATE	NO.	DATE	NO.	DATE	NO.		

OFM 108 STATUS OF F.S.M.W.O.

(1) Pertains to _____ F.S.M.W.O. No. _____

(2) Instructions Received _____ (8) Sets of add'l parts rec'd. _____

(3) Drawings Received _____ Date _____

(4) Total Items to be Modified _____ (9) Remarks _____

(5) Total Sets Parts on Hand _____

(6) No. of add'l sets req'd _____

(7) Requisition No. _____

Date _____

(Obverse side)

FIGURE 10.

d. Copy to higher headquarters.—In order to keep higher headquarters properly informed of the status of supply in the shop, it may from time to time be desirable to submit to that office a copy of the latest consolidation of unfilled requisitions.

INSTRUCTIONS

OFM 108

STATUS OF F.S.M.W.O.

Enter the Field Service Modification Work Order Number in the space designated.

- (1) Give the name and model number of the weapon or materiel affected. Use correct nomenclature.
- (2) Date the F.S.M.W.O. was received in the shop office.
- (3) Date of receipt of all drawings and any other necessary information.
- (4) Total number of items to be modified by the company; equals the sum total of column (13).
- (5) The number of sets of parts on hand can be obtained from the Expenditure Record in the Clerical and Supply Section Shop Office. If a long time is required to get parts, the Expenditure Record should be checked by a physical inventory.
- (6) Line (4) minus line (5).
- (7) From the Requisition File (unfilled).
- (8) From the Requisition File (filled).
- (9) List the organizations of using troops who have any of the materiel. Sufficient space should be given each organization to provide for all the entries required in column 14. Include the Ordnance Maintenance Company if it has any in its replacement stock.
- (10) Give the total number of items in each organization.
- (11) Give the number of such items which are already modified.
- (12) Column (11) minus column (12).
- (13) Enter in the spaces provided, the date and number of items as modifications are completed. The sum total in these columns, when the job is finished, should equal column (13).
- (14) Give the final date of completion for each organization. The date of completion for the last organization may be entered in line (9) under remarks if desired.

(Reverse side)

FIGURE 11.

■ 104. WANT LIST (OFM 110, fig. 13).—*a. Description and use.*—This is a list kept by the section foreman for each section on which is written the names and quantities of tools, parts, and materials required for the operation of the section.

OFM 109		ORDNANCE SHOP		ORDNANCE COMPANY		Date Computed	
Sheet No. _____		Consolidation of Unfilled Requisitions					
Item No.	Req. No.	Date of Req.	Quant.	Item	Want list, W/O No.	Date Filled	Remarks

FIGURE 12.

All nomenclature so listed must be as correct and complete as possible before the list is submitted. The want list is submitted to the shop foreman whenever it is sufficient to warrant the preparation of a requisition or whenever urgency demands an immediate requisition.

b. Remarks on want list.—In no case will a want list be withheld from the shop office if it carries items needed for current jobs or jobs soon to be expected in the shop. All

CFM 110

SECTION WANT LIST

Ordnance Field Shop

Section _____ 194 _____

It is requested that the following listed items be furnished to this section.

Quantity	Item	Required W/O No.	For Stock	Date Received	Remarks

Approved _____

Shop Foreman

Section Foreman

FIGURE 13.

parts, materials, or tools requested on a want list will be identified by a remark which tells for what the material is required, that is, the remark will show the number of the

work order for which the items are required, or it will show that the items are required for stockage.

c. Attachment to requisitions.—Want lists pertaining to a requisition will be attached to the retained copy of the requisition placed on file.

d. Other uses.—There will be circumstances under which it will not be practicable or desirable to use section want lists, however, in general such lists will be of considerable assistance in maintaining the proper stockage of material and the required number of tools, etc. This form may also be used by the stock man from time to time for the listing of items needed for stockage of spare parts trucks.

SECTION V

SHOP FILES

■ 105. WORK ORDERS (CURRENT).—*a. Function.*—Duplicates of all work orders issued, except those for issues of supplies, are filed for all organizations in a single file. This file provides the check required by the shop officer as to what work is in the shop. The shop officer should be familiar with the contents of the file and when a job appears to be unduly delayed, should take proper steps to determine and correct the cause of the delay.

b. Securing work orders in file.—All work orders should be securely fastened into the file to avoid possible loss.

c. Removing work orders from file.—When a job is completed, the duplicate work order is removed from the file as described in paragraph 89*d*, and sent to the parent echelon.

■ 106. WORK ORDERS (COMPLETED).—*a. Three categories.*—In order to make readily available for reference any work order in the shop office files, the following system of files of completed work orders should be maintained in manila folders:

(1) A separate file for each type of ordnance vehicle.

(2) A separate file for each type of artillery piece.

(3) A separate file for each regiment and separate organization, for all work orders not included by (1) and (2) above.

b. Register of serial numbers of related items.—This register will contain serial number lists of the artillery weapons of

each organization served by the shop, together with serial number lists of all items such as recoil mechanisms, carriages, fuze cutters, etc., that pertain to each weapon. This register is useful in identifying serial numbered items which have become separated from related matériel while in the shop.

■ 107. REQUISITIONS (UNFILLED).—The retained copy of each new requisition goes into this file as soon as it is completed. It stays there until it is completely filled, or until the remaining items on it have been transferred to a consolidation of unfilled requisitions. When any item carried on a requisition is received, an entry that it has been received together with the date of receipt and the initials of the person making the entry, should be made on the requisition.

■ 108. REQUISITIONS (FILLED).—Each completely filled requisition and each requisition from which the remaining items have been transferred to a consolidation of unfilled requisitions, is filed in this file. When a requisition is ready to file here, the notation "Filled" should be made across the bottom of each sheet. There may also be placed in this file all consolidations of unfilled requisitions which have served their purpose.

■ 109. REQUISITION REGISTER.—This is a simple record for which no particular form is necessary. It should record the serial number of all requisitions, the date of preparation, and as a matter of information, the groups (SNL) of the materials requested thereon. The record may be kept inside of one of the requisition files, for easy reference.

■ 110. CONSOLIDATIONS OF PARTS USED.—These consolidations constitute the record of the parts and materials used by the shop during any given period. The retained copies are valuable for planning purposes.

■ 111. INSPECTION REPORTS.—Retained copies of inspection reports should be filed in the file of the organization responsible for the condition of the weapons or material. Within this limitation they should also be filed by weapon or type of material.

■ 112. MISCELLANEOUS FILES.—*a. Contents.*—These will include correspondence pertaining primarily to the shop, Ord-

nance Department publications, such as ordnance field service circulars and bulletins, and various War Department publications.

b. Use of Dewey Decimal System.—Whenever possible, it is best to set up the filing system on the Dewey decimal system, since this is the system in use throughout the Ordnance Department and the Army.

CHAPTER 7

ORDNANCE INSPECTIONS

	Paragraphs
SECTION 1. Conduct of inspections.....	113-126
II. Inspection forms.....	127-137

SECTION I

CONDUCT OF INSPECTIONS

■ 113. **PURPOSE.**—The purpose of ordnance inspections may be summarized as follows:

a. To determine the serviceability, completeness, and readiness for field use of the ordnance matériel with which the troops are equipped.

b. To discover the difficulties that the combat troops may be experiencing with their matériel, and to increase their combat efficiency by providing remedies for these difficulties.

■ 114. **TYPES.**—Ordnance inspections may be divided into two general types:

a. Type A, which is represented by the formal inspection of all ordnance matériel in the hands of a unit. In this category would fall all annual inspections, and inspections of all matériel in the hands of the troops both before and after combat.

b. Type B, which is represented by the routine inspection performed on ordnance matériel incident to its repair whenever it comes into the hands of ordnance maintenance personnel. In this category would fall inspections performed incident to the repair of weapons brought into the shop by the troops or repaired by contact or maintenance parties in the field (see sec. II).

■ 115. **AUTHORITY.**—*a.* All type A inspections must be authorized through command channels. Ordnance inspection parties will not inspect units of any command without previously reporting to all commanders concerned, displaying their authority therefor, and asking the cooperation of the commanders concerned.

b. In time of peace, inspections are conducted in accordance with the provisions of AR 45-30.

c. No special authority is required for type B inspections. Such inspections are incidental to the repair of matériel, and are a necessary step in the accomplishment of the repairs.

■ 116. INFORMATION.—The information for the inspection of ordnance matériel is contained in the Technical Manuals in the series numbered from 9-1000 to 9-1999, inclusive, and in the Standard Nomenclature Lists. The technical details are fully covered in the Technical Manuals. The lists and allowances of spare parts and equipment such as accessories, fire control equipment, and articles for instructional purposes are contained in the pertinent Standard Nomenclature Lists.

■ 117. ORDNANCE OFFICER PRESENT AT INSPECTIONS.—Whenever practicable, an ordnance officer will be present at all inspections of ordnance matériel in the hands of troops.

■ 118. RESPONSIBILITY OF ORDNANCE PERSONNEL.—*a. General.*—All ordnance personnel charged with the detailed inspection of ordnance matériel are responsible that all matériel that comes into their hands is thoroughly inspected and is satisfactory for service when it is returned to the troops for use.

b. Use of unserviceable matériel for training purposes.—If circumstances occur in which the parts or materials necessary to place the matériel in serviceable condition are not immediately available and no serviceable replacement for the matériel is available for issue, it may be possible and necessary to release the matériel to the troops for training purposes only, with an agreement covering the use to which it is to be put. In such a case the limitations covering its use must be thoroughly understood by the using personnel, and the signature of the responsible officer covering such an understanding should be secured before the matériel is released.

c. Standard of maintenance.—It is one of the duties of ordnance personnel to set the standard of maintenance which is expected of the troops, particularly with regard to the cleanliness of weapons. It is not intended by the above that ordnance personnel will be expected to perform all the cleaning operations necessary on ordnance matériel. It is, however, intended that matériel brought to the shop for repairs will be reasonably clean, and that all metallic parts will be free of rust, caked dirt, mud, or unauthorized paint. When-

ever practicable, the using arms may be required to clean the matériel properly. Inspection parties should provide themselves with adequate cleaning facilities, and should insure that matériel returned to the troops is properly cleaned and lubricated. The application of this paragraph in the combat zone will depend on the situation, and under such circumstances should be intelligently interpreted.

■ 119. USE OF WORN PARTS AS REPLACEMENTS.—*a.* It will sometimes happen that a part which is worn so as to be unserviceable in a certain item of matériel, will fit into and function satisfactorily in another item of matériel. This is particularly true in the case of small arms. The use of worn parts as replacements is uneconomical, in that it requires the expenditure of the same amount of time and labor as does the installation of new parts, and provides no insurance against the early failure of the item, perhaps at a critical time.

b. Worn parts should *not* be used for replacement purposes in items of ordnance requiring repairs. New parts will be used in all cases, and all old parts will be destroyed to prevent their future use.

■ 120. ACTION PRIOR TO INSPECTION.—Prior to sending an inspection party to a unit which it is planned to inspect, the shop officer or his representative, should contact the unit commander personally to determine a mutually satisfactory time and place for the inspection, and to request that the inspection party be furnished with a complete list of all ordnance matériel in the unit. In general, this list need include only major items, with serial numbered items arranged in proper numerical sequence. This list should be available to the inspection party a day or two before the inspection is scheduled.

■ 121. ORGANIZATION OF INSPECTION PARTIES.—*a.* Inspection parties are organized in the manner best suited to the accomplishment of the assigned mission, and the personnel available. The most general case is the party assigned to make a type A inspection of a unit. Such a party may, for purposes of discussion, be divided into sections. These sections may be designated—

- (1) Small arms section.
- (2) Artillery section.

(3) Automotive section.

(4) Instrument section.

(5) Miscellaneous items and accessories section.

b. Each section should include a recorder and a number of inspectors and repairmen, as required to make a complete inspection of all ordnance matériel in the organization. It may not always be necessary to use all of these sections.

■ 122. OPERATION OF SMALL ARMS SECTION.—*a. General.*—The operation of the small arms section inspection party is materially affected by the circumstances under which the inspection is conducted. The differences in method of operation are dictated by the types of records which are required to be maintained, which in turn is governed by the question of whether or not the inspection is being conducted in the combat zone. The matter of inspection records will be discussed in detail in section II. The methods of operation outlined below are intended merely as a guide. They outline general methods of procedure. A careful study of the problem in the light of this manual and the requirements of a specific situation should yield a satisfactory solution to a special problem.

b. Four general methods of operation.—(1) Probably the most efficient method of operation is that in which the inspection party is divided into two subsections, the inspectors and the repairmen. Weapons are laid out according to serial numbers. The inspectors pass along the weapons and make a complete inspection of each one. The information concerning each weapon is called off to the recorder by serial numbers. An inspection ticket (see par. 131*d*), is prepared for each weapon requiring repairs and secured to the weapon by some convenient means. Repairmen make the necessary repairs and list the parts used on the inspection tickets, which may later be collected and the parts used consolidated in any manner required.

(2) In circumstances where there is neither the space nor the facilities to conduct the inspection as indicated in (1) above, the following system is suggested. Each man in the party, except the recorder, functions as both inspector and repairman. Each inspects a weapon, calls off the informa-

tion to the recorder and repairs the weapon, telling the recorder what parts he uses in making the repairs.

(3) In circumstances where the inspecting party lacks the tools or the spare parts to complete the necessary repairs, the following method may be employed: Each piece inspected is tagged with an inspection ticket properly completed, and the data are recorded on the proper record form. The organization commander is requested to bring the weapons to the shop, or a repair party is later sent to the organization with the necessary equipment and parts to finish the job.

(4) Under the most difficult operating conditions in the field, it may happen that it will be totally impracticable and undesirable to make any records of the inspection except perhaps a record of the parts used on a recorded number of weapons. In this case a list of the parts used may be obtained by a difference in inventory when a suitable opportunity for a check presents itself.

c. Procedure when complete inspection report is required.—A complete inspection report includes a report on each weapon by serial number showing defects found, repairs made by ordnance personnel, those to be corrected by organization personnel, and any other action required. Prior to the commencement of the inspection, all weapons in the organization, to be inspected, should be listed in numerical sequence on the appropriate forms (see par. 127). The necessary records are obtained as outlined in b(1) or (2) above.

d. Procedure when abbreviated reports are satisfactory.—When abbreviated reports are satisfactory, a study of the type of report required and of the methods of inspection outlined in this paragraph, should yield a satisfactory solution to the requirement.

■ 123. OPERATION OF ARTILLERY SECTION.—*a. Special considerations.*—Because artillery matériel is not easily handled or maneuvered, the procedure for this section varies somewhat from that of other sections.

b. Forms.—The recorder of the section should be equipped with all the necessary detailed forms covering every point which it is necessary to check on the weapon and the equipment pertaining to it, such as caissons, limbers, bogies, etc. (see par. 132).

c. Simultaneous inspections.—Whenever possible the inspection party should be so organized that the simultaneous inspection of two or more items pertaining to the gun may be carried out. A single recorder should suffice for the entire inspection.

d. Shelter.—Whenever possible, the inspection of artillery matériel should be conducted under shelter where protection from rain and dust may be secured. In garrison this will usually be in the shop building of the company conducting the inspection, but it may be the gun sheds of the organization being inspected. In the field, it may be necessary to use existing civilian structures, or in some cases, to erect storage tents or tarpaulins for this purpose.

■ 124. OPERATION OF AUTOMOTIVE SECTION.—*a. Time required.*—As is the case in the inspection of artillery matériel, the inspection and repair of ordnance vehicles requires more time than is required on smaller items of ordnance.

b. Repair.—In general, in performing type A inspections, it is best to repair automotive vehicles at the time of the inspection. This reduces the number of times the vehicle is required to be brought to the shop, thereby reducing the "downtime," and eliminating the extra inspection which would be required if the vehicle were released and subsequently returned for work.

c. Special considerations.—In some circumstances it may be desirable to make a complete, rapid inspection of all vehicles for the purpose of determining the quantities and types of spare parts which will be required. This will be an exception, however, and should not become standard practice. (See par. 48b.)

■ 125. OPERATION OF INSTRUMENT SECTION.—*a. Requirements.*—This section should have a quiet space set aside for its work, with sufficient field of view to enable the necessary tests of optical elements to be made. The space provided should be dry and protected from dust.

b. Repairs.—In general, this section will complete necessary repairs that are within its capabilities at the time of the inspection.

c. Forms.—The recorder should have on hand the required forms for the type of matériel that is to be inspected. All

instruments should be recorded by proper nomenclature and serial number.

d. Repairs by higher echelon.—The inspection of optical instruments is complicated by the fact that spot repairs are frequently not possible because of the lack of skill, tools, materials, or a proper place in which to work. Under such circumstances, an adequate record of the results of the inspection must be made, and the proper steps taken to see that the repairs are accomplished by a higher echelon of maintenance if necessary.

e. Unserviceable matériel.—Matériel which is unserviceable or which though serviceable, will rapidly deteriorate if not promptly serviced, should be tagged with a red tag (OFM 201). This tag will indicate the defects and the place to which the item should be taken or sent for repair.

■ 126. OPERATION OF MISCELLANEOUS ITEMS AND ACCESSORIES SECTION.—*a. Functions.*—This section is charged with the inspection of all items not included in the matériel inspected by the other sections, and of all the accessories, spare parts, instruction materials, and ammunition on hand.

b. Preliminary arrangements.—In order to best accomplish this phase of the inspection it is best to arrange with the organization commander to have all this equipment and matériel displayed in proper order. This will expedite the inspection and eliminate confusion.

c. Forms.—All of the proper forms must be on hand and the recorder must be alert to record the findings of the inspector or inspectors.

d. Unserviceable items.—Unserviceable items found as a result of this inspection should be red tagged (using OFM 201) and replaced.

e. Excess items.—All items found to be in excess of allowances should be turned in to the appropriate ordnance supply agency.

f. Missing items.—All items found to be short of the allowances should in time of peace be requisitioned by the organization. In the theater of operations such items should be replaced by the inspecting agency.

SECTION II

INSPECTION FORMS

■ 127. **INSPECTION RECORDS.**—*a. Purpose.*—Inspection records are, in the final analysis, only the means to an end. In peacetime that end is usually the maintenance of adequate records for reference and statistical purposes. In wartime, the need or requirement for inspection records may lessen progressively as the combat zone is approached until finally in the combat zone no records of any kind may be kept. However, if the full value of a type A ordnance inspection (see par. 114) is to be attained, complete and accurate records of all phases of the inspection must be kept. In general, the authority that directs the execution of a type A inspection will also direct the type of inspection report required.

b. Types of record forms.—The form for an inspection report may vary from one on which practically the whole record must be written by the recorder, to one which has many spaces for special data which may or may not be required. Obviously, the best form is that which achieves a nice balance between these two extremes. The ideal form has special spaces for all essential data, and additional space for remarks by the recorder or inspector.

c. Preparation of suitable record form.—A few sample forms of various types are included in this section to illustrate forms which have been found satisfactory by some inspectors. The number of forms which would be needed to illustrate one for each type of matériel would be prohibitive in number for inclusion in this manual. However, each shop or ordnance office may, by reference to the pertinent Technical Regulations, and other ordnance publications, develop forms which will incorporate the requirements for a complete inspection of any type of matériel.

■ 128. **ORDNANCE OFFICE FORMS.**—*a. Description.*—O. O. F. 7228, and O. O. F. 7229 (see figs. 14 and 15) are the ordnance office forms designed for use in submitting reports of inspection required to be forwarded to organization commanders, adjutants general, and property and disbursing officers of the various States, and to the office of the Chief of Ordnance. O. O. F. 7229 is intended for field use only. Additional instructions covering the use of O. O. F. 7228 and O. O. F.

7229 are given in figure 16. A suggested code legend for use on these forms is given in figure 17. This code legend with any changes considered necessary for particular situations should be ample for all requirements.

b. Use for abbreviated reports.—The ordnance office forms are particularly useful when an abbreviated or digested report of the results of an inspection are required. In such cases the data for the report may be secured from the detailed reports, or from inspection tickets.

c. Office that prepares ordnance office forms.—The preparation of the ordnance office forms for transmission to the organization to which they pertain, may be accomplished in the office of the shop which performed the inspection, or it may be performed in the ordnance office of some higher echelon. The decision covering this question will rest with controlling ordnance office.

■ 129. **ORDNANCE FIELD MANUAL (OFM) FORMS.**—The inspection forms listed herein are intended as samples of type forms for particular uses, which may be used as basis for the development of other forms.

■ 130. **USE OF RED INSPECTION TAGS (OFM 201) (fig. 18).**—Whenever items of ordnance matériel are inspected by shop personnel, and found to be unserviceable beyond the capacity of the shop to repair such items, but having such salvage value as to make it advisable to send the matériel to a higher echelon of maintenance the matériel will be tagged with a red inspection tag, OFM 201. This tag should be completely filled out, should bear the name of the organization to which the matériel belongs, the name of the ordnance organization which inspected the matériel, the name and serial number of the matériel, the defect, and the date upon which the matériel was inspected, together with the name of the inspector and the signature of the shop officer.

■ 131. **TYPE SMALL ARMS FORMS.**—*a. OFM 202—Inspection Report of U. S. Rifle Cal. .30 M1 (fig. 19).*—This illustrates the type of detailed report form which lists specific items which should be checked by the inspector. The "Sheet No.," in the upper right-hand corner refers to the number of each particular OFM 202 in the total of these sheets in the report. The "Organization" refers to the organization inspected.

O. G. F. 712B

INSPECTION OF ORDNANCE MATERIAL

Sheet No. _____

Organization _____ Date of inspection _____

Station _____ Inspected by _____

Organization commander _____

Item and Serial No.	Defects noted	Action to be taken

(Obverse)

FIGURE 14.

INSTRUCTIONS FOR INSPECTION REPORTS

- A.** This form will be used in submitting reports of inspection required to be forwarded to organization commanders, Adjutants General and Property and Disbursing Officers of the various states, and to the office of the Chief of Ordnance. The lined copy is intended for field use only.
- B.** This particular form applies to inspection of all Ordnance materiel in Groups A to H.
- C.** Detailed instructions as to method and scope of inspection to be made will be found in Technical Regulations, Ordnance Field Service Bulletin No. 4 and other Ordnance publications.
- D.** The name of the item being inspected, including the model, manufacturer, year of manufacture and such other data as may be necessary for proper identification should be entered under item, and written straight across the sheet.
- E.** In reports of materiel other than Groups A and B, serial numbers of all materiel carrying serial numbers will be entered in first column.
- F.** Serial numbers of materiel in Groups A and B will be entered only when noting defects or other causes requiring remedial action. Items not requiring action may be included by noting the number inspected with remark to the effect that their condition was found satisfactory.
- G.** In making report of materiel other than Groups A and B, all items required to make a complete unit will be entered on the same page as far as possible; for example, the gun, carriage, recuperator and sight which together make one unit should be grouped together on report.
- H.** Under column "Action to be taken", such abbreviations may be used as desired, providing explanation of the abbreviations used is entered as a note on inspection form.
- I.** For Rifles and Pistols, the first line will show the number on hand and the number authorized in the organization inspected.
- J.** Data as to manometer tests of recoil mechanisms, which the using service are not allowed to adjust, star gauge records, adjustments of sight, M1901, and other data which is required to be furnished the Ordnance Office, may be forwarded as enclosure to this report and need not be furnished to the using service.

O. O. F. 7228 & O. O. F. 7229.

(Reverse)


FIGURE 16.

CODE LEGEND LETTERS ON O.O. FORM 7228

- (A) Responsible officer to have material cleaned and repaired, using facilities available in unit.
- (B) Responsible officer to requisition necessary replacement parts to complete authorized sets or replace parts on major items of material and assemble same using facilities available in unit.
- (C) Corrected by inspector.
- (D) Responsible officer will request local Ordnance personnel to make necessary repairs and return same to organization.
- (E) Responsible officer will dispose of unserviceable property and obtain replacement in accordance with existing regulations:-
- (a) REGULAR ARMY (Disposition) (and) Par. 3, AR 35-6540 (Replacement)
 - (b) NATIONAL GUARD (Disposition) Par. 9, NGR 75-7 (Replacement) Par. 7, NGR 75-2
 - (c) R.O.T.C. (Disposition) AR 20-35 or AR 35-6640 (Replacement) AR 35-6540
- (F) Ordnance Property Officer will replace unserviceable property in accordance with paragraph 3, AR 35-6540, and
- (a) hold same for shipment to an arsenal
 - (b) dispose of same in accordance with existing regulations.
- (G) Unserviceable material will be shipped to a designated arsenal for repair on receipt of shipping instructions.
- (H) Responsible officer did not present material to inspector.
- (a) REGULAR ARMY - reference AR 45-30 - submit material to Post Ordnance Officer for inspection.
 - (b) NATIONAL GUARD - reference NGR 78 - hold material for next Ordnance inspection.
- (I) Responsible officer to clean material, regrease and store.
- (OO) Requires action by Corps Area Ordnance Officer.

FIGURE 17.

OFM 201



Ord. Co. Date

Place

Name of material

Serial No.

Defect

Organization

Send to

Inspector

Shop Officer

Inspection Tag (red) (OFM 201)

FIGURE 18.

OPM 203 Sheet No. _____

ORGANIZATION _____ COMMANDING _____

PLACE _____ RESPECTED BY _____ DATE _____

Serial Number	Caliber	Chamber	Head-space	Bolt Group	Fal- lower	Receiver	Trigger Group	Band Guard	Oper. Mech.	Gas Cyl. Asy.	Stock	Shots	Remarks

Legend

8 - Bolt Buck
B.G.D. - Bolt Group
R.F.D. - Revival, Ferrule, Det.

Operating Mechanism
R.C. - Rod, Operating
S.O. - Spring, Operating
R.F. - Rod, Follower
S.C. - Spring, Comp.
P. - Piston

Gas Cylinder, Asy.
C.C. - Cylinder, Gas
P.O. - Plug, Gas, Cyl.
S.B. - Barrel, Sucking

Bolt Group
E - Extractor
E. - Ejector
P.F. - Pin, Firing

D - Defective
R - Rusty

FIGURE 19.

b. *OFM 203—Inspection report of Browning Automatic Rifle, M1918A2* (fig. 20).—This illustrates the type of form which though it lists two items of essential data, i. e. "Serial No." and "Condition of Bore," leaves to the inspector or recorder the task of writing in the details of the defects as found.

c. *OFM 204—Inspection Report of Machine Gun, Cal. .50, M*—(fig. 21).—This illustrates a type of form which consolidates the complete data pertaining to a machine gun, its mount, and the sighting mechanism pertaining to it. This form also has a place for the listing of the field service modification work orders completed. This is frequently of importance. The advantage of this form lies in the fact that it consolidates all the data pertaining to the weapon. A disadvantage lies in the fact that it includes optical instruments and would require close liaison with the instrument section to insure that the correct data were entered in the proper place.

d. *OFM 205—Inspection Ticket for Rifle, U. S. Cal. .30, M1* (fig. 22).—This illustrates the type of form used as an inspection ticket, as described in paragraph 122b. Such forms are detailed in order to save writing on the part of the inspector.

■ 132. TYPE ARTILLERY FORMS.—Artillery inspection forms are usually more detailed than other forms. This is necessary because of the amount of technical detail that is involved in the conduct of a proper inspection of artillery matériel.

a. *OFM 206—Inspection of 75-mm Gun Matériel, M1897-M4* (fig. 23).—This illustrates the type of form used for the recording of specific details. It should be noted that it contains in appropriate places, notes of certain facts of interest both to the inspector and to the inspection reviewer.

b. *OFM 207—Inspection Report of 37-mm Gun Matériel (other than Artillery Units)* (fig. 24).—As in the case of *OFM 204*, this report consolidates on a single sheet, important information concerning all the essential matériel required to operate the weapon. Such a form is best used by an experienced artillery inspector, who has no need for the detailed list of items requiring inspection.

c. *OFM 208—Inspection Report of Mortar, M*—(fig. 25).—This form is included because it illustrates a use for this

type of form which is particularly appropriate. The mortar is essentially so simple as to require few detailed reminders to insure a complete inspection.

d. OFM 209—Inspection Report of Artillery Vehicles (fig. 26).—As will be noted, this form has been set up to care for the equipment in the hands of a particular unit. There should, in the case of each item of equipment listed, be sufficient lines to accommodate the number of items in the hands of the organization to be inspected.

■ 133. TYPE AUTOMOTIVE FORMS.—Forms for the use of the automotive section may vary from the detailed technical inspection report such as QMC Form, No. 260, to general check lists designed for a rapid check of the matériel by the inspecting party in the field.

a. QMC Form No. 260 (figs. 27 and 28).—This is a complete form suitable for a shop inspection of all types of ordnance automotive matériel, including combat vehicles.

b. OFM 210—Ordnance Vehicle Check List (fig. 29).—This is an example of a special check list prepared for use in the field for the quick inspection of a particular type of automotive equipment, in this case a scout car. It is designed to guide the inspector to every critical point on the machine which has been or may be expected to be a source of trouble. The preparation of such a form is the product of experience. The best form will usually be the one which is kept up to date in the light of such experience.

■ 134. TYPE INSTRUMENT FORMS.—Because of the limitations on the extent to which many instruments may be disassembled in the field, instrument inspection forms will in general not contain the detail that might otherwise be required.

a. OFM 211—Inspection Report, Instruments or Sighting Equipment (fig. 30).—This is a general form designed to illustrate some of the items which a detailed inspection form might list.

b. OFM 212—Inspection Ticket for Fire Control Matériel (fig. 31).—This form is included as an illustration of the type form which may from time to time be required in field operations.

c. OFM 213—Instrument Report (fig. 32).—This is a type report designed for a particular piece of matériel. It lacks

detail as regards the instrument itself. However, it covers fully the condition of all accessories.

d. *OFM 214—Inspection Report of Fire Control Equipment (units other than Field Artillery)* (fig. 33).—This form

OFM 214			INSPECTION REPORT OF BRONING AUTOMATIC RIFLE, MODEL 1918A		Spec. No.
ORGANIZATION	COMMANDING				
STATION	INSPECTED BY:		DATE		
SERIAL NO.	DEFECTS				
COMP. CODE					
BOKE					
GENERAL REMARKS			SUMMARY		
			P - Pinned		
			UP - Unacceptably fitted		
			FP - Fitted		
			BP - Ready prime		
			R - Ready		
			UR - Unacceptably rated		
			UR - Unacceptably rated		

FIGURE 20.

consolidates on a single sheet the information concerning all the fire control equipment pertaining to a given organization.

■ 135. **TYPE FORMS FOR INSPECTION OF MISCELLANEOUS ITEMS, ACCESSORIES, AND AMMUNITION.**—These forms are designed to

assist in the checking of the subject items pertaining to major items of ordnance in the hands of organizations.

a. *OFM 215—Check List of Accessories, Spare Parts, and Instruction Material for Rifle, Cal. .30, M1* (figs. 34 and 35).—This form illustrates the detail that is necessary for a com-

CPN 204

INSPECTION REPORT OF MACHINE GUN, CAL. .30

Organization _____ Station _____ Inspected by _____ Date of Inspection _____

Serial No. _____ Defects _____

PSAWO Completed _____

Sheet No. _____

Organization Commander _____

Organization _____ M _____

Gun _____	Gun _____	Gun _____	Gun _____
Mount _____	Mount _____	Mount _____	Mount _____
• _____	• _____	• _____	• _____
Gun _____	Gun _____	Gun _____	Gun _____
Mount _____	Mount _____	Mount _____	Mount _____
• _____	• _____	• _____	• _____
Gun _____	Gun _____	Gun _____	Gun _____
Mount _____	Mount _____	Mount _____	Mount _____
• _____	• _____	• _____	• _____
Gun _____	Gun _____	Gun _____	Gun _____
Mount _____	Mount _____	Mount _____	Mount _____
• _____	• _____	• _____	• _____

* Enter right in use - i.e. Telescopic Sight, M1918A2; Telescopic Sight, T3 or Telescope, M5

Remarks _____

FIGURE 21.

plete check of the items pertaining to major items of ordnance matériel. Notice that the note numbers provide flexibility in indicating the proper quantities in the authorized column.

b. *OFM 216—Inspection Report of Ammunition and Ammunition Components* (fig. 36).—This form is used chiefly in peacetime and in the zone of the interior for checking the

Basic loads of ammunition in the hands of the troops. It should be used in connection with the latest revision of Ordnance Field Service Bulletin, 3-5. Particular attention should be given to all grade 3, cal. .30 and cal. .50 ammunition, and to all "RT" cal. .45 ammunition. Ammunition which is not positively identified should be graded as grade 3 and re-

OPM 205				
Rifle, U.S., Cal. .30, M1				
Serial No.				
PART	COND.	ACTION	OTHER DEFECTS	ACTION
Bore, Diameter				
condition				
Front Sight				
Gas Cylinder				
Lower Band				
Hand Guards				
Rear Sight				
Trigger Group				
Follower				
Follower Arm				
Follower Rod				
Opr. Rod & Spring				
Stock				
Bolt Group				
Head Space				
Trigger Pull				
			Organization _____	
			Inspector _____	
			Date _____	
			OPM 205	

(Obverse)

(Reverse)

FIGURE 22.

quired to be turned in to the proper ordnance property office.

■ 136. TRANSMISSION OF REPORTS TO HIGHER HEADQUARTERS.—Detailed inspection reports which are to be transmitted to higher headquarters will be covered by a letter giving sufficient details to fully identify the inspection covered by the reports, and to point out matters to which it is desired to

draw particular attention. Reports to higher headquarters which are summaries of inspections should be in letter form and should contain matters of interest to higher headquar-

OFM 206

INSPECTION OF ARTILLERY MATERIEL
75 MM GUN MATERIEL, M1897 - M1897A4
(Sheet 1 of 3)

Organization _____ Date _____

Gun No. _____ Carriage No. _____ Recoil Mech. No. _____

Parts Inspected	Condition	Action
General Appearance _____		
Breech Mechanism _____		
Threads for burrs _____		
Safety piece _____		
Percussion hammer _____		
Breechblock latch assembly _____		
Operating handle assembly _____		
Firing pin _____		
Extractor assembly _____		
Safety bolt assembly _____		
Barrel _____		
Visual inspection _____		
Pastilles (Limits (3) three) _____		
Chamber _____		
Advance of forcing cone (Limit .25) _____		
Star gauging (Limit .025" Oversize) _____		
Leveling plates _____		
Piston rod cushion _____		
Clearance between jacket rollers and lower roller path (must be .004" or more) _____		
Jacket roller _____		
Bearing jacket roller _____		
Jacket slides _____		
Clearance between jacket cross piece and upper roller path (must be less than .004") _____		
Wear of sweeper guide (Not to exceed .06") _____		
Muzzle rollers _____		
Modifications _____		
Gun book _____		
Recoil Mechanism _____		
Nitrogen pressure _____		
Friction of floating piston (Limits Min. 10KG, 13KG Nor., 30KG Max.) _____		

FIGURE 23.

ters. It should not obscure important comments by a multitude of details. Instructions for the disposition of unserviceable items should be attached to, rather than incorporated in this report.

■ 137. NUMBER OF COPIES TO BE PREPARED.—The number of copies that will be required of any inspection report will depend upon the number of offices interested. In general,

OFM 206

75 MM GUN MATERIEL (CONT)
(Sheet 2 of 3)

RECOIL MECHANISM (cont)		READING	
Friction of piston, piston rod and piston rod stuffing box. (Limits: 40 KG Min. 48 KG Nor. 60 KG Max.)			
Three readings _____			
Stuffing box head threads (Min. width .040") _____			
INCLINE PLANES (WEAR)		READING	
Distance from rear end of recoil mechanism _____	Normal depth _____	Right _____	Left _____
20.16 _____	.2747 + .01 _____		
28.16 _____	.2363 + .01 _____		
32.16 _____	.1979 + .01 _____		
38.16 _____	.1595 + .01 _____		
44.16 _____	.1211 + .01 _____		
50.16 _____	.0827 + .01 _____		
56.16 _____	.0443 + .01 _____		
60.16 _____	.0187 + .01 _____		
Roller path _____			
Coupler and coupler key _____			
Piston rod stop washer _____			
Filling and drain valve _____			
Oil index and packing _____			
Respirator _____			
Trunnions (Dia. Limits 2.0433" Max. 2.008" Min.) _____			
CARRIAGE			
Elevating mechanism _____			
Range rack and guides _____			
Elevating yoke and bearings _____			
Elevating screw and pin _____			
Elevating nut and collar (Limits .040" clearance between collar and nut) _____			
Angle of sight mechanism _____			
Handwheel latch _____			
Lost motion (Limit 1/8 turn of handwheel) _____			
Traversing mechanism _____			
Lost motion (Limits 1/4 turn of handwheel) _____			
Rocker _____			
Trunnion bearings, caps _____			
Axle brackets _____			
Axle _____			
Wheels _____			
Shield _____			
Brake mechanism _____			
Trail _____			

FIGURE 23.

three copies will be sufficient; this will provide one copy each for the organization inspected, the ordnance office which directed the inspection and the shop file.

OFM 206

75 MM GUN MATERIEL (CONT)
(Sheet 3 of 3)

PARTS INSPECTED	CONDITION	ACTION
CARRIAGE (CONT)		
Lunette		
HIGH SPEED ADAPTER		
Tires		
Brake mechanism		
Drop hub assembly		
Wishbone assembly		
Sighting equipment		
Elevation error (Limit - 3 Min.)		
Deflection error (Limit - 2 MILs.)		

FIGURE 23.

OFM 207 INSPECTION REPORT OF 37MM GUN MATERIEL Sheet No. _____
 Other than Artillery Units

Organization _____ Organization Commander _____

Station _____ Inspected by _____ Date of inspection _____

Item _____ Serial No. _____ Defects _____ FSMWO Completed _____

Gun _____ Bore? _____ Date last fired? _____ Total rounds fired? _____
 Gun Book? _____ Breech mechanism? _____

Recoil Mechanism _____

Carriage, M _____

Telescopic Sight, M _____

Quadrant Sight, M _____

Gun _____ Bore? _____ Date last fired? _____ Total rounds fired? _____
 Gun Book? _____ Breech Mechanism? _____

Recoil Mechanism _____

Carriage, M _____

Telescopic Sight, M _____

Quadrant Sight, M _____

Gun _____ Bore? _____ Date last fired? _____ Total rounds fired? _____
 Gun Book? _____ Breech Mechanism? _____

Recoil Mechanism _____

Carriage, M _____

Telescopic Sight, M _____

Quadrant Sight, M _____

Remarks _____

FIGURE 24.

OFM 208 INSPECTION REPORT OF MORTAR, _____ M. _____ Sheet No. _____

Organization _____ Organization Commander _____

Station	Inspected by	Date of Inspection
Item	Serial No.	Defects
Barrel, M		FSMAWO Completed
Bipod, M		
Base Plate, M		
Sight, M		
Clinometer, Mk.		
Quadrant, Gunner, M1		
Barrel, M		
Bipod, M		
Base Plate, M		
Sight, M		
Clinometer, Mk.		
Quadrant, Gunner, M1		
Barrel, M		
Bipod, M		
Base Plate, M		
Sight, M		
Clinometer, Mk.		
Quadrant, Gunner, M1		
Remarks		

FIGURE 25.

OPM 309	INSPECTION REPORT OF ARTILLERY VEHICLES			Sheet No. _____
Organization _____	Headquarters Battery and Combat Train			
Serial No. _____	Inspected by _____	Organization Commander _____	Date of Inspection _____	
		Defects _____		FIRWO Completed _____
CAUSON _____ M _____				
CART, ARTILLERY, M1019				
LUMBER _____ M _____				
REEL, ARTILLERY, M10041				
REEL, BATTERY, M				
REEL, BATTERY, M				
Remarks _____				

FIGURE 26.

WAR DEPARTMENT
GMC Form No. 350
177, Oct. 18, 1939

TECHNICAL INSPECTION REPORT OF MOTOR VEHICLES

This form indicates the scope of complete technical inspection of all motor vehicles for all echelons. It does not prescribe a required routine of procedure. Items will be checked to the extent of ability of personnel and adequacy of equipment available.

Date _____

Vehicle nomenclature _____

U. S. A. Registration No. _____ Mileage _____

Organization _____ Station _____

Supply arm or service maintaining vehicle _____

(Check V, is satisfactory, X adjustment made, XX repair or replacement needed)

EXTERNAL INSPECTION	HOIST VEHICLE (if practicable) (Except full track and rear end of half-track vehicles)	94. Starting motor _____
1. Bumpers _____	49. Axle, front _____	95. Switch, battery* _____
2. Beards, running _____	50. Axle, frt. drive, lubr'n _____	96. Switch, ignition _____
3. Body _____	51. Axle, rear _____	97. Switch, mech. starter* _____
4. Bows _____	52. Axle, rear, lubr'n _____	98. Switch, sol. starter* _____
5. Camber** _____	53. Body, bolts _____	99. Switch, starter _____
6. Carrier, tire _____	54. Engine, side pans _____	100. Tachometer* _____
7. Caster** _____	55. Frame, distortion _____	101. Tools _____
8. Curtains _____	56. Frame, rivets _____	102. Throttle _____
9. Doors _____	57. Joints, universal _____	103. Upholstery _____
10. Fenders _____	58. Lines, brake (hydr-air) _____	104. Wiper, windshield _____
11. Gate, tail _____	59. Linkage, brake (mech.) _____	105. Viscometer _____
12. Glass _____	60. Linkage, steering _____	106. Voltmeter* _____
13. Guards, headlight _____	61. Shafts, propeller _____	107. _____
14. Guard, radiator _____	62. Spring, front assembly _____	108. _____
15. Hood _____	63. Spring, rear assembly _____	HOOD UP (ENGINE RUNNING)
16. Hooks, tow _____	64. Shock absorbers, fill _____	109. Engine noise _____
17. Lights _____	65. Tank, air _____	110. Engine, smoothness _____
18. Paint _____	66. Trf. case-sub-trans _____	111. Engine mounting _____
19. Flnties _____	67. Trf. case-sub-tr, lubr'n _____	112. Gaskets (all) _____
20. Radiator _____	68. Transmission _____	113. Leaks, fuel _____
21. Tires _____	69. Transmission, lubr'n _____	114. Leaks, oil _____
22. Top _____	70. Wheels, front, adjustment and trueness _____	115. Leaks, water _____
23. Toe-in _____	71. Wheels, front, lubr'n _____	116. Valves, noise _____
24. _____	72. Wheels, rear _____	117. Wiring, ignition _____
25. _____	73. _____	118. Wiring, other _____
HOOD UP (ENGINE STOPPED)	74. _____	119. _____
26. Antifreeze _____	75. _____	120. _____
27. Assembly, breaker pt. _____	INTERNAL INSP. (START ENGINE)	121. _____
28. Baffles, inter-cyl.* _____	76. Ammeter _____	ROAD TEST VEHICLE
29. Batteries _____	77. Accelerator _____	122. Body, noise _____
30. Belt, fan _____	78. Choke _____	123. Brakes, hand _____
31. Cleaner, air _____	79. Cut-out _____	124. Brakes, service _____
32. Compressor, air _____	80. Extinguisher, fire _____	125. Brakes, steering* _____
33. Engine, oil _____	81. Filter, trans. oil* _____	126. Clutch _____
34. Fan, cooling _____	82. Gage, air _____	127. Drive units, noise _____
35. Filter, fuel _____	83. Gage, fuel _____	128. Engine, noise _____
36. Filter, oil (external) _____	84. Gage, oil _____	129. Engine, smoothness _____
37. Filter, oil (in eng.)* _____	85. Generator _____	130. Engine, power _____
38. Fluid, brake _____	86. Horn _____	131. Gear shift _____
39. Governor, seal _____	87. Indicator, heat _____	132. Governor _____
40. Housing, steering gear _____	88. Insulation, hull* _____	133. Shock absorbers _____
41. Pump, water _____	89. Lights _____	134. Speedometer _____
42. Shroud, engine* _____	90. Pad, protecting* _____	135. Steering mechanism _____
43. Spark plugs _____	91. Protector, peep hole* _____	136. _____
44. Strainer, fuel pump _____	92. Pump, priming* _____	137. _____
45. Strainer, scavenge oil* _____	93. Seats, troop _____	138. _____
46. System, fire exting.* _____		139. _____
47. _____		140. _____
48. _____		

* Ordnance vehicles.

** Normally 3d and 6th echelons.

10-1046

(Obverse side)

FIGURE 27.

COMBAT VEHICLES

SUSPENSION (For full track and rear end of half-track vehicles)	153. Wear, bogie link	AMMUNITION RACKS
141. Arm, bogie	154. Wear, bogie link pin	168. Condition
142. Bearing, bogie arm	155. Wear, gudgeon	167. Packing, Leather
143. Final drive, lub'n'	156. Wear, gudgeon guides	GUN MOUNTS
144. Leaks, final drive	157. Wear, sprocket	(To l. listed)
145. Leaks, wheel bearing	158. Wheel, bogie	168.
146. Springs, suspension	159. Wheel idler	169.
147. Sprocket	TURRET	170.
148. Tires, bogie	160. Insulation	171.
149. Track, adjustment	161. Locks, top door	172.
150. Track, metal components	162. Lock, turret	173.
151. Track, rubber components	163. Mech. traversing	174.
152. Tube, axle	164. Protective, peep hole	175.
	165. Rollers, turret supporting	

REPAIRS REQUIRED (explanation):

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REMARKS AND RECOMMENDATIONS:

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Inspector.

U. S. GOVERNMENT PRINTING OFFICE 16-24428

Supervising Officer.

(Reverse side)

FIGURE 28.

OFM 210

ORDNANCE VEHICLE CHECK LIST

Scout Car _____ U.S.A. W- _____ Org'n _____ Date _____

- | 1. Lubrication _____ | Date _____ | Mileage _____ |
|------------------------------|------------|-----------------------------------|
| 2. Transmission _____ | | 17. General wiring _____ |
| 3. Transfer case _____ | | 18. Breather _____ |
| 4. Bell clutch housing _____ | | 19. Valve tappets _____ |
| 5. Oil pan _____ | | 20. Spark plugs _____ |
| 6. Axle assembly _____ | | 21. Fan _____ |
| (a) Front _____ | | 22. Radiator & connections _____ |
| (b) Rear _____ | | 23. Water pump _____ |
| 7. Springs _____ | | 24. Carburetor & gas lines _____ |
| 8. Brakes _____ | | 25. Armor plate screws _____ |
| 9. Generator _____ | | 26. Fenders _____ |
| 10. Lights _____ | | 27. Bumpers _____ |
| 11. Horn _____ | | 29. Hinges _____ |
| 12. Switches _____ | | (a) Doors _____ |
| (a) Ignition _____ | | (b) Hoods _____ |
| (b) Heater _____ | | 29. Gas tanks & connections _____ |
| 13. Trouble lamp _____ | | 30. Windshield wipers _____ |
| 14. Distributor _____ | | 31. Wheel lugs _____ |
| 15. Voltage regulator _____ | | 32. Steering mechanism _____ |
| 16. Battery & cables _____ | | 33. Grease seals _____ |
| | | (a) Front wheels _____ |
| | | (b) Rear wheels _____ |

 Remarks: _____

 (Inspector or Mechanic)

FIGURE 29.

INSPECTION REPORT - INSTRUMENTS OR SIGHTING EQUIPMENT

OFM 211

Sheet No. F.

Org.

Serial Number	Appearance	Scales	Focusing Nut	Range Movement	Optical Elements	Adjustment	Sealing Finish	Modifications	Accessories	Remarks	# Action

Note: Write name of instrument in center of first blank line. Use line after each class of instruments for necessary additional remarks.

O - For Organization Action
X - Defective
DV - Double Vision
D - Parallax

R - Repaired by Ordnance Mechanic
S - Shop Repair (Ord. Pers.)
E - Exchange when so instructed
AES - Ship as instructed

FIGURE 30.

OFM 212		
INSTRUMENTS & SIGHTING EQUIPMENT		
ITEM:		
SERIAL NO.		
	COND.	ACTION
Appearance		
Scales		
Focusing Nut		
Hinge Movement		
Optical Elements		
Adjustment		
Sealing Finish		
Modifications		
Accessories		

(Obverse)

OTHER DEFECTS	ACTION
Organization _____	
Inspector _____	
Date _____	
OFM 212	

(Reverse)

FIGURE 31.

OFM 213

INSTRUMENT REPORT

ORGANIZATION _____ INSPECTED BY _____

STATION _____ DATE _____

SERIAL NO. Finder, Range, 1-Meter Base, M1916 and Accessories

_____ Serviceable.

Brush, marking, camel hair, #1, _____ serviceable.

Case, carrying for 1-meter base range finder M1916 _____ serviceable.

Case, carrying for tripod, mount & adj. lath type C, _____ serviceable.

Key, correction wedge _____ serviceable.

Lath, adjusting type C, _____ serviceable.

Mount, 1-meter base range finder M1916 _____ serviceable.

Tripod, type U, _____ serviceable.

_____ Serviceable.

Brush, marking, camel hair, #1, _____ serviceable.

Case, carrying, for 1-meter base range finder M1916 _____ serviceable.

Case, carrying, for tripod, mount & adj. lath type C, _____ serviceable.

Key, correction wedge _____ serviceable.

Lath, adjusting type C, _____ serviceable.

Mount, 1-meter base range finder M1916 _____ serviceable.

Tripod, type U, _____ serviceable.

_____ Serviceable.

Brush, marking, camel hair #1, _____ serviceable.

Case, carrying for 1-meter base range finder M1916 _____ serviceable.

Case, carrying, for tripod, mount & adj. lath type C, _____ serviceable.

Key, correction wedge _____ serviceable.

Lath, adjusting type C, _____ serviceable.

Mount, 1-meter base range finder M1916 _____ serviceable.

Tripod, type U, _____ serviceable.

FIGURE 32.

OPM 214 INSPECTION REPORT OF FIRE CONTROL EQUIPMENT Sheet No. _____

Organization _____ Units other than Field Artillery _____ Date of Inspection _____

Station _____ Inspected by _____ Organization Commander _____

Serial No.	Defects	Serial No.	Defects
	CIRCLE, Aliming, M1919		INSTRUMENT, Angle of Sigs, M1917
	EYE GLASSES, Amber colored pairs-Servicable _____ pairs-Unservicable		PROTRACTOR, Alidade, M1918
	FENDER, Range, 80-cm base, M		
	Tripod R.		
	Tripod S.		TABLE, Firing
	GLASSES, Field, Type EE		WATCH, Wrist, 7-Jewel

Are storage conditions dust and moisture proof? _____

FIGURE 38.

OFM 215

CHECK LIST OF SPARE PARTS, APPENDAGES
ACCESSORIES AND INSTRUCTIONAL MATERIELRIFLE, U. S. CAL..30, M1903.
(Corrected to Feb. 10, 1940)Number of weapons
in unit _____

Group	Piece Mark	Item	AUTHORIZED				ON-HAND		
			CAV.	ENG.	INF.	QM.	SERV.	UNSERV.	EX-CHANGED
		SPARE PARTS		Per Org.					
		Parts, spare, bayonet, M1905, set		1	1				
		Parts, spare, gun sling, M1907, set	1	1	1	1			
		Parts, spare, U. S. Rifle, M1903	1	1	1	1			
		APPENDAGES		Per Weapon					
B-1	D35353	Bayonet, M1905 (Note 4)		1	1				
		Bayonet, M1917 (Note 4)		1	1				
B-1	D35104	Scabbard, bayonet, M1910							
B-8	C64171	Cover, bayonet, scabbard							
		Scabbard, bayonet, M1917 (Note 4)		1	1				
		RIFLE ACCESSORIES		Per Weapon					
B-3	C64176	Case, O & T., w/B & T assembly, compl.	1	1	1	1			
B-3	C64174	1 Brush, thong							
B-3	C64172	1 Case, oiler & thong assembly							
B-3	C64175	1 Thong, assembly							
B-3	C64157	Cover, front sight	1	1	1	1			
B-3	20-18-26	Sling, gun, M1907	1	1	1	1			
		COMPANY ACCESSORIES		As Indicated					
M-3	C40535	Brush, cl., cal..30, M2 (Note 1)							
M-3	C5573	Case, cl., rod, M1, complete (Note 1)							
B-3	D7409	Chest, repair, Arm. M1910 (Note 2)							
B-3	C84164	1 Anvil, hand							
J-2	TEBX1DB	1 File, sw-patt, hand, #4, 6"							
J-2	TEBX1DQ	1 File, sw-patt, rd, #4, 6"							
J-2	TEBX1KH	1 File, sw-patt., 3-sq., #4, 6"							
J-8	TAFX2A	1 Hammer, bronze, double-bell-face, 3 oz.							
J-8	TAAX1B	1 Hammer, mach. ball peen, 1/2 lb.							
J-8	TEHX1B	3 Handle, file, non-adj., 1-1/8 x 4 in.							
M-3	CLGX1A	1 Oiler, S. Cop. pltd., 1/3-ct., T. spout							

(Obverse.)

FIGURE 34.

OFM 216

CHECK LIST OF SPARE PARTS, APPENDAGES
ACCESSORIES AND INSTRUCTIONAL MATERIEL (CONT'D)RIFLE, U. S. CAL. .30, M1903 (Cont'd)
(Corrected to Feb. 10, 1940)

Group	Piece Mark	Item	AUTHORIZED				ON HAND		
			CAV.	ENGR.	INF.	Q.M.	SERV.	UNSERV.	EX-CHANGED
		COMPANY ACCESSORIES (Cont'd.) Chest, repair, arm, M1910 (Cont'd)							
J-2	THDX1A	1 Plier, side-cutting, l.n.n., 6"							
J-2	THBX1A	1 Plier, sc. par. jaw, 6" (Bernard No. 102 type)							
J-4	TCEX2C	5 Punch, d.p., .05" pt.							
J-4	TCFX2F	3 Punch, d.p., .08" pt.							
J-4	TCFX2G	1 Punch, d.p., .10" pt.							
J-2	B108936	1 Saw, C.C., 18, w/det. hndl.							
J-4	TGAX1A	1 Screwdriver, com. 3" normal duty.							
J-4	TGAX2A	1 Screwdriver, close quarter, 1-1/2"							
J-4	TGAX2B	1 Screwdriver, close quarter, 1-3/4"							
B-3	C64185	1 Set, stacking, swivel screw #1							
B-3	C64189	1 Tool, assy., safety lock							
J-4	B106837	1 Vise, bench, clamp, 1-1/2" jaw							
B-16	49-1-91	Locker, arm, rifle (Note 5)							
B-16	D7459	Back, arm, rifle M1920 (Note 3)							
B-16	D7454	Back, arm, comb. (Note 3)							
M-3	D8393	Rod, cl., M2 or equiv. (Note 1)							
M-3	D8237	Rod, cl., hd., M1 (Note 1)							
B-16	C84038	Screwdriver, rifle (Note 1)							

Note:

- 1 -- 1 per 8 rifles.
- 2 -- 1 per organization armed with 100 rifles or major fraction thereof.
- 3 -- As required for arms.
- 4 -- In rifle Company.
- 5 -- One per Company armed with rifles.

(Reverse.)

FIGURE 35.

PART TWO

MAINTENANCE COMPANY

CHAPTER I

GENERAL

	Paragraphs
SECTION I. General.....	138-145
II. Organization and equipment.....	146-149
III. Supply functions of company.....	150-157

SECTION I

GENERAL

■ 138. GENERAL.—Part two is a discussion of the various functions and operations of a maintenance company. It is of such a nature as to be applicable to any one of the several types of maintenance companies, and when considered in conjunction with part one and other pertinent parts of this manual, affords a thorough discussion of such an organization. It is necessary that the reader use proper judgment in applying this information to his particular situation.

■ 139. MISSION.—The mission of the maintenance company is the provision of ordnance service to the troops. This does not include the supply of ammunition.

■ 140. ORDNANCE SERVICE.—Ordnance service, as provided by the maintenance company, includes all activities that may be necessary to maintain in serviceable condition the ordnance matériel of units which it is assigned to support. This extends to inspection, repair, manufacture or fabrication, storage and issue of ordnance general supplies, and any other activities that properly come within the province and limitations of the equipment and personnel of the organization. (See FM 9-5.)

■ 141. ADDITIONAL FUNCTIONS.—The maintenance company will also, when occasion demands—

- a. Inspect and repair salvaged ordnance matériel.

b. Arrange for the transportation to the rear of any matériel which cannot be repaired or which will not be required for reissue.

c. Conduct any schools that may be necessary to instruct the combat units in the proper care and technical use of ordnance matériel.

d. Repair any motor vehicles brought to it for repairs. (See AR 850-15.)

■ 142. SUPPLY.—*a. How effected.*—The supply of a maintenance company in a battalion is effected through the battalion supply officer, who prepares such requisitions and consolidations of requisitions for supplies for the battalion as he may find to be necessary. These requisitions, when approved by the officer designated by the army ordnance officer, are transmitted to the ordnance supply agency designated to support the battalion.

b. Supply in zone of the interior.—In army or corps ordnance battalions in time of peace or in the zone of the interior, the battalion supply officer does not prepare requisitions or consolidations of requisitions. In this case he transmits the requisitions prepared by the companies to the proper supply agency (retains a copy for his file) and takes such steps as may be necessary to insure prompt delivery of all such supplies requisitioned.

c. Local procurement of supplies.—It will sometimes happen that items required in maintenance operations of ordnance companies may be procured locally. This will be particularly true of such items as certain types of automotive parts, lubricants, cleaning and preserving materials, and metal stock. Whenever such procurement can be effected, it should be done.

■ 143. FLOW OF REQUESTS FOR ORDNANCE SUPPLIES.—*a. Troop units.*—Troop units request supplies from the contact parties serving them or directly, by requisition, from the proper ordnance officer, division, corps, or army, as the case may be. The proper ordnance officer will effect necessary supply in one of the following ways:

- (1) Issues from stock under his control.
- (2) Requisition on the next higher echelon.

(3) In conformity with any special instructions on the subject as issued by the army commander.

b. Ordnance contact parties.—Normally the supply of the contact parties of the various echelons is effected by the proper ordnance officer. However, circumstances will often make it advisable that they supply one another, as far as possible, with any spare parts urgently needed. In general, the field supply of ordnance items is very flexible, and requires the cooperation of all ordnance personnel.

c. Army service area.—Ordnance supplies are moved into the combat zone as the result of requisitions placed by the army ordnance officer or the army depot officer against credits in communications zone supply installations. The supplies may be stocked in the army ordnance depot or may be routed direct to the using unit.

■ 144. **PLANNING.**—Maintenance company commanders must continually plan to meet foreseen and unforeseen contingencies. Paragraph 3 is entirely applicable in this respect.

■ 145. **ASSIGNMENTS.**—For a complete discussion of the assignments of maintenance companies, see FM 9-5.

SECTION II

ORGANIZATION AND EQUIPMENT

■ 146. **ORGANIZATION.** — *a. Requirement.* — The organization tables of maintenance companies have been designed with a view to having within each company numbers of trained personnel and quantities of specialized equipment sufficient to handle the type load represented by the equipment of the unit each is designed to support. See figure 37 for a chart of the general organization of maintenance companies.

b. Flexibility.—The internal organization of a maintenance company as prescribed in the Tables of Organization is not to be considered as a rigid requirement, which must be adhered to under all circumstances. Changes in the strengths of sections, the assignments of duties, and the disposition of grades and ratings, in accordance with the personalities and skills available to him, must be made by the company commander to best meet the requirements imposed by the problems confronting the company.

ORGANIZATION OF THE ORDNANCE MAINTENANCE COMPANY

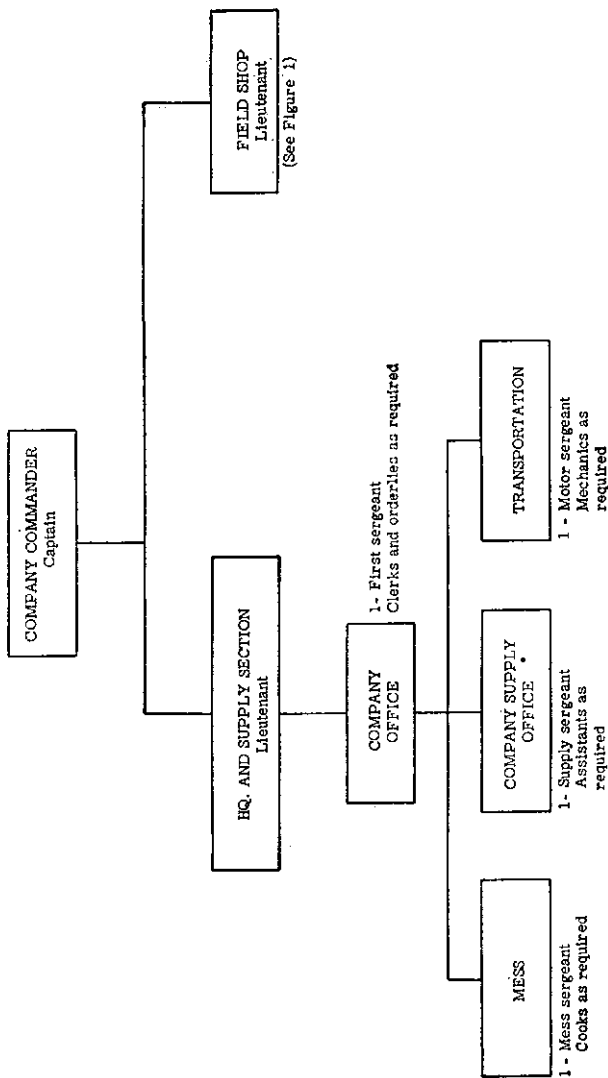


FIGURE 37.

c. *Shop organization.*—The organization of maintenance company shops is based on the Tables of Organization of the companies, with such modifications as may be necessary on account of factors such as—

- (1) Availability of properly trained personnel.
- (2) Loads in the various sections. (See fig. 1.)

■ 147. **EQUIPMENT.**—A complete list of all of the equipment of a maintenance company may be obtained from Table of Basic Allowances No. 9.

■ 148. **COMPANY ARMAMENT.**—All ordnance maintenance companies are armed. The types of weapons assigned to particular companies are governed by the type of the company. For details pertaining to this equipment, see Table of Basic Allowances No. 9. In emergencies, full use should be made of *all* weapons on hand, for which ammunition should be kept available.

■ 149. **AUTOMOTIVE EQUIPMENT.**—The automotive equipment furnished a maintenance company is of two general types: General purpose vehicles furnished by the Quartermaster Corps and special purpose vehicles furnished by the Ordnance Department. For details of assignment to particular maintenance companies, see latest Table of Basic Allowances No. 9.

a. General purpose vehicles include the following:

- ¼-ton truck.
- Command and reconnaissance truck.
- Cargo trucks.
- Trailers.
- Pick-up trucks.

As these vehicles are common throughout the Army, no description of them will be given here.

b. Special purpose vehicles include the following:

- Truck, artillery repair.
- Truck, automotive repair.
- Truck, emergency repair.
- Truck, instrument repair.
- Truck, machine shop.
- Truck, small arms repair.
- Truck, spare parts.
- Truck, tank maintenance.

Truck, tool and bench.

Truck, welding.

Truck, wrecking, heavy.

For detailed description of above vehicles, see appropriate group N, Standard Nomenclature List.

SECTION III

SUPPLY FUNCTIONS OF COMPANY

■ 150. GENERAL.—Except when assigned to army troops when a depot is established, one of the missions of the maintenance company is the supply of cleaning and preserving materials, and a small quantity of maintenance parts, accessories, and major items. In general, the amount of these supplies carried by the company should be adequate to support its share of the maintenance load for a definite period of operation depending upon the time lag of supply. In order to accomplish this supply mission careful planning is essential. Careful daily scrutiny of the stock record account, the shop expenditure record, and the truck bin cards is necessary.

■ 151. BASIC LOAD.—*a. General.*—In addition to the organizational and individual equipment authorized by Table of Basic Allowances, the maintenance company will have on hand a basic load of ordnance supplies. The transportation facilities of the company put a very definite limit on the stock of these supplies which may be carried. Within this limit of transportation facilities the company commander has the responsibility for determining what quantities of what items will be carried. The factors affecting the ratio of various supplies which will be stocked include: the types of weapons in the organizations being serviced, the mobility and mission of the combat troops, the terrain expected, and the time element necessary for resupply. (See appropriate SNL's, ordnance storage and shipping charts, and ordnance equipment charts.)

b. Maximum-minimum stocks.—When the company commander has determined the ratio of various supplies that will be carried, he then will assign the maximum quantity of each that shall be on hand at any one time. Also he shall set a minimum quantity (based on time of resupply) below which the stock on hand should never fall, without a requisition

having been placed. These maximum-minimum figures will be the stockman's guides as to when to reorder each item, and the quantities to be requisitioned.

■ 152. COMPUTATION OF STOCKS OF SUPPLIES.—The addenda to the SNL's include the estimated quantities of major items, maintenance parts, and equipment for the maintenance for 12 months within the theater of operations of a specified number of major items. For example: SNL No. A-6 for caliber .30 machine gun M1919A4 has in its addendum the quantities of major items, maintenance parts, and equipment estimated to be necessary to maintain 100 of these guns in the theater of operations for 12 months. The actual parts to be carried by a maintenance company will be based on this addendum, subject to a consideration of the particular mission involved, past experience with the using troops, time lag for resupply, and organic transportation facilities available.

a. Entire addendum not necessary.—(1) No company will ever normally require *all* parts listed in any particular addendum, in the exact (total) quantities specified, which are an estimated 12 months' stock.

(2) The company commander must determine the number of major items to be maintained. For that number of items and considering the time of resupply, he can refer to addenda of the appropriate SNL's and compute the approximate number of items needed. Modifications of these estimates may be justified on the basis of his past experience with the organization or the nature of the particular mission involved. It would not be unlikely that the number of items believed necessary will be in excess of the company's organic transportation facilities. If this is the case, the balance must be boxed and shipped in bulk to a convenient resupply point.

b. Illustrations.—Two extreme cases illustrating the application of this addendum to the servicing of 100 caliber .30 machine guns M1919A4 are cited below, as follows:

(1) A maintenance company stationed at an army post, with a supply warehouse across the street from the shop, would in all probability requisition items only as they are needed in daily maintenance work on the 100 guns, regardless of the specifications in the addendum.

(2) A maintenance company assigned to a task force with 100 such guns at an isolated station with a 90-day time lag

for resupply would require a much larger number of items. It is probable that for the 90-day period he would need about half of the 12-month supply for 100 guns, of each item listed in the addendum to SNL A-6.

c. References.—In addition to the SNL addenda, other references will assist the company commander in working out his estimates of necessary loads. He should also refer to—

(1) Ordnance equipment charts for tables of equipment for the organization the company is servicing.

(2) Ordnance storage and shipping charts for determination of weight and bulk of items that must be transported either on organic transportation facilities or by some other method.

(3) SNL K-1 and K-2 for cleaning and preserving materials.

d. If addendum not available.—Addenda including the above data are being prepared for all outstanding SNL's, but if any particular addendum with this data is not available, the estimate of the company's requirements will be a matter for the good judgment of the company commander concerned.

■ 153. MINIMUM STOCKS.—In order that the Ordnance Department at large may be able to make equitable distribution of the total stock of any one item, company commanders should limit their requisitions and stocks to the *absolute minimum* requirements that are estimated to be necessary for each contemplated situation. For example:

A company so located that resupply can be effected within 48 hours should normally carry a considerably reduced basic load of parts and supplies. Similarly, company commanders should request stocks of parts and supplies for only those weapons which they will be called upon to maintain, as per Ordnance Equipment Charts available for each line organization.

■ 154. ISSUE OF SUPPLIES.—*a. In time of peace or in zone of the interior.*—(1) Replenishment of organizational equipment by using arms and services should be accomplished as prescribed in AR 35-6540. (See also Cir. No. 147, W. D., 1940.)

(2) Replenishment of supplies in the ordnance company is accomplished by requisition on the next higher ordnance echelon. In the field army, replacement of maintenance parts, accessories, and major items are generally obtained from the army depot.

b. In time of war.—(1) Organizational equipment is issued by the ordnance company to using arms and services as prescribed in section VI, chapter 2, FM 100-10.

(2) The procedure for replenishing supplies in the ordnance company is substantially the same as in time of peace. (See par. 97a(2).)

■ 155. DROPPING OF PROPERTY FROM ORDNANCE PROPERTY ACCOUNT.—*a. In time of peace or in zone of the interior.*—(1) Expendable property is dropped from ordnance property accounts in the manner prescribed in AR 35-6620. (See also Cir. No. 33, W. D., 1941.)

(2) Nonexpendable property is dropped from ordnance property accounts in the manner prescribed in AR 35-6620. (See also Cir. No. 38, W. D., 1941.)

(3) The expendability or nonexpendability of property may be determined by reference to the appropriate SNL.

b. In time of war—in theater of operations.—(1) In the combat zone records of property accountability are normally dispensed with.

(2) In the communications zone such records of property accountability will be kept as are ordered by the officer commanding that theater of operations.

■ 156. PROPERTY ACCOUNTABILITY.—*a. General.*—All public property whether acquired by the War Department or the Army at large, by purchase or by transfer from other agencies of the Government, and whether paid for or not, must be accounted for on an appropriate property account. (See AR 35-6520; see also Cir. No. 147, W. D., 1940.)

b. In time of peace and in zone of the interior.—Unless the company is in the theater of operations, during war, this stock record account will be diligently and properly maintained, and property will not be dropped from the record without a proper supporting voucher.

c. In theater of operations, communications zone.—In the communications zone of the theater of operations, the degree

to which accurate and proper records and supporting vouchers are maintained will be determined by the officer commanding that theater of operations. The use of supporting vouchers to drop property from the stock record account will not be discontinued at the discretion of the company commander in the communications zone.

d. In theater of operations, combat zone.—In the theater of operations, the stock record account need not be kept in the combat zone, where all items issued are replaced promptly and without regard to expendability or nonexpendability of the item.

e. Changes in property accountability.—Pursuant to AR 35-6520, also Circular No. 134 War Department, 1941, and also paragraphs 520, 521, and 522, FM 100-10, accounting for property will change as the organization responsible for the property moves into or out of the zone of the interior, the communication zone, or the combat zone.

■ 157. PROPERTY RESPONSIBILITY.—*a.* All company property, of whatever nature, is the responsibility of the company commander. It is his duty to safeguard such property against loss or destruction at all times.

b. Over, Short, and Damaged Report.—When material received is incomplete or damaged, or shipped under improper nomenclature, an O. S. and D. report, W. D. QMC Form No. 445, should be reported in accordance with AR 35-6560, and Circular No. 38, War Department, 1941.

c. Since it is impracticable for one person to exercise the immediate supervision over property that is as widely distributed as is the property of the maintenance company, this responsibility is suballotted to the section chiefs and the persons actually using the tools and equipment.

d. Section chiefs will sign for and be responsible for all special tools and equipment assigned to the section and not signed for by the workmen of the section. The workmen of the section will sign and be responsible for kits of tools or equipment assigned specifically to them and necessary in their work. (See par. 17.)

e. Memorandum receipts.—Each soldier signing for property will receive a duplicate copy of the debit memorandum receipt, which he will keep for use in checking his property

so that he may know what he has signed for. Whenever he turns in any item of equipment he will be given a credit memorandum receipt signed by the company commander. This he will keep with the debit memorandum receipt.

f. Scope of individual's responsibility.—This responsibility extends to payment (in the zone of the interior) by the individual for such tools and equipment as he may not be able to produce when he is separated from the organization. In such a case a report of survey is initiated by the company commander unless the individual is willing to sign a statement of charges. The decision of the surveying officer that the property was lost through the fault or neglect of the person concerned will result in the responsible person having to pay for the property in question.

g. Provision for safeguarding assigned property.—Each person signing for property should be provided with a means for safeguarding such property. No one will, without the knowledge and consent of the person responsible for the property, take or borrow such property, or break into or enter the container or place where this property is stored. An immediate report should be made to the shop officer or company commander whenever there exists evidence of such breaking and entering.

h. Inventories.—Several times each year a complete check of all property will be made by the responsible or accountable officer or his authorized representative. A new consolidated memorandum receipt will then be issued to all persons holding property.

CHAPTER 2

HEADQUARTERS AND SUPPLY SECTION

	Paragraphs
SECTION I. Organization and equipment.....	158-159
II. Operations	160-164
III. Duties of individuals.....	165-173

SECTION I

ORGANIZATION AND EQUIPMENT

■ 158. ORGANIZATION OF HEADQUARTERS AND SUPPLY SECTION.—The headquarters and supply section consists of one or more officers and the required number of enlisted men. The organization shown in figure 37 may be used as a guide by the company commander in organizing this section.

■ 159. EQUIPMENT OF HEADQUARTERS AND SUPPLY SECTION.—The vehicles assigned to the headquarters and supply section usually include one or more of the following:

a. *Truck, ¼-ton.*—This vehicle is used primarily for contacting higher and lower echelons of maintenance and for general messenger service.

b. *Trailer, ¾-ton.*—This trailer is used for the purpose of carrying rations. It is attached to the kitchen truck so that a supply of rations will always be available. The installation of shelving with removable slotted fronts greatly facilitates the loading of this vehicle.

c. *Trailer, 1-ton, water, 250 gallons.*—This vehicle is used for the transportation of water for the use of the company. In general, economy in the use of this water must be exercised. An average daily figure for water requirements is 5 gallons per man for all purposes, including cooking, washing, and drinking. The water trailer should be filled whenever possible.

d. *Truck, ½-ton, command and reconnaissance.*—This vehicle is usually assigned to the company commander for his use or as he may direct for reconnaissance purposes.

e. Truck, 2½-ton, cargo.—(1) One of these vehicles is used as the kitchen truck. It carries the range, ice box, and all of the kitchen utensils. For cooking while on the march, the three range units may be linked together and chained in position in the truck body. Cooking on the march is usually difficult, because of the crowded condition of the truck and high heat under the canvas. The truck bows must be raised 14 inches to permit standing upright, and additional transportation must be utilized for equipment normally carried on the kitchen truck for which there is no room while cooking is in progress. A safety buzzer will be installed in this truck to notify the driver in case of fire.

(2) Another cargo truck is used as a company supply truck. It carries office equipment, folding chairs and tables, safe, marking outfit, lanterns, latrine screen, shovels, tentage and bedding rolls, etc. Table of Basic Allowances No. 9 should be consulted to determine the completeness of organizational and individual equipment on hand, and in the preparation of loading plans.

SECTION II

OPERATIONS

■ 160. RESPONSIBILITIES OF SUBSECTIONS.—In this section are discussed responsibilities and operations of the various subsections of the headquarters and supply section.

■ 161. COMPANY OFFICE.—This section is responsible for—

- a. The training and administration of the company.
- b. The maintenance of personnel records, including all service records.
- c. The maintenance of the company council book.
- d. The preparation of training programs and schedules for the military training of the company.
- e. The preparation of training programs and schedules in conjunction with the shop office, for the technical training of the company.
- f. The supervision of all training within the company.
- g. The maintenance of correspondence files and of the correspondence book.
- h. The preparation of all necessary plans covering the changes in the location of the company. (See pars. 180 and 184.)

i. The supervision of arrangements involved in the establishment of a new field shop. (See pars. 179-189, incl.)

j. The conduct of periodic scheduled and unscheduled inspections of all phases of the activities of the company.

■ 162. MESS.—This section is responsible for—

a. The securing, transportation, preparation, and serving of rations.

b. The preparation of all menus whenever the variety of the ration will permit.

■ 163. COMPANY SUPPLY OFFICE.—This section is responsible for—

a. The maintenance of the stock record covering all company property. See paragraphs 67 to 76, inclusive, for details of liaison with shop office procedure.

b. The maintenance of all records of individual equipment, and of files of memorandum receipts of property held by members of the company. (See par. 17.)

c. The maintenance of all necessary files of vouchers to the stock record account.

d. The maintenance and operation of a location chart showing the location of all company property coming under the supervision of the company supply sergeant.

e. The preparation of requisitions for all items not required for expenditure by the shop. (See pars. 91-96, incl.)

f. The preparation of all property forms, such as reports of survey, statements of charges, inventory and inspection reports, over, short, and damaged reports; etc., required in the property administration of the company. (See par. 169.)

■ 164. TRANSPORTATION.—This section is responsible for—

a. The maintenance of all records and motor books pertaining to the motor vehicles of the company.

b. The transportation of baggage and nontechnical company equipment whenever necessary.

c. The coordination of transportation requirements between the shop and the headquarters and supply section.

d. The dispatch of all organic vehicles from the field shop area, and the control of all movement of motor vehicles within and from the shop.

SECTION III

DUTIES OF INDIVIDUALS

■ 165. COMPANY COMMANDER.—*a. Responsibilities.*—The company commander is responsible for—

- (1) Administration. (See AR 245-5.)
- (2) Tactical and technical efficiency of the company.
- (3) Preparation of all plans for operation and training of the company.
- (4) Preparation of schedules of inspection and overhaul of ordnance matériel in the hands of troops. (See OFSB 4-series.) Such schedules should be made to fit into the training requirements of the troops as nearly as is possible.
- (5) Conduct of all inspections. (See AR 45-30 and 1000 series of Technical Manuals.)
- (6) Accomplishment of all repairs.
- (7) Preparation of all official correspondence pertaining to the company.

In fact, the ultimate responsibility for all phases of the operation of the company rests on the company commander.

b. Delegation of responsibility to subordinates.—He should require all heads of sections who are designated herein as responsible directly to him to keep him informed at all times of any changes in the status of matters pertaining to the operation of the company or shop. He should, without interfering unduly in the internal administration of particular sections, establish the major policies and routines of procedure governing the operation of the company. He should support his subordinates, but in matters pertaining to the administration of disciplinary punishment he should allow no one to commit him to a course of action. He is solely responsible for the administration of disciplinary punishment under the 104th Article of War and cannot delegate this authority. Accountability for the property of the company lies with the company commander and may not be delegated. The responsibility for the performance of specific duties should be delegated to the proper subordinate, and that subordinate held strictly accountable for the results.

c. Planning and supervision.—(1) *General.*—Planning and supervision are two very important functions of the company

commander. He should, at all times, be alert for improvements in methods of operation. He should make the fullest use of the experience and imagination of his subordinates and should, whenever possible, be accessible to them for consultation. In general, major changes of policy should not be made until after all interested parties have been consulted and all phases of the subject considered. (See pars. 3 and 151.)

(2) *Planning for future requirements.*—He should, at all times, consider the probable future activities of the company and prepare plans and take such steps as may be necessary to meet future requirements. The preparation of specific plans of the various sections of the company should be delegated to the responsible person.

(3) *Inspecting camp and shop.*—He should move about in camp and shop observing the manner in which duties are being performed and orders and policies are being carried out. Periodic formal inspections should be held of both men and equipment. The highest state of efficiency consistent with conditions of service and state of training should be required. Neatness, orderliness, and cleanliness should be stressed at all times.

d. Personnel management.—(1) *General.*—In matters pertaining to personnel, the company commander should be tolerant, fair, and cool-headed. He should endeavor to know as well as possible all the men in the company. He should have an estimate of the personalities and capabilities of every man.

(2) *Changes in assignments of personnel.*—He should, from time to time, reassign the officer and noncommissioned officer personnel in the company to different sections or duties. Such a practice will assist in preparing the company to meet emergencies.

e. Maintaining Policy Books.—He should endeavor to insure continuity of policy within the company by requiring the maintenance of "Policy Books," by each section. (See par. 56.)

■ 166. **COMPANY EXECUTIVE.**—In general, the senior lieutenant of the company will be designated as the company executive. He will, in addition to the performance of his normally as-

signed duties, keep himself informed of the status of matters affecting the entire company, and will be prepared to function for the company commander in his absence.

■ **167. OFFICER IN CHARGE OF HEADQUARTERS AND SUPPLY SECTION.**—*a. Functions.*—This officer functions as the mess officer, supply officer, personnel officer, and transportation officer. He is responsible to the company commander for the efficient operation of the sections under his control.

b. Keeping company commander informed.—He should keep the company commander informed of matters pertaining to his sections, particularly with reference to important changes in the status of matters pertaining to these sections.

c. Planning.—He should constantly plan far enough into the future to meet the probable future requirements of his sections.

■ **168. FIRST SERGEANT.**—*a. Relations with company commander.*—The first sergeant is the company commander's senior enlisted representative in matters pertaining to company administration and speaks in such matters with the authority of the company commander. The relationship between the company commander and the first sergeant should be one of mutual understanding and confidence. For maximum efficiency they must work as a closely coordinated team. The first sergeant should make a point of understanding and carrying out the policies of the company commander in all matters over which he has direct supervision.

b. Responsibilities.—The first sergeant is responsible to the company commander for—

(1) Maintenance of all records and reports pertaining to company administration, such as morning reports, sick reports, duty rosters, and routine reports required by higher headquarters.

(2) Preparation of purely military training programs and schedules.

(3) The enforcement of discipline.

(4) The preparation and issuing of company orders as directed by the company commander.

(5) The preparation of collection sheets for the company fund.

(6) The preparation of routine correspondence.

(7) The preparation of daily strength, ration, gasoline, and oil returns.

(8) The supervision of all formations.

c. Functions.—The first sergeant should be thoroughly familiar with all matters pertaining to company administration, including, whenever possible, matters concerning mess and supply. He should be thoroughly familiar with all drills which the company is required to perform. He should conduct himself with dignity, fairness, and force. Whenever conflicts appear in matters pertaining to both the shop and company administration, he should confer with the master mechanic (shop foreman) with a view to arriving at a solution suitable to both shop and company requirements.

■ 169. SUPPLY SERGEANT.—*a. Duties and responsibility.*—The supply sergeant is responsible to the supply officer for—

(1) The maintenance of the stock record account.

(2) The maintenance of the abstract of memorandum receipts.

(3) The maintenance of memorandum receipts on all property in the hands of the members of the company, not carried on W. D., A. G. O. Form No. 32 (Individual Clothing and Equipment Record) and W. D., A. G. O. Form No. 33 (Individual Equipment Record).

(4) The security of all property not covered in (3) above, or in the hands of the shop stock section.

(5) The completeness of the organizational and individual equipment of the company.

(6) The serviceability of all equipment under his charge.

(7) The exchange of unserviceable property for serviceable property.

(8) The preparation of requisitions for organizational and individual equipment.

(9) The preparation of reports of survey, certificates of unserviceability, inventory and inspection reports, statements of charges, shipping tickets, receiving reports, over, short and damaged reports, debit and credit memorandum receipts, individual clothing and equipment forms, lists of balances, and other miscellaneous property and supply forms and records.

(10) The neatness, cleanliness, preservation, and accessibility of all property for which he is responsible.

(11) The completeness of, and preparation for, all inventories of property for which he is responsible.

(12) The preparation of property location charts, where necessary and desirable, for property in his possession.

(13) The preparation of statements of clothing settlements when required.

b. General qualifications.—The supply sergeant is directly responsible for the security, serviceability, and proper storage of many thousands of dollars worth of equipment. He should understand thoroughly all property regulations, the use of Standard Nomenclature Lists, equipment charts, and all form papers pertaining to property. He must keep accurate and complete records and inventories. He must keep abreast of and thoroughly familiar with all changes in matters pertaining to the handling of property. He should be a congenial, enterprising, industrious person with energy, initiative, and imagination.

■ 170. MESS SERGEANT.—The mess sergeant is responsible to the mess officer for—

- a. The preparation of all menus.
- b. The preparation and serving of all meals.
- c. The operation of all mess personnel.
- d. The drawing, storing, and transportation of all rations.
- e. The issuance of all rations, cooked or uncooked.
- f. The maintenance of ration accounts, including records of boarders.
- g. The maintenance of the Inventory of Rations (Form 86).
- h. The police and maintenance of sanitary conditions in all matters pertaining to personnel, equipment, and service of the mess.
- i. The care and maintenance of all mess equipment.
- j. The preparation of rations for inventory whenever required.

■ 171. MOTOR SERGEANT.—*a. Responsibility and duties.*—The motor sergeant is responsible to the transportation officer for

the good order and the control of all organic transportation. He will—

(1) Maintain all the motor vehicle records for organic transportation, except the small notebook kept in each vehicle.

(2) Periodically check the condition of these latter books to determine that drivers are properly recording the mileages and the gas and oil consumed.

(3) Prepare monthly consolidations of data in the motor books for signature of the transportation officer.

(4) Act as dispatcher for all organic transportation, and establish and operate any control that may be necessary over the movement of vehicles within the field shop.

b. Further responsibilities.—He is directly responsible to the transportation officer for the good order and readiness to function of the transportation assigned to the headquarters and supply section. He is responsible for the training of motor vehicle operators.

c. March inspections and supervision.—(1) During halts when the company is on a march, the motor sergeant will check with all vehicle operators to determine whether or not any difficulties are being experienced, and will take appropriate action to correct such difficulties.

(2) The motor sergeant will supervise gassing operations, and the issue of oil as necessary. At the end of each day's march, he will supervise the checking of oil levels, battery water levels, and tire pressures. He will check the operation of all lights and horns and, in general, insure that all necessary steps have been taken to prepare the vehicles of the company for the continuation of the march. He will familiarize himself with the pertinent parts of FM 25-10, which will be used as a guide in the performance of his duties.

■ 172. COMPANY CLERK.—The company clerk is responsible to the first sergeant for the typing of all necessary correspondence for the company office, and the maintenance of the necessary files and records kept by that office. He will, when necessary, assist in the unit personnel section of battalion headquarters in the maintenance of the personnel records of the company.

■ 173. **ADDITIONAL DUTIES.**—The duties of individuals, as outlined herein for various individuals, are intended merely as a guide to the company commander. He should make such reassignments of duties and responsibilities and assignments of additional duties and responsibilities as the situation may demand. It will be found that certain duties within the company, such as recorder for the company fund, have not been assigned. There will be many odd duties in connection with company administration which should be apportioned among the junior officers of the company.

CHAPTER 3

COMPANY SHOP

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SECTION I

GENERAL

■ **174. ORGANIZATION AND EQUIPMENT.**—*a. Organization.*—The various shop sections are discussed in part one. The actual internal organization of each section is not a definite and unvarying matter, but one in which the company commander may exercise his initiative to solve his problem. A study of the pertinent Tables of Organization will be of material assistance to the company commander in defining his section organization.

b. Equipment.—A distribution for the chief items of company equipment—the various motor vehicles—is shown in the Tables of Organization, and should be used as a guide by the company commander.

■ **175. OPERATIONS.**—The operations and duties of the shop sections and shop personnel are covered in part one, and are applicable to all maintenance companies. In this connection, it should be clearly understood that the ultimate responsibility for the operations of the shop and all the shop sections falls on the company commander, to whom the shop officer in turn is responsible.

■ **176. USE OF POWER PLANTS.**—In order to conserve the motors of automotive vehicles equipped with power plants operating off the vehicular motor, it is important that proper electrical conductors be secured and hooked into the external source plugs of the various machine shop trucks. A log covering hours of operation should be carefully maintained on all mo-

tors. Motors should be rotated in use, so that there will always be power when it is needed, but no one motor will be used excessively.

■ 177. GENERAL RULES FOR CONDUCT IN FIELD SHOP.—*a. Passes.*—(1) All men will be in camp available for duty until released.

(2) No man will leave camp during duty hours without authority of the first sergeant or the company commander.

(3) All men leaving camp, whether on official or private business, will sign out on the "Sign Out List" and will line out their names on return.

b. Transportation.—(1) Every effort will be made to reduce the use of transportation to a minimum.

(2) To accomplish the above, all transportation leaving camp must be checked out through the motor sergeant or in his absence, the acting motor sergeant.

c. Security.—(1) All property will at all times be kept as neat and clean as the circumstances will permit.

(2) All property will be secured for the night from marauders and the weather.

d. Police.—(1) The bivouac will at all times be kept in as presentable a condition as possible.

(2) To accomplish this, all men must cooperate by placing trash in the containers provided.

(3) All men must keep their personal belongings in as neat a condition as possible. The careless scattering of personal belongings about the camp must be avoided.

e. Personal hygiene and health.—Every soldier should seize upon every opportunity that presents itself to bathe, shave, and perform those usual functions necessary to cleanliness and continued good health.

f. Camp sanitation.—(1) Every effort must be made to observe the known rules of camp sanitation.

(2) Food scraps will not be promiscuously thrown about but will be put in the garbage pit.

(3) Men will not fail to use the latrine when such need arises. Pollution of the ground will eventually cause sickness in the command.

g. Camouflage discipline.—All personnel will assist in the maintenance of camouflage, and will studiously avoid the

creation of new trails or the display of equipment and personal property that may reveal the position of the organization.

■ 178. PROTECTION OF SLEEPING PERSONNEL.—The working hours of the personnel of a medium maintenance company are so irregular that personnel are liable to be sleeping on the ground at any hour of the day or night. It is essential that such personnel be protected from vehicles traveling in and around the field shop. There should always be provided in or near the shop, an area from which all vehicles are excluded. This area may be marked off by ropes and signs, by distinctive tapes or by any positive means that does not reveal the position of the company. This area should be reserved for the men of the company. All vehicles traveling within the shop area should be required to be preceded by a man on foot, whose duty it would be to see that no persons are in the way of the vehicle. All vehicles traveling within the area should be required to travel at a speed not to exceed 5 miles an hour.

SECTION II

ESTABLISHMENT OF FIELD SHOP

■ 179. LOCATION OF FIELD SHOP.—*a. Allotment of area.*—The location of the field shop of a maintenance company in an ordnance battalion is usually determined by the battalion commander either personally or through his staff. When an area is allotted to the company commander it becomes his task to dispose his company in the area to the best advantage.

b. Use of towns.—The company customarily bivouacs and sets up shop in the field, utilizing the terrain to proper advantage. In instances where shop facilities and space are available in towns or villages, such facilities should be utilized to the maximum extent possible. Such use should be made only after consideration of such factors as traffic congestion, parking space, cover for vehicles, proximity to establishments or transportation facilities likely to be bombed or shelled, and the rapidity with which the situation is changing.

c. Service to troops.—The shop must be capable of providing the maximum service with the least inconvenience to the troops it is serving. This involves consideration of the disposition of the troops being supported; the road net available

for the use of the various troop units in approaching the field shop; and the distance from the supported troops which is considered best for the tactical situation at the time. This distance should be such that the shop will be out of medium artillery range, but close enough to the troops to permit frequent contact and easy towing of heavy equipment to the field shop. Small displacements of the combat troops should not necessitate the displacement of the field shop.

■ 180. ACTION ON RECEIVING ASSIGNMENT OF FIELD SHOP AREA.—Immediately upon the receipt of an assignment of, or upon the selection of, a field shop area, the company commander should proceed with his principal commissioned assistants and section foremen to the area for a reconnaissance. This reconnaissance is for the purpose of determining the most satisfactory lay-out for the shop, consistent with the facilities or terrain available. This party should also stake out the detailed lay-out of the shop sections within the area.

■ 181. FACTORS GOVERNING GOOD FIELD SHOP LAY-OUT.—The following factors must all be considered in planning a shop lay-out. It will seldom happen that all of the requirements listed will be satisfied 100 percent.

a. Open fields must be scrupulously avoided. They should not even be crossed approaching the shop area. Vehicular tracks on bare, cultivated, or grassy ground will show up from the air.

b. Wooded areas with hard standings and existing roads leading into them are fine for field shops. The difficulty lies in the fact that level wooded areas are very likely to be poorly drained with the result that rain may turn the area into a bog.

c. Wooded areas on hillsides with existing roads leading into them are quite good. Drainage is usually satisfactory and the chances of securing hard standing is usually better than on level tracts.

d. The shop should be near the main supply roads but not on them, with an existing road leading into the field shop area and a complete turn-around that will deliver traffic to an established road.

e. In almost any field shop arrangement, it is necessary for security from aerial observation that vehicles be dispersed at intervals of not less than 50 feet.

f. In the fall and spring when trees are shedding their leaves, camouflage is particularly difficult, and wide dispersion of vehicles becomes more essential.

g. Vehicles must *not* be arranged in an orderly fashion that is liable to yield a pattern to observers from the air. The principal axis of each vehicle should be carefully alined at an odd angle to that of adjacent vehicles.

h. The dispersion of vehicles as described above is not conducive to the most expeditious accomplishment of the functions of the company, and the tendency will always be to slight necessary precautions for greater convenience. It is essential that precautions of dispersion and camouflage be carefully observed at all times.

■ 182. LOCATION OF SHOP SECTIONS.—In arranging the vehicles of the company within the field shop, the following rules may be used as a guide for the location of the various sections of the company.

a. The command post, and the headquarters and supply section, should be located in a well-drained and well-camouflaged spot which is out of intrashop traffic and yet within a short distance of the shop office. This section is responsible for company administrations, company supplies, mess, and transportation, and therefore should be out of the center of activities. It is particularly important that the company mess be established where the food can be well prepared and well served. Convenience to the water supply is essential. (See par. 188.)

b. The shop office should be located as centrally as possible because it is the focal point of all shop administration and should be convenient to all shop sections.

c. The instrument section should be located in a place separated from the main shop area, and whenever possible, out of the direction in which dust will be blown.

d. The artillery and automotive section should be located within easy distance of the road leading into or past the field shop area.

e. The small arms section may be located near a road, but it is not essential that it be so located since weapons can be easily carried from the road into this section area.

f. The service section area should be adjacent to the area occupied by the artillery and automotive section.

g. Figure 38 shows a type lay-out of a company field shop where all the desired terrain features are present.

■ 183. PREPARATION FOR EVACUATION.—In the establishment of a field shop, consideration should be given at the time of occupation to the problem of evacuating the area. Trucks should be headed in the proper direction to drive straight out to a hard-surfaced road. Vehicles should not be so located with respect to trees or other obstacles that the obstacles will interfere with efforts to pull the vehicle out with a winch or tackle. In this connection, the discussion of the mobility of matériel undergoing repairs contained in paragraph 198 is particularly pertinent. Every effort must be made to insure that no equipment is abandoned when the field shop is evacuated. Whenever it appears that items of matériel must be abandoned, proper steps will be taken to insure that the matériel is taken over by a higher echelon of ordnance maintenance. Abandoned matériel that is likely to fall into the hands of the enemy will be effectively destroyed.

■ 184. USE OF ALTERNATE POSITIONS.—*a. Planning for use of alternate position.*—It will frequently happen that the order assigning the field shop area to a maintenance company will also include the assignment of an alternate position or area to the company. When such an alternate position is not so assigned, the company commander should request assignment of such an area. At the earliest opportunity a reconnaissance of the area should be made, and complete plans prepared for its occupation should it become necessary. Such plans should include the details of routes to, and location of the sections within, the area. All responsible personnel should be thoroughly familiar with the area and the plan for its occupation.

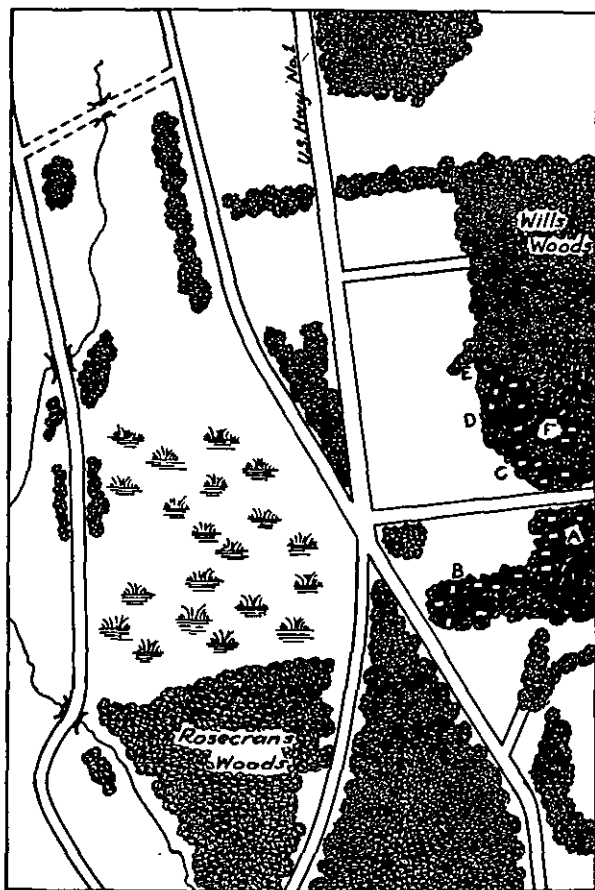
b. Occupying alternate position.—In general, it will be unnecessary to occupy the alternate position unless the initial position has been discovered by the enemy. In such a case, the change in location should be made at night with the greatest care and secrecy. The use of dummy representations of the equipment of the company in the old position may serve to cause the enemy to expend considerable ammunition on it in the belief that the company is still there.

■ 185. CONSTRUCTION OF SMALL BRIDGES.—The maintenance company should be prepared to construct small bridges of the trestle type. It will frequently happen that the best locations for a field shop are across small gullies or ravines which are impassable to the vehicles of the company, but which could be easily made passable by the use of a few timbers or logs, some rope, and a few spikes and planks. Whenever such steps are necessary in order to occupy a field shop area, immediate steps should be taken to construct, or to secure the construction by the engineers, of a bridge of a strength adequate for the matériel to be repaired in the field shop.

■ 186. CAMOUFLAGE.—*a. Necessity for camouflage.*—The continued operation of any field shop will depend to a great extent on the quality of its camouflage. The need for camouflage will be greatest in barren country, and perhaps least in well wooded and hilly country. All personnel should be carefully instructed in the pertinent parts of FM 5-20 which fully covers the subject of camouflage. Every company should secure and use camouflage nets. When such nets are carefully prepared they will be of great assistance in providing cover for elements of the company.

b. Camouflage discipline.—Great care must be constantly exercised to maintain proper camouflage discipline both within and adjacent to the field shop area. Troops must not be allowed to park equipment in exposed positions near the field shop, nor make new trails and tracks into the shop area. Individual attention to camouflage discipline must be rigidly enforced. Special attention should be given to the maintenance of proper measures at night, especially in an active area, in order to safeguard against revealing the position in night photos taken by enemy observation.

c. Parking vehicles.—Vehicles should be parked in the shade of tall objects such as trees and buildings. When parked under trees, the principal axis of the truck should lie in the axis of the shadow. When parked next to buildings, the principal axis of the truck should parallel that of the building. Windshields should be protected from the rays of the sun by burlap to prevent reflection. Trucks must be moved to correct shadows as the day progresses.



Scale  Yards

- A - Service Section
- B - Artillery Unit of the Artillery and Automotive Section
- C - Automotive Unit of the Artillery and Automotive Section
- D - Armory Section
- E - Instrument Section
- F - Headquarters and Supply Section and Kitchen Truck.

FIGURE 38.—Typical Arrangement of the Field Shop.

■ 187. SECURITY.—*a. Protection.*—The shop area must be protected to the maximum degree possible consistent with other considerations, from hostile air, ground, or artillery attack. This involves a consideration of the location of other troop units of the corps. Proper measures for security embrace the requirements of gas and aircraft warning, enforcement of camouflage discipline, and the protection of Government property from loss or damage due to theft, fire, weather, or accident. Slit trenches should be dug in the shop vicinity for protection of personnel in the event of attack. Sentries should be instructed in accordance with the provisions of FM 26-5. They should be given such additional special instructions as may be necessary. Although the guard may not be formal, it should be complete as to personnel, and military as to conduct and procedure.

b. Outposts.—It may at times be necessary to use outposts to warn of the approach of enemy raiders, or to take measures against them before they arrive at the field shop. The degree or extent to which such a guard will be necessary will be dependent upon such factors as—

(1) Proximity of the field shop to a flank of the element being supported.

(2) Rapidity with which the situation is changing.

(3) Location and character of adjacent troops.

(4) Nature of the action being engaged in, that is, an advance, a retrograde movement, or a stabilized situation.

c. Operation of gas and aircraft warning sentries.—The duties of the gas and aircraft warning sentries may be combined. This sentry should be furnished with distinctive warning devices for use in signaling the approach of either a gas attack or of airplanes. He will sound the proper warning device upon the approach of enemy aircraft. When such a warning is sounded, all persons and vehicles should take cover, cease their movement, and avoid the raising of any dust. Hostile aircraft should not be fired upon unless the indications are that the field shop is being attacked.

d. Armament.—Whenever considered necessary for the proper protection of the field shop, full use will be made of the weapons carried in stock by the company. Proper steps to secure adequate quantities of ammunition should be made

in advance. Personnel who will be expected to man the weapons should be trained in their use. (See par. 148.)

■ 188. SANITATION.—The health and efficiency of the command is dependent upon proper camp sanitation. Every effort must be made by all concerned to avoid the accumulation of exposed garbage or other matter likely to draw or serve as the breeding place for flies. Adequate latrine facilities and garbage pits must be dug as soon as the bivouac is established and used during the entire period of occupancy of the field shop area. The relation of latrines, and the water supply and kitchen must be given careful consideration. No water should be drunk or used for cooking purposes that has not been approved by the medical officer, or been chlorinated or boiled. Complete instructions covering the matter of military sanitation and first aid are given in FM 21-10 and 100-5 which should be used as a guide in these matters.

■ 189. QUARTERING TROOPS.—In general, the members of the maintenance company will be quartered in the field shop area. The entire subject of bivouacs and shelters is covered in chapter 10 of FM 100-5.

SECTION III

CONTACT PARTIES

■ 190. GENERAL.—A contact party is a means whereby ordnance service is carried to the troops. It consists of a small number of ordnance specialists, sent out by an ordnance field shop or maintenance section which visits the various units which it is designated to serve, rendering all assistance possible in inspection, repair, replacement, and technical advice on all items of ordnance equipment. Contact parties serve as excellent liaison agencies between ordnance staff officers and the using troops. The maintenance section of a division will normally send out several contact parties to visit the various units of the division. Corps ordnance service also sends out contact parties (sometimes called maintenance parties) to the divisions in the corps as well as to the corps troops when specifically requested or according to a prearranged schedule. Army ordnance service functions in like manner. Contact parties may occasionally be attached to detached combat units as explained in paragraph 243.

■ 191. ORGANIZATION AND EQUIPMENT.—The organization and equipment of contact parties will be dependent upon the mission of the party for the trip in question. Contact parties will, in general, consist of the numbers of vehicles, personnel, and special equipment necessary. Each section of the shop will be expected to furnish personnel and equipment for contact parties as required.

■ 192. COMMAND.—The commander of a contact party will be a person of the proper grade and experience for the size and mission of the party. The assistant foreman of the section is usually the logical man for this task. In the performance of his mission the contact party commander will—

a. Check all equipment and personnel to determine that it is adequate in quantity and quality to insure the accomplishment of the mission. (Consideration must be given to length of trip to include ration and billeting requirements.)

b. Secure the best information available concerning the destination of the party and the route or routes thereto.

c. Check out of the field shop area through the dispatcher.

d. If communications are available, report arrival at destination back to the field shop of the company. This report should include a brief statement of important information that affects the information then in the hands of the company, such as changes in the conditions of roads or bridges, or the location of the units supported, together with any requests for help, equipment, or parts that may be required.

e. Prepare or complete the necessary work order covering the job.

f. If no further instructions concerning additional jobs or further duty in the area are received, return to the field shop.

g. Upon return to the field shop, report to the section foreman, with the completed work order.

■ 193. OPERATION.—a. *Support of divisions.*—In providing support to division contact parties, each maintenance company provides one or more contact parties, as may be necessary, to the division which it is supporting. Such parties will either rendezvous with a contact party at some previously designated place, or will proceed directly to the location of the divisional unit to which they are to provide service. In some circumstances it will be possible to use the division am-

muniton office as a clearing house for information of units requiring the assistance of corps contact parties. In this case, contact parties may secure such information by proceeding directly to that office. (See par. 143.)

b. *Servicing corps troops.*—In servicing corps troops, the contact party functions in much the same manner as does the contact party of the division ordnance section. It will perform such repairs as its equipment and skill permits, and will issue such ordnance general supplies as the troops may require. When maintenance problems are encountered which are beyond the capacity of the party to accomplish, arrangements will be made to either—

(1) Have the matériel moved to the field shop of the battalion.

(2) Communicate with the field shop requesting the dispatch to the location of the damaged matériel of the required men and equipment to accomplish the necessary repairs.

(3) Return to the field shop and secure the proper equipment and personnel to perform the job at the present location of the matériel.

c. *Work orders.*—When repairs or issues of supplies are made by contact parties, the transaction will be covered by a Work Order (OFM 103). This constitutes the authority for the shop to drop the materials installed or issued.

■ 194. *USE OF WORK ORDERS BY CONTACT PARTIES.*—Contact parties making repairs or issues of supplies to organizations will prepare work orders to cover the situation. It is not necessary that work order register numbers be assigned the work order at the time the work is done; this matter may be taken care of by the shop office personnel, who will assign a proper work order register number when the work order is returned to the shop office. In order to identify such orders as contact party orders, the letters "CP" should be placed after the serial number both in the register and on the work order. In order for the contact party to keep track of the number of work orders performed by the party, it would be advisable for each party to place on the order to the right of the space provided for the serial number, the words "1st. CP #1." This would indicate that the work order was number one on that particular trip of the contact party sent to service the First

Division. Work orders prepared by contact parties should be prepared in duplicate only. Any additional copies required by higher headquarters may be prepared as a consolidation of all work orders performed by the contact party, or may be single copied. (See pars. 77 to 90, incl.)

■ 195. ISSUES TO CONTACT PARTIES.—*a. In time of peace.*—Issues to contact parties may be made in either of two ways, as follows:

(1) *Constant level method.*—By this method, contact parties will be issued standard loads of items most frequently used. These items are signed for by the noncommissioned officer in charge of the party on a memorandum receipt. Each time that the party returns from a mission it will receive replenishment of the parts and materials used as indicated by the work orders turned in. (See par. 90.) Thus the level of stocks in the party and hence the quantity of items for which the noncommissioned officer is responsible remains the same. The items issued to the party must be posted to the bin cards of the issuing truck and to the expenditure record by the work order number. (See par. 72.) Whenever items not normally carried by the contact party are required, they may be issued on a temporary receipt and dropped on the work order, when it is turned in.

(2) *Temporary memorandum receipt method.*—This method involves the issue of a memorandum receipt for each issue of the parts to a contact party. It requires more paper work, and is apt to become confusing if great care is not exercised.

b. In time of war.—In the theater of operations, responsibility for the custody of property becomes a matter of secondary interest. Items issued to contact parties may then be expended or dropped from the expenditure record when issued to the party.

CHAPTER 4

MOTOR MARCHES

	Paragraphs
SECTION I. General.....	196-198
II. Convoy procedure.....	199-207

SECTION I

GENERAL

■ 196. **GENERAL.**—Special emphasis is given to motor marches of the ordnance company because of the increased importance of mobility in modern warfare. Since it is presumable that the maintenance companies will be called upon to move considerable distances and more frequently than in the past, this section will summarize for ready reference some of the more important paragraphs from FM 25-10. For detailed instructions refer to that manual.

■ 197. **MOBILITY OF THE COMPANY.**—Not every maintenance company is entirely mobile in the sense that it can be moved in its entirety with all personnel by the organic transportation of the company. In some cases wherein it is required that the company be moved, one of several methods must be resorted to:

a. Additional transportation may be secured from the quartermaster for the move.

b. Transportation by rail of the excess personnel may be arranged.

c. The cargo loads of a sufficient number of trucks may be transported by rail, and the entire company personnel transported on motor vehicles.

d. The move may be accomplished by "shuttling," wherein personnel not accommodated by motor vehicles commence the move by marching; the motor column completes the march. The loads of such vehicles as may be necessary to accommodate the marching men are unloaded, and the vehicles are sent back to pick up the marching column. This is not a very satisfactory method.

■ 198. MOBILITY OF ORDNANCE MATÉRIEL UNDERGOING REPAIRS.—*a. Necessity for movement.*—While it is not to be expected that ordnance companies assigned to ordnance battalions will be required to change the location of the field shop very frequently, it must be constantly borne in mind by personnel controlling such organizations that rapid and hasty movement may sometimes be necessary either because of the development of the tactical situation or because the field shop has been located by the enemy and has become the target for aerial or artillery bombardment.

b. Efficient orderly movements.—It is important when such movements become necessary, that they be made in an orderly and efficient manner. None of the equipment of the company, nor any of the ordnance matériel belonging to combat troops should be abandoned, or lost in such movements. It is, therefore, important that due consideration be given to the possibility of an early move by the company, and to the ability of the company to move with it any large items of ordnance matériel undergoing repairs, should such a move be required. Such considerations should cover such points as:

(1) Degree of dismantling or disassembly required to effect the repair.

(2) Time required to complete the repair. (Are replacement materials required for the repair on hand?)

(3) Loss of mobility caused by such disassembly.

(4) Ability of the company to move the item in question with such loss of mobility.

(5) Possibility of retaining at the field shop, or of securing on short notice, a prime mover or other means of towing or transporting the item in question.

(6) Possibility of turning the matériel over to another ordnance maintenance unit. This latter will usually be the major consideration involved.

c. Repair matériel by a higher echelon.—If the answers to the considerations cited in the above paragraph do not indicate that the company will be able to dispose properly of the matériel in its disassembled condition, and if a study of the tactical situation indicates the likelihood of a hasty move in the near future, the repair of the matériel should not be undertaken in an advanced field shop. The job should be passed back to a higher echelon of ordnance service.

d. Instructions issued by battalion commanders.—It is one of the principal duties of all ordnance maintenance officers to conduct a continuing study of this problem and to take the proper action to forestall losses due to this cause. Instructions covering the proper action in such cases should be issued by battalion commanders when considered advisable.

SECTION II

CONVOY PROCEDURE

■ 199. PREPARATION FOR MARCHING.—*a. Vehicles.*—(1) All vehicle loads will be checked and made secure. All panels, curtains, catches, and straps will be secured neatly and firmly.

(2) At the direction of the motor officer, all vehicles will be operated for 5 minutes at low engine speed to warm them up and to check their functioning. At this time particular attention will be paid to operation of all gages to note that they are functioning satisfactorily and that readings are correct.

(3) All tires will be brought to the proper pressure and visually checked to note presence of slow leaks. An inspection will also be made for the presence of gas, oil, or water leaks.

(4) Prompt report will be made, and action taken to correct any deficiencies noted.

b. Police of bivouac.—Under the supervision of the first sergeant, all men will join in a police of the bivouac area prior to departure.

■ 200. STARTING FROM HALTS.—The leading vehicle must take up the march at a speed much less than the prescribed rate of march, and very gradually increase it to the speed desired. Each succeeding vehicle follows at a reduced distance and gradually opens up to the prescribed distance. If marching under combat conditions, drivers must maintain the prescribed distance between vehicles at all times, whether halted or on the march.

■ 201. MAINTAINING PROPER DISTANCE BETWEEN VEHICLES.—*a.* Drivers must always be alert to keep the prescribed distance between their vehicles. This may sometimes be accomplished by counting the number of telephone poles in the mile and, having found the distance between them, measure the inter-vehicle distance by that means.

b. Changes in speed must not be abrupt, but should be made gradually in order to avoid telescoping or unduly stretching the column.

c. Upon halting, the column will always pull off on the shoulder of the road and never close up unless the signal for this is given.

■ 202. CLOSING TO GO THROUGH LARGE CITIES OR TOWNS.—At a proper distance from a large city or large town, the lead vehicle of the column will give a signal to close up (see par. 206) and will decrease its speed to 20 mph. The signal to close-up will be passed to the rear by all drivers. All vehicles will continue at the normal marching rate until closed on the preceding vehicle to a safe marching distance (15 to 20 yds.). Closing will be accomplished without delay. This will insure that the last vehicle will be closed before entering the city.

■ 203. MARCHING IN CITIES AND TOWNS.—a. In cities and towns, the lead vehicle will not travel at a rate faster than 20 mph. The driver or his assistant will keep a sharp lookout to the rear to observe any unusual occurrences by the remainder of the column and to take appropriate action in case of difficulty.

b. Every effort will be made to keep the column closed and to prevent civilian traffic from cutting into the column. This effort must not, however, result in dangerous or discourteous driving that may result in accidents.

c. *Traffic lights.*—(1) When accompanied by traffic officers, the column will proceed against red lights when following the officer.

(2) When not accompanied by a traffic officer the column control officer will be responsible at principal intersections, even if normally controlled by lights, to the extent of stopping all other traffic until the column has cleared. (This is not a strictly legal procedure, but may be supported. It will be accomplished courteously.) If a traffic guard is left at the intersection without transportation he will be picked up by the last vehicle in the column with the least possible delay.

(3) In the absence of civil or military control at an intersection, vehicles *will not* pass a red light.

■ 204. EXTENDING THE COLUMN AFTER PASSING A CITY OR TOWN.—a. The lead vehicle will continue to march at a rate

not greater than 20 mph for at least 10 miles after passing a city, to insure that all vehicles have cleared.

b. The above may be modified when the control officer, after observing the tail vehicle clear the city, notifies the lead vehicle that such is the case.

c. The lead vehicle, after notification of clearance, or after the prescribed distance of 10 miles has been reached, will resume the march rate and all vehicles will attain the prescribed marching distance.

■ 205. HALTS.—*a. General.*—Rest or gassing halts will not be made in cities or towns. The tail of a column must not be obscured from oncoming traffic by grades or curves. They will be made where shoulders are wide enough to allow vehicles to move completely off the road. Vehicles will endeavor to move completely off the road and men will stay on the right side of the vehicles except when a duty requires that they move to the left side. Traffic guards will be placed at the head and tail of the halted column.

b. March halts.—At all march halts, drivers and assistant drivers will carefully but quickly examine their vehicles, paying particular attention to—

(1) All wheel lugs and tires.

(2) Loose running gear of any kind, including hydraulic brake lines.

(3) Condition of load.

(4) Amounts of oil and water present.

(5) Gas, oil, and water leaks.

c. Report.—An immediate report of the following will be made to the motor officer, or the motor sergeant:

(1) Any deficiency that cannot be quickly remedied by the vehicle crew.

(2) Any deficiency in the operation of vehicles while on the march.

d. Gassing halts.—(1) A gassing plan will be prepared for each day's march, which will prescribe the halts at which each vehicle will be gassed, and the number of 5-gallon drums each vehicle will take aboard. A copy of this plan will be in the hands of the motor officer, the motor sergeant, and the driver of the gas truck. Each vehicle driver will be furnished a written statement of the part of the plan that pertains to his vehicle.

(2) When the column has halted, the drivers will gas up with the drums carried on their trucks. Empty drums will be exchanged for full drums at the gas truck, when directed by the motor officer. Drivers will promptly record in their vehicle record notebooks the date, mileage, and quantities of gas and oil used.

e. Remaining with vehicle.—Men will not leave their assigned vehicle until they have accomplished the required duties.

f. Bivouac halts.—(1) When the company moves into a bivouac area under blackout conditions, particular care must be exercised to prevent accidents. It may be necessary for the assistant driver to precede his vehicle, using a flashlight to guide the vehicle driver.

(2) Immediately upon arrival at a bivouac area the company message center and latrine will be established and the kitchen detail will proceed to the kitchen truck and perform their duties. All other men will assist in replenishing gas and oil in all vehicles. The gas truck will then be restocked. When these matters have been accomplished, shelter tents will be pitched under the supervision of the first sergeant.

(3) The details prescribed for the performance of other camp duties will then proceed to those duties.

(4) As soon thereafter as is practicable, drivers and assistant drivers will be assembled, and under the supervision of the motor officer will thoroughly check each vehicle with particular attention to—

- (a) All items mentioned in *b* above.
- (b) Batteries.
- (c) Lights.
- (d) Ignition system.
- (e) Fuel system.
- (f) Proper inflation of tires.

■ 206. DRIVING SIGNALS.—In addition to the standard arm signals normally used in driving, the following signals will be used in convoy driving:

a. Close-up.—Extend the arms horizontally straight to the front, palms in. Move the hands together and then resume the first position. Repeat several times.

b. Slow or stop.—Extend the left arm outward to an angle of 45° below the horizontal.

■ 207. GENERAL RULES.—*a.* At all times pay careful attention to the functioning of your vehicle, noting readings of all gages, listening for unusual sounds, etc.

b. Drive carefully.—Treat your vehicle with care, remember *it may fail if abused*. Vehicular abuse means expense to the government, loss of time, and much labor to effect repairs. Careful observation and inspection may prevent a serious failure or accident.

c. Use the record books provided with each vehicle. Record all gas and oil used. (*At the time it is put in the vehicle.*)

d. Act on, and pass back, all signals received from preceding vehicles.

e. If you feel drowsy, do not continue to drive out of a false sense of pride. This may cost lives. Change drivers at the next halt and notify the motor officer of the change.

f. All drivers will be changed on even numbered halts, i. e., about every 120 miles.

g. Do not pass other vehicles in convoy, except when they are at a halt. If your vehicle is disabled, join the tail of the next serial and rejoin your serial at the next halt. Do not drive recklessly trying to rejoin.

PART THREE

ORDNANCE BATTALION, MAINTENANCE

CHAPTER 1

GENERAL

	Paragraphs
SECTION I. General.....	208-211
II. Organization and equipment of ordnance battalion.....	212-213

SECTION I

GENERAL

■ 208. MISSION OF ORDNANCE BATTALION, MAINTENANCE.—(See pars. 138-141, incl.) The mission of the ordnance battalion, maintenance, is to provide ordnance service to the type army corps and its attached troops, and to support the operation of division ordnance sections. In the accomplishment of this mission, the battalion will—

a. Supply ordnance materials to corps and attached troops and to ordnance sections of divisions.

b. Inspect and repair the ordnance matériel in the hands of corps and attached troops.

c. Assist the ordnance sections of divisions, in whatever way may be required, in the accomplishment of inspections of and repairs to the ordnance matériel of divisions and the issue of supplies to division troops.

■ 209. DETAILS CONCERNING BATTALION HEADQUARTERS.—*a. Location.*—The battalion headquarters will be at the location of the field shop if there is a single field shop, or at one of the company field shops if there is more than one field shop in the battalion. The location chosen in the latter case should, in order to facilitate contact between the headquarters and the other shops, be the most central.

b. Rations.—The personnel of the headquarters, including the attached medical personnel, will be attached for rations and quarters to the company in whose field shop area they are located.

c. Maintenance of transportation.—The maintenance of the organic transportation of the headquarters will be the responsibility of the company to which the headquarters is attached. (See par. 40a.)

■ 210. **DETAILS OF SHOP OPERATION.**—The details of shop operation within the various maintenance companies are fully discussed in part one of this manual.

■ 211. **DUTIES OF INDIVIDUALS.**—The members of the battalion headquarters and headquarters detachment of the ordnance battalion should be guided in the performance of their duties by the pertinent sections of FM 9-5, 9-6, and this manual.

SECTION II

ORGANIZATION AND EQUIPMENT OF ORDNANCE BATTALION

■ 212. **ORGANIZATION OF ORDNANCE BATTALION, MAINTENANCE.**—

a. The organization of the ordnance battalion, maintenance, is prescribed in Table of Organization No. 9-75. It consists of a headquarters and headquarters detachment; three ordnance companies, medium maintenance; and attached medical. A chart of the organization is shown in figure 39.

b. The three ordnance companies, medium maintenance, are organized as prescribed in Table of Organization No. 9-7. The operation of the company is fully covered in part two of this manual.

c. The attached medical personnel of the battalion cares for the physical welfare of the personnel of the entire battalion.

d. If the corps is operating alone, it will usually have attached to it one or more ordnance companies, ammunition. The organization of the ammunition company is prescribed in Table of Organization No. 9-17.

■ 213. **EQUIPMENT OF ORDNANCE BATTALION, MAINTENANCE.**—

a. The vehicles and armament assigned to the ordnance companies, medium maintenance, are discussed in part two of this manual.

b. The vehicles and armament assigned to the headquarters and headquarters detachment are shown in Table of Organization No. 9-75 and Table of Basic Allowances No. 9.

ORGANIZATION OF THE ORDNANCE BATTALION—MAINTENANCE

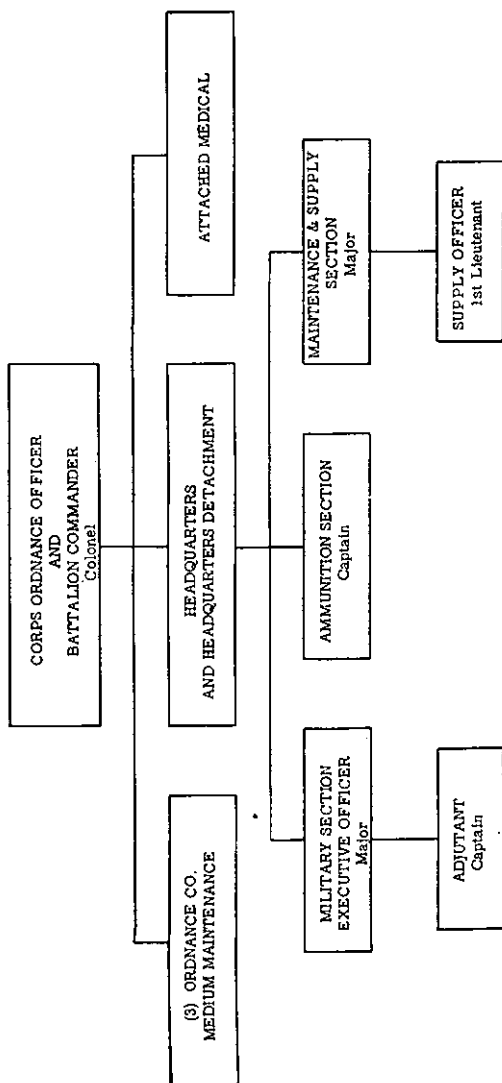


FIGURE 39.

CHAPTER 2

OPERATIONS

	Paragraphs
SECTION I. General.....	214-219
II. Location of field shop.....	220-225
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SECTION I

GENERAL

■ 214. TRAINING OF BATTALION.—*a. Necessity for training.*—Training and planning for training is a continuous process which is of paramount importance in the production of a well coordinated team capable of performing its mission with expedition and efficiency. The matter of the training of ordnance troop units is fully covered in the pertinent portions of FM 9-5.

b. Development of specialists.—It is important in the training of specialists on certain types of matériel, that the strength of such specialists in each company be kept at a uniform level. This is in line with the maxim of not putting all of your eggs in one basket. It must be remembered that the detachment of a company from the battalion should not have the effect of crippling that battalion in its ability to perform certain types of work. (See par. 8c.)

c. Training of specialists on the special work in the corps troops load.—In order to provide for the training of the specialists of all companies in the maintenance of 155-mm guns and 3-inch antiaircraft and 37-mm antiaircraft guns, one of the following procedures may be resorted to:

(1) Specialists from other companies may be temporarily attached for training purposes to the company to which that type of work has been allocated. (See pars. 226 to 230, incl.)

(2) The allocation of the maintenance load may be rotated from company to company after each has had an opportunity to become familiar with the problems involved. This latter method may involve the transfer from one company to the other of the special tools and spare parts and accessories on hand for that type of equipment.

d. Conduct of battalion schools.—The battalion commander must be alert to the possibilities of improving the maintenance standards of the battalion by the conduct of battalion schools.

■ 215. EFFECT OF TACTICAL SITUATIONS ON THE OPERATION OF THE CORPS BATTALION.—*a. General.*—The factors discussed in paragraphs 220 to 225, inclusive, will always affect the operation of the corps ordnance battalion. A discussion of the subject of enemy air operations, dispersion, camouflages, and security will be found in paragraphs 179 to 189, inclusive.

b. Static situations.—(1) In static situations there will usually be fewer alternate positions available for occupation, both because of the density of the troops in the area, and the lack of a suitable road net to answer the requirements of new situations. Shop locations must be used longer. Roads become worn, camouflage tends to run down, and the enemy has better opportunity to discover the location of the shop. For these reasons particular attention must be paid to concealment, camouflage, the use of lights at night and other related considerations.

(2) Operations of the troops are usually reduced in amount and more nearly uniform in character. Demands for maintenance tend to become uniform. After the initial plans to care for the situation are perfected, the amount of planning required is reduced. Care should be exercised that plans are perfected to meet any situation that may arise once the static situation is broken.

c. In the advance.—(1) It is essential that field shops of the divisions, and the terrain should result in increased efficiency of maintenance.

c. In the advance.—(1) It is essential that field shops of the battalion be within such a distance of the combat troops of divisions and corps troops that there is no cessation of ord-

nance service. In order to accomplish this in an advance, it may be necessary to move the battalion forward by bounds.

(2) It is important, also, if proper ordnance service is to be maintained, that the field shops be not moved so often that they have no time left for the accomplishment of repairs. For this reason, it will not always be possible to maintain the ideal distance from the front line elements. When the battalion is first moved forward, it may be wise to place it somewhat forward of its normal position, in order that as the front moves forward, a greater length of time will be available for work before the distance to the troops has become so great that another move must be made. In all cases of movement of the battalion, provisions must be made for the complete ordnance service of any corps troops which may not be displacing forward at the time. In all cases where movements are contemplated, the troops must be notified in sufficient time in advance of the movement that they will not go to the wrong place for service. Whenever possible, the forward echelon of the field shop should open at a time somewhat in advance of the time scheduled for the closing of the rear echelon shop.

(3) In order to enable a movement to be made without abandoning unfinished work, it may be necessary to advance the main body of the battalion and leave behind sufficient equipment and personnel to finish the work on hand. If such a procedure is not practicable, arrangements must be made with the army ordnance battalion to take over the matériel.

(4) These requirements place upon the battalion commander the responsibility of knowing the plans for movement of all the units for whose ordnance service he is responsible.

d. In a retrograde movement.—(1) The necessity for prompt and efficient ordnance service is perhaps more important in a retrograde movement than in an advance.

(2) Under such circumstances, it is essential that roads in the vicinity of the troops be kept clear of traffic in order to avoid interference with troop movements and supply of ammunition. Movements to the rear will, as is the case in an advance, be coordinated by G-4.

(3) In general, there will not be available the numbers of serviceable salvaged weapons that are available in an ad-

vance. This will throw on the battalion a greater load of small arms maintenance. The accomplishment of repairs of a major nature on artillery matériel or ordnance vehicles and tanks will rarely be possible.

(4) As the battalion is forced further to the rear by the necessities of the situation, the battalion should exert every effort to put as many contact parties as possible in immediate support of the troops. Such parties should carry stocks of small arms parts, and such artillery parts as may be installed within a reasonable length of time. They should be alert to salvage weapons from the field and be ready to issue them on demand or to exchange serviceable weapons for unserviceable weapons.

■ 216. SUPPORT OF DETACHED MAINTENANCE COMPANIES.—*a. Maintenance.*—Whenever maintenance companies of a battalion are detached from the battalion for the support of a detached or separate division, provisions should be made for their support, and if necessary, their reinforcement. Normally, the support of such companies will be accomplished by the battalion to which they pertain. When the distance of separation is such as to make support by the parent battalion impracticable, such support will be accomplished by attachment to another battalion. Whenever the attachment of additional units to the separate division is such as to exceed the company's normal share of the corps troop load, steps should be taken to reinforce the maintenance company in order to enable it to handle this additional load. (See par. 227c.)

b. Supply.—Supply of detached companies will be handled in the normal fashion, with the exception that requisitions will be submitted to the supporting battalion or to the army depot, as directed by the controlling ordnance office. The echelon to which the requisition is submitted is responsible for the movement of supplies up to the detached maintenance company. (See pars. 142 and 143.)

■ 217. EVACUATION OF MATÉRIEL.—*a. Decision.*—The decision as to the evacuation of ordnance matériel to the battalion field shop rests with the ordnance personnel responsible for its repair. Matériel requiring repairs may be repaired in place if possible, or if considered necessary by the ordnance

maintenance personnel, will be evacuated to the field shop. (See par. 193.)

b. Small arms matériel.—Unserviceable small arms matériel received by maintenance parties and contact parties from the troops will not be evacuated to field shops unless it is not possible to place them in serviceable condition otherwise. When the quantity of salvaged matériel in the hands of maintenance and contact parties becomes excessive, the surplus will be evacuated to the battalion field shop. (See par. 218.)

c. Artillery matériel.—The movement of unserviceable artillery matériel to the field shop should be accomplished by ordnance personnel. When the situation is such that artillery personnel and the necessary prime mover can be made available; the movement may be made by the artillery.

d. Tanks, tractors, and scout cars.—Such matériel will normally be moved to the field shop by personnel of the unit to which the matériel is assigned. When the matériel is immobile, it will be the responsibility of ordnance maintenance companies to move it to the field shop if necessary.

■ 218. SALVAGE OPERATIONS.—The salvage operations of the ordnance department are fully covered in the pertinent section of FM 9-5. The salvage and repair of ordnance matériel in the combat zone constitutes an important source of replacement items. All items of ordnance rendered serviceable by such process decreases by that much the number of corresponding items which must be brought forward through the supply channels.

■ 219. MARCHES.—All motor marches made by the maintenance battalion will be governed by the appropriate sections of FM 25-10. In general, serials within the convoy will consist of single maintenance companies. The vehicles of the battalion headquarters that travel with the convoy will be attached to one of the companies. (See pars. 200 to 207, incl.)

SECTION II

LOCATION OF FIELD SHOP

■ 220. INITIAL RECONNAISSANCE.—The location of the battalion field shop will be determined by a personal reconnaissance by the battalion commander or a designated member of his

staff. This reconnaissance may be made before the assignment of area has been made to the battalion by corps G-4, and as a basis for a recommendation to G-4 for such an assignment; or it may be made in an area previously assigned to the battalion. (See par. 179.)

■ 221. MAP RECONNAISSANCE.—A map reconnaissance of the most likely locations of the battalion shop or shops should be made prior to the actual ground reconnaissance.

■ 222. CONSIDERATIONS GOVERNING THE LOCATION OF THE FIELD SHOP.—There are several well established factors which must be considered in arriving at a determination of the location of any ordnance field shop. These factors are discussed in paragraphs 179 to 189, inclusive.

■ 223. SIZE OF FIELD SHOP.—The area available to the battalion commander for the establishment of the field shop will govern the size of the shop.

a. Whenever possible, the companies of the shop should be organized into a single field shop. Such an organization permits the maximum of coordination between the shops, under the supervision of the staff. In the establishment of such a shop, however, the provisions of paragraph 222 must be carefully considered. The shop area available must be such as to permit the proper dispersion of the vehicles and trailers of the battalion, with adequate cover and hard standing. It must be sufficient to accommodate a large number of vehicles and guns awaiting repairs, under proper cover or with proper dispersion. It must also accommodate the camp facilities, including tents for officers and men, offices, and kitchens.

b. When circumstances will not permit the establishment of a single shop for the battalion, it will be necessary to establish either two or three separate shops. In the establishment of these shops, the companies must not be broken up, but must be retained as entities. The locations of these shops will be governed by the same considerations that govern the establishment of a single shop.

■ 224. USE OF EXISTING FACILITIES (see par. 179b).—Whenever possible, the field shops of the companies of the battalion will be set up in existing shop buildings in towns or hamlets. The decision to use such buildings should be made only after

a consideration of the following questions has indicated the desirability of such procedure:

a. Can the shop trucks be moved into the buildings without dismantling the trucks or removing equipment therefrom?

b. Is there sufficient room in or near the building to accommodate the complete equipment and personnel of the shop, plus sufficient covered or sheltered parking space to accommodate a normal load of artillery and vehicles of the units supported?

c. Is the area in which the shop would be located likely to be subjected to intensive aerial or artillery bombardment?

d. If hits were obtained in the area, and it became necessary to evacuate the shop, would the evacuation be likely to be hampered by traffic jams, falling buildings, or other obstacles that would impede the movement of the company equipment?

e. Could organizations seeking the field shop approach and find the shop without undue interference from other traffic?

f. Is a better site for the field shop available outside the town or hamlet?

■ 225. ALTERNATE POSITIONS.—In every field shop location plan there should also be included the designation of an alternate position. Alternate positions are for use in the event that the initial location is discovered by the enemy. Alternate positions should be chosen in the same manner as initial positions. A careful reconnaissance of the position should be made to include routes to the position, and the internal disposition of company equipment within the area. Whenever possible, the occupation of alternate positions should be made only at night, and with the greatest care in order that the movement will not be revealed. (See par. 184.)

SECTION III

ALLOCATION OF WORK

■ 226. ANALYSIS OF THE MAINTENANCE LOAD.—a. *Basic study.*—In order to understand fully the maintenance problem confronting any echelon of ordnance maintenance it is necessary to make a study of the types and quantities of equipment

which must be maintained by the echelon. For this information reference should be made to Ordnance Equipment Charts and/or Tables of Basic Allowances and Tables of Organization.

b. Differences in equipment.—A study of these references will show although the items of equipment in a triangular division are almost the same as those in corps troops, certain significant differences do exist which will require special consideration. The differences of equipment in various units has a direct bearing on the special training and equipment required in the different companies of the battalion. This matter will be discussed more fully below.

■ 227. ALLOCATION OF WORK.—*a. Responsibility.*—The allocation of work to the companies of the battalion is the responsibility of the battalion commander, and is exercised through the battalion maintenance officer.

b. Methods of allocation.—Any one of several methods of allocation of work may be employed. The choice of method will depend upon the circumstances existing in the particular organization. These several methods are outlined and discussed below.

c. Blanket allocation.—(1) *Definition.*—A blanket allocation of maintenance work is the allocation to an ordnance maintenance unit of all the functions involved in the maintenance of the ordnance matériel pertaining to a combat unit. This includes the conduct of all necessary inspections, the issue of such quantities of general supplies, and the performance of such maintenance work as may be possible within the echelon.

(2) *Application.*—A blanket allocation of the work pertaining to a particular division may be made to a particular company. In addition to this allocation, each company may be allocated a share of the maintenance load of corps troops.

d. Allocation of the "special load."—The maintenance of the special load represented by the matériel in corps troops requires that each company required to perform this type of maintenance be equipped with the special tools, spare parts, and skill required to service these units. The limitations imposed by the transportation, and the numbers of trained mechanics available, may not permit the use of every com-

pany in the maintenance of such matériel. In such a case it may become necessary to concentrate in one company the facilities for the accomplishment of this work, and make a blanket allocation of such work to that company.

e. Allocation of balance of corps troops load.—The allocation of the remaining work of the corps troops which is the same as that found in the type infantry division, may be handled by a proper division of the load and a blanket allocation of specific portions of such work to the various companies.

f. Alternate procedures.—The alternative to this procedure is to require each job coming to the field shop to proceed to the battalion maintenance office for allocation to a particular company. Under certain circumstances it may be necessary to use a combination of the procedures outlined above.

g. Factors affecting allocation of work.—The method chosen for the allocation of work will be materially affected by the—

(1) State of training of the various companies.

(2) Quantity of special equipment available to the battalion.

(3) Degree of dispersion of the field shop.

(4) Location of the battalion headquarters.

(5) Location of the units supported with respect to the field shop or shops of the battalion. (This involves a consideration of the available road net.) (See pars. 179 to 189, incl.)

■ 228. ADVANTAGES OF BLANKET ALLOCATIONS.—*a.* Enables the development of personal contacts between the maintenance company and the units supported, thus making it possible to deliver more efficient ordnance service to those units. (See par. 215*b*.)

b. Places upon the company commander a definite share of the responsibility of the battalion.

c. Definitely assigning the load which the company may expect to bear, gives the company commander a basis upon which he may plan his requirements for tools and materials. (See par. 144.)

d. Prepares the company for the time when it may be required to move out in direct support of that division on a detached mission.

e. Fosters the development of a unit esprit, and of an inter-company competitive spirit in the matter of the quality of work done and the reduction of down time. (See par. 8.)

f. Reduces the amount of direct supervision and clerical work required of the maintenance office of the battalion headquarters, thereby relieving the maintenance officer to perform his functions of inspection, coordination, general supervision, and contact with the troops.

g. Expedites the provision of emergency service to the units served by enabling them to contact the company direct, with reasonable assurance of receiving immediate assistance.

h. Provides a definite element in the supply echelon to which the units supported may apply for immediate supply.

i. Places upon the company commander direct the responsibility for maintaining proper contact service with the units he is supporting.

■ 229. PROCEDURE WHEN OPERATING UNDER BLANKET ALLOCATIONS.—*a. Procedure of troops to secure work.*—Whenever blanket allocations are in force, troops whose work has been allocated to a specific company will proceed directly to the field shop of that company. The procedure to be followed by the shop office when the work is presented is outlined in paragraph 31.

b. Action when immediate load is excessive.—Whenever the maintenance load of the company is such that work on a new job cannot be commenced within a reasonable time, the battalion maintenance office should be contacted to secure directions as to what other company the work may be sent. This contact should be accomplished in the most expeditious manner.

c. Action by battalion maintenance office.—The battalion maintenance office after reference to its file, or tabulation of work orders currently in the various shops, must decide which company is best able at that time to perform the job. This decision should include a consideration of the probable immediate future load of the company which appears best able to take the job. If it appears that that company will soon have its hands full of its own work, the first company should be directed to keep and accomplish the job.

d. Dispatch of contact parties.—The dispatch of contact parties to the division and to the corps troops whose main-

tenance has been allocated to a company, is the responsibility of the company commander. These parties may be dispatched on a prearranged schedule, or in an emergency as required. In all cases the battalion maintenance officer must be notified of the facts, as soon as possible. (See pars. 190-195, incl.)

■ 230. PROCEDURE WHEN NOT OPERATING UNDER BLANKET ALLOCATIONS.—*a. Procedure of troops to secure work.*—When blanket allocations are not used either for all or part of the corps maintenance load, troops requiring the performance of work will proceed directly to the battalion maintenance office.

b. Action by the maintenance office.—The maintenance office after reference to its file, or tabulation of work orders (current) in the various shops, will assign the job to one of the companies, and provide the personnel bringing the un-serviceable matériel with a pass or order directing the company indicated to perform the necessary work.

c. Action by the shop.—The procedure followed by the shop upon arrival of the material at the shop is outlined in paragraph 31.

d. Dispatching of contact parties.—The dispatch of contact parties to the various divisions and corps troops will be controlled by the maintenance officer, who will establish the schedules, and direct the dispatch of parties in emergencies.

e. Action by troops in emergencies.—In emergencies, all calls from the troops for assistance by contact parties will be directed to the battalion maintenance office. This office will direct the dispatch of the contact party from one of the companies; it will also prescribe the composition and equipment of the party.

SECTION IV

OPERATION OF SECTIONS OF HEADQUARTERS DETACHMENT

■ 231. MILITARY SECTION.—This section is responsible to the battalion commander for the military administration of the battalion. It will receive and carry out the orders and policies of the commanding officer, and receive and transmit to the proper person or section all orders and instructions from proper authority. It is responsible for the preparation of

such reports as may be required from the battalion to higher authority. It will prepare all plans for the movement of the battalion, and conduct such reconnaissances as may be directed by the commanding officer.* It will prepare and maintain for the use of all interested personnel an operations map covering the locations of the various units which the battalion is supporting. It will perform all the normal functions of a headquarters and such other functions as may be assigned to it by the battalion commander.

■ 232. AMMUNITION SECTION.—This section is responsible to the corps ordnance officer for the supervision of such phases of the ammunition plan as may be delegated to it by that officer. (See FM 9-5 and 9-6.)

■ 233. MAINTENANCE AND SUPPLY SECTION.—This section is responsible to the commanding officer for the coordination and supervision of the maintenance and supply activities of the battalion.

a. Maintenance section.—(1) *Allocation of work.*—This section allocates the maintenance work of the corps to the various companies. For a discussion of the manner of allocation see paragraphs 226 to 230, inclusive, of this manual. This section also coordinates the activities of the contact parties of the battalion. For a discussion of the manner of this coordination, see paragraphs 229*d* and 230*d*.

(2) *Reports from companies.*—This section will be kept informed of the status of work in the various companies of the battalion by means of the "Tally In" form from the duplicate of the work order issued by the company (see par. 85*d*) and by the duplicate copy of the work order received from the company when the work is completed. (see par. 89*d*).

(3) *Files maintained.*—There should be maintained for each company in the battalion, two files. One should be a file of "Tally In" forms, which indicate the arrival of work in the shop, and the number and nature of the various jobs in the shop at any given time. The second file should be that of the duplicates of completed work orders. When these duplicates are received in the maintenance office, the "Tally

**Stenographic note-insert.*—All plans for the movement of the battalion must be coordinated with, and designed to suit the requirements of, the maintenance and supply section of the headquarters, and the companies of the battalion.

In" form for the same job should be removed from its file and be destroyed or placed in the "Completed" file with the duplicate work order.

(4) *Use of files.*—The file of "Tally In" forms is useful in determining the current load of any company as a basis for the allocation of additional work. The file of completed work orders is useful in the maintenance section as a check on the work performed by the various companies, and is necessary to the supply section for the posting of the master expenditure record (OFM 111) maintained in that section. (See fig. 40.)

b. Supply section—functions.—This section is responsible for—

(1) The consolidation of parts and materials, expenditure reports from the companies, and the preparation of such consolidations for submission to higher headquarters. (See par. 99.)

(2) The maintenance of a master expenditure record for the battalion. (See pars. 71–75, incl., and fig. 40.)

(3) The maintenance of a master file of "unfilled requisitions" for the supply of the battalion. (See pars. 91–96 and 107–108, incl.)

(4) The forwarding of requisitions from the companies to the army ordnance officer.

(5) The retention of one copy of each requisition for the master file mentioned in (3) above.

(6) The submission of requisitions for supplies whenever the master expenditure record indicates that it is necessary, or a study of the situation indicates that items not listed on the expenditure record are going to be needed. For reasons of accountability, this is usual only in the theater of operations.

(7) The institution and operation of a "follow-up" system on requisitions to higher authority.

(8) The arrangement for supply of matériel between companies when one company requisitions items which are in stock in another company. The fact that one company still has stocks can be established from the master expenditure record, and by inquiries to the companies.

(9) The informing of the companies of the dates when supplies requisitioned may be expected to arrive.

(10) The preparation and forwarding when required of a "Consolidation of Unfiled Requisitions"; OFM 109.

(11) The receipt and distribution to the companies of matériel received on a battalion supply office requisition.

(12) The preparation of studies concerning rates of expenditure of various parts and materials.

(13) The preparation of estimates of future requirements of the battalion for spare parts and materials.

PART FOUR

MEDIUM MAINTENANCE COMPANY IN CAVALRY
DIVISION

■ 234. SPECIAL CHARACTERISTICS.—*a. General.*—The cavalry division is a very mobile unit. The nature of its equipment, vehicles, and armament is such as to enable it to move rapidly across country in the most difficult type of terrain. The nature of its organization and tactics is such that regiments or brigades may be detached or separated from one another by wide distances and for days or weeks at a time.

b. Additional service load.—All of the above cited characteristics are such as to impose additional loads on the service echelons responsible for the maintenance and supply of such a unit, both by reason of the dispersion of units to be served, and of the hard service to which the equipment is subjected.

■ 235. ORDNANCE TROOPS.—A medium maintenance company (see T/O 9-7 and part two of this manual) is assigned to the cavalry division. It is authorized, in addition to the usual equipment, five 2½-ton cargo trucks, one tank maintenance truck, and one spare parts truck. The cargo trucks are provided for the transportation of the additional stocks of general supplies required for that division. The tank maintenance and the spare parts trucks are provided to care for the tanks of the reconnaissance squadron.

■ 236. COMMAND.—The division ordnance officer is the commander of all ordnance troops in the division, and as such is immediately superior to the company commander of the company.

■ 237. LOCATION OF THE COMPANY.—The medium maintenance company operates as a part of the service or rear echelon of the division. On the march the company will usually be in the motor column under the control of the column commander. On administrative marches the company will bivouac in the place assigned to it in the bivouac area of the

motor column. In tactical situations, the company will bivouac or set up its field shop in the area designated by G-4.

■ 238. ESTABLISHMENT OF FIELD SHOP.—In the establishment of the field shop, the provisions of paragraphs 179 to 189 are applicable with the following additions:

a. The field shop will be protected to the maximum degree possible, consistent with other considerations, from hostile air, ground, or artillery attack. In the cavalry division, the maintenance company is particularly vulnerable to all such attacks, because the nature of the operations of the division is such that the density of troops and protective installations is not as high as it is in corps or army areas.

b. Whenever possible, existing structures in small towns or hamlets may be used. This condition will be the exception rather than the rule in the cavalry division. In any event, nothing must be done that will hamper the mobility of the company or hinder its preparation for the march.

■ 239. OPERATION OF FIELD SHOP.—For a discussion of the operation of the field shop see part one.

■ 240. IDENTIFICATION OF FIELD SHOP AT NIGHT.—Since the combat troops will usually not endeavor to reach the field shop except at night, it is imperative that every necessary measure be resorted to in order to adequately mark the road to the shop. Since vehicles will be traveling without lights, it may be necessary to station men of the company at cross roads and junctions to give the proper directions, or to hold a protected beam light on a reflecting sign, to inform drivers as they approach.

■ 241. MAINTENANCE ON THE MARCH.—On the march, the maintenance company will be prepared at all times to dispatch emergency repair trucks properly equipped to perform all but major maintenance operations on any of the ordnance equipment of the division, particularly on scout cars, tanks, and artillery. When the division is traveling in two or more columns, it may be advisable to assign to each of the combat teams an emergency repair truck and additional vehicles for the transportation of mechanics, spare parts, and tools, in order that immediate repairs may be made promptly on the

march. By proper liaison between these parties and the main body of the maintenance company with the motor column, either through the radio net of the columns or by messenger, any situation that may develop may be handled satisfactorily.

■ 242. MAINTENANCE IN MARCH BIVOUACS.—In march bivouacs, every effort will be made to repair and place in satisfactory operating condition any ordnance matériel that may have become unserviceable during the march.

■ 243. SUPPORT OF DETACHED COMBAT UNITS.—In combat situations, the maintenance company will be prepared to support detached brigades or regiments or the reconnaissance squadron, with maintenance parties of sufficient size and with such equipment and spare parts as may be considered necessary for the operation. When such parties are to be separated from the company in excess of one or more days, the company will establish and operate a liaison service to the detached unit for the purpose of providing it with additional personnel, spare parts, and equipment as may be necessary. Usually, communication with such parties may be made through the forward echelon of the division command post or by motor messenger. The daily truck from the maintenance company will usually provide the communication necessary for all but the most unusual conditions.

■ 244. LIAISON WITH G-4.—In combat situations, the maintenance company will usually, as standard operating procedure, have at the forward echelon of the division command post and immediately available to G-4, a competent junior officer or noncommissioned officer with a motorcycle or other light, fast transportation. This individual provides the necessary liaison, in cases of rapid changes of the situation requiring an immediate movement of the maintenance company. This function may be performed by personnel of the ordnance section of division headquarters if approved by G-4.

■ 245. CONTACT SERVICE.—In combat situations a contact party should be sent to the location of the division ammunition office to repair or replace any unserviceable matériel brought to the rear for such service by the ammunition trains of the combat units. Whenever necessary, replacement items will be issued on request to the troops at this point or will be exchanged for unserviceable items which will be

promptly repaired. Contact parties at the division ammunition office will be prepared to go forward to the location of large items of ordnance matériel that require repairs and cannot be moved to the rear. Whenever information received indicates that the repair of the matériel is beyond the limitations of the equipment on hand, prompt steps will be taken to secure adequate equipment and perform the necessary service. (See pars. 190 to 195, incl.)

■ 246. **NORMAL FIELD SHOP OPERATIONS.**—Except in the situations described above, where close support of the combat troops is considered necessary, and in other special cases where detachments to the troops is obviously the wise thing to do, it should not be the policy to dissipate the skill and equipment of the company by habitually sending its components to the bivouacs of the troops. The combat troops should be notified of the location of the field shop of the company and should be expected to bring their equipment to this bivouac for repairs.

■ 247. **PREPAREDNESS FOR MOVEMENT.**—The company should maintain the field shop in such a state of order that it will be able to load up and move out in good order in a minimum time. There may be occasions when the safety of the company will depend upon a rapid departure from the bivouac area. (See pars. 183, 184, and 198.)

■ 248. **SUPPORT BY HIGHER ECHELONS.**—The maintenance company in the cavalry division, being an organic part of the division, operates as a distinct unit in the ordnance service of GHQ or an army. It must, however, always be supported by higher echelons of ordnance service in the matter of supply and maintenance. It will habitually be assigned as part of the responsibility of some higher echelon. This may be a corps or army ordnance battalion or a GHQ maintenance echelon. In such cases, it is the responsibility of the higher echelon to maintain contact with the cavalry division maintenance company, by means of such transportation as may be necessary to carry needed supplies to the company, and to remove such unserviceable weapons and equipment as is beyond the capabilities for repair of the maintenance company. In general, a truck sent daily to the field shop of the maintenance company will meet all requirements.

■ 249. REQUISITIONS FOR REQUIREMENTS.—It is the responsibility of the maintenance company in the cavalry division to notify the supporting ordnance service echelon of its requirements. This may be done by messenger, by message given to the daily truck forwarded by the higher echelon, or by other means.

■ 250. ADDITIONAL TRANSPORTATION FOR EXTENDED MISSIONS.—In cases where the cavalry division is operating as an independent unit at a considerable distance from larger units, it will be necessary to reinforce the ordnance maintenance company with additional transportation in order that it may carry the additional spare parts and replacement weapons that will be needed to bridge the time lag that will exist between the need for the items in the field and the receipt of such items from rear depots at the division railhead or truckhead.

PART FIVE

ORDNANCE SECTION OF INFANTRY DIVISION

CHAPTER 1

GENERAL

■ 251. GENERAL.—Maintenance operations in the infantry division are primarily the responsibility of the ordnance section of the infantry division. This part of this manual is devoted to a discussion of the operations of the ordnance section of the infantry division in the maintenance of the ordnance equipment of the division.

■ 252. MISSION.—The mission of the ordnance section-infantry division is the provision of ordnance service to the division.

■ 253. ORDNANCE SERVICE.—Ordnance service as provided by the ordnance section of the triangular division includes—
a. The provision of technical information and guidance pertaining to ordnance matters.

b. The performance, within its capabilities, of all necessary inspections and repairs to ordnance matériel of the division and the notification of the proper office in the supporting ordnance battalion when such work is beyond its capabilities.

c. The issue of ordnance general supplies to the troops.

d. The handling of the administrative details pertaining to the supply of ammunition to the division. (For these details see FM 9-6.)

■ 254. ORGANIZATION OF ORDNANCE SECTION.—The ordnance section of the triangular division is a part of the division headquarters. Its organization has been designed with a view to having within the section the numbers of trained personnel and sufficient equipment to handle the immediate ordnance service requirements of an infantry division. It includes three officers and twenty-two enlisted men and is

prescribed in Table of Organization No. 70-1. A chart of the organization of the ordnance section is shown in figure 41.

■ 255. EQUIPMENT OF ORDNANCE SECTION.—*a. General.*—The equipment of the ordnance section is listed in Table of Basic Allowances No. 7.

b. Description and use of vehicles.—(1) *Car, 5-passenger, light sedan.*—This car is for the personal use of the division ordnance officer, or as he may direct.

(2) *Truck, ¼-ton, 4 x 4.*—This vehicle is used primarily for contacting higher and lower echelons of maintenance and for general messenger service. It may also be used to transport maintenance personnel to locations not otherwise accessible to such personnel.

(3) *Truck, emergency repair.*—Emergency repair trucks are ½-ton, 4 x 4, special body (telephone company type). They are assigned one to each maintenance party. In general, none of the equipment carried in these trucks is rigidly fastened thereto. However, in certain instances it may be advisable to secure such items as specially built tool cabinets, certain types of portable electric generators, gas cylinders for welding outfits, etc. The list of the major items of equipment carried on these trucks is contained in the appropriate Standard Nomenclature List.

(4) *Trailer, 1-ton, 2-wheel.*—This vehicle is for the transportation of office equipment, folding chairs, tables, safe, lanterns, tentage, bedding rolls, etc. Table of Basic Allowances No. 7 should be consulted to determine the completeness of organizational and individual equipment on hand, and in the preparation of loading plans.

(5) *Additional transportation.*—Additional transportation required to transport office equipment and supplies in excess of the load carried on the 1-ton trailer, and the transportation required to haul the trailer, will be obtained from the headquarters and military police company of the division headquarters. The normal requirements of the ordnance section for additional transportation in this category will include two trucks, 2½-ton, cargo, one each to the division ammunition office, and the division maintenance office.

ORGANIZATION OF THE ORDNANCE SECTION, INFANTRY DIVISION (TRIANGULAR)

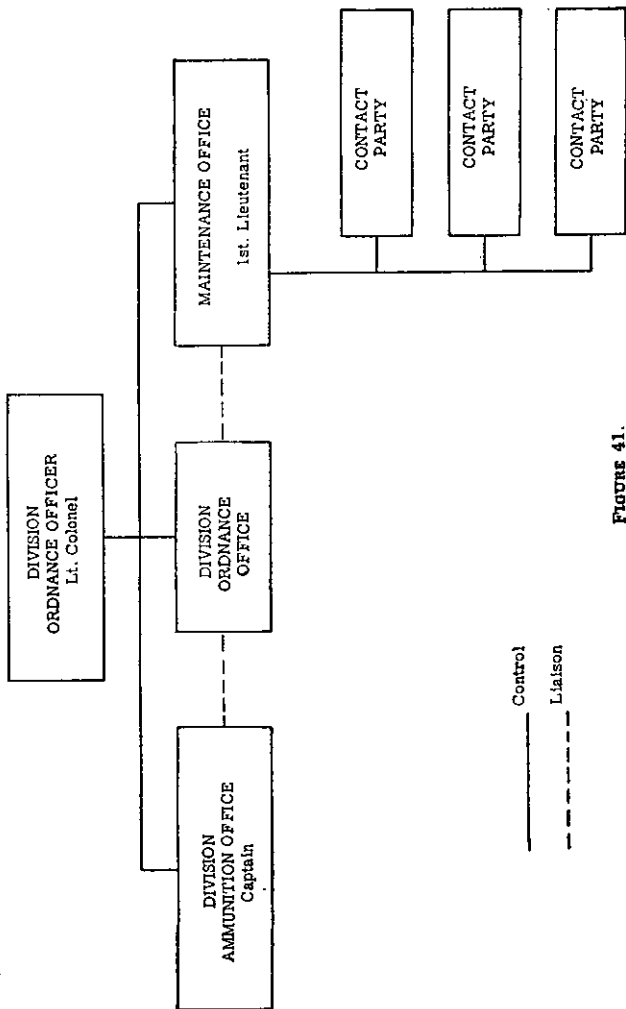


FIGURE 41.

■ 256. ADMINISTRATION OF SECTION.—The members of the division ordnance section are assigned to the headquarters and military police company of the division. All matters pertaining to the routine administration of military personnel are the responsibility of the commander of that company.

■ 257. TECHNICAL CONTROL AND TRAINING.—The technical control and training of the members of the section is the responsibility of the division ordnance officer. This responsibility extends to the control of the assignment of grades and ratings to members of the section.

■ 258. DETAIL OF ORDNANCE TROOPS TO OTHER DUTIES.—In accordance with the provisions of AR 45-30, members of the division ordnance section are exempt from detail for any other duty outside the duties of the section, except when in the opinion of the division commander the importance of the other duty is greater than that of training the section to perform its function in the field.

■ 259. LOADING OF VEHICLES.—The loads of the vehicles described in paragraph 255 are dictated by their assignment. In the division ammunition office, loads will generally consist of office equipment, tentage, and miscellaneous items such as personal equipment of the personnel of the office. In the division maintenance office, the loads will consist of tools, spare parts, and accessories, repair materials, major items, cleaning and preserving materials, tentage, office equipment, and personal equipment of the men assigned to the maintenance section. When movements requiring the transportation of the equipment and personnel of the division ordnance office are necessary, such equipment may be carried by the transportation of the division ammunition office, or on transportation furnished by the division headquarters company. All loads will include the personnel who must be transported by the transportation assigned.

■ 260. REFERENCES.—Reference should be made to parts one and two of this manual for discussions of important aspects of the ordnance maintenance problem which are of equal importance in any discussion of maintenance in the infantry division.

CHAPTER 2

DIVISION ORDNANCE OFFICE

■ 261. GENERAL.—The division ordnance office is the headquarters or base of operations of the division ordnance officer. It is located at the forward echelon of the division CP. The division ordnance office serves as a coordinating and planning agency for the division ordnance officer, and includes the necessary clerical personnel, chauffeurs, and equipment to enable that officer to accomplish his mission efficiently. This office receives and transmits to the proper office of the section the orders of the division ordnance officer. It secures, when necessary, such information from the other offices as may be required by the division ordnance officer. It maintains such correspondence, map, and order files as may be required. It will, when directed by the division ordnance officer, maintain a situation map covering the location of the maintenance parties, or other matters which may be of interest to the division ordnance officer. It will prepare such studies and tabulations concerning the equipment of the division as may be required by the division ordnance officer.

■ 262. DIVISION ORDNANCE OFFICER.—The division ordnance officer is a member of the division special staff. He is in command of the ordnance section and is responsible for the efficient functioning of ordnance service in the division. He will be guided in his operations by the provisions of FM 9-5, 9-6, and this manual.

■ 263. DUTIES OF PERSONNEL OF THE DIVISION ORDNANCE OFFICE.—*a. Chief clerk.*—The chief clerk is responsible to the division ordnance officer for all the clerical work in connection with the operation of the entire section. This includes supervision of the records kept by the maintenance office and the ammunition office, as well as all files and records maintained at the headquarters of the section.

b. Assistant to the chief clerk.—The assistant to the chief clerk will perform such clerical duties as are assigned to him by the division ordnance officer and the chief clerk.

c. Chauffeur.—This soldier is the chauffeur of the passenger car. He is responsible for the maintenance and care of this vehicle and performs such other duties as are assigned to him by the division ordnance officer.

d. Messenger-chauffeur.—This soldier drives a $\frac{1}{4}$ -ton truck and functions as a messenger or as a chauffeur when the truck is used by the division ordnance officer or other member of the division ordnance office. He may be used, when necessary, as a liaison agent between the offices of the section, and may also be utilized to transport maintenance personnel to locations not otherwise accessible to such personnel.

CHAPTER 3

MAINTENANCE SECTION

■ 264. GENERAL.—The maintenance section is the agency of the division ordnance officer responsible for carrying out the maintenance mission of the section. It is subdivided into an office section and three maintenance parties, as shown in figure 41.

■ 265. MAINTENANCE OFFICE.—*a. Functions.*—The office of the maintenance section is responsible for the—

(1) Preparation of all plans for maintenance operations.

(2) Preparation of all estimates of parts, materials, major items, and general supplies required as basic loads for the vehicles of the section.

(3) Notification of the supporting corps ordnance battalion supply officer of the requirements of the office for the materials listed in (2) above.

(4) Institution and prosecution of any follow-up procedures necessary to insure proper supply from the corps battalion.

(5) Storage of a proper reserve of supplies, and the issue of these supplies to the contact parties and to the troops of the division.

(6) Preparation of schedules for the contact parties and the keeping of the records of the contacts and inspections made by them.

(7) Submission from time to time to the division ordnance officer of such reports as may be required by that officer covering the status of supply and the serviceability of the equipment of the division.

(8) Submission to the supporting ordnance battalion, in the name of the division ordnance officer, of requests for such special contact parties as may be required to assist the contact parties of the sections.

(9) Preparation in time of peace, or in the zone of the interior, of the expenditure reports necessary to relieve the supporting ordnance battalion of accountability for expend-

able items of ordnance supply used by the maintenance parties of the section, or issued directly to the troops.

(10) Maintenance in time of peace, or in the zone of the interior, of the records necessary for the proper handling of nonexpensible ordnance supplies issued to the maintenance office.

b. Location.—The location of the maintenance office will be dictated by circumstances and the road net over which the division is operating. When the division ammunition office is located at some point along the road net on the axis of supply for the division, a suitable location for the maintenance office would be near the division ammunition office in such a position that it could provide maintenance service to the troops coming to the rear for ammunition. When the division ammunition office is not suitably situated for such a combination, the location of the maintenance office will be determined by the requirements of the situation. In general, a good location will be near the rear echelon of the division CP where messages from the front may be promptly received and acted upon. The terrain factors governing the location of the maintenance office are the same as those governing the location of the field shop as discussed in part two of this manual.

■ 266. CONTACT PARTY.—*a. Mission.*—The mission of the contact party is to carry ordnance service to the combat troops of the division.

b. Assignments.—Each party of the division is normally assigned to the support of one of the combat teams. Each party may also have additional assignments to the support of other troops of the division. Any other disposition or assignment of contact parties considered necessary to the solution of particular problems will be made by the division ordnance officer.

c. Maintenance operations.—Maintenance operations of the contact parties will usually extend only to the—

- (1) Inspection of weapons.
- (2) Accomplishment of repairs to ordnance matériel which is within their capabilities.
- (3) Issue of ordnance general supplies to the troops. The parties will make regularly scheduled and emergency visits to the troops as may be necessary for the purpose of providing such ordnance maintenance service as may be required.

■ 267. NORMAL MAINTENANCE.—Contact parties will, whenever possible and necessary, support the units to which they are assigned by close, continuous contact. Because of the number of different units to be supported, this may not always be possible. However, whenever circumstances permit, close contact will be maintained with units engaged in combat in order to provide them with the immediate skilled assistance that they need when it is most important. Contact parties must not, however, become engaged in combat nor unduly risk the loss of their equipment.

■ 268. MAINTENANCE ON THE MARCH.—On the march it will usually be advisable to assign a contact party with its emergency repair truck to each of the combat teams in order that immediate repairs and all but major maintenance operations may be made on any of the ordnance equipment of the division on the march. By proper liaison between these parties and the main body of the maintenance section with the motor column, either through the radio net or by messenger, any situation that may develop may be satisfactorily handled.

■ 269. MAINTENANCE IN MARCH BIVOUACS.—In march bivouacs, every effort will be made to repair and place in satisfactory operating condition any ordnance matériel that may have become unserviceable during the march.

■ 270. SUPPORT OF DETACHED COMBAT UNITS.—In combat situations, contact parties may be assigned to the support of detached combat teams. When such parties are to be separated from the section, the load of the emergency repair truck should include the equipment and spare parts necessary for the operation. When the separation is in excess of one day, the ordnance section will establish and operate a liaison service to the detached unit for the purpose of providing it with additional spare parts and equipment as may be necessary. Usually communication with such parties may be made through the forward echelon of the division CP, or by motor messenger.

■ 271. SERVICE BEYOND CAPABILITIES OF PARTY.—Whenever service which is beyond the capabilities of the contact party, or is of a major nature which should be performed by the supporting ordnance battalion, is required, the maintenance office will be promptly notified. Such notification should in-

clude an estimate of the parts, materials, equipment, and men required to accomplish the repairs. The maintenance office will then notify the proper office of the corps maintenance battalion to secure the accomplishment of the needed repairs. A maintenance party from the corps battalion will then accomplish the repairs in accordance with the principles prescribed in part two. If the matériel may not be repaired in the field, the contact party will arrange with the organization to which the matériel belongs to take it to the ordnance battalion. If the organization does not have the facilities or transportation to accomplish the movement, the maintenance office will arrange with the corps maintenance battalion for the necessary facilities to move the matériel.

■ 272. SUPPORT BY HIGHER ECHELONS.—The maintenance section in the infantry division, being an organic part of the division, operates as a distinct unit in the ordnance service. It must, however, always be supported by higher echelons of ordnance service in the matter of maintenance and supply. It will habitually be assigned as part of the responsibility of some higher echelon. This will usually be a corps ordnance battalion or a GHQ maintenance echelon. In such cases it is the responsibility of the higher echelon to maintain contact with the division ordnance section by means of such transportation as may be necessary to carry needed supplies to the section and to remove such unserviceable weapons and equipment as is beyond the capabilities for repair by the section. In general, a daily truck to the maintenance office of the section will suffice to meet all requirements. In combat situations, the supporting maintenance company should send a contact party to the location of the division ammunition office to repair or replace any unserviceable matériel brought to the rear for such service by the ammunition trains of the combat units. Whenever necessary, replacement items will be issued on request to the troops at this point, or will be exchanged for unserviceable items which will be promptly repaired. Contact parties at the division ammunition office will be prepared to go forward to the location of large items of ordnance matériel which require repairs and which cannot be moved to the rear. Whenever information received indicates that the repair of the matériel is beyond the limitations of the equip-

ment on hand, prompt steps will be taken to secure adequate equipment and perform the necessary service.

■ 273. SUPPLY OF THE SECTION.—*a. How effected.*—The supply of the ordnance section-infantry division (triangular) in the theater of operations is effected through the maintenance officer who prepares such requisitions and requests for supplies for the section as he may find to be necessary. These requisitions or requests are transmitted through the division ordnance officer to the ordnance supply agency designated to support the section. This may be a specific maintenance company, or the supply office of the supporting ordnance battalion.

b. Local procurement of supplies.—It will sometimes happen that items required in maintenance operations of the section may be procured locally. This will be particularly true of such items as certain types of automotive parts, lubricants, cleaning and preserving materials, and metal stock. Such procurement should be effected whenever possible.

c. Resupply of section.—Resupply of the maintenance office and contact parties is effected by the maintenance parties from the corps ordnance battalion. These parties come forward daily, or as often as the situation requires, to resupply the maintenance office with the necessary ordnance supplies, and to perform such maintenance work as may be requested by the maintenance office.

d. Issues of material to the section.—(1) *Accountability in time of peace.*—In time of peace, or in the zone of the interior, ordnance stores carried by the maintenance office of the division ordnance section must be carried on a stock record account. Since the ordnance section does not have a stock record account, these stores may be carried on the account of the headquarters and military police company of the division, when the division is operating alone. When the division is operating with a corps, the stores may be carried on the account of one of the companies of the corps ordnance battalion. In such cases, the initial stocks of material are issued to the maintenance office on memorandum receipt. Replenishment of stocks of expendable items is accomplished by use of the work order as described in paragraph 274b. The maintenance officer is responsible for the total of all items issued on memorandum receipt and on work

orders until he furnishes the supporting company with a certificate of expenditure approved by the division commander for the items not on hand.

(2) *Issue of nonexpendable items.*—In time of peace or in the zone of the interior, nonexpendable items will be issued to the maintenance office only on memorandum receipt on direct exchange or by shipping ticket to the commander of the headquarters and military police company. Such items presented for exchange should always be accompanied by a certificate of fair wear and tear, or when necessary by a report of survey or a statement of charges.

■ 274. ISSUES TO COMBAT UNITS.—*a. General.*—The requirements of the combat troops for spare parts and accessories to maintain complete spare parts kits and for cleaning and preserving materials will be met by issues to the troops of such materials either by the contact parties or by the maintenance office. For a discussion of expendable and nonexpendable material, see paragraph 19.

b. Use of work order (OFM 103).—All issues of supplies, and all jobs performed in maintenance activities by the maintenance parties will be covered by a work order (OFM 103), which will be completed in the usual manner. (See pars. 77 and 90.) A single copy of this order will suffice. This copy is the voucher upon which the party receives replenishment from the maintenance office, and the voucher upon which the maintenance office receives a resupply from the supporting ordnance battalion.

■ 275. SALVAGE OPERATIONS.—All personnel of the contact parties and the maintenance office will be alert to salvage ordnance matériel and to receive salvaged matériel from the combat troops. Salvaged matériel is taken from the salvage service only in such quantities as are necessary to meet the requirements of the situation. Serviceable or repairable ordnance matériel will be returned to service by reissue to the troops as required. Matériel that is in excess of requirements or that is not repairable by the maintenance office will be turned over to the maintenance parties of the corps battalion, or returned to the salvage service for transportation to rear establishments.

■ 276. USE OF FORMS.—*a. General.*—Forms suggested herein for use in maintenance operations of the division ordnance section have been fully described in paragraphs 67 to 112. If the requirements of coordinated planning, and continued efficient operation are to be met, certain of these forms must be used in the division maintenance office.

b. Special forms required.—The following is a list of the special OFM forms required for use in the maintenance office:

- (1) Consolidation of Parts Used (OFM 102).
- (2) Work Order (OFM 103).
- (3) Bin Card (OFM 104).
- (4) Expenditure Record (OFM 105).
- (5) Work Order Register (OFM 106).
- (6) Status of Field Service Modification Work Orders (OFM 108).
- (7) Consolidation of Unfilled Requisitions (OFM 109).
- (8) Want List (OFM 110).

c. Records maintained.—The following is a list of the permanent records maintained in the maintenance office:

- (1) Expenditure Record (OFM 105).
- (2) Work Order Register (OFM 106).
- (3) Consolidation of Unfilled Requisitions (on OFM 109), kept with file of "Unfilled Requisitions."
- (4) Status of Field Service Modification Work Orders (OFM 108).

d. Files maintained.—The following is a list of the files maintained in the maintenance office:

- (1) Work Orders (Completed).
- (2) Inspection Reports.
- (3) Consolidation of parts used (on OFM 102).
- (4) Miscellaneous files of Army Regulations and ordnance publications.

e. Reports to higher authority.—From time to time various reports will be required from the section by higher authority. The following are some that may be required:

- (1) Consolidation of Parts Used (OFM 102).
- (2) Inspection Reports on matériel maintained by the section.
- (3) Status of Field Service Modification Work Orders.

■ 277. DUTIES OF PERSONNEL.—*a. Officer in charge of the maintenance office.*—This officer is in charge of the maintenance

operations of the ordnance section. He dispatches the maintenance parties and supervises their work. When necessary, he calls on the corps maintenance battalion for assistance. He is responsible that the records of spare parts and materials expended are properly kept. He maintains a record of major ordnance items on hand in the division. This record will be maintained by serial numbers.

b. Chief clerk.—This soldier keeps the records of the maintenance office and of the maintenance parties. These records show units contacted, work performed, spare parts expended, general condition of ordnance matériel, etc. He also handles the details in connection with the operations of the maintenance office as assistant to the officer in charge.

c. Stock and record clerks.—These soldiers assist the chief clerk in his various duties and keep the records and reports.

d. Personnel in the maintenance parties.—Each maintenance party is composed of two specialists. One of these is an artillery mechanic, and the other an armorer. They work together with an emergency repair truck equipped with hand tools, spare parts, a few replacement weapons (small arms), and cleaning and preserving materials. The repair teams assist in every way possible in keeping the division ordnance equipment in good condition.

CHAPTER 4

DIVISION AMMUNITION OFFICE

■ 278. GENERAL.—In organizing and training the personnel of the division ammunition office, a clear picture of the mission of such an office must be kept constantly in mind. The staff must be so trained that operations will be properly carried out even in the absence of the division ammunition officer. The duties of that officer require his presence in many places, keeping in close touch with the changing situation, contacting the various agencies that will furnish his office with the necessary information for maintaining control of the ammunition situation. If the division ammunition officer is a casualty, his staff must be prepared to carry on until a replacement is secured. With this in mind, he should keep his second in command fully informed at all times of the pertinent policies of the division ordnance officer for the functioning of the ammunition office, and should assign responsible duties to the noncommissioned officers on his staff. The clerical assignment should be rotated from time to time in order that any man may be capable of replacing another in an emergency without seriously affecting the operating efficiency of the office as a whole. In fast moving situations, division ammunition supply personnel will be called to operate on a 24-hour basis. In such situations the office staff will have to operate in relays. Otherwise, sleepy and overworked staffs may lead to incomplete and inaccurate reports, and in all probability will give a false picture of the ammunition status to higher commands. The division ammunition officer should keep his staff informed as to what is taking place. A well informed staff, alert to the problem on hand, will operate more efficiently than a group of men working without any knowledge of the situation.

■ 279. ORGANIZATION.—*a. General.*—This subsection includes in its organization, an ammunition officer, or assistant munitions officer, and several enlisted men. With the exception of a motorcycle driver, all of the enlisted personnel should

have clerical ability, and at least one of them should be capable of driving a truck.

b. Organization of ammunition office staff.—(1) *Personnel.*—The following is a list of the duties to which the personnel in the division ammunition office may be assigned:

Chief clerk.	Record clerks (OFM 320 and 301).
Chief clerk (alternate).	
Routing and traffic control.	Report clerks (OFM 303 and 304).
Check of OFM's 302.	Messenger-chauffeur.

(2) *Organization.*—The personnel of the division ammunition office should be divided into three groups as follows (see fig. 42):

(a) *Chief clerks.*—This group is composed of the three non-commissioned officers. They assign the duties and supervise the work of the office staff. The sergeant is specifically in charge of traffic control and routing the ammunition trains to the proper supply point. This group is also responsible for the final check of completed transportation orders for accuracy and completeness.

(b) *Records.*—The clerks assigned to this group are responsible for maintaining the proper records of allocations (OFM 301) and keeping the Credit Record (OFM 320) up to date.

(c) *Reports.*—These clerks are responsible for receiving the Ammunition Reports (OFM 303) from the troops of the division and for the preparation of the report (OFM 304) for transmission to corps. The accompanying chart, figure 42, shows a method of setting up the office and prorating the necessary paper work.

■ 280. OPERATIONS.—*a. Use of forms.*—Personnel in the division ammunition office should have a thorough knowledge of the various ammunition supply forms, and of the information called for thereon. In the event that the required forms are not available in the quantities needed, improvised forms, or plain pieces of paper with the proper notations may be used to take their place. During the training period, field exercises with and without the supply forms should be held as a test of the operating efficiency of the staff of the office. For complete information on ammunition supply procedure see FM 9-6.

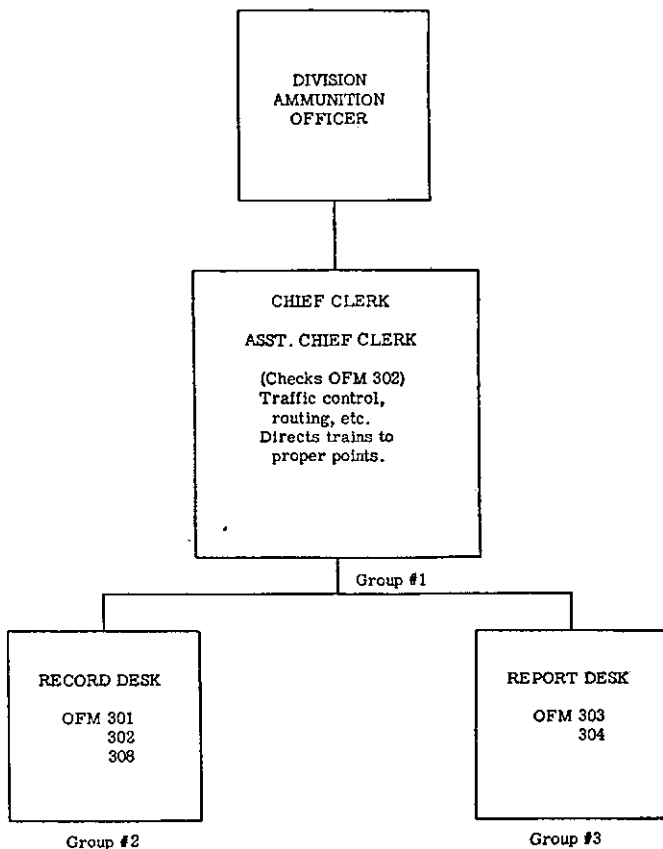
DUTIES OF THE CLERICAL STAFF OF THE DIVISION
AMMUNITION OFFICE

FIGURE 42.

b. Requirements of chief clerk.—The chief clerk must have a thorough knowledge of ammunition supply as prescribed in FM 9-6. He should have a fair knowledge of ammunition in general, and be an expert on storage, identification, safety, handling rates, and transportation of explosives. If at all possible, it would be preferable for the chief clerk to be a graduate of the ammunition course for specialists conducted by the ordnance school. He should have a thorough knowledge of all duties performed by the division ammunition officer so that this officer may be freed from the office routine and enabled to carry out his duties of liaison and the gathering of information.

c. Requirements of clerks.—The clerks assigned to the ammunition office should all have a good clerical background, and be impressed with the importance of accuracy and efficiency in their work. At least one of them should be capable of driving a truck.

■ 281. DUTIES OF PERSONNEL.—*a. Officer in charge of the division ammunition office.*—The officer in charge of the division ammunition office is responsible for its efficient functioning. He will perform such phases of the ammunition administrative problem as may be delegated to him by the division ordnance officer. He will be guided in his actions by the provisions of FM 9-6. The principal duties which may be delegated to him are as follows:

(1) Render technical assistance to the division ordnance officer in formulating the division ammunition plan.

(2) Maintain the records, and consolidate and submit ammunition reports to the division ordnance officer for transmission to the next higher command as directed by that headquarters.

(3) Carry out the policies of the division ordnance officer in regards to the coordination and control of ammunition resupply within the division.

(4) Keep alert to the changing tactical situation so that intelligent plans may be formulated to cope with any given problem.

(5) Maintain active liaison between the various munitions officers and ammunition depots.

b. Chief clerk.—The duties of the chief clerk are as follows:

(1) Assign and supervise the clerical work of the staff of the division ammunition office.

(2) Prepare working schedules and reliefs so that the division ammunition office may work on a 24-hour basis when necessary.

(3) Instruct the personnel of the division ammunition office as directed by the division ammunition officer.

(4) Handle routine correspondence and office administration under the direction of the ammunition officer.

(5) Keep constantly informed of the ammunition situation within the division.

(6) Assist the division ammunition officer in selecting the site for the division ammunition office and such other duties as he may assign.

c. Clerks.—The clerks assigned to the ammunition office carry out the necessary routine matters pertaining to the keeping of the necessary records and the preparation of reports to higher headquarters. The assignment of duties and the supervision of the work is the responsibility of the chief clerk.

PART SIX

ORDNANCE BATTALION, MAINTENANCE,
ARMORED DIVISION

CHAPTER I

GENERAL

	Paragraphs
SECTION I. General	282-294
II. Location of the field shops.....	295-297
III. Allocation of work.....	298-299

SECTION I

GENERAL

■ 282. MISSION (see pars. 139-141, incl.)—The mission of the ordnance battalion, maintenance, armored division is to provide ordnance services to all units of the division. This mission is divided into two categories:

a. The inspection and repair of all ordnance matériel within the entire division.

b. The supply of ordnance materials to the maintenance sections of the various division units.

■ 283. SPECIAL CHARACTERISTICS.—The armored division is a highly mobile and rapidly moving organization. In order to insure prompt servicing of the division ordnance matériel, the ordnance battalion must keep well up with the combat units. It should be prepared at all times to move quickly and on short notice. The nature of the armored division is such that tactical situations might require its units to be dispersed over wide areas on separate missions for days or even weeks at a time. Consequently, the ordnance battalion must be so organized that its components can be detached as more or less independent units in support of detached divisional units when the need arises.

■ 284. ORGANIZATION OF ORDNANCE BATTALION, MAINTENANCE, ARMORED DIVISION.—The organization of the ordnance battalion, maintenance, armored division is prescribed in the

ORDNANCE BATTALION, MAINTENANCE, ARMORED DIVISION

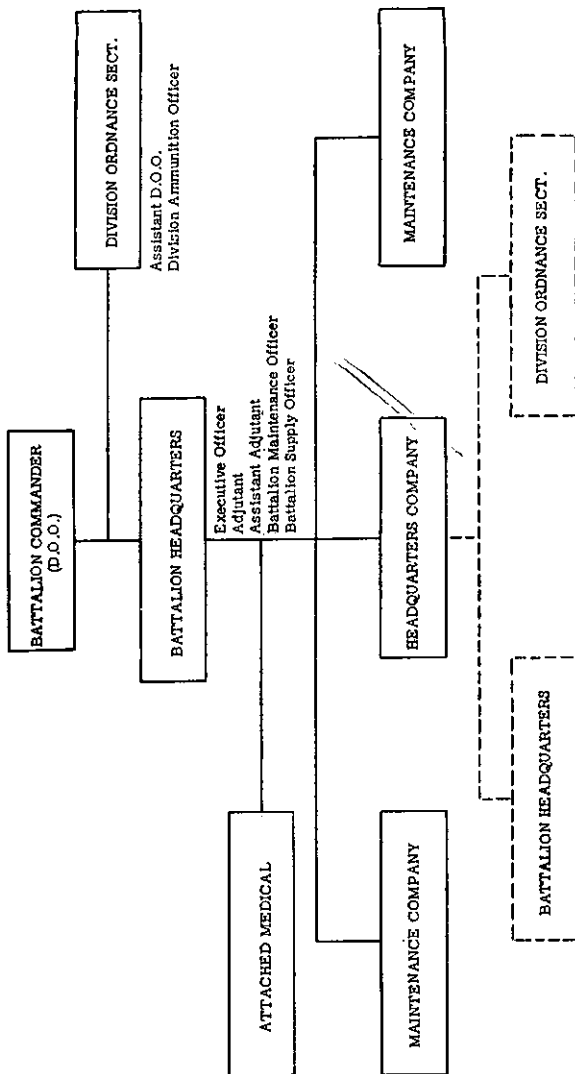


FIGURE 43.

Table of Organization No. 9-65. It is composed of battalion headquarters and headquarters company, which includes the division ordnance section (see T/O 9-66); two ordnance companies, maintenance; and attached medical personnel. Figure 43 shows a diagram of the organization.

■ 285. EQUIPMENT OF ORDNANCE BATTALION, MAINTENANCE, ARMORED DIVISION.—*a.* The vehicles and armament assigned to the ordnance battalion, maintenance, armored division, are listed in T/O 9-65, 9-66, and 9-67, and T/BA 9. It will be noted that the headquarters company has the preponderance of spare parts and cargo trucks. This is due to the fact that headquarters company is employed as a base company for the supply of ordnance spare parts and materials to all maintenance units of the entire division.

b. The $\frac{1}{4}$ -ton trucks assigned to the ordnance battalion are used for contact, liaison, and messenger purposes, and for train protection when mounted with 37-mm guns.

c. Because of the large number of vehicles involved, and because of its high mobility, each company of the ordnance battalion will consume extremely large quantities of gasoline. To accommodate this condition, one truck, 2 $\frac{1}{2}$ -ton, 6 x 6, tank, 750-gallon, is included in the equipment of each company.

d. For the number and types of ordnance vehicles assigned to the battalion, see T/O 9-65, and T/BA 9, and also paragraph 149.

■ 286. TRAINING OF THE BATTALION.—The efficient operation of the ordnance battalion depends upon the proper training of both officer and enlisted personnel. The discussion of this matter contained in paragraph 214 is applicable to the ordnance battalion, maintenance, armored division. Both technical and military training should be conducted with the following objectives in mind:

a. Officers and noncommissioned officers of each company must be capable of administering their units independently for extended periods, i. e., when on detached missions. (See par. 283.)

b. All officers, and as many noncommissioned officers as possible, should be capable of making technical inspections and reliable diagnosis of ordnance vehicles, small arms, and

artillery. These men may be called upon at any time to conduct a contact party.

c. Several officers and noncommissioned officers should be capable of making technical inspections of fire-control instruments.

d. All officers, including supply officers, should be familiar with maintenance operations and should thoroughly understand terms and nomenclature pertaining thereto.

e. All officers should be familiar with the ordnance system of supply, with standard nomenclature lists (SNL's), field service bulletins, and all other special ordnance publications pertaining to equipment in the Armored Force.

f. Personnel, both officers and enlisted men, must be rotated when possible, so that they are familiar with the operations of other personnel and sections of the battalion. This will accomplish two things:

(1) It will enable the personnel to better coordinate their activities into the teamwork of the whole unit.

(2) It will enable both officer and enlisted personnel to function in other than their routine jobs when an emergency arises.

g. All officers and noncommissioned officers must be thoroughly trained in the principles of train protection, camouflage, and the organization and operation of bivouac areas. (See pars. 179-189, incl.)

h. All personnel should be familiar with the operation of all weapons and the driving of all vehicles as it may be frequently necessary to provide drivers for any type of vehicle in the division, and in the case of attack by the enemy, to use any weapon which may be available in the bivouac area.

■ 287. EFFECT OF TACTICAL SITUATIONS ON THE OPERATION OF THE ORDNANCE BATTALION.—*a. General.*—The conditions discussed in paragraph 214 regarding the corps battalion apply equally to the ordnance battalion, armored division.

b. Maintenance company on detached mission.—At times the tactical situation might be such that the armored division would separate into two or more columns (see par. 283). When this situation develops, a maintenance company, or detachment therefrom, may be dispatched to follow one column. This company must be capable of functioning inde-

pendently for days or even weeks at a time. It will be responsible for furnishing ordnance service to the unit to which it is assigned. (See par. 243.)

■ 288. MAINTENANCE BY COMBAT UNITS.—Combat units should be impressed with their responsibility for first and second echelon maintenance of ordnance matériel. This is particularly true of the automotive matériel. The manner of employment of these vehicles and the terrain they will travel over are such that an extremely heavy service load will be imposed upon the ordnance battalion unless the line organizations assume their share of the load. Drivers and crews must be trained to effect preventive maintenance at every opportunity. This includes proper and frequent lubrication, checking air pressure in tires, cleaning filters and sediment bowls, etc. Second echelon maintenance, i. e., minor mechanical adjustments and overhaul, and replacement of spare parts units, is performed for each regiment in the regimental maintenance shops. The extent to which these shops will perform unit replacement operations will depend upon the skill, time, tools, and materials available for doing the job. In addition, the regiments will perform all operations incident to making periodic checks on tanks. The 100-hour check involves the removal and replacement of the tank engine. If the engine is found to be unserviceable, it may be replaced by the regimental maintenance unit with a spare engine secured from the ordnance battalion.

■ 289. MAINTENANCE BY ORDNANCE BATTALION.—The ordnance battalion is responsible for all maintenance beyond the capabilities of combat units. It will perform major overhauls and will repair and rebuild spare parts. Its equipment is adequate to accomplish almost any type of automotive repair. Time is the element which restricts the extent to which the ordnance battalion will go in effecting repairs of ordnance matériel. The repair of small arms, artillery, and instruments will usually be carried only to the unit replacement stage. Unserviceable instruments will usually be sent to the headquarters company for repair.

■ 290. DIVISION OF RESPONSIBILITY.—The division of responsibility indicated is designed to relieve the ordnance battalion of the burden of routine operations in order that it may con-

centrate on work requiring highly skilled mechanics and more elaborate shop equipment. While this general line of demarcation has been drawn, there can be no set rule as to where responsibility for maintenance begins and ends. In combat, when ordnance matériel is damaged or immobilized, the motto of every man must be, "Do something to remedy the situation." Each maintenance unit in the division should do everything within its means to keep all matériel in serviceable condition at all times. However, repairs should not be attempted unless adequate tools, equipment, and time are available to complete the job. If these elements are not available the job should be turned over to a higher echelon of maintenance.

■ 291. SALVAGE OPERATIONS.—The salvage of parts from ordnance matériel damaged in the combat zone will be conducted by the battalion when this is expedient. When matériel is so badly damaged that it must be evacuated to higher echelon ordnance shops, the ordnance battalion may, if its stocks are depleted, strip this matériel of its parts prior to evacuation in order to obtain replacement units urgently needed to accomplish immediate repairs. Unserviceable units corresponding to those removed from the matériel should be included with the major item when evacuated.

■ 292. LIAISON OPERATIONS.—*a. General.*—Continuous liaison between the ordnance battalion and the divisional maintenance units is necessary to insure prompt and adequate maintenance support of division combat units. Each maintenance unit of the division has a motor officer whose primary duty it is to know at all times the maintenance requirements of his unit and the location and status of disabled matériel coming under his jurisdiction. Liaison parties (see par. 1) from the ordnance battalion will contact these motor officers periodically each day to ascertain the ordnance maintenance situation of the units. This information will be transmitted to the battalion maintenance officer who will use it as a basis for the dispatch of contact and recovery parties. (See par. 1.)

b. Liaison parties.—A liaison party will usually consist of one officer, one noncommissioned officer, and a messenger. The first two persons will be assigned a ¼-ton truck for their

transportation, and the messenger will ride a solo motorcycle. One or more officers will be designated as liaison officers by the battalion commander at his discretion. If deemed necessary by the battalion commander, liaison parties may be attached to the headquarters of particular units for specific operations. The mission of each liaison party is as follows:

(1) To collect information regarding the ordnance maintenance situation and to transmit this information to the battalion maintenance officer.

(2) To inspect disabled matériel and decide whether it must be evacuated to the ordnance battalion shops, or whether it can be repaired on the spot by ordnance contact parties. This function makes it imperative that liaison officers and noncommissioned officers be trained as expert diagnosticians of all ordnance matériel in the division. (See par. 286.)

(3) To call for contact or recovery parties from the ordnance battalion in accordance with the decisions made in (2) above. (See par. 293.)

(4) To check on the condition of all ordnance matériel and to note the effectiveness of the first and second echelon maintenance carried out by the maintenance sections of the combat units. (See par. 290.)

■ 293. OPERATION OF RECOVERY PARTIES.—*a. Collecting points.*—Just before the division moves into combat, G-4, in conjunction with the division ordnance officer, will establish a collecting point. (See par. 1.) This point will be located fairly close behind the battlefield, usually from 5 to 10 miles, and near the axis of supply and evacuation. The collecting point is an area to which damaged matériel will be removed from the battlefield for subsequent distribution to the ordnance battalion shops. Careful consideration must be given to camouflage and dispersion of the matériel in this area because of the hazard of enemy aerial attack.

b. Unit recovery sections.—Immediate evacuation of damaged matériel from the battlefield will be effected by recovery sections of the divisional combat units. It will be their responsibility to tow to the collecting point such matériel as cannot be repaired by the unit maintenance personnel.

c. Recovery parties of the ordnance battalion.—Each maintenance company of the ordnance battalion has a recovery

section comprised of four 10-ton wrecking trucks and their crews. The employment of these recovery sections is controlled by the battalion maintenance officer through the company commanders. Ordnance liaison officers will contact the collecting point, survey the situation, and notify the battalion maintenance officer as to the number of wreckers and crews necessary to move the damaged matériel to the ordnance battalion shops (see par. 292). The battalion maintenance officer in turn will direct the company commanders to dispatch recovery parties consisting of sufficient personnel and equipment to accomplish the mission. These recovery parties will proceed to the collecting point and will evacuate all matériel which cannot be repaired on the site.

d. Contact parties (see pars. 190 to 195, incl.)—As in *c* above, liaison parties will notify the battalion maintenance officer regarding the number and types of vehicles, at the collecting point, which can be repaired on the site, and the extent of damage to this matériel. The battalion maintenance officer will then dispatch contact parties to accomplish the necessary repairs at the collecting point. The number of vehicles and personnel, and the equipment comprising the maintenance parties, will be prescribed by the maintenance officer. When repairs are made by the contact parties, they will be covered by work orders (OFM 103), and any spare parts used will be noted thereon. When it is impracticable to execute the work orders at the time the job is done, they will be made out upon returning to the battalion bivouac area.

■ 294. MOTOR MARCHES (see FM 25-10).—Each company of the ordnance battalion, armored division, is capable of moving its entire personnel and equipment as a unit. Under normal conditions the battalion will march in column with headquarters company leading the maintenance companies. Each company is controlled by officers patrolling the column on motorcycles or in $\frac{1}{4}$ -ton trucks. Designated hand signals are used to regulate speed and interval. It is extremely important that a proper interval between vehicles be maintained at all times. Unless this is done, the convoy will be a perfect target to enemy air raiders. Drivers should be trained to keep proper intervals. See paragraphs 196 to 198, inclusive, for a detailed discussion of this matter.

SECTION II

LOCATION OF THE FIELD SHOPS

■ 295. GENERAL.—The ordnance battalion is part of the division service echelon. As such, the location of its bivouac area or areas will be under the control of division G-4. The battalion will bivouac in either of two ways—

a. *Battalion on a single mission.*—The entire battalion is located in the same general area. Where the terrain permits, all three companies will be set up within a few hundred yards of each other to facilitate communication between shops.

b. *Maintenance company on a detached mission.*—Headquarters and headquarters company, and one maintenance company will be located as in a above. The detached maintenance company sets up its own shop independently where prescribed by the battalion commander.

■ 296. BILLETING DETAIL.—Several hours prior to moving from one location to another, an advance billeting detail will be dispatched to the newly designated bivouac area. This detail will carry ample tentage, personal equipment, and rations to sustain itself for several days to allow for an unforeseen emergency. Identification signs such as "C. P. — th Ord. Bn.," "Work Order Section," "Kitchen, Co. B," "Shop Office," etc., will be carried for the purpose of posting the general areas of each company. The detail will be commanded by a billeting officer who must be thoroughly familiar with map reconnaissance, natural camouflage value of the terrain, and the proper arrangement of the various sections of the company and company shop. Upon arrival at the new location, the billeting officer will designate general areas for each company. The personnel representing each company, under the direction of a noncommissioned officer, will then survey the area allocated to them. They will decide upon the locations of the various sections of their company and will post all the necessary identification signs. The billeting detail will then wait for the battalion to reach the new bivouac area and will guide the vehicles to their respective locations. Traffic into the area should be well planned before the battalion arrives so that the column does not jam up at the en-

trance. Since these moves will usually be made at night, each vehicle should be clearly marked in such fashion that it indicates to which section it belongs. One scheme is to use white windshield stickers of various shapes, e. g., triangular, square, and circular stickers indicating shop trucks, supply trucks, and kitchen vehicles, respectively, etc.

■ 297. DETAILS CONCERNING THE LOCATION OF THE FIELD SHOP.—For a detailed discussion concerning the location of the field shop see paragraphs 179 to 189, inclusive.

SECTION III

ALLOCATION OF WORK

■ 298. GENERAL.—Because the armored division is intermittently employed, depending upon the tactical situation, and because of the great numbers of small arms, artillery, and heavy automotive equipment involved, the ordnance battalion will be called upon intermittently for concentrated ordnance service. Consequently, it is imperative that the battalion commander and his staff be well informed at all times regarding the status of work in each company shop so that plans can be formulated in advance for the distribution of the maintenance load. Unless such plans are made, one company of the battalion may be taxed far beyond its capacity while the other units are operating below normal.

■ 299. ALLOCATION OF WORK.—*a. Responsibility.*—The allocation of work to the companies of the ordnance battalion is the responsibility of the battalion commander and is exercised through the battalion maintenance officer.

b. Normal procedure.—Under normal conditions all three companies of the battalion will be in the same general location. All incoming work will proceed to the maintenance section for distribution to the three company shops of the battalion. The battalion maintenance officer will assign the work to the companies. This assignment will depend upon the following conditions:

- (1) The amount of work already in each company shop.
- (2) The comparative training and capabilities of the companies.

(3) The distribtuion among the companies of heavy spare parts such as engines, tracks, transmission assemblies, etc.

c. Alternate procedure.—When the combat units of the division are dispersed over wide areas and the battalion is correspondingly dispersed, the battalion commander may make a blanket allocation of all ordnance service for certain of these units to one of the ordnance maintenance companies. (See pars. 226 to 229, incl.)

CHAPTER 2

HEADQUARTERS AND HEADQUARTERS COMPANY AND
MAINTENANCE COMPANIES

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III. Division ordnance section.....	307-308

SECTION I

GENERAL

■ 300. ORGANIZATION AND EQUIPMENT.—*a. General.*—The skeleton organization of the headquarters company and of each maintenance company is fundamentally the same, and is represented in figure 37.

b. Headquarters company.—The personnel and equipment assigned to the headquarters company are prescribed in T/O 9-66 and T/BA 9.

c. Maintenance companies.—The personnel and equipment assigned to each maintenance company are prescribed in T/O 9-67 and T/BA 9.

■ 301. SUPPORT OF THE ORDNANCE MAINTENANCE COMPANIES.—

a. Maintenance.—The headquarters company will operate as a base shop for the battalion when the maintenance companies are separated from it by considerable distances. When a detached maintenance company is moving too rapidly to complete work on ordnance matériel in its shop, this matériel may be evacuated to the headquarters company shop or to the other maintenance company shop for completion of repairs.

b. Supply.—The headquarters company carries a considerable reserve of spare parts. It will issue ordnance materials to the regimental maintenance units of the division and will replenish the stocks of the maintenance companies of the ordnance battalion. Each maintenance company carries a

spare parts load as prescribed by standard loading lists published by the battalion maintenance office. This load consists of a well-balanced stock of spare parts sufficient to permit the maintenance company to perform as many as possible of the repairs or replacements that might be required in the accomplishment of its mission.

SECTION II

BATTALION HEADQUARTERS

■ 302. ORGANIZATION AND EQUIPMENT.—The skeleton organization of the battalion headquarters is represented in figure 44. The personnel and vehicles allotted to the headquarters are shown in T/O 9-66. The battalion headquarters is divided into three sections—military section, maintenance section, and supply section. The officers in these sections perform the following indicated functions: battalion commander (division ordnance officer), executive officer, adjutant, assistant adjutant (personnel officer), battalion maintenance officer, and battalion supply officer.

■ 303. DETAILS CONCERNING BATTALION HEADQUARTERS.—*a. Location.*—The battalion headquarters will usually be located at the headquarters company bivouac area. It should be so situated that it can be easily found by individuals entering the area on official business.

b. Rations and quarters.—The personnel of the battalion headquarters, including the attached medical personnel, will be furnished rations and quarters by headquarters company.

c. Maintenance of transportation.—The maintenance of all vehicles assigned to the battalion headquarters will be the responsibility of headquarters company.

■ 304. MILITARY SECTION.—See paragraph 231 for a discussion of the operations of this section.

■ 305. MAINTENANCE SECTION.—This section, under the command of the battalion maintenance officer, has three primary functions:

a. Allocation of work.—This section allocates the maintenance work of the division to the companies of the ordnance battalion (see par. 298). For a discussion of the records, re-

ORDNANCE BATTALION HEADQUARTERS

(Armored Division)

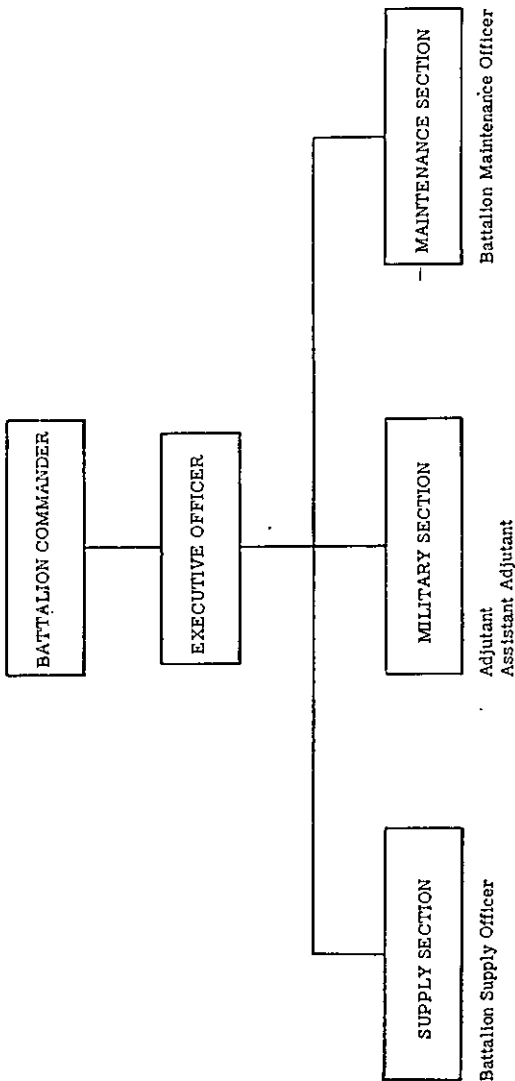


FIGURE 44.

ports, and files maintained by the maintenance section, see paragraph 233a.

b. *Coordination of activities of contact parties.*—The battalion maintenance officer will control the dispatching of contact and recovery parties (see par. 293).

c. *Conduct of inspections.*—Periodically, by order of the division ordnance officer, the maintenance officer will direct the operations of the battalion in the inspection of the ordnance matériel of the division. For a detailed discussion of this matter, see paragraphs 113 to 137, inclusive.

■ 306. SUPPLY SECTION.—a. *General.*—The battalion supply section, under the supervision of the battalion supply officer, is responsible for the continuous supply of ordnance spare parts, materials, and tools to the three companies of the ordnance battalion and to the regimental maintenance units of the division. It will function as outlined in paragraph 233b.

b. *Stock record account.*—The stock record account for the entire battalion is kept by the battalion supply officer assisted by the supply sergeant.

c. *Administrative procedure in time of war.*—The paper work involved in the supply of ordnance materials to the various maintenance units of the division must be reduced to a minimum. However, in order to maintain an adequate stock level in the ordnance battalion supply train, and to be able to make estimates of future supply requirements, an administrative procedure must be instituted as a basis for—

- (1) Consolidation of Unfilled Requisitions (OFM 109).
- (2) Master Expenditure Record (OFM 105).
- (3) Consolidation of Parts Used (OFM 102).

d. *Requisition and Tally.*—The Requisition and Tally form (OFM 112) has been devised to facilitate the maintenance of the records cited above (see fig. 45). This form is prepared in triplicate, the three copies being distributed as follows:

- (1) The original is delivered to and retained at the battalion supply section.
- (2) The second copy is presented to the supply officer making the issues. After the necessary entries are made, this copy is then returned to the company originating the form.
- (3) The remaining copy is retained in the company files for reference purposes.

only a part of the number of items requisitioned is in stock, the available quantity is issued and noted accordingly in these last mentioned columns, and the difference between "Quan. Req'd" and "Quan. Issued" is placed under "BALANCE" in the "Quan." column. This last item is the material which is short and which will be furnished at a later date; it is also the information which will be posted in the Consolidation of Unfilled Requisitions (OFM 109). The recipient of the materials issued and listed under the "Quan. Issued" column will sign his name at the bottom of the Requisition and Tally form for items received. At a later date, when the balance of items is received in the battalion stock, these will be issued and signed for under "BALANCE" in the "Received" column. This completes the requisition and furnishes a receipt for the transaction at the same time. The word "FILLED" is then written or stamped across the face of the form and the form placed in the "Requisitions Filled" file.

SECTION III

DIVISION ORDNANCE SECTION

■ 307. GENERAL.—*a.* The division ordnance section consists of—The division ordnance officer, assistant division ordnance officer, division ammunition officer, a chief clerk, an ammunition sergeant, and several enlisted men. This section is attached to headquarters company for administrative purposes only. Functionally it is attached to division headquarters, rear echelon. (See T/O 17-1.)

b. Location.—The division ordnance section will be located at division headquarters, rear echelon.

c. Rations and quarters.—The personnel of the division ordnance section will normally be attached for rations to the division headquarters. This section will furnish its own quarters, tentage, bedding, etc.

d. Transportation.—The transportation for the division ordnance section will be assigned from headquarters company as prescribed by the battalion commander. This will usually consist of the following:

(1) One truck, 2½-ton, for carrying personnel, personal equipment, tentage, files, records, etc.

(2) One truck, $\frac{1}{2}$ -ton, for use in transporting the personnel and equipment involved in setting up a division ammunition office (D. A. O.).

(3) One truck, $\frac{1}{4}$ -ton, for liaison and messenger service.

(4) One motorcycle, solo, for messenger service.

e. Maintenance of transportation.—The maintenance of the organic transportation assigned to this section is the responsibility of headquarters company, ordnance battalion.

■ 308. OPERATIONS.—*a. General.*—The division ordnance section operates at the rear echelon, division headquarters, and will travel with this headquarters when it moves forward with the division (see par. 307*a* and *b*). Its function is the administrative control of ordnance service in the division, including the control of ammunition supply.

b. Assistant division ordnance officer.—This officer represents the division ordnance officer at division headquarters. He supervises the activities of the division ordnance section in the preparation of data for inclusion in the daily telegram which is prepared by G-4. He will also handle technical correspondence for the division ordnance officer and make all necessary decisions in the absence of the division ordnance officer when immediate action is required.

c. Division ammunition officer.—This officer, under the supervision of the division ordnance officer, is responsible for the administrative control of ammunition supply to the various units of the division. For a detailed discussion of ammunition supply in the armored division, see the pertinent sections of FM 9-6.

PART SEVEN

ORDNANCE COMPANY, MAINTENANCE,
RAILWAY ARTILLERY

■ 309. GENERAL.—*a.* The ordnance unit organically assigned to the railway artillery is the ordnance company, maintenance, railway artillery (T/O. 9-47). This ordnance company is charged with providing the necessary ordnance maintenance, supply, and technical guidance. Its primary task will involve the maintenance of ordnance matériel within the organization. In the matter of the supply of both ordnance general supplies and ammunition, the manner of employment of the railway artillery will govern the details thereof. If the railway artillery is operating with a field army, the supply of these units with both ordnance general supplies and ammunition will be as contemplated for other units of army troops. When the railway artillery is being employed in coastal frontier defense, ordnance general supplies will be available on requisition from the ordnance service of the harbor defense to which the unit is assigned. In like manner, within such a harbor defense there will be available the battle allowance of ammunition for all assigned artillery matériel and the method of its supply will be a matter for determination by the defense commander in conformity with the principles of ammunition supply expressed in FM 9-6.

b. The ordnance maintenance company, railway artillery, in carrying out its ordnance maintenance mission, must inspect, adjust, and repair as well as evacuate and replace (when repair is beyond the capacity of its facilities and personnel) all ordnance matériel in the hands of the railway artillery regiment. This extends to the railway rolling stock, insofar as facilities permit, as required by AR 100-50. The unit itself consists of a company headquarters and a separate service platoon (3) for each battalion served. The general functions, scope of activities, as well as the training of the company, conform in principle to those prescribed for mainte-

nance companies in pertinent paragraphs of this manual. Normal repair facilities are housed and stocks of spare parts and accessories carried in standard railway equipment. When operating in situations where shops are available, maximum use should be made of such local shops for emergency repairs. If a railway artillery regiment is serving in a harbor defense, advantage will be taken of the permanent ordnance installations available thereat. The ordnance company assists in every way possible in the maintenance of the railway equipment pertaining to the regiment, including the air brake equipment and the running gear. An air-brake specialist is provided in each platoon.

c. It is quite probable that the battalions of the railway artillery regiment may operate at considerable distances from each other, consequently the ordnance service platoons serving these battalions are organized into balanced maintenance teams in order that they may operate as independent maintenance units. In view of these circumstances, the company headquarters is small and concerned principally with the details of company administration and the maintenance and transmittal of such records and reports as may be required by the next higher echelon of ordnance service or may be necessary to the proper performance of ordnance service to the railway artillery regiment as a whole. The company commander supervises the technical work and training of the platoons to the extent that the situation at any given time will permit. When the company is split up, he will ordinarily maintain his headquarters with one of the platoons.

d. Spare parts carried by the railway artillery maintenance company should be divided among the platoons. They consist principally of small parts which are frequently required for making repairs to small arms, instruments, and other matériel in the regiment. No attempt should be made to carry large, cumbersome parts for which a use is not reasonably well assured. Breakage or damage, which would require replacement of large or heavy parts, cannot usually be anticipated. It is ordinarily more economical and more satisfactory to obtain such parts from the proper depots as required. The ordnance maintenance company does not maintain a stock of cleaning and preserving material for the batteries. The supply officers of the artillery units carry such supplies.

The ordnance officer secures replacements as necessary. When battalions are separated, the supply officer of each battalion will requisition ordnance general supplies from the ordnance officer in command of the platoon assigned to his battalion. The platoon commander in turn will submit these requisitions to the company commander for consolidation and extraction on the approved ordnance depot or other specified ordnance supply point.

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ORDNANCE FIELD MAINTENANCE

CHANGES }
 No. 3 }

WAR DEPARTMENT,
 WASHINGTON 25, D. C., 15 April 1944.

FM 9-10, 20 April 1942, is changed as follows:

PART THREE

ORDNANCE BATTALION, MAINTENANCE

CHAPTER 4 (ADDED)

RECOVERY AND EVACUATION OF MATÉRIEL

	Paragraphs
SECTION I. General.....	233. 9-233. 15
II. Evacuation of matériel.....	233. 16-233. 23

SECTION I

GENERAL

■ 233.9 GENERAL.—*a. Necessity.*—Weapons, other equipment and matériel, pertaining to both enemy and friendly troops, which are disabled, partially worn out, or abandoned on the battlefield, or in camps or bivouac, must be placed in supply and maintenance channels in order that this material can be used immediately or repaired and reissued. By such action, considerable quantities of supplies are made available for reissue, equipment and raw materials are conserved, relief is afforded to motor and rail transportation, economy in oversea tonnage is effected, and millions of dollars are saved. It is therefore essential that every individual who may be employed in the combat zone be indoctrinated with his responsibility with regard to disabled and abandoned property.

b. Phases.—The collection and processing of disabled or abandoned material so that it may be returned to the service is divided into two phases, battlefield recovery and evacuation.

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(1) *Battlefield recovery.*—Battlefield recovery is the removal from the battlefield of disabled or abandoned matériel left by either enemy or friendly troops, and the movement of such matériel either to deflade, to an axis of evacuation, or to a maintenance or supply establishment from which it can be returned to the service immediately, or where it may be repaired and reissued.

(2) *Evacuation.*—Evacuation is the movement to the rear of damaged matériel from collecting points on the axis of evacuation, or from maintenance establishments, so as to insure the eventual return of this matériel for further service or salvage.

a. Operations.—Recovery and evacuation form, to a certain extent, a continuous operation, in that recovery is often followed by, or combined with, evacuation. It is not always possible to draw a distinct line between the two. They are also closely related to salvage and maintenance. Plans for recovery and evacuation must therefore be closely coordinated with those for salvage and maintenance, and must also provide for compliance with the requirements of the processing of captured equipment for intelligence purposes.

■ 233.10 RESPONSIBILITY.—The division of responsibility given below is general only. It should be emphasized that all personnel concerned will cooperate to the end that the maximum amount of damaged matériel will be returned repaired to the using troops at the earliest possible time.

a. Recovery.—Recovery is primarily the responsibility of combat troops. However, in some situations service troops may have to take over recovery wholly or in part. When service troops are required to effect recovery under hostile fire, suitable support will be provided by the tactical commander concerned. (See par. 47c, FM 17-58.)

b. Evacuation.—Evacuation is primarily the responsibility of service troops. Where recovery is combined with evacuation, the two will be treated as one operation.

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■ 233.11. **ORDNANCE COLLECTING POINTS.**—*a. General.*—Ordnance collecting points are designated in administrative orders of divisions and larger units. They will usually be in locations easily accessible to vehicles for transportation to the rear. In order to avoid air and artillery bombardment, such collecting points will usually be a general area in which matériel will be dispersed either in small groups (in the case of small items) or individually (in the case of tanks or other large items). Camouflage will be used extensively, especially where enemy observation and combat forces are active.

b. Armored division.—In the armored division, the unit service park will normally be the collecting point for vehicles. Evacuation of damaged vehicles from points on the axis of evacuation to the division service park is normally the responsibility of the division ordnance service. An evacuation company may be attached to the division to assist in this operation. A contact party will be maintained at the ordnance collecting point by the army (or theater) ordnance officer. The division ordnance officer will turn over to this contact party such vehicles as are required to be evacuated. Evacuation companies operating in rear of the division park will normally evacuate vehicles without crews. It is usually preferable to evacuate to the division ordnance collecting points by units attached to and under division control. However, the evacuation of vehicles from areas forward of the division collecting point may be accomplished under army or theater control. When this method is employed, evacuation activities within the division area are coordinated by the division ordnance officer.

c. Other divisions.—In other divisions, details concerning ordnance collecting points will be recommended by the division ordnance officer to G-4. Their establishment and operation will be carried out by the division ordnance service. Other services and arms having service functions will maintain liaison with the ordnance collecting point to care for any pertinent equipment at the point. The volume of matériel normally will

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not justify the establishment of collective points by other services.

■ 233.12. **ORDNANCE LIAISON.**—Liaison must be maintained between the ordnance maintenance service and the ordnance collecting point. In periods or relative quiet, this liaison may be performed by contact parties from the division ordnance maintenance unit. A daily visit to the ordnance collecting point designated for the units served by the contact party will usually suffice. In active operations, however, liaison between the collecting point and ordnance maintenance unit must be continuous. Permanent liaison agents should be assigned to each ordnance collecting point. It will be the responsibility of these agents to determine the disposition of all ordnance matériel brought to the collecting point. They will also see that the contact parties or evacuating units coming to the collecting point are shown the location of the equipment which they have been sent to repair or evacuate. Adequate communications between the ordnance collecting point and the maintenance unit will be arranged by the division ordnance officer.

■ 233.13. **PRECAUTIONS IN HANDLING MATÉRIEL.**—Care will be exercised not to cause further damage to matériel being evacuated. This applies particularly to instruments such as data computers, signal equipment, etc. When these are brought to an ordnance collecting point, the proper arm or service will be informed of the material collected. Necessary personnel and equipment from the appropriate arm or service may then be dispatched to the collecting point to take over the responsibility for disposition of such matériel.

■ 233.14. **STANDING OPERATING PROCEDURE.**—Details of evacuation operations will be reduced, as far as practicable, to a standing operating procedure.

■ 233.15. **ENEMY MATÉRIEL.**—*a.* Except as required for intelligence purposes, captured enemy matériel will be handled in the same manner as our own. Ordnance personnel will be on

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the alert to recognize and pick out new enemy types. Such items, as complete with accessories as possible, and with no maintenance other than the application of preservatives, will be delivered direct to the theater ordnance officer, or to a designated establishment (such as base shop or base depot). Report will be made simultaneously to G-2 of the command under which the ordnance unit is operating.

b. Ordnance personnel finding a sample of a new type of enemy matériel which is of a class supplied by another service will deliver it promptly to the nearest organization of the appropriate service.

SECTION II

EVACUATION OF MATÉRIEL

■ 233.16. CLASSIFICATION.—It is convenient to divide matériel to be transported to the rear for repair into classes as follows:

a. *Light ordnance matériel.*—Small arms and other light equipment which can be loaded into trucks for transportation.

b. *Heavy ordnance matériel.*—Artillery, vehicles, and other equipment which cannot be loaded into trucks, but which can be towed on its own wheels.

c. *Immobile ordnance matériel.*—Tanks and other equipment which cannot be loaded into trucks and which are so disabled that they cannot be towed.

d. Signal equipment.

e. Equipment of other services.

■ 233.17. LIGHT ORDNANCE MATÉRIEL.—a. Contact parties sent out by ordnance maintenance units will normally utilize their transportation facilities to the maximum extent possible in the return of disabled matériel to the rear. (See pars. 193b(1) and 275.)

b. Matériel which cannot be handled by contact parties will be taken to the rear by trucks going for ammunition or by other available transportation. The responsible ordnance main-

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tenance unit will maintain a collecting point in the vicinity of the army ammunition supply point at which this matériel will be taken over by ordnance personnel. This collecting point will be visited as required by a contact party which will move the matériel to the maintenance shop.

■ 233.18. HEAVY ORDNANCE MATÉRIEL.—*a.* The decision to evacuate heavy ordnance matériel to a maintenance shop for repair will normally be made by personnel of a contact party. The commander of the contact party will make arrangements for the transportation. If a prime mover or other suitable towing vehicle and the necessary personnel are available in the using organization, the commander of the using troops will be requested to send the matériel back to the maintenance shop. Otherwise, the commander of the contact party will report the circumstances to the commander of the maintenance unit, who will move the matériel to the shop. See par. 193*b*(1).)

b. If no contact party is available, the using troops will tow the damaged matériel to the nearest ordnance maintenance shop, using their own prime mover and personnel, if available. If this is not practicable, the maintenance shop will be notified of the situation and of the location of the matériel. Frequently it will prove more convenient to repair the matériel at its forward position.

c. If the distance of evacuation is great and the matériel is of such a nature that excessive wear and tear or damage will be caused by towing, an ordnance evacuation company will be requested to move the matériel. This consideration also applies to the movement of heavy matériel which, though damaged, is still capable of being driven.

d. In many cases, personnel of the vehicle crew will be found with vehicles awaiting evacuation. (See par. 72*h*, FM 17-50.) This will enable immediate identification, saving much valuable time in the approach to the vehicle and in examination for contamination and booby traps. The vehicle crew will assist in the evacuation. In the event that such personnel are available to assist in the return of the vehicle to the using

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troops, a supply of fuel and ammunition should be provided for use, if required, on the return trip. (See par. 233.4.)

■ 233.19. IMMOBILE ORDNANCE MATÉRIEL.—*a.* All cases of immobile ordnance matériel requiring repairs which cannot be accomplished "on the spot" and which come to the attention of a contact party will be reported by the party to its unit headquarters. The unit commander will report such cases to the pertinent ordnance officer in division or corps. If evacuation units are not available or if for other reasons recovery or repair cannot be accomplished immediately, this ordnance officer will request assistance from the army ordnance officer.

b. Whenever practicable, standing operating procedure to shorten the above channel of communication will be prescribed. In such cases, notice should be sent to the pertinent ordnance officers.

c. (1) The report of the matériel and request for assistance should give full information, to include—

- (a) Type of matériel.
- (b) Extent of destruction or disability.
- (c) Location.
- (d) Destination (shop to which matériel is to be moved.)
- (e) Any other pertinent information.

(2) The request for assistance may direct the evacuation squad to report to the appropriate ordnance unit in order to secure a guide to assist in locating the matériel.

d. Protection of the evacuation squad which is required by the tactical situation will be requested from the tactical commander by the pertinent ordnance officer at the time the request for assistance is forwarded.

e. The supporting unit may consist of antitank weapons and crews, or infantry troops equipped with mortars and smoke-producing ammunition, or both, or aircraft over a specific area. (See par. 47c, FM 17-58.) Without special support, the method of operation of such a detachment, nevertheless, will be governed by all considerations of security. Advance agents will perform full reconnaissance; an effective guard with ready

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weapons will be maintained at all times. During the diagnosis of the disabled vehicle, the maintenance detachment does not close up but remains deployed, under cover if possible. After the diagnosis, which will include inspection for booby traps, gas contamination, and casualties within the vehicle, a repair crew and its vehicle may be dropped from formation to begin work, or to take notes if it is impracticable to repair or evacuate the disabled vehicle. Information may be radioed to the maintenance unit. If hostile elements are encountered, the detachment suspends evacuation operations and drives away the enemy. If reinforcements are needed, these will be sought from the nearest troops, preferably the headquarters of a combat unit. In any event, information about the hostile elements will be transmitted promptly to the nearest combat unit and to higher headquarters as a matter of combat intelligence procedure. (See pars. 12c and 49b, FM 17-58.)

f. When necessary, immobile matériel will be reported direct to the ordnance maintenance unit by using troops. If the report clearly indicates that services of an evacuation squad are required, the procedure prescribed in *a* above will be followed by the ordnance unit commander. At the same time, a contact party will be dispatched to the scene to verify the information. If doubt exists as to the necessity for the evacuation squad, the report of the contact party will be awaited before the procedure indicated in *a* above is carried out by the unit commander.

g. In some situations, evacuation units may be sent forward without request in order to render close support. The activities of such units will be coordinated with those of the division ordnance maintenance unit or units to be supported. Standing operating procedure may prescribe that such squads be dispatched immediately on request of the commander of the pertinent ordnance unit.

h. In the event that reconnaissance parties are organized to search the terrain for immobile matériel, such parties will report their findings to the commander of the pertinent ordnance unit, who will determine the repairs necessary and the

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destination of the matériel. Repairs should be made in the lowest practicable echelon.

■ 233.20. SIGNAL EQUIPMENT.—*a.* Most ground signal equipment is light material. There are two general classes, hand or vehicle transported and vehicular mounted.

(1) Signal equipment that is hand or vehicle transported will not concern ordnance personnel.

(2) Signal equipment installed in vehicles of using units which must be evacuated for repair or salvage will be handled by one of the following methods. It will not be disturbed or handled by ordnance personnel.

(*a*) Equipment installed in a combat vehicle will move with the vehicle to the appropriate ordnance installation where a signal corps maintenance team will handle the servicing, repair, or removal and replacement.

(*b*) Equipment installed in other types of vehicles, if not removed by communication maintenance personnel serving the using troops and reinstalled in a replacement vehicle, will be handled in the manner prescribed for a combat vehicle.

b. Fixed enemy signal installations, requiring dismantling to be moved, should not be moved unless their recapture by the enemy is imminent. They should be placed under guard and information of their location forwarded to the appropriate signal officer. (See FM 11-35.) This action should be given a high priority in view of the opportunity of using this material to send false messages to the enemy and to receive enemy messages.

■ 233.21. CHEMICAL WARFARE EQUIPMENT.—*a.* Chemical warfare equipment in the hands of troops consists of light equipment which can be handled as prescribed in paragraph 233.20*a.* For the transport of matériel to installations in the communications zone, the return trip of the daily train may be utilized.

b. In the case of enemy matériel, samples and reports of all new foreign chemical warfare agents and equipment will pass through the channels prescribed for processing matériel for intelligence purposes.

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■ 233.22. EVACUATION FROM SERVICE INSTALLATION TO HIGHER ECHELON.—*a.* The evacuation of matériel (the repair or evacuation of which is beyond the capabilities of a maintenance establishment) to a higher echelon shop is the responsibility of the higher echelon upon the request of the lower echelon. The request may be made in an informal manner.

b. In the case of light and mobile matériel, the higher echelon shop will send the necessary transportation and personnel to return the equipment. In the case of immobile matériel, a request will be made to the ordnance evacuation company, which will effect the desired movement.

c. In some cases it will be necessary to move long distances to the rear, heavy equipment such as tanks, which can be towed or driven. In order to save wear on combat equipment, the services of evacuation squads will be utilized when available. (See par. 233.18*c.*)

d. The services of the distribution company (T/O & E9-337) may be utilized in the evacuation of trucks and cars which are capable of being driven.

■ 233.23. SALVAGE.—*a.* For information pertaining to the collection of salvage and its transportation to salvage collecting points near the railhead, see TM 10-260.

b. At the salvage collecting point, personnel of the interested services (and arms having service functions) attached to the salvage collecting company will assist in the segregation of matériel pertaining to their respective arms or services. Matériel which is repairable in the combat zone and is required for use therein will be segregated. Third echelon maintenance establishments maintain close liaison with the salvage collecting points and will send transportation required to move such matériel to the shops. When organic transportation is insufficient, assistance will be requested through the appropriate staff officers. If required repairs are evidently beyond the capabilities of third echelon establishments, the matériel will be moved to the appropriate shops.

ORDNANCE FIELD MAINTENANCE

c. Matériel which is not to be repaired in the combat zone will be evacuated to the communications zone by the salvage collecting company, using the return trip of the daily train.

d. Immobile and heavy salvage will be reported by the division salvage officer to the division ordnance officer, who will arrange to have the division maintenance unit or the ordnance evacuation company transport it to the appropriate maintenance establishment. The report should give the amount, type, and location of the matériel, as well as its condition and any other appropriate data.

e. The ordnance personnel at the salvage collecting point will arrange for ammunition companies to take custody of recovered ammunition and salvable components which can be placed into depot stocks. Salvage and combat troops must be informed of enemy ammunition which can be used. Such items will be disposed of in the same way as our own ammunition.

f. All personnel connected with salvage operations should take particular care to comply with directives pertaining to the processing of enemy matériel for intelligence purposes. They should also avail themselves of every opportunity to secure possession of metric taps and dies and other special tools, spare parts, instruction books and manuals, and any other material which will assist in the repair and use of enemy matériel.

[A. G. 300.7 (21 Jan 44).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,

OFFICIAL:

Chief of Staff.

J. A. ULIO,

Major General,

The Adjutant General.

DISTRIBUTION:

As prescribed in paragraph 9a, FM 21-6; R and H 1-7, 17, 44 (1); Bn and L 9 (4).

For explanation of symbols, see R1421-6.

AGO 141

ORDNANCE FIELD MANUAL

ORDNANCE FIELD MAINTENANCE

CHANGES }
 No. 4 }

WAR DEPARTMENT,
 WASHINGTON 25, D. C., 21 June 1944.

FM 9-10, 20 April 1942, is changed as follows:

■ 141. ADDITIONAL FUNCTIONS.

* * * * *

d. (Superseded.) Destruction of abandoned ordnance matériel when necessary.

■ 142. (Superseded.) ORGANIZATIONAL SUPPLY.—Organizational supply is fully covered in Circular No. 170, War Department, 1943, as modified by Circular No. 39, War Department, 1944, and section 11, Circular No. 101, War Department, 1944. The company will establish the company property book as described in paragraphs 6 to 20 of Circular No. 170, and the company commander is responsible for obtaining acceptable property vouchers to cover the loss, damage, or destruction of property for which he is responsible.

■ 143. FLOW OF REQUESTS FOR ORDNANCE SUPPLIES (Superseded).—*a. Troop units.*—Troop units normally request ordnance supplies from the ordnance maintenance unit directly supporting them. Such supply will be effected so far as practicable by direct exchange of unserviceable parts for similar serviceable items. (See par. 154.) When an unserviceable item is not available for exchange for a required part, a requisition for the latter will be submitted directly to the supporting agency.

b. Third echelon.—Third echelon units will normally request supplies and replacement of unserviceable items from the supporting tactical depot company assigned to their support. In situations where a depot company is not available, third echelon units may obtain supplies from fourth echelon maintenance companies. In any particular situation, the army ordnance officer will prescribe the normal channels for submission of

requisitions and for obtaining replacement of unserviceable parts.

c. Fourth echelon.—Fourth echelon units will submit their requests to the supporting depot company.

d. Depot companies.—For the chain of supply of depot companies, see paragraph 18b, C 1, FM 9-5.

e. Transfer of supplies.—Where one unit has supplies in stock not needed for immediate use which another unit requires for immediate use and which cannot be obtained immediately through usual channels, the supplies will be transferred laterally from one unit to another without delay. The purpose of maintaining supplies within using units is to have immediately available, within the proper scope of maintenance, the minimum number of parts and supplies to put disabled equipment quickly back into service. Parts should not be hoarded, nor boxed and put away so that they cannot be used. Parts which are no longer usable by a unit because it no longer has the type of equipment to which the part pertains, or which are in excess of authorized allowances, will be turned in to the next higher echelon of supply. In general, the field supply of ordnance items is very flexible, and the cooperation of all ordnance personnel should be directed to insuring the most efficient service to the using troops.

■ 146. ORGANIZATION.—*a. Requirement.*—The organization tables of maintenance companies have been designed with a view to having within each company numbers of trained personnel and quantities of specialized equipment sufficient to handle a portion of the type load represented by the equipment of the unit each is designed to support. See figure 37 * * * of maintenance companies.

* * * * *

■ 147. EQUIPMENT (Superseded).—Organizational equipment for ordnance maintenance units is listed in the appropriate T/O & E. In addition, SNL's of the "N" Group are being published which will list special tools, and in some cases, a basic load for the unit concerned.

■ 148. COMPANY ARMAMENT (Superseded).—The employment of ordnance companies in the combat zone in the accomplishment

ORDNANCE FIELD MAINTENANCE

of their mission makes it mandatory that all ordnance personnel be fully trained in the use of their assigned weapons in their own and local defense. In emergencies, full use should be made of any and all weapons on hand including those in stock. When major items are regularly in stock, ammunition for them should be kept available.

■ 149. AUTOMOTIVE EQUIPMENT.—Rescinded.

■ 150. GENERAL.—One of the missions of the maintenance company is the supply of cleaning and preserving materials, and a small quantity of maintenance parts, accessories, and major items. In general, the * * * cards is necessary.

■ 151. BASIC LOAD.—*a. General.*—In addition to its organizational and individual equipment (par. 142), the maintenance company when authorized, and assigned a specific maintenance mission will have on hand, a basic working stock of ordnance supplies. The transportation facilities * * * ordnance equipment charts.

* * * * *

■ 152. COMPUTATION OF STOCKS OF SUPPLIES (Superseded).—Stock levels in maintenance companies will usually be specified by the army ordnance officer in terms of days of supply. A load list of parts and supplies and special tools is included in "N" Group SNL's. In certain cases, this load must be modified to conform to experience found in field service, or when the company is assigned to a mission other than its primary one. In such instances, the addenda to the SNL gives an indication of the requirements for spare parts. Instruction for the use of the addenda are included in those publications.

■ 154. ISSUE OF SUPPLIES (Superseded).—The supply of line units and ordnance organizations in lower echelons (par. 143) with parts and assemblies required in the repair of ordnance matériel is effected as far as possible by direct exchange of the unserviceable part or assembly for a similar serviceable part or assembly. All major unit assemblies presented for exchange will include the subassemblies and accessories designated by the Chief of Ordnance as necessary to form such major unit assemblies. If the unserviceable part or assembly cannot be pre-

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sented for exchange, or is of such nature as to have no reclaimable value such as nonmetallic gaskets, broken glass, etc. the replacement item will be issued on a requisition from the unit commander. The signature of the organization supply officer or that of a commanding officer on a requisition will be accepted as a guarantee that the supplies are necessary and, when issued, will not produce an excess of any item of authorized allowances. Neither a certificate to this effect, nor the approval of an organization commander will be required. However, organizational editing will not preclude the review of requisitions by the supply agency to determine that requisitions are properly prepared and the quantities authorized for issue are not in excess of allowances. W. D., O. O. Form No. 7370 (Exchange Part and Unit Identification Tag) is a convenient form for use in the exchange procedure outlined above. (See par. 155, this change).

■ 155. (Superseded.) PAPER WORK IN EXCHANGE OF UNSERVICEABLE PARTS.—The following is a description of the use of Form No. 7370 by an ordnance maintenance company in the exchange of unserviceable parts and assemblies. The defective parts may be those extracted from a major item in the shop for repair, or those turned in by a using organization for exchange to the maintenance company. In all transactions, paper work will be reduced to the absolute minimum.

a. W. D., O. O. Form No. 7370 (fig. 37.1).—(1) This form (Exchange Part and Unit Identification Tag), should be originated by the agency requesting exchange of any item. The tag should be affixed firmly to the item to which it pertains, and will remain attached thereto until final disposition of the item, either repaired and returned to stock, or condemned for salvage. In the maintenance company, the originating agency will be the shop section which removes the part from the major item.

(2) If a using organization presents parts to the maintenance company for exchange without the form attached to the various parts, the agent presenting the items will be given a supply of forms and requested to fill in the pertinent entries for each part submitted. In the event that this is impracticable, the maintenance company will originate the forms and attach them to

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the parts. However, the proper use of Form No. 7370 by the requesting agency will result in speedier service and a saving of time and energy by all concerned.

(3) The originating agency will fill in spaces 1 to 5, 10 to 13, and 17 to 20, each inclusive, on the face of the form.

(a) "Make" is self-explanatory for automotive matériel. When the form is used for other than automotive, this space may be used to list the nomenclature of the major item to which the exchange part pertains.

EXCHANGE PART OR UNIT IDENTIFICATION TAG	
1. Make	<p>Notes: Section 3 of this tag to be attached to part or unit until final disposition.</p> <p style="text-align: center;">EACH PART OR UNIT TO BEAR A SEPARATE TAG</p> <p style="text-align: center;">Organisations</p> <hr style="border-top: 1px dashed black;"/> <p style="text-align: center;">Organisations</p>
2. USA Reg. No.	
3. Part No.	
4. Item	
5. Organization	
6. Work Order No.	
7. Repair Rebuild Reclaim	
8. Final Disposition	
9. Inspector	
10. Make	
11. USA Reg. No.	<p style="text-align: center;">Supply Unit retain stub</p> <hr style="border-top: 1px dashed black;"/> <p style="text-align: center;">Return to Unit pre- senting item for exchange.</p> <p style="text-align: center;">Used to claim back order item.</p>
12. Part No.	
13. Item	
14. Date Exchanged	
15. Back Order No.	
16. Filled by	
17. Make	
18. USA Reg. No.	
19. Part No.	
20. Item	
21. Date Exchanged	
22. Back Order No.	
WD OO Form 7370 12 July 43 (See AR 850-15)	

GPO #16-20442-1
(Reverse)

Items 1-5, 10-13, and 17-20 filled in by unit exchanging item.
 Items 14, 16, and 21 filled in by supply agency for exchange.
 Items 14, 15, 16, 21 and 22 filled in by supply agency for back order.
 Items 6, 7, 8, and 9 for use by maintenance shops.

FIGURE 37.1—EXCHANGE TAG

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(b) "USA Reg. No." is the registration number of the automotive vehicle or, in the case of serially numbered ordnance items, the serial number of the major item concerned.

(c) "Part No."—Piece mark of the exchange part (from SNL).

(d) "Item"—Official nomenclature of exchange part.

(e) "Organization"—The agency initiating request for exchange.

b. Exchange.—The part with Form No. 7370 attached, is presented to the shop supply section.

(1) If a replacement item is in stock, the exchange will be effected with no further paper work involved.

(2) If no replacement is available, immediate efforts will be made to obtain the desired item or part.

(a) Part 1 of Form No. 7370 will be detached, item No. 22 "Back Order No." filed in, and on the reverse side, the supply clerk will enter the designation of the maintenance company and initial. This is given to the using organization or shop section as its receipt for the item, and may be used by it as a claim check for the ordered part when it arrives.

(b) A check will be made on the availability of the desired part in other sections of the company and/or in nearby companies. If these sources prove unfruitful, and if the part is required in the repair of a dead-lined item, an immediate requisition will be submitted on the depot for a replacement. These special requests will normally be accumulated and consolidated on a special requisition which will be submitted at intervals to the supply agency. The period between submission of such special requests will depend on the situation, number of such requests received, and the availability of transportation to the depot. The main consideration should be to render all possible service to the most people in the shortest time practicable, and to reduce the "down time" of ordnance matériel to the minimum.

c. Action by shop supply section.—(1) All issues are posted to the bin cards.

(2) All unserviceable parts are inspected by the shop foreman or technical inspector, and items 7 and 9 accomplished on Form No. 7370.

(3) When the unserviceable items are to be repaired in the company, the following procedure will be followed:

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(a) Part 2 of Form No. 7370 is retained in the supply section and the item sent to the shop office. The shop office makes out a work order (noting number or work order in item 6) and sends the item to the appropriate shop section for repair.

(b) When repairs are completed, the job is inspected by the foreman or technical inspector and the item is returned to the supply section in exchange for Part 2 of Form No. 7370. This Part 2 is attached to the work order together with the Part 3 which is removed from the item when it is returned to stock. Item 8 on the form is filled in to indicate the action taken.

(c) The reconditioned item is returned to stock with appropriate posting of bin cards and expenditure record.

(4) When the parts are determined to be unrepairable, they will be torn down for salvage in the shop and disposition made in accordance with existing regulations (see par. 21.1). Appropriate entries will be made in Item 8 of Form No. 7370 and the form filed in the shop office.

(5) When items are to be evacuated to a higher echelon, the shop supply section will complete Part 2 of Form No. 7370 and retain it for its records. If only a few parts are to be replaced they will be presented to the depot for exchange. When the exchange items are sufficiently numerous, time at the depot may be saved by listing the parts on a tally-in or on W. D., A. G. O. Form No. 447 (Property Turn-In Slip).

■ 156. PROPERTY ACCOUNTABILITY (Superseded).—*a. General.*—Accountability for articles of authorized allowances of equipment will be terminated when such articles are issued to units or organizations. Although no formal stock record account is necessary for this property, it will be covered by a "company property book". (See Cir. No. 170, W. D., 1943).

b. Ordnance general supplies.—That stock of ordnance supplies which the company maintains for use in its maintenance operations and/or for issue to lower echelons must be carried on a stock record account. In this case, the shop expenditure record, supported by the pertinent work orders and related papers will constitute the stock record account. (See par. 71.)

■ 157. PROPERTY RESPONSIBILITY (Superseded).—All company property of whatever nature is the responsibility of the company

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commander. It is his duty to safeguard such property against loss or destruction at all times. (See par. 17.) For a detailed description of the responsibilities of the company commander in regard to property, see paragraph 4, Circular No. 170, War Department, 1943, and Circular 158, War Department, 1943.

■ 159. EQUIPMENT OF HEADQUARTERS AND SUPPLY SECTION.—Re-scinded.

■ 161. COMPANY OFFICE.

* * * * *

a. The training and administration of the company (see TM 12-250).

* * * * *

d. The preparation of training schedules for the military training of the company in accordance with prescribed training programs.

e. The coordination of training schedules with the shop office, for the technical training of the company.

* * * * *

k. (Added.) The maintenance of a situation map showing location of supported units, and adjacent ordnance companies.

■ 163. COMPANY SUPPLY OFFICE

* * * * *

a. (Superseded.) The preparation and maintenance of the company property book. (See Cir. No. 170, W. D., 1943.) See paragraphs 67 and 76 inclusive, for details of liaison with shop office procedure.

* * * * *

e. The maintenance of all necessary files of vouchers to the company property book.

* * * * *

f. The preparation of all property forms, such as reports of survey, statements of charges, over, short and damaged reports, etc., required in the property administration of the company. (See par. 169.)

■ 164. TRANSPORTATION.

* * * * *

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e. (Added.) The training of company vehicle operators.

■ 165. COMPANY COMMANDER.—*a. Responsibilities* (Superseded).—The company commander is responsible for all phases of the operation of the company.

b. Delegation of responsibility to subordinates (Superseded).—The company commander should require all heads of sections who are designated herein as responsible directly to him to keep him informed at all times of any changes in the status of matters pertaining to the operation of the company or shop. The responsibility for the performance of specific duties should be delegated to the proper subordinate, and that subordinate held strictly accountable for the results.

* * * * *

f. (Added.) *Discipline*.—He is solely responsible for the administration of disciplinary punishment under the 104th Article of War and cannot delegate this authority.

■ 169. SUPPLY SERGEANT.—*a. Duties and responsibilities*.—The supply sergeant is responsible to the supply officer for—

(1) The maintenance of the company property book.

* * * * *

(9) (Superseded.) The preparation of all of the various property and supply forms and records pertaining to property accountability and responsibility.

* * * * *

■ 171. MOTOR SERGEANT.

* * * * *

b. Further responsibilities.—He is directly * * * and supply section. He is responsible for the training of motor vehicle operators and a constant day by day check up to insure the proper performance of 1st and 2d echelon maintenance. He is further responsible for the judicious use of captured enemy transport matériel for augmentation of organic vehicles as authorized by higher authority.

* * * * *

■ 186. CAMOUFLAGE (see FM 5-20, TM 5-257 and 5-269).

■ 187. SECURITY.—*a. Protection* (Superseded).—The ordnance company must take the necessary measures to protect itself at all times to the maximum extent possible consistent with other considerations, from hostile air, ground, or artillery attack. Proper measures for security embrace a warning system, enforcement of camouflage discipline, dispersion of equipment both in bivouac and on the move, the evacuation of the position in the event it becomes untenable, and the use of all available weapons to bring fire power upon the attacker. (See par. 148.) Slit trenches should be dug in the shop area and all personnel should be familiar with FM 21-75. All around guard should be established in bivouac.

* * * * *

e. (Added.) On the March.—The subject of march security is fully covered in chapter 5, FM 25-10. The following points should be covered by the company commander in planning for a movement by motor transport:

- (1) Advance reconnaissance of the route to be followed.
- (2) Selection and reconnaissance of tentative areas for rest and refueling halts.
- (3) Employment of advance, flank, and rear guards for the column.
- (4) Maintenance of proper distances between vehicles.
- (5) Separation of similar vehicles throughout the column to avoid the possibility of an air attack destroying all of one type of truck.
- (6) Dispersion of automatic weapons throughout the column for antiaircraft protection.

■ 190. GENERAL (Superseded).—A contact party is a means whereby ordnance service is carried to the troops. It consists of a small number of ordnance specialists, sent out by an ordnance field shop which visits the various units which it is designated to serve, rendering all assistance possible in inspection, repair, replacement, and technical advice on all items of ordnance equipment. Contact parties serve as excellent liaison agents between ordnance staff officers and the using troops. The divisional maintenance unit will normally send out several contact parties to visit the various units of the division. Army ordnance maintenance units also send out contact parties to

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army and corps troops and to divisional units when specifically requested or according to a prearranged schedule. Contact parties may occasionally be attached to detached combat units as explained in paragraph 243.

■ 193. (Superseded.) OPERATIONS.—*a. Types.*—There are in general, two types of contact party:

(1) *Special.*—This is composed of the necessary personnel and equipment to accomplish a definite maintenance operation. It is utilized when a damaged item of ordnance matériel is reported to the maintenance organization and indications are that the repairs may be made at the location of the matériel in the field. Such parties will proceed directly to the location of the damaged matériel, complete the required repairs in the most expeditious manner possible, and then return to the parent company.

(2) *General contact party.*—This is composed of a maintenance crew, carries a balanced stock of supplies, and is constituted for the purpose of carrying ordnance service directly to the using organizations in order to give ordnance support immediately the need thereof arises. The use of such parties will be particularly helpful during periods of active operations. At such times, contact parties will operate continually, only returning to the parent company shop when necessary for restocking. Depending on the tactical situation and the expected maintenance load, these parties may consist of personnel from one section of the company shop, or be an all-purpose party with representatives from all sections. These parties will make the rounds of the supported troops and offer assistance wherever it is required. One of their major contributions to ordnance service is preventive maintenance. To accomplish this, usable equipment is inspected while it is in the hands of troops and actual defects or potential defects are noted and corrected before a major maintenance operation is required. In this procedure, the defects noted are repaired on the spot, or the necessary parts are ordered and obtained from the parent shop before the usable equipment is placed under repair. In this way, the down-time of ordnance matériel is reduced to the minimum.

b. Fourth echelon parties.—Heavy maintenance units also send out contact parties to the supported third echelon maintenance

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units or directly to the line organizations, either on request or in accordance with the plan for carrying ordnance service to the using troops. All such parties should report directly to the field shop of the lower ordnance echelon to obtain information of units requiring their assistance, their locations, and state of routes thereto.

c. Evacuation procedure.—When maintenance problems are encountered which are beyond the capacity of the party to accomplish one of the following arrangements will be made:

(1) Have the matériel moved to the field shop of the parent company.

(2) Communicate with the field shop and request the dispatch of a special contact party to the location of the damaged matériel with the required personnel and equipment to accomplish the necessary repairs.

(3) Return to the field shop and secure the necessary equipment and personnel to perform the job at the present location of the matériel.

■ 195. (Superseded.) STOCK LEVELS IN CONTRACT PARTIES.—Since contract parties are, in effect, small maintenance organizations, they will be assigned prescribed stock levels which it will be the responsibility of the commander of the party to maintain at all times. It is also his responsibility that the equipment of the party is complete and in serviceable condition.

[A. G. 300.7 (4 May 44).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

J. A. ULIO,
Major General,
The Adjutant General.

DISTRIBUTION:

As prescribed in paragraph 9a, FM 21-6, except Ordnance School (500), Office, Chief of Ordnance (5,000); R & H 1-7, 17, 44 (1); Bn & L 9 (4).

For explanation of symbols, see FM 21-6.

ORDNANCE FIELD MANUAL

ORDNANCE FIELD MAINTENANCE

CHANGES }
 No. 6 }

WAR DEPARTMENT,
 WASHINGTON 25, D. C., 16 October 1944.

FM 9-10, 20 April 1942, is changed as follows:

PART THREE

ORDNANCE MAINTENANCE BATTALION

CHAPTER 1

GENERAL

SECTION I

GENERAL

■ 208. (Superseded.) **TYPES.**—Ordnance maintenance battalions are of two general types. One type is organized under a specific Table of Organization which prescribes definitely the number and type companies contained in the battalion. The ordnance maintenance battalion, armored division (T/O & E 9-65), the ordnance base armament maintenance battalion (T/O 315), and the ordnance base automotive maintenance battalion (T/O 9-325) are of this type. The other type consists of from two to five separate ordnance companies grouped under a headquarters and headquarters detachment, ordnance battalion (T/O 9-76), for administration and control. This headquarters is used both in communications zone and combat zone.

■ 208.1. **HEADQUARTERS AND HEADQUARTERS DETACHMENT, ORDNANCE BATTALION (Added).**—The function of the battalion headquarters is to provide the necessary supervision, administration, and control of the several companies assigned. The mission of this headquarters will vary depending upon the tactical situation and the type of ordnance companies assigned to it. In one situation, a battalion composed of depot companies will have a supply mission; in another situation, a battalion composed of ammuni-

tion companies will have an ammunition supply mission; in another situation, a battalion composed of maintenance companies will have maintenance mission. Under some circumstances a battalion may have a general ordnance mission, and will be composed of a combination of depot, maintenance, and ammunition companies. For purposes of this manual, headquarters and headquarters detachments, ordnance battalion, referred to will be confined to those having a maintenance mission.

■ 210. DETAILS OF SHOP OPERATION.—The details * * * of this manual. The operation of ordnance depot companies is covered in FM 9-25.

■ 211. DUTIES OF INDIVIDUALS.—The members of the battalion headquarters and headquarters detachment of the ordnance battalion should be guided in the performance of their duties by the pertinent sections of FM 9-5, 9-6, 9-25, and this manual.

SECTION II (Superseded)

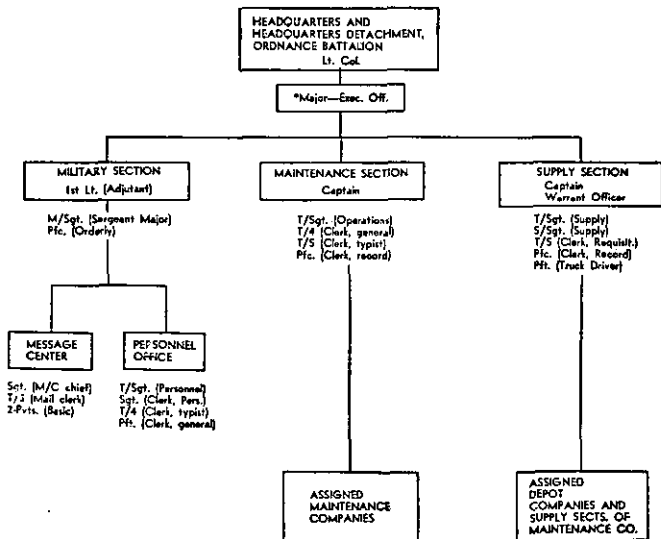
HEADQUARTERS AND HEADQUARTERS DETACHMENT, ORDNANCE BATTALION

■ 212. ORGANIZATION.—The personnel assigned to the headquarters and headquarters detachment, ordnance battalion, is prescribed in T/O 9-76. A suggested means of organizing the battalion headquarters, and the utilization of the available personnel is shown diagrammatically in figure 39 to assist the battalion commander in setting up his office. The actual distribution of personnel between the various sections should be governed by the types of companies assigned to the battalion and the nature of the operations contemplated.

■ 213. EQUIPMENT.—The equipment authorized to the battalion headquarters is listed in T/E 9-76.

■ 215. EFFECT OF TACTICAL SITUATIONS ON THE OPERATION OF THE ORDNANCE BATTALION.—*a. General.*—The factors discussed in paragraphs 220 to 225 inclusive, will always affect the operation of the ordnance battalion. A discussion of * * * to 189 inclusive.

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*Also Maintenance Officer

FIGURE 39.—Organization of battalion headquarters.

b. Static situation.

(3) (Added.) Knowledge of the troops being served, their particular type of equipment, their location, and the terrain, should result in increased efficiency of maintenance.

c. In the advance.—(1) It is essential that field shops of the battalion be within such a distance of the combat troops to be supported that there is no cessation of ordnance service. In order to * * * forward by bounds.

(3) In order to * * * work on hand. If such a procedure is not practicable, arrangements must be made for a higher echelon of maintenance to take over the matériel.

■ 216. SUPPORT OF DETACHED MAINTENANCE COMPANIES.—*a. Maintenance* (Superseded).—Whenever maintenance companies are assigned to the support of detached or separate combat units, provisions must be made for their supply and if necessary, their reinforcement. Normally, the support of such companies will be accomplished by an ordnance battalion. Any necessary reinforcement of such companies will normally be specified by the planning agency responsible for the detachment. However, the supporting battalion headquarters should be alert to see that proper recommendations are made to the appropriate agency for any reinforcement, the need for which was not foreseen.

* * * * *

■ 218. SALVAGE OPERATIONS.—The salvage operations of the Ordnance Department are fully covered in chapter 4, part three (as added by C 3). The salvage and * * * the supply channels.

■ 220. INITIAL RECONNAISSANCE (Superseded).—A suitable site for the battalion will be determined by a personal reconnaissance of the battalion commander or a designated member of his staff. Areas may be predesignated by higher headquarters in which case a reconnaissance should be made to determine the suitability of the site. In either event, a report will be made by the Army ordnance officer giving the location of the selected site or suitability of predesignated area. Companies of the battalion will be assigned areas or exact locations depending upon the situation. When possible, shop space and covered storage should be provided.

■ 226. ANALYSIS OF THE MAINTENANCE LOAD.—*a. Basic study.*—In order to * * * by the echelon. For this information reference should be made to War Department Supply Bulletin (SB 9-OEC) (Ordnance Equipment Charts) and/or Tables of Equipment.

b. Differences in equipment (Superseded).—A study of these references will indicate the quantities and types of equipment which may be expected in the hands of the troop units to be supported. In addition to this information, data must be obtained regarding the actual models and series of models which will be in the hands of the troops. This information is required as the

basis for planning for the stockage of spare parts and tools. The differences in equipment in various units have a direct bearing on the special training and equipment required in the different companies of the battalion. This matter will be discussed more fully below.

■ 227. ALLOCATION OF WORK.

* * * * *

c. Blanket allocation.

* * * * *

(2) *Application.*—A blanket allocation * * * a particular company. In addition to this allocation each company may be allocated a share of the maintenance load of corps and army troops.

d. Allocation of the "special load."—The maintenance of the special load represented by the matériel in the hands of corps and army troops such as heavy artillery and special vehicles, requires that each company required to perform this type of maintenance be equipped with the special tools, spare parts, and skill required to service these units. The limitations imposed * * * to that company. For authority to draw these special tools, refer to the appropriate Table of Equipment.

e. Allocation of balance of corps troops load.—Rescinded.

f. (Superseded) Central battalion control.—The alternative to blanket allocations is to require each job coming to the field shop to proceed to the battalion maintenance office for allocation to a particular company. This method is particularly applicable where a composite battalion shop, run by more than one company, is maintained. Under certain circumstances, it may be necessary to use a combination of the procedures outlined above.

* * * * *

■ 229. PROCEDURE WHEN OPERATING UNDER BLANKET ALLOCATIONS.

* * * * *

c. Action by battalion maintenance office.—The battalion maintenance * * * take the job. If it appears that that company will soon have its hands full of its own work, the first

company should be directed to keep and accomplish the job or evacuate it to a higher echelon of maintenance.

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■ 232. (Superseded) MAINTENANCE SECTION.—This section is responsible to the commanding officer for the coordination and supervision of the maintenance activities of the battalion.

a. Allocation of work.—This section allocates the maintenance work of the various companies. For a discussion of the manner in which this allocation is made, see paragraphs 226 to 230, inclusive. This section also coordinates the activities of the contact parties of the battalion. (See pars. 229*d* and 230*d*.)

b. Reports from companies.—This section will keep itself informed of the status of work in the various companies of the battalion. This is accomplished by means of the "Tally-In" forms from the duplicates of work orders issued by the companies (see par. 85*d*) and by the duplicate copies of the work orders received from the companies when the work is completed (see par. 89*d*). In addition, it may be desirable to require the companies to submit periodic reports on the status of jobs in the shop which are held up for lack of parts.

c. Files maintained.—There should be maintained for each company in the battalion, two files. One should be a file of "Tally-In" forms, which indicate the arrival of work in the shop, and the number and nature of the various jobs in the shop at any given time. Any status reports will also be kept in this file. The second file should be that of the duplicates of completed work orders. When these duplicates are received in the maintenance office, the "Tally-In" form for the same job should be removed from its file and destroyed, or placed in the "completed" file with the duplicate work order.

d. Use of files.—The files in the maintenance section are useful in determining the current load of any company as a basis for the allocation of additional work, determining the capabilities of the individual companies, and planning the requirements for the future operations. These files should also contain the necessary information for the preparation of any required reports from the battalion to higher headquarters.

FIGURE 40, page 156, is rescinded.

■ 233. (Superseded) SUPPLY SECTION.—This section is responsible to the commanding officer for the coordination and supervision of the supply activities of the battalion. Its responsibilities include:

a. The consolidation of parts used as indicated in reports from the companies, and the preparation of such consolidations for submission to higher headquarters. (See par. 99.)

b. The institution and operation of a "follow-up" system on unfilled requisitions from the companies of the battalion based on periodic reports of consolidations of unfilled requisitions. (See par. 103d.)

c. The arrangement for supply of parts and matériel between companies when one company requires items which are in stock in another company. (See par. 143e (as added by C4).)

d. The preparation of studies concerning rates of expenditure of various parts and materials.

e. The preparation of estimates of future requirements of the battalion for spare parts and materials.

[AG 300.7 (29 Sep 44).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL.

OFFICIAL:

Chief of Staff.

J. A. ULIO.

Major General,

The Adjutant General.

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