

Chapter 1

Public Works Shops Supervisor

Topics

- 1.0.0 Transportation Shops Supervisor
- 2.0.0 Public Works Transportation Department Functional Organization
- 3.0.0 Duties and Responsibilities of Supervisory Personnel
- 4.0.0 Preventative Maintenance
- 5.0.0 Cost Control
- 6.0.0 Preservation, Storage, and Depreservation of Vehicles and Equipment
- 7.0.0 Techniques of Scheduling
- 8.0.0 Progress Control and Shop Workload
- 9.0.0 Contract Maintenance and Repairs
- 10.0.0 Equipment Warranties And Deficiencies
- 11.0.0 Technical Assistance
- 12.0.0 CESE Disposal

To hear audio, click on the box.



Overview

As a senior Construction Mechanic you may be assigned to a Public Works as a shops supervisor or foreman. Your duties with the Public Works may be similar to those of the Naval Construction Forces assigned to Public Works, but there are some differences. This chapter will cover some of those differences. At a public works facility, you will be working with civilian managers as well as shop and administrative personnel.

The chapter discusses the procedures required for the efficient operation of the Public Works maintenance shops. What is really important as a supervisor/foreman is not only your hands-on skills as a mechanic, but also being knowledgeable of and familiar with the various forms, reports, and paperwork required within the public works transportation shops organization. The information you receive here will be required throughout your Navy career. The topics in this chapter are not all-inclusive and it is important for you to obtain the most recent manuals, publications, and reference materials. Obtaining a copy of the Management of Civil Engineering Support Equipment, NAVFAC P-300 will help you learn about the operations of the Public Works transportation Department. The publication is available on-line.

Objectives


When you have completed this chapter, you will be able to do the following:

1. Understand the duties of the Transportation Shops Supervisor.
2. Understand the Public Works Transportation Department Functional Organization.
3. Understand Preventive Maintenance.
4. Understand the Navy cost control system.
5. Understand preservation, storage, and depreservation of vehicles and equipment.
6. Understand scheduling techniques.
7. Understand the control of shop workloads.
8. Understand contract maintenance.
9. Understand how to note equipment deficiencies.
10. Understand technical assistance.
11. Understand the proper disposal of Civil Engineering Support Equipment (CESE).

Prerequisites

None

This course map shows all of the chapters in Construction Mechanic Advanced. The suggested training order begins at the bottom and proceeds up. Skill levels increase as you advance on the course map.

Wheel and Track Alignment		C
Troubleshooting, Transmissions, Transfer Cases, and Differentials		M
Clutches and Automatic Transmissions		A
Troubleshooting Electrical Systems		D
Fuel Systems Overhaul		V
Engine Troubleshooting and Overhaul		A
The Shop Inspectors		N
Alfa Company Shop Supervisors		C
Public Works Shops Supervisor		E
		D

Features of this Manual

This manual has several features which make it easy to use online.

- Figure and table numbers in the text are italicized. The figure or table is either next to or below the text that refers to it.
- The first time a glossary term appears in the text, it is bold and italicized. When your cursor crosses over that word or phrase, a popup box displays with the appropriate definition.
- Audio and video clips are included in the text, with italicized instructions telling you where to click to activate it.
- Review questions that apply to a section are listed under the Test Your Knowledge banner at the end of the section. Select the answer you choose. If the answer is correct, you will be taken to the next section heading. If the answer is incorrect, you will be taken to the area in the chapter where the information is for review. When you have completed your review, select anywhere in that area to return to the review question. Try to answer the question again.
- Review questions are included at the end of this chapter. Select the answer you choose. If the answer is correct, you will be taken to the next question. If the answer is incorrect, you will be taken to the area in the chapter where the information is for review. When you have completed your review, select anywhere in that area to return to the review question. Try to answer the question again.

1.0.0 TRANSPORTATION SHOPS SUPERVISOR

A transportation shops supervisor should possess sound judgment and leadership. Directing shop activities requires the supervisor to come in contact with people of various jobs/skills, for example, the mechanics in the shops, the bus/truck/automotive drivers, forklift and heavy equipment operators, crane crews and the officer/civilian to whom the supervisor is responsible. The transportation supervisor must maintain good working relations with all employees, both civilian and military personnel in order to have an efficiently run shop. The supervisor keeps his/her workers informed, provides up to date training and ensures they have the material and equipment to perform their duties.

A transportation maintenance shop supervisor will need all of his/her past experience and know-how, as well as familiarity with various repair equipment, to assist in diagnosing mechanical troubles accurately when needed, schedule and plan repair work skillfully, and direct the maintenance of transportation and construction equipment

At some time during your career in the Navy, you may be assigned as a maintenance shop supervisor or foreman in a Public Works (PW) Transportation Maintenance Shop, and you may also have to serve as supervisor of a Construction Battalion equipment maintenance shop. Because the two types of duty differ in many ways, this chapter will discuss the responsibilities of a supervisor/foreman in a PW transportation maintenance shop, and Chapter 2 will discuss the battalion equipment company shop supervisor's responsibilities. Although many of the positions have the same basic duties, the methods of performing those duties may differ considerably. Certain areas of cost control vary a great deal. Duty in a transportation maintenance shop includes work of a continuing nature. To provide continuity within the public works organization, the maintenance shop employs civil service and/or contract as well as military personnel.

You will be required to familiarize yourself with the various publications that guide the performance of your duties. You may already be familiar with many of these, but now, as the shops supervisor, you may need more in-depth knowledge of the procedures in these publications, especially those for forms, reports and paperwork. You will need to know these procedures well to run your shop(s) efficiently.

The primary publication with which the public works supervisor should become familiar is *Management of Civil Engineering Support Equipment*, NAVFAC P-300. The purpose of the P-300 is to assist management at all levels to efficiently manage the transportation program. It provides the instructions, guides, procedures, and criteria for exercising both technical and management controls to attain full and cost effective utilization of funds, personnel, and equipment.

1.1.0 Safety

One area the supervisor must never forget is safety. **SAFETY FIRST!** Always. Nothing else should take precedence over safety. Ensure your workers have the required training and equipment to perform their jobs safely.

1.1.1 DoD Occupational Safety and Health (OSH) Program Requirements and Procedure

The operation of an effective on-the-job occupational safety and health program is a line management responsibility at all echelons and that management shall, to the extent of its authority, comply with OSH program guidance and regulations and provide DoD personnel safe and healthful working conditions. This guidance is provided in the

DoDINST 6055.1 "DoD Occupational Safety and Health Program." DoD personnel shall comply with all applicable OSH program rules and regulations. Specifically, this shall include compliance with work safety and health standards, proper use of personal protective equipment and clothing, and proper reporting to DoD management of unsafe conditions, hazardous exposure, or occupational injury or illness.

1.2.0 Management Responsibilities

In accordance with DoDINST 6055.1, Commanders, supervisors, and managers are responsible for using the risk management process to protect personnel, equipment, and facilities under their command and for the implementation of safety and occupational health policies. Military and DoD civilian officials at each management level shall advocate a strong SOH program, provide their personnel safe and healthful working conditions, and provide education and training that will enable those personnel to prevent accidents, injuries, and occupational illnesses.

1.3.0 Non-Supervisory Personnel Responsibilities

Non-supervisory DoD personnel shall support the SOH program. This includes compliance with work safety and health standards, proper use of personal protective equipment and clothing, and prompt reporting to DoD management of unsafe conditions, hazardous exposure, or occupational injury or illness. Failure to comply can form the basis for adverse administrative action. Strong support of and adherence to SOH programs should reflect favorably in personnel evaluations as well as prevent accidents, injuries, and occupational illnesses.

1.4.0 Contractors

DoDINST 6055.1 does not apply generally to DoD contractor personnel and contractor operations. Enclosure E5, SOH Considerations for DoD Contractor Personnel and Contractor Operations contains additional details. In peacetime operations performed in the Continental United States or its territories or possessions, the contractor is responsible directly to the Federal or State Occupational Safety and Health Administration (OSHA) for the safety and health of contractors' employees.

2.1.1 PUBLIC WORKS TRANSPORTATION DEPARTMENT FUNCTIONAL ORGANIZATION

The Public Works transportation organization discussed in this chapter is typical within a Public Works activity although the titles and organization may vary from activity to activity. To learn more about these organizations, obtain and study current NAVFAC instructions and publications pertaining to the Public Work Centers and Public Works Departments. In *Figure 1-1*, you can see that the Transportation Division is broken down into two branches: Operations Branch and Equipment Maintenance Branch. Notice that both come under the control of the Transportation Division Director, who reports through a chain of command to the Public Works Officer (PWO).

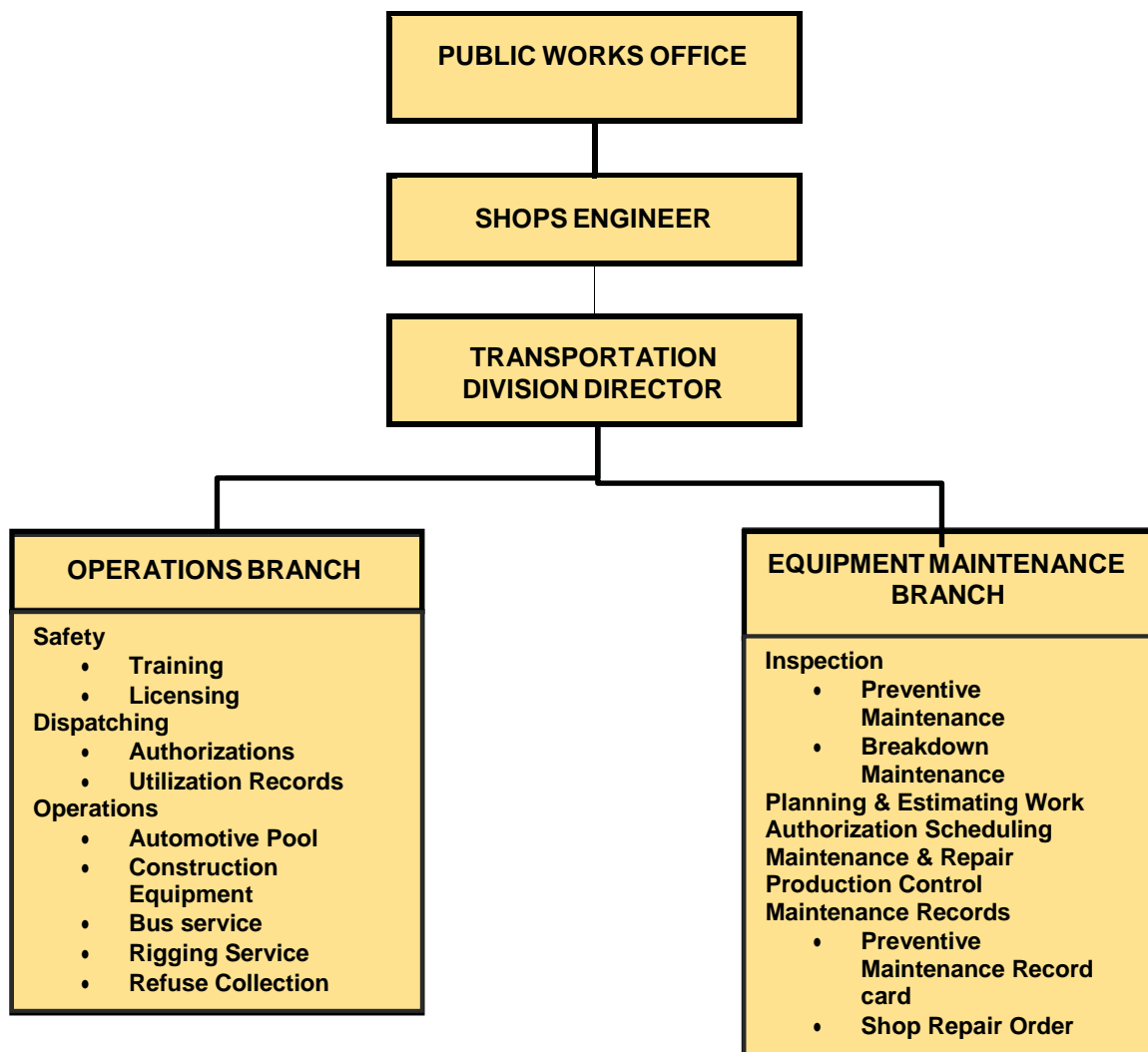


Figure 1-1 -Transportation Division Organization.

The Transportation Division is responsible for providing responsive, cost effective transportation services and safe and reliable equipment to the activity. The Transportation Director plans, organizes, and develops equipment, manpower, and funding requirements. He or she also directs, supervises, controls and coordinates the activities of these branches. The Director's responsibilities also include taking measures to reduce all costs, in order to be competitive with commercial operations. Transportation Division services normally include:

- a. Operating vehicle and equipment pools
- b. Operating scheduled and unscheduled passenger and freight transportation systems
- c. Maintaining automotive, construction, railroad, fire fighting, and weight handling or materials handling equipment

2.1.0 Public Works Transportation Branches

The Transportation Division normally consists of two branches; an Operations Branch and an Equipment Maintenance Branch. Both are supervised by a Transportation Division Director or Transportation Superintendent. The major functions of the branches are the following:

2.1.1 Operations Branch

- a. Operates the activity bus and taxi system for the movement of personnel
- b. Operates the trucking system for the movement of material and equipment
- c. Operates the solid waste collection system
- d. Provides equipment with operators for facilities maintenance functions, including riggers and equipment for heavy lifts and movements (Note: Riggers may be assigned to another Department within the Command.)
- e. Assigns vehicles on a long-term basis to using departments (Class B assignments)
- f. Operates station motor pool and assigns vehicles on daily or trip basis (Class C assignments), and responds to all intermittent random requests

2.1.2 Equipment Maintenance Branch

Provides scheduled and unscheduled maintenance with the minimum labor and material (parts) necessary to ensure a safe and serviceable fleet capable of meeting the activity's operational requirements.

2.1.3 Subordinate Components

Depending on the size of the activity, it may establish subordinate organizations called functional sections to carry out the functions of the two main branches of a Transportation Division. Such sections normally are headed by a foreman or general foreman. The following are some sections an activity may establish:

- a. Under the Operations Branch: Station Bus Section, Taxi Section, Heavy Equipment Section, Crane and Rigger Section, and Operator Licensing and Examining Section
- b. Under the Maintenance Branch: Automotive Repair Section, Heavy Equipment Repair Section, and Materials Handling Equipment Repair Section

2.2.0 Program Responsibilities for Civil Engineering Support Equipment

As a supervisor you will need to know who supports you, who you report to or go to for inquiries about vehicle acquisition, assignment, disposition, modification, or any concerns related to the CESE. Program responsibilities for automotive vehicles, construction, weight handling and railway equipment are as follows:

2.2.1 val Facilities Engineering Command

By authority of Secretary of the Navy (SECNAV) and Chief of Naval Operations (CNO), the technical responsibility of Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) for transportation equipment described in the procurement budgeting area as Civil Engineering Support Equipment (CESE) includes the following:

- a. Procure and administer the assignment and utilization of transportation equipment in accordance with the mission requirements established by CNO and the operational requirements of offices and commands.
- b. Develop short and long range CESE program objectives and funding requirements.
- c. Establish and promulgate standards for operation and general utilization.
- d. Prepare and promulgate maintenance standards.
- e. Administer public laws relating to:
 - (1) Vehicle acquisition.
 - (2) Official use of Government-owned and operated vehicles.
 - (3) Mass transportation and school bus operations.
 - (4) The sale, replacement, and retirement of assigned equipment in accordance with the Department of Defense (DoD) Disposal Manual, DoD 4160.21 Series.
- f. Establish procedures for hire/lease/rental of CESE.
- g. Maintain current and complete inventory files and records for all commands/activities, ashore and afloat.
- h. Promulgate criteria for replacement and retirement in compliance with DoD guidance and establish such criteria where specific DoD guidance is not available.
- i. Develop specifications, initiate their coordination with other commands/activities, and expedite their adoption as coordinated specifications in either the federal or military series.
- j. Through command channels and in coordination with other offices and commands, determine Navy-wide requirements in support of programs authorized by CNO.
- k. Through command channels, verify, determine the degree of, and assist in compliance with technical standards and safety regulations.
- l. Coordinate transportation cost accounting and cost reporting procedures with the Comptroller of the Navy (NAVCOMPT) and other offices and commands.
- m. Review/approve all requests for local procurement of CESE.

- n. Approve, in a staff capacity to CNO, transportation equipment inventory objectives.

2.2.2 Civil Engineering Support Office (CESO Code 15), CBC Port Hueneme, CA

CESO has the following responsibilities:

- a. Process the CESE procurement program.
- b. Provide data processing support for transportation equipment inventory, inventory objectives, requirements, procurement, assignment, and data processing support areas in accordance with the policies and procedures prescribed by COMNAVFACENGCOM.
- c. Prepare and forward guidance to Defense Business Operations Fund (DBOF) activities for requirements submission. Additionally, CESO provides similar services to the Naval Construction Force (NCF) and Special Operating Units (SOU). Definitions of the units involved are found in the P-300, Appendix B.
- d. Assign U. S. Navy registration numbers and issue license plates.
- e. Effect standardization of equipment as practicable in conformity with procedures established for the DoD Standardization Program.

2.2.3 Equipment Management Centers (TEMCs)

- a. **Staff Technical Assistance.** To facilitate execution of the policies and procedures set forth in the P-300 and to accomplish assigned centralized technical and management responsibilities for the transportation equipment program, Transportation Equipment Management Centers (TEMCs) were established within designated COMNAVFACENGCOM Engineering Field Divisions (EFDs). In accordance with the P-300, CESO (Code 157) and the equipment offices of COMSECONDNCB and COMTHIRDNCB perform many of the same functions as LANT/PAC TEMCs and are considered TEMCs for the NCF and SOUs. COMSECONDNCB and COMTHIRDNCB exercise administrative and operational control of all NCF Units' CESE management matters. The P-300, Chapter 1 contains a list of the Commands/Major Claimants holding CESE inventory objectives. The TEMCs support the Commands and provide direct support of field activities on a geographical basis as follows:
 - (1) The PACDIV TEMC supports all field activities in the geographic area covered by the PACDIV and SOUTHWESTDIV EFDs, including EFAs WESTDIV and NORTHWESTDIV. This area includes the States of California, Nevada, Arizona, New Mexico, Utah, Idaho, Oregon, Washington, Montana, Alaska, and Hawaii, as well as the entire Pacific Ocean, Indian Ocean and Antarctica. PACDIV also provides major claimant support for transportation matters to CINCPACFLT.
 - (2) The LANTDIV TEMC supports all field activities in the geographic area covered by the SOUTHDIV, NORTHDIV, and LANTDIV EFDs, including EFAs CHESDIV, MED, and GREAT LAKES. This area includes everything not covered by PACDIV, as described above. In addition, LANTDIV provides major claimant support for transportation matters to all of the major claimants except CINCPACFLT (N00070). The LANTDIV TEMC coordinates with the PACDIV TEMC all claimant issues affecting activities in the PACDIV geographic area.

- (3) The Civil Engineering Support Office (CESO) (Code 157) supports all Special Operating Units (SOUs) and the Naval Construction Training Centers (NCTCs) and their Detachments. CESO provides major claimant support in transportation matters for the NCF and SOUs. CESO also acts as the focal point for SOUs desiring to input changes or improvements to this publication.
 - (4) The Second Naval Construction Brigade Detachment, Gulfport MS (N46) supports Naval Construction Forces, including NCRs, NMCBs, NCFSUs, and UCTs homeported or deployed within the CINCLANT geographic area.
 - (5) Third Naval Construction Brigade Detachment, Port Hueneme Ca (N46) supports Naval Construction Forces, including NCRs, NMCBs, NCFSUs, and UCTs homeported or deployed within the CINCPAC geographic area.
- b. **TEMC Responsibilities.** The TEMCs promulgate the program and administer the assignment, replacement, and disposal of transportation, and construction equipment and provide technical advice and assistance for operation and maintenance of transportation department functions, which include the following:
- (1) Providing technical assistance to the activities/claimants
 - (2) Coordinating resources for assistance with reassignments, disposals, or inventory objective transfers between activities/claimants
 - (3) Developing transportation equipment inventory objective analysis and interim approvals
 - (4) Maintaining Construction, Automotive and Specialized Equipment Management Information System (CASEMIS) activity inventory objectives in current status
 - (5) Reviewing all transportation equipment requirements for the submission year in accordance with the detailed guidance in NAVFAC P-300, Chapter 2
 - (6) Maintaining a program to remove equipment excess to inventory objective from inventory. Reassign excess usable transportation equipment to best fill approved inventory objectives. If excess equipment is in usable condition but is not economical to ship or transfer any distance, the TEMC is authorized to provide disposal instructions to the activity.
 - (7) Maximizing standardization of transportation equipment, emphasizing use of the standard family equipment items listed in the CASEMIS Descriptive Reference Table-The TEMCs may further limit the available family of equipment items for activities under their cognizance. The Federal Acquisition Regulation (FAR) delineates the criteria for standardization.
 - (8) Ensuring continual review of activity requirements to accomplish these objectives:
 - a. Eliminate requests for vehicle replacements that do not meet the established life expectancy replacement criteria
 - b. Minimize changes
 - c. Ensure adequate justification for replacements and provides consistent information to satisfy requirements

- d. Minimize changes in shipping destinations
- (9) Act as a central clearing agency for the navy in exchanging and disposing of assigned equipment

2.2.4 Claimant

The claimant is responsible for the following:

- a. Budget for operation and maintenance of equipment.
- b. Process and forward for approval all requests for Class "A" assignments, (Command and Control vehicles and midsize/large Sedans), Home-to-Work assignments, Mass transportation, and requests for vehicle marking exemptions.

2.2.5 Shore Activities

Shore activities perform the following duties:

- a. Review and submit CESE procurement requirements in accordance with detailed guidance in NAVFAC P-300, Chapter 2.
- b. Manage transportation equipment in accordance with the P-300.
- c. Review and revise inventory objectives on a continual basis.

2.3.0 Supply Support

For a maintenance organization to perform effectively, it must receive responsive repair parts support. This support requires a high degree of cooperation and communication between the management and staff of the shop and the shop store and between the Public Works Officer and the Supply Officer. All parties must understand and fulfill the responsibilities involved. COMNAVFACENGCOM and COMNAVSUPSYSCOM have recognized these understandings and promulgated them as the policy outlined in the following paragraphs.

2.4 0 Public Works Responsibility to the Supply Department

The Public Works Department (PWD) shall turn over all initial support repair parts it receives to the Supply Department for inventory control and accountability. The Public Works Department shall not retain in its spaces initial support repair parts intended for activity stock without the prior knowledge and consent of the Supply Officer. By mutual agreement between the Public Works Officer and the Supply Officer, and when local conditions warrant, the Public Works Office may retain designated initial repair parts in the physical custody of the Public Works Officer, but for inventory control and accountability purposes, those parts shall remain on the records of the Supply Department until issued to the end user.

In addition, the Public Works Department shall:

- a. Provide information regarding repair parts requirements needed to support vehicles/equipment on hand or for any new vehicle/equipment received. (Requirements would normally be generated from actual operational experience or through normal routine inspection of equipment.)
- b. Furnish advance information regarding repair parts requirements for scheduled overhauls. (Requirements would be generated in the same manner outlined in the P-300, Chapter 4.

- c. Provide technical assistance to the transportation shop store in identifying parts and insurance items and in determining parts interchangeability.
- d. Advise the transportation shop store of equipment scheduled for disposal or phaseout, and assist in identifying stocked items which should be eliminated from the shop store.
- e. In the absence of stock items, provide end use O&M,N funds to permit procurement and delivery of repair parts required for work in progress, or for subsequent scheduled services and repair for which job orders have been issued.
- f. Conduct periodic follow-up of shop store parts orders (after required delivery date has passed) to ensure that appropriate action has been taken to reduce further delay.
- g. Encourage active coordination/communications between Public Works and Supply Department personnel.

2.4.1 ly Department Responsibility to Public Works Transportation Maintenance Division

- a. Provide for the timeliest method of repair parts support through the use of available stock, system stocks, or purchase action using imprest fund or blanket purchase authority and indefinite delivery parts contracts (IDTC) when practical.
- b. Perform technical research for parts identification and to determine part numbers, interchangeability, and cross-referenced parts numbers.
- c. Collaborate with Public Works in establishing stock levels in support of current and projected vehicle/equipment inventories.
- d. Expedite local procurement action for immediate issue requirements when parts required are not readily available in the shop store or main supply department.
- e. Review outstanding requisitions regularly to ensure that status received indicates satisfactory supply action is in progress. Follow up as necessary on requisitions to obtain delivery status on parts.
- f. Advise Public Works personnel promptly indicating delivery date(s) of requested repair parts.
- g. Assume responsibility for staging of material by segregating material receipts applicable to specific repair jobs and advising the shop maintenance supervisor of material status.
- h. Encourage active coordination/communications between Supply Department and Public Works personnel.

2.5.1 Shop Repair Order (SRO)

The Shop Repair Order, NAVFAC 9-11200/3A is a three-part set as shown in *Figure 1-2A* and The Shop Repair Order, NAVFAC 9-11200/3B (continuation sheet) as shown in *Figure 1-2B*. Each SRO set consists of an original white, green, and yellow copy. Activities using computer generated SROs (i.e., PCTransport, NFTS, etc.) shall develop local procedures for SRO copy distribution. The SRO provides space for indicating description and identification of equipment, statistical and cost coding, standard and actual hours, and scheduling and dispatching information. The SRO is used to:

- a. Specifically authorize and control repair work on all types of CESE, including authorization to requisition necessary repair parts from shop stores; P-300, Chapter 4
- b. Furnish basic information for management analysis
- c. Authorize work on equipment when a shop other than the activity transportation shop performs the work
- d. Authorize a specific job under a Work Request (NAVCOMPT Form 140) issued by the ordering activity
- e. Support the Order for Supplies or Services (DD Form 1155) as source material for the preparation of reports at small activities wholly serviced by a commercial facility

2.5.1 SRO Preparation

An SRO will be prepared each time labor or materials are expended for the maintenance, repair, modernization, alteration, or improvement of an item of equipment except for minor work that does not exceed 18 minutes (0.3 hours). The SRO shall clearly and specifically describe the work to be performed in terminology generally used in commercial flat rate manuals. Maintenance personnel are not authorized to perform work not specified on the SRO. The SRO will be considered complete at the time the control section releases the equipment to the using organization's representative. In cases where items on the SRO must be deferred because of a lack of parts, and it is determined that the equipment can be safely returned to service, the remaining repair operations shall be entered on a new SRO and accomplished as scheduled work at a later date. Under no circumstances shall the original SRO be held open pending completion of repairs once the vehicle is released for use. The white copy of the SRO shall be completed showing all labor and material expended and totaled in the lower right hand block.

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153		D 154		D 155		D 156		D 157		D 158		D 159		D 160		D 161		D 162		D 163		D 164		D 165		D 166		D 167		D 168		D 169		D 170		D 171		D 172		D 173		D 174		D 175		D 176		D 177		D 178		D 179		D 180		D 181		D 182		D 183		D 184		D 185		D 186		D 187		D 188		D 189		D 190		D 191		D 192		D 193		D 194		D 195		D 196		D 197		D 198		D 199		D 200		D 201		D 202		D 203		D 204		D 205		D 206		D 207		D 208		D 209		D 210		D 211		D 212		D 213		D 214		D 215		D 216		D 217		D 218		D 219		D 220		D 221		D 222		D 223		D 224		D 225		D 226		D 227		D 228		D 229		D 230		D 231		D 232		D 233		D 234		D 235		D 236		D 237		D 238		D 239		D 240		D 241		D 242		D 243		D 244		D 245		D 246		D 247		D 248		D 249		D 250		D 251		D 252		D 253		D 254		D 255		D 256		D 257		D 258		D 259		D 260		D 261		D 262		D 263		D 264		D 265		D 266		D 267		D 268		D 269		D 270		D 271		D 272		D 273		D 274		D 275		D 276		D 277		D 278		D 279		D 280		D 281		D 282		D 283		D 284		D 285		D 286		D 287		D 288		D 289		D 290		D 291		D 292		D 293		D 294		D 295		D 296		D 297		D 298		D 299		D 300		D 301		D 302		D 303		D 304		D 305		D 306		D 307		D 308		D 309		D 310		D 311		D 312		D 313		D 314		D 315		D 316		D 317		D 318		D 319		D 320		D 321		D 322		D 323		D 324		D 325		D 326		D 327		D 328		D 329		D 330		D 331		D 332		D 333		D 334		D 335		D 336		D 337		D 338		D 339		D 340		D 341		D 342		D 343		D 344		D 345		D 346		D 347		D 348		D 349		D 350		D 351		D 352		D 353		D 354		D 355		D 356		D 357		D 358		D 359		D 360		D 361		D 362		D 363		D 364		D 365		D 366		D 367		D 368		D 369		D 370		D 371		D 372		D 373		D 374		D 375		D 376		D 377		D 378		D 379		D 380		D 381		D 382		D 383		D 384		D 385		D 386		D 387		D 388		D 389		D 390		D 391		D 392		D 393		D 394		D 395		D 396		D 397		D 398		D 399		D 400		D 401		D 402		D 403		D 404		D 405		D 406		D 407		D 408		D 409		D 410		D 411		D 412		D 413		D 414		D 415		D 416		D 417		D 418		D 419		D 420		D 421		D 422		D 423		D 424		D 425		D 426		D 427		D 428		D 429		D 430		D 431		D 432		D 433		D 434		D 435		D 436		D 437		D 438		D 439		D 440		D 441		D 442		D 443		D 444		D 445		D 446		D 447		D 448		D 449		D 450		D 451		D 452		D 453		D 454		D 455		D 456		D 457		D 458		D 459		D 460		D 461		D 462		D 463		D 464		D 465		D 466		D 467		D 468		D 469		D 470		D 471		D 472		D 473		D 474		D 475		D 476		D 477		D 478		D 479		D 480		D 481		D 482		D 483		D 484		D 485		D 486		D 487		D 488		D 489		D 490		D 491		D 492		D 493		D 494		D 495		D 496		D 497		D 498		D 499		D 500		D 501		D 502		D 503		D 504		D 505		D 506		D 507		D 508		D 509		D 510		D 511		D 512		D 513		D 514		D 515		D 516		D 517		D 518		D 519		D 520		D 521		D 522		D 523		D 524		D 525		D 526		D 527		D 528		D 529		D 530		D 531		D 532		D 533		D 534		D 535		D 536		D 537		D 538		D 539		D 540		D 541		D 542		D 543		D 544		D 545		D 546		D 547		D 548		D 549		D 550		D 551		D 552		D 553		D 554		D 555		D 556		D 557		D 558		D 559		D 560		D 561		D 562		D 563		D 564		D 565		D 566		D 567		D 568		D 569		D 570		D 571		D 572		D 573		D 574		D 575		D 576		D 577		D 578		D 579		D 580		D 581		D 582		D 583		D 584		D 585		D 586		D 587		D 588		D 589		D 590		D 591		D 592		D 593		D 594		D 595		D 596		D 597		D 598		D 599		D 600		D 601		D 602		D 603		D 604		D 605		D 606		D 607		D 608		D 609		D 610		D 611		D 612		D 613		D 614		D 615		D 616		D 617		D 618		D 619		D 620		D 621		D 622		D 623		D 624		D 625		D 626		D 627		D 628		D 629		D 630		D 631		D 632		D 633		D 634		D 635		D 636		D 637		D 638		D 639		D 640		D 641		D 642		D 643		D 644		D 645		D 646		D 647		D 648		D 649		D 650		D 651		D 652		D 653		D 654		D 655		D 656		D 657		D 658		D 659		D 660		D 661		D 662		D 663		D 664		D 665		D 666		D 667		D 668		D 669		D 670		D 671		D 672		D 673		D 674		D 675		D 676		D 677		D 678		D 679		D 680		D 681		D 682		D 683		D 684		D 685		D 686		D 687		D 688		D 689		D 690		D 691		D 692		D 693		D 694		D 695		D 696		D 697		D 698		D 699		D 700		D 701		D 702		D 703		D 704		D 705		D 706		D 707		D 708		D 709		D 710		D 711		D 712		D 713		D 714		D 715		D 716		D 717		D 718		D 719		D 720		D 721		D 722		D 723		D 724		D 725		D 726		D 727		D 728		D 729		D 730		D 731		D 732		D 733		D 734		D 735		D 736		D 737		D 738		D 739		D 740		D 741		D 742		D 743		D 744		D 745		D 746		D 747		D 748		D 749		D 750		D 751		D 752		D 753		D 754		D 755		D 756		D 757		D 758		D 759		D 760		D 761		D 762		D 763		D 764		D 765		D 766		D 767		D 768		D 769		D 770		D 771		D 772		D 773		D 774		D 775		D 776		D 777		D 778		D 779		D 780		D 781		D 782		D 783		D 784		D 785		D 786		D 787		D 788		D 789		D 790		D 791		D 792		D 793		D 794		D 795		D 796		D 797		D 798		D 799		D 800		D 801		D 802		D 803		D 804		D 805		D 806		D 807		D 808		D 809		D 810		D 811		D 812		D 813		D 814		D 815		D 816		D 817		D 818		D 819		D 820		D 821		D 822		D 823		D 824		D 825		D 826		D 827		D 828		D 829		D 830		D 831		D 832		D 833		D 834		D 835		D 836		D 837		D 838		D 839		D 840		D 841		D 842		D 843		D 844		D 845		D 846		D 847		D 848		D 8	

[illegible]

Figure 1-2B - Shop Repair Order. NAVFAC 9-11200/ 3B, (Continuation Sheet).

3.0.0 DUTIES and RESPONSIBILITIES of SUPERVISORY PERSONNEL

This phase of our discussion deals with the duties and responsibilities of some of the supervisory personnel within the maintenance branch. The individual assignments depend upon the needs of the activity and the skill and experience of personnel available. The Public Works Officer makes the final decision as to the assignment of supervisory personnel.

3.1.0 Transportation Division Director

As head of the transportation division, the Director exercises full technical, managerial, and administrative responsibility for organizing, directing, and controlling the work of the division. The director also functions as the technical advisor within and outside the activity in planning and procuring vehicle/equipment requirements for the activity and other supported customers.

The Director also ensures the efficient, economical, and timely administration of the division; directs operations assignments, manages scheduled preventive maintenance (PM) as well as repair/overhaul, and is charged with the requisition and disposition of automotive vehicles, construction equipment, materials-handling equipment, and miscellaneous specialized equipment.

Additionally, the Director is responsible for establishment equipment history record files for each unit of CESE assigned to the activity. record file in complete and up-to-date status from the time the equipment is acquired until it is transferred for disposal or excess. History record files may be maintained in hard copy and/or computer media. History record files will accompany vehicles transferred from one activity to another. As a minimum, the equipment history record files shall contain the following:

1. Certificate of origin (or vehicle title/ownership certificate)
2. DoD Property Record Form DD 1342 or other computer generated forms
3. SROs covering all inspection, maintenance, and repair items accomplished to date (government or contractor work)
4. Current annual safety inspection
5. Accident reports
6. Manufacturer recalls or notices
7. Copies of any applicable quality deficiency reports (QDRs)
8. Copies of any vehicle modification requests or work completed
9. Other appropriate documentation considered necessary for further reference purposes, such as warranty work and unsatisfactory equipment reports

3.2.1 Manager of the Equipment Maintenance Branch

The Equipment Maintenance Branch Manager reports to the Transportation Division Director and is responsible for the planning, work direction, and administration of the branch. The manager is to ensure that the Equipment Maintenance Branch maintains all vehicles and equipment in a safe and reliable condition and keeps the time the vehicles and equipment are out of service (downtime) to a minimum. A further responsibility is to ensure performance of such maintenance at a cost within the Transportation Division's budget plan. The Maintenance Branch is organized into a work input and records section and one or more repair sections. The Maintenance Branch Manager may act as and assume the duties of the Transportation Division Director in case of his/her absence. Additional responsibilities include the following:

1. Preparing and submitting the maintenance division fiscal financial budget
2. Scheduling work for subordinate supervisors and planning for the efficient use of materials and equipment
3. Organizing, coordinating, and directing the work activities of personnel and units supervised
4. Maintaining a balanced workload for subordinate work units by shifting personnel effectively among the units
5. Coordinating the work in areas of responsibilities with other activities and department/division supervisory personnel to maintain a balanced scheduled work flow
6. Reviewing and analyzing production, cost, and personnel utilization records to evaluate the progress of work and to control or reduce costs

7. Reviewing completed work records on the Shop Repair Order, NAVFAC Form 9-11200/3A, shown in *Figure 1-3*, and the Shop Repair Order, NAVFAC Form 9-11200/B, shown in *Figure 1-4*, along with computer reports to assure that production and quality standards are met
8. Inspecting the shop areas periodically and checking safety conditions, cleanliness, security, requirements for materials, and shop equipment
9. Acting on any personnel matter concerning subordinates and assisting in the resolution of grievances referred by subordinate supervisors
10. Promoting safety programs within the immediate organization, reviewing the safety performance of the supervisors, and initiating corrective action as required
11. Ensuring preparation, maintaining, and consolidation of progress, production, cost, and other records
12. Developing training programs for employees and subordinate supervisors

NAVFAC FORM 9-11200/3A
SHOP REPAIR ORDER
 (For equipment identification)

TO BE COMPLETED UPON EQUIPMENT AVAILABILITY FOR MAINTENANCE REPAIR

(1) WORK DESCRIPTION

1. WORK DESCRIPTION	2. EQUIPMENT NO.	3. EQUIPMENT TYPE	4. EQUIPMENT MAKE	5. EQUIPMENT MODEL	6. EQUIPMENT YEAR	7. EQUIPMENT LOCATION	8. EQUIPMENT STATUS	9. EQUIPMENT COMMENTS
1. WORK DESCRIPTION	2. EQUIPMENT NO.	3. EQUIPMENT TYPE	4. EQUIPMENT MAKE	5. EQUIPMENT MODEL	6. EQUIPMENT YEAR	7. EQUIPMENT LOCATION	8. EQUIPMENT STATUS	9. EQUIPMENT COMMENTS

(2) MATERIAL RECORD

DATE	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL

(3) WORK DESCRIPTION

1. WORK DESCRIPTION	2. EQUIPMENT NO.	3. EQUIPMENT TYPE	4. EQUIPMENT MAKE	5. EQUIPMENT MODEL	6. EQUIPMENT YEAR	7. EQUIPMENT LOCATION	8. EQUIPMENT STATUS	9. EQUIPMENT COMMENTS
1. WORK DESCRIPTION	2. EQUIPMENT NO.	3. EQUIPMENT TYPE	4. EQUIPMENT MAKE	5. EQUIPMENT MODEL	6. EQUIPMENT YEAR	7. EQUIPMENT LOCATION	8. EQUIPMENT STATUS	9. EQUIPMENT COMMENTS

FOR CUSTOMER JOB ESTIMATES

(4) LABOR (HOURS)	(5) LABOR (DOLLARS)	(6) MATERIAL	(7) OTHER	(8) TOTAL COST

NAVFAC FORM 9-11200/3A
 (For equipment identification)

Figure 1-3 - Shop Repair Order, NAVFAC Form 9-11200/3A.P-300

[illegible]

Figure 1-4–Shop Repair Order (Cont.)

3.2.1 Work Input and Records Section

1. Maintains the inventory, schedules maintenance, receives all equipment, makes basic repair descriptions on Shop Repair Orders (SROs) (NAVFAC Form 11200/3A) and routes all maintenance work and SROs to the repair section supervisor(s) for work accomplishment
2. Meets with the customer to identify complaints, performs simple safety inspections, and describes in writing on the SRO the work to be accomplished
3. Allocates on an SRO the job operation time standards (flat rate) to be used in measuring the repair section's productivity
4. Performs all shop accounting functions, including completion of labor distribution cards' reconciliation with time cards
5. Maintains all equipment history record files
6. Provides the Equipment Maintenance Branch Head with status reports such as downtime status, labor expended against standards, productivity of the repair section(s), and performance against maintenance input and overhead standards
7. Develops, revises, and adjusts all preventive maintenance schedules, including items to be inspected, frequency, and necessary depth and detail
8. Expedites work through the shop(s), including parts for vehicles out of service awaiting parts (OSP)

9. Advises customers when work has been accomplished, and provides necessary status information

3.2.2 Repair Section(s)

1. Performs work described on SROs. Brings to the supervisor's attention, for further work authorization, added deficiencies requiring correction disclosed during accomplishment of work
2. Accomplishes work on SROs within established job operation time standards (flat rate)
4. Keeps overhead and indirect time at a minimum, allocating such time within established standards
5. Restricts the use of repair parts to a level necessary to achieve effective repairs, holding material costs within overall established budget standards
6. Performs final inspection and testing to ensure that the work has been properly accomplished and that the equipment is safe and reliable

3.3.1 Maintenance and Repair Foreman

The foreman of the maintenance and repair shop supervises subcenters, such as the body and paint shop, battery shop, tire shop, toolroom, and lubrication shop.

Responsibilities of the foreman include the following:

1. Establishing priorities and sequences, primarily on a day-to-day/job-by-job basis, to accomplish scheduled workloads
2. Analyzing and interpreting shop repair orders, work requests, and other work documentation and specifications to determine work requirements
3. Assigning work among subordinates and providing specific material requirements
4. Consulting with higher authority and staff personnel to make sure that appropriate tools, materials, and equipment are available as needed
5. Requesting and coordinating the services and work of other shops when required
6. Assigning work by written or oral orders
7. Assisting in the training of subordinates in work methods, procedures, and the operation of tools and equipment, both new and already in use
8. Certifying that the work is efficient, economical, and performed safely
9. Anticipating operational problems and acting to overcome delays
10. Directing and recommending changes in shop layout to improve efficiency
11. Ensuring that subordinates houseclean
12. Issuing and enforcing safety practices and fire regulations
13. Checking attendance and leave of subordinates and other personnel matters

3.4.0 Construction Equipment Shop Foreman

The Construction Equipment Shop Foreman's responsibilities are basically the same as those of the maintenance and repair foreman, except for the technical supervision. The shop is responsible for the maintenance, repair and major overhaul (mechanical and electrical) of construction and specialized equipment such as forklifts, frontend

loaders/backhoes, graders, track hoes, ditchers, bulldozers, rollers, asphalt machines, farm tractors, jet starters, auxiliary power units, emergency generators, pumps, and aircraft tow tractors.

The foreman of the construction and specialized equipment shop supervises the machine shop as a subcenter. The machine shop bores cylinders; rebuilds all types of gasoline and diesel engines, automatic transmissions, and differentials; and performs other related repairs.

4.0.0 PREVENTATIVE MAINTENANCE

The most important phase of the maintenance system is scheduled periodic preventive maintenance (PM). PM is the systematic inspection, detection, and correction of potential equipment failures before they develop into major defects. The purpose of PM is to keep equipment in safe and reliable condition with maximum equipment availability and minimum cost of maintenance. The procedures for preventative maintenance will be found in the *Management of Civil Engineering Support Equipment*, NAVFAC P-300, Chapter 4.

Operators are the first line of defense against equipment wear, failure, and damage. The operator must inspect equipment daily before, during, and after operation to detect defects or malfunctions before they result in serious damage, failure, or accident.

As a mechanic it is your responsibility to ensure the operators are performing their duties. Work with the Operations Branch in making recommendations regarding operator PM. Changes may be necessary in the operator PM procedures to cope with certain operating conditions. You may need to set up classes for the operators to go over the PM procedures so they will become more familiar with the right way to maintain their vehicles and equipment, especially when the activity receives new equipment. If you do wish to set up classes, be sure to coordinate your training period with the Equipment Operations Branch Manager so that you do not interfere with the equipment operating schedules. Also, try to have the equipment on hand so you can point out maintenance services that need attention. It is better to conduct classes with small manageable groups and to keep them as informal as possible. Do not forget to stress the importance of operator maintenance on the overall operating efficiency of the equipment.

4.1.1 Operator Maintenance

Operators must keep vehicles clean, safe and in serviceable condition and perform operator maintenance. Operators must inspect equipment systematically to discover defects before a serious failure or an accident occurs. Operator Maintenance includes the following inspections and services:

- a. **Prestart Inspection.** A prestart inspection consists of performing the services listed on the Operator's Inspection Guide and Trouble Report, NAVFAC 9-11240/13, (*Figure 1-5*) also called a "Hard Card," as per P-300 and other services, as directed. This inspection basically covers fuel, oil, water, and battery levels; inspection of tires, safety devices, drive belts, cargo and mounted equipment; inspection for leaks and exterior or interior damage; and lubricating, as required. Do not operate defective or unsafe equipment. Note the discrepancies on the Hard Card/Daily PM Report and forward immediately to the Dispatcher.

- b. Operating Checks. The Operator must use the senses to detect items that need attention: smell (burning rubber, grease, clutches), hearing (unusual noises), sight (instruments), and feeling (drag, pull, vibration). Operators should periodically inspect tires for flats and rocks between duals. During operation, lubrication is the responsibility of the operator. If you suspect a defect, stop the equipment, investigate, and ensure repair of defects that damage equipment or impair safe operation before using the equipment.

Operator's Inspection Guide and Trouble Report
(NAVFAC 9-11240/13)

OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT	
REGISTRATION NO.	ODOMETER READING
Use this form as a guide when performing before and after operation inspections. Check (✓) items that require servicing by maintenance personnel.	
1. DAMAGE (Exterior/Interior/Missing Components)	
2. LEAKS (Oil, Gas, Water)	
3. TIRES (Check inflation, abnormal wear)	
4. FUEL, OIL, WATER SUPPLY (Antifreeze in engine)	
5. BATTERY (Check water level, cables, etc.)	
6. HOOD	
7. LIGHTS/REFLECTORS/MIRRORS/TURN SIGNALS	
8. INSTRUMENTS (Oil, Air, Temperature, etc.)	
9. WINDSHIELD WIPER	
10. CLEAN WINDSHIELD/VEHICLE INTERIOR	
11. CARGO MOUNTED EQUIPMENT	
12. STEERING	
13. SAFETY DEVICES (Seat belts, flares, etc.)	
14. DRIVE BELTS/PULLEYS	
15. BRAKES (Drain air tank when equipped)	
16. OTHER (Specify in "Remarks")	
DATE	OPERATOR'S SIGNATURE
REMARKS	

NAVFAC 9-11240/13 (12-99)
Supersedes 9-11240/13 (12-99)
S/N 0105-L F-004-1195

Figure 1-5 - Operator's Inspection Guide and Trouble Report, NAVFAC 9-11240/13.

- c. After Operation Services. After operation, the operator performs established shutdown procedures as prescribed in the appropriate operator's manual and other services, as directed. This operator checks equipment cleanliness (wash and steam clean as appropriate), drains air tanks, covers exhaust stacks; closes doors, windows, and hoods; sets brakes, blocks dump beds to drain, and tops off fuel tanks if tanks are less than one-half full. Supervisors will ensure protection of the equipment against the weather and ensure the Hard Card/Daily PM Report is completed and returned to the Dispatcher.

OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT	
REGISTRATION NO. 45-2444	ODOMETER READING 14,240
Use this form as a guide when performing before and after operation inspections. Check (✓) items that require servicing by maintenance personnel	
<input checked="" type="checkbox"/>	1. DAMAGE (Exterior/Interior/Missing Components)
<input checked="" type="checkbox"/>	2. LEAKS (Oil, Gas, Water)
	3. TIRES (Check inflation, abnormal wear)
	4. FUEL, OIL, WATER SUPPLY (Antifreeze in season)
	5. BATTERY (Check water level, cables, etc.)
	6. HORN
	7. LIGHTS/REFLECTORS/MIRRORS/TURN SIGNALS
	8. INSTRUMENTS (OIL, Air, Temperature, etc.)
	9. WINDSHIELD WIPER
	10. CLEAN WINDSHIELD/VEHICLE INTERIOR
	11. CARGO, MOUNTED EQUIPMENT
	12. STEERING
	13. SAFETY DEVICES (Seat Belts, flares, etc.)
	14. DRIVE BELT/PULLEYS
	15. BRAKES (Drain air tanks when equipped)
	16. OTHER (Specify in "Remarks")
DATE	OPERATOR'S SIGNATURE
18 Sep 10	E. M. Seabrook
REMARKS	
<div style="border: 1px solid black; padding: 5px; margin: 5px;"> Will not start Damaged Right Front Fender Appears to have an engine oil leak </div>	

NAVFAC 9-11240/13 (12-69)
 Supersedes DD Form 1358
 S/N 015-LP-004-1195

***U.S. GPO: 1983-605-010/8469 2-1**

Figure 1-6 - Operator's Inspection Guide and Inspection Report, NAVFAC 11240/13.

4.1.1 Automotive Vehicle

When operators detect defects during these inspections or during operation of the equipment, they shall note the defects on the Operator's Inspection Guide and Trouble Report, NAVFAC 9-11240/13 (*Figure 1-6*) and report them immediately upon ceasing operation. The operator must stop operation immediately when a deficiency develops that could damage the equipment or render it unsafe.

4.1.2 and Allied Equipment (Less Weight Handling Equipment)

Operators of construction and allied equipment (except weight handling equipment) use the Operator's Daily PM Report, Construction and Allied Equipment, NAVFAC 11260/4

(Figure 1-7) as a guide when performing daily PM services and when reporting equipment deficiencies, hours operated, and fuel issued. (See NAVFAC P-307, for Operator's Daily Check List of weight handling equipment.) The following procedures are prescribed for field application of NAVFAC 11260/4:

NAVFAC 11260/4 (9-74) <i>Supersedes NAVDOCKS 2664</i> S/N 0105-LF 004-1520 <i>Use reverse Side for Remarks</i> <i>Explanatory Notes on Reverse Side</i>			USN NO. 44-35173
			FUEL 14
			OPR HRS 3

No	ITEM	OK <input type="checkbox"/>	SERVICES PERFORMED
1	RADIATOR SOLUTION	<input type="checkbox"/>	
2	GEN & FAN BELT	<input type="checkbox"/>	Adjusted
3	ENGINE OIL LEVEL	<input type="checkbox"/>	
4	AIR CLEANER	<input type="checkbox"/>	
5	PRECLEANER	<input type="checkbox"/>	
6	BATTERY	<input type="checkbox"/>	Added Water
7	HYD. OIL LEVEL	<input type="checkbox"/>	
8	LUBRICATION	<input type="checkbox"/>	
9	TIRE CONDITION	<input type="checkbox"/>	
10	SAFETY EQUIP.	<input type="checkbox"/>	
11	GENERAL COND.	<input type="checkbox"/>	
12	FUEL LEVEL	<input type="checkbox"/>	Added 12 gal
13	INSTRUMENTS	<input type="checkbox"/>	
14	SHUTDOWN PRECAUTIONS	<input type="checkbox"/>	
15	OTHER	<input type="checkbox"/>	

DATE 11/17/10 OPERATOR'S SIGNATURE [Signature]

Figure 1-7 - Operator's Daily PM Report, NAVFAC 11260/4, (Front).

The operations dispatcher issues a form to the operator when he or she assigns the equipment.

- The equipment operator performs pre-service maintenance checks and indicates findings on the form.
- The equipment operator records malfunctions of other items requiring attention as observed during the working day.
- The equipment operator records the number of gallons of fuel issued to the equipment while in his/her custody and enters hours operated at the end of the day. The operator shall take those hour readings from the equipment hour meter or estimate actual operating hours for those units not equipped with hour meters.
- At the close of business each day, the operator turns in the form to the operations dispatcher, who reviews the form to ensure that the entries are valid

and to take note of any deficiencies reported. The operations dispatcher then forwards the form to the maintenance dispatcher for further processing.

4.1.3 Boom, Hi-Lift and Aerial Service Truck/Equipment

- a. **Daily.** Each operator shall perform a check of the equipment prior to placing the equipment in service and again when securing the equipment. Using the manufacturer's manual and past local experience, each activity shall develop a daily check list for the operators' use. The completed daily check lists shall be kept on file for a minimum of 60 days. If the operator detects any condition that would indicate the equipment to be unsafe or unreliable for use, the equipment shall be removed from service until the suspect condition is corrected.
- b. **Annual.** A condition inspection, an electrical insulation test (when applicable), and a load test shall be performed annually. Certification of these inspections and tests shall be the responsibility of the designated (in writing) activity certifying official who will certify the equipment safe and reliable for use. A copy of the certification shall be posted on the equipment, in full view of the operator, with the original certification form being filed in the equipment history record file. A locally developed condition inspection, load test, and certification format shall be used.

4.2.1 Service Station Maintenance

The operator, a service station attendant, or other maintenance personnel shall perform the following services during each refueling:

- a. Check the oil level in crankcase and fluid levels in transmission and power steering pump.
- b. Check the tires for proper inflation and condition.
- c. Check the electrolyte level in battery (maintenance-free batteries should be a visual check; DO NOT REMOVE TOP).
- d. Check the coolant level and antifreeze.

Take note that when someone other than the operator performs the preceding functions, it is still the operator's responsibility to supervise the performance, ensure that the required services have been accomplished, and determine that the equipment appears to be in safe operating condition. If the vehicle is not displaying a currently valid vehicle inspection sticker (*Figure 1-8*) it must not be operated unless approved by the Operations Supervisor.

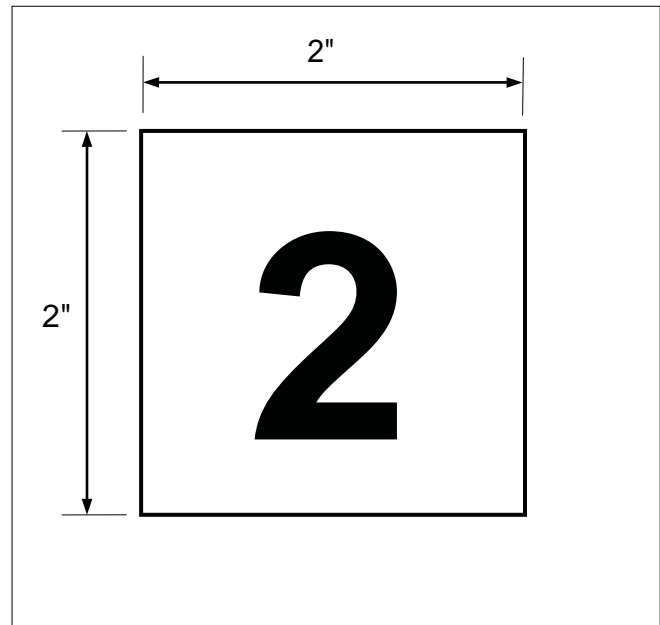


Figure 1-8 – Sample Vehicle Inspection Sticker.

4.3.0 Safety Inspection

Each motor vehicle shall be inspected for safety at intervals not to exceed 12 months or 12,000 miles, whichever occurs first. To avoid unnecessary downtime, the safety inspection shall be performed at the time of the scheduled reliability inspection in accordance with the manufacturer's recommendations. The safety inspection shall include all the items set forth in the P-300, Chapter 4. Any deficiencies detected shall be corrected before returning the vehicle to an operational status. The Navy commercial motor vehicles are not exempt from having inspection documentation to drive on city, state, or federal highways and fall under the same guidelines as those of our civilian counterparts. The term commercial motor vehicle includes each vehicle in a combination vehicle, such as the tractor semitrailer, fulltrailer (including the converter dolly if so equipped) in a tractor trailer combination. For commercial motor vehicles, documentation of an annual safety inspection shall be in compliance with, *Title 49 Transportation, Part 396 Inspection, Repair and Maintenance; Section 396.17 Periodic Inspections*, (49CFR396.17). This documentation may be in the form of a report or a sticker or decal (Maintenance Inspection/Service Record, NAVFAC 11200/46, *Figure 1-9*) that contains the following:

1. Date of inspection
2. Name and address of maintenance facility holding report
3. Vehicle I.D.
4. Certification of successful inspection

MAINTENANCE INSPECTION/SERVICE RECORD				
NEXT MAINTENANCE				
➡ <i>When NO service is performed, POST Data from PRIOR STICKER</i>				
SERVICES PERFORMED	🚗 MILES/HOURS	📅 DATE		
<input type="checkbox"/> OIL CHANGE				
<input type="checkbox"/> FILTER CHANGE				
<input type="checkbox"/> LUBRICATE CHASSIS				
<input type="checkbox"/> SERVICE AIR CLEANER				
<input type="checkbox"/> ENGINE TUNE-UP				
<input type="checkbox"/> EMISSIONS CONTROL DEVICE				
<input type="checkbox"/> SAFETY INSPECTION				
LAST PM <i>(circle type)</i>	A	B	C	NAVFAC 11200/ 46 (8-70) <i>Supersedes NavDocks 9-11200/5</i>

Figure 1-9 - Maintenance Inspection/Service Record, NAVFAC 11200/46.

4.4.0 Unscheduled Maintenance

Unscheduled maintenance service is the correction of deficiencies reported by the vehicle operator that occur between scheduled safety or other inspection and services prescribed by the manufacturer. Unscheduled maintenance services will be limited to correcting only those items reported as deficient by the operator and confirmed by qualified inspection personnel.

Unreported deficiencies observed by the inspector at an unscheduled service, especially those affecting safety must be corrected before the vehicle is released for service.

5.0.0 COST CONTROL

The Navy's cost control system is designed to obtain complete cost data on maintenance and operation of automotive, construction, fire fighting, railway, weight-handling, and materials-handling equipment. Actual performance of maintenance work is compared to hourly standards for such work, as established and published by various manufacturers and NAVFACENGCOM, to determine efficiency of maintenance operations. The Navy also uses cost control to justify the performance of repairs at its activities.

5.1.1 Records and Reports

In the cost control system, all costs accumulated in the maintenance and operation of the equipment are recorded and charged to appropriations and allotments. These costs may be direct or indirect labor or material. They may also include services provided, such as shop stores, utilities, and even building maintenance.

To evaluate performance and to assist in effective management of transportation maintenance, a series of transportation management reports has been designed to furnish useful information to management at all levels. The accounts fiscal office prepares these reports from the cost records maintained in that office and from feeder reports prepared by the transportation office. These reports provide the facts supervisors require to pinpoint deficient areas, and supervisors should use the reports for corrective action.

The objectives of the transportation management reports are to provide the following:

1. Information on the productivity of maintenance shop personnel (actual versus standard hours)
2. Data on overhead costs
3. Comparison between activity costs and commercial costs
4. Comparison between actual direct labor hours expended and established maintenance input standards
5. Comparison between actual and standard maintenance costs

Variances indicated in reports frequently require a searching review of detailed shop records to determine the causes. The individual *Shop Repair Order* NAVFAC Form 9-11200/3A, and the *Shop Repair Order (Continuation Sheet)*, NAVFAC Form 9-11200/3B, contain all of the basic data required for this review.

5.2.0 Depth of Maintenance, Repair and Overhaul

The depth of maintenance, repair, and overhaul is governed by many factors, mainly economics. The goal is to provide the best service available at the least possible cost.

The geographic location of an activity greatly influences the depth of maintenance, repair, and overhaul its maintenance shop must perform. Maintenance costs must compare with national standards. It is easy to see that an activity near a large city, where many repair services are available at commercial shops, is limited as to the type of repairs allowed. Because of the large volume of work, many of these specialized commercial shops can perform services at a reduced cost. When the commercial shop is nearby, there is no appreciable transportation or shipping costs to be added to the cost of repairs. On the other hand, an activity located a great distance from commercial sources of repair services and supplies could justify doing its own major repairs because of the time, need, and shipping charges involved in having the work performed outside.

The size of an activity also governs the amount and depth of maintenance, repair, and overhaul services. Here, volume is the determining factor that reduces the maintenance cost to a level comparable to that of available commercial facilities.

5.3.0 Cost Justification

The Navy system of preventive maintenance, implemented by the cost control system with its accounting procedures and reports, is a continuing justification for the transportation maintenance shop's existence. Costs must be justified unless the work is highly classified or the geographical location is extreme. Remember, needed repairs alone do not justify repair by the service maintenance shop.

6.1.1 PRESERVATION, STORAGE and DEPRESERVATION of VEHICLES and EQUIPMENT

There is more to storing vehicles and equipment than merely driving them into open areas, warehouses, or active storage. The process of preparing vehicles and equipment for storage is complex. You must consider all components of the equipment, as well as the basic unit, to ensure efficient operation with a minimum amount of work after storage. The objective of preservation and storage is to provide efficient and economical protection to components and equipment from environmental and mechanical damage during handling, shipment, and storage from the time of original purchase until they are used. *Management and Operations Manual for Construction Equipment Departments (CED)*, NAVFAC P-434, Chapter 8, Quality Assurance Inspection and Surveillance Procedures, Chapter 9 Packaging Requirements for Naval Facilities Engineering Command Material and Appendix E, Preservation Procedures for NAVFAC Material contain the standards and procedures for equipment preservation.

The three levels of preserving and packaging equipment for storage are A, B, and C.

Level A is that level of preservation that will protect adequately against corrosion, deterioration, and physical damage during shipment, handling, indeterminate storage, and worldwide redistribution.

Level B is the degree of preservation and packaging that will protect adequately against known conditions less hazardous than A. Level B should be based on firmly established knowledge of the shipment and storage conditions and a

determination to save money. This level requires a higher degree of protection than that afforded by Level C preservation and packaging.

Level C is the level of preservation that protects adequately against corrosion, deterioration, and physical damage during shipment from the supply source to the first receiving activity for immediate use.

The proper level of preservation depends on the availability of information on the probable handling, shipping, storing units, and conditions that the vehicles and equipment will undergo before final issue to the command. Physical characteristics of the vehicles and equipment must also be considered.

An approved cleaning technique is a first priority in preservation. The effectiveness of an applied preservative may be measured by the quality of the surface preparation. All corrosion and contaminants have to be removed before a preservative is applied.

No single cleaning method or material is suitable for all cleaning situations. The selection of a cleaning method, or combination of methods, depends on one or more of these factors:

1. Material composition of the part to be cleaned
2. Complexity of construction and assembly
3. Nature and extent of contaminants
4. Amount and age of equipment
5. Availability of cleaning materials and equipment

Steam cleaning is suitable for removal of greases, tar, road deposits, and other contaminants. This process is particularly adaptable to parts other than the engine and gearcase exteriors of vehicles and to equipment that would not ordinarily be disassembled before preservation. Engines and gearcases should be cleaned by spraying with a decreasing solvent, allowing for solvent penetration, and, finally, flushing with a clean petroleum solvent or by wiping with a clean cloth.

Active storage means that complex equipment is maintained in serviceable condition by the operation of all components for brief periods at regularly scheduled intervals. Redistribution of lubricants reduces friction and prevents deterioration or reduces it to a minimum. Only unboxed automotive and construction equipment is included in the active storage program.

Upon reactivation, material preserved and packaged for storage or shipment requires depreservation and servicing before use. Equipment is to be lubricated under the manufacturer's instructions. Seals and closures should be removed. Housings, casings, and other enclosures should be drained of preservatives and with specified operating fluids before operation. Those components that were removed for storage should be reinstalled. Upon activation, in equipment containing piston-cylinder components, such as internal combustion engines and air compressors, rotate the crankshaft slowly with the throttle closed, ignition off, and compression release lever (if so equipped) in START position.

Avoid abrasives in removing preservatives. Remove blocking, wiring, or strapping from clutch levers or pedals secured in a partially disengaged position. Adjust drive belts on which tension has been released. Flush from the system any corrosion inhibitor mixed with preservative oil.

7.0.0 TECHNIQUES of SCHEDULING

Effective and economic preventive maintenance services require a systematic scheduling program that will make equipment available for mechanical and safety inspections, lubrications, adjustments, and necessary repairs at predetermined intervals. This reduces downtime and the costly disruptions of transportation operations work schedules resulting from equipment failures. In addition, effective planning and scheduling will ensure that the major portion of the shop workload is uniform and balanced, reducing the required work force and increasing its productive effort. It should be recognized that there is an economical point at which the random failure of equipment can be reduced by preventive maintenance.

Schedule vehicles and equipment for inspection and servicing according to the time, mileage, or operating hours prescribed by the manufacturer's recommendations. As a minimum, the schedule is to ensure inspection of each vehicle for safety at least every 12 months or 12,000 miles, whichever occurs first. Formulate the schedule by determining the estimated annual miles of each vehicle and dividing by the manufacturer's recommended service interval. This will determine the number of service intervals per year for each vehicle. Dividing the number of working days per year (252) by the number of service intervals per year will develop the number of working days between inspections or the designated inspection group for each vehicle. From this determination, establish a schedule providing a quota of vehicles for inspection daily that will provide a balanced shop workload. Use a vehicle/construction equipment service record form to record service intervals and service performed. This form should include: USN, EC, make, model, year, estimated annual miles/hours; and columns for type of service, date, cumulative mileage or hours, miles or hours of operation, and miles or hours operated or a specified interval.

8.0.0 PROGRESS CONTROL AND SHOP WORKLOAD

Control and positive direction of shop workloads is achieved through current information on direct labor available in shop work centers, backlog man-hours by work center, and man-hours assigned. One means to track this on a transportation maintenance shop workload control board (*Figure 1-10*) to display the workload status of the shop/work centers. The indicator on each line can be moved across the scale to show current standard hours of backlog. This board may also show the available man-hours by shop or subcenter.

TRANSPORTATION MAINTENANCE SHOP WORKLOAD CONTROL

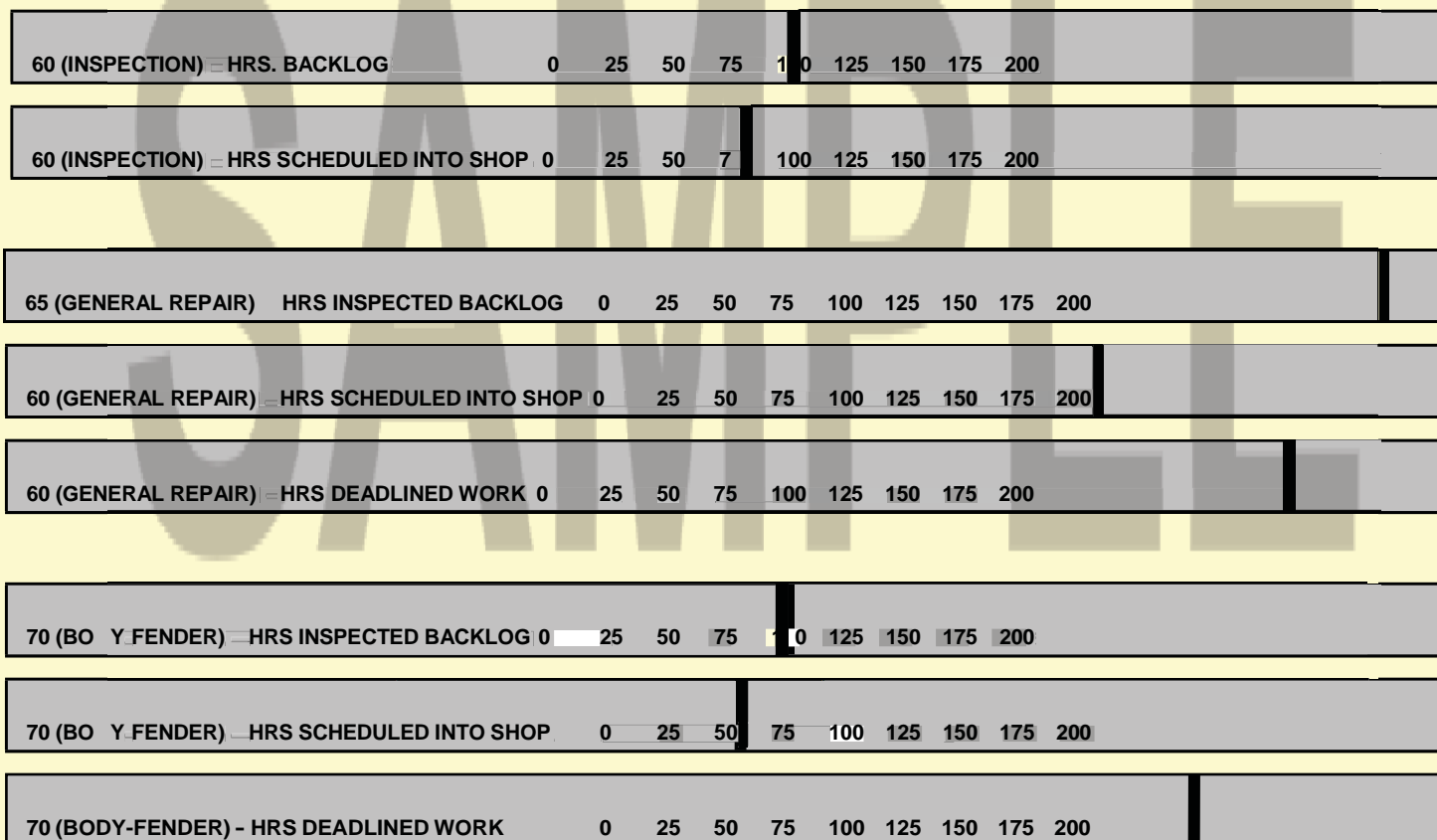


Figure 1-10 - Sample transportation maintenance shop workload control board.

Progress in obtaining the most availability of safe working equipment within budget restrictions may be charted as required by local commands. Accuracy in man-hours expended and maintenance cost is essential to meaningful data. Comparison of standard hours with actual man-hours could indicate a shortage of ability, lack of training, or even shop or tool features that cause delays. When standard hours are added to induction time, you should be able to forecast an accurate completion date. Time spent obtaining repair parts may also be charted and used to determine positive or negative availability or management. Some public works have contracted repair parts suppliers to increase availability and reduce lead time.

9.0.0 CONTRACT MAINTENANCE and REPAIRS

In the event that a public works is undermanned or has the personnel but not the necessary skills or equipment, finding alternatives to keep up with the maintenance and repair schedule may be necessary. Commercial contractors and other government agencies are two alternatives to help balance your workload. Using a commercial contractor for specialized equipment may also be necessary.

9.1.1 Commercial Contracts

When commercial contractors or facilities perform work, an Order for Supplies or Services, DD Form 1155 (*Figure 1-11*) supported by a Shop Repair Order (SRO) is required with the following steps:

1. The control section supervisor ensures that the SRO covering equipment scheduled for contract work is properly documented and turned over to the shop inspector.
2. The inspector lists the necessary repairs on the SRO, applies the manufacturer's flat rate standards, and returns the SRO to the control section supervisor.
3. After the contract labor rate, contract number, order number, and necessary accounting data are added, the SRO is forwarded to the contracting officer.
4. The contracting officer prepares an original and six copies of the DD Form 1155. One copy is forwarded to the comptroller, who enters the estimated amount on allotment records as an obligation. The comptroller then returns the original and four copies, together with both copies of the SRO, to the shop dispatcher for delivery with the equipment to the contractor.
5. When the equipment is delivered to the contractor, a custody receipt is to be obtained and returned to the shop dispatcher.
6. After completing repairs, the contractor returns the equipment to the shop dispatcher with the original and one copy of the SRO, four copies of the DD Form 1155, and the original and three copies of the contractor's bill.
7. The shop dispatcher turns the equipment over to the shop inspector and destroys the custody receipt.
9. If all is correct, the bill is certified for payment. The original SRO, three copies of the DD Form 1155, and three copies of the contractor's bill are to be forwarded to the appropriate office for final processing and payment.
10. The green copy of the SRO, one copy of the DD Form 1155, and one copy of the contractor's bill are to be filed in the vehicle history jacket for the life of the vehicle.

Figure 1-11 - Order for Supplies or Services, DD Form 1155.

9.2.1 Other Government Contracts

Procedures for the performance of work or services by other Government departments or agencies, military or nonmilitary, are basically the same as for work performed by a commercial contractor. An appropriate order for work or services will be prepared on

1. Project Order, NAVCOMPT Form 2053 for other military departments
2. Order for Supplies or Services, DD Form 1155, or NAVCOMPT Form 2053 for nonmilitary departments

They are prepared from data cited on the Shop Repair Order (SRO) supporting the order. Procedures for preparing the necessary documents are contained in the NAVCOMPT Manual, Volume 3, Chapter 5. After completion of the work or services, the other Government department shall indicate the actual hours worked and the actual material cost on the SRO then return the original and a copy of the SRO to the requesting activity with a Voucher for Transfer Between Appropriations and/or Funds, Standard Form 1080. After the requesting activity inspects, approves, and certifies the work, it forwards the original of the SRO and attached documents to the Comptroller or Fiscal Officer for payment. A copy of the SRO shall be filed in the vehicle history jacket for the life of the vehicle.

10.0.0 EQUIPMENT WARRANTIES and DEFICIENCIES

The Civil Engineer Support Office (CESO) is the focal point for management of CESE warranty and deficiency correction. It provides liaison with the manufacturer and contracting officer when a field activity is unable to obtain a satisfactory settlement. CESO also analyzes all reported deficiencies to determine necessary equipment modifications, changes to repair parts, support and maintenance procedures, and required revision of procurement specifications. Questions concerning warranties are directed to CESO Code 1534. If the dealer fails to correct the deficiency satisfactorily, the problem must then be referred to the factory branch or district representative or the manufacturer's home office, as required. If further difficulty is encountered, the matter shall be referred to CESO Code 1534 for action.

Warranties protect the Government by guaranteeing equipment against defective material, poor workmanship and inadequate design. Warranties vary with contractor and contracting office. However, the warranty period is seldom less than 12 months or 12,000 miles. In addition, any warranty a contractor gives to the general public is almost always passed on to the Government. The contractor is usually responsible for parts and labor costs incurred in correcting warranty defects on equipment within the United States (all 50 states). Outside the U.S., the contractor is generally only responsible for parts replacement and not for labor. Sources for specific warranty provisions include: Equipment labels, equipment manuals, dealers, contractors, and the cognizant TEMC. Clarification on disputed warranty provisions can be obtained from CESO, Code 15L2. Recourse for pursuing warranty defects that a contractor is reluctant to correct is included in the Quality Deficiency Report (QDR) process.

Activities shall inspect all new CESE and identify any deficiencies. Deficiencies will fall into one of the following categories:

Theft and Damage Deficiencies Sustained in Shipment. The Report of Discrepancy (ROD), Standard Form 364, is used to report shortages in shipment and transportation damages. The ROD is processed through the local supply department. The supply department will seek appropriate resolution of the deficiency with the shipper. Shipping

deficiencies and the ROD process are governed by NAVSUPINST 4610.33 entitled Reporting of Transportation Discrepancies in Shipments, and NAVSUPINST 4440.179 entitled Report of Discrepancy (ROD).

Contract Deficiencies. CESE with contract deficiencies can fall into one of two cases:

Case (1) Contractor has provided equipment that does not meet contract requirements and, therefore, the contractor has an obligation to correct the deficiency (e.g. a latent defect not detected by the government inspector).

Case (2) Contractor has provided equipment that meets contract requirements but the equipment does not meet the activity's requirements.

In case (1), the contractor has a responsibility to correct the deficiency and the activity shall submit a QDR and initiate the same action specified for warranty deficiencies. In case (2), the contractor has no obligation to correct the deficiency and the activity has the responsibility is responsible for any action or cost associated with correction of the deficiency. Activities shall complete QDRs for case (2) deficiencies so future contracts can be written to include all Navy requirements. In some circumstances an activity may not be able to determine whether a contract deficiency is case (1) or case (2). In this situation the QDR should so state and ask for assistance from CESO 15L2 in making this determination.

Technical Documentation Deficiencies. In those cases where technical manuals (operator, repair, or parts) are not received with the equipment or are incomplete or incorrect, the receiving activity shall, within 10 days, complete and forward a QDR report. The original QDR shall be forwarded directly to CESO 15L2, A copy of the QDR shall be forwarded to the cognizant TEMC. Take note that only one set of manuals will be shipped for each type of vehicle.

10.1.0 Safety Deficiencies

All CESE developing deficiencies affecting safe operation shall be immediately removed from service until corrective action has been completed. Safety deficiencies shall be reported on a Quality Deficiency Report (QDR), Standard Form 368 (*Figure 1-12*) to CO NCBC, CESO 15L2, 1000 23rd Avenue, Port Hueneme, CA 93043-4301 with a copy to the cognizant TEMC. In lieu of a QDR form, the requested information may be stated in any type of written correspondence. QDR information detailing safety deficiencies can be faxed to CESO 15L2 at (805) 982-3395 or DSN 551-3395. CESO 15L2 will identify and notify the TEMCs and other Navy activities affected by the safety deficiency. After initial reporting of safety deficiencies, activities shall pursue the same action identified below for warranty or contract deficiencies. In-house repairs to correct a safety deficiency shall have the manufacturer's authorization.

PRODUCT QUALITY DEFICIENCY REPORT				CATEGORY I		CATEGORY II	
1. FROM (Originator) Commanding Officer Naval Air Station Calhoun TX 75943				2a. TO (Screening point) Construction Engineering Support Office Code 15 1000 23 rd Ave Port Hueneme CA 93043-4301			
1b. NAME, TELEPHONE NO. AND SIGNATURE Alfonse Gomez (691) 448-9612				1c. DATE 4 / 12 / 95		2b. NAME, TELEPHONE NO. AND SIGNATURE Carl Bailey (614) 328-9501	
3. REPORT CONTROL NO.				4. DATE DEFICIENCY DISCOVERED		2c. DATE 4 / 12 / 95	
5. NATIONAL STOCK NO. (NSN)				6. NOMENCLATURE Truck, Firefighting Aircraft Rescue			
7. MANUFACTURER/CITY/STATE Joe Doaks Manufacturing Edge Mont Oklahoma				7b. MRFS. CODE 0735		7c. SHIPPERS/CITY/STATE Same as 7a	
8. MRFS. PART NO. Zf 12439							
9. SERIAL/LOT/BATCH NO. N/A		10a. CONTRACT NO. N40001 94-C-2891		10b. PURCHASE ORDER NO. MIPR N 08685		10c. REQUISITION NO. N/A	
10d. GBL NO. 94 1251							
11. ITEM NEW <input checked="" type="checkbox"/> REPAIRED/OVERHAULED <input type="checkbox"/>		12. DATE RECD. MFRD. RE PAIRED, OR OVERHAULED 1/95		13. OPERATING TIME AT FAILURE 25 hrs.		14. GOVERNMENT FURNISHED MATERIAL YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
15. QUANTITY		a. RECEIVER		b. INSPECTED		c. DEFICIENCY	
16. DEFICIENT ITEM WORKS ON/WITH		(1) TYPE/MODEL/SERIES 1000 GPM Truck Fire Crash CF 58930L		(2) SERIAL NO. 48136 743 94 12			
a. END ITEM (Aircraft, Mower, Etc.)		(1) NATIONAL STOCK NO. (NSN)		(2) NOMENCLATURE		(3) PART NO.	
b. NEXT HIGHER ASSEMBLY						(4) SERIAL NO.	
17. UNIT COST \$ 150,000.00		18. ESTIMATED REPAIR COST \$ 3500.00		19a. ITEM UNDER WARRANTY YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> UNKNOWN <input type="checkbox"/>		19b. EXPIRATION DATE 1/96	
20. WORK UNIT CODE/EIC (Navy and Air Force Only) 7160							
21. ACTION/DISPOSITION [] HOLDING EXHIBIT FOR DAYS [] RELEASED FOR INVESTIGATION [] RETURNED TO STOCK [] DISPOSED OF [x] REPAIRED [] OTHER (Explain in Item 22)							
22. DETAILS (Describe, to best ability, what is wrong, how and why, circumstances prior to difficulty, description of difficulty, cause, action taken, including disposition, recommendations. Attach copies of supporting documents. Continue on separate sheet if necessary.) 1. After vehicle is operated for approximately 15 minutes, loss of power steering occurs. 2. Solution - Install larger hydraulic tank and an auxiliary in line cooler.							
23. LOCATION OF DEFICIENCY MATERIAL Bldg 380 NAS CALHOUN							
24a. TO (Action Point) Same as 2a				25a. TO (Support Point) (Use Items 26 and 27 if more than one)			
24b. NAME, TELEPHONE NO. AND SIGNATURE Same as 2b				24c. DATE		25b. NAME, TELEPHONE NO. AND SIGNATURE	
24d. DATE				25c. DATE			
26a. TO (Support Point)				27a. TO (Support Point)			
26b. NAME, TELEPHONE NO. AND SIGNATURE				26c. DATE		27b. NAME, TELEPHONE NO. AND SIGNATURE	
						27c. DATE	

31-8 102
NSN 7540-00-133-5541

STANDARD FORM 368 (REV. 10/85)
GENERAL SERVICES ADMINISTRATION
(FPMR 101-26.8)

**Figure 1-12 - Product Quality Deficiency Report (QDR), Standard Form 368.
(Front)**

28. FINDINGS AND RECOMMENDATIONS OF INVESTIGATION, (Explain in detail. Continue on a separate sheet of paper, if necessary.)	
<p>Found that hydraulic reservoir too small to allow for cooling of fluid.</p> <p>Recommend the manufacturer and installation of a larger hydraulic tank as well as an in line oil cooler</p>	
29. ACTION TAKEN	
Manufactured and installed a larger hydraulic reservoir and an in line cooler.	
30. RESULTS OF DEPOT SURVEILLANCE.	
Recommended action brought fluid levels down to an acceptable level.	
INSTRUCTIONS	
<p>1a. FROM (Originator) Complete name of activity (no acronyms when sending deficiency report across component lines) activity address code (ACC), address including zip code of the activity originating the report.</p> <p>1b. <u>NAME, TELEPHONE NO. AND SIGNATURE</u> - Provide name, telephone no., (include all available telephone numbers, FTS, Autovon, and commercial) and signature of an individual who can serve as a contact for questions regarding the report and/or to request exhibits or samples.</p> <p>1c. <u>DATE</u> - Enter date report was signed and forwarded to the screening - or action point</p> <p>2a. TO (Screening Point) - The originating point will complete name of the screening point activity (no acronyms when deficiency report will be sent across component lines), the activity address code (ACC), address including zip code of the screening point where the report needs to be sent by the originator's activity. For those activities that do not have screening points, leave blank.</p> <p>2c. <u>DATE</u> - Enter the date the person finished processing the report at the screening point.</p> <p>3. <u>REPORT CONTROL NUMBER</u> - Number assigned to report when a numbering system is used. Those activities which are reporting quality deficiencies across component lines and are to comply with the DLA Regulation 4155.24 should reference the report control number as prescribed in the regulation.</p> <p>7a. <u>MANUFACTURER/CITY/STATE</u> - Name of the manufacturer, the maintenance contractor, or Government activity which last repaired or overhauled the deficient item. For motor vehicles or components thereof, enter name of manufacturer of the vehicle of component as appropriate.</p> <p>7c. <u>MANUFACTURER'S CODE</u> - Code of the manufacturer as listed in Cataloging Handbook H4.1 (Name of code), Federal Supply Code for Manufacturers (United States and Canada).</p> <p>7c. <u>SHIPPER/CITY/STATE</u> - When the shipper of an item is different from the manufacturer, also include the shipper's or suppliers name.</p> <p>9. <u>SERIAL/LOT/BATCH NO</u> - manufacturer's serial, lot or batch number of deficient item as applicable.</p> <p>10. <u>CONTRACT, PURCHASE ORDER, REQUISITION, GOVERNMENT BILL OF LADING (GBL) NO</u> - Enter these numbers or any other available transportation document number in lieu of the GBL. Such numbers appear on the container, purchase document and/or the item. It is extremely helpful if these items are furnished when the material was supplied by GSA.</p> <p>11. <u>ITEM</u> - Check the appropriate block, provide the dates manufactured and received in Block 12, if available.</p>	<p>13. <u>OPERATING TIME AT FAILURE</u> - Time item had been in operation since new, overhauled, or repaired when the deficiency was discovered, citing the appropriate performance element (miles, cycles, hours, etc.).</p> <p>15c. <u>QUANTITY DEFICIENT</u> - Enter the quantity found deficient of those inspected.</p> <p>15d. <u>QUANTITY IN STOCK</u> - Enter the quantity of material from the same manufacturer remaining in stock.</p> <p>17. <u>UNIT COST</u> - Dollar value of the deficient item when known. Not applicable on reporting vehicles to GSA.</p> <p>18. <u>ESTIMATED REPAIR COST</u> - Unit cost times number of units for replacement or estimated repair costs (including overhead) times number of units for correcting all the deficient items reported when it can readily be determined. Not applicable on reporting vehicles to GSA.</p> <p>19. <u>ITEM UNDER WARRANTY</u> - Check if item is known to be covered by contractor warranty. If yes, provide expiration date.</p> <p>21. <u>ACTION/DISPOSITION</u> - a CHECK IN THE APPROPRIATE BLOCK TO INDICATE THE ACTION TAKEN OR REQUESTED. When an exhibit or sample is being held, indicate the number of days in the space provided. (An exhibit or sample shall be held for a minimum of 30 calendar days from date the report is transmitted to the action point. Reporting activities are reminded that the packaging, packing and shipping containers are to be held long with the exhibits to facilitate investigation.) When none of the items indicate the actions or disposition taken or requested, check "Other" and identify the nature of the action taken or requested in item 22.</p> <p>23. <u>LOCATION OF DEFICIENT MATERIAL</u> - Address and location of deficient material.</p> <p>24a. <u>TO (Action Point)</u> - Name, in the clear address, including zip code of the action point to which the report is being submitted.</p> <p>24c. <u>DATE</u> - Enter the date the report was forwarded to an action point or the date the findings and recommendations were completed.</p> <p>28. <u>FINDINGS AND RECOMMENDATIONS OF INVESTIGATION</u> - include the findings and recommendations for resolution of complaint.</p> <p>29. <u>ACTION TAKEN</u> - State the action taken to resolve the complaint.</p> <p>30. <u>RESULTS OF DEPOT SURVEILLANCE</u> - Show results of depot surveillance and planned action (i.e., replacement or repair by contractor, disposal, issue, etc.).</p>

STANDARD FORM 368 BACK (REV. 10 85)

**Figure 1-12 - Product Quality Deficiency Report (QDR), Standard Form 368.
(Back)**

10.2.0 In Continental United States

Activities located in the U.S. shall contact authorized representatives of the contractor for warranty deficiency correction. These representatives can include local dealers, factory branches, manufacturer's district representatives or the manufacturer. The activities shall report the warranty deficiency and their efforts to resolve it on a QDR as outlined in the P-300, Chapter 2.

Activities with shop facilities shall correct minor warranty deficiencies in-house when the total cost to the Government to transport the equipment to and from the dealer exceeds the total cost of the warranty claim or when the delay in obtaining warranty service through the dealer will result in unacceptable downtime. Activities making inhouse warranty repairs cannot submit a claim against the contractor unless the contractor has authorized the repairs as part of the contractor's warranty obligation.

10.3.0 Outside Continental United States

Usually contractors' warranty obligation outside of the U.S. is limited to providing replacement parts. Activities shall contact contractors directly to request replacement parts the activity needs to correct the deficiencies. The activities shall report the warranty deficiencies and their efforts to resolve the deficiency on a QDR again as outlined in the P-300, Chapter 2.

11.1.1 TECHNICAL ASSISTANCE

Transportation Management Assistance Visits (TMAVs). TEMC representatives conduct on-site activity analysis of the administration, operation, and maintenance of transportation equipment. The objective of the assistance visit and analysis is to assist the activity in technical and management procedures that will improve the efficiency and effectiveness of their overall transportation equipment operation. In general, these assistance visits should include review and validation of transportation equipment inventory objectives, utilization, requirements, operations, and maintenance. The following items/data, as a minimum, shall be available to the assistance visit team:

- a. Inventory records.
- b. Preventive maintenance schedules
- c. Accident reports
- d. Current "B" assignment justifications
- e. Utilization data, including mileage targets and criteria for each assignment (i.e., mileage, economic analysis, hours in use, etc.)
- f. Approval letters for leases, command and control, and non-standard security vehicles
- g. Vehicle/Equipment history record files/jackets
- h. Current TEMES/TCR report
- i. Dispatcher logs and Trip Tickets
- j. Bus/Taxi logs and schedules
- k. Copies of latest I.G., TMAV, and Fire Marshal reports
- l. Copies of all intraservice support agreements citing transportation support

m. Approval letters to retain CESE when in excess of inventory objective

The TEMC representatives should conduct Transportation Management Assistance Visits (TMAVs) at 18-month intervals for activities operating 50 or more units of transportation equipment unless otherwise directed by the Claimant. The representatives shall offer the Commanding Officer of the activity visited a briefing of the visit analysis and findings shall be offered to the Commanding Officer of the activity visited prior to departure and shall include items of major concern. The TEMC will later forward a written report to the activity. Priority shall be given to activities where the potential for cost savings is the greatest. At activities operating fewer than 50 units of transportation equipment, the analysis may be conducted every 3 years, as a minimum, or when assistance is specifically requested.

12.1.1 CESE DISPOSAL

Disposition Instructions for Shore Activities. The disposition process and documentation for excess equipment removed from service varies according to the condition of the equipment. If excess equipment is usable, the TEMC will determine if there are other Navy requirements for the equipment and provide direction for its transfer. The record holding TEMC shall immediately advise the other TEMC of any usable excess transportation equipment prior to sending to Defense Utilization Marketing Office (DRMO). If there are no other Navy requirements for usable equipment, the record holding TEMC will instruct the activity to effect a disposal action with the appropriate DRMO. With the exception of medical, railway, fire fighting, and material handling equipment, as specified in NAVFAC P-300 Chapter 2, the holding activity will initiate disposal with the appropriate DRMO for equipment that is not in usable condition. The processing of excess equipment shall be in accordance with the Defense Disposal Manual, DoD 4160.21M, NAVSUP Manual Volume II, and NAVCOMPT Manual Volume 3.

Withdrawal from Property Disposal Accounts. Navy activities, other than nonappropriation funded, that want CESE in the property disposal account, ***MUST FIRST OBTAIN CESO/TEMC APPROVAL***. Also note that CESE can be issued from the property disposal accounts only to fill valid deficiencies in approved Inventory Objectives (IOs)/allowances. After receipt, the IO/Allowance Holder must ensure that CASEMIS is updated in accordance with the P-300. Navy activities may withdraw CESE for the purpose of obtaining a component or subassembly. After obtaining necessary parts they must return the item of CESE to DRMO.

Reporting of Excess Medical, Railway, Fire Fighting, and Material Handling Equipment. Regardless of equipment condition, the holding activity shall report excess medical, railway, and fire fighting equipment on a Standard Form (SF) 120 to the TEMC for disposal instructions as follows:

- a. Ambulances and other special medical and dental vehicles will be listed on an SF 120, separate from other equipment, which will be forwarded to the cognizant TEMC, with a copy to the Health Care Support Office. This is not applicable to NCF and SOU field type ambulances.
- b. Railroad equipment will be listed on a separate SF 120 and forwarded to the cognizant TEMC.
- c. Firefighting equipment shall be listed on a separate SF120 and sent to the cognizant TEMC.

12.1.0 Serviceable Equipment

Excess equipment the holding activity determines to be in condition NAVFAC P-300, Appendix I, Transportation Equipment Codes, Supply Condition Codes, other than codes H or S and/or Disposal Condition Codes, codes 3,6, 9, X or S has the potential for further use and redistribution within the Navy.

The holding activity shall forward a Report of Excess Personal Property, SF 120, (Figure 1-13) prepared in accordance with NAVFAC P-300, Chapter 2 to the appropriate TEMC. The report may be mailed as an original copy or sent by facsimile machine. The TEMC will screen such equipment upon receipt of the SF 120.

STANDARD FORM 120 REV. APRIL 1957 CONT. SERV. ADMIN. FPMR (41 CFR) 101-43.311		REPORT OF EXCESS PERSONAL PROPERTY		PAGE 1 OF	
1. REPORT NO.		2. DATE MAILED		3. TOTAL COST	
4. TYPE OF REPORT		(Check one only of "a," "b," "c," or "d")		a. ORIGINAL	
b. CORRECTED		c. PARTIAL		(Also check "e" and/or "f" if applicable)	
d. TOATATL W/D		e. OVERSEAS		f. CONTRACTORS INV.	
5. To (Name and Address of Agency to which report is made) THRU				6. APPROPR. OR FUND TO BE REIMBURSED (If any)	
7. From (Name and Address of Reporting Agency)				8. REPORT APPROVED BY (Name and Title)	
9. FOR FURTHER INFORMATION CONTACT (Title, Address and Telephone No.)				10. AGENCY APPROVAL (If applicable)	
11. SEND PURCHASE ORDERS OR DISPOSAL INSTRUCTIONS TO (Title, Address and Telephone No.)				12. GSA CONTROL NO.	
13. FSC. GROUP NO.		14. LOCATION OF PROPERTY (If location is to be abandoned, give date)		15. REIM. REQD.	
				YES NO	
16. AGENCY CONTROL NO.		17. SURPLUS RELEASE DATE			
EXCESS PROPERTY LIST					
ITEM NO. (a)	DESCRIPTION (b)	COND (c)	UNIT (a)	NUMBER OF UNITS (e)	ACQUISITION COST PER UNIT (f) TOTAL (h)
					FAIR VALUE % (h)
STANDARD FORM 120 REV. APRIL 1957 EDITION		(Use Standard Form 120A for Continuation Sheet) NSN 7540-00-634-4074		PREVIOUS EDITION USUABLE	

Figure 1-13 - Report of Excess Personal Property, SF 120.

If transfer to another activity supported by the TEMC is warranted, instructions will be issued within 15 days from receipt of the SF 120 to the holding activity. Prior to shipment, the receiving activity will make a physical condition check to avoid the shipping costs for equipment in unsatisfactory condition. The receiving activity will return the SF 120 containing undistributed excess items to the original holding activity with instructions to transfer excess items to the appropriate DRMO. The holding activity shall process property record disposition actions in accordance with NAVFAC P-300, Chapter 2.

12.2.0 Unserviceable Equipment

Excess equipment determined by the holding activity to be in Supply Condition Codes, codes H or S is considered to be unsatisfactory for further Navy use. Equipment not in usable condition is to be turned in to the appropriate DRMO directly by the holding activity on DoD Single Line Item Release/Receipt Document, DD Form 1348-1 and in accordance with local disposal procedures. The DRMO also requires the equipment maintenance records and the information listed on the SF 120.

12.3.0 Inventory Record Adjustment

If one activity transfers excess equipment to another, the record holding TEMC will update the CASEMIS inventory records to reflect the transfer. For excess CESE transferred to the DRMO, the holding activity shall complete the reporting action described herein within 15 days from disposition to ensure that COMNAVFACENGCOM inventory records properly reflect all disposal actions of CESE. Activities with direct access to CASEMIS will update the inventory records by direct entry of the equipment disposition data elements (U.S. Navy Registration Number and Status Code Z) or by file transfer of the data. Activities without direct access to CASEMIS will report equipment disposition data by fax or mail to their cognizant TEMC in a format similar to that in *Figure 1-14*.

STATUS CODE	FUEL CODES
A = LEASED FROM COMMERCIAL SOURCES FILLING LEASE 10	B = B FUEL (CAPABLE OF RUNNING ON CNG OR GAS)
F = COMMERCIALLY LEASED EQUIPMENT FILLING NAVY-OWNED 10	D = DIESEL
G = G LEASED/RENTED EQUIPMENT FILLING LEASE 10	E = ELECTRIC
K = GSA LEASED/RENTED EQUIPMENT FILLING NAVY OWNED 10	G = GAS
H = REHABILITATION/SERVICE LIFE EXTENSION PROGRAM (SLEP)	H = E 85 ETHANOL
I = LEASED EQUIPMENT WITH OPTION TO PURCHASE NAVY OWNED 10	M = MULTIFUEL (DIESEL OR GAS COMBINED WITH CNG OR LPG)
O = GOVERNMENT OPERATED - NAVY OWNED 10	N = DEDICATED CNG
C = COMTRACTOR OPERATED/CONTRACTOR REPLACED NO 10	O = OTHER (HYDROGEN, SOLAR)
E = COMTRACTOR OPERATED/GOVERNMENT REPLACES NAVY OWNED 10	P = LPG
P = PENDING DISPOSAL	Q = LNG
Y = PENDING REDISTRIBUTION	T = M 85 METHANOL
Z = DISPOSED EQUIPMENT	Z = NON FUELED (TRAILERS)

Summary

The Public Works Equipment Maintenance Branch cannot manage without NAVFACENGCOMs and TEMCs assistance with operation of the CESE management program. By knowing each of their responsibilities, supervisors will be able to perform their duties professionally and in a timely manner.

NAVEDTRA 14050A

and assisted in preparing vehicles and equipment for shipment, storage, and disposal. Now, at the senior construction mechanic supervisor level, you must have the working knowledge of ALL forms, reports, and records required for each phase of the maintenance/repair or shipping, storage and disposal of all CESE.

What we have indicated here is that construction mechanic supervisors must manage their shops utilizing the policies, procedures and guidelines set forth in the Management of Civil Engineering Support Equipment, NAVFAC P-300. This manual is the primary reference and directs you to all other references in support of the management of CESE.

Review Questions (Select the Correct Response)

1. In your work as PW transportation shop supervisor, you will come in contact with which of the following personnel?
 - A. Mechanics
 - B. Military and civilian equipment operators
 - C. Officers to whom you will report
 - D. All of the above
2. The transportation division normally consists of two branches:
 - A. Operations and maintenance.
 - B. Maintenance and supply
 - C. Operations and cost control
 - D. Maintenance and heavy equipment
3. The Transportation Division is responsible for providing .
 - A. efficient supply and effective personnel services
 - B. responsive, cost effective transportation services to the activity and providing safe and reliable equipment
 - C. reliable transportation to work every morning
 - D. maintaining utilities and structures
4. Procuring and administering the assignment of transportation equipment established by CNO is the responsibility of which activity?
 - A. TEMC
 - B. Claimant
 - C. NAVFACENGCOM
 - D. Public Works
5. Naval Facilities Engineering Command (NAVFACENGCOM) is responsible for all the following except:
 - A. Establishing and promulgating standards for operation and general utilization
 - B. Maintaining a complete supply of maintenance and repair parts for a CESE
 - C. Vehicle acquisition
 - D. Reviewing/approving all requests for local procurement of CESE
6. Who assigns the U.S. navy registration numbers and issue license plates?
 - A. CESO
 - B. CECOS
 - C. TEMC
 - D. NAVFAC

7. Who provides the technical support and assistance for operation and maintenance of transportation functions?
- A. CESO
 - B. Claimant
 - C. OPNAV
 - D. TEMC
8. Who has the responsibility to process and forward for approval all requests for Class "A" assignments, Home-to Work assignments, mass transportation, and requests for vehicle marking exemptions?
- A. CESO
 - B. Claimant
 - C. Supply
 - D. OPNAV N9
9. The Public Works Department shall ensure that all initial support repair parts received in Public Works are turned over to the Supply Department for
- .
- A. cleaning
 - B. disposal
 - C. cost and control
 - D. inventory control and accountability
10. Repair parts received in Public Works may be retained in Public Works, but they remain on the Supply Department records for
- A. pricing and tagging
 - B. inventory control and accountability
 - C. unpacking
 - D. reissue to the proper department
11. The Public Works Officer has the responsibility to the Supply Officer to
- .
- A. provide him with his own vehicle
 - B. ensure that a suitable supply of parts are maintained in the mechanic shops
 - C. allow the shops foreman to purchase parts regularly before submitting a NAVSUP 1250-1
 - D. encourage active coordination/communications between Public Works and Supply Department personnel

12. Technical research for parts identification and to determine part numbers, interchangeability, and cross-referenced part numbers is performed by the .
- A. TEMC
 - B. Supply Department
 - C. Public Works Department
 - D. Parts Department
13. An SRO will be prepared each time labor or materials expected for the maintenance, repair, or improvement of an item of equipment except for minor work that does not exceed .
- A. 20 min. (0.33 hours)
 - B. 18 min (.3 hours)
 - C. 25 min. (.417 hours)
 - D. 15 min. (.25 hours)
14. The equipment history record files shall contain all of the following EXCEPT which one?
- A. Names of all the drivers of the vehicle for the last five years
 - B. SROs covering all inspection, maintenance, and repair items accomplished to date (government or contractor work)
 - C. Accident reports
 - D. Copies of any vehicle modification requests or work completed
15. Who should review completed work records of the Shop Repair Orders (SRO)
- A. Operations Branch Manger
 - B. Public Works Director
 - C. Transportation Supply Manager
 - D. Manager of the Equipment Maintenance Branch
16. Which section meets with the customer to identify complaints, performs simple safety inspections, and describes in writing on the SRO the work to be accomplished?
- A. Preventive Maintenance Section
 - B. Repair Section
 - C. Work Input and Records Section
 - D. Complaint and Safety Section
17. One of the responsibilities of the Repair Section is to .
- A. Maintain all equipment history record files
 - B. Provide the Equipment Maintenance Branch Head with status reports
 - C. Perform work described on SROs.and brings to the supervisor's attention, for further work authorization, added deficiencies requiring correction disclosed during accomplishment of work
 - D. Advise customers when work has been accomplished

18. The Construction Equipment Shop is responsible for the maintenance, repair and major overhaul (mechanical and electrical) of construction and specialized equipment such as
- A. sedans, refuse vehicles, and pickups.
 - B. tractor trailers, compressors, and light plants.
 - C. grass cutting equipment, buses, and step vans.
 - D. forklifts, frontend loaders/backhoes, and graders.
19. What is the first line of defense against wear, failure, and damage?
- A. Unscheduled periodic inspections
 - B. Minor repairs made by the mechanics
 - C. Daily equipment inspections by the equipment operator
 - D. Scheduled TEMC inspections
20. The maintenance shop has noted the operators are not properly performing daily PM inspections on their equipment. To set up training to go over the procedures, you should consult with whom?
- A. The equipment operator
 - B. The Equipment Operation Branch Manager
 - C. The maintenance shop foreman
 - D. The equipment dispatcher
21. The Operator's Inspection Guide and Trouble Report is:
- A. NAVFAC 9-11260/4
 - B. NAVFAC 11260/13
 - C. SF 9-11240/13
 - D. NAVFAC 9-11200/46
22. The Operator's Daily PM Report Construction and Allied Equipment, NAVFAC 11260/4 is used by operators of .
- A. bulldozers, graders, and cranes
 - B. Operators of construction and allied equipment
 - C. tractor trailers and cranes
 - D. sedans, trucks, and busses
23. On boom, hi-lift and aerial service truck/equipment, the mechanic shop shall conduct a condition inspection
- A. monthly.
 - B. daily.
 - C. annually.
 - D. quarterly.

24. When service station maintenance is performed by someone other than the operator, who is responsible for the checks being performed?
- A. The service station attendant
 - B. The yard boss
 - C. The mechanic
 - D. The operator
25. Safety inspections shall be performed for each motor vehicle at intervals not to exceed 12 months or what maximum number of miles?
- A. 10,000
 - B. 12,000
 - C. 14,000
 - D. 16,000
26. **(True or False)** The Navy, being a DoD agency, is exempt from having inspection documentation with commercial vehicles when driving on city, state or federal highways.
- A. True
 - B. False
27. When the vehicle operator notices deficiencies between scheduled safety inspections that maintenance is referred to as .
- A. Unscheduled Maintenance
 - B. Deficiency Maintenance
 - C. Temporary Field maintenance
 - D. Mechanics can not perform maintenance between safety inspections
28. In the cost control system, which of the following costs are charged to allotments and appropriations?
- A. Direct and indirect labor only
 - B. Material, direct and indirect labor
 - C. Material and direct labor
 - D. Direct and material only
29. Management and Operations Manual for Construction Equipment Departments, Chapter 8 is the reference for .
- A. Procedures for Vehicle and Equipment Maintenance
 - B. Preventive Maintenance Program at shore facilities
 - C. Preservation, Storage and Depreservation Materials
 - D. Preservation, Storage and Depreservation of Vehicles and Equipment

30. Activity equipment that is maintained in serviceable condition and operated for brief periods at regularly scheduled intervals is
- A. active storage.
 - B. open storage.
 - C. warehouse storage.
 - D. preservation storage.
31. In an undermanned Public Works, the supervisor may utilize which of the following alternatives to keep up with the maintenance and repair schedule?
- A. Leave equipment dealined until you can catch up.
 - B. Tell the customer to bring the vehicle back at the next PM.
 - C. Use commercial contractors.
 - D. Use available city Public Works mechanics.
32. When work is performed by commercial contractors, you should submit an Order for Supplies along with
- A. a SF 368.
 - B. a NAVFAC 11240/13.
 - C. a DD Form 1155.
 - D. a Shop Repair Order.
33. When a commercial contractor is used, the inspector adds the labor rate, contract number, order number, necessary accounting data, the SRO is returned to which person?
- A. The Control Section Supervisor
 - B. The Division Director
 - C. The Contracting Officer
 - D. The Public Works Officer
34. If the dealer fails to correct the deficiency you first deal with factory branch, district representative or manufacturer's home office, but that does not resolve the problem you shall refer for action to whom?
- A. TEMC
 - B. NAVFACENGCOM
 - C. CLAIMANT
 - D. CESO
35. Regardless of warranty coverage, which of the following actions shall be taken first with CESE that have design deficiencies affecting safe operation?
- A. Remove the CESE from service immediately.
 - B. Report the deficiency to CBC.
 - C. Repair and return the CESE to service.
 - D. Report the deficiency to TEMC.

36. When the total cost to the Government to transport the equipment to and from the dealer exceeds the total cost of the warranty claim, minor warranty deficiencies shall be corrected
- A. in-house, with or without shops.
 - B. at a contracted dealer.
 - C. in-house, with shop facilities.
 - D. at an auxiliary government maintenance activity.
37. TEMC representatives should conduct on-site activity analysis of the administration, operation, and maintenance of transportation equipment for activities 50 or more units of transportation equipment at what interval?
- A. Annually
 - B. Quarterly
 - C. 6 months
 - D. 18 months
38. If a piece of equipment is usable, who determines if it has further use?
- A. TEMC
 - B. NAVFAC
 - C. CESO
 - D. DRMO
39. After disposal action is completed, what action if any, should you take next?
- A. Adjust the inventory record.
 - B. Notify the Division Officer.
 - C. Notify the Public Works Officer.
 - D. Adjust the commands facility record.

Additional References and Resources

This chapter is intended to present thorough resources for task training. The following reference works are suggested for further study. This is optional material for continued education rather than for task training.

Construction Equipment Department Management and Operations Manual, NAVFAC P-434, Naval Facilities Engineering Command, Washington, D.C., 1982.

Management of Civil Engineering Support Equipment, NAVFAC P-300, Naval Facilities Engineering Command, Washington D.C., 2003.

Management of Weight Handling Equipment, NAVFAC P-307, Naval Facilities Engineering Command, Washington D.C., 2009

CSFE Nonresident Training Course - User Update

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Description

(Optional) Correction

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Chapter 2

ALFA Company Shop Supervisor

Topics

- 1.0.0 Maintenance Organization
- 2.0.0 Planned Maintenance/Corrective Program
- 3.0.0 Battalion Equipment Evaluation Program
- 4.0.0 Embarkation
- 5.0.0 Hazardous Materials
- 6.0.0 Defense Reutilization and Marketing Office

To hear audio, click on the box.



Overview

Covered in this chapter are the duties and responsibilities of a senior construction mechanic while assigned to a Naval Construction Force Unit. The chapter covers the ALFA Company organization associated to the equipment maintenance shops, key personnel, and their duties and responsibilities.

The ALFA Company maintenance shop manages the planned maintenance / corrective program for all CESE. This can be considered as the normal day to day activities of the maintenance shops, but along with that comes other significant duties.

The Battalion Equipment Evaluation Program is established procedures for the "turnover" between the outgoing and incoming battalion. The BEEP is to pass on all special knowledge of CESE maintenance and operation techniques; to provide the relieving battalion with a realistic and in-depth condition evaluation of the CESE allowance, facilities, tools and materials; and to use the full expertise and efforts of the two equipment forces to provide the relieving battalion and detachments with the best ALFA Company operation possible.

Embarkation is the movement of personnel, CESE, and material on a moments notice to an assigned destination. The maintenance shop conducts a key roll in the preparation of the CESE for embarkation by air, sea, or land.

Hazardous materials are an every day part of the maintenance shop. Identifying and storage of hazardous material and waste is essential for the maintenance shop supervisor to know. Also, as supervisor, you will need to know how to respond to spills and conduct cleanup operations of hazardous materials or waste.

Lastly, preparing CESE and hazardous materials for disposal is part of the mechanic's duties and responsibilities. Knowing the requirements and procedures by the Defense Reutilization and Marketing Office is necessary for disposal of CESE and hazardous materials.

Objectives


When you have completed this chapter, you will be able to do the following:

1. Understand how to setup a maintenance shop.
2. Understand the duties of those involved in Maintenance.
3. Understand the elements and organization of the Preventative Maintenance Program
4. Understand the Battalion Equipment Evaluation Program.
5. Understand the procedures of Embarkation.
6. Understand how to properly dispose of CESE and hazardous material.

Prerequisites

None

This course map shows all of the chapters in Construction Mechanic Advanced. The suggested training order begins at the bottom and proceeds up. Skill levels increase as you advance on the course map.

Wheel and Track Alignment		C
Troubleshooting, Transmissions, Transfer Cases, and Differentials		M
Clutches and Automatic Transmissions		A
Troubleshooting Electrical Systems		D
Fuel Systems Overhaul		V
Engine Troubleshooting and Overhaul		A
The Shop Inspectors		N
Alfa Company Shop Supervisors		C
Public Works Shops Supervisor		E
		D

Features of this Manual

This manual has several features which make it easy to use online.

- Figure and table numbers in the text are italicized. The figure or table is either next to or below the text that refers to it.

- The first time a glossary term appears in the text, it is bold and italicized. When your cursor crosses over that word or phrase, a popup box displays with the appropriate definition.
- Audio and video clips are included in the text, with an italicized instruction telling you where to click to activate it.
- Review questions that apply to a section are listed under the Test Your Knowledge banner at the end of the section. Select the answer you choose. If the answer is correct, you will be taken to the next section heading. If the answer is incorrect, you will be taken to the area in the chapter where the information is for review. When you have completed your review, select anywhere in that area to return to the review question. Try to answer the question again.
- Review questions are included at the end of this chapter. Select the answer you choose. If the answer is correct, you will be taken to the next question. If the answer is incorrect, you will be taken to the area in the chapter where the information is for review. When you have completed your review, select anywhere in that area to return to the review question. Try to answer the question again.

1.1.1 MAINTENANCE ORGANIZATION (A4)

In the Naval Mobile Construction Battalion (NMCB), ALFA Company is responsible for the operation and maintenance of the automotive, construction, material handling equipment (MHE) and weight handling equipment (WHE) assigned to the battalion. ALFA Company serves as prime contractor for large earthmoving, grading, excavation, paving, hauling, pile driving, water well drilling, heavy lifting, blasting and quarry operations, and demolition projects. ALFA Company is usually formed with three or more platoons, depending upon the number of personnel actually assigned to the company. *Figure 2-1* shows an organization structure of ALFA Company configured in a typical battalion and *Figure 2-2* shows a typical ALFA Company Maintenance Branch organization.

In a Naval Mobile Construction Battalion the equipment maintenance branch is composed of cost control (administration), light shop (automotive repair), heavy shop (heavy equipment repair), and support shops. These sections, or shops, come under the overall supervision of the maintenance supervisor, who is normally a CMCS. As a CM1, you may be assigned as an inspector or a shop supervisor in any one of these shops within the maintenance branch. In small units such as a CBMU and large detachments, it is common to have a CM1 working as the maintenance supervisor. *Figure 2-2* shows the organization structure of the maintenance branch.

In your role as shop supervisor, inspector, or maintenance supervisor, you will not only need to call upon all of your past experience, but also you will have to be constantly alert for new ideas and ways of accomplishing your mission within the time frames allotted. Of course, skillful predeployment planning is essential; but deployments rarely go according to plan, especially with equipment. Remember, in addition to facing unusual maintenance problems not encountered at a public works duty station, you must be ready to pack your gear and mount out at any given moment.

This chapter describes the different equipment maintenance branch shops under normal conditions and the duties and responsibilities for each. Keep in mind, the organization may vary along with the required duties and responsibilities due to manpower, equipment, type of activity or location. Assignments are ultimately made by the maintenance supervisor with assistance from the shops supervisors.

It is important that you consistently stay aware and knowledgeable of new developments in equipment maintenance such as software, diagnostic equipment and repair equipment. Administratively, you will need to be familiar with a number of Navy publications and instructions to confer with that will help you keep up to date and to perform your duties in your particular shop. These publications include but not limited to:

- *Management of Civil Engineering Support Equipment*, NAVFAC P-300, purpose of this publication is to assist management at all levels in properly discharging their responsibilities in the efficient management of the transportation program. The instructions, guides, procedures, and criteria are provided for exercising both technical and management controls to attain full and cost effective utilization of funds, personnel, and equipment.

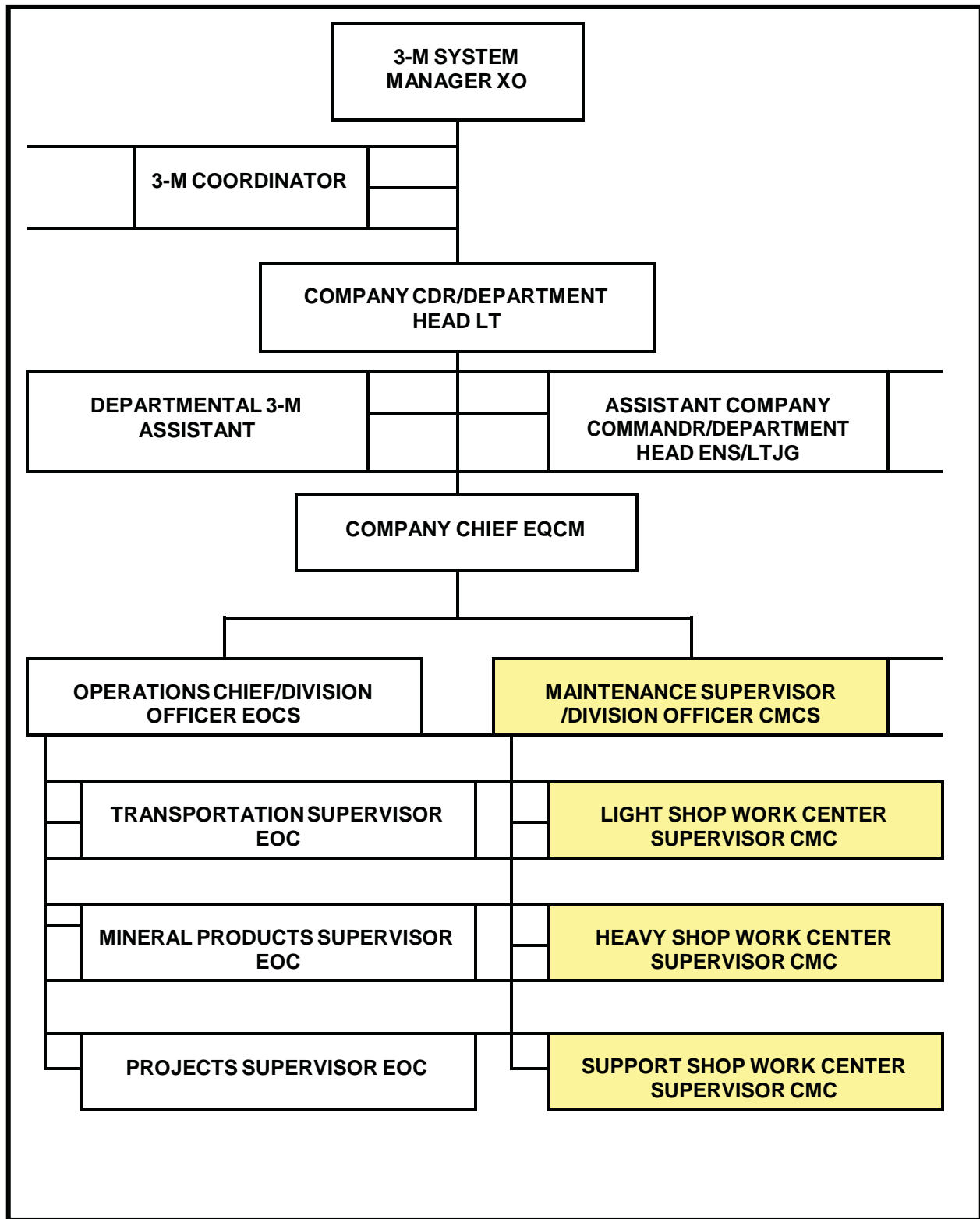


Figure 2-1 - ALFA Company Organization.

- *Management of Weight Handling Equipment*, NAVFAC P-307, provides the uniform Navy program for the management, maintenance, inspection, testing, certification, alteration, repair, and operation of weight handling equipment (WHE) at Navy shore installations. Its purpose is to ensure the equipment is safe to operate; to ensure weight handling operations are conducted safely and

efficiently; and to ensure optimum equipment service life.

- *Naval Construction Force Manual*, NAVFAC P-315; provides technical guidance from the Chief of Civil Engineers regarding the organization and operation of the Naval Construction Force (NCF). Accordingly, the manual discusses the detailed operations of the individual Seabee unit, its interrelationships within the NCF and the relationship of the NCF to the organization it supports.
- *Construction Equipment Department Management and Operations Manual*, NAVFAC P-434, clarifies the mission and goals of the Construction Equipment Department and provides specific management guidance for the surveillance and inspection, preservation, packing and packaging procedures of Naval Facilities Engineering Command 2C-cognizance material.
- *Naval Construction Force (NCF) Equipment Management Instruction*, COMFIRSTNCDINST 11200.2 (N43) establishes policy, assign action and provide guidance for the Naval Construction Force Equipment Management Program.
- *Embarkation Manual*, COMSECONDNCB/COMTHIRDNCBINST 3122.1 (N7/N7), standard operating procedures for embarkation, planning, training, and record keeping by all Naval Construction Force (NCF) units.
- *Seabee Supply Manual*, COMFIRSTNCDINST 4400.3, The Seabee Supply Manual is issued to provide policy and guidance for personnel engaged in Naval Construction Force (NCF) Logistics operations. It supplements the NAVSUP P-485 Naval Supply procedures and amplifies financial management and inventory control guidance found in separate NCF instructions.
- *Maintenance and Material Management (3-M) System Policies and Procedures for the Naval Construction Force (NCF)*, COMFIRSTNCD 4790.1 (N43), establish 3-M policies and procedures, assign action, and provide guidance for the NCF.
- *Ships' Maintenance and Material Management (3-M) Manual*, NAVSEAINST 4790.8B (SEA 04RM), designed to provide the user with a ready reference for all aspects concerning maintenance.
- *Ship's Maintenance and Material Management (3-M) System Policy*, OPNAVINST 4790.4 (N431H), establish policy and assign responsibilities for the Ships' 3-M System.
- *Ship's Maintenance and Material Management (3-M) Manual*, NAVSEAINST 4790.8 (SEA 04RM).
- *Tag-Out Users Manual*, NAVSEA Technical Publication, S0400-AD-URM-010/URM (NSN-0910-LP-106-0985).
- *Personnel Qualification Standards for Maintenance and Material Management (3-M)*, NAVEDTRA 43241-H.
- *Naval Construction Force Occupational Safety and Health Program*, COMFIRSTNCDINST 5100.2 (N02EC), policy and procedures for implementation and management of the Occupational Safety and Health (OSH) Program.
- *U.S. Army Corps of Engineers, Safety and Health Requirements Manual*, EM

385-1-1, the NCF has adopted for use by all units and the manual prescribes the safety and health requirements.

- *Navy Safety and Occupational Health (SOH) Program Manual*, OPNAVINST 5100.23, establish the Navy Safety and health (SOH) Program for all Navy personnel.
- *Embarkation Manual*, COMSECONDNCB / COMTHIRDNCBINST 3120.1 (latest edition) (N7 / N7), designed to incorporate information necessary to properly plan and execute embarkation of NCF/SOU units

Other pertinent publications are Vehicle/Equipment manufactures' maintenance/parts manuals, Civil Engineering Support Office Maintenance Bulletins, Equipment Officer Technical Bulletins and Equipment Officer Modification Work Orders

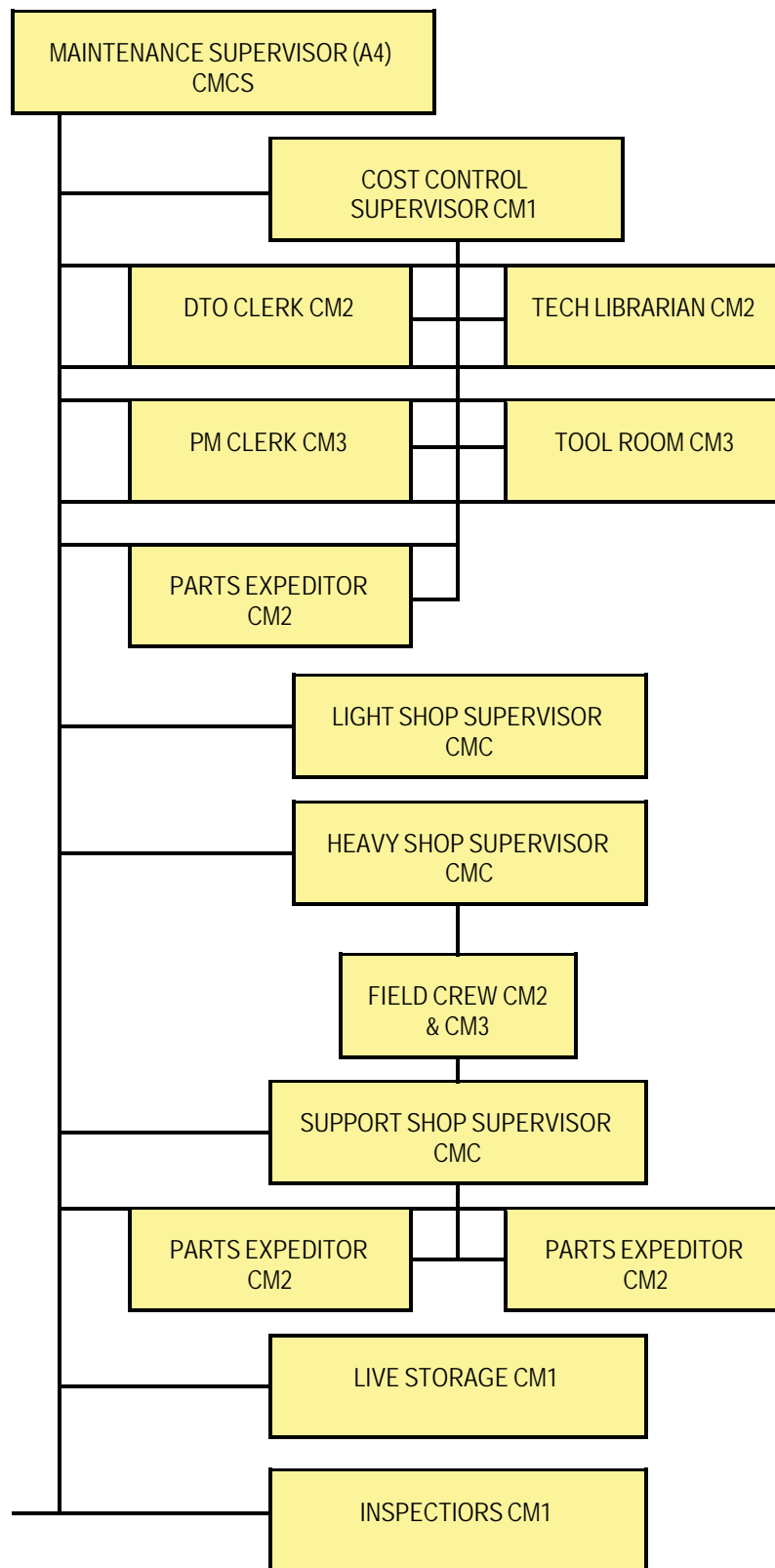


Figure 2-2 - ALFA Company Maintenance Branch Organization

1.1.1 Maintenance Supervisor

The ALFA Company Maintenance Supervisor/Division Maintenance Chief (A4) is normally a Construction Mechanic Senior Chief (CMCS) and will have successfully completed 3-M PQS up to 304, Division Officer. The A4 is tasked with ensuring proper 3-M maintenance and repair of all automotive, construction, and material and weight handling equipment assigned to the NMCB/Unit. Duties and responsibilities are:

1. Control and supervise all maintenance personnel through the shops supervisors.
2. Ensure adherence to the scheduled 3-M maintenance program.
3. Ensure all records are accurate and up to date.
4. Submit equipment reports to the ALFA Company Commander/Department Head, 3-M Coordinator, Executive Officer and the Commanding Officer for distribution to higher authority.
5. Supervise the maintenance of the Technical Manual Library and conduct inventories per the *Seabee Supply Manual*, COMFIRSTNCDINST 4400.3.
6. Supervise the maintenance of the construction mechanics tool allowance and conduct tool inventories per the *Seabee Supply Manual* COMFIRSTNCDINST4400.3.
7. Provide technical and safety training.
8. Provide technical assistance to the Supply Officer concerning repair parts.
9. Ensure quality control of completed work.
10. Ensure that the 3-M Planned Maintenance System (PMS), Maintenance Data System (MDS) and Inactive Equipment Maintenance (IEM) are maintained in accordance with the *Ship's Maintenance and Material management (3-M) Manual*, NAVSEAINST 4790.8 and *Maintenance and Material (3-M) System Policies and Procedures for the Naval Construction Force (NCF)*, COMFIRSTNCDINST 4790.1.
11. Responsible for approving all repair parts ordered through MicroSnap.
12. Indirectly supervises the Equipment Management Program at all Battalion Detail Sites and DFTs.
13. Ensures that all collateral equipment losses or shorts are properly ordered.
14. Ensure the battalion Equipment Evaluation Program (BEEP) is carried out in accordance with *Naval Construction Force (NCF) Equipment Management Instruction*, COMFIRSTNCDINST 11200.2 and other applicable instructions and guidance.
15. Ensure cranes are maintained in accordance with *Management of Weight Handling Equipment*, NAVFAC P-307.

1.1.1 Work Center Supervisor (WCS)

As the Work Center Supervisor he/she will function under the supervision of the Maintenance Supervisor/Division Maintenance Chief. Each of the Supervisors is

normally a Construction Mechanic Chief (CMC) and will have successfully completed 3-M PQS up to 303. The WCS has all the administrative and military duties of a Platoon Commander in addition to the assigned functional responsibilities.

The CMs, SWs, HTs, MRs, CEs, and EOs assigned to the work centers are trained in the maintenance and repair of all the equipment in the unit allowance and will be 301 qualified.

The maintenance personnel assigned to the Light Shop, Heavy Equipment Shop and Support Shop shall perform all work as specified on the assigned shops 13 Week Accountability Log. The WCS using SKED shall develop this schedule weekly. It will consist of the last 13 completed weeks of maintenance and the current week. The A4/Division Maintenance Chief and WCS shall ensure project critical equipment has priority in the shop.

Field repair crews are often formed to repair equipment at the job site to reduce down time and ensure operator maintenance is being performed.

1.1.2 Monthly CESE/MHE Availability Reports

All COMFIRSTNCD units are directed to submit a monthly Civil Engineer Support Equipment/Material Handling Equipment (CESE/MHE) Report. The report shall be sent by the close of business on the **FIFTH DAY** of the following month, via e-mail to the respective Regimental (R43) Equipment Office. The Regiment will forward the report via email to COMFIRSTNCD N43. Operational Regiment will submit a CESE report on assigned TOA via e-mail to COMFIRSTNCD N43.

- a. CESE/MHE which cannot be used to meet operational or contingency commitments due to the following reasons should be reported.
 - (1) **Deadline**. Applies to all equipment that cannot be returned to service to perform all intended functions; has been determined by the maintenance supervisor, or higher authority, that repair parts are required, and that the parts are not obtainable within three working days.
 - (2) **Non-availability**. All equipment deadlined, awaiting shop entry, disposition, or any reason that does not allow equipment to be dispatched prior to close of business. Non-availability is figured on a 24-hour, 7-day week basis.
- b. CESE/MHE that has been placed in Inactive Equipment Maintenance (IEM) will be reported separately in item 9.

Monthly CESE/MHE Availability Report Instructions

Step 1. At the end of each day the Maintenance Supervisor/Division Maintenance Chief will collect, from the Work Center Supervisors the total number of units of active equipment remaining in shops or awaiting repairs, refer to CESE Availability Worksheet Sample, *Figure 2-3*. Summarize the number of units into the total active in for Planned or Corrective Maintenance.

Step 2. At the end of the month, the Maintenance Supervisor/Division Maintenance Chief will total all daily totals and divide by the number of days in that month to obtain an average for the month.

Inactive Equipment Maintenance (IEM) Procedures. Due to varying tasking from one deployment to the next, deployed units often have CESE/MHE on hand, which are not

used for extended periods during deployment. This extra equipment consumes maintenance man-hours and funds, and often suffers deterioration from exposure to the elements. Equipment should be placed in IEM when there is no foreseeable operational need for the equipment for a period of time covering thirty days (30) days or more. Refer to *Ships' Maintenance and Material Management (3-M) Manual*, NAVSEAINST 4790.8 and *Maintenance and Material Management (3-M) System Policies and Procedures for the Naval Construction Force (NCF)*, COMFIRSTNCDINST 4790.1.

DATE	DAY	IN SHOP	ON D/L	OPEN HARD CARD	TOTAL NOT AVAILABLE FOR DISPATCH	TOTAL AVAILABLE FOR DISPATCH	TOATL CESE ON SITE	DAILY AVG %
	MON							
	TUE							
	WED							
	THU							
	FRI							
	SAT							
	SUN							
	MON							
	TUE							
	WED							
	THU							
	FRI							
	SAT							
	SUN							
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	MON							
	TUE							
	WED							
	THU							
	FRI							
	SAT							
	SUN							
	MON							
	TUE							
	WED							
	THU							
	FRI							
	SAT							

Figure 2- 3- CESE Availability Worksheet Sample.

Monthly CESE Availability Report Sample

From: NMCB 1234 / A6 //
 To: SECONDNCB DET GULFPORT MS // N46 //
 OR THIRDNCB EQUIPMENT DET PORT HUENEME CA //N46/
 INFO: COMSECONDNCB NORFOLK VA
 COMSECONDNCB DET ATLANTIC / EUROPE
 9OR0
 COMTHIRDNCB PEARL HARBOR HI
 (AND)
 (PARENT NMCB IF APPLICABLE)

BT
 UNCLAS //N01200//
 MSGID / GENADMIN / NMCB 1234//
 SUBJ / MONTHLY CESE AVAILABILITY REPORT//
 RMKS//

1. The following report is for the month of August 2009.

2. Average Availability for the month:

	<u>Augment %</u>	<u>Organic %</u>	<u>Overall %</u>
Rota	95%	89%	92%
Souda Bay	97%	00%	92%
Sigonella	98%	00%	98%

3. Site using the 3-M system

Location	Work Center Code	RAR	PMS Due	PMS Comp	2-Kilo Opened	2-Kilo Closed	2-Kilo Over 30-Days
Rota	Heavy AH03	100%	142	142	24	20	10
	Heavy AH05	100%	13	13	0	0	0
	Light AL03	99%	556	550	41	35	19
	Light AL05	100%	54	54	0	0	0
	5000 AT03	100%	159	159	4	4	1
	5000 AT05	100%	17	17	0	0	0
	Crane AC13	100%	0	0	12	10	4
	Crane AC15	100%	0	0	0	0	0

4. Sites not using 3-M system:

Average PM to Corrective Ratio:

Location: PM: Corrective

Souda Bay 2:1

Sigonella 3:1

5. CESE on Deadline:

Location	<u>Augment</u>	<u>Organic</u>	<u>Overall</u>
Rota	00	01	01
Souda Bay	00	00	00
Sigonella	00	00	00

Location / Work Center and Number of CESE on Deadline:

Rota / Heavy ORG / AH03: 01

<u>Date</u>	<u>USN</u>	<u>Description</u>	<u>Part</u>	<u>REQ #</u>	<u>Status</u>
4090	37-00484	Auger Earth	Bearing 4202-W450		EDD 4313

6. CESE Pending Disposition: 01

Rota: 00

<u>USN</u>	<u>Description</u>	<u>Remarks</u>
51-24039	10KW Generator	Block Cracked

Souda Bay: 00		
USN	<u>Description</u>	<u>Remarks</u>

Sigonella: 00		
USN	<u>Description</u>	<u>Remarks</u>

7.	<u>CESE Disposal: 00</u>	
USN	<u>Description</u>	<u>Remarks</u>

Souda Bay: 00		
USN	<u>Description</u>	<u>Remarks</u>

Sigonella: 00		
USN	<u>Description</u>	<u>Remarks</u>

8. Maintenance / Fuel Cost for the FY:

Grant FYTD:	\$ 314,627.00
Augment Funds:	\$.....0.00
Expenditures FYTD	\$ <u>233,314.31</u>
Balance:	\$ 81,312.69

Rota Maintenance Cost for the Month:

DTO:	\$ 6,059.79
Issues for AR:	\$ 18,111.02
Credit Card:	\$ 233,314.31
Leases:	\$.....0.00
Other: (Define)	\$ <u>15,923.70</u>
Total:	\$ 40,094.51

Rota Fuel Cost for the Month:

	<u>Gallons</u>	<u>Cost</u>
Mogas:	308	\$....462.00
Diesel	2278	\$ <u>2,164.10</u>
Total:		\$ 2,626.10

Souda Bay Maintenance Cost for the Month:

DTO:	\$ 579.88
Issues for ARP:	\$ 3,208.59
Credit Card:	\$ 0.00
Leases:	\$ 0.00
Other: (Define)	\$ <u>0.00</u>
Total:	\$ 3,788.47

Rota Fuel Cost for the Month:

	<u>Gallons</u>	<u>Cost</u>
Mogas:	159	\$....238.50
Diesel:	70	\$ 66.50
Total:		\$ 305.00

Sigonella Maintenance Cost for the Month:

DTO:	\$ 191.96
Issues for ARP:	\$ 3,340.48
Credit Card:	\$ 602.98
Transfers:	
Leases:	\$ 0.00
Other: (Define)	\$ <u>0.00</u>
Total:	\$ 374.29

Sigonella Fuel Cost for the Month:

	<u>Gallons</u>	<u>Cost</u>
Mogas:	102	\$....153.00
Diesel:	384	\$ 364.80
Total:		\$ 517.80

9. Total CESE 358

	<u>(Active)</u>	<u>(IEM)</u>	<u>(DFT)</u>	
	<u>AUG</u>	<u>ORG</u>	<u>AUG</u>	<u>ORG</u>
				<u>Total</u>

Rota:	14	53	6	231	00	00	304
Souda Bay:	27	00	00	00	00	00	27
Sigonella:	28	00	00	00	00	00	28

10. CESE to Mechanic Ratio:

Rota:	13	: 1
Souda Bay:	9	: 1
Sigonella:	7	: 1

11. Mishap CESE or Leased Equipment:

Rota:	00			
<u>Date</u>		USN/GSA/Leased	Damage	Estimate
Souda Bay	00			
<u>Date</u>		USN/GSA/Leased	Damage	Estimate
Sigonella	01			
<u>Date</u>		USN/GSA/Leased	Damage	Estimate
26 July 09		44-02722	Lower window glass	\$70.00

12. Equipment Utilization: (NMCB and CBMU Report):

Rota:			
<u>GSA Leased</u>	<u>Description</u>	Miles/Hours Operated	
Total Units CESE		Miles/Hours Operated	
Souda Bay:			
<u>GSA Leased</u>	<u>Description</u>	Miles/Hours Operated	
Total Units CESE		Miles/Hours Operated	
Sigonella:			
<u>GSA Leased</u>	<u>Description</u>	Miles/Hours Operated	
Total Units CESE		Miles/Hours Operated	

13. Equipment Utilization: (SRG and NCR Report)

<u>Total Units CESE</u>	<u>Miles/Hours Operated</u>
<u>Total Units GSA</u>	<u>Miles/Hours Operated</u>

14. MHE Usage Report

USN	Current Meter Reading	Hour Meter Replaced	PM Hours	Maint Hours	Part Hours	Down For Repair Parts	Date last In Shop
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15. Comments:

1.2.0 Equipment Inspectors

Work Center Inspectors examines the equipment for additional required repairs when the CESE is scheduled for Planned or Corrective maintenance. Inspectors work directly for, and are responsible to, the Maintenance Supervisor/Division Maintenance Chief. They should be senior mechanics, knowledgeable and proficient in their rating, and should be able to clearly describe each repair action on the Maintenance Requirement Cards (MRC), OPNAV 4790/85. Each piece of equipment is inspected after repairs are completed on the Ship's Maintenance Action Form, OPNAV 4790/2K (2-Kilo) by each Work Center Inspector to ensure that work is correctly completed. Thorough final inspection increases reliability and, in turn, reduces the mechanic's workload. Inspectors may perform minor repair work that pertains to inspection procedures only. Inspectors will immediately notify the Maintenance Supervisor when suspected equipment abuse or recurring failures are discovered. The inspector will review Technical Manuals, Technical Bulletins, Maintenance Bulletins, Advanced Change Notices (ACN), and Feedback Report replies. Inspectors ensure required annual safety inspections and hourly/mileage repairs/adjustments are completed in accordance with Maintenance Requirement Cards, OPNAV 4790/85. The Inspector ensures all collateral equipment is

inspected for completeness, deterioration, preservation, shelf life, and proper stowage. The duties and responsibilities of the inspectors are further discussed further in Chapter 3.

1.3.1 Light Shop Work Supervisor

The Light Shop WCS who successfully completed 3-M PQS up to 303 is responsible to the Maintenance Supervisor/Division Maintenance Chief. He/she will be required to identify and coordinate all maintenance requirements through the shop that necessitates the CM skill for completion with dispatcher on "B" and "C" assigned CESE, utilizing the weekly boards to identify scheduled maintenance requirements.

He/she shall ensure crews perform preventive and corrective maintenance on all CESE entering the shop. All scheduled preventive maintenance will be performed as per Maintenance Requirement Cards (MRC). Each crew should consist of one experienced CM2 or CM3 and a CMCN. Crews should be augmented by a lesser-experienced Equipment Operator (a minimum of 90 day appointment is required to receive adequate training in operator maintenance). They will check and/or change fluids, change filters and make minor repairs as required by the Maintenance Record Card or Ship's Maintenance Action Form, OPNAV 4790/2K (2-Kilo). Light shop equipment is identified as, but not limited to, CESE with an Equipment Code (EC) starting with the number "0" (i.e. 036031, TRK Cargo 1 1/4 ton).

Each Work Center Supervisor shall maintain the Inactive Equipment Maintenance Program (IEM) for the CESE assigned in IEM. He/she will maintain the program through SKED and utilize the NAVSEAINST 4790.8B and COMFIRSTNCDINST 4790.1. An EOCN or above shall be assigned to each shop and shall have a license for all CESE assigned in IEM. Their duties include:

- Ensure timely quality maintenance of all CESE assigned in accordance with the 3-M program.
- When performing the Maintenance Requirement Card Periodic Maintenance (PM), ensure the cycling (test drive) of all CESE is performed in accordance with NAVFAC P-300, APPENDIX N. Replace the Equipment Repair Order (ERO) instructions with a completed OPNAV 4790/2K for any discrepancies. For CESE without PM, follow the guidelines in accordance with NAVFAC P-300, Appendix N.
- Ensure 100% accountability is maintained on all collateral equipment.

1.3.1 Light Shop

The Light Shop is responsible for the planned maintenance and breakdown repair of all equipment assigned by the Maintenance Supervisor (generally all equipment codes beginning with "0"). The number of crews will be dictated by manpower and equipment quantity assigned. The shop will also be responsible for conducting Inactive Equipment Maintenance (IEM) per NAVSEAINST 4790.8B on all Light Shop CESE assigned to IEM. The shop will also be responsible for maintaining Direct Turnover (DTO) parts for assigned CESE.

1.4.1 Heavy Shop Work Supervisor

The Heavy Shop Work Center Supervisor WCS who successfully completed 3-M PQS up to 303 is responsible to the Maintenance Supervisor/Division Maintenance Chief for the following maintenance functions:

1. Scheduled Inspection Service. Identify and coordinate all maintenance requirements through the shop that necessitate the CM skill for completion with Dispatcher on Project and "C" assigned CESE. All other maintenance requirements shall be completed by operator and supervised by Field Maintenance Crew. The Field Crew shall forward completed preventive maintenance to the WCS to record in SKED. All corrective maintenance completed will be forwarded to the Work Center Supervisor and an OPNAV 4790/2K will be generated.
2. Lubrication and Maintenance. Shop crews shall perform preventive and corrective maintenance on all CESE entering the shop for maintenance. All scheduled preventive maintenance will be performed as per Maintenance Requirement Cards (MRC).
 - a. Each crew should consist of one experienced CM2 or CM3 and a CMCN. Crews should be augmented by a lesser-experienced Equipment Operator (a minimum of 90-day appointment is required to receive adequate training in operator maintenance). They will check and/or change fluids, change filters and make minor repairs as required by the Maintenance Requirement Card or OPNAV 4790/2K.
3. Field Maintenance. The Field Crew shall perform maintenance requirements that necessitate those skills essential to complete the requirement when such work is beyond the scope of operator maintenance and minor corrective repairs on CESE in the field. They will also monitor operator maintenance on all project-assigned CESE by the following:
 - a. The field crew should be assigned a maintenance truck (EC 0722XX) and the required tool kits to perform preventive maintenance and repairs in the field. Environmental caution must be employed when working with hazardous material (HAZMAT)/hazardous waste (HAZWASTE) in the field, see Chapter 5.
 - b. Visit each job site twice daily. Log all maintenance, repairs, and assistance provided at the project sites.

1.4.1 Heavy Shop

The Heavy Shop is responsible for the planned maintenance and breakdown repair of all equipment assigned by the Maintenance Supervisor (generally all non-light shop equipment minus the 5000 shop equipment). The priority of this shop is generally in support of the battalion's construction effort. The Shop will also be responsible for conducting IEM per NAVSEAINST 4790.8B on all Heavy Shop CESE assigned to IEM. The Shop will also be responsible for maintaining DTO parts for assigned CESE.

1.5.0 Crane Shop Work Supervisor

The Crane Crew Work Center Supervisor shall ensure preventive and corrective maintenance is performed on all cranes assigned. All scheduled preventive maintenance will be performed as per Maintenance Requirement Card.

1.5.1 Crane Shop

The Crane Shop is responsible for the planned maintenance and breakdown repair of all cranes and ensuring all maintenance guidelines is adhered to per *Management of Weight Handling Equipment*, NAVFAC P-307. **At no time will cranes be put in IEM status.** All cranes will be kept alive and cycled. All cranes are operationally cycled every five workdays to insure all moving parts are mechanically sound and fully operational. Cycling shall be documented in the crane logbook and the completed Crane Operator's Daily Checklist (ODCL) filed to be retained for a minimum of two months. Cranes on deadline will be maintained in IEM Status II until removed from deadline.

Figure 2-4, shows a typical crane program organization and Figure 2-5, outlines the required courses for crane personnel as per the *Management of Weight Handling Equipment*, NAVFAC P-307. All personnel involved with maintenance, inspection, test, certification, engineering, rigging and operation of WHE shall be properly trained and qualified, see Figure 2-6 and Figure 2-7.

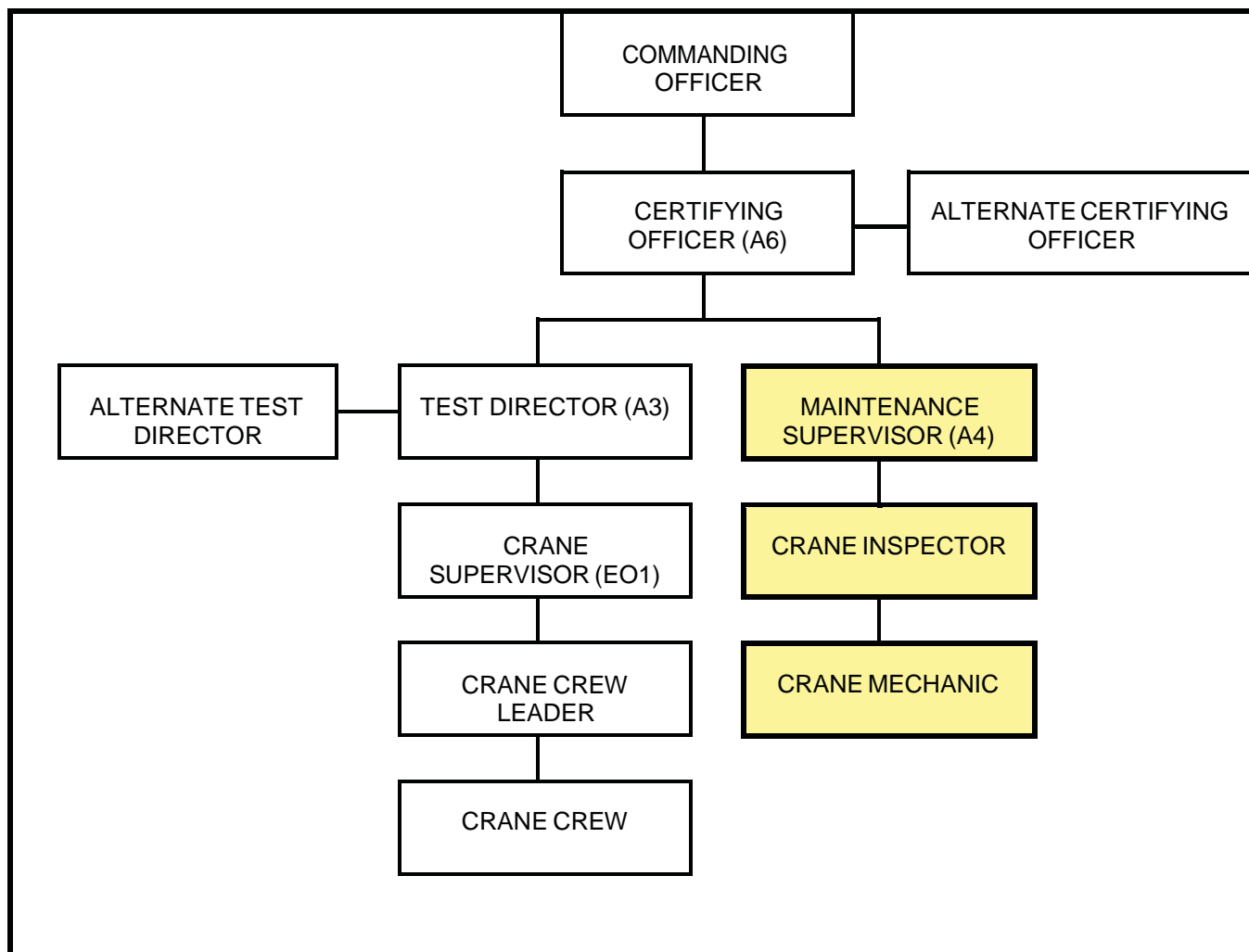


Figure 2- 4- Crane Program Organization.

Proper documentation of maintenance is critical. In accordance with the NAVFAC P-307, all inspection criteria for the crane are listed in Appendix C. This checklist must be completed and accompany the OPNAV 4790/2K(s) as required and be filed in both the history jacket and the crane equipment history file.



Figure 2-6 - 50-ton lattice boom crane being prepared for certification.



Figure 2-7 - Construction mechanics hooking the hoist to a calibrating weight to certify the crane's computer.

1.6.0 Support Shop Center Supervisor

The Support Shop Work Center Supervisor is responsible to the Maintenance Supervisor for the maintenance and repair of CESE starting with an EC of "5" such as 5110, Floodlight Set Elec Truck/Trailer Mtd, and/or as directed by the Maintenance Supervisor. The Work Center Supervisor shall identify and coordinate all Maintenance Requirements through the shop that necessitate the CM/EO/CE/SW/HT/MR skill for completion.

The Support Shops normally are comprised of the machine shop, steel shop, electrical shop (EC 5000-5999), battery shop, paint shop, and tire shop. These shops are specialty shops that are tasked with supporting the other shops with their particular expertise. The shop will also be responsible for maintaining DTO parts for assigned CESE.

These shops invariably are located away from the main area of the mechanic shops. The support shop supervisor should make a daily visit to each shop to ensure proper operating and safety procedures are being followed and to also check if personnel require any assistance with tools, materials, or supplies.

1.6.1 Machine Shop

A machinery repairman (MR) is a skilled machine tool operator and is assigned to operate the machine shop. At a deployment site the machine shop is usually in a trailer, which contains lathes, drill presses, grinders, and other machine tools. The MRs are a valuable asset because they have the capability to manufacture or repair equipment parts, tools, or machine parts needed to perform the work required. The MR is responsible for inventory and maintenance of all tools and collateral equipment assigned to the shop.

Moving machine parts have the potential to cause severe workplace injuries, such as crushed fingers or hands, amputations, burns, or blindness. Safeguards are essential for protecting workers from these preventable injuries. Any machine part, function, or process that may cause injury must be safeguarded.

1.6.2 Steel Shop

Along with a mechanic, a steelworker is assigned to the steel shop. These personnel have the expertise to repair or reconstruct chassis; repair and test radiators; repair dozer blades, front end loader buckets and other steel components; and perform other welding, cutting and brazing tasks. The steel shop uses hand, power, and pneumatic tools.

The supervisor needs to realize that welding, cutting, and brazing pose both safety and health risks. Health hazards from welding, cutting, and brazing operations include exposures to metal fumes and to ultraviolet (UV) radiation. Safety hazards from these operations include burns, eye damage, electrical shock, cuts, and crushed toes and fingers. Many of these can be controlled with proper work practices and personal protective equipment.

1.6.3 Electrical Shop (5000)

Manned by construction mechanics and construction electricians, the electrical shop personnel repair, rebuild, clean, adjust, and test all electrical parts, components, and accessories for CESE such as generators, starters and voltage regulators. They also work on CESE with the equipment code 5000 such as light plants, welders, generators and pumps and other allied equipment. This is why the shop is referred to as the 5000 shop. The maintenance supervisor may direct them to also assist on any other CESE or equipment to help relieve the light or heavy shops work load.

1.6.4 Battery Shop

Personnel assigned to the battery shop maintain and recharge wet cell batteries, mix electrolyte, and fill dry charged batteries.

The battery shop should be well separated from any open flames. It must be well ventilated to prevent accumulation of explosive hydrogen gas fumes given off during battery charging. Adequate safety equipment, located within the battery shop, includes rubber aprons and gloves, face shields, eyewash, and shower. Electrical light fixtures and plug-in connections should be of explosive proof design. The shop shall have lifting devices of adequate capacity.

Acid or electrolyte used in the battery shop is to be stored in an upright position on a stable platform. Racks and trays shall be substantial and shall be treated to make them resistant to electrolyte and floors shall be acid resistant construction or protected from accumulation of acid. Facilities for quick drenching of the eyes and body shall be provided for emergency use within 25 feet of battery handling area.

1.6.5 Paint Shop

Personnel assigned to the Paint Shop must be adequately trained to perform body repair and CESE painting. Personnel are to be respirator qualified and fully trained in the safe and proper procedures in working with airborne chemical hazards. Workers have the potential to be exposed to many hazards. Chemical hazards may include sanding dusts containing metals, solvents, paints and cleaners. Physical hazards may include cutting and sanding tools, noise, repetitive stress, and uneven or slippery floor surfaces. Supervisors and workers benefit from integrating health and safety practices into the workplace.

Within the paint shop facilities, management needs to ensure these operations are being performed per *Navy Safety and Occupational Health Program Manual*, OPNAV 5100.23 series instructions. Air emission standards, respirator protection and monitoring standards, as well as resident command policies will be followed. Resident NCF units will ensure, as part of their turnover with incoming units, that the local EPA permits are reviewed with Regimental oversight. For example, in Puerto Rico the current Environmental Protection Agency (EPA) permit outlines facility inspection, duration for operation, and air emission standards. It also includes quantity/duration of spray booth daily operations. Changes to site-specific requirements will be done through local authority with Regimental Safety and Equipment Staff approval.

Vehicular paint and preservation programs within the Department of Defense have been closely scrutinized to ensure these operations meet federal environmental laws and regulations. This includes overseas where resident Safety/Environmental staffs are required to meet standards set forth by host nations.

1.6.6 Tire Shop

Equipment operators and construction mechanics assigned to the tire shop provide repair and replacement service for all pneumatic-tired equipment in the NMCB. On automotive vehicles the operator of the vehicle will remove and replace the wheels.

The workers need be aware of the hazards associated working with pneumatic tools and compressed air. Vehicles mounted with split rim wheels have special consideration

over single-piece rims. A safety tire rack, cage, or equivalent protection shall be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings of similar devices. Another safety factor to be considered in the tire shop by the supervisor is that compressed air shall not be used for cleaning purposes except where reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.

This shop should be located in an easily accessible area, as over 90 percent of the CESE assigned to a construction battalion uses pneumatic tires. The SKO, volume 2, kit 80012, lists items required to operate a battalion-size tire shop. An air compressor, separate from the maintenance shop, is required because of the large volume of air used.

1.7.0 Repair Parts Petty Officer (RPPO)

The Repair Parts Petty Officer maintains the repair parts status and accountability records, and in the case of a detachment, is the liaison between the main body supply office. All requisitions for not in stock (NIS) and not carried (NC) materials must pass through the RPPO who maintains the repair parts summary sheets.

In accordance with the *Seabee Supply Manual*, COMFIRSTNCDINST 4400.3 NCF activities and units shall implement and maximize the use of the Supply/Repair Parts Petty Officer (RPPO) Program. Each Work Center will assign personnel to serve as RPPO. All Supply requirements will be processed through the applicable RPPO. Each RPPO will require basic knowledge of supply procedures and the appropriate supply systems to properly function in assigned tasks. *Naval Construction Force Training Requirements*, COMNAVCONFORCOMINST 1500.1 requires all E5 and above personnel from each code, to qualify on 302 - 3M Repair Parts/Supply Petty Officer PQS. Each unit will ensure appropriate personnel are assigned in accordance with COMNECCINST 4790.3, to include necessary training and PQS completion. Other references include; OPNAVINST 4790.4, NAVSEAINST 4790.8, and COMFLTFORCOM 4790.3. This is a Supply Management Inspection interest item.

1.8.0 Technical Librarian

The Technical Librarian, who should be an experienced mechanic, is responsible for the pre-packed library, which contains operational, maintenance and parts manuals. The Librarian, in accordance with *Initial Outfitting and Maintenance of Civil Engineering Support Equipment (CESE) Technical Manuals*, COMSECONDCB / COMTHIRDCBINST 5600.1, establishes and enforces checkout procedures for all manuals, and maintains all required reference materials needed to research and initiate part requisitions on NAVSUP Form 1250-2s. The Technical Librarian normally researches and prepares the NAVSUP Form 1250-2s to free floor mechanics to perform maintenance functions.

The Technical Librarian shall maintain all Technical Manuals listed in the units COSAL. Inventory control of TMs must be maintained through periodic inventories and check-out procedures because replacement manuals for older equipment are usually hard to obtain. Manuals in excess of COSAL quantities must be returned to NCBC Port Hueneme marked for "M3 Stock." If the COSAL lists incorrect TMs or does not list all the required TMs, submit an *Allowance Change Request/Report*, NAVSUP Form 1220-2 to CBS0. Technical Manuals that are lost, damaged, worn out, or otherwise unserviceable shall be replaced by submission of funded requisitions to NCBC Port

Hueneme. The requisitions shall include the TM stock numbers from the COSAL. If not available, all TM identification and equipment identification that includes USN number, make, model, year of manufacture, serial numbers, and original procurement contract number, will be provided.

1.8.1 Technical Manuals

1.8.1.1 Provisions of Technical Manuals

An effective equipment management program needs technical data and guides for each item of equipment. Within the NCF, operator manuals, lubrication charts, parts manuals, and shop repair manuals are included in each unit's parts peculiar COSAL under NCBC Port Hueneme local stock number "ONL-7610-LL-Lxx-xxxx." The quantity of technical manuals (TM) is determined by the same methods used for repair parts. This provides one copy for each piece of equipment of the same make and model assigned to the unit; two copies for two pieces of the same make and model; three copies for three to eight pieces of the same make and model; and four copies for nine to twenty pieces of the same make and model equipment.

1.8.1.2 1.2 Civil Engineering Support Office (CESO) Responsibilities

The Civil Engineer Support Office directs and administers the technical manual support program for NCF Units and requires equipment manufacturers to furnish the appropriate TMs with every purchase. These TMs can be military (U.S. Army, USMC, USAF), Commercial (standard manufacturers), or modified Commercial (standard manufacturers TMs modified to meet specific requirements).

1.8.1.3 1.3 Construction Battalion Center Responsibilities

Based on COSAL computations, NCBC Port Hueneme provides Technical Manuals to Naval Construction Force units with the repair parts pickup.

1.9.1 Mechanic's Tool Room

The mechanic's tool room serves as the central point for issue, storage, inspection, maintenance and repair of all mechanics tools. Under an approved custody control system, the Maintenance Supervisor holds shop equipment on sub-custody. Kits and tools needed continuously are issued to individuals on custody receipts. Other tools are issued on tool chits or in a sign-out log for particular jobs. Tool room personnel perform tool repair within their capabilities and ensure that preventive maintenance service and electrical safety checks, Request assistance from other battalion shops when necessary. All other tool-related information is found in the *Seabee Supply Manual* COMFIRSTNCDINST 4400.3 and *NCF Safety Manual* COMFIRSTNCDINST 5100.2.

The toolroom petty officer will have an updated copy of the CESO Sets, Kits, and Outfits Book (SKO) Assembly 07295 to provide accurate inventory lists of all tool kits by NAVFAC assembly number. Stock numbered items with a unit of issue of set, kit, or outfit are made up of smaller pieces or an assortment of items that are alike but in different sizes. The SKO provides information and an illustration of the parts and pieces that make up the sets, kits, or outfits.

1. Format. The SKO contains an alphabetical listing of abbreviations and manufacturers of items appearing in the publication. The NSN breakdown section is in NSN sequence and the components are in NSN/NICN/PN sequence. In

addition, the NSN section shows an illustration (when appropriate), the manufacturer, the applicable assemblies, and pertinent notes.

2. Method of Use. SKOs are identified by NSN/NICN in the TOA. To find an item, locate the stock number in the NSN section, then the piece/pieces required; for part-numbered items, the manufacturer is listed in the "Reference" block. The Commercial and Government Entity Code (CAGE) will be found in the alphabetical list of manufacturers.
3. Publication and Distribution. NFELC updates, publishes, and distributes the SKO every two years. Additional copies may be requested under PCN 0525LLLCC0751. The SKO assembly is an invaluable asset to the logistics representative at NCF units and may be accessed via the SEABEE PORTAL.

For a complete list of tools kits refer to COMFIRSTNCDINST 4400.3, Chapter 6, Inventory Management. A partial listing of tool kits available to mechanics is as follows:

NAVFAC Assembly Number	Kit Name
80012	Kit, Tire Service Tools/Equipment
80013	Kit, Mechanic Hand Tools F/2 Men
80015	Kit, Battery Service Tools
80016	Kit, Automotive Tune-up Tools
80017	Kit, Automotive Body Tools
80023	Kit, Radiator Tools
80031	Kit, Mechanic Shop Tools Metric
80072	Kit, Puller Set Mechanical, 13 ton
80081	Kit, Diesel Engine Test Set
80414B	ALFA Company Tool Room (ATR) F/250 per kt

2.0.0 PLANNED MAINTENANCE/CORRECTIVE PROGRAM

2.1.0 Maintenance and Material Management System (3M)

Maintenance and Material Management (3-M) System Policies and Procedures for the Naval Construction Force (NCF), COMTHIRDNCDINST 4790.1 establishes 3-M policies and procedures, assign action, and provide guidance for the Naval Construction Force.

COMFIRSTNCD units have converted from the "paper" Equipment Repair Order (ERO) System to the Navy's 3-M system. In accordance with OPNAV Instruction 4790.4, Naval Sea Systems Command (NAVSEASYS COM) manages and directs the development, implementation, operational maintenance, and improvements of all aspects of the Ship's 3-M System throughout the Navy. This conversion will bring these standard Navy maintenance and material management practices to the NCF. Naval Facilities Expeditionary Logistics Center (NFELC) Port Hueneme has responsibility for the installation of software and the implementation of 3-M processes. NFELC Notice 4790

of 24 October 2003 provides information regarding actions to be taken in support of installs. The objectives of 3-M are standardization, efficiency, documentation, analysis, configuration status accounting, and scheduling.

The 3-M system applies to all Naval Construction Force equipment including Civil Engineer Support Equipment (CESE), Civil Engineering End Item (CEEI), Weapons, Communications Equipment, and other Table of Allowance (TOA) material that requires periodic or corrective maintenance. All COMFIRSTNCD units shall comply with the 3-M program policy, requirements, and responsibilities as outlined in OPNAVINST 4790.4 and modified in COMTHIRDNCINST 4790.1. There shall be no deviation from the procedures without the prior written approval of COMFIRSTNCD.

3-M is a Navy-wide program with a well-established and functional organizational infrastructure. Training, reporting, on-line resources, and management tools exist and have proven to be of great value in maintenance management and planning, improving safety, life cycle cost analysis, and failure rate analysis. In order for the NCF to realize maximum benefit from these resources, it is essential that a forceful and functional 3-M staff infrastructure be embedded at the Unit level.

Specific 3-M responsibilities exist at every level in the chain of command. Detailed 3-M functional responsibilities are provided in COMTHIRDNCINST 4790.1. All COMFIRSTNCD units will establish a 3-M Manager, a 3-M Coordinator, and Departmental 3-M Assistants as indicated in *Figure 2-8, Organizational Responsibilities*.

ORG	3-M Manager	3-M Coordinator	Dept 3-M Assistant *
NCR	R43	R43 Staff Member - collateral duty (E-7 or above)	Collateral duty (E-7 or above)
SRG	R43	R43 Staff Member - primary duty (E-7 or above)	Collateral duty (E-7 or above)
NMCB	XO	Full time special assistant - direct report to XO - (E8/9)	Collateral duty (E-6 or above)
UCT	XO	Full time special assistant - direct report to XO - (E-7 or above)	Collateral duty (E-6 or above)
NCFSU	OIC	Full time special assistant - direct report to OIC - (E-6 or above)	
CBMU	OIC	Full time special assistant - direct report to OIC - (E-6 or above)	

* Applies to all departments performing maintenance under the 3-M system

Figure 2-8 - Organizational Responsibilities.

The 3-M Coordinators require specialized training and carry a Navy Enlisted Classification (NEC) Code of 9517 (3-M System Coordinator). All units will ensure that training and the associated NEC for designated 3-M Coordinators is obtained. The 3-M Coordinators will be assigned in writing by the Commanding Officer. When assigned, provide contact information to COMFIRSTNCD 3-M Program Manager. In addition, all hands are required to participate in, and receive, 3-M training appropriate for their level of responsibility. Training is available during Homeport Cycles and through Personnel Qualification Standards (PQS)

Once the maintenance person has performed the required maintenance, remove the tag only after visually inspecting the work area for other workers and tools that may be endangered by starting the equipment. On the "TAGOUT INDEX AND RECORD FOR AUDITS" complete the "date Cleared" and "WCS INT" blocks and erase the information from the tag and return to inventory.

All "DANGER - DO NOT OPERATE" tags will be serialized by work center (i.e. AH0301) an inventory sheet will be maintained by work centers of the serialized "DANGER - DO NOT OPERATE", tags.

The "TAGOUT INDEX AND RECORDS OF AUDITD" will be audited bi-weekly by the Safety Officer, LPO or Division Officer and maintained on file four weeks to demonstrate accountability.



Figure 2-10 – "DANGER-DONOT OPERATE" Tag

2.1.2 Elements of Maintenance

NCF fleet maintenance accomplishment procedures are intended to provide a first-time quality product completed in accordance with the 3-M system and technical directives, (e.g., manufacturer's technical manuals, technical/service bulletins). Maintenance accomplishment is a direct function of four basic elements:

1. Training and qualification of the craftsmen who will perform the maintenance.
2. Supervision, including the direct oversight of the maintenance being performed, of the individual craftsmen assigned to accomplish the maintenance.
3. Formal Work Procedures (FWP), which are outlined in our standard MRCs which provide the necessary sequence of actions to the individual to complete maintenance tasks.
4. Work Process. A series of actions planned and executed to accomplish a unit task. The work process can range from planning and executing planned maintenance to major component replacement and/or restoration/repair. Understanding work processes and their quality control elements is the fundamental core of a successful Quality Control Program. These elements form the cornerstone of the NCF CESE Maintenance Program and are essential to ensure that all maintenance is completed per applicable technical and administrative requirements.

2.1.2.1 Preventive

Preventive maintenance is a schedule of planned maintenance actions aimed at the prevention of breakdowns and failures, *Figure 2-11*. The primary goal of preventive maintenance is to prevent the failure of equipment before it actually occurs. It is designed to preserve and enhance equipment reliability by replacing worn components before they actually fail. Preventive maintenance activities include equipment checks, partial or complete overhauls at specified periods, oil changes, lubrication and so on. In addition, workers can record equipment deterioration so they know to replace or repair

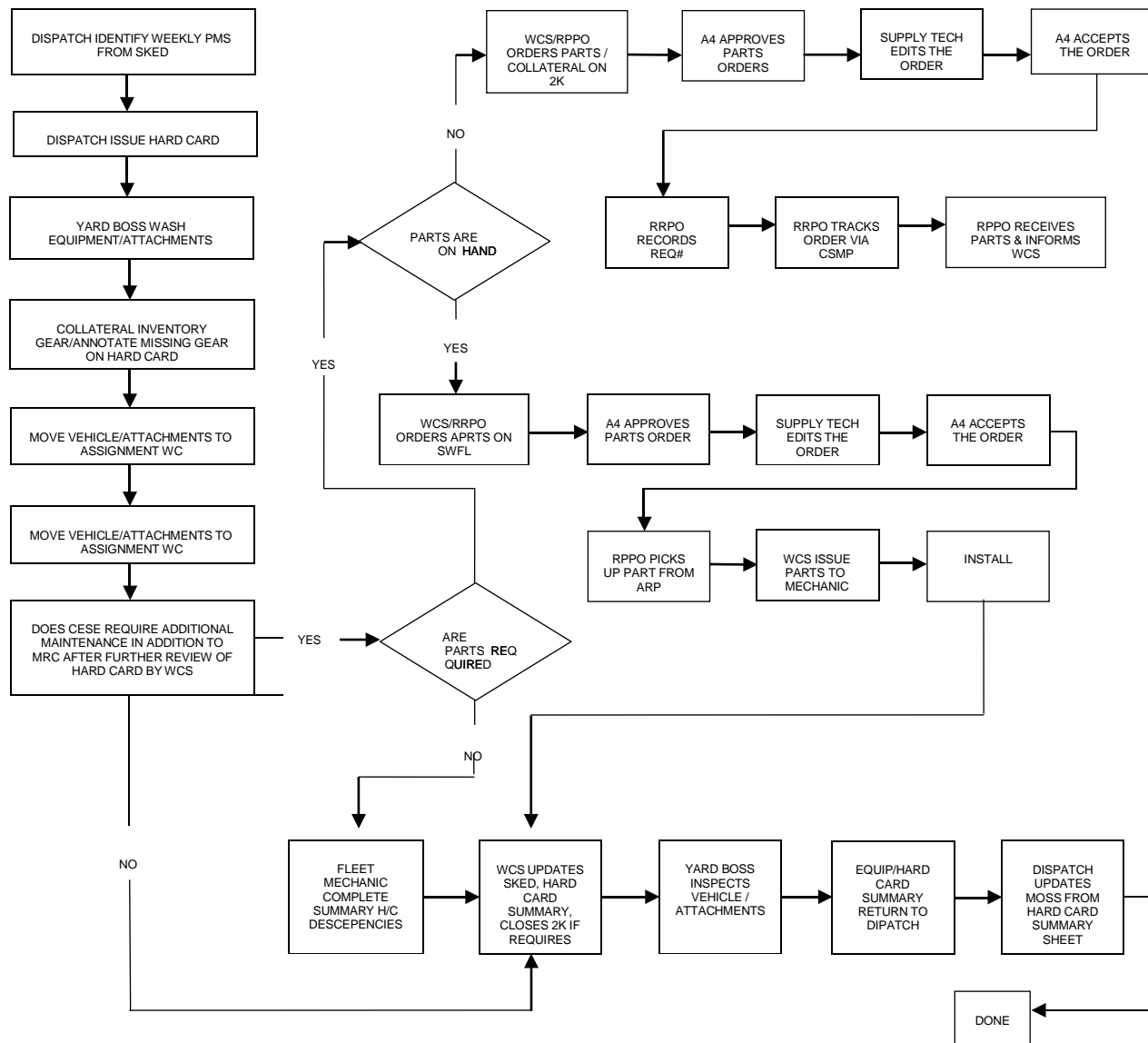


Figure 2-11 - 3-M Equipment Preventive Maintenance Process

worn parts before they cause system failure. Recent technological advances in tools for inspection and diagnosis have enabled even more accurate and effective equipment maintenance. The ideal preventive maintenance program would prevent all equipment failure before it occurs.

Long-term benefits of preventive maintenance include:

- Improved system reliability.
- Decreased cost of replacement.
- Decreased system downtime.
- Better spares inventory management.

2.1.2.2 Corrective

Corrective maintenance consists of the action(s) taken to restore a failed system to operational status, *Figure 2-12*. This usually involves replacing or repairing the component that is responsible for the failure of the overall system. Corrective maintenance is performed at unpredictable intervals because a component's failure time is not known. The objective of corrective maintenance is to restore the system to satisfactory operation within the shortest possible time. Corrective maintenance is typically carried out in three steps:

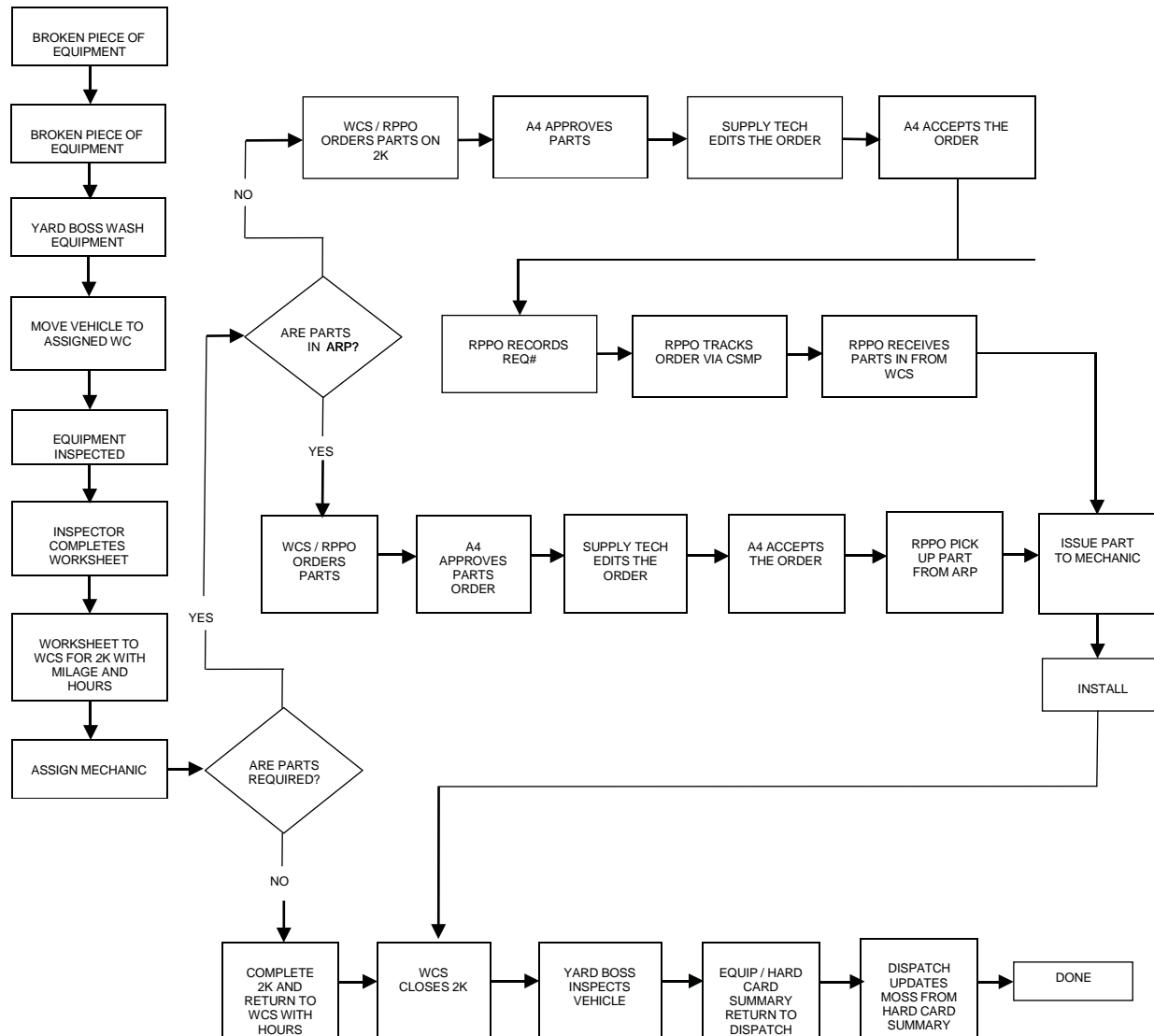


Figure 2-12 - 3-M Equipment Corrective Maintenance Process.

- **Diagnosis of the problem.** The mechanic must take time to locate the failed parts or otherwise satisfactorily assess the cause of the system failure.
- **Repair and/or replacement of faulty component(s).** Once the cause of system failure has been determined, action must be taken to address the cause, usually by replacing or repairing the components that caused the system to fail.

- **Verification of the repair action.** Once the components in question have been repaired or replaced, the inspector must verify that the system is again successfully operating.

2.2.0 Organizational Maintenance

Organizational maintenance is that maintenance which is the responsibility of, and performed by, the operator, and scheduled preventive maintenance services performed by trained personnel. Organizational maintenance consists of proper equipment operation, safety and serviceability inspections, lubrication, minor adjustments and services in accordance with the Maintenance Requirement Cards. Organizational maintenance is divided into operator and preventive maintenance.

2.2.1 Operator Maintenance

Each operator is required to perform work needed to maintain his or her vehicle in a clean, safe, and serviceable condition. Operator maintenance includes the daily inspections before, during, and after operation. It also includes periodic lubrication and adjustments. These requirements are completed utilizing the pertinent MRC. Operator maintenance is performed to ensure early detection of deficiencies.

All Equipment Operators should have successfully completed the 3-M program PQS 301. All operator maintenance is performed in accordance with the 3-M system and documented through the Transportation Chief.

All battalion personnel who operate equipment are responsible for performing operator maintenance on the equipment they operate.

A pre-start inspection consists of performing the services listed on the pertinent Maintenance Requirement Card and annotating discrepancies on the *Operator's Inspection Guide and Trouble Report*, NAVFAC Form 9-11240/13, *Figure 2-13* and is also called a "hard card", or computer-generated form for vehicles. *The Operator's Daily PM Report*, NAVFAC Form 11260/4 is used for construction equipment, *Figure 2-14*. This inspection basically covers inspection of fuel, oil, water, hydraulic fluid, and battery levels; inspection of tires, lug nuts, lights, safety devices, drive belts, cargo, mounted equipment; inspection for leaks and exterior or interior damage; and lubrication as required. Do not operate defective or unsafe equipment. Note any discrepancies on the "hard card" or Daily PM Report and forward immediately to the Yard Boss.

The operator must perform during operation checks. He/she must identify items needing attention: smell (burning rubber, grease or clutches), hearing (unusual noises), sight (instruments), and feeling (drag, pull, and vibration). Tires should be periodically inspected for flats, and rocks between duals, for example. During operation, lubrication is the responsibility of the operator. If a defect is suspected, stop the equipment and investigate. Ensure that defects that could damage the equipment or impair safe operations are repaired before returning the equipment to use.

After operation, the operator performs established shutdown procedures as prescribed on the appropriate MRC and any other services as directed. This service consists of checking equipment cleanliness (wash and steam clean as appropriate); draining air tanks and covering exhaust stacks; closing doors, windows, and hoods; setting brakes; blocking dump beds for draining; and topping off fuel tanks and performing all necessary lubrication maintenance due as directed by manufacturer's recommendations/specifications. All supervisors will ensure that the equipment is

protected against the weather, and that the Hard Card/Daily PM report is completed, initialed by the yard boss and returned to the Dispatcher.

OPERATOR'S INSPECTION GUIDE AND INSPECTION REPORT	
REGISTRATION NO. 45-10084	ODOMETER READING 18,540
Use this form as a guide when performing before and after operation inspections. Check (✓) items that require servicing by maintenance personnel	
<input checked="" type="checkbox"/>	1. DAMAGE (Exterior/Interior/Missing Components)
<input checked="" type="checkbox"/>	2. LEAKS (Oil, Gas, Water)
	3. TIRES (Check inflation, abnormal wear)
	4. FUEL, OIL, WATER SUPPLY (Antifreeze in season)
	5. BATTERY (Check water level, cables, etc.)
	6. HORN
	7. LIGHTS/REFLECTORS/MIRRORS/TURN SIGNALS
	8. INSTRUMENTS (OIL, Air, Temperature, etc.)
	9. WINDSHIELD WIPER
	10. CLEAN WINDSHIELD/VEHICLE INTERIOR
	11. CARGO, MOUNTED EQUIPMENT
	12. STEERING
	13. SAFETY DEVICES (Seat Belts, flares, etc.)
	14. DRIVE BELT/PULLEYS
	15. BRAKES (Drain air tanks when equipped)
	16. OTHER (Specify in "Remarks")
DATE 18 Sep 10	OPERATOR'S SIGNATURE J M [Signature]
REMARKS WMI not done Damaged right front wheel Appears to have an engine oil leak	
NAVFAC 9-11240/13 (12-69) U.S. GPO: 1983-605-010/8469 2-1 Supersedes DD Form 1358 S/N 015-LP-004-1195	

Figure 2-13 - Operator's Inspection Guide and Inspection Report, NAVFAC Form 9-11240/13

OPERATOR'S DAILY PM REPORT NAVFAC 11260/4 (9 74) <i>Supersedes NAVDOCKS 2664</i> S/N 0105-LF 004-1520 <i>Use reverse Side for Remarks</i> <i>Explanatory Notes on Reverse Side</i>			USN NO. 44-00173
			FUEL
			OPR HRS
No	ITEM	OK	SERVICES PERFORMED
1	RADIATOR SOLUTION	<input type="checkbox"/>	
2	GEN & FAN BELT	<input type="checkbox"/>	Adjusted
3	ENGINE OIL LEVEL	<input type="checkbox"/>	
4	AIR CLEANER	<input type="checkbox"/>	
5	PRECLEANER	<input type="checkbox"/>	
6	BATTERY	<input type="checkbox"/>	Added Water
7	HYD. OIL LEVEL	<input type="checkbox"/>	
8	LUBRICATION	<input type="checkbox"/>	
9	TIRE CONDITION	<input type="checkbox"/>	
10	SAFETY EQUIP.	<input type="checkbox"/>	
1	GENERAL COND.	<input type="checkbox"/>	
12	FUEL LEVEL	<input type="checkbox"/>	
13	INSTRUMENTS	<input type="checkbox"/>	
14	SHUTDOWN PRECAUTIONS	<input type="checkbox"/>	
15	OTHER	<input type="checkbox"/>	
DATE		OPERATOR'S SIGNATURE	
1/15/10		K. B. Driver	

Figure 2-14 - Operator' Daily PM Report, NAVFAC Form 11260/4, (Front)

Wheel chocks are required for forklifts, wheeled construction equipment, trailers and vehicles not equipped with air actuated parking brakes or pawl engaged parking brakes (i.e. a positive tooth locking system). Vehicles equipped with a Park (a pawl locking system on the transmission) also do not need wheel chocks. The chocks will be placed at the operator's front left wheel assembly. All rolling stock will be chocked as per MRC when being worked on in any area.

Parking any wheeled equipment on an incline should be avoided. However, if parking on an incline is unavoidable, the equipment must be parked at a right angle to the slope and chocked.

2.2.2 lanned Maintenance

Planned maintenance (PMS) is that maintenance which is scheduled for the purpose of maximizing equipment availability and to minimize repair costs. PMS consists of safety and mechanical inspections, lubrication, and services and adjustments beyond an operator's responsibility. Operators should assist with this work unless directed otherwise. Maintenance support requiring more extensive services is categorized as Corrective level maintenance.

2.2.3 Corrective Maintenance

Corrective maintenance is that maintenance which is the responsibility of, and performed in, any designated maintenance shop. The extent of corrective maintenance encompasses the removal, replacement, *Figure 2-15*, repair, alteration, calibration, modification, and the rebuild and overhaul of individual assemblies, subassemblies and components. Although the rebuild and overhaul of major assemblies is included, only essential repairs shall be accomplished to ensure safe and serviceable equipment. Equipment that requires extensive repairs or numerous assembly rebuilds will not be repaired without prior approval by higher authority. Corrective maintenance requires a higher degree of skill than organizational maintenance, and a larger assortment of repair parts and more precision tools and test equipment.

To preclude the possibility of the installation of expensive components on equipment which may be scheduled for excess, survey, or overhaul, field units will request authority from the respective Equipment Office representative, prior to the purchase of component parts costing in excess of \$1,000 or a total repair cost in excess of \$2,500



Figure 2-15 - Construction mechanic checks for leaks on an engine before reinstalling it back into a Chevy Coupe V truck.

2.2.3 Consolidated Seabee Allowance List (COSAL)

The Consolidated Seabee Allowance List (COSAL) is a document prepared for a given unit/activity that lists the equipment or components required to perform its mission and operational assignments; the repair parts and special tools required for the operation and repair of these equipment. It also lists the miscellaneous items necessary for the care and upkeep of the equipment/components. The COSAL is both a technical and a supply document. As a technical document it contains nomenclature, operating characteristics, and technical manuals and are described in the Allowance Parts Lists (APLs). As a supply document, COSAL provides a complete list of parts authorized by Naval Facilities Engineering Command (NAVFACENGCOM) maintenance policy to support new or like-new construction, automotive, material-handling, and specialized equipment for the first 1,200 construction hours and is computed as two 10-hour shifts, 7 days per week, for the first 60 days of deployment.

The initial outfitting of repair parts is designed so that each CESE item has a list of parts -- an Allowance Parts List (APL). From these data, a publication called a Consolidated Seabee Allowance List (COSAL) is prepared and distributed to the NCF unit being supported, plus one copy to the requesting Command and one copy to the Civil Engineer Support Office. The Naval Construction Battalion Center (NCBC) draws the required initial outfitting parts peculiar, called Modifier Code 98 kit, and parts common, called Modifier Code 96 kit and Modifier Code 97 kit, and packages and ships the parts to the unit. In correspondence, the Consolidated Parts List is referred to as the COSAL,

the repair parts peculiar as the Mod 98, and the repair parts common as the Mod 96 and Mod 97.

Each repair part listed on an APL is assigned a three-digit maintenance code that identifies one of four levels of support: "O," "G," "H," or "D." The first digit is the lowest maintenance level authorized to remove the item. The second digit indicates the lowest maintenance level authorized to repair the item. The third digit indicates the lowest maintenance level authorized to dispose of the item.

- "O" Maintenance Code is defined as service station and service truck maintenance including exterior inspections and adjustments, exterior servicing and lubrication, replacement of readily accessible items that are commonly worn and damaged and minor repairs to parts, subassemblies and assemblies. This code is applicable to maintenance echelons of dispersed operational functions of shorebases such as receiving, storage and shipping, outlying construction sites of Naval Mobile Construction Battalions NMCBs and PHIBCBs, Seabee Teams and minor detachments or units of NCF, and comparable organizations in various NAVFACENGCOM programs.
- "G" Maintenance Code is defined as minor and satellite shop maintenance including interior inspections, calibration and adjustments; interior servicing and lubrication; replacements of accessible items (not requiring major disassembly) that are worn or damaged; and limited repairs to parts, subassemblies and assemblies. This code is applicable to maintenance of equipment by fixed and mobile shops of auxiliary and minor shore bases, NMCB/PHIBCB major detachments and comparable organizations in NAVFACENGCOM programs.
- "H" Maintenance Code is defined as intermediate shop maintenance including general repair and replacement of worn or damaged parts, subassemblies and assemblies, emergency manufacture of nonavailable parts and overhaul of minor subassemblies. This code is applicable to maintenance of equipment assigned to fixed and mobile shops of Public Works Departments of shore bases, main bodies of Naval Mobile Construction Battalions/Amphibious Construction Battalions, Seabee Teams, and comparable organizations in NAVFACENGCOM programs.
- "D" Maintenance Code is defined as major shop maintenance for selected repairable items and equipment maintenance including overhaul, rebuild, modification, alteration, modernization and reclamation of parts, subassemblies and assemblies. This code is applicable to maintenance of equipment assigned to selected shops of shore bases including Public Works Centers, Construction Equipment Departments of CBCs. and comparable organization in the NAVFACENGCOM program.

Each higher level of support includes all lower levels. For example, "H" level includes "O" and "G" level items. When the second digit is "Z" the item is nonrepairable and should be condemned and disposed of at the level indicated in the first position maintenance code column.

Each COSAL is arranged and divided into three separate parts

- Part I Cross Reference List consists of three equipment cross reference lists used to determine which APL applies to which USN Number, but they are sorted and printed in different sequences. Section A is printed in USN registration

number sequence; Section B is in EC (equipment code) sequence; and Section C is in APL (allowance parts list) sequence.

- Part II Allowance Parts List consists of APLs arranged in identification number sequence. The APL identification number is listed in both the upper and lower right corner of each APL page and consists of nine digits, such as 950044121.
 - The Part II MAJOR SEQUENCE is based on the last four digits (950044**121**) of the APL identification number (low to high), which are commonly referred to as the APL number. Normally, one APL number covers the complete vehicle. Exceptions are vehicles such as truck-mounted water distributors (one APL for the truck and another APL for the distributor), and mobile cranes (one APL for the carrier and another APL for the crane).
 - The Part II MINOR SEQUENCE is based on the preceding three digits, such as 95**00**44121 for the fuel system group items. A list of groups covered in each APL is displayed on the first page of each APL, such as **9500**44121. The first two digits of the APL number (**9500**44121) are consistent in Naval Construction Force COSALs because they identify the APL as NCF versus shipboard.
- Part III Stock Number Sequence List consists of a Stock Number Sequence List (SNSL) and two repair part cross reference lists. The SNSL lists the COSAL provided repair parts arranged in National Item Identification Number (NIIN) sequence in the COSAL, to support a specified level of maintenance. The SNSL also lists the APL numbers each part is stocked for, the unit price, and the total COSAL quantity. The first cross referenced list is the manufacturer's part number to the NSN. The second list is NSN, in NIIN sequence to part number. If the NIIN is not included in the COSAL, it will not be on these lists.

There are two basic types of repair parts, "parts peculiar" and "parts common." Repair parts peculiar are parts applicable to a specific make and model of equipment. All parts peculiar to a unit are listed on the APL.

Repair Parts Common are common and consumable supplies that can be used on numerous types of equipment. These items have been separated into a Repair Parts Common Assembly (NAVSUP Modifier 96 and Modifier 97 kits) to reduce overstocking that could occur if these items were carried within separate Repair Parts Peculiar Allowance Parts Lists. The Mod 96 and Mod 97 kits are designed to supplement Repair Parts Peculiar for the first 60 days or 1,200 construction hours of a contingency operation. The Mod 97 kits are packaged as Modular Assemblies. A Mod 97 kit consists of 29 different kits, Mod 96 kit consists of 19 different kits, each of which has been assigned an individual APL number. This allows Repair Parts Common Assemblies to be printed in the same COSAL format and arrangement as Mod 98 kits. Also, illustrated CESO catalogs are provided called *NAVSUP Modifier Code 96 and 97 Catalogs*.

COSALs are published under the authority contained in the NAVFAC/NAVSUP program support agreement by Naval Ships Parts Control Center (SPCC), Mechanicsburg, Pennsylvania. COSALs are both technical and supply documents.

- They are technical documents in that equipment nomenclature, operating characteristics, technical manuals, and so on, are described in Allowance Parts Lists.

- They are supply documents in that they list all parts by manufacturer's code and part number, national stock number, unit of issue, and price and quantity authorized by NAVFAC maintenance policy.

The Civil Engineer Support Office is responsible for managing NAVFAC 2C-Cognizance equipment and material by developing economical Navy-wide equipment service programs including requirement determination for procurement, assignment and management of transportation, construction, weight-handling and specialized equipment for shore activities and fleet units.

2C- Cognizance or 2C-Cog material is a two-digit code used to identify the command, bureau, office agency, or inventory control point which exercises supply management over the items. 2C-Cog equipment is composed of Civil Engineer Support Equipment (CESE) and Civil Engineer End Item (CEEI) equipment.

Although not part of the stock number, the cognizance symbol may be prefixed to the stock number in some supply publications and allowance listings, example **2C** XXXX - XX - XXX-XXXX. However, the cognizance symbol is not attached to the stock number of the supply document, forms, or records.

The first numeric character of the cognizance symbol denotes the stores account of the item. The "2" indicates material held in the appropriations purchase account (APA) and issued without charge to the requisition. The second character (letter) "C" in conjunction with the first numeric character identifies the specific inventory control point, office, or inventory manger that has cognizance or controls the issuance of the material.

2.2.3.1.1 Allowance Parts List (APL)

The Allowance Parts List is a technical document prepared for a specific item or component of equipment. It lists descriptive data and characteristics of the equipment, repair parts, and other technical and supply management information. The COSAL should contain an APL for every item or component of the equipment in the battalion.

Each APL is assigned a nine digit identifying number by Ship's Parts Control Center (SPCC) and is divided into three parts. The first two digits identify the type of equipment, next three digits are called group number, and the next four identify specific pieces of equipment.

Within the APL if there is a letter "P" prefix, this indicates an incomplete APL. The body of the APL usually tells why it is incomplete and the action being taken or required to complete it.

An APL will not always cover complete equipment such as a mobile crane. In this case there may be two components the carrier (truck) and crane. Each component is covered by a separate APL.

2.2.3.1.2 Allowance Equipage List (AEP)

The Allowance Equipage List is similar in appearance to the APL except the APL provides maintenance and repair support for the NCF unit's equipment, and the AEL provides allowances for equipage and supplies necessary to support the NCF unit' mission.

The APL provides technical information for the person maintaining a piece of equipment and tells the supply officer what repair parts are necessary in the storeroom to support

it, and the AEL tells the Commanding Officer, Supply Officer, and other Department Heads what equipment and supplies are needed to operate the NCF unit.

Equipment is defined as durable items that are not consumed in use and that are essential to the NCF's unit mission. Some examples are hand and power tools, pneumatic tools and equipment, multi-meters battery chargers, portable hoist equipment and diagnostic equipment.

AELs may be used to tailor an equipment allowance to fit the needs of specific NCF Unit and the Commanding Officer is responsible for carrying the full allowance at the site. The consumable supplies listed on AELs are not mandatory allowances, but they help the Supply Officer and the using department to decide what supplies to order.

3.1.1 BATTALION EQUIPMENT EVALUATION PROGRAM

The dependability of its equipment is one of the main factors in the ability of an NMCB to perform its assigned mission. Prior to entering into a BEEP the supervisor should study and become knowledgeable with COMFIRSTNCD 11200.2 Series, Chapter 4, Battalion Equipment Evaluation Program. This instruction establishes uniform procedures to be followed during a battalion's on-site relief and equipment turnover.

The purpose of the equipment evaluation program (BEEP) is threefold:

1. to pass on all special knowledge of CESE maintenance and operation techniques;
2. to provide the relieving battalion with a realistic and in-depth condition evaluation of CESE allowance, facilities, tools and materials; and
3. to use the full expertise and efforts of the two equipment forces to provide the relieving battalion and detachments with the best possible Company operation to conduct a successful deployment.

Personnel on both sides shall conduct themselves professionally and work together effectively. The BEEP could be a stressful time, one battalion wanting to get home and the other being "new" and anticipating the upcoming deployment. There is no time for finger pointing and blame. Nothing is gained when issues or concerns are hidden and "swept under the table" for the sake of getting the BEEP completed. Equipment gets damaged, tools and collateral equipment are lost, and material unaccounted for. As supervisors, train your people and set the example. Prior to the BEEP review the responsibilities with each of the key positions. We all know as senior supervisors that the "end of deployment push" on projects tends to take "priority", but keep in mind the BEEP is more significant at this point.

3.1.0 Joint Tasks

To successfully accomplish the BEEP, and to provide a continued uniform procedure for the evaluation and accountability of all equipment, attachments, collateral equipment, records and correspondence, the following procedures apply.

For active CESE operational checks will be performed and equipment condition assessed, using the applicable 3-M "R" situational maintenance check or equivalent Maintenance Requirement Card (MRC) no more than 20 percent of the active CESE (unscheduled PMS as selected by the respective BEEP representative) and its

associated attachments in addition to the already scheduled CESE. Maintenance Division Chiefs (A4's) will recommend equipment condition codes for all active CESE to the respective BEEP CESE Managers for final assessment. All CESE will be identified into three to five workdays. The Battalion's goal is to have the equipment turned over within three to five days. The remaining turnover days will be utilized for key billet and administrative turnovers. All equipment will be returned from projects during the turnover unless prior approval from the BEEP representative.

ALFA Company Operations Chiefs (A3's) will ensure an inventory, visual confirmation and recommendation of equipment condition codes on all CESE (except for the CESE in for scheduled PMS, Inactive CESE, and the 20 percent in for operational checks, in which the incoming and outgoing two mechanics will assign condition codes) and associated attachments for review by the Maintenance Chiefs (A4's) with final approval by the respective Regimental CESE Managers.

Preventive Maintenance will continue as scheduled. Joint spot-checks of the 3-M maintenance process will be performed by Work Center Supervisors, Maintenance Division Chiefs, Departmental 3-M Assistants, and Department Heads while the maintenance is performed on 20 percent of active and 100 percent of inactive CESE and the scheduled PMS. Corrective maintenance should be documented as required using MICROSAP/OMMS. Repairs should only be completed for safety repairs that are critical to the equipment's operation. This work will be accomplished with minimum deferred work depending on repair parts availability and time allotted. Major body and paintwork will be identified in the Current Seabee Maintenance Project (CSMP) using the 4790/2K and deferred during the BEEP.

For Inactive Equipment Maintenance (IEM) the respective Regimental BEEP representative may select up to 100 percent of Organic inactive equipment (unscheduled PMS), and associated attachments, for full operational testing, in accordance with the applicable 3-M (IEM) Periodic Maintenance (PM) check(s). Two days prior to the turnover the outgoing battalion will remove the CESE from IEM status I and perform the IEM Start-Up maintenance at this point the CESE will be active. During the turnover both battalion personnel will perform the (PM) and (R) situational maintenance check(s) as applicable. The Maintenance Division Chiefs (A4's) will recommend equipment condition codes for all CESE removed from the IEM program to the respective BEEP representative for final assessment. Within ten working days after the turnover the incoming battalion will review all CESE and place non mission critical pieces of CESE in IEM status I. The battalion's goal is to have the equipment turned over with three to five days.

For Deadline Equipment the respective BEEP representative and A4's will insure dead lined equipment is maintained. CSMP reports will be reviewed for valid requisition numbers and supply shipping status. Equipment will be reviewed to ensure no further cannibalization has taken place.

3.1.1 Work Center Administration

Work Center Supervisors will verify and update Work Center PMS manuals: to include incoming battalion work center personnel qualifications and current instructions. The MRC deck(s) will be identified and validated to the Maintenance Index Page (MIP), the (MIP) to the List of Effective Pages (LOEP), and the (LOEP) to the Change Page. Current Ship's (Seabee) Maintenance Project (CSMP) reports will be reviewed for equipment condition, parts, and material requests supply status. Work Center

Supervisors and Maintenance Division Officers will review the quarterly schedule(s) throughout the quarter. They will also review the next quarterly schedule(s) for correctness 30 days prior to the start a new quarter.

Incoming and outgoing A4's will track completion of BEEP and the outgoing and incoming Commanding Officers will provide a Turnover Completion Report.

A BEEP sheet, *Figure 2-16* and *Figure 2-17* will be prepared on all equipment and initialed by the incoming and outgoing ALFA 4's and ALFA 3's or pre-designated personnel. The ALFA 4's and the respective Regimental BEEP representative will assign a final equipment condition code during the turnover. After the turnover the BEEP sheets will be filed in the history jacket of all CESE.

INVENTORY	NSP TOR						
	COLLATERAL EQUIPMENT						
	OPERATIONS SUPERVISORS	initials:	NMCB	initials	NMCB		
	OTHER REMARKS	Report all discrepancies not covered					
SHOP INSPECTION AND REPAIR	NSPECTORS SYSTEM REPAIR	initials:	NMCB	initials	NMCB		
		Work Description and solution to the discrepancy					
	SYSTEM REPAIR	Work Description and solution to the discrepancy					
	SYSTEM REPAIR	Work Description and solution to the discrepancy					
	SYSTEM REPAIR	Work Description and solution to the discrepancy					
	SHOP SUPERVISOR	MAKE MINOR REPAIRS/ORDER PARTS (Initials): FINAL INSPECTION SIGNATURE					
CONDITION CODES	RECOMMENDED OVERALL CONDITION CODE						
	The following is a complete listing of the possible codes with a brief description						
	Place an "X" in the Applicable Code (below)						
	Code	Description	Code	Description			
	A1	Serviceable/Unused Good	F8	Unserviceable Repairable Repairs Required Fair			
	A2	Serviceable/Unused Fair	F9	Unserviceable Repairable Repairs Required Poo			
	A3	Serviceable/Unused Poor	G7	Unserviceable Incomplete Repairs Required Go d			
	A4	Serviceable/Used Good	G8	Unserviceable Incomplete Repairs Required Fair			
	A5	Serviceable/Used Fair	G9	Unserviceable Incomplete Repairs Required Poo			
	A6	Serviceable/Used Poor	SX	Unserviceable Scrap/Salvage			
		SS	Unserviceable Scrap/Scrap				
	F7	Unserviceable Repairable Repairs Acquired Good					
R Z C N	THE BELOW CONDITION CODE AGREED BY THE MAINTENANCE SUPERVISOR FROM BOTH BATTALIONS						
	NMCB	ALFA 4 SIGNATURE					
	NMCB	ALFA 4 SIGNATURE					
	Regimental Site Equip. Rep. Signature				DATE	CONDITION CODE	

Figure 2-16 - Battalion Equipment Evaluation Program (Beep) Cese Sheet (Front).

LOCATION: _____				DATE: _____																																																																				
Code: _____	USN: _____	Mileage: _____	Hours _____	EngineSerial #: _____																																																																				
<table border="1"> <tr> <td colspan="2">INSPECTOR</td> <td>initials: _____</td> <td>NMCB: _____</td> <td>initials: _____</td> <td>NMCB: _____</td> </tr> <tr> <td rowspan="12">ENGINE RUNNING</td> <td>COOLING SYSTEM</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>LUBRICATION SYSTEM</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>CHARGING SYSTEM</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>LIGHTING SYSTEM,</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>FUEL SYSTEM</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>TIRES</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>TRACKS</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>STEERING AND SUSPENSION</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>HYDRAULIC SYSTEM</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>SAFETY DEVICES</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>BRAKE SYSTEMS</td> <td colspan="4">Report of discrepancies</td> </tr> <tr> <td>OTHER REMARKS</td> <td colspan="4">Report of discrepancies not covered</td> </tr> </table>						INSPECTOR		initials: _____	NMCB: _____	initials: _____	NMCB: _____	ENGINE RUNNING	COOLING SYSTEM	Report of discrepancies				LUBRICATION SYSTEM	Report of discrepancies				CHARGING SYSTEM	Report of discrepancies				LIGHTING SYSTEM,	Report of discrepancies				FUEL SYSTEM	Report of discrepancies				TIRES	Report of discrepancies				TRACKS	Report of discrepancies				STEERING AND SUSPENSION	Report of discrepancies				HYDRAULIC SYSTEM	Report of discrepancies				SAFETY DEVICES	Report of discrepancies				BRAKE SYSTEMS	Report of discrepancies				OTHER REMARKS	Report of discrepancies not covered			
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	OTHER REMARKS	Report of discrepancies not covered																																																																						
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	VEHICLE PERFORMANCE	Report of discrepancies																																																																						
	OTHER REMARKS	Report of discrepancies not covered																																																																						

Figure 2-16 - Battalion Equipment Evaluation Program (Beep) Cese Sheet (Back).

LOCATION		DATE	
I. . Number		Description	
Assigned Code		Location:	
USN NO.		Mounted / Unmounted	
INSPECTORS	initials:	NMCB	initials
	Report all discrepancies		
PRESTART INSPECTION:			
INSPECTORS	initials:	NMCB	initials
	Report all discrepancies		
OPERATIONAL INSPECTION:			
SYSTEM REPAIR		Work Description and solution to the discrepancy	
SYSTEM REPAIR		Work Description and solution to the discrepancy	
SYSTEM REPAIR		Work Description and solution to the discrepancy	
SYSTEM REPAIR		Work Description and solution to the discrepancy	
SHOP SUPERVISOR		MAKE MINOR REPAIRS/ORDER PARTS (Initials):	
		FINAL INSPECTION SIGNATURE	
RECOMMENDED OVERALL CONDITION CODE			
The following is a complete listing of the possible codes with a brief description			
Place an "X" in the Applicable Code (below)			
Code	Description	Code	Description
A	Serviceable/Unused Good	F8	Unserviceable Repairable Repairs Required Fair
A2	Serviceable/Unused Fair	F9	Unserviceable Repairable Repairs Required Poor
A3	Serviceable/Unused Poor	G7	Unserviceable Incomplete Repairs Required Good
A4	Serviceable/Used Good	G8	Unserviceable Incomplete Repairs Required Fair
A5	Serviceable/Used Fair	G9	Unserviceable Incomplete Repairs Required Poor
A6	Serviceable/Used Poor	SX	Unserviceable Scrap/Salvage
		SS	Unserviceable Scrap/Scrap
F7	Unserviceable Repairable Repairs Acquired Good		
OPERATIONS SUPERVISOR			
REMARKS			
THE BELOW CONDITION CODE AGREED BY THE MAINTENANCE SUPERVISOR FROM BOTH BATTALIONS			
NMCB		ALFA 4 SIGNATURE	
egimental Site Equip Rep Signature		ATE	ONDITION COD

Figure 2-17 - Battalion Equipment Evaluation Program (Beep) Cese Attachment Sheet.

3.1.2 3-M System

SKED and MICROSnap user information will be exchanged and updated to reflect incoming personnel, ensuring all key personnel have a firm understanding of 3-M system programs. All outgoing personnel will be deactivated or removed from systems as required.

3.1.3 ral Equipage

All collateral equipment will be inventoried. Supply status of outstanding line items will be verified against the Current Seabee Maintenance Program (CSMP) report. The A3 will coordinate with the A4 and obtain a current copy of the Company CSMP report two weeks prior to the turnover. The A3 will ensure the collateral custodian verifies all collateral shortages are on order and updates all CB60 Cards as applicable. Incoming and outgoing battalions will insure adequate number of personnel is assigned during the turnover to inventory to 100 percent accuracy CESE assigned as active and inactive. Refer to *Figure 2-18* for collateral equipment order process.

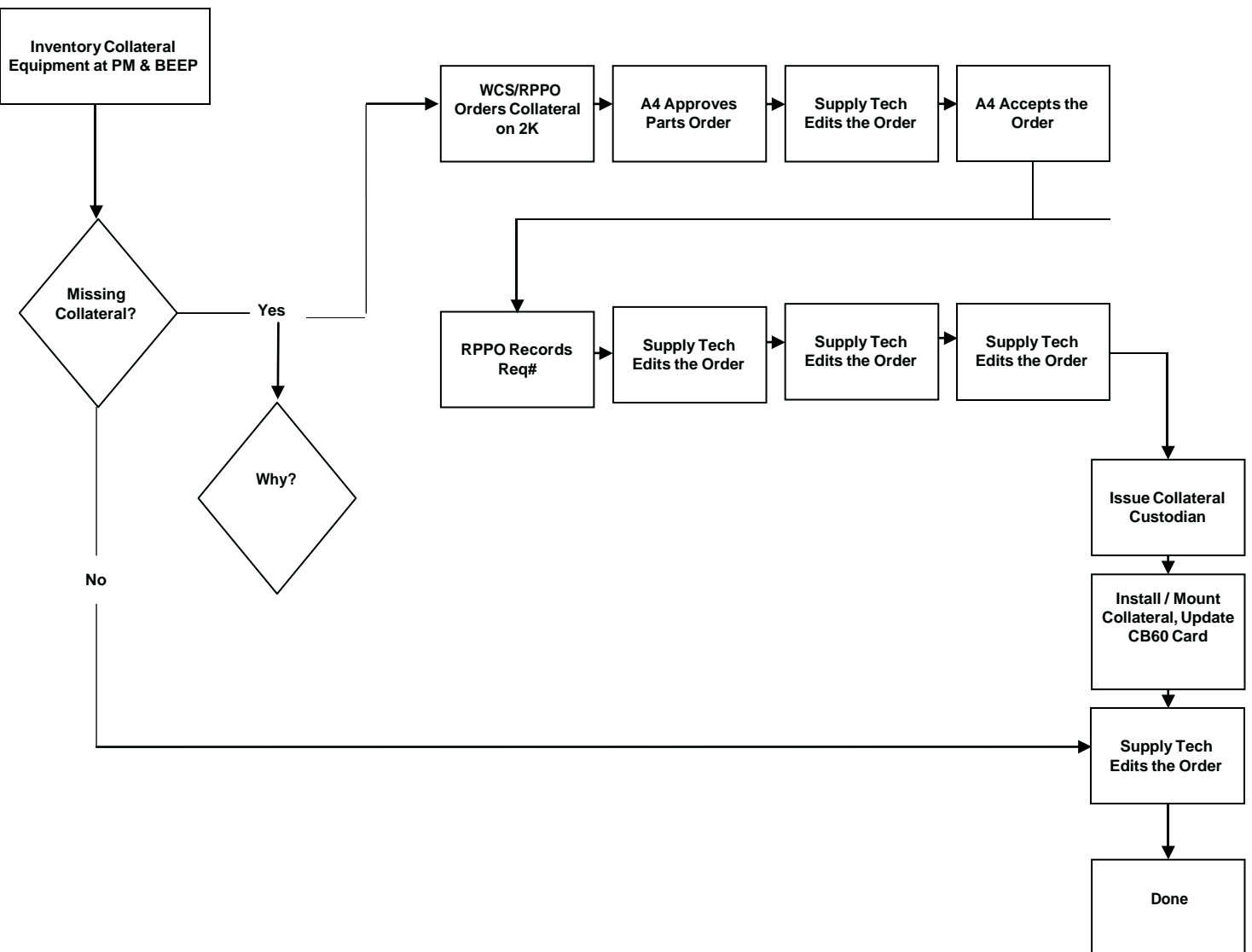


Figure 2-18 -Collateral Equipment Order Prcess.

3.1.14 Shop Tools and Technical Library

All shop tools and technical manuals will be inventoried and results reported to supply. Shortages will be ordered or supply status verified.

3.1.5 MR Trailer/Machine Shop

All tools and materials associated with the MR shop will be inventoried. Supply status of outstanding line items will be verified against the CSMP report.

3.1.6 Cranes

Re-certification of any Crane within 45 days of certification will be scheduled or scheduled during turnover. All slings are to be checked to ensure certification is up to date. Pile Drivers and Extractors are to be operationally tested.

3.1.7 Generators

All generators will be load tested in accordance with the applicable 3-M "R" situational maintenance check.

3.2.1 Responsibilities of the Relieving Battalion

Before arriving on site, the relieving battalion shall notify the respective BEEP Representative and the battalion being relieved of the commencement date of the BEEP at least 30 days prior to the commencement date. The BEEP should be scheduled at the earliest date possible after the arrival of the advance party to ensure completion prior to the arrival of the main body. It is recommended, therefore, that the BEEP be scheduled to commence at least 7 days prior to the arrival of the main body shall provide information, as required to the respective BEEP representative for completion of the narrative report.

It is essential to ensure that all key personnel for the BEEP as per COMFIRSTNCDINST 11200.2 Series, Chapter 4 are assigned to the advance party, arrive with sufficient supply of NMCB decals (main body and detachments) for organic and augment equipment, and ensure that required documents and supplies accompany the advance party.

Key personnel to be assigned with the advance party for the evaluation and repair of equipment are:

- | | |
|--|---|
| 1. ALFA Company Commander /
Department Head (A6) | 16. Dispatcher |
| 2. ALFA Company Operations
Supervisor / Division Head (A3) | 17. License Examiner |
| 3. ALFA Company maintenance
Supervisor / Division Head (A4) | 18. Equipment Inspector |
| 4. Light Shop Work Center
Supervisor | 19. Senior Machinery Repairman |
| 5. Heavy Shop Work Center
Supervisor | 20. Construction Mechanics (CM) -
28 personnel |
| 6. Support Shop Work Center
Supervisor | 21. Equipment Operators (EO) - 15
personnel |
| 7. Work Center Group Supervisor | 22. Construction Electrician (CE) -
one to inspect and evaluate
power generators, floodlight
trailers and welders and perform
auto electrical and battery work. |
| 8. Technical Librarian | 23. Utilitiesman (UT) - one must be
qualified to inventory and
evaluate water purification units,
DECON sprayers, shower bath
trailers, pumps and water tanks. |
| 9. Lead Field Crew Mechanic | 24. Hull technician (HT / Steelworker
(SW) - one must have welding
capability; also desirable to be
able to perform body and fender
repairs to vehicles and
equipment. |
| 10. Equipment Pool Supervisor | 25. RPPO per shop. |
| 11. Crane Crew Supervisor and all
crane certification personnel | |
| 12. Crane Test Director | |
| 13. Crane Mechanic | |
| 14. Collateral Equipage Custodian | |
| 15. Yard Boss | |

3.3.0 Responsibilities of the Battalion Being Relieved

Before and during the BEEP, the battalion being relieved is responsible to coordinate the BEEP commencement date with the incoming battalion and assign counterparts to key personnel one-on-one with the relieving battalion, *Figure 2-19*. It is important to make certain that the key players remain on site until completion of the BEEP. Also, personnel should not be assigned to other duties that would conflict with their

participation in the BEEP. All personnel from the outgoing battalion must turn over any significant information to incoming personnel on topics such as points of contact both on site and locally, specific information / instructions particular to the site, site unique regulations and procedures, etc., anything that will assist the battalion with a smooth deployment start. It would be an excellent initiative to put it all down as an informal Standard Operating Procedures package so the relieving personnel can go back if need be after the relieved battalion has departed.

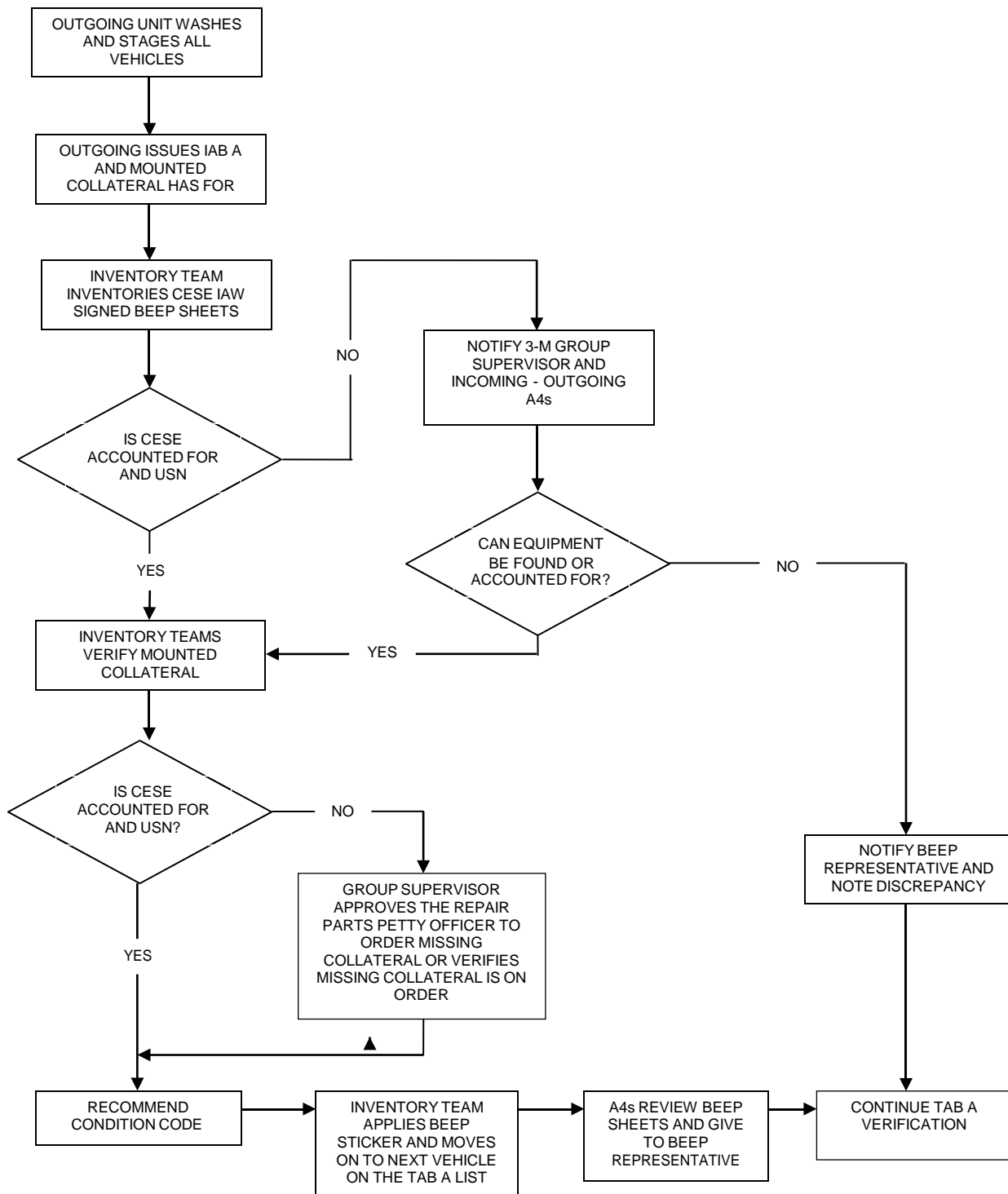


Figure 2 -19 - Equipment Evaluation Program (BEEP) Flowchart.

The relieved battalion shall make available all tools and equipment for evaluations and repairs and coordinate the scheduling of equipment for inspection with the incoming battalion. The recommended procedure is to schedule the equipment by PM group, using the appropriate number of PM groups to enable the BEEP to be completed within 10 working days.

All CESE, MHE, and WHE, including attachments, shall be cleaned and made available for evaluation and repair. Have enough equipment cleaned and staged prior to commencement of the BEEP to ensure full use of all mechanics for two full weeks

The outgoing battalion must provide the incoming battalion its monthly CESE Availability Reports for three months prior to the turnover.

The outgoing A3 will forward a list of the site available CESE currently under "B" assignments to the incoming A3 before the start of the preparatory BEEP. The list should include CESE identified to administratively support the outgoing and incoming battalion during the BEEP phase. Identified CESE should include but is not limited to: administrative vehicles, MHE, emergency and special purpose vehicles, and priority project support. All aspects of the BEEP phase, that apply, will be performed, except final inspection and acceptance, prior to the arrival of the incoming battalion main body.

All parts in Direct Turn Over (DTO) will be installed. Additional DTO parts requirements for repair will be ordered after obtaining respective BEEP Representative approval. Complete any equipment repairs and preventive maintenance still in the shops.

3.4.0 BEEP Representative

Respective BEEP Representative responsibilities will be to provide direction and set expectations and minimum requirements based upon 3-M System requirements and established guidelines for personnel from both battalions which they are to cover and adhere to during the BEEP.

He/she will provide technical assistance during the BEEP, conduct any specific key billet training on the site as requested and/or deemed necessary by the chain of command, conduct a critique of the turnover for appropriate personnel from both battalions and provide turnover action items to the incoming battalion's Commanding Officer. Upon completion of the BEEP, a joint inventory of all Company TOA tool kits will be conducted and replacements for shortages and non-serviceable tools will be ordered.

A BEEP Completion Report will be prepared and submitted to both NMCBs and respective Equipment office with copies to appropriate information addresses.

It is understood that it is not possible to have an Equipment Office representative on board at each detail site throughout the BEEP. In the absence of this representative on detail sites, Detail OICs shall comply with these instructions. Where serious doubt exists on what action to take, contact the respective BEEP representative at the main body site for a determination.

The BEEP Representative will approve Quarterly PMS schedules prior to the next quarter's finalized schedule being turned over to the incoming battalion. He/she will have input on all Quarterly PMS schedules.

4.0.0 EMBARKATION

The Naval Mobile Construction Battalion, just as the word "mobile" implies is ready and capable to deploy and redeploy at a moments notice in response to any contingency around the globe in support of Navy, Marine Corps operations or anyone needing assistance in construction or disaster recovery. Embarkation in the Seabees is the movement of personnel, equipment and materials by air, land or sea or any combination of the three in support of their assignment. The Battalion maintains trained staff personnel that preplan for each situation and come together when the call goes out. They are trained in air detachment, air echelon and sea echelon scheduling for aircraft and ships. During an embarkation exercise or an actual contingency operation the mechanics have a key role in the preparation of all CESE to be mobilized. As a senior mechanic/supervisor you will need to know your role in guiding your personnel to ensure all CESE is properly inspected, prepared and staged for embarkation. It is essential the supervisor maintains communication with the embark staff through the entire evolution notifying them on CESE status, availability, equipment requirement changes or whether designated air or sea. It will be absolutely essential to notify the embark staff should any requested CESE not be available to be embarked as this may have an adverse affect on the operation.

4.1.0 Scheduling

Scheduling of equipment through the shops during embarkation is dependent on the equipment to be embarked, type of embarkation, the number of available mechanics and time allowed. Due to support requirements, mechanics may be lost from the shops reducing the number available to work on the CESE and this should to be taken into consideration. Any CESE scheduled for air detachment will take priority due to the fact it will be the first to depart and also all equipment being air transported goes through a stringent inspection prior to loading on aircraft. The supervisor will need to utilize all his/her experience and knowledge to expedite all phases of the mechanic's responsibilities during the embarkation. Again, communication is crucial for a successful embarkation. Thoroughly washing, see *Figure 2-20*, all equipment is essential in order to detect any fluid leaks the equipment may have and time must be allotted for this operation. This may seem mundane but if the equipment is not sufficiently cleaned, it will be turned back and significantly affect the schedule.



Figure 2-20 - Washing equipment to remove all grease and dirt and to detect fluid leaks prior to loading on aircraft.

4.2.0 Inspecting

After the vehicles have been thoroughly cleaned of dirt and grease the equipment will be meticulously inspected for proper operation and especially for any fluid leaks. Minor repairs will be made but again, if the equipment is to be loaded on aircraft it must operate properly and have no leaks or excessive grease dropping off. The aircraft loadmaster can turn away and refuse to load

any equipment he/she considers not clean, has fluid leaks or cannot be loaded on the aircraft properly without fear of damaging the aircraft. Equipment to be embarked by sea echelon still need to be cleaned and operational, but it allows deadline equipment to be embarked without repairs with the opportunity to be repaired under way.

4.3.0 Preparing

The equipment has been thoroughly cleaned and repaired, now it needs to be further prepared. Coordinated efforts between the mechanics and equipment operators are now required by taking the equipment to the Collateral Equipment Custodian. During normal operations during homeport or deployment most of the collateral equipment for vehicles and equipment are removed. When equipment is embarked all collateral must accompany the unit for which it is intended. All attachments, tools, spare tires and ancillary equipment will be put on/in the equipment. Additional attachments such as buckets, forks, booms, etc. will be palletized or placed in the beds of trucks or trailers. Depending on the type of equipment and mode of transport, some components may have to be removed from the equipment and secured someplace on the equipment or on another unit. It may be required to remove dozer blades, loader buckets and counterweights. The embark staff will be able to inform you as to the configuration required for each piece of equipment with the loadmaster making the final decision.

4.4.0 Staging

After the equipment has gone through the shops, collateral equipment and prepared for transport, all air-transported equipment will be weighed and center-of-balance established and marked, see *Figure 2-21*. The equipment could be pre-staged in a secure area with the other equipment and material as it will be loaded on each sortie. Also, this can establish the order the equipment and material will be transported. An example is the forklift may have to go first so pallets can be moved on the receiving end. Also by staging the equipment gives the mechanics one last chance to inspect the equipment. Equipment for sea echelon generally has no special requirements, *Figure 2-22*.



Figure 2-21 – Positioning scales to obtain axle weight of a wheeled vehicle for an air embarkation exercise.



Figure 2-22 – Equipment being staged for loading onto a ship.

4.5.0 Transporting

Often a convoy movement is required to reach the airport or seaport. Depending on time and scheduling of the aircraft, equipment and material may be staged again in load order or loaded as it arrives at the airport. The loading and tie-down is under the direction of the aircraft loadmaster. He/she will require for each piece of rolling equipment to have a qualified operator to load and travel with it and unload at the final destination. It is good practice to stage a mechanic crew at both staging areas in the event of any problems and a field crew staged to respond to any problems during transport. A mechanic should be one of the passengers on the first flight to deal with any issues at the final destination. Sea echelon generally will be done by a Military Sealift Command vessel unless in the case of a special operation utilizing Naval ships. Depending on the requirements, a small group of equipment operators and mechanics may travel with the equipment on the ship to the final destination. While in transport the mechanics can make repairs on equipment that was loaded in deadline status. If embarking by convoy, the mechanic field crew will be the final vehicle in the event of any breakdowns or other problems with vehicles.

5.1.1 HAZARDOUS MATERIALS

An Environmental Liaison, E7 or above, will be appointed in writing by the Commanding Officer at all NCF units implement the environmental program and advise the CO on all environmental program and HAZMAT/HAZWASTE issues. He/she will be properly trained to perform their duties, which include:

1. Ensuring a proper turnover is completed upon deployment or when relieved of assignment as Environmental Liaison.
2. Making appropriate recommendations regarding hazardous material and waste management, safe practices, training, and compliance measures.
3. Working closely with the Environmental Division. This Division carries the Environmental Protection Agency Hazardous Waste generator Identification Number (EPA ID Number), which is necessary for all DD Form 1348-1s for HAZWASTE disposal. The Environmental Liaison is responsible for verifying all permits required for pollution sources.

An Environmental Coordinator, E5 or above, will be appointed in writing at all NCF units to assist the Environmental Liaison. This is a full time position for Regiments and NMCBs. Environmental Coordinators will be properly trained to perform their duties, which include:

1. Representing the Command's HAZMAT/HAZWASTE Program during Environmental meetings.
2. Coordinating with the Defense reutilization and marketing Office (DRMO) to turn-in HAZWASTE to include tracking the final disposal of all HAZWASTE.
3. Conducting spot checks of HAZMAT/HAZWASTE area to ensure compliance with COMFIRSTNCDINST 5090.1.
4. Working with Hazardous Minimumization or Consolidation Hazardous Material Reutilization and Inventory Management (CHRIMP) Center in order to provide required hazardous material to companies and departments in a timely manner.

5. Monitor material held for projects and excess.
6. Maintaining all HAZMAT Storage Lockers.
7. Maintain the MSDS library and environmental references and providing this information to the companies and departments.
8. Completing required documents and coordinating with the HAZMAT/HAZWASTE Representative on the disposal of company or department HAZWASTE.
9. Ensuring that no more than one week's worth of HAZMAT is stored at any given time, and monitoring shelf life of HAZMAT at all times
10. Ensuring that an adequate supply of material is stocked for spill response.
11. Ensuring weekly assessments of all HAZMAT/HAZWASTE areas and maintaining an accurate inventory.
12. Tracking the continuing accounts for waste disposal, resting, and environmental services.
13. Scheduling and preparing minutes/agenda items for the Quarterly Environmental Review Committee (ERC) meeting)
14. Coordinating with the host Environmental Division and the DRMO for HAZWASTE turn-in and disposal.
15. Providing training to his/her HAZMAT/HAZWASTE representatives as needed.

Each Company/Division at an NCF unit will have a HAZMAT/HAZWASTE representative appointed in writing to assist the Environmental Coordinator. Each representative will be properly trained to perform their duties, which include:

1. Responsibility for all HAZMAT/HAZWASTE issues at the company/department level.
2. Updating shelf life as needed
3. Conducting inventories of shop HAZMAT.
4. Inspecting satellite accumulation areas and areas of responsibility
5. Replacing missing MSDS and labels.
6. Reporting all discrepancies to the Environmental Coordinator

Within the Naval Construction Force there are a vast number of materials in order to conduct normal day-to-day operations and the mechanic shops are no exception. A vast majority of these materials fall under the classification of hazardous materials. Just like on the construction projects that have a safety plan, so too should the mechanic shops have a safety plan. Within the safety plan there should be a written hazard communication program. The supervisor has an obligation to ensure all personnel are using proper safety procedures when working with hazardous materials.

The purpose of the Hazard Communication Program is to promote worker safety through training and communication on the safe use, handling, storage and disposal of hazardous materials. The program establishes guidelines for informing workers about the hazards of chemicals in the workplace, the procedures needed to protect

themselves and proper procedures to dispose these hazardous materials.

The following items are to be followed to insure both compliance with the Hazard Communication Standard and the safety of personnel.

A list of hazardous materials and chemicals which are used in the course of the shops normal business activities must be maintained and continually updated. This list is to include all substances which require a Material Safety Data Sheet (MSDS).

One copy of this list is to be kept in the front of each MSDS book and one copy is to be kept on file with the safety petty officer. For each chemical used in the workplace, an MSDS sheet must be available on that jobsite. There are binders that can be purchased specifically designed for MSDSs.

All Material Safety Data Sheets must be kept in an organized fashion and must be placed in an identified and accessible location for all workers to view at will. A duplicate set of MSDS information must be maintained by the Company HAZMAT/HAZWASTE Representative.

MSDS binders and the Hazardous Chemical List must be maintained and kept up to date. As obsolete MSDSs' are replaced by updated copies, they must be retained in a separate file of obsolete MSDSs'. Do not throw them away.

If a hazardous chemical or substance is received without a proper MSDS, the receiving person must immediately notify the Company/Division Coordinator who will contact the Environmental Coordinator/Liaison to notify supply. The manufacturer or distributor of the product must be contacted immediately and asked to fax the MSDS and mail a copy as a follow up. If, for some reason, the manufacturer or distributor is unable to produce a MSDS upon request, the Supply Officer should be notified immediately. Hazardous materials or substances received without an MSDS are to be returned to the sender.

Each container of a hazardous chemical that is used in or around the work area must be properly labeled with the identity of the hazardous material, the appropriate hazard warnings, and the name and address of the manufacturer. Appropriate labels must be on all containers, regardless of size. Containers must be approved and recommended for storage and/or dispensing of the particular hazardous chemicals contained in them.

Worn and torn labels must be replaced. It is the responsibility of workers to report inappropriate labels to their supervisor. It is the responsibility of the safety petty officer to insure that appropriate labels are in place and that replacement labels are available.

Containers for materials that will be used within a particular work shift do not require labels. An example is when taking engine oil from a 55-gallon drum and putting it into a filler can.

All storage areas for hazardous substances are to be secured, properly ventilated, and identified by signs.

5.1.1 Hazardous Material (Hazmat)

What is hazardous material? Hazardous material can be defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a real hazard to human health or the environment. Hazard materials include the following categories:

Flammable and Combustible Material

Flammable liquids are divided into two classes, *Figure 2-23, View A & B*. Flammable liquids, for example, gasoline has a flash point below 100 Fahrenheit. Combustible liquids, for example, diesel fuel has a flash point at or above 100 F.

Toxic Material

"Toxicity" refers to a material's ability to harm living things. Some toxic materials, or toxins, may irritate the nose, eyes, and skin, *Figure 2-23, View C*. Others may damage the body's internal organs. Other toxins may cause suffocation, sterility, cancer or other diseases. Some can be immediately fatal. A material's toxicity is determined by two things: the amount of the material necessary to cause harm, and the possible extent of the damage.

Corrosive Material

Corrosives are materials that can attack and chemically destroy exposed body tissues, *Figure 2-23, View D*. Corrosives can also damage or even destroy metal. They begin to cause damage as soon as they touch the skin, eyes, respiratory tract, digestive tract, or the metal. They might be hazardous in other ways too, depending on the particular corrosive material.

Most corrosives are either acids or bases.

Common acids include hydrochloric acid, sulfuric acid, nitric acid, chromic acid, acetic acid and hydrofluoric acid. Common bases are ammonium hydroxide, potassium hydroxide (caustic potash) and sodium hydroxide (caustic soda).

Corrosives can burn and destroy body tissues on contact. The stronger or more concentrated, the corrosive material is and the longer it touches the body, the worse the injuries will be.

Some corrosives are toxic and can cause other health problems. Check the MSDS and label on the container for warnings of other possible health effects.

Many corrosives attack and corrode metals. Contact with corrosives can damage



Figure 2-23 – Hazardous material placards.

containers, equipment, installations and building components made from unsuitable materials. The rate of metal corrosion is greater when the corrosive is stronger and the temperature is higher. When acids attack metals, hydrogen gas is often given off. This is a flammable gas which can burn or explode if an ignition source is present.

Common bases, such as sodium hydroxide and potassium hydroxide, can also attack some metals like aluminum, zinc, galvanized metal, and tin to produce hydrogen gas. The MSDS for a particular corrosive should explain which metals or other materials, such as plastics or wood, it will attack.

Some corrosives are also flammable or combustible and can easily catch fire and burn or explode.

Some corrosives are incompatible with other chemicals. They may undergo dangerous chemical reactions and give off toxic or explosive products if they contact each other.

The MSDSs and the labels on the containers should explain all of the hazards for the corrosive materials that you work with.

Oxidizers

Oxidizing materials are liquids or solids that readily give off oxygen or other oxidizing substances (such as bromine, chlorine, or fluorine), *Figure 2-23, View E*. They also include materials that react chemically to oxidize combustible (burnable) materials; this means that oxygen combines chemically with the other material in a way that increases the chance of a fire or explosion. This reaction may be spontaneous at either room temperature or may occur under slight heating. Oxidizing liquids and solids can be severe fire and explosion hazards.

Oxidizing materials can:

1. speed up the development of a fire and make it more intense.
2. cause substances that do not normally burn readily in air to burn rapidly.
3. cause combustible materials to burn spontaneously without the presence of obvious ignition sources such as a spark or flame.

What happens when an oxidizing material comes in contact with a combustible substance largely depends on the chemical stability of the oxidizing material. The less stable an oxidizing material is, the greater the chance that it will react in a dangerous way.

Burning involves the oxidation of a combustible (burnable) substance. When a combustible substance burns, a chemical reaction occurs in which the substance (fuel) combines with oxygen, and gives off heat, gases, and often light (flames). The usual source of oxygen for burning is air. However, oxidizing materials can supply combustible substances with oxygen and support a fire even when air is not present.

Although most oxidizing materials do not burn themselves, they can produce very flammable or explosive mixtures when combined with combustible materials like:

- organic (carbon-containing) materials such as paper, wood, flammable and combustible liquids, greases, waxes, many plastics and textiles
- finely divided metals

- other oxidizable substances such as hydrazine, hydrogen, hydrides, sulphur or sulphur compounds, phosphorous, silicon and ammonia or ammonia compounds

Some oxidizing materials are also incompatible with non-combustible materials. These oxidizers can undergo dangerous reactions with water, inorganic acids or even other oxidizing materials.

The MSDS for a particular oxidizing material should explain what other substances the oxidizer is incompatible with (reacts in a dangerous fashion) and any other conditions, such as heat, shock or friction that could result in dangerous chemical reactions

Oxidizing materials may be toxic or corrosive. Depending on the material, route of exposure (inhalation, eye or skin contact, or swallowing) and dose, they could harm the body. Corrosive oxidizers can also attack and destroy metal.

Aerosols

The definition of an aerosol is a suspension of tiny particles or droplets in the air, such as dusts, mists, or fumes. These particles may be inhaled or absorbed by the skin, and can sometimes cause adverse health effects for workers.

Aerosols contain a product and a propellant that are packed under pressure. Many people use aerosols without realizing some of the potential hazards associated with them.

Cleaners, WD-40, disinfectants, paints, carburetor cleaner, glass cleaner and starting fluids are examples of aerosol products. When the nozzle of an aerosol is pressed, the product and propellant are released from the container in a fine mist.

Hazards associated with aerosols vary greatly, and, depending on the type of product in the container, there is danger of contact with corrosive or toxic materials. The actual product propelled by the aerosol can be corrosive, flammable, or poisonous. Many of the propellants used with aerosol products, such as butane or propane, are flammable and may be explosive.

Acute symptoms of aerosol exposure include headache, nausea, dizziness, shortness of breath, throat irritation, and skin rash. A misdirected spray can cause eye injury and chemical burns.

Compressed Gases

Compressed gases present a unique hazard. Depending on the particular gas, there is a potential for simultaneous exposure to both mechanical and chemical hazards. Gases may be flammable or combustible, explosive, corrosive, poisonous, inert, or a combination of hazards

There are three major groups of compressed gases stored in cylinders: liquefied, non-liquefied and dissolved gases.

1. Liquefied gases are gases which can become liquids at normal temperatures when they are inside cylinders under pressure. They exist inside the cylinder in a liquid-vapor balance or equilibrium. Initially the cylinder is almost full of liquid, and gas fills the space above the liquid. As gas is removed from the cylinder, enough liquid evaporates to replace it, keeping the pressure in the cylinder constant. Anhydrous ammonia, chlorine, propane, nitrous oxide and carbon dioxide are examples of liquefied gases.

2. Non-liquefied gases are also known as compressed, pressurized or permanent gases. These gases do not become liquid when they are compressed at normal temperatures, even at very high pressures. Common examples of these are oxygen, nitrogen, helium and argon.
3. Acetylene is the only common dissolved gas. Acetylene is chemically very unstable. Even at atmospheric pressure, acetylene gas can explode. Nevertheless, acetylene is routinely stored and used safely in cylinders at high pressures.

This is possible because acetylene cylinders are fully packed with an inert, porous filler. The filler is saturated with acetone or other suitable solvent. When acetylene gas is added to the cylinder, the gas dissolves in the acetone. Acetylene in solution is stable.

If the gas is flammable, flash points lower than room temperature compounded by high rates of diffusion present a danger of fire or explosion. Additional hazards of reactivity and toxicity of the gas, as well as asphyxiation, can be caused by high concentrations of even "harmless" gases such as nitrogen. Since the gases are contained in heavy, highly pressurized metal containers, the large amount of potential energy resulting from compression of the gas makes the cylinder a potential rocket or fragmentation bomb.

5.1.1 Labeling and Marking of Hazardous Materials

5.1.1.1 National Fire Protection Association (NFPA) 704 Diamond

The NFPA 704 Diamond ("NFPA Diamond" or "fire diamond") is a standard placard that identifies the level of chemical hazard at fixed locations, such as warehouses, storage tanks, and storage sheds. It also is used on some transported containers.

The NFPA 704 diamond, *Figure 2-24* is divided into four colored quadrants. Each quadrant provides information about the materials inside:

- Blue represents health hazard.
- Red represents flammability.
- Yellow represents reactivity.
- White provides information about special precautions.

Within each quadrant is a number from 0 to 4 indicating the degree of risk associated with the material. The higher the number, the higher the risk. For some materials, the white quadrant contains symbols indicating special hazards. The meaning of each code number and symbol is shown in the table below.

5.1.1.1 Hazardous Information System (HMIS) Label

The Supply Department shall ensure all HAZMAT received is properly labeled and shall initiate action with the manufacturer or vendor to obtain any missing or damaged labeling as necessary.

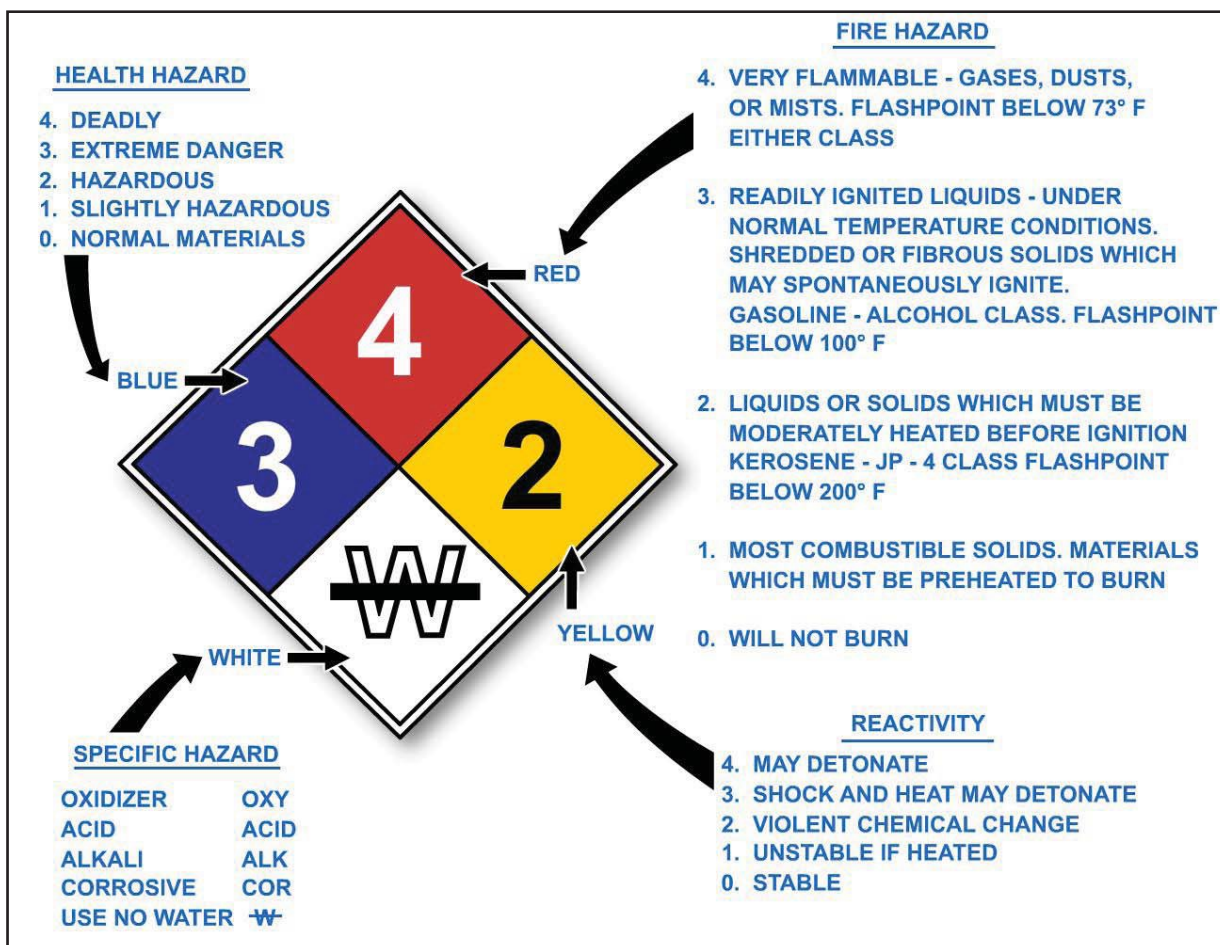


Figure2-24 – NFPA 704 Diamond.



WARNING

No HAZMAT can be issued without a proper label.

The HMIS labeling system, *Figure 2-25*, operates on the same principle as the NFPA diamond. Blue indicates health hazard, red indicates flammability, yellow indicates instability, and special information (such as what personal protective equipment to wear) will be provided in the white section. It also uses a numerical system from 0-4 to indicate the severity of the hazard.

These labels should be used on individual containers of hazardous materials (ie. barrels, bottles, cans, buckets, tubs, etc) so that there are never any unlabeled containers in the work area. It is recommended that they be used on all containers, even if the manufacturer's label is still in place; however, this is just a recommendation.

[name of chemical]

HEALTH	<input type="text"/>
FLAMMABILITY	<input type="text"/>
REACTIVITY	<input type="text"/>
PERSONAL PROTECTION	<input type="text"/>

Figure2-25 – HMIS Label.



WARNING

Always regard unlabeled containers as dangerous!

HEALTH

4	Deadly: even the slightest exposure to this substance would be life threatening. Only specialized protective clothing, for these materials, should be worn.
3	Extreme Danger: serious injury would result from exposure to this substance. Do not expose any body surface to these materials. Full protective measures should be taken.
2	Dangerous: exposure to this substance would be hazardous to health. Protective measures are indicated.
1	Slight Hazard: irritation or minor injury would result from exposure to this substance. Protective measures are indicated.
0	No Hazard: exposure to this substance offers no significant risk to health.

FLAMMABILITY

4	Flash Point Below 73°F and Boiling Point Below 100°F: this substance is very flammable, volatile or explosive depending on its state. Extreme caution should be used in handling or storing of these materials.
3	Flash Point Below 100°F: flammable, volatile or explosive under almost all normal temperature conditions. Exercise great caution in storage or handling of these materials.
2	Flash Point Below 200°F: moderately heated conditions may ignite this substance. Caution procedures should be employed in handling.
1	Flash Point Above 200°F: this substance must be preheated to ignite. Most combustible solids would be in this category.
0	Will Not Burn: substances that will not burn.

INSTABILITY

4	May Detonate: substances that are readily capable of detonation or explosion at normal temperatures and pressures. Evacuate area if exposed to heat or fire.
3	Explosive: substances that are readily capable of detonation or explosion by a strong initiating source, such as heat, shock or water. Monitor from behind explosion-resistant barriers.
2	Unstable: violent chemical changes are possible at normal or elevated temperatures and pressures. Potentially violent or explosive reaction may occur when mixed with water. Monitor from a safe distance.
1	Normally stable: substances that may become unstable at elevated temperatures and pressures or when mixed with water. Approach with caution.
0	Normally stable: substances that may become unstable at elevated temperatures and pressures or when mixed with water. Approach with caution.

5.2.0 Hazardous Waste (Hazwaste)

The Hazardous Material Control Program is a Navy-wide program that enforces the correct storage, handling, usage, and disposition of hazardous material. Hazardous waste disposal is a serious concern to the Naval Construction Force today. Solvents, sulfuric acid, gasoline, diesel, hydraulic fluid, and even paints are just a few of the hazardous materials that may be present in the mechanic shops or surrounding area. As a supervisor/manager, you are responsible for the safety and protection of your personnel and any visitors within your area of control.

Few discarded materials are so compatible with the environment or so inert as to have no short- or long-term impact. Hazards that appear minor may have unexpected impacts long after disposal. When two or more hazards pertain to a material, the lesser may not receive the necessary consideration. When two discarded substances are mixed, a chemical reaction with severe and unexpected consequences may result.

Since waste is generally a mixture of many components, its physical and chemical properties cannot be defined with any degree of accuracy. Whenever possible, the approximate composition of a hazardous waste should be ascertained from the originating source or from the manifest accompanying the waste being transported. Generally, when one component predominates, the physical and chemical properties of the waste mixture are nearly those of the major component. This is not true for the hazardous properties of waste mixtures consisting of relatively harmless major components and small amounts of highly toxic, radioactive, or etiologically (disease-producing) active components. The hazard, in this case, is determined by the smaller component.

5.2.1 Storage

Hazardous materials must be stored based on their compatibility, not simply in alphabetical order. Store materials of the same hazard together i.e. flammables with flammables and oxidizers with oxidizers.

Hazardous substances should be stored in an orderly manner with older products most

accessible and the newer products least accessible.

Good housekeeping must be practiced in areas where hazardous products are stored.

All hazardous materials must be properly labeled including their exact contents, hazardous properties, date of receipt, and if appropriate, date of expiration.

Hazardous substances should be stored in original containers in which they were packaged at the manufacturing plant. If this is not practical, these products should be transferred according to manufacturers' recommendations into containers that are constructed to withstand the effects of the product over the maximum storage time.

Incompatible materials must not be stored such that they may come in contact with each other.

If incompatible materials are allowed to mix, dangerous conditions will result. Combining these materials may result in the following:

- heat or pressure;
- fire or explosion;
- violent reaction;
- toxic dusts, mists, vapors, or gases;
- flammable vapors or gases.

Spills from 55-gallon drums are largely due to negligent handling practices such as dropping, tipping, or otherwise rupturing drums during transfer and handling. A common cause of a drum rupture is puncture during forklift operations. Another major cause of leaking drums is improper storage conditions - drums being stored outdoors where they are susceptible to weathering, corrosion, or vandalism.

Drums are routinely handled by equipment such as forklifts, warehouse tractors, cranes, and hand trucks. Within shops, drums are often stored on pallets constructed of wood or metal. Pallets generally store four drums, and pallets of drums are often stacked on top of each other. As a rule of thumb, pallets of drums should never be stacked more than three levels high. Pallets not only allow for easier handling of the drums, but also facilitate visual inspection of the drums for leaks or spills, as well as keeping drums off the ground where they could contact standing water or other liquids that could cause the drums to corrode.

Ideally, drums should be stored where they will be protected from the elements, either indoors or in a covered outdoor storage area. If drums must be stored outdoors, the storage area should be away from traffic, and the drums should be on pallets or racks to protect the drums from standing water. Additionally, drums should be stored on their sides so that water will not accumulate on top of the drum and encourage corrosion of the drum. All outdoor drum storage areas vulnerable to traffic collision damage should be moved to traffic-safe areas or should be protected with properly marked visible crash posts, or similar barriers.

Secondary containment for container storage areas is often curbing. For uncovered outdoor drum storage areas that are curbed, drainage control becomes a significant issue; if no means of drainage control is provided, drums may end up rusting in accumulated precipitation. To correct such a case, a roof could be built over the storage area, accumulated precipitation could be pumped out as necessary using a vacuum or

defueling truck, or a drain pipe could be installed that will lead to a treatment unit such as an oil/water separator.

With container storage areas, a major concern is good housekeeping practices. The storage area should be clean and orderly to reduce safety hazards and accidental releases. Good housekeeping practices also allow the detection of leaks and spills from drums. The container storage area should have adequate aisle space to permit unobstructed movement of personnel and material handling equipment such as fork-lifts. These aisles should be kept clear, and drums and other containers should be kept from protruding into the aisle space. As a rule of thumb, main aisles that are used for entry and exit should be at least 8-feet wide, while all other aisles should be at least 4 feet wide.

5.2.1.1 Satellites

There will be at least two satellite accumulation areas, one at the Bravo Shop with separate drums for latex paint, oil-based paint, paint thinner, used rags and another area inside the ALFA Company Lube Shop with separate drums for used oil, oil filters, gas filters, floor dry, and used rags.

The maximum amount of waste that may be accumulated per waste stream, at each location is 55 gallons. Containers will be maintained in excellent condition and properly labeled. These containers shall be closed at all times when not adding waste. Every satellite container will have a log to record the amount deposited.

Full containers must be moved off station or to the "Less than 90-day" site within 72 hours. All satellite containers must be disposed of after one year whether full or not.

5.2.1.1.1 "Less than 90-Day" Sites

All "Less than 90-Day" sites will be approved through the local base approval process. Instructions for the "Less than 90-Day" site will be dictated by local authority. Although this site is under the cognizance of the local environmental office, maintenance of this area is the responsibility of the generating unit.

5.2.1.1.2 Used-Oil Tanks

For used oil, hydraulic, diesel etc, only one tank at a time shall be used, and it shall be clearly marked "**In Use.**" The HAZMAT/HAZWASTE Representative for that shop shall control the key for the tanks and they shall be locked at all times when not filling or emptying. The oil or diesel to be placed in the tank must be from a known source, such as crankcase, fuel tank, etc. All oil or diesel being placed in the tank will be logged-in. The log will be held by, and under control of, the shop HAZMAT/HAZWASTE Coordinator.

Oil drained from filters, oils contaminated with solvents, unknown oils, or gasoline must never go into this tank. These oils and gasoline will be disposed of in the satellite area drums as "HAZWASTE."

5.2.1.2 Storage of Flammable and Combustible Liquids

National Fire Protection Association 30, Flammable and Combustible Liquids Code apply to storage of flammable and combustible liquids in containers and portable tanks with capacities of less than 60 gallons. The code applies to the design, construction, and operation of storage cabinets, inside liquid storage areas, hazardous material

storage lockers, and other areas used for incidental flammable and combustible liquid storage. NFPA 30 should be referred to for general storage requirements. Leakage control and spill containment systems are required to prevent flow into adjoining areas, property, or critical natural resources. For lockers, the containment system should have the capacity to contain 10% of the total volume of liquid stored or the volume of the largest container, whichever is greater.

To understand the requirements for the safe storage of flammable and combustible liquids, we must begin by defining the two. The flashpoint and boiling point determine the class of a liquid.

A **flammable liquid** is any liquid having a flashpoint below 100° F (except any mixture having components with flashpoints of 100°F or higher, the total of which make up 99 percent or more of the mixture). Flammable liquids are categorized into three groups, as follows:

- **Class IA Flammable Liquid.** Liquids having flashpoints below 73°F and having boiling points below 100°F. Examples: gasoline.
- **Class IB Flammable Liquid.** Liquids having flashpoints below 73°F (22.8°C) and having boiling points at or above 100° F. Examples: Acetone, benzene and toluene.
- **Class IC Flammable Liquid.** Liquids having flashpoints at or above 73°F (22.8°C) and below 100° F. Examples: Hydrazine, styrene and turpentine.

A **combustible liquid** is any liquid having a flashpoint at or above 100°F. Combustible liquids are divided into two classes:

- **Class II Combustible Liquid.** Liquids having flashpoints at or above 100°F and below 140°F, except any mixture having components with flashpoints of 200°F or higher, the volume of which make up 99 percent or more of the total volume of the mixture. Examples: Acetic acid, naphtha and stoddard solvent.
- **Class III Combustible Liquid.** Liquids having flashpoints at or above 140°F (60°C). Class III liquids are subdivided into two subclasses:
 - **Class IIIA Combustible Liquid.** Liquids having flashpoints at or above 140°F and below 200°F, except any mixture having components with flashpoints of 200°F or higher, the total volume of which make up 99 percent or more of the total volume of the mixture. Examples: Cyclohexanol, formic acid and nitrobenzene.
 - **Class IIIB Combustible Liquid.** Liquids having flashpoints at or above 200°F. Examples: Hydraulic fluid

Flammable and combustible liquid safety cans.

The definition of a safety can is: "An approved container, of not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure" (1910.106(a)(29))," *Figure 2-26 and Table 2-1.*



Figure 2-26 — 5-gallon safety can.

Table 2-1 - Maximum Allowable Size of Containers and Metal Portable Tanks.

Container Type	Flammable Liquids			Combustible Liquids	
	Class IA	Class IB	Class IC	Class II	Class III
Glass or approved plastic	1 pint	1 quart	1 gallon	1 gallon	1 gallon
Metal (other than DOT drums)	1 gallon	5 gallon	5 gallon	5 gallon	5 gallon
Safety Cans	2 gallon	5 gallon	5 gallon	5 gallon	5 gallon
Metal Drum (DOT spec.)	60 gallon	60 gallon	60 gallon	60 gallon	60 gallon
Approved Metal Portable Tanks	660 gallon	660 gallon	660 gallon	660 gallon	660 gallon

Cabinets used to store flammable liquids must be provided with a conspicuous label in red letters on contrasting background which reads FLAMMABLE-KEEP FIRE AWAY

5.2.1.3 Storage of Corrosives

Before storing corrosives, inspect all containers of corrosives to ensure that they are undamaged and properly labeled. Corrosives can destroy containers made of improper materials. Be sure to store corrosive materials in the type of containers recommended by the manufacturer or supplier. Protect containers against banging or other physical damage when storing, transferring, or using them. Keep them tightly closed when not in use.

Corrosives shall be stored separately from processing and handling areas and from other hazardous materials. Separate storage can reduce the amount of damage caused in case of fires, spills or leaks. If totally separate storage is not possible, store corrosives away from incompatible materials. Some corrosives are incompatible with each other. For example, acids and bases react together, sometimes violently. Do not store them beside each other.

Walls, floors and shelving in corrosive storage areas should be made from materials that resist attack by corrosives. Floors in areas where liquid corrosives are stored should not allow liquids to penetrate. Since many corrosive liquids flow easily, store them in corrosion-resistant trays to contain spills or leaks. For large containers, such as 55-gallon drums, provide dikes around liquid storage areas and sills or ramps at door openings.

Store containers at a convenient height for handling, below eye level if possible. High shelving increases the risk of dropping containers and the severity of damage if a fall occurs.

Store corrosives in areas which are:

- well ventilated.
- supplied with adequate firefighting equipment.

- supplied with suitable spill clean-up equipment and materials.
- labeled with proper warning signs.

At all times:

- allow only trained, authorized people into storage areas.
- keep the amount of corrosive material in storage as small as possible.
- inspect storage areas regularly for any deficiencies, including corrosion damage, leaking containers, or poor housekeeping. Correct all deficiencies as soon as possible.

5.2.1.4 Storage of Compressed Gases

All cylinders must be stored vertical, top up across the upper half the cylinder but below the shoulder. Small cylinder stands or other methods may be appropriate to ensure that the cylinders are secured from movement. Boxes, cartons, and other items used to support small cylinders must not allow water to accumulate and possibly cause corrosion.

- All government owned cylinders shall be color coded and the gas contained identified by name in accordance with Military Standard (MIL-STD) 101B.
- Avoid corrosive chemicals including salt and fumes - keep away from direct sunlight and keep objects away that could fall on them.
- Cylinders that contain fuel gases whether full or empty must be stored away from oxidizer cylinders at a minimum of 20 feet. In the event they are stored together, they must be separated by a wall 5 feet high with a fire resistive barrier of at least one half hour. If the cylinders are stored inside the area must be fully sprinkled. Examples of oxidizers are fluorine, nitrogen oxide, and nitrogen dioxide. Examples of fuel gases are hydrogen and propane.
- Flammable compressed gas cylinders stored inside of buildings must be stored at least 20 feet from flammable and combustible liquids and easily ignited materials such as wood, paper, oil, and grease.
- Toxic gas cylinders must be stored separately in well-ventilated fully sprinkled areas. Separation distance between toxic gas cylinders and fuel gases must be 20 feet or a mounted non combustible partition extending the full height and width of the cylinders it separates.
- Storage areas for compressed gas cylinders must not contain any unnecessary combustible materials or uncontrolled ignition sources. Such as wood, paper, packaging materials, oil, and grease by at least 40 feet or by a fire resistant partition having at least a 1-hour rating.
- All cylinders must be stored with valve cover caps, if so equipped.
- Storage cylinders must be segregated into "FULL" or "EMPTY" groups at locations or in racks for each category.
- Flammable gas cylinders whether full or empty must not be located near an exit or any location which could block an exit.

- All cylinders whether full or empty must comply with NFPA and DOT labeling requirements and OSHA hazard communication requirements. Contents of cylinders should be readily identifiable during inspection. A materials safety data sheet (msds) must be available for all gases and gas mixtures.
- There must be adequate space for personnel and carts to allow delivery and removal of cylinders. Floor surfaces must be in good condition. Cylinders that are moved to allow access to other cylinders must be secured to prevent accidental falling or damage.

5.2.2 IIs and Cleanups

5.2.2.1 Spills

In all hazardous material emergency situations, the primary concern is the protection of personnel. The secondary concern is to confine the contamination, but only trained personnel should handle the containment and cleanup. If there are spills of hazardous materials, there are procedures that shall be followed for response to and cleanup. There should be an established safety plan for emergency response to hazardous material spills along with cleanup procedures, *Figure 2-27*. If it is a large spill, move all personnel away from the hazard and notify the Company/Division coordinator who should contact the HAZMAT/WASTE Environmental Liaison/Coordinator and other required personnel.

Generally, when we think of hazardous material spills we tend to think of a fuel tank rupturing, fuel truck overturning on the highway, or 55-gallon drums of chemicals falling off a truck. Sometimes an oil tanker running aground comes to mind. In the case of hazardous materials around ALFA Company we are talking more about dropping a can of oil in the heavy shop, kicking over a can of paint in the paint shop or a blown hydraulic line shooting 3 gallons of hydraulic oil out in the equipment yard. These examples may not sound like an emergency, but they shall be treated as hazardous waste spills. They do not require the emergency response personnel but a supervisor should be notified and proper cleanup procedures should be conducted. Notifying of the supervisor is not for the purpose of reprimand, but to establish if a procedure needs changing or training needs to be conducted.

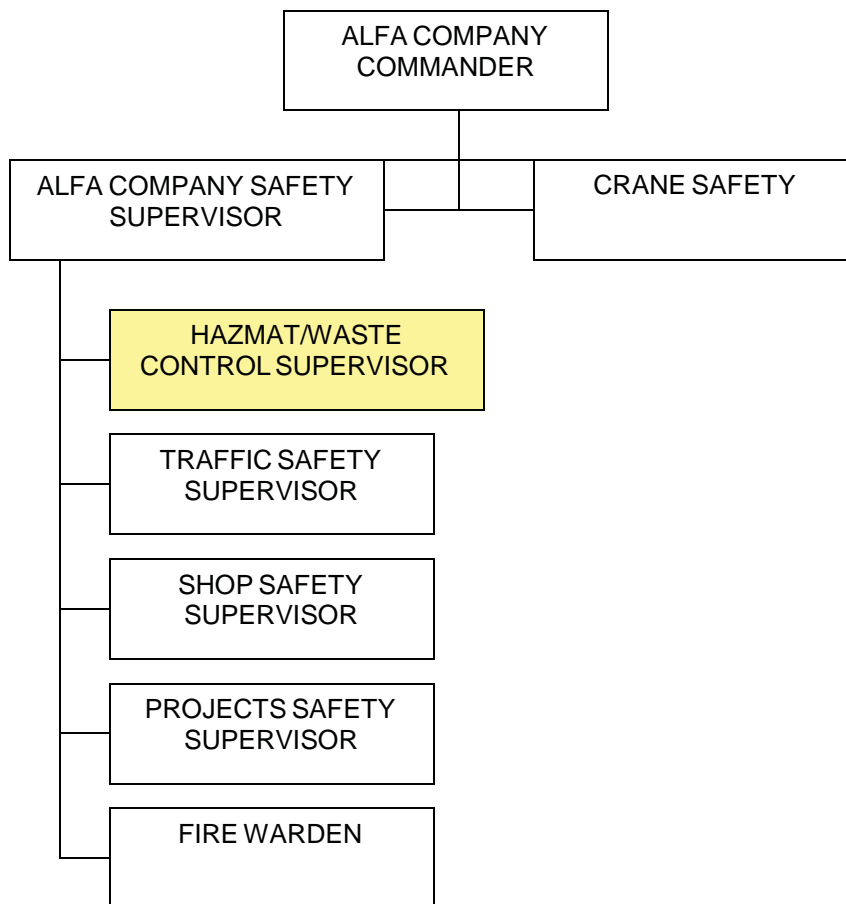


Figure 2-27 - ALFA Company Safety Organization.

Depending on how volatile the hazardous material is and the amount spilled may dictate the type of response, especially if it is inside a structure. Spills that are not cleaned up properly may also cause slips and falls, causing someone to be seriously injured.

In the event a spill is threatening to go into a floor drain, storm drain or a body of water, immediate action must be taken for containment not to contaminate any water sources. To protect drains, hay bales or sand bags can be used in an emergency or there are manufactured "spill berms", "booms" or "sock" that are long and flexible and will do the job.

Waste oil shall never be used as dust or weed control, this practice is just as bad as a spill. It is not only against EPA regulations; the oil can be washed into water systems when it rains.

When field crews conduct maintenance and repairs on equipment they are responsible for properly containing and collecting any fluids they may drain and bring it to the waste oil collection site.

To prevent spills around drums and tanks each a good practice is to have a secondary containment in the event they develop a leak. This is a tank on a concrete slab with a concrete block wall around it high enough equal 110% of the volume of the tank incase it leaks. For 55-gallon drums there are drum containers and containment pallets for spill protection.

Although it may not be characterized as a spill, the wash rack should be an area of concern related to hazardous waste. The washing of CESE produces contaminated waste water containing oils, greases, heavy metals and solids. The wash rack should have an oil/water separator that is an in-line devise used to remove the contaminants and solids in the waste water discharge. It is important to perform the required periodic maintenance in removing the accumulated contaminants and solids from the separator. One point to keep in mind is that the oil/water separator is not designed for a large spill of hazardous waste, so do not wash down a large spill into the wash rack drain system. A source for wash rack layout and design is the Army Technical Manual, *Central Vehicle Wash Facilities*, TM 5-814-9.

5.2.2.2 2.2 Cleanups

Each satellite area and "Less than 90-day" site will have a proper spill kit with the amount of absorbent needed to cleanup at least five gallons of liquid.

In the case of small spills, they can be cleaned up by the work center. Do not cleanup by hosing down the spill; this is not a viable solution to hazardous waste cleanup. The spilled substance may have a reaction to water. Once the spill is contained, then an absorbent may be used. There are materials such as floor sweeping granular clay cellulose type pellets and absorbent pads. When these are used to cleanup a spill, the absorbents need to be disposed of properly just as any hazardous waste. Put them into a container or plastic bag for proper disposal.

If the field crew spills fluids such as oil, hydraulic or transmission fluid onto the soil out at a construction site, they will need to remove the contaminated soil and dispose of properly as any contaminated waste. HAZWASTE cost is determined by weight, more soil, more weight, more cost. So it would be advantageous for the field crew to make an attempt to the keep contaminants from getting to the ground.

If a large spill occurs, generally over 5 gallons, then notification of HAZMAT team, fire and emergency personnel and security may be required. It may be necessary as a contingency to have equipment brought in to establish containment. Do not use heavy equipment to remove contaminated soil; dig by hand to keep the weight down. It will be required to remove all contaminated soil and cleaning of all facilities and equipment otherwise it may have an adverse effect on any metals it spilled on. It is important to be familiar with the established plan for your location.

Responsibilities lay heavily on the maintenance shops supervisors when it comes to hazardous material management which include:

- Identify potential spill sources and oil and hazardous materials handled (materials inventory).
- Identify and correct spill prevention deficiencies.

- Establish spill reporting procedures.
- Establish visual inspection and records procedures.
- Review past incidents, countermeasures used, and lessons learned.
- Coordinate with the base/facility spill contingency plan.
- Establish personnel training and education program.
- Review new construction and process changes at an area relative to spill prevention.
- Review, evaluate, and amend the spill prevention plan as required and institute appropriate changes at regular meetings.
- Coordinate all activities and organizations involved in implementing the plan.

After conducting a cleanup, be sure to replenish your supply of oil spill cleanup tools and absorbents. You will need them to be prepared if there should be an oil spill in the future. An inventory listing quantities to maintain on hand along with stock numbers or other pertinent ordering information will make it easier to re-order when or if a spill occurs.

Finally, as a supervisor/manager you are required that personnel be trained, instructed and briefed on proper spill prevention procedures and requirements; area personnel use standardized written operating procedures; inspections are routinely performed to insure proper operation of equipment; and records are maintained to document the successful implementation of these personnel requirements.

6.0.0 DEFENSE REUTILIZATION and MARKETING OFFICE

Originally established in 1972 to consolidate the different military services' disposal operations, Defense Property Disposal Service (DPDS) was renamed the Defense Reutilization and Marketing Service (DRMS) in 1985. DRMS is part of the Defense Logistics Agency (DLA), based in Fort Belvoir, Va. Local field offices are referred to as Defense Reutilization and Marketing Offices or DRMO which it is more commonly referred.

DRMS disposes of excess property received from the military services. The inventory changes daily and includes thousands of items: from air conditioners to vehicles, clothing to computers, and much more. Property is first offered for reutilization within the Department of Defense (DoD), transfer to other federal agencies, or donation to state and local governments and other qualified organizations. Reutilization means big savings. In fiscal 2003, \$1.2 billion worth of property was reutilized. Every dollar's worth of property reutilized is a tax dollar saved. DRMS also supports the Humanitarian Assistance and Foreign Military Sales programs.

DRMS manages the DoD surplus property sales program. Excess property that is not reutilized, transferred or donated may be sold to the public as surplus. The DRMS National Sales Office has a commercial venture partnership with Government Liquidation to purchase and re-sell all non-demil-required usable property in the United States, Guam, Hawaii and Puerto Rico. Sales include high-value property, such as aircraft parts, machine tools, hardware, electronics, material handling equipment, and vehicles. DRMS overseas locations conduct zone sales for all non-demil required

usable property. These sales are either held through sealed bid, auction, or retail, fixed price sales, aimed at customers interested in buying inexpensive items for personal use. DRMS also offers a sales service for those DoD customers who have direct sales authority (such as under the Exchange Sale Program). For a modest percentage of the proceeds, DRMS will perform all merchandizing, advertising and contracting functions, providing the DoD military service peace of mind that all laws and regulations are followed.

6.1.1 CESE Disposal

For CESE disposal, the unit shall submit a letter to the operational regiment requesting disposition instructions. The body of the letter must have current miles/hours, cumulative cost, cost to repair, and current condition code. All MHE requests must have a complete SF-120 accompany the letter. The cognizant Regiment (R43) Equipment Office will take action and provide written direction for appropriate disposition. Upon receipt of notification to dispose of this CESE use the following procedures:

- Completely remove all Navy identification, unit decals, and stenciling from the equipment.
- Deliver the equipment and the history jacket to the Defense Reutilization and Marketing Officer (DRMO) on or before the predetermined date using a DD Form 1348-1 as the turn-in document. Ensure that the USN number appears on the 1348-1 and attachment ID numbers of those being sent to DRMO with the host piece.
- If attachments assigned to the CESE being disposed of are needed for a like unit that is on site, prepare a corrected Equipment Attachment Registration Record NAVFAC Form 6-11200/45 according to COMFIRSTNCDINST 11200.2, Chapter 2, Section 4.
- Within 30 days after disposal, forward the follow up disposal letter with a signed original copy of DD Form 1348-1 enclosed to respective Regimental (R43) Equipment Office. Complete OPNAV Form 4790/CK submittal process to up-date the 3-M system.
- Units operating under the 3-M system shall use the OPNAV Form 4790/CK submittal process to report the addition of or removal of Organic/Augment CESE/CEEI to the activity. These reports must be accurate and complete to ensure the unit's data remains accurate and is properly outfitted.
- The unit will report in the 3-M system the completion of any disposition action that results in a change to the unit's equipment configuration.

One final note, the approval to dispose of a piece of CESE and its attachments is not an authorization for "cannibalization." If a piece of CESE and /or attachments destined for disposal can provide needed parts or components, request authorization when making the initial disposal request. By removing any parts or components after approval for disposal could change its code and render it worthless if destined to another unit for use.

6.2.0 Hazardous Materials Disposal

The mechanic shop supervisor is responsible for the proper storage, handling, use and disposal of the hazardous materials that are used in the mechanic shops, battery shop, steel shop, machine shop, and paint shop. The disposal of hazardous materials is accomplished by strict guidelines and procedures. The supervisor needs to become familiar and knowledgeable of the publications and instructions pertaining to the disposal of hazardous materials. The Defense Reutilization and Marketing Service website provides detailed instructions for the disposal of hazardous material <http://www.drms.dla.mil/>. The following information is only an introduction for the disposal of hazardous materials. The supply department is the resident expert and the best source of information and guidance should assistance be required related to disposal of CESE and/or hazardous materials or waste.

The Defense Reutilization and Marketing Service manage the disposal of hazardous property for DoD activities. Hazardous material is handled according to the same priorities as other property: reutilization within DoD, transfer to other federal agencies, donations to qualified state and nonprofit organizations, and sale to the public including recyclers. This process maximizes the use of each item and minimizes the environmental risks and the costs associated with disposal. DRMOs provide safe, temporary storage of hazardous property during the disposal cycle.

Hazardous property is classified as material or waste. A hazardous material is any substance capable of posing a risk to health, safety and property when transported. Hazardous waste includes any used hazardous materials that are flammable, corrosive, reactive or toxic to living organisms.

Hazardous property that cannot be reused, sold or returned to the manufacturer is disposed of through commercial service contracts that must comply with applicable federal, state and local environmental laws and regulations. The most important of these laws is the Resource Conservation and Recovery Act (RCRA), which requires "cradle to grave" management of hazardous property.

The following guidance outlines procedures for the turn-in of Hazardous Material (HM) for R/T/D/S, Hazardous Waste (HW), and other types of wastes (e.g., PCBs, Friable Asbestos, etc.). Some HW may require disposal on a hazardous waste disposal contract in compliance with federal/state/host nation regulations, when discarded for disposal. These procedures are intended to assist commanding officers, accountable supply officers, environmental staff, and generating activities in the day-to-day conduct of business with the DRMO. It is not possible to identify the universe of regulatory requirements in this guidance however, basic turn-in requirements are addressed. To ensure compliance with federal, state and/or DoD regulations, it is necessary that turn-in activities obtain and become familiar with applicable Codes of Federal Regulation (CFRs), state regulations, DoD regulations, and overseas, by the OEBGD or the Final Governing Standards (FGS) for the host nation.

6.2.1 Preparatory Steps for Hazardous Material Disposal

Detailed turn-in requirements are outlined at ensuing paragraphs. Your servicing DRMO is available to provide additional information and assistance in preparing hazardous property and documentation for turn-in. Identify the property as hazardous material or hazardous waste.

For hazardous material, obtain a copy of the Material Safety Data Sheet (MSDS). The MSDS is an OSHA requirement levied on chemical manufacturers to provide specific information about the chemicals they produce and sell. The MSDS must accompany the product(s) when sold. Subsequently the buyer, or whoever uses the chemicals, must maintain the MSDS at the site or storage area, to ensure the MSDS information is available for the safety of the employees who use or handle the chemicals. The MSDS is prepared by private industry and must be prepared by professional chemists and/or industrial hygienists who know and understand the chemical and physical properties of the chemicals, and who sign and verify its correctness. OSHA (29 CFR) provides a specific outline of what must go in an MSDS. DRMO or DoD employees (unless they are chemists or industrial hygienist who has responsibility to prepare MSDSs) do not prepare, verify or sign an MSDS.

There is no specific form number assigned the MSDS. The DoD Hazardous Material Information Sheet (HMIS) is the closest DoD format to a MSDS. For MSDS' that are not in the DoD HMIS, a generator should call the manufacturer of the hazardous material and request an MSDS for the specific report.

On the package place a Hazardous Chemical Warning Label (DD Form 2521/2522), packaging, marking, labeling of property, and a DoT Shipping Paper, if transporting HM off-site.

For Hazardous Waste, characterize the waste and prepare a Hazardous Waste Profile Sheet (HWPS). Use user's knowledge of waste or lab analysis or other identifying information attach the packaging, marking, labeling of property and apply the Hazardous Waste Manifest, Land Disposal Restriction (LDR), if transporting HW off-site

The condition of property shall be non-leaking and safe to handle and if transporting Hazardous Material or Hazardous W off-site packaging and transportation shall be according to 49 CFR.

Provide disposal funding information for the DTID (MILSBILLS fund code, Bill to DoDAAC, Contract Line Item Number (CLIN) cost per lb., Total CLIN Cost and prepare a DD Form 1348-1 or 1A, Disposal Turn-in Document.

When the material is ready for disposal, coordinate pre-inspection, if required, and/or schedule turn-in time with the DRMO.

6.2.2 Identification of Hazardous Property

Hazardous Property (HP) must be properly identified. It is the users responsibility to identify hazardous property as either hazardous material (HM) or as hazardous waste (HW) based on the definitions of HM and HW in DoD 4160.21-M and various federal/state/local/foreign country laws and regulations. The following guidance is based on DoD policy and shall be used in conjunction with applicable federal, state, and/or local environmental regulations.

Hazardous Material (HM) is generally unused, unopened items capable of use as originally intended and consists of any material that is capable of posing an unreasonable risk to health, safety, and property during transportation under DOT or the International Maritime Dangerous Goods Code of the International Maritime Organization.

Hazardous Waste is generally used, opened, damaged, contaminated, or expired materials that are no longer capable of being used for its intended purpose without undergoing some type of processing.

6.2.3 Instructions for Hazardous Material

The Department of Defense has established strict requirements regarding documentation and procedures for turning in property to the DRMO.

All property must be accompanied by a properly prepared DD Form 1348-1A, Disposal Turn-in Document (DTID), according to DoD 4000.25-1-M, MILSTRIP. A minimum of an original and three legible copies must accompany property turned in for disposal processing. If a copy is needed for the delivery agent, an original and four legible copies must accompany the property. The following information must be provided with all turn-ins of hazardous waste:

Summary

Transportation, construction and material-handling equipment represent over 70 percent of the total NCF outfitting cost, require approximately 30 percent of the operating budget, and require 20 percent of NCF personnel to operate and maintain it. Equipment is the "backbone" of the Seabees and requires a dynamic, effective management program. The goal of the equipment management program is to realize maximum available operating hours throughout the life expectancy of each piece of USN-numbered equipment. Individual initiative, experience and pride in good workmanship can not be supplanted by written procedures and must be strongly encouraged by every level of the chain of command to achieve optimum equipment effectiveness and meet the tasks at hand with resources available.

Within the chapter you covered the maintenance organization and discussed the key players and their roles in relation to its operation. Each member within the ALFA Company maintenance shops is required to know and understand a myriad of forms and reports essential to their routine business. Also essential is the knowledge of the publications, instructions, and manuals that drive the construction mechanic in the performance of his/her duties. The support shops within the maintenance shop are crucial components that must have the best trained and knowledgeable personnel for each

The preventive maintenance program is probably the most vital part related to the daily operations of the mechanic shops for maintaining CESE in support of the battalion or unit in meeting its construction goals. The construction mechanic must process an intense knowledge of the supply system for the ordering of parts and components.

The Battalion Equipment Evaluation Program is the compilation of everything that is required of a construction mechanic during the turnover period of the incoming and outgoing battalion or detachment. The professionalism between the two battalions is necessary for the expeditious completion during the approximately 2 weeks allotted for the BEEP.

Naval "Mobile" Construction Battalion, just as the word mobile implies, requires it to deploy and redeploy and to accomplish this requires all CESE to be operational and ready use upon arrival to its destination. The procedure of embarkation requires CESE to be cleaned, inspected and any repairs necessary before staging prior to loading onto aircraft, ships, or movement over land.

Hazardous materials are a way of life for the construction mechanic. The proper handling, storage, and the procedures related to spills and cleanup is necessary for the safe operation within the shops. The knowledge of the characteristics of the hazardous materials is required to ensure proper storage. Handling of hazardous waste is to ensure its proper disposal and to also make certain non-compatible materials are not mixed in the process.

There comes a time that a piece of CESE, excess parts and components or collected hazardous material such as used electrolyte and engine oil needs to be disposed. The Defense Reutilization and Marketing Office is the activity responsible for the collection of all CESE, excess parts and components and hazardous materials. The construction mechanic is required to know and to conduct the procedures for disposal of equipment and materials to DRMO.

Review Questions (Select the Correct Response)

1. **(True or False)** The NAVFAC P-300 is the publication to assist management at all levels for the management of the transportation program
 - A. True
 - B. False
2. What three shops make up the maintenance division of a NMCB?
 - A. Transportation and light shops
 - B. Heavy equipment and support shops
 - C. Light shop, heavy shop and mineral shop
 - D. Support shop, light shop and heavy shop
3. Which manual/instruction provides guidance for the Naval Construction Force Equipment Management Program?
 - A. COMFIRSTNCDINST 11200.2
 - B. CONFIRSTNCDINST 4790.1
 - C. NAVFAC P-434
4. The overall responsibility for ensuring proper maintenance and repair of all automotive, construction, and material-handling equipment assigned to an NMCB belongs to what person?
 - A. Light shop supervisor
 - B. Maintenance supervisor
 - C. Company chief
 - D. Heavy shop supervisor
5. ALFA Company Maintenance Supervisor/Division Chief has all of the following responsibilities except:
 - A. Responsible for approving all repair parts ordered through MicroSnap
 - B. Ensures that all collateral equipment losses or shorts are properly orders
 - C. Supervises dispatch and equipment yard supervisor
 - D. Ensure adherence to the scheduled 3-M maintenance program
6. Personnel assigned to the light, heavy and support shops shall develop a weekly schedule using what?
 - A. SKED
 - B. SKID
 - C. Excel
 - D. SKEET

7. When equipment is in need of repair and the parts cannot be received within three working days is referred to as what?
- A. Discarded
 - B. Deadlined
 - C. Non-availability
 - D. Equipment Down
8. At the end of each work day the number of units left in the shops will be recorded on
- A. Equipment Availability Report
 - B. CESE Daily Worksheet
 - C. CESE Shop Accountability Worksheet
 - D. CESE Availability Worksheet
9. Which of the following is not a duty of the Equipment Inspector?
- A. Inspection of collateral equipment
 - B. Inspecting dispatch records and accident reports
 - C. Review technical manuals, technical bulletins and maintenance bulletins
 - D. Minor repairs
10. The Light Shop Work Supervisor has to ensure that maintenance is done on all "B" and "C" assignments. Who does he get those from?
- A. Yard Boss
 - B. Dispatcher
 - C. Cost Control
 - D. Maintenance Supervisor
11. The Light Shop will "generally" work on vehicles with an equipment code which begins with an/a
- A. 3
 - B. 2
 - C. 1
 - D. 0
12. The Heavy Shop Work Center Supervisor shall have a PQS up to
- A. 300
 - B. 301
 - C. 302
 - D. 303

13. The Field Crew performs maintenance that is beyond the scope of operator maintenance and minor corrective maintenance. How often should the Field Crew visit job sites?
- A. twice daily
 - B. twice weekly
 - C. daily
 - D. twice every other day
14. All cranes will be kept alive and cycled. How often will cranes be cycled to insure all moving parts are mechanically sound and fully operational?
- A. Biweekly
 - B. Every 5 workdays
 - C. Every 7 workdays
 - D. Every month
15. Who is responsible for the planned maintenance and breakdown repair of all cranes and ensuring all maintenance guidelines is adhered to per *Management of Weight Handling Equipment*, NAVFAC P-307.
- A. Maintenance shop
 - B. Light Shop
 - C. Crane crew supervisor
 - D. Crane Shop
16. Any working with cranes must be trained and qualified. What source provides the required courses for crane personnel?
- A. NAVFAC P-434
 - B. COMFIRSTNCDINST1200.2
 - C. NAVFAC P-307
 - D. NAVFAC P-300
17. **(True or False)** All tools and materials associated with the MR shop will be inventoried.
- A. True
 - B. False
18. If a bucket on a frontend loader is cracked, which shop will it go to for repairs?
- A. MR shop
 - B. Heavy shop
 - C. Bucket repair shop
 - D. Steel shop

19. The electrical shop has an electrician assigned to perform work on electrical parts, components, and accessories. He will also generally work on equipment with which equipment code?
- A. 2000
 - B. 3000
 - C. 4000
 - D. 5000
20. Working in the battery shop requires strict safety rules and personnel shall use proper PPE. The eye wash station shall be provided within how many feet to the shop?
- A. 25 feet
 - B. 50 feet
 - C. 75 feet
 - D. 100 feet
21. The paint shop must follow which of the following standards?
- A. Monitoring
 - B. Respirator protection
 - C. Air emission
 - D. All the above
22. What shall be provided in the tire shop for inflating tires?
- A. Safety tire rack
 - B. Air reduction safety gage
 - C. Cargo straps
 - D. Tire safety blow-off strap
23. The Repair parts Petty Officer is assigned where?
- A. Admin
 - B. Supply
 - C. Cost Control
 - D. Work Centers
24. The Technical Librarian shall maintain all manuals listed in the unit's
- A. CASMIS
 - B. APL
 - C. COSAL
 - D. SKO

25. The Tool Room Petty Officer keeps an updated copy of the SKO. NFELC updates, publishes, and distributes the SKO how often.
- A. Every 2 years
 - B. Every year
 - C. Every time it is requested
 - D. Every 2 months
26. Where can you get a complete listing the tool kits?
- A. COMFIRSTNCD 11200.2
 - B. COMFIRSTNCD 5100.2
 - C. COMFIRSTNCDINST 4400.3
 - D. COMFIRSTNCDINST 5450.1
27. The NCF mandated the implementation of the 3-M system. Who is the NCF activity responsibility for its implementation?
- A. CESO
 - B. COMFIRSTNCD
 - C. NAVFAC
 - D. NFELC
28. **(True or False)** The 3-M system applies to all Naval Construction Force Equipment except Civil Engineering End Items?
- A. True
 - B. False
29. The 3-M Coordinator and Assistant for an NMCB must at least?
- A. E-7 and E-6.
 - B. E-6 and E-5.
 - C. E-7 and E-5.
 - D. None of the above.
30. With the implementation of the 3-M system it requires a full time 3-M Coordinator for an NMCB. This individual must carry what NEC?
- A. 9506
 - B. 9508
 - C. 9517
 - D. 9527
31. During maintenance on a piece of equipment, it shall be tagged and the key maintained how?
- A. Put the key on the key board so it can be moved if need be.
 - B. The maintenance person will maintain positive control of the key.
 - C. The shop inspector controls the key during repairs.
 - D. The maintenance person places the key in the history jacket.

32. Four basic elements of maintenance accomplishment are:
- A. Work process, informal work procedures, work progression, and administration
 - B. Management by wandering, work overview, OJT and formal work procedures
 - C. Work process training and qualification, supervision, and formal work procedures
 - D. Supervision, training and exercise, formal work procedures, and mismanagement
33. Decreased system downtime and improved system reliability are:
- A. Long-term benefits of protective maintenance
 - B. Long-term benefits of preventive maintenance
 - C. Long-term benefits of the preservation program
 - D. Long-term benefits of corrective maintenance
34. Corrective maintenance is typically carried out in three steps:
- A. Problem diagnosis
 - B. Faulty components repair and replacement
 - C. Repair action verification
 - D. All the above
35. Operator maintenance shall be performed by which of the following personnel?
- A. Equipment operators only
 - B. All personnel who operate equipment
 - C. Mechanic and equipment operators only
 - D. All personnel who operate equipment except "B" assigned vehicles
36. While conducting a pre-start inspection on a vehicle, annotate any discrepancies found on which form?
- A. NAVFAC Form 9-11260/4
 - B. Operator's Daily PM Report
 - C. Operator's Inspection Guide and Trouble Report
 - D. Operator's Daily Trouble Report
37. Repair, alteration, rebuild is part of what type of maintenance?
- A. Planned
 - B. Schedules
 - C. Preventive
 - D. Corrective

38. What is the Consolidated Seabee Allowance List?
- A. A document prepared for an NMCB listing project materials and components.
 - B. A document containing technical manuals and a complete list of parts.
 - C. A document prepared for ALFA Company for support of repair parts for the first 3 months of deployment.
 - D. A document listing repair parts for construction equipment only for the first 1,200 construction hours.
39. Which maintenance code defines minor maintenance, calibration, and lubrication?
- A. "O"
 - B. "G"
 - C. "H"
 - D. "D"
40. Each level of support includes all lower levels. Which level(s) support "G" maintenance code?
- A. "D" and "H"
 - B. "O" and "H"
 - C. "O"
 - D. None of the above
41. What are the two types of repair parts?
- A. Parts particular
 - B. Parts peculiar and parts common
 - C. Parts common
 - D. Both 1 and 3
42. The Mod 96 kit is designed to supplement Repair Parts Peculiar for what period of time?
- A. 30 days or 1,200 construction hours
 - B. 1,200 construction hours only.
 - C. 60 days only.
 - D. 60 days or 1,200 construction hours.
43. An APL will not always cover complete equipment. An example of this is?
- A. Crawler crane
 - B. Mobile crane
 - C. Rough-terrain forklift
 - D. Mobile forklift
44. What instruction provides guidance for for the BEEP?
- A. COMFIRSTNCDINST 11200.2
 - B. COMFIRSTNCDINST 11240.4
 - C. COMFIRSTNCDINST 11260.4
 - D. COMCBPAC/COMCBLANTINST 11200.1

45. The purpose of the equipment evaluation program is which of the following?
- A. To provide the outgoing battalion with a realistic and in-depth condition evaluation of CESE.
 - B. To use the full expertise and efforts of the equipment forces to provide the relieving battalion and detachments with the best possible Company operation to conduct a successful deployment.
 - C. Pass on all special knowledge of CESE maintenance and operation techniques
 - D. Both B and C
46. Joint Tasks shall consist of the following?
- A. Notify regiment of the commencement date.
 - B. Make available tools and equipment for evaluation and repair.
 - C. Perform PM and (R) situational maintenance checks on all CESE.
 - D. Put together monthly CESE Availability Reports.
47. **(True or False)** During the BEEP it is important for SKED and MICROSAP user information is exchanged and updated to reflect incoming personnel, ensuring all key personnel have a firm understanding of the maintenance, material, and management system?
- A. True
 - B. False
48. Cranes must be re-certified during turnover if within how many days of certification?
- A. 45
 - B. 50
 - C. 60
 - D. 65
49. It is essential for key personnel be assigned to the advance party. What manual/instruction provides a list of the key personnel to perform the BEEP?
- A. COMFIRSTNCDINST 11200.2, Chapter 4
 - B. COMFIRSTNCDINST 11200.2, Chapter 1
 - C. COMCBLANT/COMCBPACINST 11200.2, Chapter 3
 - D. COMSECONDNCDINST 11200.2, Chapter 4
50. The relieving battalion shall provide key personnel with the advance party to include:
- A. Yard boss
 - B. Lube rack petty officer
 - C. Tech librarian
 - D. Both A and B

51. All personnel from the outgoing battalion must turnover any significant information to the incoming battalion on topics such as:
- A. Points of contact
 - B. Specific information to the site
 - C. Site unique regulations
 - D. All of the above
52. Who provides direction and sets expectations for both battalions during the BEEP?
- A. The respective Cos
 - B. The respective A6s
 - C. The respective BEEP Representative
 - D. The respective Battalion BEEP Coordinator
53. Embarkation is the movement of personnel, equipment, and materials by:
- A. Air only
 - B. Air and sea only
 - C. Sea and land only
 - D. Air, sea, and land
54. Any CESE that is scheduled for what type of operation shall take priority?
- A. Mainbody air echelon
 - B. Air detachment
 - C. Sea echelon
55. If there are any fluid leaks on any CESE to be loaded on an aircraft, who is the decisive authority to turn it away from being loaded?
- A. The aircraft loadmaster
 - B. The embark chief
 - C. The embark officer
 - D. The equipment inspector
56. In preparing CESE for embarkation, it must go where to be fully equipped?
- A. Battery shop
 - B. Tire shop
 - C. Collateral Equipment Custodian
 - D. Equipment yard
57. Aircraft loading and tie-down is normally under the direction of what person?
- A. The embarkation officer
 - B. The convoy commander
 - C. The aircraft loadmaster
 - D. The Seabee aircraft load planner

58. **(True or False)** The Battalion Environmental Liaison is appointed in writing by the CO and can be anybody knowledgeable about environmental issues?
- A. True
 - B. False
59. An NMCB shall have an Environmental Coordinator to assist the Environmental Liaison. This job is :
- A. part time
 - B. a collateral duty
 - C. a temporary assignment
 - D. A full time position
60. Each ALFA Company will have a HAZMAT/HAZWASTE coordinator. His/her duties consist of which of the following?
- A. Inspecting, satellite accumulation areas and areas of responsibility
 - B. Taking out the dirty rags from the shops
 - C. Removing collected oil for the mechanics
 - D. Reporting all discrepancies to the A5
61. What program establishes guidelines for informing workers about the hazards of chemicals in the workplace?
- A. Hazard Analysis Program
 - B. Hazard Communication Program
 - C. HAZMAT control program
 - D. Material Safety Data Sheet Program
62. Hazardous materials shall never be received without a/an:
- A. Inventory Sheet
 - B. Material Safety Data Sheet
 - C. Hazard Analysis Sheet
 - D. Material Usage Information Sheet
63. Toxic materials are hazardous to what?
- A. Copper
 - B. Living things
 - C. Ferrous metal
 - D. Rubber gaskets
64. Corrosive materials attack and corrode metals. When acids attack metal such as aluminum, zinc, and galvanized metal what gas is produced?
- A. Oxygen
 - B. Hydrogen
 - C. Carbon
 - D. Chlorine

65. Water can undergo dangerous reactions with:
- A. Some paint
 - B. Some oil
 - C. Some oxidizing material
66. Which hazard is a suspension of tiny particles or droplets in the air?
- A. Toxic
 - B. Combustible liquids
 - C. Oxidizers
 - D. Aerosols
67. An aerosol is a suspension of tiny particles or droplets in the air. The actual product propelled by an aerosol can be:
- A. Corrosive and Non-Flammable
 - B. Non-corrosive
 - C. Aerosols have no hazards
 - D. Poisonous and Corrosive
68. What is the common dissolved gas that is chemically very unstable?
- A. Acetylene
 - B. Propane
 - C. Oxygen
 - D. Argon
69. The NFPA 704 Diamond identifies the level of chemical hazard. What color represents a health hazard?
- A. Blue
 - B. Red
 - C. Yellow
 - D. White
70. The HMIS Label operates the same as the NFPA diamond but used for individual containers. What color indicates instability?
- A. Blue
 - B. Red
 - C. Yellow
 - D. White
71. The storage, handling, usage, and disposal of hazardous material are only the concern of whom?
- A. The Supply Officer
 - B. The Commanding Officer
 - C. Environmental Liaison
 - D. All Navy personnel

72. If incompatible materials are allowed to mix, dangerous conditions will result. Which of the following may happen if incompatible materials are mixed?
- A. Compression
 - B. Fire
 - C. Condensation
 - D. All of the above
73. The NCF has 55-gallon drums for storage of engine oil and hydraulic oil. Ideally drums should be stored from the elements, but if they can not and are left to the elements, they should be stored how?
- A. Up/side down
 - B. Vertical
 - C. On their side
 - D. Upright
74. ALFA Company will have satellite accumulation site with the maximum amount of waste that can be accumulated per waste stream being?
- A. 55 gal
 - B. 75 gal
 - C. 100 gal
 - D. ALFA Company does not have a site
75. In the satellite accumulation site the tanks must under control by which personnel?
- A. The heavy shop supervisor
 - B. The shop hazardous material coordinator
 - C. The shop parts petty officer
 - D. The light shop supervisor
76. What distinguishes a flammable liquid?
- A. Having a flashpoint above 100°F
 - B. Having a flashpoint below 73°F
 - C. Having a flashpoint below 140°F
 - D. Having a flashpoint between 100°F and 140°F
77. What distinguishes a combustible liquid?
- A. Having a flashpoint at or below 100°F
 - B. Having a flashpoint at or a 73°F and a boiling point at or above 100°F
 - C. Having a flashpoint at or above 100°F
 - D. Having a boiling point below 100° and a flashpoint below 73°F

78. Corrosives sometimes are incompatible with each other. You should never store what corrosives together?
- A. Acetic acid and sulfuric acid
 - B. Flammable liquids and combustibles
 - C. Bases and poisons
 - D. Acids and bases
79. Flammable compressed gas cylinders stored inside buildings must be stored as least how far from flammable liquids?
- A. 20 feet
 - B. 30 feet
 - C. 40 feet
 - D. 50 feet
80. The wash rack should be equipped with what to remove contaminants?
- A. Oil/Water digester
 - B. Contaminated water separator
 - C. Oil/Water separator
 - D. Oil/Debris separator
81. A large spill is generally considered over how many gallons?
- A. 3 gallons
 - B. 4 gallons
 - C. 5 gallons
 - D. 10 gallons
82. After conducting a cleanup, be sure to replenish:
- A. oil spill cleanup tools and absorbents
 - B. oil that was spilled.
 - C. absorbents and solvents
83. Who disposes of excess property received from an NMCB?
- A. Defense Rehabilitation and Management Service (DRMS)
 - B. Defense Reutilization and Marketing Service
 - C. Defense Revitalization and Marketing Service (DRMS)
 - D. Defense Reutilization and Management Office (DRMO)
84. Once approval is given to dispose a piece of CESE, what should be done with the equipment?
- A. Separate attachments for reuse and submit a NAVFAC Form 9-11260/13
 - B. Remove items that are needed
 - C. Remove the unit decals only
 - D. Remove all Navy identification

85. **(True or False)** Upon receipt of notification to dispose a piece of CESE, you deliver the history jacket by mail prior to the CESE arrival?
- A. True
 - B. False
86. What must be done in order to keep an attachment for a piece of CESE intended to be disposed?
- A. Prepare an equipment Attachment Reutilization Record, NAVFAC Form 9-11260/13.
 - B. Prepare an equipment Attachment Registration Record, NAVFAC Form 6-11200/45.
 - C. Nothing, attachments must always go with the parent CESE.
 - D. The attachment is to be cleaned, lubricated and turned over to Public Works.
87. It is the users responsibility to identify hazardous property as either hazardous material (HM) or as hazardous waste (HW) based on the definitions of HM and HW in DoD 4160.21-M and various federal/state/local/foreign country laws and regulations.
- A. True
 - B. False
88. When assigned to an NMCB, should you have any questions about the turn-in of hazardous materials, what department or person should you contact?
- A. The ALFA Company Commander
 - B. Base Safety
 - C. The Supply Department
 - D. Resource Management Department
89. When disposing hazardous property to DRMO it is classified as as material or waste. Hazardous wastes are those that are toxic to what?
- A. People only
 - B. Living organisms
 - C. Military personnel only
 - D. DRMO HAZWASTE handlers only
90. What must accompany hazardous material to disposal?
- A. Material Safety Data Sheet (MSDS)
 - B. Material Safety Distribution Sheet (MSDS)
 - C. Hazardous Material Identification Sheet (HMIS)
 - D. Hazardous Material Safety Sheet (HMSS)

91. Hazardous Material is generally:

- A. Used and damaged
- B. Unused
- C. Unused and damaged
- D. Opened and contaminated

92. Hazardous Waste is generally:

- A. Unused
- B. Unopened
- C. Used and damaged

Additional Resources and References

This chapter is intended to present thorough resources for task training. The following reference works are suggested for further study. This is optional material for continued education rather than for task training.

Construction Equipment Department Management and Operations Manual, NAVFAC P-434, Naval Facilities Engineering Command, Washington D.C., 1982.

Embarkation Manual, COMSECONDNCB/COMTHIRDNCBINST 3122.1 (N7/N7) November 1997.

Maintenance and Material Management (3-M) System Policies and Procedures for the Naval Construction Force (NCF), COMFIRSTNCD 4790.1 (N43), February 2004.

Management of Weight Handling Equipment, NAVFAC P-307, Naval Facilities Engineering Command, Washington D.C, 2009.

Naval Construction Force Embarkation Manual, COMSECONDNCB / COMTHIRDNCBINST 3120.1, 1988.

Naval Construction Force (NCF) Equipment Management Instruction, COMFIRSTNCDINST 11200.2 (N43), June 2006.

Naval Construction Force Manual, NAVFAC P-315, Naval Facilities Engineering Command, Washington D.C., 1985.

Naval Construction Force Occupational Safety and Health Program, COMFIRSTNCDINST 5100.2 (N02EC), Commander, Third Naval Construction Brigade, Pearl Harbor, Hawaii, and Commander, Second Naval Construction Brigade, Norfolk, Va., March 1991.

Navy Safety and Occupational Health (NAVSOH) Program Manual, OPNAVINST 5100.23G, 2005.

Personnel Qualification Standards for Maintenance and Material Management (3-M), NAVEDTRA 43241-H, May 2000.

Seabee Supply Manual, COMFIRSTNCDINST 4400.3, December 2007

Ships' Maintenance and Material Management (3-M) Manual, NAVSEAINST 4790.8B (SEA 04RM), November 2003.

Ship's Maintenance and Material Management (3-M) System Policy, OPNAVINST 4790.4 (N431H), October 2007.

Tag-Out Users Manual, NAVSEA Technical Publication, S0400-AD-URM-010/URM (NSN-0910-LP-106-0985), 2009.

U.S. Army Corps of Engineers, Safety and Health Requirements Manual, EM 385-1-1, 2008.

U.S. Naval Construction Force Equipment Management Manual, COMCBPAC/COM-CBLANTINST 11200.1D, 1988.

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Chapter 3

The Shop Inspector

Topics

- 1.0.0 Equipment Inspector
- 2.0.0 Crane Inspector

To hear audio, click on the box.



Overview

The Shop Inspector is probably one of the most underrated positions in the mechanic shops, but it requires a very knowledgeable and competent individual within the ALFA Company maintenance ranks. This chapter will cover the vast range of duties and responsibilities of the Shop Inspector.

The chapter discusses the types of inspections that are required inside the Naval Construction Force and SOU units in order to maintain efficient and safe operating CESE. Under the Equipment Inspector segment of the chapter, topics covered will be (a) Acceptance Inspection/Initial Inspection, (b) Property Record Card, DD Form 1342, (c) BEEP inspections, (d) Preservation Inspection, (e) Deadline Inspection, and (f) Final Inspection.

The last part of the chapter provides information on the Crane Inspector and covers a great deal of the crane program including the NCF organization, NAVFAC P-307, Navy Crane Center, and a general overview of training, licensing, maintenance inspections, crane certification, and safety.

Objectives


When you have completed this chapter, you will be able to do the following:

1. Identify types of inspections performed by the Vehicle Inspector.
2. Identify types of inspections performed by the Public Works Shop Inspector.
3. Identify types of inspections performed by the Battalion Maintenance Shop Inspector.
4. Identify types of inspections performed by the Crane Inspector.

Prerequisites

None

This course map shows all of the chapters in Construction Mechanic Advanced. The suggested training order begins at the bottom and proceeds up. Skill levels increase as you advance on the course map.

Wheel and Track Alignment		C
Troubleshooting Transmissions, Transfer Cases, and Differentials		M
Clutches and Automatic Transmissions		A
Troubleshooting Electrical Systems		D
Fuel Systems Overhaul		V
Engine Trouble Shooting and Overhaul		A
The Shop Inspector		N
ALFA Company Shop Supervisors		C
Public Works Supervisor		E
		D

Features of this Manual

This manual has several features which make it easy to use online.

- Figure and table numbers in the text are italicized. The figure or table is either next to or below the text that refers to it.
- The first time a glossary term appears in the text, it is bold and italicized. When your cursor crosses over that word or phrase, a popup box displays with the appropriate definition.
- Audio and video clips are included in the text, with an italicized instruction telling you where to click to activate it.
- Review questions that apply to a section are listed under the Test Your Knowledge banner at the end of the section. Select the answer you choose. If the answer is correct, you will be taken to the next section heading. If the answer is incorrect, you will be taken to the area in the chapter where the information is for review. When you have completed your review, select anywhere in that area to return to the review question. Try to answer the question again.
- Review questions are included at the end of this chapter. Select the answer you choose. If the answer is correct, you will be taken to the next question. If the answer is incorrect, you will be taken to the area in the chapter where the information is for review. When you have completed your review, select anywhere in that area to return to the review question. Try to answer the question again.

1.1.1 EQUIPMENT INSPECTOR

One of the key positions a Construction Mechanic will be assigned to is Equipment Inspector, whose duty is to make scheduled Civil Engineering Support Equipment (CESE) inspections, looking for inoperative devices that make the equipment unsafe, and for damage that may have been caused by improper or dangerous operating procedures. The Equipment Inspector must be knowledgeable about instructions and regulations pertaining to safety as well as to regular scheduled maintenance inspections.

The Equipment Inspector is assigned to a maintenance shop in a public works department, a battalion, or a special operating unit to assist the transportation shop supervisor (public works) or maintenance supervisor (battalion) in inspecting the equipment to be serviced. The inspector should be a senior mechanic, proficient in his or her rating, and capable of readily determining the nature of necessary repairs and of exercising independent judgment as to whether the equipment requires immediate attention or if it can be delayed until the next regular scheduled preventive maintenance inspection. The scheduled preventive maintenance system is designed to ensure optimum life out of the equipment of a unit or station. As Equipment Inspector, you are responsible for the following:

1. Performing the scheduled inspection, completing the appropriate record forms, and clearly noting deficiencies on the Equipment Repair Order or Shop Repair Order.
2. Checking the file of operator trouble reports before equipment inspection.
3. Using the latest testing equipment and methods available to the unit or public works department.
4. Performing minor adjustments incidental to the inspection.
5. Delivering the initialed Equipment Repair Order or Shop Repair Order to the maintenance supervisor or shops supervisor.
6. Road testing or field testing the equipment before and following the PM, repair, or overhaul.
7. Releasing the equipment to full service ONLY after final inspection is completed. Inspectors must immediately notify the maintenance supervisor or shops supervisor whenever suspected vehicle abuse or recurring mechanical failures occur.

1.1.1 Acceptance Inspection/Initial Inspection

Inspectors will inspect all CESE arriving at an activity. There are two types of inspections, Class I and Class II inspections.

- Class I inspection is a visual inspection of end items to identify obvious defects. Disturbance of preservation, packaging, and packing is held to a minimum during this inspection.
- Class II inspection requires disturbing preservation, packaging and packing and partial disassembly of an end item to identify defects and determine the probable cause of defects. A Class II inspection consists of detailed examination of an item to determine its acceptability and/or serviceability in accordance with specifications and other requirements, including the adequacy of the

paint/preservation, packaging, packing, or markings. Any partial disassembly should be restricted to the removal of crankcase pan and inspection plates of an internal combustion engine, and to fiberscope checking of cylinder heads in lieu of head removal. This inspection is performed at the component level.

1.1.1 Receipt Inspections

When a vehicle/equipment arrives, the receiver is concerned with delivery, acceptance, and warranty, in that order. All CESE, whether received new, overhauled, or from another unit, must be safety inspected and adjusted before use. Particular attention should be given to ensure that all fluid reservoirs are full and to detect deficiencies correctable under warranty. An operational test should be performed to include a load test if required. Every operational test includes validation of the associated technical manuals and is not considered complete without the concurrent Technical Manual Validation.

1.1.2 Correction of Shipping Damage

When CESE is delivered to the government, the receiver has certain responsibilities to receive, inspect, and accept the vehicle. The receiver must inspect each delivered vehicle for damage, abuse, or loss, and then certify the carrier's release. This is extremely important for new vehicles because manufacturer and carrier(s) maintain that the government owns the vehicle as soon as the carrier is released. When equipment received is unsatisfactory as a result of improper packaging, a Standard Form 361, *Discrepancy in Shipping Report (DISREP)*, should be submitted in accordance with NAVMATINST 4355.73, *Reporting of Item and Packaging Discrepancies*. In most cases the carrier that delivers CESE is liable for shipping damage. The Receiving Transportation Officer (normally a Supply Corps Officer) that receives the equipment should be contacted immediately when a damaged shipment is received. The Transportation Officer should initiate action to have the damage corrected in accordance with NAVMATINST 4355.73. If the Transportation Officer is not immediately available, the receiver should take the following actions:

1. Note all apparent damage and shortages on the carrier's delivery receipt and have the carrier's representative acknowledge the damage by signing the receipt.
2. When conditions exist that may have resulted in concealed damage to the vehicle, photographs should be taken and written statements obtained from witnesses. When practical, photographs should be taken before unloading operations continue.
3. When a shipment has been delivered by carrier in apparently good order and a concealed loss or damage is later discovered, the Transportation Officer should be contacted to help correct the damage.

1.2.1 Property Record Card, DD Form 1342

The Equipment Inspector is the primary source for gathering information used to complete the Property Record Card, DD Form 1342. The form is used to report acquisitions and transfers of the Navy equipment registration system. It is also used to assist the mechanics, shop supervisor, and technical librarian with information needed in the research of repair parts. Property Record Cards are updated each time a serialized component is changed on the unit, such as an engine or transmission. The need for accurate preparation of this form cannot be overemphasized as this document is the sole source for recording all pertinent data relative to the equipment at the Civil

Engineering Support Office (CESO), Port Hueneme, CA.

Since you are the one performing the final inspection, you are responsible for accuracy in obtaining correct information

For guidance in completing the DD Form 1342, the operating unit will use the following:

- COMFIRSTNCDINST 11200.2, Chapter 3

NCF/SOU activities that receive equipment directly from contractors should use the DD Form 250 to help prepare the DD Form 1342. The DD Form 1342 must be completely filled out front and back. The more complete and accurate the information entered, the more value the Construction, Automotive and Specialized Equipment Management Information System (CASEMIS) will have in equipment management. The completed DD Form 1342, and a copy of the factory line setting ticket, bill of material, broadcast sheet, or specification list, and information from coded data plates, certification labels, calibration certificate, service parts identification label or similar coded labels and documents are forwarded to CESO Code 1575. CESO will enter the additional data into the computer and change the ownership of the equipment record to the appropriate allowance holder and location.

Activities that receive equipment without a USN registration number assigned should complete DD Form 1342 and forward it to CESO and request a number. CESO will assign a USN number, enter the data in CASEMIS, and return a copy of the DD Form 1342 to the requesting activity. The equipment custodian will then apply the assigned USN registration number on the equipment. The DD Form 1342 is then placed in the appropriate Equipment History Jacket.

DoD Property Record Preparation. DD Form 1342, See NAVFAC P-300; Figure H-26, for instructions on completing the DD Form 1342.

1. The preparation of a DD Form 1342 is essential for an efficient maintenance program. It furnishes the Technical Librarian, Shop Supervisors, and mechanics with vital information required for research, repair parts orders, and maintenance procedures. Utilize MOSS within MICROSnap to generate the DD Form 1342.
2. The Maintenance Supervisor has the responsibility to update and maintain the DD Form 1342. Compliance with the instructions for completing the DD Form 1342 is essential.
3. After the DD Form 1342 is accurately updated, the reporting Units will submit one copy to the respective Code R43 Equipment Office, and file the original copy in the appropriate history jacket.
4. A 4790CK must be completed

Component Changes. Authority to install an engine or component obtained from the Supply System or other sources may be considered granted upon receipt of the engine or component. Upon completion of a component exchange, units will submit an updated DD Form 1342, DoD Property Record, which records the new component's serial number and other pertinent data. When a component is to be used in a unit from a source other than the Supply System, approval of the respective Regimental (R43) Equipment Office prior to installation is required. Complete OPNAV Form 4790/CK submittal process to update the 3-M system.

NCF/SOU activities that receive equipment directly from contractors should use the DD Form 250 to help prepare the DD Form 1342. The DD Form 1342 must be completely filled out front and back. The more complete and accurate the information entered, the

more value CASEMIS will have in equipment management. The completed DD Form 1342, and a copy of the factory line setting ticket, bill of material, broadcast sheet, or specification list, and information from coded data plates, certification labels, calibration certificate, service parts identification label or similar coded labels and documents are forwarded to CESO Code 1575. CESO will enter the additional data into the computer and change the ownership of the equipment record to the appropriate allowance holder and location.

Updating Inventory Records. Transfer, disposition, or change to equipment must be coordinated with the applicable Record Holder via submission of DD Form 1342, to properly inventory equipment.

Equipment Records. When an item of equipment or attachment is changed sufficiently to change its serial numbers, descriptive data, use, and capacity, a corrected DD Form 1342, DOD Property Record, must be prepared and submitted promptly to the Equipment Allowance Holder, if appropriate. The Allowance Holder must then update CASEMIS. The completed and signed OPNAV 4790/2K, which accomplished the change, will become a permanent part of that vehicle's History Jacket. If there is no DD Form 1342 in the Equipment History Jacket, initiate one in accordance with Appendix B. If the Equipment History Jacket already has a DD Form 1342, verify the information and update prior to submitting. Retain one copy of the changed DD Form 1342 in the Equipment History Jacket. The DD Form 1342 must be filled out completely. Call CESO Code 1575, if you need assistance.

1.3.0 Battalion Equipment Evaluation Program (BEEP) Inspection

As discussed in Chapter 2, a Battalion Equipment Evaluation Program (BEEP) inspection is conducted in accordance with COMFIRSTNDINST 11200.2 each time a battalion is relieved on site. The BEEP inspection evaluates the condition of the equipment to establish replacement priorities (*Figure 3-1*). If conducted properly, it also provides the Maintenance Supervisor of the relieving battalion with a means of establishing a shop workload plan for the deployment. At the time of the BEEP inspection, all discrepancies, including rust, body damage, and paint requirements, are written on the OPNAV 4790/2K. The repairs needed during the BEEP vary with each situation. As a rule, all needed safety repairs are corrected in 4 hours or less if parts are available. Major repairs, component overhaul, and body work are generally deferred until after the completion of the BEEP and the scheduled maintenance cycle commences. Additionally, all maintenance records, maintenance correspondence, and permanent ALFA Company shop equipment are inspected.

After the final inspections of all CESE, the mechanics place NMCB unit identification markings (often referred to as BEEP stickers) on the designated location for each piece (*Figure 3-2*).



Figure 3-1 – Thorough cleaning of equipment before inspection during BEEP.

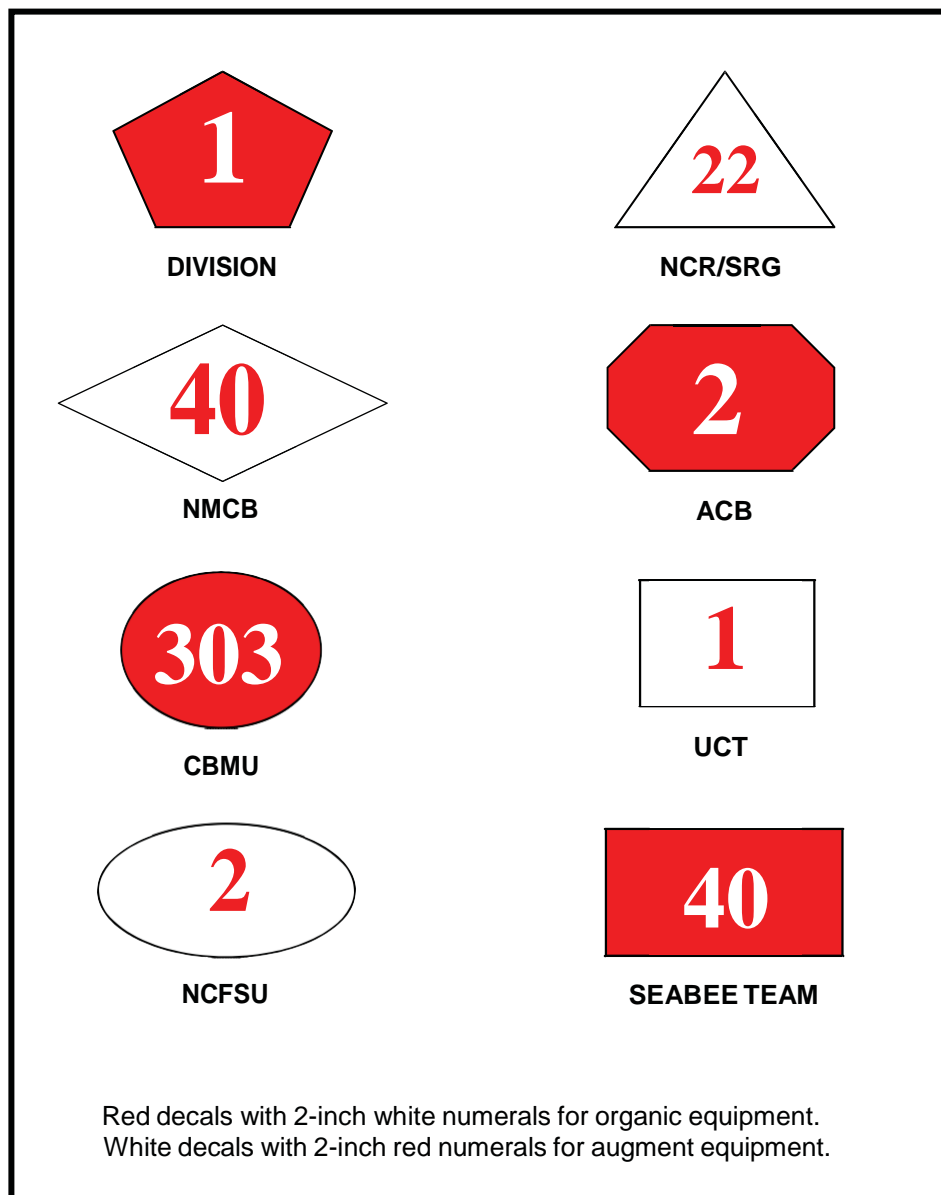


Figure 3-2 - Unit identification markings.

1.4.0 Preservation Inspection

Different units you may be attached to, usually NMCBs, will have certain equipment not used on a regular basis in a storage program (*Figure 3-3*). This program is used to reduce maintenance hours by removing selected CESE from service for extended periods of time. The Maintenance Supervisor should be certain that equipment shop inspectors are thoroughly familiar with these program.

In the NCF, according to both instructions listed in the preceding paragraph, cranes will not be placed in active or inactive storage. Cranes will be under the control of the crane crew and will be cycled at a minimum of once every 5 days to make sure that all moving parts are mechanically sound and fully operational.



Figure 3-3 — Equipment that is not used on a regular basis, such as this scraper placed in live storage.

Public works stations have seasonable equipment that is unused for certain periods of time, such as snow removal equipment and grounds maintenance equipment. Since specific equipment preservation and storage instructions are not available to public works commands, the Transportation Supervisor and the Equipment Inspector should develop a system to preserve, store, and monitor CESE in its preserved condition.

Appendix E of *Operational Test Procedures*, NAVFAC P-434, *Construction Equipment Department Management and Operations Manual* provides operational testing instructions.

Appendix F of *Preservation Procedures for NAVFAC Material*, NAVFAC P-434, *Construction Equipment Department Management and Operations Manual*, and *Appendix C, Fuels, Lubricants Preservation, and Rustproofing Material* are references for preservatives and their specific uses.

1.5.0 Deadline Inspection

The term "deadline" applies to any equipment that, in the opinion of the Maintenance Supervisor, parts cannot be obtained for, or that cannot be safely operated within a period of 72 hours or more without endangering the operator or equipment performance. Inspections are critical on deadlined equipment to guard against further deterioration. The minimum deadline inspection should ensure that all openings are covered and weathertight; machine surfaces are preserved; disassembled components are tagged, covered, and stored; no cannibalization has taken place since the last inspection; and equipment is cycled, if possible. If cycling is accomplished, the equipment should be re-preserved as needed.

To fulfill an operational commitment, controlled parts interchange may be authorized only by the Maintenance Supervisor, provided all parts are replaced using the non-serviceable item, replacements are promptly ordered, and all parts and labor cost related to the interchange are charged to the equipment on which the parts failed. The 4790/2K authorizing installation of the new part on the deadline equipment must be annotated under work description "Replacement for a cannibalized part, no cost."

1.5.1 active Equipment Maintenance

Within the Naval Construction Force, units have a number of pieces of CESE that are obligated only for contingency or emergency operations. These pieces may be used intermittently and could go unused for extended periods of time. This equipment is susceptible to improper use, absorbs unnecessary maintenance man-hours, and occasionally suffers deterioration from excessive exposure to the elements due to lack of utilization.

The Inactive Equipment Maintenance (IEM) includes equipment in live storage. IEM procedures can be performed using PMS Auto Scheduler. However, the following manual additions to the computer printout of quarterly schedules are required:

1. Draw a red line in the weekly column to identify start and stop of IEM.
2. Line-out in blue ink PMS checks that need to be deleted during IEM.
3. Schedule IEM checks (LU/PM/SU/OT) in green.

Note: This same criteria apply to work centers on deploying units using the Brown Line method discussed in COMFIRSTNCDINST 4790.1, paragraph 106.1.a. Pen and ink additions have to be made to computer printouts of the quarterly schedules to reflect the Brown Line method.

1.5.2 Deadlined Vehicle Inspection

An inspection and operational test of deadlined CESE as applicable should be performed **every 30 days**. The shop with maintenance responsibility for the deadlined CESE will generate a 2-Kilo using the Parent APL and document the maintenance performed.

You should inspect to ensure the following:

1. All openings are covered and weathertight.
2. All machine surfaces are preserved.
3. All disassembled components are tagged, covered, and stored.
4. No cannibalization has taken place since the last inspection (controlled parts interchange is not approved as a normal procedure). The Maintenance Supervisor may authorize cannibalization to meet operational commitments with Regimental concurrence.
5. Parts removed from deadlined equipment are replaced with the non-serviceable item, and the Maintenance Supervisor ensures that replacement parts are ordered (Not Operationally Ready for Supply [NORS]) using a priority applicable to mission accomplishment.
6. All replacement parts, cost, and labor hours related to the interchange are charged against the piece of equipment on which the part failed. When the replacement parts are received and installed, only the labor involved is to be charged to the piece of equipment from which the interchange part was taken.