



UNITED STATES MARINE CORPS

2D MARINE AIRCRAFT WING
II MARINE EXPEDITIONARY FORCE
POSTAL SERVICE CENTER BOX 8050
CHERRY POINT, NC 28533-0050

WgO P4750.4A Ch 1
G4/MMO
DEC 15 2010

WING ORDER P4750.4A Ch 1

From: Commanding General, 2d Marine Aircraft Wing
To: Distribution List

Subj: STANDARD OPERATING PROCEDURES (SOP) FOR GROUND CORROSION
PREVENTION AND CONTROL (CPAC) PROGRAM (SHORT TITLE: SOP
FOR GROUND CPAC)

Encl: (1) New page inserts to WgO P4750.4A Ch 1

1. Situation. To transmit new page inserts to the basic order and enclosure (1).
2. Filing Instructions. Insert this change behind the signature page of the original order.
3. Execution. Remove page 1-1 and 1-2 and replace it with the corresponding pages per enclosure (1).


R. W. REGAN
Chief of Staff

DISTRIBUTION A:

DISTRIBUTION STATEMENT A: Approved for public release,
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CHAPTER 1

CORROSION PREVENTION AND CONTROL PROGRAMS

1. Introduction

a. Background. Corrosion presents one of the greatest challenges to the readiness and combat capability of 2d MAW ground equipment. To combat this challenge, CPAC must be an integral part of the preventive maintenance effort. The goal of CPAC is to prevent the degradation of ground equipment to the point that it is unserviceable or unsuitable for use. While corrosion cannot be stopped in total due to our operating environment and the design of our equipment, a robust CPAC Program will reduce the affects of corrosion thereby extending the useful service life of our equipment. It will also help conserve resources and improve combat readiness.

b. Until new equipment acquisitions are fielded with a more effective corrosion coating, prevention and control will continue to challenge us and will become even more difficult as equipment continues to age and our depot maintenance capability continues to diminish. These factors alone demand aggressive action on our part to implement and execute effective CPAC Programs.

c. Historcially, formalized CPAC Programs have not been developed and applied. This SOP attempts to reverse that trend by requiring all 2d MAW organizations who own ground equipment to develop and execute a comprehensive CPAC Program down to the individual equipment operator.

d. Command Responsibility. The management and maintenance of assigned equipment is an inherent responsibility of command. Reference (a) identifies Command as the single most important element of maintenance management. Reference (b) outlines Commanding Officer's responsibilities for the management, proper employment, and maintenance of all equipment assigned to, or on temporary loan to their accounts. It is the commander's interest, organization, policies, and procedures which will define the success of the CPAC program.

2. Developing a CPAC Program

a. CPAC Program development should occur no differently than any other maintenance or maintenance management related program. Reference (a) should serve as a model for CPAC Program development. Figure 1-1 on page 1-14 of reference (a) is a superb template around which to design a CPAC Program. A successful CPAC Program will be built around the elements of Command, Resources, Production, and Information.

b. Implementation. A base line is established to identify the extent of equipment corrosion in order to determine its priority of work. The base line effort is accomplished by a thorough, one hundred percent inspection of the organization's equipment. Once Limited Technical Inspections (LTI's) have been completed the equipment will then be categorized per paragraph 1-1.c. Accordingly, Marine Corps Systems Command will have Contact Survey Teams (CST) assess all 2d MAW organizations to determine the extent of corrosion. This process is to be repeated annually on or as near as possible to the anniversary date of the initial base lining effort.

c. Corrosion Categories. Reference (b) lists a corrosion categorization system that contains three numeric designated categories for the Marine Corps. 2d MAW has adopted a five-category system that allows units to also categorize equipment that requires little or no spot painting. Those corrosion categories and their definitions are depicted in figure 1-1 on page 1-6.

d. Training. A comprehensive training plan must then be implemented in order to ensure success. Training can be accomplished in many ways such as classroom instruction, hands-on practical application, and instruction by outside experts. Per paragraph 3a on page 4-2, Marines should also receive training on the hazards of CARC and how to protect themselves. All of the above should be employed in order to achieve a balanced and effective training program. Classroom training alone will not achieve the desired level of expertise among an organization's Marines. Also, the organization's Maintenance Management Officer (MMO) must ensure CPAC training is included in the unit training plan along with other maintenance and maintenance management related training topics. CPAC training must be documented.



UNITED STATES MARINE CORPS
2D MARINE AIRCRAFT WING
U. S. MARINE CORPS FORCES, ATLANTIC
POSTAL SERVICE CENTER BOX 8050
CHERRY POINT, NORTH CAROLINA 28533-0050

WgO P4750.4A
G4/MMO
10 DEC 2003

WING ORDER P4750.4A

From: Commanding General

To: Distribution list

Subj: STANDARD OPERATING PROCEDURES (SOP) FOR GROUND CORROSION
PREVENTION AND CONTROL (CPAC) PROGRAM (SHORT TITLE:
SOP FOR GROUND CPAC PROGRAM)

Ref: (a) MCO P4790.2
(b) MCO 4790.18
(c) MCO P5100.8
(d) TM 4700-15/1
(e) TM 4750-15/1
(f) TM 4795-12/1
(g) TM 4795-34/2
(h) AirStaO 5090.5

Encl: (1) LOCATOR SHEET

Reports Required: See Appendix (A)

1. Situation. The 2d Marine Aircraft Wing (2d MAW) is experiencing loss of readiness through corrosion of tactical ground and ground support equipment. Corrosion degrades operational and structural capabilities, also affecting the safety of our Marines. This directive provides policy and procedures for corrosion prevention and control of all 2d MAW ground equipment.

2. Cancellation. WgO P4750.4.

3. Mission. To establish an effective CPAC program to extend the useful life of all 2d MAW tactical ground and ground support equipment, and to reduce maintenance requirements and associated costs.

4. Execution

a. Commander's Intent and Concept of Operations

WgO P4750.4A

(1) Commander's Intent

(a) Minimize loss of equipment, as a result of corrosion, through the concept of a comprehensive CPAC program.

(b) Identify and assess current and projected CPAC problems across 2d MAW through regular communication and coordination with subordinate units.

(c) Comply with environmental requirements in the CPAC process.

(2) Concept of Operations

(a) The overall program includes two primary elements:

1 Preventive Corrosion Control. Preventive corrosion control is employed at the organizational/operator level by applying approved techniques, materials, and technologies.

2 Corrective Corrosion Control. Corrective corrosion control focuses on identifying, developing, and implementing technologies and processes that will correct current equipment deficiencies resulting from corrosion and environmental damage. Corrective corrosion control includes all Marine Corps programs designed to correct corrosion damage (such as general maintenance and Corrosion, Control, and Coating (C3)).

b. Subordinate Element Missions. Subordinate elements will ensure compliance with this order and will issue amplifying instructions and procedures as necessary. They are not required to produce companion SOP(s). Group/Unit specific policies, procedures, and instructions may be incorporated within this SOP as a separate Appendix.

5. Administration and Logistics. Recommendations concerning changes to this order are invited from all 2d MAW organizations. They should be submitted via the appropriate chain of command to the Commanding General, 2d Marine Aircraft Wing (G-4/MMO).

6. Command and Signal

a. Signal. This Order is effective the date signed.

b. Command. This Order is applicable to all 2d MAW ground and ground support units.



M. E. CONDRA
Chief of Staff

DISTRIBUTION: A

Copy to:
CG, II MEF
CG, 2d MarDiv
CG, 2d FSSG

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REPORTS REQUIRED

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I.	ANNUAL CPAC EQUIPMENT REPORT	WG-4750-01	1004.2

WgO P4750.4A

LOCATOR SHEET

Subj: STANDARD OPERATING PROCEDURES (SOP) FOR GROUND CORROSION
PREVENTION AND CONTROL (CPAC) PROGRAM (SHORT TITLE:
SOP FOR GROUND CPAC PROGRAM)

Location: _____
(Indicate location(s) of copy(ies) of this Manual.)

ENCLOSURE (1)

SOP FOR GROUND CPAC PROGRAM

CHAPTER 1

CORROSION PREVENTION AND CONTROL PROGRAMS

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SOP FOR GROUND CPAC PROGRAM

CHAPTER 1

CORROSION PREVENTION AND CONTROL PROGRAMS

1000. INTRODUCTION

1. Background. Corrosion presents one of the greatest challenges to the readiness and combat capability of 2d MAW ground equipment. To combat this challenge, Corrosion Prevention And Control (CPAC) must be an integral part of the preventive maintenance effort. The goal of CPAC is to prevent the degradation of ground equipment to the point that it is unserviceable or unsuitable for use. While corrosion cannot be stopped in total due to our operating environment and the design of our equipment, a robust CPAC program will reduce the affects of corrosion thereby extending the useful service life of our equipment. It will also help conserve resources and improve combat readiness.

2. Until new equipment acquisitions are fielded with a more effective corrosion coating, prevention and control will continue to challenge us and will become even more difficult as equipment continues to age and our depot maintenance capability continues to diminish. These factors alone demand aggressive action on our part to implement and execute effective CPAC programs.

3. Historically, formalized CPAC programs have not been developed and applied. This SOP attempts to reverse that trend by requiring all 2d MAW organizations who own ground equipment to develop and execute a comprehensive CPAC program down to the individual equipment operator.

4. Command Responsibility. The management and maintenance of assigned equipment is an inherent responsibility of command. Chapter 4 of MCO P4790.1 outlines Commanding Officer's responsibilities for the management, proper employment, and maintenance of all equipment assigned to, or on temporary loan to their accounts. Reference (a) further identifies Command as the single most important element of maintenance management. It is the commander's interest, organization, policies, and procedures which will define the success of the CPAC program.

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1001. DEVELOPING A CPAC PROGRAM

1. CPAC program development should occur no differently than any other maintenance or maintenance management related program. Reference (a) should serve as a model for CPAC program development. Figure 1-1 on page 1-14 of reference (a) is a superb template around which to design a CPAC program. A successful CPAC program will be built around the elements of Command, Resources, Production, and Information.

2. Implementation. As with the implementation of any new program, an organization cannot map where it is going unless it knows the current status of its equipment. A base line needs to be established to identify the extent of equipment corrosion in order to determine its priority of work and to also determine the best manner in which to execute the CPAC program. The base lining effort is best accomplished by a thorough, one hundred percent inspection of the organization's equipment. Once Limited Technical Inspections (LTI's) have been completed the equipment should then be categorized per paragraph 1001.3. Accordingly, all 2d MAW organizations will conduct LTI's on unit ground equipment to determine the extent of corrosion. This process is to be repeated annually on or as near as possible to the anniversary date of the initial base lining effort.

3. Corrosion Categories. Reference (b) lists a corrosion categorization system that contains three numeric designated categories for the Marine Corps. 2d MAW has adopted a five-category system that allows units to also categorize equipment that requires little or no spot painting. Those corrosion categories and their definitions are depicted in figure 1-1.

4. Training. Once the CPAC program has been established, a comprehensive training plan must then be developed and implemented in order to ensure success. Training can be accomplished in many ways such as classroom instruction, hands-on practical application, and instruction by outside experts. Per paragraph 4002.1, Marines should also receive training on the hazards of CARC and how to protect themselves. All of the above should be employed in order to achieve a balanced and effective training program. Classroom training alone will not achieve the desired level of expertise among an organization's Marines. Also, the organization's Maintenance Management Officer (MMO) must ensure CPAC training is included in the unit

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training plan along with other maintenance and maintenance management related training topics. CPAC training must be documented.

5. Standard Operating Procedures (SOP). The key to continuity of the CPAC program is having comprehensive SOP(s), Desktop Procedures, and Turnover Folders. All Group Commanders who own ground equipment will create and maintain a Corrosion Prevention and Control SOP for their respective units. Organizations may use this SOP supplemented with unit policies and procedures or they may choose to create their own. Which ever method is selected it must cover CPAC procedures in sufficient detail to ensure continuity of program execution when key Marines leave the organization. Turnover folders are required for all CPAC program coordinators. Other personnel involved with the CPAC program will maintain at a minimum desktop procedures.

1002. DESIGNATIONS AND ASSIGNMENT OF CPAC PROGRAM COORDINATOR

1. Focus of effort is a critical component to success in the fight against corrosion. While corrosion control is not a new concept to the Marine Corps, we live in an age where new CPAC technologies, products and procedures are developed and emerge on a constant basis. Given the operational tempo and every day maintenance challenges of 2d MAW units, it is imperative that the individual units keep pace with these new developments. Additionally, as new technologies, products and procedures are adopted, a mechanism must be put in place to ensure that these new tools in the corrosion fight are employed in a consistent manner across the scope of an organization's CPAC effort.

2. In order to ensure the necessary focus of effort is applied to ground corrosion control programs, 2d MAW units at all levels will assign in writing a SSgt or above the collateral duty of CPAC program coordinator. He/she will be responsible for coordinating the organization's CPAC effort and will further act in a Quality Assurance (QA) role to ensure the program is uniformly executed across the scope of the organization's corrosion control and maintenance effort.

1003. INFORMATION RESOURCES

1. There are many sources of information regarding corrosion control and associated tasks. Many of these information resources take the form of Marine Corps/Army/DoD Orders,

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Technical Manuals, and Technical Bulletins. Other information resources may include commercial technical manuals and bulletins; civilian-authored reference books; and scientific and informational Web Sites. Marines involved in the corrosion prevention fight should not limit themselves to one source of information and should continually seek the most up-to-date source of CPAC information. The list below is not intended to be all-inclusive, but provides a starting point for building a corrosion control library that will support an organization's CPAC Program.

a. MCO P4790.2. MIMMS Field Procedures Manual. This manual establishes policy and procedures for management of Marine Corps ground equipment maintenance. It provides the basic outline for all maintenance management and maintenance related programs.

b. MCO P4790.18. Corrosion Prevention and Control Program. This order publishes policy and establishes the CPAC program for Marine Corps tactical and ground support equipment. It also assigns duties and responsibilities required to accomplish the objectives of the program.

c. MCO P5100.8. Marine Corps Occupational Safety and Health Program Manual. This order provides policy and assigns responsibility for the administration of the Marine Corps Occupational Safety and Health (OSH) program.

d. TM-4700-15/1. Ground Equipment Record Procedures. This manual instructs users how to properly fill out forms and records associated with ground equipment. This includes such forms as SL-3 inventories, equipment record jackets, and Product Quality Deficiency Reports (PQDR's).

e. TM-4750-15/1. Painting and Registration Markings for Marine Corps Combat & Tactical Equipment. Describes camouflage paint patterns for ground equipment. Discusses methods for cleaning and preparing surfaces prior to painting, application procedures for Waterborne Camouflage Coating (WBCC), and procedures for marking and camouflaging equipment.

f. TM-4795-12/1. Organizational Corrosion Prevention and Control Procedures for USMC Equipment. Describes techniques, procedures and products that shall be used at the organizational level of maintenance to fight the corrosion of equipment. This publication is available on TM-4795-CD, PCN: 17547950000.

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g. TM-4795-34/2. Corrosion Prevention and Control.
Describes techniques to be used at the organizational level to fight the corrosion control battle. It includes rust proofing and underbody coating procedures for tactical vehicles and engineering equipment. This publication is available on TM-4795-CD, PCN: 17547950000.

h. The USMC CPAC web site is also a valuable source of corrosion control information. This web site requires a password for access. Instructions for obtaining a password are contained on the web site. Users can access the CPAC web site through the Marine Corps Systems Command (MARCORSYSCOM) web site at www.marcorsyscom.usmc.mil. Once accessing the MARCORSYSCOM web site, click on "SYSCOM Organizations" then click on "Corrosion Prevention and Control (CPAC)" at the bottom of the page. Users should then click on "Request for Access" and follow the directions to obtain an access password.

1004. RECORDS AND REPORTS

1. Accurate historical information is essential to any base lining and analysis effort. References (a) and (d) provide guidelines and procedures for maintenance and maintenance management related equipment records. Commodity managers are responsible for ensuring CPAC records and reports are accurate and are documented per reference (d).

2. All 2d MAW organizations will submit the results of their annual CPAC program equipment inspection, hereafter referred to as "Annual CPAC Equipment Report", to the Commanding General, 2d MAW (G-4/MMO), via their respective Group. The annual CPAC equipment report will be due no later than the last day of the third quarter of the fiscal year (30 June) in the format reflected in Appendix A. The inspection may be accomplished anytime during the current fiscal year prior to that date.

3. II MEF requires MSC's to provide them a C3 requirements report during the third quarter of each FY. To obtain this data Groups are required to submit projected C3 requirements for the next two Fiscal Years (FY); for example, projected C3 requirements submitted in November of 2003 (FY-04) would reflect requirements for FY(s) 2005 and 2006. The II MEF CPAC coordinator will request C3 requirements data from 2d MAW via message when the information is required.

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1005. INTERNAL REVIEWS AND INSPECTIONS

1. Paragraph 4007 of reference (a) provides guidance concerning inspections and their value to the Commander and should be used as a template for CPAC program internal reviews/inspections. Periodic internal reviews/inspections provide the commander a snap shot of whether the organization's programs, policies, practices, and staff are meeting the Commander's expectations and goals. Internal reviews/inspections further provide the Commander a "scorecard" to measure how the organization is performing relative to the benchmarks set by that organization.
2. 2d MAW organizations at the battalion/squadron level will incorporate CPAC program provisions into their internal inspection program using this order and the inspection checklist contained in Appendix B.
3. Commodity inspectors assigned to the 2d MAW Supply Maintenance Analysis Team (SMAT) will inspect their commodity area during scheduled SMAT/CGI inspections to ensure units have a sound CPAC program in place. They will also evaluate equipment to determine if it is free of corrosion and that spot/touch up procedures are effective. Unit MMO's must ensure that CPAC internal inspections are conducted and documented in accordance with WgO P4790.8 paragraphs 5001.1 and 5001.4.

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CATEGORY	DEFINITION	GOAL
1	PEI requires little or no corrosion repairs. Is in the best condition with regard to corrosion.	The goal at this level is to maintain the PEI as a category 1.
2	PEI requires surface preparation and spot paint at the operator and/or organizational level.	The goal of this effort should be to return the PEI to a category 1.
3	Correction of corrosion requires maintenance performed by qualified mechanic/technician beyond the operator level. Example: Spot painting has arrested the corrosion, but the equipment requires paint, blast, and undercoating. Must be scheduled and inducted into the C3 program as quotas become available.	The goal of this effort is to immediately induct the end item into the C3 program so that it will return to the unit in a category 1 condition. (Category 4 & 5 PEI's will be inducted before category 3 items)
4	PEI requires paint, blast, and undercoating with minor bodywork (e.g., replacement or repair of components such as doors, fenders, or battery boxes due to corrosion). Must be scheduled and inducted into the C3 program as quotas become available.	The goal of this effort is to immediately induct the end item into the C3 program. (Category 5 PEI's will be inducted before category 4 items)
5	Includes everything listed in category 4, plus component removal required to arrest and treat corrosion. Must be scheduled and inducted into the C3 program as quotas become available.	The goal of this effort is to immediately induct the end item into the C3 program. (Category 5 PEI's will be inducted into the program first)

Figure 1-1--Definition of Corrosion Categories

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CHAPTER 2

CORROSION PREVENTION AND CONTROL MEASURES

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CHAPTER 2

CORROSION PREVENTION AND CONTROL MEASURES

2000. INTRODUCTION

1. Corrosion control starts with prevention. Prevention starts with the individual equipment operator. All too often in the past, corrosion control has been viewed as a "maintenance function." If corrosion on an item of equipment has reached the point where the item must be turned into the supporting maintenance section for corrective action, it is too late and our CPAC efforts have failed. The equipment operator is the first line of defense in the battle against corrosion. Reference (f) provides detailed procedures and instructions to be employed in achieving CPAC. This chapter only summarizes the detailed information contained in reference (e), which must be used as the CPAC standard in all 2d MAW organizations.

2001. SPOT/TOUCH UP PAINTING

1. The commander is responsible for ensuring that spot/touch up painting of T/E assets is completed. The CPAC coordinator normally manages this process with close oversight by the unit MMO. Per reference (e), the following procedures apply to spot/touch up painting at the organizational level:

a. Chemical Agent Resistant Coating (CARC) is the only authorized paint for spot/touch up painting.

b. Spot/touch up painting with a brush or roller is the only authorized forms of application of CARC by 2d MAW units.

c. Spot/touch up painting outside or indoors in well-ventilated areas does not require respiratory protection when CARC is applied in quantities of 1 quart or less. (Note: the application of CARC with a brush or roller is not normally applied in sufficient quantities to require medical surveillance).

d. When applying more than 1 quart of CARC paint at a time an organic vapor respirator is required.

2. Site Designation. Commanders should designate an outside site whenever possible for the purpose of conducting CARC spot/touch up painting. Consider permanent sites away or upwind

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from personnel or heavy vehicle traffic areas. Do not locate sites on or near natural waterways.

3. Equipment Preparation. Units sanding, grinding, or chipping old CARC paint must do so in compliance with references (e) and (f).

2002. CLEANING, INSPECTION AND PRESERVATION PROCESS

1. CPAC is best achieved by equipment operator application of the three-step "CIP" process as depicted below:

Cleaning _____ C
Inspection _____ I
Preservation _____ P

a. Cleaning. Removing rust, oxidation, dirt, salt and other contaminants from the surface of metal is the first step in the CPAC process. Cleaning procedures depend on the type of material to be cleaned (plain steel, stainless steel, aluminum alloy, composite, rubber, etc.), the severity of corrosion, and availability of cleaning equipment and materials.

b. Inspection. Thorough inspection of equipment is the second step in the CPAC process. Equipment operators must assess the material condition of their equipment: look for corrosion, coating damage, trapped water, and contaminated surfaces. The frequency of corrosion inspection should increase with the operational tempo; severity increases in environmental conditions, and importance of the component/vehicle.

c. Preservation. Preservation of a clean, corrosion-free surface is the third and final step of the CPAC process. Preservation helps to protect equipment and parts by providing coatings, anti-seizes, sealant, and water displacing and corrosion preventive compounds. Preservatives should be used after equipment cleaning, before and after deployment, and when an extended period of equipment storage is anticipated (unless dehumidified storage is planned). Paints such as Water Reducible Chemical Agent Resistant Coating (WRCARC) and their epoxy primers are certainly part of a preservation plan. These coatings provide long-term protection and should be used when possible instead of corrosion preventive compounds, which only provide short-term protection.

SOP FOR GROUND CPAC PROGRAM

2. The importance of thoroughly cleaning equipment cannot be overstated. The cleaning process must be employed on a consistent basis both while in garrison and especially after field or amphibious operations. The freshwater rinse is one the simplest and most effective cleaning methods employed in CPAC. The fresh water rinse should occur periodically when in garrison and as soon as practical after field operations, seawater or salt spray exposure. When using a pressurized hose to clean equipment, care must be taken not to spray electrical and communications components at full pressure. Instead, use a fine spray on components of this type, or clean them by hand. Special care must also be taken when cleaning equipment to ensure mud, dirt, and debris are completely removed from chassis, crevices and other areas of equipment where these types of material can build up. Additives are available for use with freshwater to help neutralize salt more efficiently. However, not all work well, and some even accelerate corrosion on metals such as aluminum. Care must be taken when using additives during freshwater rinsing. Understandably, when embarked on amphibious or other ships or when in the field, freshwater may not be available in the amounts necessary. This increases the importance of other corrosion control measures such as coating preservation and the use of corrosion preventive compounds.

3. Thoroughly sealing equipment to keep water and moisture out is also a simple and effective corrosion control measure that can be employed for items of equipment such as communications equipment, engine and transmission housings, and other types of closed components. When it is impractical to seal an item, or when the chance of obtaining an effective seal is low, every effort must be made to drain trapped water at the lowest point in the equipment. If the design of the equipment makes it susceptible to water collection and retention and does not provide for a means of draining trapped water at the lowest point, a Product Quality Deficiency Report (PQDR) should be submitted in accordance with the current edition of MCO 4855.10. Mating surfaces, switches, covers, and holes for fasteners are places where sealant should be applied. The choice of a sealant depends on where and how it will be used, the types of fluids it may come in contact with, the operating temperature of the sealed component, and the amount of routine maintenance normally performed inside the component. Sealing procedures will normally be accomplished at the organizational level of maintenance or higher.

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4. Protection of the equipment from the weather is another way to prevent corrosion, prolong service-life and reduce maintenance requirements. Keeping vehicles or equipment stored under simple open-sided covered structures can reduce exposure to rain and direct sunlight and acts to preserve the integrity of corrosion coatings as well as preventing water from accumulating in equipment. Tarps, canvases or other materials can also be used to protect equipment.

2003. CORROSION CORRECTIVE MAINTENANCE AND REHABILITATION

1. Organizational Level Corrective Maintenance. Despite best efforts, equipment will corrode and require some level of maintenance or rehabilitation. The equipment operator and the organizational level maintainer accomplish organizational level corrective maintenance relative to CPAC. Equipment operators remove rust and corrosion and apply protective coatings through spot painting and application of other anti-corrosion compounds. The organizational level maintainer may also remove rust and corrosion that is more extensive and requires the use of powered grinders. The Corrosion Control Tool Kits (TAMCN K7910, NSN 4130-01-461-5696) have been fielded to some squadrons. These kits are Type II TAMCN allowance items and may be purchased by unit commanders in higher quantities than were initially issued. The Corrosion Control Tool Kit is an accumulation of tools and miscellaneous items, produced by a variety of manufacturers, that are used to prepare metal surfaces for protective coatings, dependant on the type metal, and the item being protected. The items in this kit comply with Environmental Protection Agency (EPA) requirements for this type equipment for handling Hazardous Materials. The kit consists of a plastic container, electric or pneumatic grinders, vacuum cleaner, needle scaler, and hazardous waste disposal bags. The vacuum cleaner evacuates dust, paint chips and particles from the operating surface area into the hazardous material disposal bags contained within the plastic container. Other power tools, not components of the Corrosion Control Tool Kit, may also be used providing proper Personal Protective Equipment (PPE) is used/worn. The organizational level maintainer may also replace certain corroded components, fasteners, and sheet metal components providing these type components are within authorized echelons of maintenance found in applicable technical manuals and publications.

SOP FOR GROUND CPAC PROGRAM

2. Equipment corroded to the point where it exceeds organizational level repair capabilities will be evacuated to the C3 facility for corrective maintenance or rehabilitation. The C3 facility tactically performs intermediate level corrosion corrective maintenance and rehabilitation.

2004. SPECIAL CONSIDERATIONS FOR DEPLOYED OPERATIONS

1. As mentioned above, deployed operations pose special challenges relative to CPAC. The deployed environment, lack of facilities, lack of time and the non-availability of freshwater for wash downs all contribute to the CPAC challenge. These challenges can sometimes be overcome by careful pre-deployment and post-operation maintenance recovery planning.

2. Careful pre-deployment preparation of equipment for the corrosive environment is also of paramount importance in preventing or mitigating corrosion while deployed. Appendix B of reference (f) provides a detailed checklist of pre, during and post deployment actions that should be followed by deploying organizations.

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CHAPTER 3

II MEF CORROSION REHABILITATION PROGRAM

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CHAPTER 3

II MEF CORROSION REHABILITATION PROGRAM

3000. INTRODUCTION

1. When preventive measures fail and corrosion damage occurs to equipment, corrective maintenance action must be taken. Corrective maintenance actions occur at both the organizational and intermediate levels of maintenance. The C3 Contractor at Cherry Point, Camp Lejeune and Beaufort, SC carries out intermediate level corrective maintenance for corrosion-damaged equipment. New River units will coordinate and induct their equipment into the Camp Lejeune facility.

2. The primary goal of the II MEF C3 program is to provide a more time effective and lower cost alternative to transporting equipment to the C3 facility at Marine Corps Logistic Bases, Albany, Georgia. The II MEF C3 facility accomplishes its mission by:

a. Minimizing maintenance cycle time for equipment inducted for rehabilitation.

b. Providing quality intermediate corrosion support.

c. Providing technical advice to 2d MAW units on matters related to corrosion protection and prevention.

3. The C3 facility repairs equipment and vehicles from all commodities; communications, engineers, motor transport, ordnance, nuclear biological chemical, and general supply. The facility repairs body components that would normally be replaced by restoring them to their original specifications. This process not only saves the owning unit precious maintenance and operational funds, but also enables owning unit maintenance personnel to concentrate their efforts on other maintenance tasks. The C3 facility can usually make the necessary repairs and return the equipment to "like new" condition even when corrosion damage is extensive.

4. The C3 contractor is responsible for supervising and executing all contract work conducted at the C3 Facility. The civilian contractor provides all necessary labor, management, supervision, tools, and equipment.

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5. All maintenance performed at the C3 facility will be conducted in accordance with the Statement of Work (SOW) appendix in the corrosion contract. The contract is on file at the II MEF G-4/MMO office.

3001. II MEF C3 FACILITY

1. The C3 induction phase falls under the administrative operational control of Combat Service Support Detachment-21, Combat Service Support Detachment-23 and the II MEF C3 Coordinator at 2d Force Service Support Group (G-3).

2. C3 Facility Quality Assurance Inspectors: Quality Assurance Inspectors perform the bulk of inspections on equipment both in the active maintenance phase and upon completion of corrosion rehabilitation work. The Contractor's Project Manager will notify the C3 coordinator when equipment is ready for pickup. The inspectors will ensure work meets the standards set forth in the SOW and applicable orders or directives related to specific items of equipment.

3002. CORROSION REHABILITATION NOMINATIONS. The amount of equipment that may pass through the C3 facility in a given Fiscal Year is predicated on the amount of CPAC funding provided to the II MEF C3 Coordinator by the II MEF G-4/MMO. Once the funding line has been established, the 2d MAF G-4/MMO will allocate corrosion rehabilitation quotas to each group on a quarterly basis throughout the fiscal year. Nominations are due to the 2d MAF G-4/MMO by close of business every Friday for items that are to be inducted on Monday of the following week. Nominations may be submitted via electronic mail in the format listed in Figure 3-1.

3003. EQUIPMENT PREPARATION

1. Equipment preparation requirements. The equipment owner is responsible for preparing equipment for induction into the C3 facility. Equipment preparation requirements are as follows:

a. All equipment must be operational. Motorized equipment must be able to move under its own power and brakes must be fully operational. If the equipment malfunctions in the repair cycle, the owning unit will be contacted to make repairs.

b. All 1st echelon preventative maintenance (except oil can maintenance) will be performed prior to induction. Units must ensure the equipment has no leaks or seeps. The equipment must

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be clean to include suspension; frame and the underside of engine covers must be free of grease and oil.

c. Fuel tanks for all motor vehicles and heavy equipment must be 3/4 full.

d. All generators, welders, and air compressors must be empty of fuel.

e. Fuel carrying equipment must have a current gas free engineering initial testing certificate. This includes fuel sixcon tanks, M970 Semi-Trailers, and the Aviation Refueling Capability (ARC) truck.

f. All SL-3 and Operational Vehicle Mobile (OVM) items must be removed prior to induction including: all canvas, canvas framing, exterior straps, tie downs, spare tires, and seat cushions.

g. All radio-related items must be removed from Communications Vehicles.

h. The C3 Facility will require access to the inside of all shelters and containers. Contents have to be removed for security purposes prior to induction into the C3 Facility.

i. Customers inducting equipment with special or unique applications will provide a knowledgeable technician or working party to ensure all special requirements applicable to the equipment are addressed during the corrosion rehabilitation process. Some examples of equipment falling into this category are radar and satellite dishes.

3004. READINESS REPORTING

1. LM-2 Remarks. Readiness reportable equipment inducted into the C3 facility must be identified on the units LM-2 report with the appropriate RM-4 remarks per WgO P4790.8_, paragraph 2007.

2. Deadlined or Inoperative Equipment.

a. Readiness reportable equipment evacuated to a C3 facility for work conducted outside of 50 miles of the owning unit location will report the equipment as not mission-capable (deadlined) both in ATLASS and on the unit's LM-2 report.

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b. Readiness reportable equipment inducted into the C3 facility identified as a "Component", regardless of distance, will be reported as not mission-capable (deadlined). For example; the HMMWV portion of a AN/MRC-145.

c. In the event an item of equipment becomes deadlined during the corrosion rehabilitation cycle, the customer's unit will be contacted to take whatever actions are necessary to repair the item. If equipment cannot be repaired on site, it will be removed from the rehabilitation cycle.

(1) Units will complete all administrative actions required to close out the C3 WON in ATLASS and induct the equipment into the maintenance cycle as non-operational (deadlined).

3005. MAINTENANCE CLOSE OUT PHASE

1. Customer Notification. Once corrosion coating and repairs have been applied the C3 facility will notify the customer that their equipment is ready for pick up. Due to limited stowage space, every effort must be made by the customer to pick up their equipment in a timely manner. Barring inclement weather or operational demands beyond the customer's control, the customer has 2 working days to pick up their equipment.

2. Customer Service Card. When the owning unit picks up their equipment, a "Customer Service Card" will be provided for each item repaired. The Customer Service Card allows the owning unit to provide feedback to the C3 facility on their satisfaction with the quality of work and identify any discrepancies found. The Customer Service Card will be completed returned to the local C3 facility.

3. Recording Date Painted. Reference (d) requires that equipment records reflect the date an item of equipment was painted with CARC. Units will accomplish this in ATLASS by annotating in the "Discrepancy Block" of the C3 WON before it is closed that the item was painted with CARC and the date so painted; for example: "Painted with CARC 1 May 2003".

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3-6

UNIT HEADING

4795
Code
Date

From: Group Commander (G-4/MMO)
To: Commanding General, 2d MAW (AC/S, G-4/MMO)
Subj: LOCAL C3 NOMINATIONS TO BE TURNED INTO CSSD-21 ON
2 JUNE 2003
Ref: (a) WgO P4750.4_

1. Per the reference, the following item(s) are nominated for induction into the local C3 Rehabilitation Facility:

<u>Owning</u>			<u>USMC/Ser</u>	<u>Corrosion</u>	<u>Last</u>
<u>Unit Name</u>	<u>TAMCN</u>	<u>Nomenclature</u>	<u>Number</u>	<u>Category</u>	<u>C3 Date</u>

2. Owning unit Point of Contact is _____ at telephone number DSN_____.

//SIGNATURE//

Figure 3-1--Sample Format of Local C3 Nominations Letter

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CHAPTER 4

OCCUPATIONAL SAFETY AND HEALTH CONSIDERATIONS

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MATERIAL SAFETY DATA SHEETS	4002	4-4
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OCCUPATIONAL SAFETY AND HEALTH CONSIDERATIONS

4000. INDIVIDUAL SAFETY

1. The health and safety of our Marines is of paramount importance and takes priority over all other garrison considerations. Reference (c) is the Marine Corps Occupational Safety and Health Program Manual and will be strictly followed. CPAC actions have the potential to expose Marines to hazardous materials that can adversely affect their health and safety if proper safeguards are not followed. Although safety is paramount, past concerns for the health of our Marines has resulted in unnecessary prohibitions regarding CPAC actions such as "rust busting" and spot painting.

2. The health concerns presented from CARC paints, associated primers, and solvents are considerable. Strict adherence to safety precautions is necessary to protect our Marines. It is essential that personal protective equipment and work place monitoring programs are in place to ensure that this process is safe. When personnel using CARC paint are properly protected, no adverse health effects such as rashes or sensitivities have been detected in accordance with reference (e).

3. The Naval Hospital's Industrial Hygienist can provide technical expertise on the monitoring and spill response of hazardous material and hazardous waste (HM/HW) that pertain to CARC paint. They can also provide assistance in respirator and health monitoring training.

4001. PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. Personal Protective Equipment requirements become more stringent when powered tools and spray-painting operations are performed. Spray painting of CARC paint is not permitted at the organizational level of maintenance and may only be performed at the C3 Contractor Corrosion Facility located at Camp Lejeune, Cherry Point, and Beaufort, SC. For additional information regarding use of powered tools for corrosion removal see Chapter 2, Paragraph 2003.2.

2. Ensure that adequate personal protective equipment (i.e. coverall, rubber gloves, and goggles are on-hand for safety measures. Appendix A of reference (f) lists additional PPE.

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3. All 2d MAW units that perform any CARC removal or painting will have at least a portable 16-gallon eyewash station at the paint site.

4002. MATERIAL SAFETY DATA SHEETS (MSDS)

1. The unit C3 coordinator needs to ensure that the unit's Hazardous Material/Hazardous Waste (HM/HW) Coordinator is notified of any CARC HM/HW maintained in the unit. Have available MSDS for each solvent or other hazardous materials used on-hand in the shop. The MSDS will list any special precautions or procedures needed, as well as first aid measures. The unit's C3 coordinator should ensure that all personnel receive documented quarterly training on the hazards of CARC and on how to protect themselves.

2. Ensure that all policy and procedures for handling HM/HW are in accordance with reference (h).

4003. CARC PAINT SPILL/LEAKAGE

1. Any CARC paint spill/leakage will be immediately reported to the unit HM/HW coordinator. Personnel that conduct spot/touch up painting will be trained in procedures for containment and clean up of CARC paint. All spill/leakages will be cleaned up in accordance with reference (h).

2. Disposal of HM/HW will be coordinated with the unit HM/HW coordinator and in accordance with reference (h).

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APPENDIX A

ANNUAL CPAC EQUIPMENT REPORT FORMAT

TAMCN	NSN	NOMENCLATURE	SERNR	AAC	UNIT DESCR	MSC	REMARKS	CORR CAT	CARC DATE
B0391	393001269493	TRUCK, MATERIAL HANDLI	560018	M00272	MWSS-272	2d MAW	WBCC	1	99274
B0443	381001320192	CRANE, BASIC UNIT, TR	569802	M00272	MWSS-272	2d MAW		3	
B0443	381001320192	CRANE, BASIC UNIT, TR	569806	M00272	MWSS-272	2d MAW		3	
B0446	381001165064	CRANE, WHEEL MOUNTED	568774	M00272	MWSS-272	2d MAW		4	
B0446	381001165064	CRANE, WHEEL MOUNTED	568780	M00272	MWSS-272	2d MAW	WBCC	2	98091
B0446	381001165064	CRANE, WHEEL MOUNTED	568806	M00272	MWSS-272	2d MAW		2	
B0635	623001170140	FLOODLIGHT SET, ELEC	86S003	M00272	MWSS-272	2d MAW		2	
B0635	623001170140	FLOODLIGHT SET, ELEC	86S029	M00272	MWSS-272	2d MAW		2	
B0635	623001170140	FLOODLIGHT SET, ELEC	86S185	M00272	MWSS-272	2d MAW		2	
B0635	623001170140	FLOODLIGHT SET, ELEC	86S429	M00272	MWSS-272	2d MAW		2	
B0635	623001170140	FLOODLIGHT SET, ELEC	86S432	M00272	MWSS-272	2d MAW		3	

HEADER INFORMATION KEY

1. TAMCN: Enter the Table of Authorized Material Control Number.
2. NSN: Enter the National Stock Number of item of equipment being reported.
3. NOMENCLATURE: Enter the Nomenclature of item of equipment being reported.
4. SERNR: Enter the serial number of item of equipment being reported.
5. AAC: Enter the Activity Account Code of the unit submitting the report.
6. UNIT DESCR: Enter the name of the unit submitting the report.
7. MSC: Enter the reporting unit's Major Subordinate Command.
8. REMARKS: Enter amplifying information such as type of paint or any other information that will aid the unit in analyzing the corrosion condition of its equipment.
9. CORR CAT: Enter the corrosion category code of the equipment-using figure 1-1 located in chapter 1.

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10. CARC DATE: Enter the last recorded date that the equipment was painted with CARC. This information can or should be found in ATCLASS II+ under the maintenance history screen for the specific serial number or may even be stenciled on the equipment. (Note: if date is stenciled on equipment ensure that date on equipment corresponds to a WON located in the maintenance history screen)

SUBMISSION REQUIREMENTS

The Annual CPAC Equipment Report will be compiled on a Microsoft Excel Spreadsheet using the above format and submitted via email to the 2d MAW G-4/MMO C3 Coordinator per guidance contained in paragraph 1004 of this publication.

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APPENDIX B

CPAC INSPECTION CHECKLIST

1. Has the unit developed a Corrosion Prevention and Control (CPAC) Program and is it effective? (WgO 4750.4A, Paragraph 1000.3)

Yes _____ No _____

2. Does the unit conduct 100% LTI's on all ground equipment annually to determine the extent of corrosion? (WgO P4750.4A, paragraph 1001.2)

Yes _____ No _____

3. Has the unit properly categorized the corrosion condition of its equipment? (WgO 4750.4A, Paragraph 1001.3)

Yes _____ No _____

4. Has the unit incorporated CPAC into its training plan? (WgO 4750.4A, Paragraphs 1001.4, 4002.1 and 4003.1)

Yes _____ No _____

5. Has the unit developed comprehensive CPAC Turnover Files and Desktop Procedures? (WgO 4750.4A, Paragraph 1001.5)

Yes _____ No _____

6. Has the unit assigned a CPAC Coordinator in writing? (WgO 4750.4A, Paragraph 1002.2)

Yes _____ No _____

7. Has the unit submitted results of its annual CPAC inspection to CG 2d MAW G-4/MMO? (WgO 4750.4A, Par 1004 and Appendix A)

Yes _____ No _____

8. Has the unit conducted CPAC internal reviews and inspections? (WgO 4750.4A, Paragraph 1005.2 and Appendix B; WgO P4790.8F, paragraph 5001.1 and 5001.4.)

Yes _____ No _____

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9. Is the unit only using authorized CARC paint products to perform spot/touch up painting? (WgO 4750.4A, Paragraph 2001.1a.)

Yes _____ No _____

10. Does the unit have a designated area for the purpose of conducting spot/touch up painting? (WgO P4750.4A, paragraph 2001.2.)

Yes _____ No _____

11. Does the unit update RM-4 remarks on the LM-2 report to reflect items currently in the C3 facility? (WgO P4750.4A, paragraph 3004.1.)

Yes _____ No _____

12. Does the unit combat deadline items inducted into the C3 facility when required? (WgO P4750.4A, paragraph 3004.2a&b.)

Yes _____ No _____

13. Does a review of the units CPAC program indicate that customer service cards are completed and returned to the local C3 facility? (WgO P4750.4A, paragraph 3005.2.)

Yes _____ No _____

14. Does a review of equipment records indicate that the unit is recording the date ground equipment was painted with CARC? (WgO P4750.4A, paragraph 3005.3.)

Yes _____ No _____

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APPENDIX C

CPAC EQUIPMENT INDUCTION INSPECTION FORM

LIMITED TECHNICAL INSPECTION - MOTOR TRANSPORTATION (4730)
 NAVMC 10284 (REV. 9-93) (EF) S/N: 0000-00-000-1000 U/I: PAD (100 SHEETS PER PAD)
 (PREVIOUS EDITIONS ARE OBSOLETE AND WILL NOT BE USED)

TYPE OF VEHICLE		(ID NUMBER)		UNIT ASSIGNED			SIZE		DRIVE																			
MANUFACTURER				MODEL		CHASSIS SERIAL NO.		YEAR OF MANUFACTURE		REGISTRATION NO.																		
CONDITION CODE										MILEAGE																		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB

GROUP	PART	SAISFACTORY	REPAIR	REPLACE	REWORK	COST	GROUP	PART	SAISFACTORY	REPAIR	REPLACE	REWORK	COST	BODY		YES	NO
01	ENGINE						12	TIRES						MINOR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02	CLUTCH						13	BRACKS						MODERATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03	EXHAUSTER						13	WHEELS						EXTENSIVE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03	FUEL PUMP						14	HYDRAULIC SYSTEM						EXTREME	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03	FUEL TANK						14	FRAMES						SANDBLAST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03	IGNITION SYSTEM						15	STEERING CONNECTIONS						STEAM CLEAN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	INJECTORS						15	SHOCK ASSEMBLIES						UNDERCOAT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	INJECTOR PUMP						16	SPRINGS						SKID FAB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Oil Filter Changer						16	SENDER						REDECKING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Oil Filter						17	HOOD						RUST INHIB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04	WATER & TANK PUMP						17	FOOT						PAINT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05	WASH & WATER PUMP						18	WHEELS						SPOT PAINT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05	WASHER						18	CAR						SPECIAL REMARKS			
05	BATTERY						18	FLOOR									
05	BEARING						18	GLASS									
05	CONVEYER						18	HYDRAULIC SYSTEM									
05	LIGHTS						18	EXIT & ENTRANCE									
05	STARTER						20	WIND									
05	WHEELS						21	FRONT LEAD SEAL									
05	WINDSHIELD						21	WINDSHIELD									
07	TRANSMISSION						22	VIEWER ACCESSORIES									
08	TRUCKER						22	CARGO									
09	DRIVE SHAFT						22	METERING									
10	FRONT AXLE						27	ARMAMENT									
11	INTERMEDIATE AXLE						28	PAINT									
11	REAR AXLE						29	TRUCK WHEEL									
12	PARKING BRAKE SYSTEM						30	DRIVE SHAFT									
12	WINDSHIELD SYSTEM						31	WHEELS BOX									

DEFECT REMARKS

DATE		MECHANIC SIGNATURE	
ACTIVITY		DATE	SIGNATURE OF MAINTENANCE OFFICER