

HEADQUARTERS
1st Marine Aircraft Wing
Fleet Marine Force Pacific
FPO, San Francisco 96602

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16 May 1972

WING ORDER P4790.2

From: Commanding General
To: Distribution List

Subj: Standing Operating Procedures for Aircraft Maintenance

Ref: (a) OPNAVINST 4790.2

Encl: (1) LOCATOR SHEET

1. Purpose. To publish a comprehensive guide for the management, administration, supervision, accounting, and reporting of aircraft and aircraft maintenance equipment within the 1st Marine Aircraft Wing.

2. Action

a. This Order applies to all 1st Marine Aircraft Wing reporting custodians of Naval Aircraft and their maintenance support activities.

b. This Order is published to supplement reference (a) and other pertinent higher command directives by setting forth 1st Marine Aircraft Wing interpretation, programs, and procedures.

c. In the event this Order is in direct conflict with procedures prescribed by higher authority, the latter will apply and this Headquarters (Aircraft Maintenance Officer) will be advised.

3. Information. Changes to this Order will be promulgated as often as necessary to reflect policy/procedures/changes applicable to Aircraft Maintenance/Reporting/Records within the 1st Marine Aircraft Wing.

4. Certification. Reviewed and approved this date.

G. W. Morrison
G. W. MORRISON
Chief of Staff

DISTRIBUTION: "A" "B" plus 10 copies to each Squadron reporting or supporting Naval Aircraft.

1st MAW
TAB-T: WgO P4790.2, "SO for Aircraft Maintenance" 16 May 72
Jan. 1972

TAB-T

CHANGE NUMBER	DATE OF CHANGE	DATE RECEIVED	DATE ENTERED	SIGNATURE OF PERSON ENTERING THE CHANGE
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LOCATOR SHEET

Subj: Standing Operating Procedures (SOP) for Aircraft Maintenance

Location: _____
(Indicate the location(s) of the Copy(ies) of this publication)

Enclosure (1)

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

CHAPTER 1

INTRODUCTION

101. DESCRIPTION

1. This publication has been prepared by the Aircraft Maintenance Section, Wing G-4, for use by 1st Marine Aircraft Wing Aircraft Maintenance personnel. Official interpretation, methods and excerpts from directives issued by higher authority are contained herein to assist in the efficient and coordinated operation of 1st Marine Aircraft Wing Aircraft Maintenance Departments.

2. For purposes of expediency and to reduce the number of changes to this publication, only the basic number of referenced directives is used. It is recognized, however, that revisions/changes to referenced directives may have been made and it is these latest revisions that are applicable. This Headquarters will continually update this publication through periodic revisions. Revisions will be distributed as complete page changes and write-in changes will not normally be required. Although this method of revision presents additional effort by the originator, it presents an up-to-date, uncluttered publication for use by subordinate maintenance departments.

102. SCOPE OF COVERAGE

1. This publication is based upon and guided by instructions promulgated by senior echelons in the Aircraft Maintenance Chain of Command.

2. In the event an area of concern or doubt is not covered in this publication, attention to this area shall be directed to the G-4/AMO, 1st Marine Aircraft Wing to obtain a policy decision and inclusion herein.

103. CHANGES. Those subjects of common interest that will enhance the overall 1st Marine Aircraft Wing skills in aircraft maintenance and management should be given the widest dissemination possible. Therefore, changes, additions, or deletions to this publication are earnestly solicited and desired from all levels of aircraft maintenance. Change recommendations may be submitted in writing. Formal correspondence to effect a modification to this manual is not required and in the essence of expediency, not desired. Submit changes direct to G-4, Aircraft Maintenance Officer.

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CHAPTER 2

ORGANIZATION

201. MAINTENANCE DEPARTMENT OFFICER BILLET ASSIGNMENTS

1. Maintenance Department Officer Billet assignments will be made by Wing/Group/Squadron Special Order signed by the Commanding Officer concerned. Minimum assignments will be in accordance with Officer Billets established by OPNAV Instruction 4790.2. The supporting IMA Maintenance Officer will also be assigned as Group Aircraft Maintenance Officer.
2. Maintenance Mission and Tasks pertaining to officers assigned to the Maintenance Department Billets are set forth in OPNAV Instruction 4790.2. These duties are minimal and not intended to be an enclosure to energetic and effective additional personal contributions to the unit maintenance effort.
3. The responsibilities of senior SNCO's assigned to division billets in accordance with OPNAV Instruction 4790.2 shall be the same as the missions and tasks of their Division Officers but within the bounds of the enlisted ranks. Maintenance Department Officers and NCOIC's are directed to ensure they are completely familiar with OPNAV Instruction 4790.2 and the requisites of sound maintenance management.
4. An establishment, military or civilian, is only as good as the people managing, supervising, and working for it. All Officers and senior SNCO's are advised to ensure that they possess the attributes necessary to maintain traditionally high standards of maintenance through their technical knowledge, leadership abilities, management capabilities and reliability. It is also their mission to ensure effective training of their subordinates so that they are capable of accepting traditional responsibilities as they are promoted. It is the present training and knowledge gained that will control the caliber of leaders in the future of Aviation Maintenance.

202. DEPARTMENT ORGANIZATION

1. Aircraft Maintenance Departments will be organized in accordance with structures illustrated on pages 2-4 and 2-5 as applicable.
2. This structure will be adhered to except in cases wherein squadron mission precludes compliance. In the event the noted structure cannot be formed or refinements are advisable, a recommendation for change will be submitted to this Headquarters, (Attn: G-4/AMO).
3. Personnel assigned to each Division/Branch will be equitably divided into four (4) duty sections in so far as possible to ensure at least 25% of personnel are available in the event of contingencies. This system also provides platoon/company formations when required.

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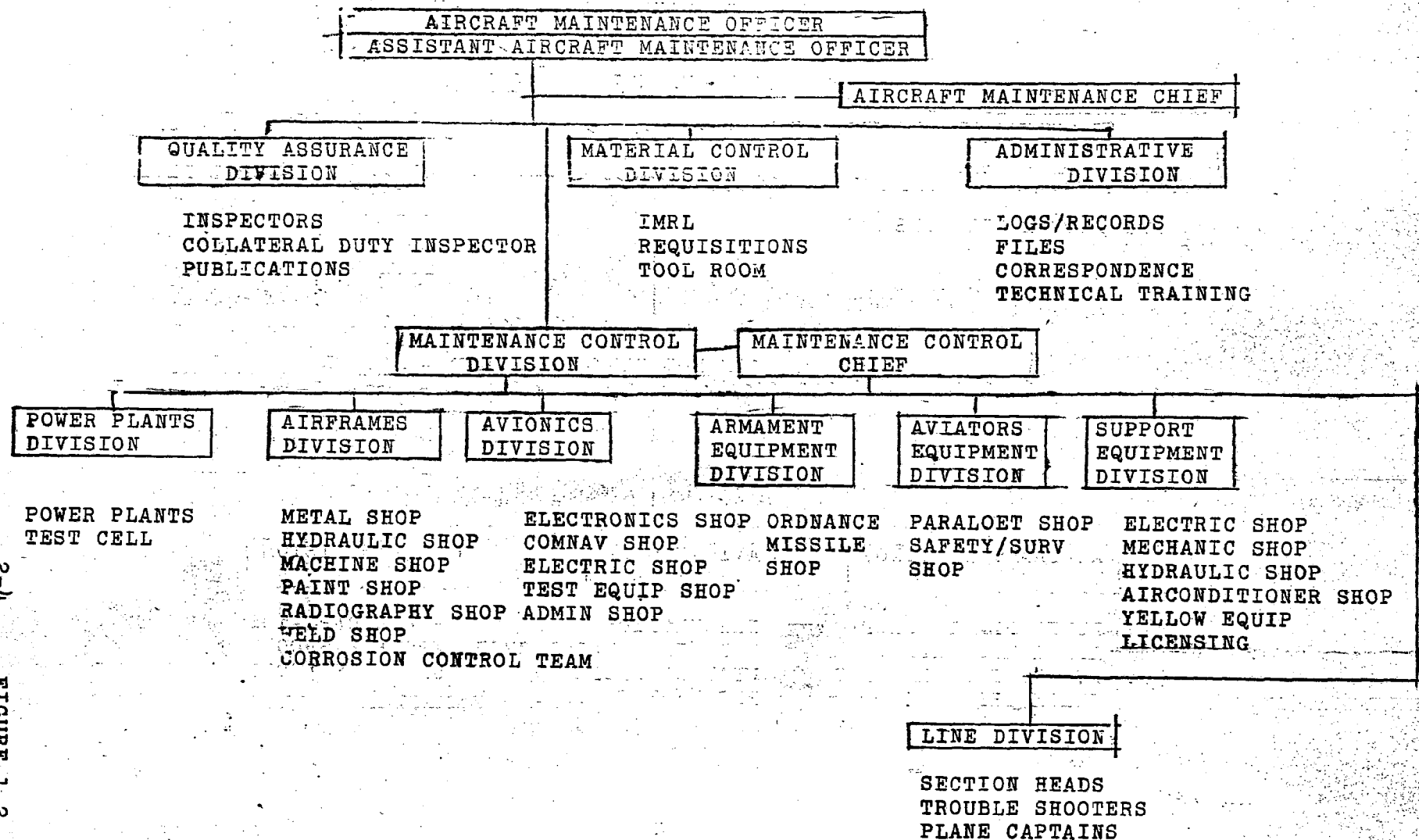
e. Perform salvage/shipment of damaged aircraft when requested by supported units or directed by this Headquarters.

f. Provide assistance in all fields of aircraft maintenance when beyond the capability/capacity of the supported operating unit and when in the interests of group aircraft readiness.

205. TURNOVER JACKETS AND DESK TOP PROCEDURES. Missions and tasks for personnel assigned to the Aircraft Maintenance Department are contained in Chapter 4 Volume I of OPNAV Instruction 4790.2. However, turnover jackets and desk top procedures in accordance with the instructions in FMFPAC Order 5210.3 will be maintained to familiarize replacement personnel with details pertinent to the local responsibilities not covered by OPNAV Instruction 4790.2.

206. PERSONNEL ASSIGNMENT

1. Officers in the primary 6002 and SNCO's in the 6000 and 6100 MOS fields, when reporting for duty, will be interviewed for recommended assignment by the Wing/Group Aircraft Maintenance Officer or his representative.



AIRCRAFT MAINTENANCE DEPARTMENT INTERMEDIATE ORGANIZATION CHART

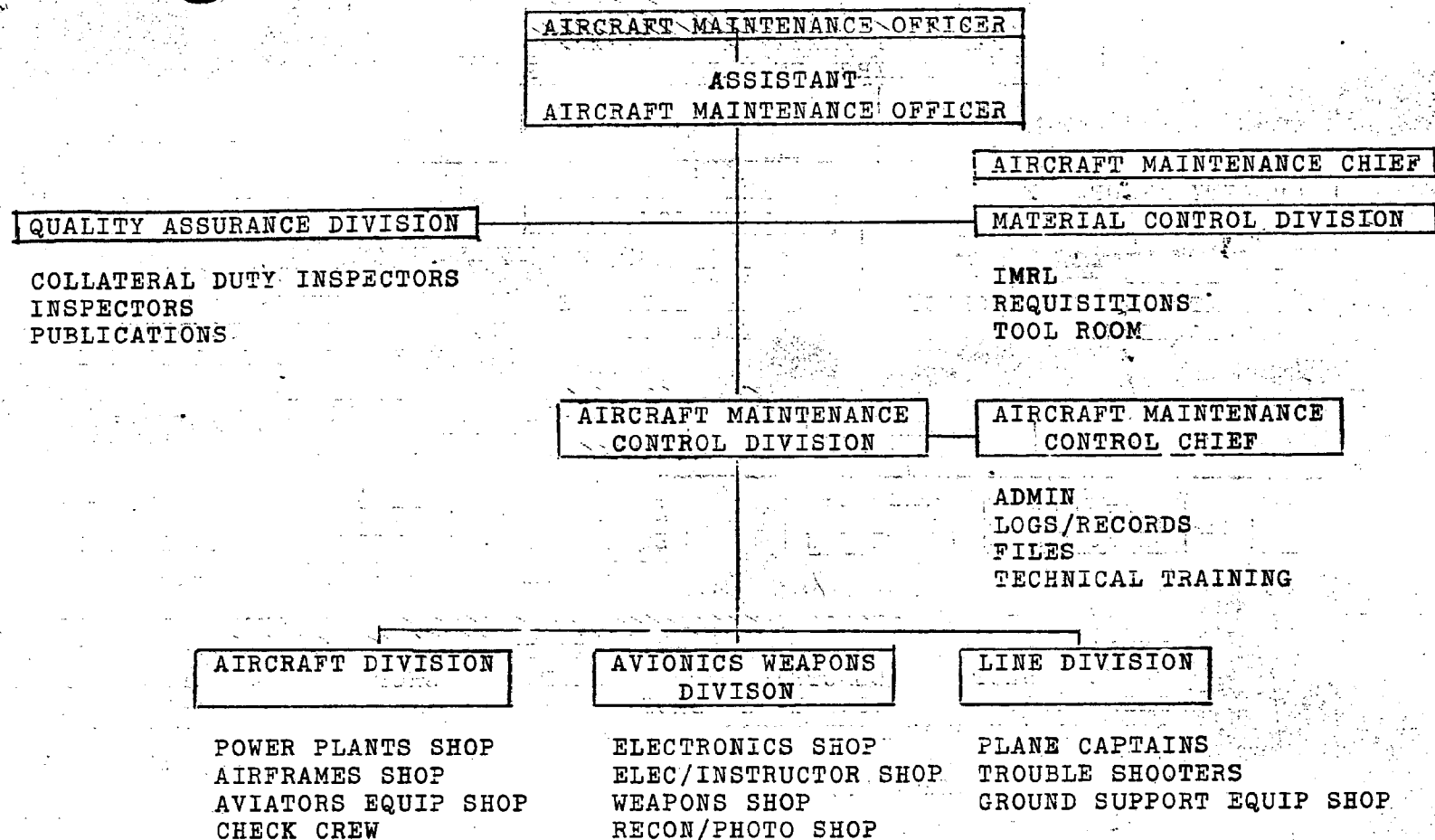


FIGURE 2

ORGANIZATIONAL MAINTENANCE DEPARTMENT ORGANIZATION CHART

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CHAPTER 3

GENERAL INFORMATION

301. NAVAL AIR SYSTEM COMMAND REPRESENTATIVE PACIFIC FIELD SERVICE REPRESENTATIVES

1. The duties of the NAVAIRSYSCOMREPAC Field Service Representatives assigned to the 1stMAW are:

- a. Provide technical support service.
- b. Provide material support assistance.
- c. Provide guidance on NAVAIRSYSCOM directives and reports.
- d. Provide field information to NAVAIRSYSCOM, ASO, and NAVAIRSYSCOMREPAC.
- e. Assist in _____ program.
- f. Trouble shoot special maintenance problems.
- g. Attend source coding and provisioning conference as directed.
- h. Monitor Disassembly Inspection Reports (DIR).
- i. Maintain liaison with contractors Service representatives.

2. NAVAIRSYSCOMREPAC representation assigned to 1stMAW may be contacted at extension 3372/4671, MCAS Iwakuni.

302. NARF FIELD TEAMS

1. BUWEPS Instruction 4710.9 and COMNAVAIRPAC Instruction 4720.6 govern NARF Field Team services.

2. Use of NARF Field Teams is limited to the incorporation of NAVAIRSYSCOM approved modifications, airframe changes/bulletins, and engineering repair.

3. NAVAIRSYSCOMREPAC, with the concurrence of COMNAVAIRPAC will arrange all work to be accomplished by NARF Field Teams.

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4. Periodic requests from reporting custodians to accomplish the modification are not required.
5. Emergency requirements will be processed on an "as occurring basis".

303. FLEET AIR WING PACIFIC REPAIR ACTIVITY CUBI POINT
(FAWPRA DET CUBI POINT)

1. Fleet Air Wing Pacific Repair Activity (FAWPRA DET) Cubi Point will provide P&E services and repair of aircraft that are beyond the local IMA capability. Upon P&E and determination that the FAWPRA DET Cubi Point Team can repair the aircraft, work will then be accomplished at a designated site.

304. REQUEST FOR PLANNER AND ESTIMATOR (P&E) SERVICES

1. COMNAVAIRPAC Instruction 5442.2 sets forth the instructions for P&E services which may be requested by the reporting custodian of the aircraft for aircraft damaged by accident, incident, corrosion etc.
2. The P&E requests may be submitted on the damage XRAY or by separate message. Group AMO and G-4, AMO must concur prior to the submission of the P&E request.

305. AIRCRAFT ACCIDENT/INCIDENT REPORTING

1. OPNAV Instruction P3750.6 will be utilized as the controlling directive in submitting accident/incident reports.
2. The Aircraft Maintenance Officer will lend all possible assistance to the AAR board in determining the degree of damage to the aircraft and ensuring the damage listed is complete and accurate.
3. Liaison between the reporting custodian of the damaged aircraft and the supporting IMA will be affected prior to requesting P&E, NARF/FAWPRA DET Cubi Point services to ensure the repairs cannot be accomplished locally by the IMA.
4. The reporting custodian Aircraft Maintenance Officer will ensure the required aircraft reports are submitted in accordance with OPNAV Instruction P3750.6 and COMNAVAIRPAC Instruction 5442.2.

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306. AIRCRAFT MAINTENANCE RADIOGRAPHY OPERATIONS

1. Only qualified aircraft radiographers will operate the XRAY equipment. A qualified aircraft radiographer is one who has successfully completed the Aircraft Maintenance Radiography course at Naval Air Technical Training Center, NAS, Jacksonville and is identified by 6044 MOS.
2. When a qualified aircraft radiographer is assigned to an aircraft Group, he will be assigned to the IMA.
3. NAVMED Instruction P5055 sets forth the medical requirements pertaining to aircraft radiographers.
4. It is the responsibility of each aircraft radiographer to ensure he complies with the mandatory periodic physical examinations.
5. The aircraft radiographer will ensure that all safety precautions are strictly adhered to during all radiographic operations. NAVAIR Instruction 13850.1 refers.
6. Aircraft Radiographers will maintain their proficiency as described in enclosure (1) of NAVAIR Instruction 13850.1.
7. The Radiographic Section of each IMA will maintain records of radiation exposure reading, exposure technique and retain processed radiographs for a period of six months.
8. When an X-RAY unit is out of commission it must be repaired as rapidly as possible. If it cannot be repaired, a new exchange unit will be requested in accordance with the instructions in NAVAIR Instruction 13850.1.

307. CERTIFICATION/RECERTIFICATION OF AIRCRAFT WELDERS

1. Certification/recertification of qualified and current aircraft welders is available at AIMD NAS Cubi Point R. P. Request for certification/recertification will be submitted through this Headquarters, (G-3).
2. Aircraft Welders (Class A) are required to requalify every six (6) months.
3. Class A welders may weld on all aeronautical equipment and items manufactured from the group(s) of alloys for which they have passed the applicable tests.
4. Certified welders 6043 MOS field will be assigned to the supporting IMA in order to maintain their proficiency and to provide required support to the operational squadrons of the Group.
5. Chapter 12 OPNAV Instruction 4790.2 and NAVAIR Instruction 13100.2 lists the requirements for recertification of aircraft welders.

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308. SECURITY OF PILFERED AIRCRAFT OR EQUIPMENT

1. In the event an aircraft, engine, aviation equipment and/or components of these items show evidence of having been broken into, sabotage, safety equipment expended without reason, etc., the immediate superior of the person finding the discrepancy shall be notified immediately.

2. In the event the discrepancy was not generated during normal maintenance of the unit:

a. The person finding the discrepancy will remain at the site until senior personnel take charge. A guard will be posted and the item involved will be restricted until released by cognizant investigating authority and/or the Commanding Officer.

b. The Group S-2 will be notified immediately and all unnecessary personnel restricted from the area.

c. In the event of an occurrence of this nature, all personnel responsible to the Squadron Maintenance Officer or those in the area at the time of discovery shall be restricted to the squadron area pending release by the affected squadron Commanding Officer.

309. UR (UNSATISFACTORY MATERIAL CONDITION REPORT)/FLIGHT SAFETY UR

1. Volume III, Chapter 8, OPNAV Instruction 4790.2 describes and sets forth the procedures and responsibilities for the UR submittal and the administrative control of the reporting system.

2. Flight safety UR's will be concurred with by G-4/AMO prior to release of message, deployed units will request concurrence by telephone. A statement "1st MAW G-4/AMO concurs" will be annotated on the message.

3. Quality Assurance will monitor the UR program and will review each UR for completeness and clarity. An up to date UR file will be maintained.

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310. PLANE CAPTAINS/CREW CHIEFS/FLIGHT ENGINEERS

1. OPNAV Instruction 4790.2 and FMFPAC Order 3500.6 specifies the requirements for qualifying and licensing plane captains.
2. A comprehensive training program will be initiated in each aircraft squadron to train and keep current plane captains, crew chiefs, and flight engineers.
3. A plane captain selection and examining board, as listed in OPNAV Instruction 4790.2 will be established in each aircraft squadron.
4. Plane captains will be requalified as plane captains and will have a service record book entry made and signed by the Commanding Officer. The entry will be made when the plane captain first qualifies and verified annually. Personnel will be requalified and redesignated when reporting to the 1st Marine Aircraft Wing.
5. The designation of plane captain does not nullify the requirement for designation of aircrewmen in accordance with current applicable NATOPS Instructions.
6. Crew Chiefs and Flight Engineers are qualified in accordance with OPNAV Instruction 3710.7.
7. A qualified plane captain shall be assigned maintenance responsibility for each aircraft by the Commanding Officer. COMNAVAIRPAC Instruction 5440.15 applies.

311. TAXI/TURN UP LICENSING

1. Taxi licenses may be issued by the Commanding Officer in accordance with the instructions in OPNAV Instruction 4790.2.
2. Low Power Turn Up/Full Power Turn Up License of fixed wing aircraft may be issued by the Commanding Officer, to qualified personnel, in accordance with the instructions in OPNAV Instruction 4790.2.
 - a. Low Power Turn Up (seventy five percent) is considered to be maximum RPM of the engine to check out the systems in the aircraft.
 - b. Full Power Turn Up will be designated Full Power Turn Up areas by qualified Check Crew or Power Plant personnel only.
3. Helicopters engagements/Turn Ups will be conducted in accordance with the instructions in OPNAV Instruction 3710.7.

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312. MONTHLY MAINTENANCE PLAN

1. OPNAV Instruction 4790.2 sets the requirement for the monthly maintenance plan.
2. A copy of the monthly maintenance plan will be sent to G-4/AMO for information and planning purposes.

CHAPTER 4

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CHAPTER 4

MEETINGS-CONFERENCES-VISITS

401. MAINTENANCE AND MATERIAL TASK COMMITTEES

1. To enhance aircraft maintenance reliability and safety and to coordinate Wing efforts toward effective unit readiness, the following committee is established in accordance with WgO P3750.11

2. The noted committee will convene and function as follows:

a. Maintenance and Material Task Committee

[1] Meetings - each quarter when scheduled by the chairman.

[2] Chairman - Aircraft Maintenance Officer, 1st MAW.

[3] Members -

- [a] Aircraft Maintenance Officer, all Groups.
- [b] Aircraft Maintenance Officers, all Squadrons.
- [c] Flight Equipment Officer, 1st MAW.
- [d] Flight Equipment Officers, all Groups.
- [e] Avionics Officer, 1st MAW.
- [f] Avionics Officers, all Groups.
- [g] Supply Officer, 1st MAW.
- [h] Supply Officers, all Groups.
- [i] Ground Support Equipment and IMRL Officer 1st MAW.
- [j] Recorder, assigned by Chairman.

[4] Agenda - Attendees will discuss all items pertaining to or affecting aircraft safety, maintenance or readiness.

[5] Reports - A report of the meeting will be submitted to the Area Council Chairman (Attn: 1st MAW Aviation Safety Officer), in accordance with WgO P3750.11.

[6] Copies - Fifty copies to the 1st MAW Aviation Safety Officer.

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[7] Agenda Items - Agenda Items will be submitted to this Headquarters Attn: G-4/AMO, formally or informally, a minimum of 5 working days prior to the meeting.

402. SPECIAL MEETINGS OR CONFERENCES

1. Special meetings or conferences will be scheduled by the Wing Aircraft Maintenance Officer as required, to discuss immediate problem or interest areas that should not be delayed until the next regular meeting of the applicable Task committee.

2. Group Aircraft Maintenance Officers may request special meetings of the cognizant committee to discuss problem areas affecting the maintenance, safety or reliability of Wing aircraft.

403. ATTENDANCE AT MEETINGS/CONFERENCES

1. Periodically, maintenance personnel are required to attend meetings, conferences or visits to DOP's or senior echelon Headquarters.

2. The requirement for participation is normally generated by correspondence from higher echelon and subsequently passed for action to affected subordinate units of the 1st MAW.

3. When directed to provide attendees and/or agenda items, subordinate units will:

a. Submit agenda items as directed, information copy to all concerned in the Chain of Command. If there are no agenda items, a negative report will be submitted.

b. Submit attendee's name, rank, social security number, security clearance and reservations required, as directed, with copy to all concerned in the Chain of Command.

c. Originate TAD orders for the personnel attending.

4. This Headquarters will always be "info" or "copy to" on all correspondence concerning meetings, conferences or visits pertaining to the maintenance and/or management of Naval aircraft or associated equipment.

5. A "Trip Report" will be submitted to CG 1st MAW by the attendee to all conferences, meetings or visits.

6. A "Trip Report" consists of a narrative of those events occurring or subjects discussed during the meeting, conference or visit to include a copy of the minutes, if available.

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7. Under normal circumstances, messages directing maintenance personnel to attend a meeting/conference will include TAD appropriation data.

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501. NAVY OIL ANALYSIS PROGRAM INSTRUCTIONS

1. The aircraft Navy Oil Analysis Program [NOAP] has been tested and applied to aircraft engines and transmissions with highly satisfactory results. The accuracy of predicting an impending engine or transmission failure has been documented by the North Island Laboratory where laboratory predictions were at least 79% accurate for gas turbine engines, 68% accurate for reciprocating engines and 71% accurate for transmissions.
2. A Navy Oil Analysis Laboratory has been established at MCAS Iwakuni under the cognizance of the Commanding General, First Marine Aircraft Wing.
3. The Commanding Officer, Marine Wing Support Group 17 will provide the location, administrative, motor transport, external security and logistic support for the Spectrometric Oil Analysis Laboratory.
4. The First Marine Aircraft Wing Maintenance Officer will monitor the Spectrometric Oil Analysis Laboratory and will ensure the Laboratory is provided with the necessary methods of communications.
5. All operating activities of the 1st Marine Aircraft Wing who have custody of aircraft will be participants in the Navy Oil Analysis Program. The Spectrometric Oil Analysis Laboratory at MCAS Iwakuni will be available for checking oil samples of the Air Station aircraft and Navy unit aircraft based at MCAS Iwakuni.
6. Activities located in the immediate area of the Spectrometric Oil Analysis Laboratory shall arrange to have samples delivered directly to the laboratory at least once daily. Activities not located in the laboratory area shall forward samples by Air Mail or may utilize available Navy/Marine Corps air transportation when faster delivery will be available.
7. Since the success of NOAP is so greatly dependent on the operating activity, it is vitally important that all operating activity personnel have a thorough knowledge of the program as it relates to them. The training film "Oil Analysis for Determination of Condition of Aeronautical Equipment by Used Oil Samples", Film Number AN 9585 shall be used as a training aid to indoctrinate personnel in the oil analysis program.
8. Operating Activities will comply with the sampling intervals and instructions contained in paragraph 502 of this chapter.
9. Intermediate Maintenance Activities ensure the log books of engines, gearbox, and transmissions removed at the recommendation of the oil analysis laboratory are being sent to the designated overhaul point are properly annotated in accordance with the instructions listed in COMNAVAIRPAC Instruction 4730.9.

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10. Operating activities under the NOAP shall apply an oil analysis program decal to the front cover of the unit log book and in a conspicuous location on the unit being monitored. When the unit being monitored does not require a log book record the oil analysis decal shall be placed on the unit. A decal shall also be placed on the shipping containers of units when they are returned to overhaul.

11. These decals can be ordered from Supply Officer, Naval Air Station, North Island, San Diego, California. Federal Stock Number RL 89771-L02-7432.

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12. Spectrometric Oil Analysis Laboratory. The main objectives of the Spectrometric Oil Analysis Lab is to provide a service to using activities in the analysis of samples submitted and interpretation of that analysis. In this light the following instructions shall be adhered to by the laboratory.

a. Calibration of Laboratory Equipment. Laboratory equipment will be calibrated daily at the beginning of the first work shift for the day and as required at other times. To maintain uniformity with the other Navy Laboratories, Pensacola standards will be utilized.

b. Sample priority. Each oil sample received by the laboratory will be analyzed and the related reports and recommendations will be transmitted on the same day the sample is received in the laboratory. Special samples shall be given priority over routine samples. Samples received which are holding an aircraft down pending the analytic results will be processed within three hours after receipt.

c. Lateral Support. In order to keep the program operating and to provide the services that are required the following shall be adhered to:

(1) Lateral Support will be implemented at any time the following conditions occur:

(a) The laboratory will be out of service in excess of 24 hours.

(b) The workload is such that samples cannot be processed within 24 hours of receipt in the lab. If necessary to maintain this continuity, overtime hours will be utilized or personnel will work shift hours. Spectrometric Oil Analysis Lab personnel will be available for priority samples at all times and will be assigned no duties that interfere with its mission.

(2) Based on paragraph 11c(1) above, if lateral support is required, CG 1st MAW will be notified by priority message stating this fact, all pertinent reasons for the request for lateral support, the P/N, nomenclature, and references for any parts required to put the lab back into operation and the estimated time required to complete repairs upon receipt of the required parts.

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d. Communications

(1) Communications to and from the Spectrometric Oil Analysis Lab is one of the most vital factors affecting the Navy Oil Analysis Program. The program works on a "no new is good news" basis, therefore, the only time the operating activities will hear from the Spectrometric Oil Analysis Lab regarding samples submitted is when the lab receives:

(a) A suspect failure

(b) A contaminated sample

(c) A suspect sample from an operating command who requests the analytical results by phone.

(2) Once the lab determines a sample critical, the operating command should have the lab's recommendations within a matter of minutes. Communications from the lab to an operating command will have priority over communications when safety of flight or the grounding of an aircraft is involved. All telephone calls will be confirmed by a formal message.

(3) When the operating command is inaccessible and telephone communications not feasible, the lab will transmit its recommendations by priority message. The NCOIC of the Spectrometric Oil Analysis Lab will have the authority to release messages pertaining to special check samples, flushing of units, and removal of units.

e. Training

(1) As a continuing need exists for the indoctrination of training of squadron personnel in sampling procedures, the importance of submitting complete information with each sample and the limitations of the program, Spectrometric Oil Analysis Lab personnel will be available to the operating commands for technical training purposes. To provide technical training services the Spectrometric Oil Analysis Lab will accomplish the following:

(a) Prepare lesson guides and obtain applicable training aids to accomplish the above on call.

(b) Obtain TAD orders as the need exists for the indoctrination and training of squadron personnel.

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[2] Request for technical training assistance should be coordinated at Group [MAG] level in order that operating activities located in the same geographical area can participate.

f. Records and Reports

[1] As the Navy Oil Analysis Program is relatively new and statistical data is required the laboratory will maintain complete data on all oil samples submitted, any recommendations or follow-up action taken by the laboratory, and feed back information received.

[2] Maintenance activities will advise the laboratory of discrepancies found in any engine or component recommended for inspection by the laboratory and of corrective action taken to return the engine/component to service. In the event the component/engine is removed from service, the laboratory will be so advised.

[3] Maintenance activities removing engines/components from service as a result of recommendations from the laboratory or as the results of discrepancies found during an inspection recommended by the laboratory will request a priority Disassembly Inspection Report from NAVAIRSYS COMREPAC.

[4] The Spectrometric Oil Analysis Laboratory will submit a quarterly report by the 15th day of the month following the end of the quarter as required by the instructions in CG FMFPAC Order 4730.1.

g. Liaison. The Spectrometric Oil Analysis Laboratory Supervisor will maintain liaison with all Airframes and Engineering Field Technical Representatives located within the 1st Marine Aircraft Wing.

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502. OIL SAMPLE INTERVAL AND APPLICATION1. Routine Samples

a. Determination of the basic sampling interval is based on model history, operating environment and mission parameters.

<u>UNIT</u>	<u>SAMPLE INTERVAL</u>
All reciprocating/turbo props/turbo shaft engines on 4 engine aircraft	60 hrs
All reciprocating/turbo props/turbo shaft engines on single and two engine aircraft	30 hrs
All turbo jet/turbo fan jet engines on single engine aircraft	30 hrs
All turbo jet/turbo fan jet engines on twin engine aircraft	30 hrs
Helicopter transmissions	30 hrs
Constant speed drives	30 hrs
Aircraft propellers having independent oil systems	30 hrs
Wells Air start diesels	See para e
GTC, GTCF Engines	See para e

b. The above sampling intervals are considered maximum based on the present experience and commensurate with flight safety. The sampling intervals may be shortened as circumstances dictate by message or bulletin. However, the intervals should not be extended except to coincide with the end of a flight since they are based upon the most practical interval to detect abnormal wear before it progresses to failure of the unit.

c. The above sample intervals are the maximum allowable and shall not be construed to supersede any shortened sample interval on particular engines which are presently in effect as directed by separate message/bulletin.

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[2] Request for technical training assistance should be coordinated at Group [MAG] level in order that operating activities located in the same geographical area can participate.

f. Records and Reports

[1] As the Navy Oil Analysis Program is relatively new and statistical data is required the laboratory will maintain complete data on all oil samples submitted, any recommendations or follow-up action taken by the laboratory, and feed back information received.

[2] Maintenance activities will advise the laboratory of discrepancies found in any engine or component recommended for inspection by the laboratory and of corrective action taken to return the engine/component to service. In the event the component/engine is removed from service, the laboratory will be so advised.

[3] Maintenance activities removing engines/components from service as a result of recommendations from the laboratory or as the results of discrepancies found during an inspection recommended by the laboratory will request a priority Disassembly Inspection Report from NAVAIRSYS COMREPAC.

[4] The Spectrometric Oil Analysis Laboratory will submit a quarterly report by the 15th day of the month following the end of the quarter as required by the instructions in CG FMFPAC Order 4730.1.

g. Liaison. The Spectrometric Oil Analysis Laboratory Supervisor will maintain liaison with all Airframes and Engineering Field Technical Representatives located within the 1st Marine Aircraft Wing.

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502. OIL SAMPLE INTERVAL AND APPLICATION1. Routine Samples

a. Determination of the basic sampling interval is based on model history, operating environment and mission parameters.

<u>UNIT</u>	<u>SAMPLE INTERVAL</u>
All reciprocating/turbo props/turbo shaft engines on 4 engine aircraft	60 hrs
All reciprocating/turbo props/turbo shaft engines on single and two engine aircraft	30 hrs
All turbo jet/turbo fan jet engines on single engine aircraft	30 hrs
All turbo jet/turbo fan jet engines on twin engine aircraft	30 hrs
Helicopter transmissions	30 hrs
Constant speed drives	30 hrs
Aircraft propellers having independent oil systems	30 hrs
Wells Air start diesels	See para e
GTC, GTCF Engines	See para e

b. The above sampling intervals are considered maximum based on the present experience and commensurate with flight safety. The sampling intervals may be shortened as circumstances dictate by message or bulletin. However, the intervals should not be extended except to coincide with the end of a flight since they are based upon the most practical interval to detect abnormal wear before it progresses to failure of the unit.

c. The above sample intervals are the maximum allowable and shall not be construed to supersede any shortened sample interval on particular engines which are presently in effect as directed by separate message/bulletin.

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d. Spectrometric Oil Analysis on the J65 series engine installed in the A4B/C aircraft is of limited value due to the non-recirculating oil lubrication system utilized by this engine. Therefore, the requirement for participation in the NOAP is waived for the J65 engine.

e. Due to the wide variety of engines involved in ground support equipment, oil sampling is not mandatory unless specifically directed by separate correspondence.

2. Special Samples shall be taken at the following times:

a. Special samples will be requested by the spectrometric oil laboratory for several reasons, including the following:

(1) To replace samples that obviously were improperly taken.

(2) To establish close surveillance over units from which oil samples contain marginal concentrations of wear metals. Such units may or may not be discrepant, and additional samples are necessary both to provide better basis for evaluation and to make early diagnosis and corrective action possible in the case of actual discrepant units.

(3) To verify analysis showing high concentrations of metal. Such analysis may be indications of abnormal wear, but alternately, they may be the result of improper sampling methods (contaminated samples).

(4) To make certain that no discrepancies remain after corrective field maintenance has been performed.

b. Immediately after the initial ground run-up of a new or reinstalled reciprocating, turbo-jet, jet engine or gear box.

c. After the first five operating hours on jet or turbo jet engines.

d. After the first fifteen operating hours on reciprocating engines, constant speed drives, and gear boxes/transmissions.

e. After the first five operating hours when any special maintenance (such as a cylinder change or oil pump change) that would affect the oil system is performed.

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f. After any indication of internal damage, such as a warning light indication or the discovery of metal particles in the oil sump or on the oil screens.

g. After any operation, such as the over-boost or over-speed of an engine or gear box, that might cause internal damage to the unit.

h. At any time the operating activity has reason to doubt the integrity of a unit.

i. Identify special samples with red paint or red tape on top of bottle cap.

NOTE 1: At such time that T-64 Interim Power Plant Bulletin Number 20 has served its purpose, the sampling interval for the T-64 engine will be as prescribed for another turbo jet engines

NOTE 2: Sample intervals need not be exactly the number of hours specified, but should be as close to them as possible without interfering with scheduled flight operations. Samples should not be taken concurrently with the routine sump and screen checks, but should be spaced between to obtain maximum benefits from the program.

3. The following is a list of currently authorized Navy Oil Analysis Laboratories. This list will be modified and added to as additional facilities are activated:

- a. NAVAIWORKFAC NORIS Material Laboratory
Building 341
Naval Air Station, North Island
San Diego, California 92135
- b. Navy Oil Analysis Program (NOAP)
Commanding Officer, MWSG-17, H&MS-17
First Marine Aircraft Wing
FPO San Francisco, California 96602
- c. Oil Analysis Program
Box 73
U. S. Naval Air Station, Cubi Point
Attn: Power Plants Officer AMD
C/O FPO San Francisco, California 96654

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NOTE: Where the need exists, the use of oil analysis facilities of other Military services and/or civilian firms are authorized when directed by the cognizant COMFAIR/CG Marine Air Wing. When utilizing other than U.S. Navy NOAP Facilities, ensure that the base line data and threshold limits are compatible with U. S. Navy Standards. If Compatibility cannot be established by the local COMFAIR/CG facilities, Request assistance from NAVAIRSYSCOMREPAC.

503. INSTRUCTIONS FOR TAKING SAMPLES

1. The following rules are provided for guidance in obtaining a representative oil sample:

- a. Store unused sampling material in a clean, closed container, such as a packaging box in which received.
- b. Use the correct sampling kit for the particular equipment involved.
- c. Open the sample bottle only when ready to take the sample, replace the cap on the bottle immediately after taking sample.
- d. Avoid contact of sample bottle and sampling tube (if used) with any contaminated surface.
- e. Do not reuse any part of the sampling kit.
- f. Take the oil sample within 30-45 minutes after shut down but before adding oil. If the oil in the system is too low to permit sampling and new oil is added, operate the equipment 20 minutes to ensure thorough mixing of the old and new oil prior to taking sample. Ensure the oil change information is furnished to the laboratory with the new sample.
- g. If not sure that the sample is correctly taken, discard it and take another sample.

2. The location of sampling points are listed below in order of preference:

- a. Oil reservoir tanks if readily accessible and if possible to insert a polyethylene tube to withdraw a sample.
- b. Pressure release valves on aircraft with pressurized oil systems.

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c. Oil drain cocks or valves when located so that a representative sample can be obtained, such as accessory gear case drains.

3. Sampling Technique

a. Oil reservoir tanks:

(1) Obtain the sampling materials; clean, unused bottle, NAVWEPS Form 4730/7 and Polyethylene tube of the proper length.

(2) Loosen and remove the oil filler cap.

(3) Insert the tube into the tank so that the end of the tube extends below the surface of the oil but remains at least two inches above the bottom of the reservoir. The tubes are pre-cut in the different kits to prevent the end of the tube from touching the bottom of the reservoir and picking up sediment.

(4) Place the thumb over the upper end of the tube, withdraw the tube and allow the oil in the tube to drain into the sample bottle. Repeat as necessary to fill the sample bottle within 1/2 inch of the top.

(5) Screw the bottle cap on tight. Replace and secure the oil filler cap. Discard the used sampling tube and wipe off any excess oil on the outside of the bottle.

(6) Fill out the NAVWEPS Form 4730/7 completely and legibly in accordance with enclosure (4). Mail the sample and accompanying form to the nearest Oil Analysis Laboratory.

b. Pressure release valves:

(1) Obtain the sampling materials; clean, unused bottle and NAVWEPS Form 4730/7. Sampling tubes are not required.

(2) Wipe off the outside of the pressure release or relief valves, and allow sufficient oil flow (approximately 1/2 pint) into a waste container to clear the valve of any accumulated residues before admitting oil into the sample bottle. Fill the sample bottle to within 1/2 inch of the top.

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 *STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

(3) Close the release or relief valve, place the cap on the bottle and tighten. Wipe off any excess oil on the outside of the bottle.

(4) Fill out the NAVWEPS Form 4730/7 completely and legibly in accordance with enclosure (4). Mail the sample and its accompanying form to the nearest Oil Analysis Laboratory.

c. Oil Drain cocks, valves or plugs:

(1) Wipe off the outside of the drain cock, valve, or plug. Loosen the plug or open the valve, and allow sufficient oil flow (approximately 1/2 pint) into a waste container to clear the cock, valve or plug of any accumulated residues before admitting oil into the sample bottle. Fill the sample bottle to within 1/2 inch of the top.

(2) Close the cock, valve or plug and secure as necessary. Place the cap on the bottle and tighten. Wipe off any excess oil on the outside of the bottle.

(3) Fill out the NAVWEPS Form 4730.7 completely and legibly in accordance with enclosure (4). Mail the sample and its accompanying form to the nearest Oil Analysis Laboratory.

504. SAMPLING MATERIALS FOR NOAP

1. The standard sampling materials are a sampling tube, a sample bottle and an oil analysis request form NAVWEPS 4730/7.

a. The sampling tube is a flexible polyethylene tube of 3/16 inch in diameter in 11, 14, 18, or 30 inch lengths. In each application, the sampling tube is to be used only once and is long enough to extend within two to three inches above the bottom of tank.

b. The sampling bottle is a 5 gram bottle with a plastic screw cap of one inch OD and 1/2 inch in height. This item is intended for one time use also.

c. The oil analysis request form must be filled out and submitted with each sample taken.

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2. The standard sampling materials are supplied in a kit containing 72 each sampling tubes, sampling bottles, and forms 4730/7. Sampling kits are available from the Supply Officer, Naval Air Station, North Island, San Diego, California under the following stock numbers:

<u>FSN</u>	<u>SAMPLE TUBE LENGTH</u>	<u>USE</u>
RM4920-933-8893-SX	11"	C-45, C-54, C-118, F-1 H-13, H-25, T-34, T-39
RM4920-933-9984-SX	14"	C-47, C-117, C-131, F-11 H-19, H-37, P-3A, T-2A T-28, O-1C
RM4920-933-8895-F	18"	A-1, A-3, A-7, (TF-30) C-1, E-1, F-111, H-34, H-46, P-2, P-5, S-2 U-16, C-130, H-52, OV-10
RM4920-933-8896-SX	30"	A-4(J52), A-5, A-6A, C-2, E-2A, F-10, F-4, H-1, H-2, H-3, H-34, H-46, H-53, T-2B
RM4920-938-3731-SX	NONE	A-4(J52), A-5, A-6A, C-2 E-2A, F-10, F-4, H-1, H-2, H-3, H-34, H-46, H-53, T-2B A-7(TF-41)

*NOTE: This kit is used for taking samples from gearboxes, transmissions, and engines where use of the sampling tube is not possible.

0140-473-0076	100 Sheet Pads of NAVWEPS Form 4730/7
RL-89771-L02-7432	NAS North Island local stock number. This package contains 100 identity decals.
6695-785-1355	This kit contains 25 sample bottles and 30 inch length tubes and is available from U. S. Air Force stock only

3. If the kit desired is out of stock, order one with the next larger tube.

4. The above stock number/aircraft application list is based on available information and is not intended to restrict the use of a particular kit to a specific aircraft should the operators experience indicate that an acceptable sample may be obtained by use of a different kit.

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505. INSTRUCTIONS FOR USE OF THE USED OIL ANALYSIS REQUEST FORM NAVWEPS 4730/7

1. Introduction. The Used Oil Analysis Request has been designed to provide all of the information that will be useful in monitoring particular units or in evaluating the program statistically. At the same time, it has simplified the maximum use of check blocks so that the information can be entered and taken from the form as easily as possible. Oil Analysis Request Forms will be numbered consecutively 1-9999 by the calendar year.

2. Instructions for use of the form. Although the form is designed to be largely self-explanatory, the following detailed instructions should answer any remaining questions:

a. Section I consists of information items that must be supplied with each oil sample submitted. These items (A) through (K) identify a sample with one particular mechanism and describe the circumstances leading to or connected with the taking of the samples.

(1) Item (A) Check the appropriate box to show the kind of unit from which the sample was taken.

(2) Item (B) Show the unit model designation in full, including all the complete dash numbers, i.e. R1820-86A.

(3) Item (C) Show the unit serial number in full, including all letter prefixes, i.e. BL520800.

(4) Item (D) Enter both the designation and the location of the operating activity. Generally accepted abbreviations may be used, i.e. HMM-165, MM FUTEA.

(5) Item (E) Show the aircraft model designation in full including the complete dash number, i.e. CH-46D.

(6) Item (F) Enter the Bureau Number of the aircraft.

(7) Item (G) Check applicable blocks. (NOTE: If the sample being submitted is a routine sample check block G1).

(8) Item (H) Enter the Julian date the sample is taken. This is important as it will show the amount of time the sample was in transit.

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(9) Items (I) and (J) are respectively the operating hours of the unit since overhaul or since new and since new and since the last oil change. These items are very important since they have a direct bearing both on the value of the sample and on the application of the analytical results. In each case, report the hours to the nearest whole number.

(10) Item (K) (When applicable) in most cases will identify a special sample with a particular laboratory request by message number. Only the date-time-group need be shown here; otherwise, leave the item blank.

b. Section II consists of basic information items that normally will not change between overhauls of the unit. These items (A) through (G) should be reported one time only when the unit is first brought into the program, unless a change does take place.

(1) Item (A) identifies the oil being used in the unit. Check the correct box.

(2) Item (B) is the routine sampling interval established for the unit. Check the correct box.

(3) Item (C) reports the number of times the unit has been overhauled.

(4) Item (D) identifies the activity that last overhauled the unit.

(5) Item (E) reports the total hours the unit had been operated before the last overhaul.

(6) Item (F). The purpose of this question is to establish or to eliminate the possibility that the oil in a newly installed unit is contaminated by residue metal particles from the failure of the unit it replaced in the aircraft. Check the correct box.

(7) Item (G). Check the appropriate box.

c. Section III consists of information items relating to corrective maintenance and to removal of the units from the program. Availability of this information, Items (A) through (F), will be highly valuable to the program in two areas. First, the information concerning removal of units from the program and disposition of the units will allow the laboratory to keep its active files purged of inactive cards, and it will also lead to completion of case histories of the removed units.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

Second, the detailed information concerning the relationship of oil analysis to corrective maintenance and removal will provide a much more precise basis for measuring the effectiveness of the program than has existed in the past. Section III should be completed and submitted with a final oil sample taken on removal of the unit from the program. Section III should be completed and submitted with the first oil sample taken after any corrective maintenance connected with the first oil system of the unit. If neither of these conditions exists, Section III should be left blank.

(1) Item (A). Enter the date the corrective maintenance or removal was performed.

(2) Item (B). Check the appropriate box. Also, if the unit was not continued in service at the operating activity, provide the indicated supplementary information.

(3) Item (C). If the unit was removed from the program for any reason, state the reason for removal. If the unit was not removed, leave this item blank.

(4) Item (D). Report all corrective maintenance performed since the last previous sample was taken, provided the discrepancy corrected was one that could have affected the oil system of the unit. If no such maintenance was performed, leave this item blank.

(5) Item (E) and (F). Enter the operating hours since overhaul and since oil change respectively, at which the corrective maintenance or removal was performed. In each case, report the hours to the nearest whole number.

(6) Item (G). Check the box or boxes that indicate the circumstances that established the need for corrective maintenance or removal. If the unit was removed from the program without such trouble being established, check the box before "Trouble not Established".

(7) Item (H). If trouble was established in the unit, check one appropriate box. If trouble was not established, leave this item blank.

4. Availability of the Form. The Used Oil Analysis Request is routinely supplied as a part of the standard sampling kit.

CHAPTER 6

MAINTENANCE PROCEDURES GENERAL
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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

601. CANNIBALIZATION

1. A closely monitored, aggressively pursued cannibalization control program at all levels of maintenance is essential if 1st Marine Aircraft Wing is to gain the ascendancy in readiness posture. This program will be established in consonance with COMNAVAIRPAC Instruction 4700.17. If strictly adhered to, it should produce a higher "Operationally Ready" percentage through a decrease in the amount of time an aircraft spends undergoing scheduled maintenance.

2. Group Commanding Officers shall establish a cannibalization control program within the following guidelines:

a. Ensure the utilization of proper trouble shooting procedures and test equipment for systems tests and adjustments.

b. Emphatically discourage the cannibalization of those items whose installation/removal are critical in adjustment or handling.

c. Restrict the cannibalization of parts/components which historically have high man-hour consumption values.

d. Refrain from cannibalizing aircraft which are due for calendar inspection within thirty (30) days.

e. Exert all effort to prevent cannibalization of those aircraft undergoing scheduled maintenance and those aircraft which are already hard-down NORS as these are most vulnerable to wanton "stripping".

f. Prohibit the cannibalization of any items which have a failure/destruction trend during cannibalization.

g. Cannibalization, when necessary, will be programmed into weekly maintenance goals according to the following schedule:

(1) Cannibalize a selected aircraft for fourteen (14) days, provided no more than five (5) items are cannibalized. Cannibalization is prohibited on the fifteenth (15th) day or beyond without the specific approval of the 1stNAW Aircraft Maintenance Officer. Such requests must be fully justified. The fifteen day/five part limit applies from the first day the aircraft becomes non-flyable regardless of cause.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

(2) Await parts with no further cannibalization on the selected aircraft for seven (7) days.

(3) Rebuild the original aircraft by selecting another aircraft for cannibalization during the ensuing seven (7) days.

(4) Fly the original aircraft prior to thirty (30) days of down time.

h. When vital operational/training commitments necessitate the cannibalization of an aircraft, which has not flown for fifteen (15) days and communication with this Headquarters is unattainable; unit commanders may authorize cannibalization. However, units are to bear in mind that commercial telephone, radio, and autovon calls offer varied means of rapid communication and full attempts of their utilization shall be made prior to authorization at the squadron level. After verbal permission has been received, a formal request for cannibalization authorization shall be submitted in the message format shown in figure (1).

i. An efficient, well balanced maintenance/supply team cannot coexist with inefficient maintenance practices. The following referral points are to be utilized as a checklist against squadron policies:

(1) Is the demand for timely replacement of RFI parts and components being placed on the supply system?

(2) Are stock checks being performed continually at Group Supply?

(3) Are proper trouble shooting techniques being followed?

(4) Is IMA and OMA test equipment being utilized to the fullest extent?

(5) Is information being extracted from Group and Wing 3M Summaries and combined with data from locally prepared trend graphs to give the Group Supply Officer an updated list of pre-positioned item needs?

(6) Is the anticipated NORS (NORS-A) requisition being utilized to its full potential?

(7) Does everyone remotely concerned with the ordering of parts have a thorough working knowledge of MILSTRIP? NavSup Manual 485 and ASO Instruction P4400.22A refer.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

j. For this command's purpose any aircraft that has been in A*B status 30 days or more is automatically considered a "Special Interest Aircraft".

k. Anytime an aircraft enters a Special Interest category and has outstanding NORS or NFE against it, the squadron having physical custody is required to submit, via Naval Message, a request for assistance. This request will be entitled "30 DAY NORS/NFE ASSIST REQUEST" and is to be transmitted in the message format shown in figure 2-6.

1. Upon submission of the "30 DAY NORS/NFE ASSIST REQUEST", an aircraft becomes special interest and the subject of concern at the Wing level. Therefore, in order to maintain continuity in monitoring the aircraft a series of "follow-up" reports will be submitted until the aircraft returns to an "A*O/A*A" reporting status and flies. The following message reports will be submitted each Tuesday to reach this Headquarters by 1600:

1. "SPECIAL INTEREST AIRCRAFT NORS REPORT". Use the same format as the "30 DAY NORS/NFE ASSIST REPORT". Maximum assistance will be rendered by this Headquarters to procure parts/components as required to restore aircraft to operational status (A*O/A*A). Use message format in figure 3-6.

2. "SPECIAL INTEREST AIRCRAFT NORM REPORT". Aircraft in a NORM status with no NORS outstanding will be reported using the format in figure 5-6.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

FROM: (REPORTING CUSTODIAN)

TO: CG FIRST MAW

INFO: (APPLICABLE GROUP)
(APPLICABLE HAMS)

UNCLAS E F T O //NO4700//

CANNIBALIZATION REQUEST

A. WING ORDER P4790.2

1. IN ACCORDANCE WITH REFERENCE A, THE FOLLOWING REPORT IS
SUBMITTED:

A. (AIRCRAFT SERIES)

B. (AIRCRAFT BUREAU NUMBER)

C. (ITEM(S) TO BE CANNIBALIZED)

D. (SUPPLY STATUS, TO INCLUDE FULL MILSTRIP DATA OF OUTSTANDING
REQUISITION)

E. (JUSTIFICATION FOR CANNIBALIZATION ACTION)

FIGURE 1-6

6-4

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

FROM: (REPORTING CUSTODIAN)

TO: CG FIRST MAW

TO: CG FMFPAC
 COMNAVAIRPAC
 COMFAIRWESTPAC
 NSD SUBIC
 (APPLICABLE HAMS)
 (APPLICABLE GROUP)

UNCLAS E F T O //NO4700//

FOR G4 AMO/WSO

30 DAY NORS/NFE ASSIST REQUEST

A. WING ORDER P4790.2

1. IN ACCORDANCE WITH REFERENCE A, THE FOLLOWING REPORT IS
 SUBMITTED:

A (AIRCRAFT TYPE/MODEL/SERIES, BUNO)

DATE AIRCRAFT WAS FLOWN LAST, OPNAV XRAY NUMBER PLACING
 AIRCRAFT AIB AND THE DATE-TIME-GROUP OF THE OPNAV XRAY MESSAGE.

C. (FULL MILSTRIP STATUS ON ALL OUTSTANDING REQUISITIONS, IN-
 CLUDING NOMENCLATURE, PART NUMBER, AND ALL FOLLOW-UP ACTION
 TAKEN LOCALLY, (INCLUDE DATE-TIME-GROUP OF ALL MESSAGE TRAFFIC)
 AND THE LAST KNOWN HOLDING ACTIVITY OF THE REQUISITION, ETC.

D. REMARKS/COMMENTS/ADDITIONAL INFORMATION AS REQUIRED.

E. GROUP AMO/GSO CONCURRENCE OF THE ABOVE INFORMATION.

FIGURE 2-6

6-5

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

FROM: (REPORTING CUSTODIAN)

TO: CG FIRST MAW

INFO: (APPLICABLE HAMS)
(APPLICABLE GROUP)

UNCLAS E F T O //NO4700//

SPECIAL INTEREST AIRCRAFT NORS REPORT

FOR G4 AMO/WSO

A. WING ORDER P4790.2

1. IN ACCORDANCE WITH REFERENCE A, THE FOLLOWING REPORT IS
SUBMITTED;

NOTE: USE SAME FORMAT AS IN FIGURE 2-6. INCLUDE IN ITEM D,
REASONS FOR APPEARANCE OF ITEMS NOT LISTED ON PREVIOUS REPORT(S).

FIGURE 3-6

6-6

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

FROM: (REPORTING CUSTODIAN)

TO: CG FIRST MAW

INFO: CG FMFPAC
 COMNAVAIRPAC
 COMFAIRWESTPAC
 NSD SUBIC (WHEN APPLICABLE)
 (APPLICABLE HAMS)
 (APPLICABLE GROUP)

UNCLAS E F T O //N04700//

30 DAY NORS/NFE UPDATE; MAINTENANCE ASSIST REQUIRED
 ONE OR THE OTHER
 30 DAY NORS/NFE UPDATE; SUPPLY ASSIST REQUIRED

A. WING ORDER P4790.2

1. IN ACCORDANCE WITH REFERENCE A, THE FOLLOWING REPORT
 IS SUBMITTED:

A. (AIRCRAFT TYPE/MODEL/SERIES, BUNO)

B. (DATE AIRCRAFT LAST FLEW, OPNAV XRAY NUMBER WHICH PLACED
 AIRCRAFT IN DOWN STATUS, AND THE DATE-TIME-GROUP)

C. (FULL MILSTRIP STATUS ON ALL REQUISITIONS TO INCLUDE
 NOMENCLATURE AND PART NUMBER AND ALL LOCALLY INITIATED FOLLOW-
 UP ACTION)

D. (OMA, IMA, AND GROUP SUPPLY CONCUR WITH ABOVE INFORMATION)

E. (STATE SPECIFIC ASSISTANCE REQUESTED)

FIGURE 4-6

6-7

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

FROM: (REPORTING CUSTODIAN)

TO: CG FIRST MAW

INFO: (APPLICABLE HAMS)
(APPLICABLE GROUP)

UNCLAS EFTO //NO4700//

FOR G4 AMO/WSO

SPECIAL INTEREST AIRCRAFT NORM REPORT

A. WING ORDER 4790.2

1. IN ACCORDANCE WITH REFERENCE A, THE FOLLOWING REPORT IS
SUBMITTED:

A. AIRCRAFT TYPE/MODEL/SERIES, BUNO

B. DATE AIRCRAFT CONDITION CHANGED TO NORM FROM NORS.

C. NOMENCLATURE OF LAST PARTS RECEIVED AND DATE RECEIVED FROM
SUPPLY.

D. ESTIMATED MANHOURS TO COMPLETE NORM CONDITION AND ESTIMATED
COMPLETION DATE TO RESTORE AIRCRAFT TO A*O/A*A STATUS.

E. GROUP AMO/GSO CONCURRENCE ON THE ABOVE INFORMATION.

F. REMARKS/COMMENTS/ADDITIONAL INFORMATION AS REQUIRED.

FIGURE 5-6

6-8

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

602. PROGRESSIVE AIRCRAFT REWORK (PAR)

1. COMNAVAIRPAC Instruction 4710.3 established the policy and procedures for PAR of Pacific Fleet Aircraft.
2. COMNAVAIRPAC Instruction 4710.3 contains information required on the PAR Work Request. One copy of the PAR Work Request shall be submitted to the PAR activity and five (5) copies to the PAR Liaison Officer three weeks prior to the induction date. One copy of the request shall be submitted to Commanding General, First Marine Aircraft Wing. COMNAVAIRPAC Form 4710-1 will be used.
3. PAR Work Requests should normally not include items that are within organizational level capabilities, however, outstanding "F" coded technical directives that require incorporation not later than the next calendar inspection will be included. Material/Kits required by these changes shall be forwarded to the PAR Liaison Officer at the designated rework facility and the shipping data shall be noted on the PAR Work Request.
4. The periodic Maintenance Requirements Manual (PMRM) (or comparable manual) of the aircraft concerned contains those items that are automatically accomplished during PAR need not be requested. Within the time allotted parameter, the PAR activity will accomplish "O" coded modifications as noted in the current Aeronautical Technical Directives not Incorporated List number 2 as provided by NAVAIRSYSOMREPAC.
5. Aircraft being inducted for PAR will be delivered to the repair activity by 1200 the day prior to scheduled induction. Late deliveries for PAR are considered indicative of poor squadron planning and will not be condoned.
6. Reporting custodians shall notify COMNAVAIRPAC and the rework activity (by message) when it is anticipated that the aircraft cannot be delivered as scheduled, (weather, discrepancies, NORS, etc.). Include NASCREPAC, CG FMFPAC, this Headquarters, and parent Group as info addressees.
7. The unit in reporting custody of the aircraft on the date the work request is due for transmittal will submit the request even though the aircraft may be on an ATO.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

8. Under normal circumstances, Aircraft Status Code Changes for aircraft enroute to and returning from PAR are as follows:

	<u>STATUS CODE CHANGE</u>	<u>SUBMITTED BY</u>
A-1 to F-5	Enroute to PAR Facility	Reporting Unit
F-5 to E-5	Awaiting Induction	Rework Facility
E-5 to D-5	Inducted into PAR	" "
D-5 to D-E	Entered Test Flight Phase	" "
D-E to BY	PAR Complete, Aircraft RFI	" "
BY to A-1	Aircraft Returned to its primary status code	Reporting Unit

9. Reporting units shall maintain files of In-Service OPNAV XRAY Reports submitted on its aircraft by Rework facilities.

603. INSPECTION, ANALYSIS, REPORTING OF FAILED MATERIAL

1. NAVAIR Instruction 4730.5 sets forth the policy and procedures for preparation and submission of Disassembly and Inspection Reports (DIR) Form NAVAIR 4730/8 on aeronautical engines, equipment, components and accessories.
2. NAVAIR Instruction 4730.5 prescribes procedures for marking, shipping, and notifying of shipment for priority DIR.
3. OPNAV Instruction 4790.2 sets forth instructions for the release of material to the contractor.
4. Material which has been involved in an aircraft accident or incident will not be released to the contractor without prior approval of NAVAIRSYSCOM Headquarters.
5. COMNAVAIRPAC Instruction 4730.8 contains instructions for:
 - a. Requesting DIR.
 - b. Types of investigation.
 - c. Types of failures.
 - d. Sample Request.
 - e. Forwarding of Material.

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6. Units will adhere to the provisions contained in Joint COMNAVAIRPAC Instruction 4730.8 when requesting malfunction or failure investigations and ensure this Headquarters is an information addressee.

604. COMPONENT REPAIR/ASU

1. The component repair processes to be utilized by Marine Corps Aviation Activities are set forth in OPNAV Instruction 4790.2

2. The Navy-wide Component Repair Program has evolved to a point where properly administered and managed, can and will enhance overall Wing readiness posture to a highly acceptable degree.

3. The program has developed to a level that to define its magnitude is difficult. The ultimate goal of component repair is to repair all aircraft accessories/components at the lowest level of maintenance possible.

4. The Screening Unit (ASU), located within the structure of the Group Supply Department is an integral and extremely important phase of the Component Repair Program.

a. It is the mission of the Screening Unit to inspect each item turned in to ascertain its repairability by the IMA. If the item is repairable, forward to the IMA; if not repairable, forward to SSS/CCS for disposition.

5. It is recommended that the ASU be composed of as many diverse maintenance technical personnel as available to rapidly and efficiently screen and process all types of accessories/components received.

6. For component screening reporting, the ASU can only ascertain that an accessory/component is:

- a. Not authorized to repair.
- b. Excess to activity requirements.
- c. Condemned (by directive).

605. COMPONENT REPAIR PROCEDURES

1. OPNAV Instruction 4790.2 will be adhered to in managing the unit Component Repair Program.

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2. An accessory/component from an aircraft or GSE removed for scheduled periodic inspection will be delivered to the cognizant IMA with an OPNAV 4790/36 Form Work Request completed with all IMA required information.
3. Items delivered for scheduled periodic inspection do not fall under the scope of the Component Repair Program. Conversely, items removed as suspect failed/inoperative and requiring check/test are included within the Component Repair Program.
4. Items delivered for periodic inspection on an OPNAV Form 4790/36 Work Request will have a MAF initiated by the IMA Work Center should the component/accessory require repairs beyond the requirements of periodic inspection.
5. Those items submitted for processing through the supporting IMA "Customer Service" will be walked through the ASU on a MAF to the work center as the IMA. The requesting activity will assign numbers to the MAF.
6. Processing suspect/failed items is basically as follows:
 - a. Technicians remove suspect/failed items on a multi-copy MAF.
 - b. Material expediter picks up item, with Schedule Removal Component Card (when required) delivers it to ASU, picks up replacement (with Schedule Removal Component Card, if required), and delivers replacement to maintenance.
 - c. ASU forwards item to IMA (if within maintenance capability) with multi-copy MAF.
 - d. IMA effects the repairs, annotates Schedule Removal Component Card with modifications/repairs accomplished, return item RFI to Group Supply Department (CCS).
 - e. If item is not capable of repair return to GSO (ASU) and annotate MAF as to reason BCM or AWP etc.
 - f. The IMA will ensure Schedule Removal Component Card is properly tagged to reflect item condition (repairable, RFI, etc.).
 - g. The IMA will ensure records are properly initiated and maintained to improve the validity of component repair reporting.

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606. CHECK, TEST, MODIFICATION OF SUPPLY OFFICER'S STOCKS

1. The Group Supply Officer will forward in-stock items to the cognizant IMA on a OPNAV Form 4790.36 Work Request when they require check, test representation, etc., in order to retain them in stock in an RFI status.
2. When requested, units will afford Group Supply Officers the same services noted above when within the capacity of shop workload.
3. All items will be expeditiously processed and returned to the cognizant Supply Officer.
4. Modification/check/test/representation of Supply Officer's stocks does not fall under the category of the Component Repair Program.

607. SCHEDULED REMOVAL COMPONENTS AND SCHEDULED REMOVAL COMPONENT CARDS

1. The Scheduled Removal Components are those components that require a Scheduled Removal Component Card OPNAV Form 4790/28A to accompany them throughout their life cycle.
2. Units will ensure that the Scheduled Removal Component Cards are in the Aircraft Log book for each installed component requiring the card.
3. A program will be established within each unit to check the Scheduled Removal Component Cards against the components Serial Numbers during Calendar Inspections.
4. OPNAV Instruction 4790.2 sets the requirements for the Scheduled Removal Component Card.
5. If a Scheduled Removal Component SRC card is lost at any period while the component is installed, the required data will be obtained from the central repository and the Scheduled Removal Component Form OPNAV 4790/27A and a new SRC Card will be initiated.
6. The following NAVAIRSYSCOMHQ policy and procedures apply to disposition of SRC cards on components installed on stricken aircraft. NAVAIRSYSCOMHQ 110322Z May71 refers.
 - a. Aircraft Destroyed: The SRC cards shall be forwarded to central SRC repository at NAVAIRSYSCOMREPLANT (CODE 233) after necessary investigation and preparation of required reports.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

b. Sold or Transferred: Where an aircraft is sold or transferred to other than NAVY custody, the SRC cards will accompany the aircraft.

c. Special Categories: The SRC cards shall be forwarded with the aircraft log book to the Director, Washington National Records Center, GSA, Washington, D.C. 20409:

(1) For Experimental Aircraft.

(2) For aircraft considered to be of Historical Value.

(3) For aircraft and/or equipment that have been involved in an accident(s) resulting in death or injury to any person, and/or substantial damage to other than Government property, the SRC cards will be retained by the reporting custodian for a period of one year (for use in litigation action), and then forwarded to the Director, Washington National Records Center as part of the Aircraft Logbook.

d. Prior to disposition of SRC cards as noted in paragraphs b and c above, list of all pertinent cards will be forwarded to the Central Repository for file purging. For repository purposed the following data (per card) will be noted on listing:

(1) Manufacturer's Part Number.

(2) Serial Number.

(3) Aircraft T/M/S.

CHAPTER 7

AIRFRAMES MAINTENANCE
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1. Information pertaining to modification of Naval Aircraft is contained in NAVAIR Instruction 13050.6.
2. Proposals and request for permission to Prototype one unit will be submitted to the Commander, Naval Air Forces, Pacific Fleet, via Commanding Officer of parent Group, Commanding General, 1st Marine Aircraft Wing and Commanding General, Fleet Marine Force Pacific with a copy to Naval Air Systems Command Headquarters.
3. The aircraft or equipment in which the change has been prototyped shall be returned to its original configuration prior to transfer or release unless otherwise directed by a letter type technical directive.
4. Upon satisfactory completion and evaluation of the proposed modification, the originating activity shall submit a rough draft of the proposed letter type technical directive in accordance with MIL-T 23336 (WEP) of 20 June 1962, embodying the proposed change. Such submission shall be made via the Chain of Command with information copies to all affected major Controlling Custodians.

702. AIRCRAFT CONFIGURATION

1. Aircraft and Equipment will be maintained in a configuration which provides the optimum conditions of safety, operational and material readiness. Every effort shall be made to maintain a standardized configuration where possible. To this end only those modifications promulgated by letter-type technical directives and Interim Technical Directives shall be considered authorized.

703. AIRCRAFT SERVICE CHANGES

1. Organizational Maintenance Activities will requisition all applicable Aircraft Service Kits or Parts for their assigned aircraft, engines, equipment, components. Avionics equipment or components kit requisitioning and modification will be performed by the supporting H&MS as programmed by the Group/H&MS Avionics Officer.
2. Reporting Custodians will incorporate "F" coded changes as directed in the compliance portion of the directive.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

3. Reporting Custodians with "F" coded Aircraft Service Changes that require the assistance of the supporting IMA will negotiate with the Group Aircraft Maintenance Officer for assistance in the incorporation of the change. The Group Aircraft Maintenance Officer can require the supporting IMA to incorporate the change, if the incorporation of the change causes undo work load on the squadron.

4. The responsibility for the configuration of the aircraft, engine, equipment or components remains with the reporting custodian of the aircraft. The reporting custodian will ensure monthly reports submitted are on time and correct.

704. AIRCRAFT TIRES, WHEELS, WHEEL BEARINGS, PROCEDURES
CONCERNING

1. The IMA in each Aircraft Group will establish a tire shop in support of assigned units.

2. The tire shop will be maintained in a condition to ensure maximum safety at all times and will be constantly supervised.

3. A facsimile of enclosure (1) of COMNAVAIRPAC Instruction 4700.12 shall be displayed in the tire shop, flight line shack and all other spaces concerned with the handling and maintenance of aircraft tires and wheels.

4. A training program will be established which will provide for the proper instruction and training of all personnel concerned with the handling and maintenance of aircraft tires and wheels. COMNAVAIRPAC Instruction 4700.12 applies.

5. All aircraft tires will be inflated with nitrogen. Air will be used only in an emergency.

6. Tires will be deflated and the valve core removed prior to removal from the aircraft.

7. A red tag indicating the tire is deflated and the valve core is removed will be installed on the valve stem by the person deflating the tire and removing the valve core. NAVWEPS 04-10-506 applies.

8. No tire will be allowed in the tire shop unless it is checked by tire shop personnel to ensure the tire is deflated and the valve core is removed.

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9. Impact wrenches will be used to dismantle wheels only.
10. The aircraft wheels will be inspected in accordance with the instructions in NAVAIR 04-10-1.
11. All high pressure tires will be built up, inflated to operating pressure in a tire inflation safety cage using a standoff tire inflation gauge. The tire will be checked for leaks after setting for ten (10) minutes. If no leaks are found the tire will be deflated and reinflated to 50% of operating pressure or 100 PSI, whichever is the lesser for storage. CNAP 020542Z Mar71 and NAVAIRSYSCOMHQ 270759Z Feb71 applies.
12. Full inflation of the tire will be accomplished after the tire installation on the aircraft. A standoff tire inflation gauge will be used for all inflation of aircraft tires.
13. Only low pressure regulated source of nitrogen will be used to service or inflate aircraft tires.
14. Low pressure tires will be maintained in built up fully inflated condition.
15. Tire slippage marks are required on all tube-type aircraft tires inflated to less than 150 PSI and on all helicopter type tires. Tire slippage marks are not required on any tubeless tires or on tube-type tires inflated to pressures of 150 PSI and higher (except helicopter tires). NAVWEPS Instruction 04-10-506 applies.
16. When the tire and wheel is delivered to the supporting IMA for replacement the wheel bearing will be delivered with the tire and wheel. The supporting IMA will clean, inspect and regrease the wheel bearings. The wheel bearings will be installed in the built up tire and wheel assembly and protected from dirt, dust and water. The tire and wheel assembly with the bearings will be delivered to supply as a unit for reissue.

705. TIRE AND WHEEL TURN IN AND REISSUE PROCEDURES

1. The following procedures will be used when turning in and requisitioning a replacement unit:
 - a. Organizational Maintenance Activity (OMA).

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(1) OMA shall remove the wheel assembly from the aircraft utilizing a multi-copy maintenance action form (MAF), when a malfunction or discrepancy has been reported.

(2) Request for the replacement wheel assembly will be placed with the Component Control Section (Rotatable Pool) of the Group Supply Department.

b. Group Aviation Supply Support Center (GASSC):

(1) The GASSC will establish, through coordination with the Intermediate Maintenance Activity (IMA), a pre-expanded supply of tires and tubes necessary to support the CCS Rotatable Pool of built-up wheel assemblies. The monitoring and upkeep of pre-expanded tires and tubes will be the responsibility of the GASSC.

(2) The GASSC shall establish within the Rotatable Pool, a centralized storage area for built up wheel assemblies necessary to support OMA requirements. The delivery of RFI built up wheel assemblies and recovery of non-RFI wheel assemblies will be the responsibility of the Component Control Section/Supply Screening Section. All issues of built up wheel assemblies will be on a one (1) for one (1) basis. CCS will maintain a RFI due file for wheel assemblies turned into IMA tire shop for build up. During the build up of a wheel assembly, should the IMA discover the wheel is beyond capability of maintenance (BCM), the wheel will be returned to CCS. A replacement unit will be supplied to IMA.

(3) Scheduling of repair actions for wheel assemblies will be the responsibility of the Supply Screening Section in cooperation with the IMA Production Control.

c. Intermediate Maintenance Activity (IMA):

(1) The supporting IMA shall process all wheel assemblies received from Supply Screening Section (SSS).

(2) All non-RFI tires and tubes removed from wheel assemblies shall be forwarded to the Supply Screening Section.

706. OVERHEATED WHEEL, BRAKE AND TIRE ASSEMBLY

1. NAVAIR Instruction 13420.1 emphasizes the danger of possible explosive failures of overheated wheels and tires. It recommends aircraft operating precautions, which will avoid excessive brake use and procedures for cooling overheated brakes, wheels and tires.

706. ENDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

2. An isolated area in each operating squadrons area will be set aside for aircraft with overheated wheels, brakes and tires and the procedures set forth in NAVAIR Instruction 13420.1 be followed.

707. POST MAINTENANCE CHECK/TEST FLIGHTS

1. OPNAV Instruction 4790.2 sets forth the post maintenance check flight requirements.

2. OPNAV Instruction 3710.6 and NAVAIR Instruction 3700.1 sets forth the test flight requirements generated by aircraft transfer.

3. Test Pilots shall be designated in writing as a post maintenance test pilot by the Commanding Officer for the type and model aircraft being flown.

4. Check Flights shall be conducted in accordance with the criteria established by OPNAV Instruction 3710.7 Series (EOP).

5. Pilots who perform check flights are qualified in accordance with OPNAV Instruction 3710.7 and the applicable NATOPS Manual, and will be provided a thorough briefing by the Aircraft Maintenance Officer or designated representative.

6. Check flight forms must be properly completed and returned to Maintenance Control for correction of any discrepancy.

7. Completed check flight lists shall be retained in the aircraft maintenance files for a minimum of two calendar/periodic inspection intervals.

708. MALFUNCTION OF FLIGHT CONTROLS, INSPECTION AND REPORTING OF

1. NAVAIR Instruction 3750.2 provides the instructions for the inspection and reporting of flight control malfunctions.

2. All pilots finding the controls jammed or restricted while the aircraft is on the ground shall make no effort to free the controls by force on the controls. Hold light pressure against the restriction and call for an immediate inspection.

3. Aircraft that are returned after a flight, wherein, a flight control discrepancy was experienced, shall be thoroughly investigated for definite causes for the discrepancy prior to further flight.

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1. All discrepancies, however insignificant as they may be, shall be reported in full by flight safety UR message in accordance with C Instruction 4790.2.

709. CARBON MONOXIDE TESTS

1. Carbon monoxide testing of pilot, crew and passenger compartments of Naval aircraft will be performed in accordance with the instructions in NAVAIR Instruction 3750.1.
2. Turbo-prop and turbo-jet engines being less susceptible to carbon monoxide contamination, no specific requirement for testing has been established. This does not preclude strict maintenance practices in ensuring the reliability and security of seals, ducting etc.
3. Reciprocating engine powered aircraft shall be tested each second major inspection or every 400 hours, whichever occurs first.
4. The satisfactory accomplishment of the carbon monoxide test in accordance with paragraph 4 of NAVAIR Instruction 3750.1 shall be logged in the Miscellaneous Section of the aircraft log book.

710. HYDRAULIC FLUID CONTAMINATION

1. NAVAIR 01-12-17 is applicable to all Naval Aircraft Hydraulic Systems, Aircraft Hydraulic Servicing and Test Equipment. It contains information on hydraulic filter, contamination control and hydraulic seals. It supplies information on servicing and maintenance of Aircraft Hydraulic Systems.
2. Servicing of hydraulic systems will be performed utilizing an approved fill test stand with a 3-Micron absolute filter incorporated.
3. All servicing operations will utilize approved ground support equipment for hydraulic systems with appropriate filter.
4. All open hydraulic fluid containers shall be destroyed immediately after use to prevent being used to handle or store other hydraulic fluid.
5. Section IV of NAVAIR 01-1A-17 lists the requirements for a clean working area to prevent internal contamination of the component when it is being repaired.

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6. An effective hydraulic system contamination prevention training program will be instituted for all personnel servicing hydraulic systems, servicing ground support equipment used on aircraft hydraulic systems, and the repair of aircraft hydraulic systems and aircraft hydraulic components. This training program will be monitored by quality assurance.

711. PRESERVATION OF NAVAL AIRCRAFT

1. NAVAIR 15-01-500 and NAVAIR Instruction 4750.1 contains the instructions necessary for preservation and depreservation of Naval Aircraft. The instructions in these manuals are applicable to all type of Naval Aircraft and cover the following type preservation:

- a. Long Term
- b. Extended
- c. Shipment
- d. Short Time (Fly Away)
- e. Water or Fire Fighting Chemical Damage

2. Compliance with procedures in NAVAIR 15-01-500 is mandatory at all times for activities having physical custody of the aircraft. It is the responsibility of the physical custodian of an aircraft, whether operating, maintenance, repair or supply, to ensure that it is preserved as described in NAVAIR 15-01-500.

3. Procedures contained in NAVAIR 15-01-500 are the minimum necessary to insure satisfactory protection from corrosion. No deviations will be made except in accordance with NAVAIR Instruction 4750.1.

4. All logbook entries, shipping and storage containers, and communications concerning preservation or preserved aircraft shall reference accomplishment of the type of preservation.

712. NAVAL AIRCRAFT PAINTING AND MARKINGS

1. MIL-F-18264(ASG) covers the detailed requirement and procedures to be followed in the application and control of organic finishing materials on aircraft.

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2. MIL-I-18464(WP) establishes the requirements for the Insignia and Markings to be applied to the exterior surfaces of all Naval Aircraft.
3. MIL-C-18263 (WEP) contains the external color requirements for Naval Aircraft.
4. Externally carried fuel tanks shall be stenciled in black paint with the squadron Modex and aircraft side number in two places, one outboard forward and one inboard aft. Center line tanks shall have one stencil forward right hand and one stencil aft left hand. Markings shall be a minimum of three (3) inches in length and not to exceed four (4) inches in height.
5. Insignia and markings shall be subjected to inspection for quality of workmanship. Any insignia and markings which are not applied in accordance with the highest quality of workmanship shall be removed and reapplied.

713. CORROSION/PREVENTION CONTROL ON AIRCRAFT

1. NAVAIR 01-1A-509 provides information and guidance for intermediate and organizational levels of maintenance in the maintenance cleaning and corrosion control of Naval Aircraft and Related Support Equipment.
2. COMNAVAIRPAC Instruction 4750.2 establishes an all encompassing comprehensive corrosion/prevention control program.
3. Each operating unit and their supporting IMA will establish and maintain a corrosion prevention/control program as directed by COMNAVAIRPAC Instruction 4750.2.
4. Each operating unit and their supporting IMA will promulgate and maintain a current Technical Information Maintenance Instruction (TIMI), which outlines the unit's corrosion prevention/control program.
5. Each operating unit and their supporting IMA will initiate a formal corrosion prevention/control training program in addition to on the job training (OJT) program to ensure all personnel concerned are familiar with the aspects of corrosion, how to recognize it and correct/report it. Quality Assurance will monitor the corrosion prevention/control and the training program.

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6. Each operating unit assigned seven or more aircraft will establish and maintain a corrosion control work center.
7. The Flight Line personnel shall be responsible for the external condition of the aircraft in regards to cleanliness, operating preservation and the day to day detection and reporting of paint failure and/or corrosion attack.
8. Each reporting custodian of aircraft will ensure their aircraft are washed a minimum of once a month. The preferred washing period is once every two weeks.
9. Any excessive corrosion found on an aircraft will be reported to the G-4/AMO immediately.

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CHAPTER 8

POWER PLANT MAINTENANCE AND REPORTING
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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

801. MANAGEMENT

1. Units assigned to 1st Marine Aircraft Wing will manage and report engines in accordance with CNAP Instruction 13700.9 and CFWP Instruction 13700.1 series.
2. NAVAIR Instruction 13700.1 also pertains to aircraft engine reporting. Particular attention is directed to paragraph 10 under field designation Code B.
3. Strict adherence to established management and reporting procedures is required of all units to enhance the overall readiness posture of the Fleet. It is imperative that engine managers within COMNAVAIRPAC be advised at any time an engine changes status.
4. In view of the mechanization of engine reporting at the Fleet Command levels, it is imperative that reporting be absolutely correct and timely. Incorrect reports are rejected by the computers thereby causing excessive losses of man hours to hand message all reports and find out where the error has been made.
5. Squadrons deployed to other Marine Corps/Naval Stations/Facilities will obtain engine support from that station/facility Supply Department. Engines for support of deployed units will not be provided from 1stMAW assets unless otherwise directed by this Headquarters. Requests for engine support of deployed units will be directed to Commanding General, 1stMAW.
6. If the process time for an engine at a CER Activity is expected to be in excess of 45 calendar days for any reason, the cognizant activity shall submit a message report (Report Symbol NAVAIR 4700.1 MIN:etauth), in accordance with OPNAV Instruction 4790.2 of such delay to COMFAIRWESTPAC and info COMNAVAIRPAC, NAVAIRSYSOMREPAC, DEP COMFAIRWESTPAC, and CG FIRST MAW for determination as to whether the engine will be repaired by CER Activity or returned to NARF.

802. REPORTS

1. End-of-Quarter (EOQ) Report of flying hours on installed engines (enclosure (7)) of COMNAVAIRPAC Instruction 13700.9.
 - a. This report is to be submitted not later than 2400 hours of the third working day following the end of the calendar month in which the engine is to be reported and will include all installed engines regardless of location.

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b. This report will be mailed directly to COMNAVAIRPAC with info copies to COMFAIRWESTPAC, and CG FIRST MAW.

c. EOQ reports (report symbol 13700-2) are submitted by speedletter with completed NAVAIRPAC Form 13700/22 attached.

d. This report will be staggered with the reciprocating and gas turbine engines reported in separate months. EOQ reports will reflect the status of engines as of 2400 on the dates indicated below:

<u>ENGINE TYPE</u>	<u>REPORTING DATES</u>
(1) RECIPROCATING AND/OR OPPOSED	31 JAN; 30 APR; 30 JUN
(2) GAS TURBINE ENGINE PREFIXED WITH THE LETTER "J"	31 MAR; 30 JUN; 30 SEPT; 31 DEC
(3) GAS TURBINE ENGINE PREFIXED WITH THE LETTER "T" OR "TF"	28/29 FEB; 31 MAY 31 AUG; 30 NOV

e. All corrections/additions to the EOQ report will be submitted by Naval Message in ETR format utilizing enclosure (8) of COMNAVAIRPAC Instruction 13700.9.

NOTE: Installed engines remain in the reporting custody of the engine reporting custodian last having physical custody of the engine until receipted for by a new engine reporting custodian. Engines being transferred to another controlling custodian other than COMNAVAIRPAC will be dropped from that reporting custodians inventory upon physical loss of the engine(s).

2. Engine Transaction Report (ETR):

a. All ETR's will have three action addressees; they are: COMNAVAIRPAC, COMFAIRWESTPAC, and CG FIRST MAW with the supporting IMA as an info addressee.

b. ETR's are urgent action, not subject to communication MINIMIZE, and will be submitted by PRIORITY MESSAGE.

c. ETR's will be numbered consecutively by each engine reporting custodian throughout the calendar year (January thru December), for example: 01-69, 02-69, etc. On the first ETR of each year, report the last calendar year ETR, for example: ETR 1-70, last Calendar Year ETR 45-69.

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d. Supported squadrons will receipt for and install RFI engines issued by the supporting IMA.

e. Upon physical receipt of installed engines from FAWPRA, submit an ETR reflecting this receipt. In "Amplifying Remarks" add "Physical Receipt of Aircraft Engines". Utilize example 5, enclosure (3) of COMNAVAIRPAC Instruction 13700.9.

f. Include in "Amplifying Remarks", last ETR and Message DTG on all ETR's.

g. All corrections to ETR's will be submitted by Naval Message utilizing procedures established in enclosure (8) of COMNAVAIRPAC Instruction 13700.9.

803. PROGRESSIVE AIRCRAFT REWORK (PAR)

1. The equivalent of next periodic inspection due will be accomplished on all engines installed in aircraft undergoing PAR.

2. High time engines will not be installed in aircraft being delivered to PAR unless the PAR activity is also the overhaul activity (NARF) for the engine.

3. The engine installed in an aircraft on delivery for PAR is not necessarily the engine installed on receipt from PAR. The PAR activity will advise the reporting custodian if a change is made.

804. AIRCRAFT ENGINE CONTAINERS

1. Cases have been reported wherein capability to ship engines to NARF has been impaired due to lack of containers because containers were used to ship crash damaged engines.

2. Each H&MS will ensure that containers are available for shipping engines to NARF without undue delay. H&MS should have containers available for each spare engine on hand. Containers are available through normal supply channels.

3. Failure to remove or eradicate old markings prior to re-use of a containers for shipping accounts for many misrouted and lost shipments.

a. Old tags and labels will be removed or completely obscured before a container is shipped.

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b. If removal is not practical, the label may be painted over, effaced or effectively scratched out.

c. New shipping tags/labels will be affixed in such a manner as to minimize the possibility of their tearing or rubbing off.

805. INCORPORATION OF ENGINE BULLETINS/CHANGES

1. The basic responsibility for engine configuration remains with the reporting custodian of the engine.
2. Engine bulletins/changes will be incorporated as directed by "compliance" section of the directive.
3. Change Kits will be requisitioned by reporting custodian and delivered with the engine to the supporting IMA when compliance is at IMA level.
4. Compliance with engine bulletins/changes may be requested of PAR activities by inclusion on the aircraft PAR letter. Only those bulletins/changes which can be incorporated during the periodic inspection due should be requested.
5. Designated complete repair activities will requisition kits and comply with bulletins/changes that are assigned CER activity compliance.
6. Reporting custodians may request the supporting IMA comply with bulletins/changes during engine repair (or periodic inspection if the IMA performs this function).
7. IMA activities will provide all possible assistance to supported units in the maintenance, repair, and trouble shooting of gas turbine engines.

806. REPAIR-COMPLETE ENGINE REPAIR AND POOL OF GAS TURBINE ENGINES

1. OpNav Instruction 4790.2 defines complete repair of gas turbine engines: established policy regarding the assignment of this maintenance responsibility and delineates the scope of responsibility for activities performing and supporting complete repair of gas turbine engines.

a. Activities presently assigned CER capability within 1st MAW will continue to perform this maintenance function.

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b. Designation or deletion as a designated CER activity for any specific engine will have prior approval of CG, 1st MAW.

2. The H&MS will perform QEC build-up of gas turbine engines in support of assigned units.

a. When possible, spare QEC engines will be maintained at the H&MS in support of assigned units.

b. Spare QEC'd engines will be issued to supported units to replace those inducted into repair or complete repair (when available).

3. Afterburning engines will be built up with the afterburner installed by the supporting IMA.

4. All malfunctioning engines removed from an aircraft will be processed through the IMA if not repairable by the organizational level maintenance activity.

807. ENGINE TEST STAND/CELL

1. Portable engine test stands adapted/modified for the model engine/supported shall be in the custody of each IMA. These stands will be maintained in operable condition and positioned so as to be available for use at any time.

a. Systematic calibration of the test stand/cell engine control instrumentation will be scheduled by the NAVAIRSYSCOM-REPAC at least every six months or as required.

b. Test cell correlation for a CER/IMA activity will be programmed by the NAVAIRSYSCOMREPAC as required. This correlation will consist of a dynamic comparison of CER/IMA test cell performance with that of a master test cell located at a NARF for a particular engine.

c. Test stand/cell runs will be accomplished on engines as necessary and/or as directed by inspection requirements to ensure reliability of the engine prior to installation in the aircraft.

d. An energetic and effective FOD Program will be pursued in the test stand area.

e. A minimum of two qualified technicians will be assigned to the test stand/cell during run up.

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f. Test stand operators will possess a yellow equipment operators license.

g. In the event the test stand is remotely located so that taxiways/runways must be crossed when taking the engine out for test, strict adherence to station regulations concerning crossing of taxiways/runways will be enforced by NCOIC of the turnup crew.

2. Test stand reporting, reference COMFAIRWESTPAC Instruction 13900.1.

a. A monthly message report of jet engine test stand status shall be made to COMFAIRWESTPAC denoting all deficient equipments. It will include a statement as to whether the deficient equipment effects the testing of type engine being tested. Submit message report on the last working day of each month, direct to COMFAIRWESTPAC, info this Headquarters on all correspondence.

b. When a jet engine test stand is out of service creating a work stoppage in excess of forty-eight (48) hours, a message report shall be made to COMFAIRWESTPAC with this Headquarters as an info addressee noting local action taken and type assistance required to expeditiously return the stand to full operational status.

808. FOREIGN OBJECT DAMAGE (FOD)

1. FOD remains the greatest cause of premature gas turbine engine removal. Critical shortages of spare engines and parts are further magnified by Foreign Object Damage (FOD) causing premature engine removal. The implementation of an aggressive FOD prevention program will contribute significantly to a reduction in the FOD rate. COMNAVAIRPAC Instruction 13000.20 established the program in NAVAIRPAC for the prevention of Foreign Object Damage to Gas Turbine Engines.

2. Foreign Object Damage (FOD) prevention inspection criteria will be included in 1st MAW administrative and material inspections.

809. SCHEDULED REMOVAL COMPONENT CARDS (SRC)

1. All units assigned maintenance of Naval Aircraft Engines will ensure required SRC records are maintained current and valid for installed engines.

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2. The instructions listed in paragraph 607, chapter 6 of Wing Order 4790.2 applies to aircraft engines as well as the aircraft.

810. CANNIBALIZATION OF ENGINES

1. Guidelines established by COMNAVAIRPAC Instruction 4700.17 shall be utilized for aircraft engines.

2. Cannibalization of engines shall be made only on approval of the Group Aircraft Maintenance Officer.

3. Cannibalization will be held to a minimum consistent with operational commitments, urgent training requirements and to meet minimum standards of unit readiness.

4. Cannibalization of engines shall be stringently monitored and positive action taken to ensure replacement of the removed item.

811. ENGINE OPERATING HOURS BETWEEN INSPECTIONS

1. If the inspection is deferred (refer volume II para 1104 (C) page 11-3 of OPNAV Instruction 4790.2) and unpredicted operational commitments cause operating hours to reach accumulated CNO planned operating utilization factor prior to next scheduled aircraft calendar inspection.

2. There is no flight hour limitation between calendar inspections provided excessive over utilization has not compromised or impaired material reliability or integrity of the aircraft or engine.

3. It is the responsibility of the unit Maintenance Officer to ensure aircraft/engine integrity is not sacrificed due to excessive engine operating time between inspections.

812. ENGINE MAXIMUM OPERATING TIME (MOT)

1. Most aircraft engines have specific Power Plant Bulletins which specify MOT or established Target MOT. Bulletins establishing target MOTs also establish milestone operating times and reporting criteria of engines reaching these milestones.

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2. The requirement for reporting custodians of engines to report at specified milestones is to be complied with as directed. When sufficient engines have reached a milestone and has DIRs completed, and material reliability warrants, the controlling custodian (COMNAVAIRPAC) will direct activities to proceed to the next milestone, etc.
3. When final milestone is passed and as target MOT is reached, activities will still report engines reaching target MOT until otherwise directed by COMNAVAIRPAC.
4. When reporting engines reaching milestone reporting times, include NAVAIRSYSOMREPAC, CG, 1stMAW, and the cognizant NAVAIREWORKFAC as info addressees. Information to all concerned will reduce awaiting disposition time as DIR control numbers and disposition instructions from COMNAVAIRPAC can be expedited.

813. AIRCRAFT ENGINE RECORDS (NAVWEPS FORM 13700/3)

1. NAVWEPS Form 13700/3 will be initiated by the 1stMAW unit accepting the engine into the 1stMAW inventory, installed or un-installed.
2. A duplicate card will accompany the aircraft engine log whenever the engine is transferred within the 1stMAW, or from 1stMAW assets.
3. Each custodian will ensure the proper entries of each transaction are entered on the card.
4. The original card will be retained on file for 6 months at the unit transferring the engines.

814. PRESERVATION OF NAVAL AIRCRAFT ENGINES

1. NAVAIR 15-01-500 and NAVAIR Instruction 4750.1 contains the instructions necessary for preservation and depreservation of Naval aircraft engines. These instructions are applicable to all Naval aircraft engines and auxiliary power units. The contained instructions cover the period from the time an engine is destined for an activity or storage until returned to service.
2. Procedures outlined in NAVAIR 15-02-500 are considered the minimum necessary to insure satisfactory corrosion prevention. Deviations shall not be made except by personnel who are designated such responsibility by the Commanding Officer.

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CHAPTER 9

AVIONICS

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901. AVIONICS. This Standing Operating Procedure [SOP] is applicable to all Marine Corps Avionics Maintenance Activities under the cognizance of the 1st Marine Aircraft Wing and units attached thereto.

902. GENERAL AVIONICS POLICIES

1. The senior Avionics Officer of the supporting squadron [IMA] is the Group Avionics Officer, and will exercise cognizance over the maintenance of avionics equipment within the Group. He will be designated as the Group Avionics Officer as a primary duty and as the Group ECM/DECM Coordinator as an additional duty by Group Special Order. Periodic visits and inspections will be made to ensure close coordination and liaison is maintained between organizational maintenance activities and the supporting intermediate maintenance activity.

2. All aircraft Groups and supported squadrons will publish an SOP to include instruction on the functioning of the Avionics Division performing intermediate and/or organizational maintenance.

3. These procedures will be in accordance with OPNAV Instruction 4790.2, this SOP and other existing instructions.

4. Variations in organizations, equipments and missions will dictate the employment of different methods, but procedures will be standardized when feasible.

5. In the execution of this policy, Commanding Officers shall encourage formulation of methods and procedures, and seek out tried and proven procedures that have been developed by other organizations in order to improve efficiency.

6. All groups and squadrons will furnish the Wing Avionics Officer published copies of all SOPs, orders and instructions relative to avionics matters.

903. GENERAL AVIONICS PROCEDURES. All subordinate units will standardize procedures and methods as directed by higher authority. All Avionics Officers of Groups and Squadrons are responsible for all of the following:

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1. The guidance and control of all Avionics Test Equipment, Avionics Material and Personnel under their cognizance.
2. All avionics personnel will be under the control of the Avionics Officer and, when facilities permit, the working spaces shall be consolidated into a central location for proper coordination.
3. Avionics Officers will review records of avionics personnel for technical abilities, and required knowledge for assignment as Collateral Duty Inspectors. Accordingly, he will make the necessary recommendations to the Quality Assurance Officer for these assignments. The number of Collateral Duty Inspectors assigned shall be determined by overall requirements and existing directives. OPNAV Instruction 4790.2 directs and amplifies policies for assignment of Collateral Duty Inspectors and all such assignments will be in writing and signed by the respective Commanding Officer.
4. Avionics Officers will assign an avionics man on a permanent basis to the Quality Assurance Division and he will function as directed by the Quality Assurance Division Officer. The individuals selected for this assignment shall be screened for knowledge and ability in the avionics field and should be highly motivated toward obtaining quality performance of equipments and systems. This man shall be designated in writing by the Commanding Officer.
5. All avionics personnel assigned will be trained or will receive training through formal or informal schooling on 3M procedures.
6. The Group Avionics Officer is responsible for ensuring that personnel maintaining COMSEC equipment are graduates of an approved unlimited/limited maintenance course and are performing maintenance functions as prescribed by applicable instructions and maintenance manuals. Personnel receiving informal indoctrination on proper handling of cryptographic equipment and designated by the Commanding Officer are permitted to remove inoperative COMSEC equipment from the aircraft and replace with RFI equipment. This equipment will be handled in accordance with applicable security regulations [Wing Order 02200.1].

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7. He will ensure that periodic first aid lectures are scheduled, and that all avionics personnel are familiar with the first aid procedures for electrical shock.
8. He will ensure that first aid posters and instructions for the proper use of applicable apparatus for detaching shock victims from electrical equipment are displayed in the avionics area.
9. It is suggested that first aid kits, including pharyngeal devices [airways], be made available in the immediate area of application for emergency first aid measures.
10. The Avionics Division will be organized and function in accordance with OPNAV Instruction 4790.2.
11. He will ensure that the Aircraft Maintenance Officer is currently informed of all changes in avionics maintenance procedures, personnel and status pertaining to 3M accounting and all problems affecting the maintenance effort.
12. He will ensure that all reports generated in or required of the avionics division are prepared in a timely manner, accurate and are submitted as directed.
13. Avionics Officers will review all beyond capability or maintenance [BCM] actions for validity of such actions, for proper use of BCM Codes and for determination of those areas that require corrective action toward improvement of avionics maintenance.
14. Avionics Officers will ensure that an organizational chart is maintained and that it reflects the total personnel assigned, current strength, T/Os and Manning Levels.
15. The Avionics Officer will request the necessary material for avionics pre-expended bins. He will make all requirements for initial installation, increases or deletion of such material known through the Aircraft Maintenance Officer and ensure that the applicable allowance list is updated to reflect any changes.

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16. The Group Avionics Officer, coordinating with the Aircraft Maintenance Officer and Supply Officer, is responsible for updating the Repair Cycle Assets [RCA] rotatable pool of those avionics spare sets, modules and components that meet the requirements for the pool. FASO Instruction 4700.25 series, and OPNAV Instruction 4790.2 are applicable in defining those equipments that qualify as Repairable Cycle Assets for installation in the rotatable pool.

17. Avionics Officers will ensure that material required on the "Hot List" for his division is updated and those "Hot Lists" are reviewed periodically for any required changes.

18. The Avionics Organizational and Intermediate IMRLs will be reviewed periodically and changes submitted to the squadron Material Officer as required in accordance with applicable instructions.

19. The Avionics Officers will institute a program that will ensure that each piece of test equipment is checked periodically and that equipment found in need of maintenance [i.e., test leads broken, damaged plugs, loose knobs, missing screws, etc.] are repaired when discrepancies are noted.

20. The supporting Group will be responsible for qualification of test equipment and will ensure that all test equipment scheduled for calibration or qualification meets the due dates as programmed. Supported squadrons will ensure the availability of those scheduled equipments and also will report all new equipments received to the supporting Group for determination of the qualification or calibration cycles and appropriate scheduling.

21. The supporting group will ensure that test equipment due for qualification is processed on schedule and equipment is returned to the user expeditiously. Prior to induction for calibration or qualification, test equipment will be in an operational condition. If inoperative, the equipment will be repaired as directed by applicable instructions.

22. Designated qualification activities will ensure that appropriate qualification standard decals are affixed to standards utilized to perform qualification functions. This equipment will not be utilized for any other maintenance functions. Activities having equipments on hand as standards that have not been furnished in a qualification package may request a standard local decal from the cognizant NAVAIRSYSCOMREPAC [Metrology Division]. The request

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must contain the nomenclature, type, model and serial number of the equipment to be utilized as a standard. A certification that the equipment will be used exclusively as a standard must be included in the request. All such requests will be forwarded via this Headquarters, Attention: G-4 [AVO].

23. The Avionics Officer will continuously review his personnel for eligibility for shortage specialist pay and nominate eligible personnel in accordance with MCO 7220.12.

24. Avionics Officers will be responsible for initiating action to terminate shortage specialist pay for individuals working outside of their billet description, for periods in excess of 90 consecutive days. MCO 7220.12 refers.

25. The Group Avionics Officer, as the ECM/DECM Coordinator, will be responsible for the control of all ECM/DECM equipment transactions. He will ensure timely and accurate inventory and transaction reports are submitted in accordance with CNAP INST 5442.2K, enclosure [17], CNAP INST 3430.4A, and this order.

904. AVIONICS GENERAL INSTRUCTIONS

1. The instructions contained in this SOP are designed to accomplish the standardization of routines, procedures, forms, and records which will give all Avionics Maintenance Divisions within the 1st MAW a paralleled and mutually understood maintenance program.

2. Comments and recommendations concerning these instructions are invited and should be submitted by informal memorandum to the Wing Avionics Officer from Group and Squadron Avionics Officers [via parent Group] whenever an improvement to the program may result.

3. Avionics equipments and systems are now and will become more complex due to the wide varieties of equipment used and missions assigned. A continual update of systems is required. The cost of this equipment and systems have and will continue to increase, and, due to these high costs, the capability of NAVAIRSYSCOM to provide spare avionics sets for in-service and new systems will be limited.

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4. The procurement of spares is predicated on the concept of maximum repair at the lowest level possible. This in turn indicates that the turn around time of non-RFI material must be practiced at the lowest maintenance level possible having the necessary repair equipment/facilities to accomplish this task. The action taken toward the accomplishment of this maintenance will result in a greater range and depth of spare RFI material available to restore operational readiness in the least amount of time.

5. OPNAV Instruction 4790.2 and other available directives and instructions provide the background and necessary guidance for implementation and continuation of the maximum effort toward the care and maintenance of aeronautical equipments.

905. AVIONICS MAINTENANCE CATEGORIES

1. OPNAV Instruction 4790.2 established the Naval Air Maintenance Program in terms of aircraft maintenance levels. The Depot, Organizational, and Intermediate levels of maintenance provide the skilled personnel and support responsibilities based on the depth, facilities and types of equipment required to function at these levels. OPNAV Instruction 4790.2 outlines the functions of the avionics Organizational/Intermediate/Production Division.

2. The First Marine Aircraft Wing activities have been assigned the various maintenance levels as follows:

a. The Group [Intermediate and Organizational Maintenance].

The Group Headquarters and Maintenance Squadron [H&MS] will perform all intermediate and component repair functions for supported squadrons. The H&MS will also be responsible for intermediate and organizational maintenance on aircraft assigned to the H&MS.

b. The Supported Squadrons [Organizational Maintenance].
The supported squadrons perform only organizational maintenance on assigned aircraft. Normally the supported squadron is limited in its maintenance capabilities to such procedures as preflight/postflight checks, removal and replacement of major electronic/electrical and instrument assemblies within the capabilities of line maintenance special support equipment. As a supported unit, all major repairs will be referred to the supporting H&MS.

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3. The avionics organizational/intermediate maintenance, as performed under the Aircraft Maintenance Department as a Production Avionics Division, will conform to OPNAV Instruction 4790.2.
4. The supporting maintenance/supply activities will be operational when required to support all the supported activities commitment schedules. OPNAV Instruction 4790.2 refers.

906. AVIONICS MAINTENANCE [AFLOAT]

1. Avionics maintenance afloat will be under an integrated avionics maintenance system for support of common avionics equipment. The Air Group maintenance shop is under the Group Avionics Officer with technicians from each Marine squadron aboard being assigned to the integrated shops.
2. Maintenance of peculiar avionics equipment may be conducted in the integrated shop or in other spaces as designated by the Air Group. Avionics maintenance afloat will vary by different classes of shops and will be coordinated by COMFAIRWESTPAC, the applicable Carrier Air Group aboard and the deploying Marine Squadron prior to deployment.

907. AVIONICS PERSONNEL

1. The Avionics Officer will screen all incoming avionics personnel for service schooling, technical abilities, and equipment proficiency. He will coordinate the movement and assignment of all incoming avionics personnel by recommendations to the appropriate Personnel Officer.
2. All 1st MAW avionics personnel are required to have a secret security clearance. A minimum confidential clearance is acceptable for avionics areas until a secret clearance is obtained. Those personnel that cannot be cleared will be used in other billets not requiring clearance and will not be utilized in the avionics shops. The Avionics Officer will ensure that all avionics personnel have appropriate access/clearance letters in accordance with MCO 5521.3 and other directives or instructions as applicable.

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3. All avionics personnel will be utilized in their MOS. Personnel that are utilized in billets other than T/O assignment, if out of their field 60 days or longer will be reported to the Wing Avionics Officer via the Monthly Personnel Report.

908. TABLE OF ORGANIZATION LEVEL

1. It is the responsibility of the Avionics Officer to review all T/Os and M/Ls applicable to avionics and to make appropriate recommendations for changes as required in accordance with existing instructions.
2. The M/Ls and O/H assets will be reflected on all Avionics Organizational Charts. The Group chart will, in addition, reflect the M/Ls and O/H assets of supported units.

909. TRAINING

1. General. Training of avionics personnel is a necessary function of the supporting and supported Avionics Maintenance Divisions and is the responsibility of the Avionics Officer.

a. Avionics Officers will ensure that a training syllabus is prepared for personnel of his division. The syllabus will contain those systems and equipment or subjects that are deemed necessary in the performance of maintenance responsibilities. The Quality Assurance Division will be provided the names of personnel to be scheduled for training lectures.

b. Lesson plans will be prepared for all training lectures and will be current and dated. At the completion of lectures, instructors will submit written reports to the Avionics Officer and Quality Assurance Division indicating those personnel in attendance. Lectures are to be prepared and conducted by qualified personnel for all technical training.

c. A Training Status Board will be maintained in each work center and will indicate all assigned personnel, systems qualified in and cross training accomplished.

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d. Training records will be maintained consisting of the assigned training syllabus [OPNAV Form 4790/33], lesson guides, on-the-job training [OJT] and cross training completed.

e. Training records for each individual will be maintained and will indicate all pertinent information on formal school training, technical abilities and system/equipment proficiency and lectures attended.

f. OPNAV Instruction 4790.2 provides the necessary guidelines and forms for the accomplishment of training. Requests for formal training will be coordinated with the Aircraft Maintenance Officer and the applicable Staff Sections in accordance with existing instructions.

2. Supported Squadrons

a. Avionics personnel of the supported squadron will be assigned in equitable numbers, as required on a temporary basis for not less than three months [90 days] to the supporting Group Avionics Shop to perform maintenance on equipment in use in their squadrons and for training in the overall equipment and test equipment. Controlled rotation of personnel assigned to such temporary duty will materially advance the training of the Avionics technicians and will benefit the supported squadron in providing better maintenance of the avionics equipments.

b. The 1st MAW manning level assigned the supported squadron IMA augmentation personnel directly to the supporting Group. Upon deployment or detachment, the supported squadrons will be provided with their IMA augmentation personnel from the supporting Group.

c. The supported squadron will establish a training program in conjunction with the supporting Group avionics training with emphasis on line maintenance procedures and the training of personnel in the performance of organizational level of maintenance for assigned aircraft.

3. Supporting Activity, [H&MS]

a. A training program will be established at the supporting Group using OPNAV Instruction 4790.2 as a guideline. The supported squadron shall be notified of

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scheduled Group training and shall be invited to participate.

b. The supporting avionics Group may assign personnel on a temporary basis to the supported squadron for training and familiarization of the supported equipment. However, these assignments are governed by the work load/training requirements of the supporting Group.

910. AVIONICS MATERIAL. The term "avionics material" shall be interpreted to include all electronic, electrical, fire control system, instruments, test equipment or accessories that are installed, applied to, or are required for the maintenance of Naval aircraft.

1. Pre-expended Bins. These bins consist of many low-value, high-usage items of APA/NSA material not to exceed an item value of \$10.00 each. The stock in these bins will be based on a thirty day period. This means that at least one unit of each specific item stocked in these bins must be used within that thirty day period to qualify for the pre-expended bin or subsequent re-stock of that item.

a. The Avionics Officer and the Supply Officer will determine the material required to be placed in the avionics pre-expended bins.

b. The Avionics Officer will review and update the pre-expended bin allowance lists for increases or decreases of the present items stocked and include requirements for new items.

c. The quantity and depth of pre-expended bins will depend on the type of item and usage furnished. These bins will be established and replenished by the Supply Officer. OPNAV Instruction 4790.2 and supplements thereto pertain to the establishment of pre-expended bins.

d. A high and low level for each item in these bins shall be established, utilizing available usage data. Each item shall have a card or inventory list indicating the FSN, part number, high-level, low-level, and the total

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quantity of each item stocked. The card or list will be placed within or adjacent to that particular container. As an item is used, the total quantity will be adjusted for present on hand quantity and action taken to ensure that used items are replenished when the low level is reached.

2. Rotatable Pool (Repairable Cycle Assets). The items carried in the pool as RCA material are items repairable by the IMA. These are positioned within the pool for ready availability of RFI components to organizational and intermediate maintenance personnel while local repair and supply processing is being completed.

a. The range of pool items is to be determined by the local repair capability of the IMA. Items must have a repetitive issue of at least once a month or more, and must be for support of local mission requirements.

b. OPNAV Instruction 4790.2 lists further guidelines for qualifying RCA material in the rotatable pool. The Avionics Officer, coordinating with the Aircraft Maintenance Officer and Supply Officer, will review the requirements for RCA items and update these as required. FASO Instruction 4700.25 series and supplements thereto are applicable.

3. "Hot Lists". "Hot Lists" for organizational and intermediate Avionics Divisions will be kept up to date. These lists shall indicate page numbers, item, nomenclature, part number, specification number, FSN and publication reference. This list can also apply to the different work centers within the Avionics Division if required.

4. Individual Component Repair List (ICRL). ICRLs will be submitted to the Aeronautical Material Screening Unit (AMSU). The ICRL is an aid to the AMSU personnel to ensure proper screening and dissemination of repairable equipments. This list shall be reviewed as necessary and changes initiated as required to keep the ICRL current. OPNAV Instruction 4790.2 refers.

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5. Test Bench. The Avionics systems shop test bench consists of a test bench harness (TBH), the necessary test equipment, power supplies, work benches, applicable simulators and handbooks for equipment and test equipment. Equipment common to the aircraft configuration supported (bench Standards) shall be considered for purposes of allowance and custody as an integral part of the TBH as listed in the applicable IMRL. OPNAV Instruction 4790.2 refers. All TBH equipment peculiar to aircraft installations will be marked and controlled as an integral part of the TBH.

921. AVIONICS REPORTS. Avionics Officers will ensure that all special reports or reports of a continuous nature will be submitted accurately and on a timely basis. Figures 1 thru 17 of Appendix A of the SOP list requirements and format for all special/continuous reports required, the subject references, classification and activity concerned.

1. Unsatisfactory Material/Condition Report- (UR). OPNAV Form 4790/47 or 4790/47A (Report as required). The Avionics Officer will ensure that Unsatisfactory Material Reports are submitted in accordance with OPNAV Instruction 4790.2.

a. All failures or unsatisfactory conditions of avionics installations, equipments, materials, Naval publications and related technical data designed for use in maintenance and support of the aircraft weapon system will have an UR completed and submitted when the requirement is evident. Instructions pertinent to the preparation and submission of URs are contained in OPNAV Instruction 4790.2 and on the cover sheet of OPNAV Form 4790/47 or 4790/47A.

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2. Unsatisfactory Equipment Report [UER]. DD Form 1686 [Report as required]. An Unsatisfactory Equipment Report will be submitted on operational failures of COMSEC equipment as set forth in the applicable Marine Corps Order. Submission of the UER will be in accordance with MCO 4700.1 with particular attention given paragraph 5 (C) listing conditions that DD Form 1686 will not be used to report.

a. Three [3] copies using DD Form 1686 will be sent direct to CMC as per MCO 4700.1.

b. One [1] copy of DD Form 1686 will be sent to CMC [CODE: (CSY)] via the chain of command for the purposes of recommendation and comment. MCO 4700.1 refers.

912. RECORDS / FORMS

1. Required Reading. The Avionics Officer will ensure that active and standing required reading records are maintained in his division. OPNAV Form 4790/34 will be utilized and folders will be reviewed at least monthly for personnel progress and removal of obsolete material. OPNAV Instruction 4790.2 gives guidelines for establishing required reading. Records will be maintained on the progress of each man in his required reading.

a. Active required reading. This folder will contain maintenance information that the Avionics Officer desires to disseminate.

b. Standing required reading. This folder will contain material that is to be read and initialed by all personnel.

2. Turnover Jackets. These will be established and maintained for all Avionics Officers and NCOICs. Jackets will be current at all times and will contain information on particular billet descriptions and specific duties.

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special projects and programs. Other information may be contained within the jacket as desired or appropriate for retention. An up to date turn over jacket is a valuable asset not only to the individual as a ready reference but as an aid to a new Avionics Officer or NCOIC when reporting into an activity for duty as well.

3. Direct Control. These records will indicate the status of changes and Technical Directive Compliance Forms [TDC] issued and/or completed.

a. Records will be maintained on all AVB, AVC, EMC, EMB, IAVC, IAVB, and AIBs applicable to equipment or systems maintained.

b. Records will be maintained on all Support Equipment Changes [SECs], Airframe Changes [AFCs] and Interim Airframe Changes [IAFCs] that apply to all avionics equipment, test equipment, power equipment and assigned aircraft.

c. To ensure that directives applicable to equipment under test or repair are being monitored, and are accomplished, a data sheet/card will be posted at each test bench installation listing all applicable changes, bulletins, SAMIs, CAMIs, TIMIs, etc. that pertain to that equipment.

d. Avionics material and equipment will be marked in accordance with existing directives/instructions to indicate all changes incorporated as directed by appropriate changes or modification instructions.

4. Sub-Custody Records. Avionics Officers will ensure sub-custody is accomplished on all avionics test equipment and hand tools in his division. He will ensure that a custody card is on file for each piece of test equipment, its location noted, and the quantity of equipment he is responsible for.

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a. The supported squadrons will receive prepositioned test equipment on sub-custody from their supporting Group Avionics Officer; however, allowances of test equipment for organizational maintenance will be computed and reflected on their Individual Material Readiness List [IMRL] as authorized test equipment.

5. Test Equipment History Cards. A complete and accurate maintenance history card will be maintained on each piece of test equipment and recorded on electronic history cards, NAVSHIPS Form 536. The initial placed in service date, repairs, calibration/qualification completed, next due date and support equipment changes required and/or completed will be entered on these records.

6. Tickler File. This file will be maintained on all action correspondence and message action requiring action to be taken.

7. Logs. A requisition log will be maintained in the Avionics Division and will be a consecutive record of all requisitions for material not directly related to a maintenance or TDC action. This log will provide a ready reference for follow-up action on Obligated Milstrip Documents. All requisitions shall be reconciled with the applicable supply section.

8. Maintenance Instruction. Single Action Maintenance Instructions [SAMIs], Continuous Action Maintenance Instructions [CAMIs] and Technical Information Maintenance Instructions [TIMIs] will be prepared when applicable as necessary to accurately interpret special test or inspection instructions received in directive form for dissemination.

a. The OPNAV Form 4790/35 [Maintenance Instruction Form] is usually prepared by the cognizant division; however, it may be drafted by a division designated by the Aircraft Maintenance Officer.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

b. OPNAV Instruction 4790.2 provides amplifying instructions on the purpose and uses of SAMIs and CAMIs and also provides amplifying and additional instructions on procedures and uses of TIMIs.

[1] Single Action Maintenance Instructions [SAMIs] may be used when situations dictate that certain specific work must be accomplished on a one-time basis. This instruction will not take the place of nor supersede the Technical Data Compliance [TDC] Form nor is there a need to duplicate such information on the SAMI. Positive action must be exercised to cancel all SAMIs that have served their purpose.

[2] Continuing Action Maintenance Instructions [CAMIs] are used when specific work must be accomplished at recurring intervals and positive control must be exercised to ensure that the prescribed action is actually accomplished.

[3] A Technical Information Maintenance Instruction [TIMI] may be used when technical information must be promulgated within the activity that is of a nature, such as techniques and local policies, that have served their purpose, but do not direct accomplishment of specific work at a defined time interval [i.e., handling of outstanding material requests/procedures for UR reports].

9. Daily/Pre-flight / and Maintenance Records. These records will be maintained on all equipments [i.e., air-conditioners, generators, etc.]. The applicable MRC cards and NAVAIR/OPNAV forms will be used and shall reflect all preventive maintenance checks and maintenance performed. NAVSUP 2002 Part C lists those units for which MRCs are available and requisitioning procedures.

a. Equipments such as air conditioners and generators for which MRCs are not provided shall have local records and forms made. These forms will be prepared along the same lines as required by MRC cards and NAVWEPS Forms.

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b. Technical manuals applicable to the particular units furnish guidelines for preventive maintenance and daily checks to be performed.

913. INDIVIDUAL MATERIAL READINESS LIST (IMRL) FOR AVIONICS.

The IMRL is a consolidated list of all supported equipment required by the intermediate/organizational activity to perform maintenance in the assigned level of maintenance as designated by OPNAV Instruction 4790.2 and applicable OPNAV Instructions.

1. Avionics Officers of the supporting and supported organizations are responsible for maintaining on hand the required test equipment within the limits of their authorized capabilities and allowances as set forth in their applicable IMRL. They are also responsible for a continual review of the IMRL and with the initiation of recommended changes to or deviations from the IMRL with the appropriate justification. OPNAV Instruction 4790.2 and applicable OPNAV Instructions refer.

2. Test Equipment is issued to supported/independent squadrons as prepositioned items on temporary custody from the supporting activity. All requirements for SSE and TBA equipment shall be listed in the Group/Squadron IMRL.

914. SAFETY/SECURITY

1. The Avionics Officer is responsible for enforcement of safety and security regulations for his division as set forth in applicable directives and instructions. NAVMAT P5100 and enclosure (4) of Marine Corps Order 5100.8C apply. Regulations and instructions will be posted and are required reading material.

a. Equipment and applicable records will be classified in the same manner as documents/publications and shall be similarly safeguarded. MIL-HDBK-140A lists applicable classification of equipments.

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b. Test equipment will be marked when classified and will be safeguarded in the manner applicable to that particular classification.

c. Safety and security lectures will be conducted periodically to ensure that all avionics personnel are aware of all safety and security measures and regulations.

d. A scheduled program will be instituted by Avionics Officers to ensure that periodic inspections of equipment power connections, ground connections, power plugs, fusings, interlocks and chassis grounds are free of unsafe conditions. Electrical Material Change 42-60 provides direction for updating test equipment with three connector power cords and three prong plugs for safe grounding of equipment.

[1] Rubber floor matting will be of the type approved and specified by MIL SPEC MIL-M-15562B.

[2] Work Benches shall be inspected for condition of electrical power panels, receptacles and wiring, common bonding between benches, bench grounding and grounding leads.

[3] High voltage signs will be openly displayed at each applicable installation or outlet.

915. BATTERY SHOPS. Battery shops will be established and operated in accordance with applicable instructions/directives and all safety rules and regulations. Warning signs shall be posted throughout the shop. Deluge showers shall be located in close proximity to the battery shop and shall be clear of obstacles. An alarm shall be affixed to the shower to indicate the need of emergency assistance should the shower be activated. NAVWEPS 17-15BAD-1, Handbook of Service and Maintenance Instructions, outlines the maintenance, safety procedures and records required for the proper operation of the battery shops.

1. If adequate maintenance instructions for the proper maintenance, repair and overhaul of storage batteries are not available, a request shall be directed to NAVAIR, Attn: CODE AIR53682A. This request for instructions shall contain the manufacturers name, address, and the part number of the battery.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

2. To eliminate the possibilities of interchange of batteries and associated tools used in maintenance of these batteries, a color code system shall be established in each battery shop. All tools used for maintenance of acid batteries will be painted PINK in color and all tools used in maintenance of alkaline batteries will be painted BLUE in color. If both types of batteries are being maintained, the battery shops shall be physically separated and the interior of each, insofar as practicable, will be painted in the corresponding color, acid type PINK and alkaline type BLUE.

916. MAINTENANCE/QUALIFICATION OF AVIONICS SUPPORT EQUIPMENT

Avionics support equipment includes electronic/electrical test sets, simulators, current, power, and wave form measurement equipment, electro-mechanical devices, vacuum-pressure, chemical, temperature and fuel quantity indicator test sets, missile test sets, etc. All test equipment shall be complete, in good condition and within specified calibration/qualification periods.

1. Test Set Maintenance

a. Maintenance of support equipment is a function of the intermediate maintenance activity, based upon ownership of the intermediate/organizational avionics test equipment. The Group Avionics Officer is responsible for ensuring that proper maintenance is performed on support equipment.

b. It is the responsibility of the Avionics Officer to ensure that operational test equipment is available when scheduled for calibration. When test equipment is inoperative and determined beyond the capability of the IMA to repair, a request for repair and calibration will be made to the Officer in Charge of the Mobile Calibration Complex (MCC-1) in accordance with Wing Order 4355.2.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

2. Test Equipment Calibration. The calibration of test equipment will be accomplished in accordance with existing instructions and directives. The Officer in Charge of the Mobile Calibration Complex One [MCC-1] shall be informed by the Group Avionics Officer when it has been determined that instruments/equipments will not be available as scheduled, at least five [5] days prior to the scheduled induction date.

3. Test Set Qualification. This function is the responsibility of the Group Avionics Officer. The qualification of selected test equipment shall be accomplished in accordance with existing directives and instructions.

a. The Group Avionics Officer is responsible for ensuring that all equipments/instruments due for calibration/qualification are scheduled and delivered on scheduled induction dates.

b. The using activity Avionics Officer will ensure that equipment/instruments are delivered as scheduled for calibration/qualification in accordance with existing instructions. Wing Order 4355.2 refers.

917. LETTER TYPE DIRECTIVES

1. The Group Avionics Officer is responsible for the incorporation of all letter type directives applicable to the H&MS and for those to be incorporated at the supported squadron level.

2. This responsibility is not limited to Electronic Material Bulletins/Changes or Avionics Bulletins/Changes, but to any letter type directive that affects the operation of equipment under his cognizance.

918. COMSEC EQUIPMENT

1. Wing Order 02200.1 pertains to COMSEC and provides instructions and references applicable to accounting, security reporting, maintenance and emergency disposition of the equipment.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

2. Only personnel that are graduates of an approved course of instruction for either limited or unlimited maintenance of the COMSEC equipment shall be permitted to maintain or repair this equipment.

a. Unlimited maintenance can be performed only by graduates of the prescribed unlimited maintenance course. These personnel are authorized to remove, replace and manufacture cabling/wiring for the repair of aircraft or equipment, perform all adjustments on the equipments, certify initial installations of the system in the aircraft and perform all maintenance that a limited maintenance graduate performs.

b. Limited maintenance personnel must be graduates of the prescribed limited maintenance course. These personnel are permitted to perform maintenance such as removal/installation of the black box and perform operational checkout as directed in the applicable maintenance manual.

c. OPNAV Instruction 2221.3 sets up the criteria for ensuring the competency of personnel to install, maintain and repair cryptographic equipment.

d. Personnel who have been formally indoctrinated in procedures and handling requirements for cryptographic material and security information are authorized to remove COMSEC equipment from its operating position and replace it with another equipment for maintenance/operational purposes. The sole tasks permitted are disconnecting and reconnecting the keyed cables to the equipment.

919. MOBILE MAINTENANCE FACILITIES

1. The Group Avionics Officer will control all avionics mobile maintenance facilities [MMFs]. Avionics MMFs will not be assigned to organizational levels of maintenance.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

a. The Group Avionics Officer will be responsible for the monitoring, inventory and upkeep of the MMFs. He will ensure that preventive maintenance, inspection, service, and lubrication is performed in accordance with instructions as contained in NAVWEPS 19-25-157. Upon request from a deploying unit, the supporting activity will outfit each supported unit with the necessary equipment and provide IMA augmentation personnel as required to support the assigned aircraft systems.

b. The Group Avionics Officer will ensure that configuration control of selected special purpose vans having an assigned IMRL will be closely maintained. The IMRL reflects those required equipments and quantities that will be maintained on hand.

2. The Group Avionics Officer will ensure that all transfers/receipts of avionics maintenance vans are reported by message to 1st MAW [Attn: G-4 AVO]. Message reports will contain the USN serial number, type, model, complex number, van identification and type of air conditioner installed.

920. COORDINATION AND INSPECTION. The Group Avionics Officer is the direct representative of the Group Commanding Officer in all avionics matters and shall perform staff cognizance over avionics maintenance performed in the supported squadrons. Periodic liaison visits and inspections will be made as necessary to ensure that proper preventive maintenance procedures are in effect and properly executed in accordance with applicable instructions and directives. Continuous liaison/coordination between Avionics Officers of supported and supporting squadrons is mandatory.

1. Avionics technical inspections will be conducted annually in conjunction with A&M inspections. These inspections will be conducted in accordance with the format available from the Wing Inspector. Staff visits will be scheduled as required for liaison purposes.

2. Problems concerning avionics installations that affect the capability of the aircraft to perform its designed

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

mission will be resolved by the most expeditious means within the parameters of applicable maintenance and safety directives or instructions. Action taken in solving these problems will be brought to the attention of all echelons in the chain of command. Problems encountered at one level of maintenance capability will be immediately referred to the next higher level of maintenance for assistance.

921. PERIODIC INSPECTIONS

1. Avionics Officers will ensure that established inspections and preventive maintenance procedures are both adequate and complete. The Handbook of Inspection Requirements [HIR] will be interpreted so as to afford a maximum of preventive maintenance toward the realization of the capabilities of the equipments supported. Inspections of aircraft for which HIRs have not been issued will be in accordance with existing periodic interval requirements to coincide with maintenance check schedules.

2. Bench maintenance checks will be performed in accordance with established test bench alignment procedures as contained in the Handbook of Service Instructions. Equipment removed from aircraft for periodic checks will be completely serviced and tested.

3. It is the responsibility of the Avionics Officer of the supported organization to determine the requirements for such periodic checks on particular elements. Close liaison must be established between avionics and the Aircraft Maintenance Department so that avionics equipment checks will coincide with the periodic aircraft checks and planned schedules.

922. PROPOSED MODIFICATIONS TO NAVAL AIRCRAFT AND RELATED EQUIPMENT

1. Activities are permitted to make trial installations of proposed modifications to Naval aircraft and related equipment when considered desirable; however, an approval of the Major Cognizant Controlling Custodian must be obtained prior to any trial or prototype installations.

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2. The following provisions must be met prior to prototyping:

a. The approval of the Major Cognizant Controlling Custodian [COMNAVAIRPAC or NAVAIRSYSCOMREPAC] as appropriate is obtained.

b. That operational and personnel safety is not impaired.

c. That performance characteristics are not adversely affected.

d. That locally available material will be used.

3. The Cognizant Controlling Custodian will be informed of the justification for and the description of the change and unit involved prior to any trial/prototype installation.

4. When satisfactory completion/evaluation has been obtained the originator will prepare and submit a rough draft of the proposed technical directive. The submission of this draft will be via the chain of command with information copies to all affected Major Cognizant Controlling Custodians.

5. NAVAIR Instruction 13050.6 shall be complied with on any proposed modification to Naval Aircraft and related equipments.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTANCE

APPENDIX A

AVIONICS REPORTS

- A. Unsatisfactory Material/Condition report (UR OPNAV Form 4790/47/47A)
- B. Unsatisfactory Equipment Report (UER DD Form 1686)
- C. Test Bench Out of Service Report
- D. Personnel Report
- E. Mobile Maintenance Facilities (MMF) Transactions Report
- F. ECM/DECM Loss Report
- G. ECM/DECM Transfer/Receipt Report
- H. Inventory of selected ECM Components
- I. Qualification Summary Report
- J. KY-28 Implementation Report
- K. KY-28 Loss Report

FIGURE 1-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTANCE

REPORT A

SUBJECT: Unsatisfactory Material/Condition Report (OPNAV Form 4790/47/47A)

REFERENCE: (A) OPNAV Instruction 4790.2 and OPNAV Form 4790/47/47A

REPORT REQUIREMENTS: As required upon failure/malfunction

REPORTING ACTIVITY: All units

REPORT CLASSIFICATION: As required

The UR will be submitted on failures or unsatisfactory condition of avionics equipments, installations, materials, Naval publications, and related technical data designed for use in maintenance and support of the aircraft weapon system.

FIGURE 2-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT BSUBJECT: Unsatisfactory Equipment Report [DD Form 1686]REFERENCE: [A] MCO 4700.1
[B] MCO 002651.1CANCELLATION: NONEREPORT REQUIREMENTS: As requiredREPORTING ACTIVITIES: All Groups having KY-28 installed in aircraft.REPORT CLASSIFICATION: As required

1. An Unsatisfactory Equipment Report [UER] will be submitted on operational failures of KY-28 equipment as set forth in reference [A]. Submission will be in accordance with reference [A], with particular attention given to paragraph 5C listing conditions when DD 1686 will not be used to report.
2. Three copies of DD Form 1686 will be forwarded directly to CMC in accordance with reference [A], paragraph 6A[1].
3. One copy will be forwarded to CMC via the chain of command for purposes of recommendations and/or comments in accordance with reference [A], paragraph 6A[2].
Reference [B] refers:

FIGURE 3-9.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT CSUBJECT: Test Bench Out of Service Report

REFERENCE: [A] COMNAVAIRPAC Instruction 4790.6
[B] Wing Order P4700.9B
[C] Wing Order P4400.16
[D] CG 1st MAW 040250Z Sep 71

ENCLOSURE: [1] Seven Day Test Bench/Facility Out of Service Report, Report Symbol 4790-6
[2] Test Bench/Facility In Service Report, Report Symbol 4790-6

REPORT REQUIREMENTS: As required by messageREPORTING ACTIVITIES: All GroupsREPORT CLASSIFICATION: As required

1. Group Maintenance/Avionics Officers are directed to submit a Test Bench Out of Service Report at any time an IMA test capability is lost (totally or partially) in accordance with CNAP Instruction 4790.6. This report applies to all test facilities utilized by aircraft maintenance and/or avionics to perform test/repair services to equipments and/or systems. All reports will be serialized e.g. 1-71, 2-71, 3-71, etc.

2. The Test Bench Out of Service Report will be submitted within seven days after the initial request for technical and/or supply assistance has been submitted. In special situations affecting aircraft readiness, seven-day reports may be submitted earlier if the required parts are not available locally. The format provided as enclosure [1] will be utilized for this report.

3. Assistance for return of Special Support Equipment [SSE] that is at a Calibration or Qualification Lab and required for test bench checkout should be the subject of separate correspondence.

FIGURE 4-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

4. A follow-up report will be submitted when the downed bench is placed back into operational service. This follow-up report will be in the format provided as enclosure (2). Serialize these reports using the same serial number as the TBOS report it completes.

5. If supply action on a requisition for a part or parts required to restore bench capability has not been complete within seven days, a request for supply assistance shall be generated in accordance with reference (C), Wing Order P4400.16 paragraph 612, page 6-31. To assist in determination of proper time for submission of request for supply assist use date time groups of Test Bench Out of Service Reports submitted to COMFAIRWESTPAC.

6. Remarks should include type aircraft and system effected by loss of this capability.

FIGURE 4-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

SEVEN DAY TEST BENCH/FACILITY OUT OF SERVICE REPORT,MESSAGE FORMAT

From: REPORTING ACTIVITY

To: COMFAIRWESTPAC

Info: COMNAVAIRPAC
CG FMFPAC
CG FIRST MAW
NAVAIRSYSCOMREPAC
DEPCOMFAIRWESTPAC
MWSG ONE SEVEN
APPLICABLE H&MS

UNCLAS E F T O //NO4790//

CFWP 714, CNAP 437, FMFPAC G-4 AMM, FMAW G-4 AVO/WSO

MWSG-17 MCC-1

SEVEN DAY TEST BENCH/FACILITY OUT OF SERVICE REPORT, REPORT
SYMBOL 4790-6 SER NO 1-71

- A. COMNAVAIRPAC 4790.6
- B. WGO 4790.2

1. IAW REFS A AND B THE FOLLOWING REPORT IS SUBMITTED:
 - A. IDENTIFICATION OF TEST BENCH/REPAIR FACILITY/SERIAL NUMBER
 - B. DESCRIPTION OF DISCREPANCY
 - C. DATE-TIME-GROUP (DTG) OF INITIAL MESSAGE REQUISITION
 - D. FULL MILSTRIP INFORMATION FOR P/N OR FSN REQUIRED, INCLUDING LATEST STATUS AND LAST HOLDING ACTIVITY.
 - E. ESTIMATED TIME BEFORE CAPABILITY WILL BE RESTORED AND WHETHER CONTINUED SUPPORT IS POSSIBLE UTILIZING ALTERATE EQUIPMENT.
 - F. REQUIREMENTS FOR TECHNICAL ASSISTANCE IF NEEDED.
 - G. ADDITIONAL REMARKS AS DEEMED PERTINENT. (INCLUDE TYPE AIRCRAFT AND SYSTEMS EFFECTED BY LOSS OF THIS CAPABILITY.)

FIGURE 5-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

TEST BENCH/FACILITY IN SERVICE REPORT MESSAGE FORMAT

FROM: REPORTING ACTIVITY

TO: COMFAIRWESTPAC

INFO: COMNAVAIRPAC
CG FMFPAC
CG FIRST MAW
NAVAIRSYS COMREPAC
DEPCOMFAIRWESTPAC
MWSG 17
APPLICABLE H&MS

UNCLAS E F T O //N04790//

CFWP 714, CNAP 437, FMFPAC G-4AMM, FMAW G-4 AVO/WSO,

MWSG-17 MCC-1

TEST BENCH/FACILITY IN SERVICE REPORT, REPORT SYMBOL
4790-6 SER NO 1-71

- A. COMNAVAIRPAC INST 4790.6
- B. WGO P4700.9B

- 1. IAW REFS A AND B THE FOLLOWING REPORT IS SUBMITTED:
 - A. IDENTIFICATION OF TEST BENCH/REPAIR FACILITY/SERIAL NUMBER
 - B. ACTION TAKEN TO RESTORE BENCH
 - C. TIME REQUIRED TO OBTAIN PART FROM FIRST INTRODUCTION OF THE REQUISITION.
 - D. TOTAL TIME CAPABILITY WAS LOST
 - E. TECHNICAL ASSISTANCE UTILIZED
 - F. DATE-TIME-GROUP [DTG] OF SEVEN DAY TEST BENCH/FACILITY OUT OF SERVICE REPORT
 - G. ADDITIONAL PERTINENT REMARKS OR EXPLANATIONS

FIGURE 6-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT D

SUBJECT: AVIONICS PERSONNEL REPORT

REFERENCE: [A] First Marine Aircraft Wing Aircraft Maintenance Standing Operating Procedures [WGO P4790.2]

ENCLOSURE: [1] Personnel Report Format

CANCELLATION: Avionics Bulletin 1-68

REPORT REQUIREMENTS: Monthly, by letter. The report is due not later than the 28th day of each month prior to reporting month.

REPORT CLASSIFICATION: Unclassified

1. Group Avionics Officers will submit a complete roster of all assigned Officers, Key Staff NCOs, avionics personnel assigned duties outside 6200 field, and all personnel with a primary/secondary MOS of 6251.
2. Personnel reports will be submitted in the format example provided as Enclosure (1).

FIGURE 7-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

<u>ACTIVITY HEADING</u>		<u>DATE</u>	
From: Avionics Officer			
To: Avionics Officer, 1st MAW [G-4]			
Subj: Avionics Personnel Report			
Ref: [A] WgO 4790.2			
Group Avionics Officer			
1. Activity	Rank/Name	MOS	RTD
Squadron Avionics Officers			
1. Activity	Rank/Name	MOS	RTD
2.			
Group Avionics NCOIC			
1. Activity	Rank/Name	MOS	RTD
Squadron Avionics NCOICs			
1. Activity	Rank/Name	MOS	RTD
2.			
Avionics Officers/SNCOs assigned to primary duties outside 6200:			
1. Activity	Rank/Name	MOS	RTD ASSIGNED DUTIES
Sgts and below assigned primary duties outside 6200 field in excess of 60 days:			
1. Activity	Rank/Name	MOS	RTD ASSIGNED DUTIES
Personnel with MOS 6251 as primary or secondary:			
1. Activity	Rank/Name	MOS	RTD ASSIGNED DUTIES
Losses for next three months [SNCOs]			
Activity, Name, Rank, MOS and RTD			
Page one of two pages			

FIGURE 8-9

[illegible]

FIGURE 9A-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

MOS	E-5				E-4/3				E-2/1				TOTAL	
	ML	OH	EL	*	ML	OH	EL	*	ML	OH	EL	*	ML	OH

EL - Expected losses next month. Do not show rotation between Groups.

* - Expected losses month after next.

DATE _____

List critical shortages _____

ACTY _____

FIGURE 9B-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT E

SUBJECT: Mobile Maintenance Facilities [MMF] Transaction
Report

REFERENCE: [A] CG FMFPAC 090428Z JUN 71

REPORT REQUIREMENTS: As changes occur

REPORTING ACTIVITY: Group Avionics Officer

REPORTING CLASSIFICATION: Unclassified

1. Reference [A] established format for intra MAG/Wing/
External MMF transaction [transfers/receipts/reassign-
ments].

FIGURE 10-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT F

SUBJECT: ECM/DECM LOSS

REFERENCE: [A] Wing Order 010550.12

REPORT REQUIREMENTS: By priority message within 48 hours of any loss.

REPORTING ACTIVITY: All Groups assigned ECM/DECM configured aircraft.

REPORT CLASSIFICATION: CONFIDENTIAL or as required

1. ECM/DECM/electronic warfare equipment losses will be submitted in accordance with reference [A] and the format listed as enclosure [1] to reference [A].
2. The designated Group ECM/DECM Coordinator will ensure that strict compliance with reference [A] is adhered to and that reports are complete, correct and promptly submitted.

FIGURE 11-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT G

SUBJECT: ECM/DECM Equipment Transfer/Receipt Report.

REFERENCE: [A] Wing Order 010550.12

REPORT REQUIREMENTS: By priority message within 48 hours of transaction.

REPORTING ACTIVITY: All groups assigned ECM/DECM configured aircraft.

REPORT CLASSIFICATION: CONFIDENTIAL or as required

1. Reports will be submitted in accordance with enclosures [2] and [3] of reference [A] on all transfers or receipts of ECM/DECM Equipment and/or ECM/DECM test equipment.
2. Equipment sent to Calibration Labs. shall be included in this report.
3. The designated Group ECM/DECM Coordinator will ensure that compliance with reference [A] is adhered to and that reports are submitted properly and promptly.

FIGURE 12-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT HSUBJECT: INVENTORY OF SELECTED ECM COMPONENTSREFERENCE: [A] COMNAVAIRPAC 3430.4A
[B] COMNAVAIRPAC 040418Z JUN 71REPORT REQUIREMENTS: Monthly by message to 1st MAW ECM/DECM Coordinator.REPORTING ACTIVITY: All Groups assigned ECM/DECM Configured Aircraft.REPORT CLASSIFICATION: CONFIDENTIAL

1. A monthly report will be submitted by message to the 1st MAW ECM/DECM Coordinator [G-4 AVO] in the format provided as enclosure [1] to reach this Headquarters not later than the 28th day of each reporting month.
2. This report shall be as of 2400 of the 25th day of the reported month and will include the ECM components listed in reference [A] as modified by reference [B].
3. The designated Group ECM/DECM Coordinator will ensure that compliance with references [A] and [B] is effected and that reports are submitted promptly and correctly. The accuracy of these reports cannot be over-emphasized. All deviations indicated on supplementary reports must be checked out thoroughly prior to inclusion in and submission of this report to the 1st MAW.

FIGURE 13-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

INVENTORY OF SELECTED ECM COMPONENTS REPORT MESSAGE FORMAT

FROM: REPORTING GROUP

TO: CG 1ST MAW

INFO: APPLICABLE H&MS

C O N F I D E N T I A L //N03430//

FMAW G-4 AVO

INVENTORY OF SELECTED ECM COMPONENTS

- A. COMNAVAIRPAC 040418Z JUN 71
- B. COMNAVAIRPAC INST 3430.4A

1. IAW REFS A AND B THE FOLLOWING REPORT IS SUBMITTED:

- A. SYSTEM: AN/ALQ-76
- B. COMPONENT NOMENCLATURE
- C. FSN
- D. QUANTITY INSTALLED
- E. RFI ON HAND
- F. NON-RFI ON HAND
- G. QUANTITY IN REWORK
- H. QUANTITY DUE IN FROM ALLOCATION/PRODUCTION
- I. ATTRITED/SURVEYED
- J. IN TRANSIT BETWEEN CUSTODIANS

NOTE: Indicate as applicable, zero assets balances for items not in stock or not available locally, but which are authorized by section R initial outfitting list.

FIGURE 14-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT I

SUBJECT: QUALIFICATION SUMMARY REPORT

REFERENCE: [A] COMNAVAIRPAC INST 4355.3

REPORT REQUIREMENTS: Monthly, prior to but not later than the 15th day of each month utilizing Form 11ND-NARF-4355/1

REPORTING ACTIVITY: All Group Qualification Laboratories

1. This report shall be submitted prior to but not later than the 15th day of each month.
2. Report will be submitted to NAVAIRSYS COMREPAC with information copies to COMNAVAIRPAC, COMFAIRWESTPAC, CG FMFPAC and CG 1ST MAW.
3. The summary report will consist of all test and measuring instruments qualified by the Group Qualification Laboratory.

FIGURE 15-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT J

SUBJECT: KY-28 REPORT

REFERENCE: [A] WING ORDER 4790.2
[B] CG FMAW 280437Z OCT 71REPORT REQUIREMENTS: Message report required not later than fifth day of January, April, July and October.REPORTING ACTIVITY: All Groups assigned aircraft with COMSEC KY-28 Equipment installed.REPORT CLASSIFICATION: CONFIDENTIAL

1. Group Avionics Officers are responsible for submission of this report and will ensure this report is correct and submitted on time.

2. The KY-28 Report will be submitted in accordance with references [A] and [B].

FIGURE 16 -9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

REPORT K

SUBJECT: KY-28 LOSS REPORT

REFERENCE: [A] WING ORDER 02200.1
[B] KAG-1 PAR 5103

REPORT REQUIREMENTS: Message report required as losses occur.

REPORTING ACTIVITIES: All Groups assigned aircraft with COMSEC KY-28 equipment installed.

REPORT CLASSIFICATION: CONFIDENTIAL

1. Group Avionics Officers will ensure that this report is submitted as required in accordance with references [A] and [B].

FIGURE 17-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

APPENDIX B

REFERENCES: WING AVIONICS SOP, PAGE 9-1, Paragraph 901 and 903

1. The following list of instructions, orders and manual references are provided as a bibliography for use in conjunction with this SOP.

a. OPNAV INST 4790.2 - 1 January 1971, Naval Aircraft Maintenance Program.

b. WING ORDER 02200.1 - Maintenance of COMSEC Equipment [KY-28].

c. MARCOR ORDER 002651.1 - Maintenance of COMSEC Equipment used in Naval Aircraft.

d. MARCOR ORDER 4700.1 - Use of Unsatisfactory Equipment Report [NAVMAC 10293]

e. FASO INST 4700.25 - Authorized Material Pool Allowances for Component Repair and PAR Programs and Procedures for Stock Recording and Reporting.

f. MCO 5521.3D - Personnel Security Clearance and Access

g. NAVSUP 2002 - Navy Stock List of Forms and Publications COGI Series

h. NAVAIR INST 4420.1B - ADMRL Program; Management and Operation of

i. FMFPAC ORDER 4441.5C - Aeronautical Allowances

FIGURE 18-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

- j. WING ORDER 4440.8A - IMRL Instruction
- k. MARCOR ORDER 5100.8C - Marine Safety Program
- l. MIL-HDBK-140B - Security Classification and Cognizant Activity of Electronics Equipment
- m. WING ORDER 5100.5 - Avionics Electronics and Maintenance Safety for 1st MAW Units.
- n. NAVWEPS 17-15BAD-1 - Naval Aircraft Storage Batteries [HSI/HMI]
- o. WING ORDER 4355.2 - 1st MAW Calibration/Qualification Program
- p. OPNAV INST 2221.3B - Criteria for ensuring the Competency of Personnel to install, maintain, and Repair Cryptographic Equipment
- q. KAM 213B/TSEC - Limited Maintenance Manual
- r. NAVWEPS 19-20E-1 - Maintenance Van, Air Transportable
- s. NAVAIR 19-25-157 - SATS Air Transportable Maintenance Van
- t. NAVAIR INST 13050.6A - Proposed Modification to Naval Aircraft and Related Equipment
- u. COMNAVAIRPAC INST 4355.3 - Fleet Qualification Segment of the Navy Test Equipment Calibration Program; instructions concerning
- v. COMNAVAIRPAC INST 4790.6 - WestPac Aviation Maintenance Facilities
- w. COMNAVAIRPAC INST 11130.1C - Mobile Maintenance Facilities [Vans]

FIGURE 19-9

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

- x. NSA CSE 13-13B - Com Security
- y. KAG-1D/TSEC - Communications Security Policy and Procedures
- z. RPS-4H - Registered Publication System [RPS] Manual
- aa. WING ORDER 02200.2 - Secure Voice Communications Standing Operating Procedures
- bb. WING ORDER 010550.12 - ECM/DECM Equipment Control and Management Program
- cc. WING ORDER 4400.16E - SOP for Supply
- dd. NAVMAT INST P5100 - Navy Safety Precaution Manual
- ee. NAVAIR INST 4700.10 - Management and Administration of MMFs
- ff. MARCOR ORDER 7220.12 - Shortage Specialist Pay Program Regulations
- gg. COMNAVAIRPAC INST 3430.4 -- ECM Inventory Reporting of Selected Electronic Counter Measure [ECM] Components

FIGURE 20-9

CHAPTER 10

AVIATORS EQUIPMENT
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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

1001. AVIATORS EQUIPMENT GENERAL INFORMATION

1. INTRODUCTION. Restructuring of the Aviation Safety Equipment occupational field has formed a union between three separate but related specialties; Flight Equipment, aircraft safety equipment and cryogenics. All three share technical management under the Flight Equipment Officer (MOS 6007) and the senior Aviation Safety Equipment Chief (MOS 6094). The latter designation results from a merger at Master Gunnery Sergeant of all three specialties, two of which had earlier merged at Master Sergeant level to form Aircraft Safety Equipment Chief (MOS 6067). This restructure was based on occupational commonalities; failure to operationally relate these functions will continually impair their continuous growth. Towards this interest the IMA Flight Equipment Officer (billet MOS 6007) will be designated the Group Flight Equipment Officer with responsibilities related to coordinating the efforts of flight and aircraft safety equipment and cryogenics. The inclusion of standing operating procedures for all three of these specialties in a single chapter reflects their intended relationship.

2. QUALITY ASSURANCE. Quality Assurance surveillance in all phases of life support system maintenance and utilization cannot be overstressed. All available personnel and equipment assets must be properly and effectively utilized to ensure system reliance. Any derogation of trust in system reliability injures the safety and readiness posture of this Command. In support of this objective each Marine Aircraft Group will establish a Safety and Survival Equipment Quality Assurance Team composed of appropriate aircraft maintenance and safety personnel. Team assignments will be reported to this Headquarters (Attn: G-4 AMO) listing each assignee by name, rank, MOS and primary billet assignment. The team will make frequent visits to all appropriate units within the Group to observe all phases of aviation safety equipment maintenance and use. Areas of prime interest are:

- a. Equipment condition and application.
- b. Maintenance personnel qualifications, level of training and assignment.
- c. Unit quality assurance procedures.

Discussions concerning visits will be held during the Quarterly Maintenance and Material Task Committee Meeting in accordance with Chapter 3 of this Order.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

A copy of all Aircraft Discrepancy Reports (OPNAV Forms 4790/47 and 4790/47A) submitted on flight equipment, aircraft safety equipment, and cryogenics as appropriate will be forwarded to this Headquarters (Attn: G-4 AMO).

3. CHECKLISTS

a. Each section will keep current the 1st MAW Publication Index of directives for each item of equipment maintained such as: ejection seats, regulators, oxygen masks, parachutes, helicopter rescue slings, hoists, flight clothing, protective helmets, life preservers and rafts, oxygen/nitrogen equipment, etc. Consolidation of information obtained will:

- (1) Minimize the possibility of misfiled or lost directives.
- (2) Assure continuity of information despite personnel transfers, leave, TAD, etc.
- (3) Provide a realistic training syllabus based on need to know information.
- (4) Facilitate determining the extent of individual professionalism, knowledge and performance.
- (5) Provide a quality assurance summary.

b. Those items of equipment requiring maintenance, testing, inspection, and/or replacement at predetermined intervals will be listed with dates due on prominently displayed status board, and in the unit's monthly maintenance plan.

c. Operating instructions and safety precautions sufficient to ensure safety and proper operation shall be posted on or near all test units and/or containers listed below:

- (1) Liquid oxygen/nitrogen equipment.
- (2) Gaseous oxygen/nitrogen equipment.
- (3) Carbon dioxide equipment.
- (4) Vacuum pumps, compressors and engines.
- (5) Tricresyl phosphate (TCP) containers.
- (6) Purging units.
- (7) Chemical containers.

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- (8) Weighing instruments.
- (9) Sewing machines.
- (10) Harness and webbing proof-loading devices.

4. AIRCRAFT CONFIGURATION LISTING. BUWEPS/NAVAIRPAC Instruction 13050.1 lists reporting procedures for the Non-Incorporated Directives Checklist. Aviators equipment and safety/survival sections are directed to screen those printouts to ensure correctness. If a directive has not been incorporated and it has not been listed in the printout, the directive and associated information should be penciled into the copy being returned for inclusion in future non-incorporated listings.

5. EQUIPMENT RECORDS AND REVIEWS

a. Records must be maintained on all equipment requiring modification testing, inspection, servicing or replacement. Information will include; serial number, manufacturer's name, date manufactured, contract number, modifications incorporated and date accomplished, dates of inspection, test or servicing as applicable and the name of the person accomplishing the work. A locally devised record will be used for those items of equipment which do not have individually prescribed record forms.

b. This chapter and references listed are mandatory reading for all Flight Equipment Officers and NCOICs.

c. Quarterly reviews of all references will be accomplished by use of Navy Stock List of Forms and Publications, NAVSANDA 2002, Section VIII Parts C and D and CG FMFPAC/CG 1st MAW Bulletins listing effective directives. The U.S. Naval Aviation Center publications have in the past proved to be an effective supplemental source of reference listing applicable to this occupational field.

6. TRAINING AND INDOCTRINATION

a. Group Flight Equipment/Cryogenics Officers will be briefed by the Wing Flight Equipment/Cryogenics Officer upon assignment. They in turn will brief the squadron Flight Equipment Officers and Section NCOICs as soon as practical after assignment or arrival. Pertinent subjects to be discussed include:

- (1) Directives and Publications.
- (2) Equipment Records.

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- (3) Personnel and Equipment Status.
- (4) Wing and Group Maintenance Policies and Procedures.
- (5) Maintenance Support and facilities available.
- (6) Quality Assurance standards.

b. Training of all personnel will be conducted in accordance with Chapter 17 of this Order.

7. CARTRIDGES, CARTRIDGE ACTUATED DEVICES AND ROCKET CATAPULTS

a. Requirements for cartridges, cartridge actuated devices, and rocket catapults shall be submitted to this Headquarters (Attn: G-4 ORD) 90 days in advance of the closest calendar/special aircraft inspection preceeding the expiration dates of those items requiring replacement. Such information to be maintained in, and extracted from the Aircraft Log Book. Appendix B., WgOrd 8600.1, will be utilized.

b. NAVAIR 11-85-1 Rocket Catapults and Rocket Motors for Aircrew Escape Systems and NAVAIR 11-100-1, Cartridges and Cartridge Actuated Devices for Aircraft and Associated Equipment are the final authorities concerning these devices.

8. USE OF UNAUTHORIZED EQUIPMENT. The use of other than standard Naval Air Systems Command approved equipment is not authorized. No modification or attachment to standard equipment will be made without the prior approval of NAVAIRSYSCOMHQ. The lack of technical directives and support parts prevent the accomplishment of proper maintenance and inspection of this unauthorized equipment. Suggestions for improvements of modifications to existing equipment or the introduction of new equipment should be submitted to NAVAIR-SYSCOMHQ via the chain of command.

9. SAFETY PRECAUTIONS AND PROCEDURES. Aviation safety equipment men are continually exposed to the potential cartridges and cartridge actuated devices. It is imperative that each person so exposed be thoroughly familiar with the equipment on hand. Technical training will emphasize safety during all operations. Only qualified personnel (school trained plus OJT) or the personnel under the immediate supervision of qualified personnel will be permitted to operate or maintain these systems. Comprehensive safety instructions will be posted and will be mandatory reading at least once quarterly for all personnel in flight and safety equipment and cryogenics.

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10. PERSONNEL UTILIZATION REPORT. Group Flight Equipment/Cryogenics Officers will submit to this Headquarters by the fifth (5th) working day of each month, a personnel utilization report. This report for all personnel in MOS 6062, 6064, 6067, and 6068 assigned to respective Groups by name, rank, social security number, MOS, and RTD. For those personnel not working in their primary occupational field, an appropriate billet description will be included.

1002. FLIGHT EQUIPMENT

1. GENERAL. Flight Equipment includes, but is not limited to, parachutes, safety belts and harnesses, flotation devices, flight clothing, oxygen breathing equipment, survival radios, and beacons, rescue devices and items of personnel survival equipment. Maintenance functions applicable to Flight Equipment are detailed in OPNAV Instruction 4790.2.

2. SPECIAL MAINTENANCE INSTRUCTIONS. All Flight Equipment received from other than 1st MAW units will undergo complete calendar inspections upon receipt. Equipment records will be established and/or verified at this time.

3. PARACHUTES AND INSTALLED DEVICES

a. Personnel parachutes will be maintained in accordance with NAVAIR 13-1-6.2. The recommended check-off list in chapter 3 of that reference shall be considered mandatory within 1st MAW.

b. NAVAIR 11-100-1, Cartridges and Cartridge Actuated Devices for Aircraft and Associated Equipment is the final authority for parachute installed ballistic devices.

c. Ejection seats duplex drogue parachutes will utilize the records and documents listed in Chapter 3, NAVAIR 13-1-6.2 to provide a systematic means of control.

4. AIRCREW PERSONAL PROTECTIVE EQUIPMENT

a. All Aircrew Personal Protective Equipment shall be maintained in accordance with NAVAIR 13-1-6.7.

b. Every effort should be made to provide adequate space, adjacent to the Flight Equipment Shop, to allow centrally located storage of this equipment. This will facilitate scheduled inspections and maintenance, while enhancing equipment reliability.

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5. FLOATATION EQUIPMENT. NAVAIR 13-1-6.1 contains information on configuration, application, maintenance and packing of inflatable survival equipment, except for packing and folding of LR-1 life rafts used in rigid seat survival kits (RSSK). This information is contained in NAVAIR 13-1-6.3 Survival Kits and Items.

6. SURVIVAL RADIOS AND BEACONS

a. Equipment installed radios and beacons are to be tested in conjunction with equipment test cycles. Survival radios and beacons shall not be installed where RFI tags indicate that in excess of ten (10) days has elapsed since the last test.

b. All survival radios worn on the aircrewman's person shall be tested for battery performance at least once weekly, and radio function on a recurring thirty day cycle. This is considered to be the maximum allowable test cycle, as more frequent testing of equipment subjected to extremely rigid conditions and exposure to high temperatures is required to ensure system reliability. The mercury battery (FSN IN6135-838-0706) used with the PRC-63 and PRC-90 radios will be tested and inspected in accordance with Interim Aircrew Systems Bulletin Number 248 (NASCHQ 310206Z JAN 70) or superseding directives.

c. COMFAIRWESTPAC Instruction 10127.1 promulgates information regarding allowance of survival radios and related equipment to WESTPAC Aviation units and established information procedures for procurement.

1003. AIRCRAFT SAFETY EQUIPMENT

1. GENERAL. Aircraft safety equipment includes aircraft installed personnel environmental control, emergency egress and canopy systems, gaseous and liquid oxygen breathing systems and other related utility systems. Aircraft safety equipment mechanics and Plane Captains will be schooled and licensed as directed by FMFPAC Order 3500.6. Each IMA will establish and maintain the capability to administer the basic syllabus required for licensing.

2. SPECIAL MAINTENANCE PROCEDURES. The following procedures will be observed in addition to those specified in applicable technical directives:

a. Ejection seats will be armed/dearmed strictly in accordance with BUWEPs Instruction 13510.1.

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b. Installation and removal of seats will be conducted by a minimum of two qualified persons monitored by a quality assurance inspector. The CDT will not be the second member of the team.

c. Detailed check-off lists will be used during all seat removals/installation actions.

d. Seats and canopies removed from aircraft will be mounted in appropriate type racks and suitably covered for protection.

e. Ejection seat systems in aircraft received from other than 1st MAW units will undergo a calendar inspection during the acceptance check. All data on cartridges, cartridge actuated devices and rocket catapults will be weighed and verified.

1004. CRYOGENICS

1. INTRODUCTION. This section is intended as a guide for the administration, operation and surveillance of cryogenic and compressed gas activities. Subordinate commands are charged with the responsibility of issuing standing operating procedures guided by this and other pertinent orders and directives.

2. CRYOGENIC EQUIPMENT AND PRODUCTION REPORTING

a. The periodic review and timely reporting of cryogenic production, conversion, storage servicing and test equipment is necessary in order to ensure optimum utilization of assets. All cryogenic support and servicing equipment listed in the IMRL and NAVAIR 00-35QM-6 will be reported as directed by this Order. The report in the following format will be submitted to reach Headquarters, FMFPAC, not later than the fifteenth day of the first month of each calendar quarter. Address to CG, FMFPAC (G-4 AMM), info CG, 1st MAW (G-4 AMO).

b. 1st MAW Reporting Format:

CRYOGENIC ACTIVITY REPORT

(1) Generating Plant Operation Record:

(a) Model

(b) USN Number

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- (c) Serial Number
- (d) Production Time
- (e) Non-Production Time "Standby/NORS/NORM"
- (2) Production and Disposition Record:
 - (a) Total LOX Produced/Total LOX Issued/Average daily Issue
 - (b) Total LN2 Produced/Total LN2 Issued
 - (c) Total Gaseous Oxygen Issued
 - (d) Total Gaseous Nitrogen Issued
- (3) Total gallons of LOX/LN2 obtained from outside sources:
 - (4) Product Issue Record:
 - (a) Tenant MAG Units
 - (b) Other USMC
 - (c) USN
 - (d) Other W.S. Agencies
 - (e) USAF
 - (f) Other
 - (5) Production Stoppage and Repairs:
 - (a) Present a brief technical narrative description of significant problems and accomplishments.
 - (b) A special detailed brief addressing the GB1A will be included as a separate sub-section.
 - (6) Identify all fuels, liquids, lubricants and refrigerants by MILSPEC, Part Number, and FSN as appropriate.
 - (7) Cryogenic Equipment Inventory Condition Report:
 - (a) USN Number
 - (b) Serial Number

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- (c) Nomenclature
- (d) Model
- (e) Year Manufactured
- (f) Type Equipment Code
- (g) Manufacturer
- (h) Manufacturer's Code
- (i) Condition Code
- (j) Assigned Custodian
- (k) Remarks

c. Reporting requirements for cryogenic/compressed gases equipment used in support of Fleet Marine Force aviation units are outlined in OPNAV Instruction 4790.2.

d. Assigned LOX/LN2 generators will be exercised a minimum of 120 hours per month/per unit, or 250 hours every other month, in garrison for the purpose of equipment exercise and operators proficiency training. Upon receipt of an acceptable IR-4 analysis such products manufactured these periods may be utilized to conduct training on ancillary cryogenic/compressed gas support equipment.

e. Each aircraft group will maintain 1,000 gallons of RFI LOX as an emergency back-up store for the station LOX Plant. Issue will be approved only by this Headquarters.

3. QUALITY SURVEILLANCE

a. Quality surveillance of liquid and gaseous oxygen and nitrogen is a continuous task from production to consumption. Each process and its related support equipment must be monitored to assure realization of established criterion. The surveillance program is basically threefold:

- (1) Production Purity and Minor Constituent Analysis.
- (2) Equipment Purging and Maintenance.
- (3) Personnel Training

b. The following references are listed for convenience and are referred to throughout paragraph 1004.3.

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- (1) OPNAV Instruction 4790.2
- (2) NAVAIR Ltr FQE2/JHM of 13 July 1965
- (3) NAVAIR Instruction 10332.3
- (4) MIL-O-27210D (ASG)
- (5) NAVAIR Notice 10332 AIR 01A1 of 4 March 1970
- (6) NAVSHPREFAC Subic Instruction 10332.1B

c. Action. Liquid oxygen quality control inspections and procedures outlined below are taken from references (2), (3), and (4) above and will be observed by units of 1st MAW

(1) A LOX sample will be taken for IR-4 analysis at the start of the generating plant production run and monthly thereafter if the plant is in continuous operation for that period of time. A short shutdown for operational maintenance should not require resampling. However, this is a situation that must be evaluated at the time as to the necessity for resampling. Plant defrost recycles, required a minimum of every 250 hours of operation, do not require sampling unless an unusual condition arises.

(2) Liquid oxygen storage tanks will be sampled once monthly in accordance with reference b(1) above. If a build up of minor constituent levels is suspected, a sample should be taken for IR-4 analysis regardless of specific sampling schedules.

(3) Sampling of LOX contained in 50 gallon aircraft LOX system servicing tanks is not required except in the event of a record of suspected contamination. Dry purging of 50 gallon tanks will be accomplished in accordance with schedules set forth in paragraph 3.b.(3) above.

(4) LOX purity will be tested at least once hourly during generating plant operations, purity of 99.5% or higher as measured by the plant test apparatus being required. It should be noted that this purity test is a qualitative measurement of the amounts of nitrogen and argon remaining in the LOX and is not a quantitative measurement of minor constituents contained.

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(5) Testing for acetylene content will be conducted a minimum of once every 24 hours of plant operation in accordance with paragraphs 3.b(2) and 3.b(3) above. Maximum allowable content is increased from 0.05 PPM to the lowest detection limit measurable by use of the colorimetric acetylene test kit. If acetylene test kit color comparisons are not sealed-in-glass types, replacement color standards should be procured. Color standards contained in wax-sealed glass containers will deteriorate and are inaccurate after a period of time.

(6) The "sniff test" will be conducted as required in OPNAV Instruction 4790.2.

(7) Considering the relaxation of certain quality surveillance requirements for LOX produced in a deployed location, it is extremely important that dry purging of all LOX containers be accomplished on the schedules outlined in paragraphs 3.b(3) and 3.b(5) above.

(8) Sintered bronze filters will be installed in all LOX TRANSFER LINES and/or piping as required by technical manuals. These filters remove particulate matter 10 microns and larger in size from the liquid stream. Operators will not remove these filters for other than cleaning or replacement except while the tank purging cycle is in progress. A restriction in the filter indicates that it is accomplishing its purpose. If this occurs, the filter should be removed, cleaned and replaced prior to further liquid transfer.

(9) Routine sampling of LOX storage tanks is required monthly. When historical records of IR-4 infrared spectrophotometer analysis indicate no serious build up of minor constituents, LOX from the sampled tank may be issued for use pending receipt of sample analysis results, provided the requirements of paragraphs 3.b(1), 3.b(2), 3.b(3), 3.b(4), and 3.b(5) above have been met.

(10) When an IR-4 analysis report indicates a build up on minor constituents approaching, or exceeding, the maximum allowable limits of paragraphs 3.b(3) and 3.b(4) of this Chapter, the following procedures apply:

(a) LOX plant operators and local quality assurance personnel will evaluate the analysis report, determine the cause and take corrective action to eliminate the cause of the increase. Purging the tank will normally rectify the problem.

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(b) LOX containing minor constituents in excess of allowable limits of paragraphs 3.b(3) and 3.b(4) above may be used only to avoid interruptions of flight operations and then only under the following conditions:

1 Carbon dioxide content is not to exceed 300% of the approved surveillance limit.

2 Methane, ethane or nitrous oxide are not to exceed 300% of the approved surveillance limit for each constituent.

3 All requirements of paragraphs 3.b(1), 3.b(2), 3.b(3), 3.b(4), and 3.b(5) above must be met.

4 Command approval must be obtained prior to issue of LOX containing carbon dioxide, methane, ethane ethylene or nitrous oxide in excess of approved surveillance limits as specified in paragraphs 3.b(3) and 3.b(4) above. Enclosure (6) of paragraphs 3.b(3) contains instructions for increasing allowable limits of minor constituents in LOX as transfer is made from storage tanks to aircraft systems.

(c) When the emergency situation has passed, all containers containing or involved with handling LOX with excessive minor constituents will be purged. When these tanks are refilled with LOX, a sample will be taken for analysis. LOX contained may not be issued for use pending receipt of analysis results.

(11) LOX reported as having acetylene, halogenated compounds or other constituents in excess of approved surveillance limits of Table I, paragraphs 3.b(4) will not be issued but will be purged from tanks and aircraft converters. Upon completion of purging and refilling of tanks, LOX will not be issued until analysis by IR-4 verified that LOX contained is acceptable for use.

(12) To ensure adequate quality controls, maintaining complete records of all LOX samples analyzed is required. The following records will be maintained at the locations indicated:

(a) Liquid oxygen generating plants:

1 Hourly purity tests conducted during plant operation productions runs will be entered on plant operating log sheets.

2 Daily testing for acetylene content in LOX

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samples drawn from the generating plant distilling column will be entered on plant operating log sheets.

3 "Sniff Testing" of LOX contained in storage tanks will be recorded in a log maintained for each tank. This log will include a record of 50 gallon tanks filled and the date filled. The date that the tank was dry purged will be recorded in the log.

4 Files of IR-4 analysis reports will be maintained on each LOX plant or storage tank. These reports are required to develop historical data of levels of minor constituents contained in LOX produced in the general area and for Monitoring increases in storage tank minor constituent levels.

(b) Safety and Survival Equipment Shops will maintain records on each 50 gallon tank. Information recorded will include results of "sniff testing" storage tanks from which LOX was withdrawn, the date refilled and the dates of periodic purging.

(13) Handling Procedures for LOX samples:

(a) Selected cryogenic equipment operators in each Marine Aircraft Group will be designated and trained as liquid oxygen couriers. Assignment periods will be locally determined but must assure continuous availability of authorized couriers. Duties will include escorting LOX samples to the testing activity and operating LOX storage tanks when necessary to air ship liquid oxygen. Operator licenses will reflect these qualifications.

(b) Paragraph 3.b(6) above promulgates in the command concerning the Subic Liquid Oxygen Test Facility operation. This activity is the designated test site for all 1st MAW units.

(c) All sampling reports and request will include this Headquarters (Attn: G-4 AMO) as an information addressee.

(d) Couriers will be authorized priority air transport to ensure the integrity and timely analysis of their samples. Samples will be transported in approved carriers provided by the test facility.

4. SUSPECTED LOX CONTAMINATION. In the event of a suspected case of LOX contamination, the following steps will be taken as soon as possible:

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a. Pilots and aircrewman will report to a flight surgeon without delay.

b. Suspected contamination incidents involving aircraft LOX systems will be investigated by a team consisting of the following personnel:

- (1) Aircraft Maintenance Officer
- (2) Aviation Safety Officer
- (3) Flight Surgeon
- (4) Flight Equipment Officer

c. The investigating team will determine the following information and make recommendations for immediate and future remedial action:

(1) Conduct LOX sample analysis of all containers involved to determine if LOX was actually contaminated and the extent of contamination involved.

(2) Determine the point of origin and cause of contamination.

(3) Determine whether containers involved have been purged on a regular schedule, and whether purging techniques meet requirements.

(4) Determine whether required LOX samples have been taken and analyzed on schedule.

(5) Determine whether correct handling procedures are being followed.

d. Emergency sampling of LOX, suspected of being contaminated will be conducted in the same manner as normal sampling with the exception that 50 gallon servicing tanks will also be sampled.

e. Sampling of LOX contained in aircraft LOX systems has rarely proven satisfactory using equipment presently available in the field.

5. CONTAMINATION REPORTING - NO AIRCRAFT INCIDENT INVOLVED
Contamination reporting when no aircraft incident is involved will consist of a report submitted to NAVAIRSYSCOMHQ in accordance with NAVAIR Instruction 10332.3 after contamination has

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been verified. Information to be included in this report will be as follows:

- a. Initial source of LOX and quantity recieved.
- b. Aircraft affected (including Bureau Numbers), brief history of aircraft and flight in which oxygen has been used.
- c. Type and serial number of aircraft servicing equipment.
- d. Date the servicing equipment received, put into service and records of purge dates.
- e. Storage tank from which aircraft servicing equipment was filled including registration number, purging records and results of last sample analysis.
- f. Results of sample analysis by IR-4 infrared spectrophotometer odoriferous oxygen, nausea, etc.
- g. Effects on crew, and how contamination was noticed, i.e., odoriferous oxygen, nausea, etc.
- h. Results of analysis of crew members blood samples. Reporting will normally be by speedletter with information copies to this Headquarters, COMFAIRWESTPAC, CG FMFPAC, and COMNAVAIRPAC.

6. CONTAMINATION REPORTING - AIRCRAFT INCIDENT INVOLVED

Reporting of LOX contamination when an aircraft incident is involved will be accomplished in accordance with OPNAV Instruction 3750.6. Information required by paragraph 1004.3 will be included in this report.

7. MODIFICATION OF CRYOGENIC EQUIPMENT

a. Modifications to cryogenic equipment will be made in accordance with specific directives issued by the Agencies of NAVAIRSYSCOMHQ.

b. Local modifications will not be made without approval of higher headquarters. Suggestions for improving the capability and reliability of equipment are invited the capability and reliability of equipment are invited and encouraged. Suggestions may be submitted in three ways:

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(1) A letter to the NAVAIRSYSCOM via the chain of command.

(2) A letter to the Commandant, Marine Corps Schools (CMCLFDA) via appropriate channels in accordance with MCO 3900.3.

(3) A detailed recommendation in paragraph (5) of a Unsatisfactory Material/Condition Report (NAVAIR Form 13070.5).

8. UNSATISFACTORY OR DEFICIENT EQUIPMENT REPORTING

a. The importance of reviewing unsatisfactory or deficient items of equipment cannot be overstressed. Reports from the field are the most important to cognizant personnel in NAVAIR and is the first step in correcting deficient design or faulty parts. Personnel at all levels are responsible for reporting unsatisfactory items of equipment.

b. Reports will be submitted in accordance with current instructions. Provide one copy to this Headquarters (Attn: G-4 AMO).

9. EQUIPMENT SURVEY PROCEDURES

a. Survey of equipment will be in accordance with the Naval Supply System Command Manual, Volume II.

b. Requests for survey will be accompanied with a completed limited technical inspection form (LTI) and forwarded to NAVAIRSYSCOM via the chain of command.

10. EQUIPMENT MAINTENANCE RESPONSIBILITIES

a. Squadron safety and survival equipment sections are in charge of the performance of organizational level maintenance on organic liquid and gaseous oxygen and nitrogen servicing units.

b. The supporting IMA cryogenic section will perform all intermediate level maintenance on liquid and gaseous oxygen and nitrogen storage, service units, and related support equipment listed in OPNAV Instruction 4790.2 Appendix P. Liquid storage and servicing tank purging and sampling is classified as an IMA function.

c. Depot level repair and rehabilitation and repair nominations will be processed as follows:

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(1) IMRL items, plus LOX/LN2 Generator Plants and Alternate Air Source Units will be nominated as prescribed in Section 11, para 1109 of this Order.

(2) NAVAIR 00-35QM-6 items, less those stated above, will be nominated in accordance with current instructions.

11. AIR TRANSPORT OF CRYOGENIC LIQUIDS

a. NAVWEPS 15-03-500, Packaging and Handling of Dangerous Materials for Handling by Military Aircraft, contains specific instructions which apply to transporting cryogenic liquids. An operational necessity must exist when the use of any other mode of transportation other than air will prevent the use of any other mode of transportation other than air will prevent the receipt of material by a specific time, thereby impairing the directed mission of the command concerned. Authority for shipment of operational necessity, single dagger items, must be approved by this Headquarters prior to shipment.

b. Air shipment of bulk cryogenic liquids within 1st MAW will be requested from the Headquarters. The following procedures will apply:

(1) Marine Aircraft Groups will monitor the following:

- (a) Amount of LOX on hand
- (b) Amount of LOX required to support daily operation of Group Aircraft.
- (c) Operational status of LOX generating plants.

(2) Based on the above information and normal time required to procure LOX from an outside source, a low level limit will be established. When the low level limit is reached and the LOX production is below requirements of usage, request that supplemental LOX be procured and shipped to the Group.

(3) Contact Wing G-4 (AMO) requesting a LOX pick-up. The Wing Cryogenics Officer will:

(a) Contact a supply source of LOX to determine availability of issue.

(b) Prepare and submit an Air Transportation Request in accordance with Wing Order 4631.7.

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(c) Contact Wing ATCO for an aircraft assignment.

(d) Notify the requesting MAG, S-4 Office, of the established time of pick-up of LOX courier and empty LOX tanks.

c. Special Cargo Handling Requirements.

(1) Special cargo handling requirements are as follows:

(a) Liquid oxygen is classified as RED LABEL cargo.

(b) Passengers will not normally be carried aboard aircraft transporting bulk liquid oxygen.

(c) Smoking will not be permitted in the cargo compartment.

(d) Cleanliness of the aircraft deck is important. Accumulations of oil and grease will be removed using soap and water. Kerosine or other volatile liquids will not be used unless sufficient time is available to dissipate all vapors and the deck is flushed with water.

(e) Loading and off-loading of LOX/LN2 tanks will be supervised by a qualified cryogenic equipment technician. Care must be exercised to prevent damage to the tank and tank piping.

(f) Load tanks with the front end forward to permit connecting tank vent lines to the aircraft vent system if installed.

(g) Connect a LOX transfer hose from the tank "fill drain" connection to the tank "top fill" connection and open the "top fill" valve.

(h) LOX/LN2 tank vents will be equipped with a female connector hose from the tank vent to the aircraft vent system. Necessary vent lines and fittings will be furnished by the Group having custody of the LOX tanks.

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(i) Qualified cryogenic personnel assigned and trained as LOX couriers will maintain LOX tanks in flight. Personnel will be equipped with the following minimum safety clothing and equipment:

- 1 Plastic face shield
- 2 Rubber Apron
- 3 Welders Gloves
- 4 Safety Shoes

d. In Flight Emergency Procedures.

(1) Emergency action can be required by either an aircraft malfunction, or a malfunction of the cryogenic liquid tank.

(2) To eliminate a hazardous condition that cannot be repaired in flight, it may become necessary to jettison the tanks. This decision will be made by the aircraft commander in view of the existing situation.

(3) There is no expeditious method of disposing of LOX tank contents while in flight. Approximately forty-five minutes are required to empty a full 500 gallon LOX tank using maximum transfer pressure and a fully opened fill/drain valve.

12. SAFETY PRECAUTIONS. Both liquid and gaseous oxygen are chemically stable in the pure state. Oxygen, however, actively supports combustion and when combined with certain other organic matter will cause spontaneous ignition. Under certain conditions, liquid oxygen that is mixed with powdered combustible material may also ignite. Oxygen vapors, combined with a flammable vapor in the proper proportion will explode in the presence of a sufficiently high ignition source, if permitted to collect in poorly ventilated spaces. In addition to the dangers of chemical activity, the extremely low temperatures and the high volumetric expansion involved also presents hazardous conditions. Due to the 860 to 1 ratio of LOX when changed into a gas, all piping and containers must be provided with vent systems, both automatic and manually actuated, to vent excessive pressures to the atmosphere.

a. Liquid oxygen safety precautions:

(1) Under no conditions should flammable substance of any nature be allowed to come into contact with liquid oxygen or its vapors.

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(2) All vessels and piping that carry oxygen must be thoroughly cleaned before use.

(3) Smoking is prohibited in any shop or working area where LOX is contained or stored. Smoking limit signs will be prominently displayed at entrance ways to LOX storage and generating areas.

(4) Oil shall not be used in any form around oxygen equipment where it might come into contact with oxygen of fittings and piping of an oxygen system. This precaution is particularly important around LOX generating plants where diesel engines, air compressors and freon compressors are oil lubricated. All personnel must continually guard against oil spillage on or near the LOX plant. Oil contamination of a porous deck under or around a LOX generating plant must be prevented. An explosive situation exists in the event of LOX spillage. Whenever possible, a concrete deck should be fabricated for LOX generators installations.

(5) LOX storage and/or aircraft servicing tanks will not be parked in the vicinity of gasoline, oil or other combustible material. Wherever possible LOX storage and/or aircraft servicing tanks shall be parked on a concrete pad.

(6) All storage vessels and piping in which liquid oxygen may be trapped between closed valves shall be equipped with pressure relief valves. These safety devices must be inspected and tested periodically for proper operation.

(7) Tubing, piping, and fittings through which a cryogenic liquid is flowing will not be handled with the bare hands. Protective clothing prescribed in NAVAIR Instruction 10332.4 is the minimum acceptable clothing for LOX handlers while transferring LOX. This is not to be interpreted to mean that LOX generating plant operators must wear all items of clothing at all times during generating plant operations. However, gloves, face shield, and a rubber apron will be immediately available at the air separator section of the plant. Personnel will wear LOX safety shoes.

(8) Because of the extremely low temperatures, cryogenic liquids should never be allowed to contact bare skin. In the event of a low temperature burn submerge the affected area in warm water and notify medical personnel. Treatment for low temperature burns is usually the same as for any other type burn. The eyes are most easily damaged by contact with a cryogenic liquid and must be protected by wearing a face shield whenever the liquid is being transferred.

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(9) The physical properties of many metals are altered at cryogenic temperatures. All ferrous and ferrous alloy steels, lose their ductility and become brittle at low temperatures. A number of non-ferrous metals such as brass, aluminum, copper and bronze have good ductility at cryogenic temperatures and are acceptable for installation in cryogenic systems. Steel hammers will never be used to connect or disconnect LOX transfer hose couplings. It is imperative that these hose couplings not be subjected to dynamic shock at cryogenic temperatures. A leak-tight seal for couplings depends on proper mating of seating surfaces. Once the wing nut has been subjected to the impact of a hammer blow, the fitting becomes egg-shaped and will not seat properly. Locally manufactured spanner wrenches will be used to connect and disconnect wing nut couplings on LOX transfer hoses.

b. Safety Precautions for Liquid Nitrogen

(1) Safety precautions for liquid nitrogen are generally the same as for liquid oxygen with the following exceptions:

(a) All liquid nitrogen tanks, fittings and couplings for transfer hoses must be maintained in an oxygen clean condition. Since gaseous nitrogen is used to purge aircraft LOX systems, oil contamination of nitrogen lines and connections must be prevented. Heated gaseous nitrogen, or in an emergency gaseous oxygen, are the only authorized purging agents for aircraft LOX systems.

(b) Liquid nitrogen and its vapors will not support combustion or respiration. It is imperative that all personnel be made aware of the fact that working in a nitrogen-rich atmosphere without proper ventilation or auxiliary oxygen breathing equipment can result in death. A man exposed to a 100% nitrogen atmosphere has approximately ten seconds to reach an oxygen source or death will result. The chart listed below indicates symptoms and results when a person at rest is exposed to an atmosphere containing less than normal oxygen percentage.

<u>% of Oxygen in Air</u>	<u>Symptoms and Results</u>
12% to 14%	Deep respiration, increased pulse rate, poor coordination
10% to 12%	Fast, shallow breathing, giddiness poor judgement, blue lips

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8% to 10%	Nausea, vomiting, unconsciousness, ashen face
6% to 8%	8 minutes exposure - 100% Fatal 6 minutes exposure - 50% Fatal
4% to 6%	Coma within 40 seconds, convulsions respiration ceases, death results
0% to 4%	Death in 10 seconds

(c) Absolute foolproof measures must be taken to ensure that liquid nitrogen is never inadvertently transferred into an aircraft LOX system.

(d) The expansion ratio of liquid nitrogen is 696 to 1. Requirements for pressure relief devices in piping and containers are the same as for LOX.

c. Compressed Gas Safety Precautions

(1) Safety precautions for compressed gas are as follows:

(a) Never mix oxygen with other compressed gasses unless specifically designed systems are to be used, such as acetylene welding equipment, hospital oxygen or instrument calibration gas mixture.

(b) Never completely expend gas pressures from an oxygen or nitrogen cylinder. Always leave a residual pressure of at least 15 PSIG in the cylinder to prevent cylinder contamination.

(c) Never leave compressed gas cylinders near a source of extreme heat.

(d) Never use the contents of a compressed gas cylinder without an installed pressure regulating device.

(e) Never place compressed gas cylinder charging connections or pigtails on the deck or ground.

(f) Before recharging a compressed gas cylinder, check the hydrostatic test date stamped on the shoulder of the cylinder. DO NOT recharge as overage cylinder.

(g) Always replace thread and valve protective caps on cylinders and recharge lines. Never permit a cylinder to stand unsupported in an upright position.

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(h) DO NOT use high pressure oxygen filler lines for any compressed gasses other than pure dry oxygen or compressed water pumped nitrogen gas. Use a separated specially marked high pressure line for recharging oil pumped gaseous nitrogen cylinders. If, in an emergency, oil pumped nitrogen cylinders are to be recharged directly from an oxygen manifold, vent cylinder contents to the atmosphere until pressure is below gas pressure in the manifold.

(i) Open all valves in a compressed gas system slowly to prevent dangerous pressure surges.

d. General Cryogenic and Compressed Gas Safety Precautions

(1) General Safety precautions are as follows:

(a) The most important safety precaution to be instilled in cryogenic equipment personnel is to use common sense and not to attempt a task for which they are not qualified. Supervisory personnel are responsible to ensure that all personnel are familiar with safety precautions.

(b) All hand tools will be inspected for serviceability on a periodic basis. Replace all unserviceable tools.

(c) Cryogenic liquid storage tanks utilizing an air brake system will have "service air" connections painted yellow and "emergency air" connections painted red to assist in preventing improper connection of air whips between the trailer and the towing vehicle.

(d) Gasoline powered vehicles will be used to tow liquid oxygen tanks, liquid nitrogen tanks and gaseous oxygen carts. Towing of the above equipment by diesel powered vehicles causes a build up of oil film on the equipment, producing a potentially hazardous condition. The exhaust pipe of any diesel powered towing vehicle should be routed to the side instead of to the rear.

(e) Towing speeds for any trailer mounted liquid oxygen/nitrogen tanks and gaseous oxygen/nitrogen carts will be controlled by road conditions. Maximum speeds under ideal conditions are:

1 Flight line and hanger areas - 5 MPH

2 Main roads and area access roads - 15 MPH

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(f) Normally, compressed gas cylinders will be secured in a horizontal position on pallets utilizing wooden separators. The single exception will be acetylene cylinders which will never be stored in any position other than upright on the cylinder base. If stored on their side, cylinder contents separate, causing a hazardous condition.

(g) Use only authorized cleaning compounds for degreasing oxygen fittings and lines. Oxygen system cleaning compounds will be purged with gaseous nitrogen prior to installation.

(h) Tricresly Phosphate (TCP) is the only lubricant authorized for use in vacuum pumps. TCP is extremely hazardous to humans as overexposure can cause blindness, paralysis and death. Overexposure can occur through inhalation of fumes from vacuum pump vents, ingestion through the pores of the skin. TCP has a cumulative effect; overexposure can result through a period of time by the slow build up of TCP in the body. Because of the dangers involved with TCP, the following specific precautions will be taken:

1 All containers of TCP will be marked with the word "TOXIC" and letters will be large enough to be easily discernible.

2 Provide and enforce the use of long cuff rubber gloves for personnel required to handle TCP.

3 Operate vacuum pumps in a well ventilated area. If necessary, install piping on pump separator vents to carry off TCP vapors to a safe area downwind from the working area.

4 Ensure that all personnel are made aware of the dangers involved in handling TCP.

e. Fire Control Procedures

(1) The most important fire control measure is to eliminate fire hazards such as oil spillage or leakage from areas where LOX is stored or transferred. Approved receptacles will be provided for the disposal of oily rags used to clean up around the LOX generating plant.

(2) In the event of fire on or near the LOX generating plant, it is imperative that the fire be controlled before it reaches the LOX section of the plant.

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(3) Immediate action to be taken in case of fire:

(a) Actuate the plant emergency stop system.

(b) Close all valves on LOX storage tanks in the area.

(c) Use available fire fighting equipment to control the fire before it gets out of hand.

(d) Notify the fire department or crash crew personnel.

(e) Move all trailer mounted LOX tanks from the area of fire. If there are no means available to control a fire being fed by a source of bulk liquid oxygen. If a fire reaches the air separator section of a LOX generating plant, or a tank containing liquid oxygen, clear the area of all personnel.

(4) Unscheduled fire drills should be conducted at least once monthly to ensure that personnel are familiar with immediate action steps required.

1005. SPECIAL PROTECTIVE EQUIPMENT

1. Limited use requirements, and associated small procurement quantities, make it imperative that those units assigned such equipment implement security and inventory safeguards to prevent inadvertent shortages of on hand quantities, assigned items.

2. Inspection and maintenance of this equipment shall be performed in accordance with NAVAIR 13-1-6.7.

3. A quarterly flight equipment/safety and survival/cryogenics conference will be scheduled by this headquarters. Attendees to include: Group Flight Equipment Officers, NCOIC's of H&MS Flight Equipment/Safety and Survival/Cryogenics sections.

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CHAPTER 11
GROUND SUPPORT EQUIPMENT
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1101. GROUND SUPPORT EQUIPMENT

1. The instruction contained in Chapter 14, OPNAV Instruction 4790.2 shall be used as a technical and management aid for all personnel involved in the issue, control, maintenance, repair, calibration and disposal of Ground Support Equipment (GSE).

2. The instructions contained herein are intended to amplify OPNAV Instruction 4790.2 as it applies to this command. Certain management and reporting requirements are established to provide improved maintenance and control of 1st MAW GSE assets.

1102. DEFINITION

1. GSE includes all ground equipment required to make a weapon system, support system, subsystem or end item of equipment operational in its intended environment. This encompasses all equipment required to install, launch, arrest, (except NAVY shipboard and shorebased launching and arresting equipment, less missile launching equipment), guide, control, direct, inspect, test, adjust, calibrate, appraise, gauge, measure, assemble, disassemble, handle, transport, safeguard, store, actuate, service, repair, overhaul, maintain or operate the system, subsystem, end item or component.

1103. MAINTENANCE CLASSIFICATION AND RESPONSIBILITIES

1. Chapter 14, OPNAV Instruction 4790.2 defines the classification and maintenance responsibilities in the up-keep, repair and overhaul of GSE.

2. 1st Marine Aircraft Wing units assigned maintenance responsibility of GSE will adhere to their maintenance task assignment in accordance with OPNAV Instruction 4790.2.

3. The custodian of this equipment is responsible for the maintenance reporting of his equipment even though it may be on loan to another activity (sub-custody).

4. The custodian of this equipment is responsible as outlined below:

a. Maintain records for all accountable GSE in accordance with procedures outlined in OPNAV Instruction 4790.2.

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- b. All changes and bulletins are complied with and properly recorded.
- c. Maintain a current and continuing inventory list of accountable equipment assigned. Ensure MARES, IMRL, and Inventory Lists are complementary.
- d. Ensure that Inventory Lists include shortages and that action is taken to fill shortages.
- e. Ensure that proper care is exercised in the maintenance, upkeep and operation of GSE.
- f. Ensure that the equipment is properly utilized and operated by licensed personnel only. In this respect no GSE shall leave the areas that are inhibited by the end item it supports.
- g. Ensure safety instructions are strictly complied with.

5. The IMA GSE Officer will serve as the central manager for all types of GSE encompassed by this Order for his Marine Aircraft Group. He will monitor the action required in paragraph 1103.4 above.

1104. PROTECTIVE MEASURES

- 1. Covers will be locally manufactured for MEPPs and SATS Loaders and are recommended for other items of GSE to protect them from contamination by dirt, water, oil, etc. The covers will be controlled and identified by stenciling the type equipment on the cover along with the serial number.
- 2. Units will utilize the protection provided to dials, gages, etc, by the use of lids, covers and panels that are an integral part of the equipment. In some cases these devices open in such a manner as to allow hoses, tools, etc., to be dropped on these items, thereby putting another piece of equipment out of commission. If this condition is observed, it may be feasible to use removable heavy screening or plastic covers to protect the gages/dials.
- 3. When equipment is not in use, keep all hatches, doors, ports, entries, etc., closed and the equipment covered.

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1105. GSE TRAINING AND LICENSING

1. OPNAV Instruction 4790.2 established the GSE operator training program. COMNAVAIRPAC Instruction 3500.34 and OPNAV Instruction P3500.26B provides additional guidelines for this required training.

2. Each IMA will establish a program in support of assigned squadrons to train and qualify personnel in the operation and maintenance of GSE. They will assist the effectiveness of this training program by administering operational and written test in the operation and maintenance of GSE.

1106. MODIFICATION/PUBLICATIONS

1. Each IMA GSE shall maintain a file on all changes, directives, publications and inspection cards applicable to the equipment supported.

2. Organizational maintenance activities shall maintain only those publications, directives, inspection cards applicable to their equipment and assigned levels of maintenance.

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1109. REHABILITATION AND REPAIR NOMINATIONS

1. Each major end item of GSE has an established rehabilitation cycle. Rehab due dates are being assigned for each item by the Wing GSE section. A list of these items will be published semi-annually to each Marine Aircraft Group for updating.
2. In accordance with COMNAVAIRPAC Instruction 13850.1 a consolidated report of GSE rehab nominations will be submitted by Wing GSE in accordance with the below schedule:

DATE	PERIOD COVERED
15 May	1st Qtr FY (Jul-Sep)
15 Aug	2nd Qtr FY (Oct-Dec)
15 Nov	3rd Qtr FY (Jan-Mar)
15 Feb	4th Qtr FY (Apr-Jun)

3. The request will be subdivided into two parts and will conform to the format illustrated herein:

- a. Part I - Will nominate for the following quarter items of equipment eligible for WESTPAC rehab in accordance with enclosure (1) of COMPAIRWESTPAC Instruction 13850.1.

- b. Part II - Will contain a forecast of equipment to be nominated the subsequent quarter. This list will address the same categories of equipment as in part I only.

- c. The format for part I will be as follows:

- (1) Nomenclature
 - (2) FSN and Model Number
 - (3) Serial Number
 - (4) Assigned Custodian

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d. The format for Part II will be as follows:

- (1) Nomenclature
- (2) Federal Stock Number
- (3) Part Number
- (4) Quantity

4. Items not under the cyclic rehab program will be nominated to this headquarters for rehab by the Marine Aircraft Groups not later than the 5th of May, August, November, and February in accordance with the format described in paragraph 1109.3.c.

5. Upon receipt of the 1st MAW nomination message, all "hard-down" equipment nominated to COMFAIRWESTPAC will be shipped immediately and the remainder not later than the first day of the succeeding month.

6. Items nominated for CONUS rehab will not be shipped until specifically directed by this headquarters. Work Control Numbers will be provided for each item authorized for shipment.

7. GSE under the rehab program whose material condition is such as to make it uneconomical to continue in operation will be the subject of an unscheduled rehab request in accordance with paragraph 1109.4.

8. Unscheduled repair requirements will be addressed to this headquarters, info to NAVAIRSYSCOMREPAC, COMFAIRWESTPAC, and CG FMFPAC. Emergency requirements may need approval by telephone contact with 1st MAW GSE Officer, then send a direct message request to NAVAIRSYSCOMREPAC or COMFAIRWESTPAC as appropriate. These direct communications must reference 1st MAW approval to be valid.

1110. GSE SHIPMENT, RECEIPT OR TRACER ACTIONS

1. The following reporting procedures are established for all items of equipment listed in COMNAVAIRPAC Instruction 13850.1 and BWFFRP Instruction 4710.11.

a. The requirement for reporting GSE shipment or receipt utilizing the format contained in COMFAIRWESTPAC Instruction 13850.1 is hereby extended to include the shipments and receipts of equipment to and from CONUS rehab sites. The

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shipping format will be appended to include the Work Control Number assigned by the rehab site when appropriate. Messages will be addressed as follows:

(1) For CONUS Sites -

To: REHAB SITE

Info.: NAVAIRSYS COMREPAC
CG FMFPAC
CG FIRST MAW
ASSIGNED CUSTODIAN

(2) For WESTPAC Sites -

To: REHAB SITE

Info: COMFAIRWESTPAC
CG FMFPAC
CG FIRST MAW
ASSIGNED CUSTODIAN

b. The receipt of new GSE by 1st MAW units or GSE transfers between 1st MAW units will utilize the message format previously referenced. Subject lines will be altered to read GSE TRANSFER or RECEIPT as appropriate. This headquarters will be an information addressee on transfer traffic and the action addressee on new equipment received traffic.

c. Tracer action will be promptly initiated when any doubt exists as to the positive location of GSE equipment.

d. Equipment received from rehab having discrepancies not due to transit damage will be reported to this Headquarters (Attn: G-4 AMO) for subsequent reporting to outside activities.

1111. SHIPMENT OF RETROGRADE CARGO

1. Ensure that units are shipped complete. Cannibalization of components or parts to shipment, for support of other equipment, must be controlled and kept to a minimum. Removed components or parts must be replaced by installation of inoperative items and clearly tagged as inoperative.

2. Ensure that Work Request OPNAV Form 4790/36 is attached and contains all known discrepancies.

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1112. WESTPAC SPARE PARTS SUPPORT

1. NAVAIRSYSOMREPAC Instruction 13800.1 sets forth procedures for requesting and providing assistance in obtaining spare parts support of GSE.
2. The procedure basically applies to items requisitioned priority 02 for 30 days and more and for which no shipping data, purchase order or contract is available.
3. All Groups supporting aircraft will become familiar with NAVAIRSYSOMREPAC Instruction 13800.1.
4. This assist program is meant to supplement existing supply system assist procedures and must not be considered an alternate or substitute program.

1113. TEST BENCH OUT OF SERVICE

1. Chapter 20 of this instruction contains guidance relative to Test Benches Out of Service. This also pertains to Ground Support Test Benches such as Ultrasonic Cleaners, Engine Test Cells, etc.

1114. GSE MISUSE

1. When operated by qualified personnel in performance of its designed function an item of GSE will work. When operated by unqualified personnel or for other than its designed mission, an item of GSE will break.
2. When misuse of GSE is noted it shall be immediately stopped and the applicable Group GSE Officer will be notified. The Group GSE Officer will follow up with a GSE MISUSE REPORT in the format described in appendix (2) of this chapter. This report will be submitted to the Commanding Officer of the applicable unit with copies to the Group Commander, the Wing Ground Support Equipment Officer, and the Wing Ground Safety Officer. The Squadron Commander will take whatever action required to prevent a recurrence of this misuse and so note by return endorsement within 10 days with copies to all concerned.

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HEADING

From: Marine Aircraft Group - Ground Support Equipment Officer

To: Commanding Officer

Subj: Ground Support Equipment Misuse Report

1. Operator _____
2. Type Equipment _____
3. Detailed description of violation(s) _____

Copy to:

Applicable Group Commander
Wing Ground Support Equipment Officer
Wing Ground Safety Officer

Appendix (1)

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DAILY GROUND SUPPORT EQUIPMENT STATUS REPORT

TYPE EQUIP	ALLOW	O/H	OPN RDY	NORS	NORM	REHAB	REMARKS
TA-75 TRACTOR							
TA-18 TRACTOR							
UTILITY TRACTOR							
GTC-85							
NCPP-105							
FLDLTE TRAILER							
NR-10							
AIR COND							
NC-5 MEPP							
NC-10 MEPP							
NB-3 MEPP							
MG/MMG-1 MEPP							
MG/MMG-2 MEPP							
SATS LDRS							
HYD TEST STANDS							
AHT-63							
AHT-64							
HI AIR COMPRES							
LO AIR COMPRES							

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CHAPTER 12

QUALITY ASSURANCE, A & M INSPECTIONS, AND AIRCRAFT INSPECTIONS

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1201. QUALITY ASSURANCE

1. Quality Assurance monitors all facets of maintenance to insure a completed product without defects. OPNAV Instruction 4790.2 and COMNAVAIRPAC Instruction 4730.10 sets the responsibilities, requirements and procedures for Quality Assurance.
2. Each unit will have a Quality Assurance Plan, which establishes command policies and goals for the total Quality Assurance Program for the unit.
3. Collateral Duty Inspectors are those personnel permanently assigned, to a production division, who have a secondary or collateral duty assignment, to inspect work accomplished by their production division. Collateral duty inspectors will not inspect any work they themselves accomplished.
4. Quality Assurance Representatives are those personnel permanently assigned to Quality Assurance.
5. All personnel performing Inspectors functions will be designated in writing by the Commanding Officer.
6. All designated inspectors will be listed on a current Technical Information Maintenance Instruction (TIMI).
7. An inspector assignment will be cancelled by removing his letter of designation from the files, annotating it with the date of cancellation, removing his name from the TIMI, his inspectors stamp will be picked up. The cancelled letter of designation will be retained on file for three (3) months.
8. All Quality Assurance Representatives and Collateral Duty Inspectors will be familiar with the contents of Chapter 10 of OPNAV Instruction 4790.2 and other current applicable directives pertaining to Quality Assurance and their Work Centers.
9. The Aviation Structural Mechanic (6042) staff NCO assigned to the IMA Quality Assurance, will be qualified on Corrosion Control required by COMNAVAIRPAC Instruction 4750.2.
10. A Technical Training Program or Regular Scheduled Meetings, to disseminate technical information to the Collateral Duty Inspectors will be conducted by the Quality Assurance personnel. This is required to keep the Collateral Duty Inspectors current.

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1202. ADMINISTRATION/MATERIAL INSPECTION AND VISITS

1. An Administrative/Material Inspection will be accomplished by the G-4 Aircraft Maintenance Section, when directed by the 1st Marine Aircraft Wing Inspector. In some circumstances, assistance may be requested from one of the Aircraft Groups, to assist in the Administration/Material Inspection.
2. Unit inspections will be geared to include all phases of the maintenance of aircraft; Administration, Management, Techniques, Facilities, Training, Allowances and Ground Support Equipment.
3. FMFPAC Order 5041.1 promulgates policies and concepts concerning the inspections conducted by FMFPAC.
4. Periodic, informal visits will be made by G-4 Aircraft Maintenance Officer or his representative, to the aircraft groups.

1203. AIRCRAFT INSPECTIONS

1. OPNAV Instruction 4790.2 lists all the periodic maintenance requirements, inspections and logbook entries required, to maintain the aircraft, support equipment and records in the highest condition of operational readiness.
2. OPNAV Instruction 4790.2 sets forth the calendar inspection schedule, the appropriate calendar inspection is conducted on the specified calendar inspection date. To meet unusual situations and to facilitate workload scheduling, a plus or minus one week or portion thereof, may be applied to the authorized calendar inspection interval.
3. All aircraft reporting custodians will ensure strict adherence to the scheduled inspection interval and periodic maintenance as set forth in OPNAV Instruction 4790.2.
4. Authority to waive calendar inspections for a period not to exceed thirty (30) days is delegated to CG FMAW by COMNAVAIRPAC Instruction 4700.13. All requests for waivers of calendar inspections shall be forwarded ten (10) days prior to calendar inspection due date to G-4 AMO by message or letter, citing full justification for the request.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

1204. AIRCRAFT INSPECTION; FERRY FLIGHTS

1. NAVAIR Instruction 3700.1 sets forth the minimum operating requirements for aircraft to be ferried by personnel other than the reporting custodian.
2. The work incident to the Check List in NAVAIR Instruction 3700.1 shall be accomplished within ten (10) days prior to acceptance by the ferry pilot.
3. A Log Book entry certifying compliance with the provisions of NAVAIR Instruction 3700.1 shall be made in the Inspection Section of the Aircraft Log Book under "Special Inspections".

1205. WEEKLY AIRCRAFT OFFICERS INSPECTION

1. COMNAVAIRPAC Instruction 5440.15 sets requirement for responsibility for material readiness, preservation and maintenance of each aircraft shall be specifically assigned to a squadron Officer.
2. An Officer (by name) will be assigned to each aircraft and will perform the weekly Aircraft Officer Inspection. He will be assisted by the plane captain/crew chief.
3. A list of weekly Aircraft Officers Inspection assignments will be forwarded to the Flight Line Section, with copies to Maintenance Control and Quality Assurance.
4. The completed weekly Aircraft Officers Inspection form, will be forwarded to Maintenance Control for correction of discrepancies. After the discrepancies are corrected the Inspection form will be sent to Quality Assurance for review and then back to Maintenance Control for file.
5. Quality Assurance will monitor the Weekly Aircraft Officers Inspection program to ensure each A10 aircraft is inspected weekly.

1206. INSPECTION AIRCRAFT; PRE-MID-POST DEPLOYMENT

1. COMNAVAIRPAC Instruction 4730.3 promulgates the Pre-Mid-Post Deployment aircraft maintenance/material inspection program.
2. The Pre-Deployment inspection will be conducted immediately prior to the Squadrons departure and the Post deployment inspection will be conducted within ten (10) days after the squadron returns to the parent Aircraft Group.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

3. The Group Aircraft Maintenance Officer will conduct the inspection.
4. The Group Aircraft Maintenance Officer will submit a speedletter report citing the assigned evaluation and specific comments, when appropriate. The report of the inspection results shall reach COMNAVAIRPAC no later than ten (10) days following completion of the inspection with copies to CG FMFPAC, CG 1st MAW, and the Commanding Officer of the parent Group.

1207. MAINTENANCE REQUIREMENT CARDS (MRC)

1. OPNAV Instruction 4790.2 sets forth the requirement for the maintenance requirement cards (MRC).
2. Quality Assurance will maintain the Master Deck of MRC's for the model type aircraft assigned to the squadron.
3. Quality Assurance of IMA, will maintain the Master Deck of MRC's for all the model type aircraft assigned to the Aircraft Group.
4. Quality Assurance will ensure the work centers concerned have an up to date MRC deck and Sequence Control Chart.
5. Quality Assurance will affect all changes to the MRC's.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE**CHAPTER 13
AIRCRAFT ACCOUNTING PROCEDURES
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1301. AIRCRAFT ACCOUNTING PROCEDURES. Timely and accurate reporting of aircraft receipt, transfer and status changes is essential to effective management of aircraft resources. The reporting procedures as required by OPNAV Instruction 5442.2 and as amplified by COMNAVAIRPAC Instruction 5442.2 will be strictly adhered to by all reporting custodians.

1. The H&MS Maintenance Administrative Division will monitor all aircraft accounting reports submitted by supported squadrons. Reports monitored will include:

- a. OPNAV XRAY
- b. Aircraft Extensions
- c. ETR
- d. ATO Affecting Group Aircraft
- e. EOQ
- f. Aircraft Accounting Audit

2. The OPNAV XRAY report message is the means by which aircraft transactions are reported. Units will ensure that all concerned are addressed on reports. Addressees will always include; CG FMFPAC, CG 1st MAW, NAVAIRSYSOMREPAC, COMFAIRWESTPAC.

a. OPNAV XRAYs shall be numbered one through 100 beginning with the number one again.

b. OPNAV XRAY numbering will not commence at the beginning of each calendar year.

1302. RECEIPT/TRANSFER OF AIRCRAFT1. General Policy

a. As a rule, aircraft transfers/receipts will not be effected when aircraft are in PAR.

b. When feasible, the receiving activity will inventory the aircraft concurrently with the transfer activity.

c. Units involved in the transfer/receipt of the aircraft will effect direct liaison for correction of discrepancies. If an amicable arrangement cannot be reached, the problem shall be brought to the attention of the Wing Aircraft Maintenance Officer.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

d. The next scheduled periodic inspection shall not come due during the ferry movement of the aircraft.

e. Custody of the aircraft is effected upon signing of the inventory log by the receiving unit.

f. During the ferry movement the aircraft remains in the custody of the reporting custodian. Custody does not change to the reporting custody of the Fleet Aircraft Ferry Squadron; the ferry pilot acts as the agent of the reporting custodian of the aircraft.

2. Transfer of Aircraft

a. Upon receipt of an ATO directing transfer of an aircraft, the aircraft will be prepared for transfer within ten working days after the date of receipt of the ATO. Exceptions to this will be that if a "By Date" is assigned the date specified will be met. Cannibalization is authorized as necessary to meet the "By Date" for transferring aircraft.

b. The aircraft will be inspected to ensure that the material condition meets the criteria set forth in NAVAIR Instruction 3700.1.

c. Modex and other squadron markings will be removed prior to transfer.

d. Aircraft/engine/prop/GTC logs will be inspected for:

- (1) Required signatures
- (2) Close-out stamps
- (3) Accessory/Component cards
- (4) NINC List #2 enclosed

e. Flight time for alpha cards, for engine hours, for engine reports and any other operating hours required for periodic reports will be noted separately.

f. Inventory aircraft (with recipient if possible) and request permission from COMNAVAIRPAC to transfer aircraft less missing inventory items, if necessary.

g. Arrange for preservation if surface shipment is directed.

h. Test flights will be conducted as required by OPNAV Instruction 3710.6.

i. Notify recipient (or ferry squadron) that the aircraft is ready for fly away.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

j. Submit OPNAV XRAY report if required.

3. Receipt of Aircraft

a. Those units receiving an aircraft will proceed without delay to pick up the aircraft when notified that it is ready for delivery.

b. Units will ensure that all inventory items are on hand. If all items are not on hand, determine whether authorization was granted to the transferring activity to transfer the aircraft less the missing equipment.

c. The aircraft, engines, logs and records will be carefully inspected and discrepancies recorded and corrected prior to placing the aircraft on the flight schedule. Inspections will include verifying serial numbers on ASCRs against serial numbers on components on the aircraft.

d. Submit the OPNAV XRAY.

e. As soon as possible but not more than 30 days after completion of the acceptance inspection, submit an aircraft discrepancy report (OPNAV Form 4790/48, report symbol 4790-7) on all aircraft received from PAR, Overhaul, or Progressive Maintenance. Provide one copy of the report to CG 1st MAW (Attn: G-4 AMO). OPNAV Instruction 4790.2 provides a guideline to follow in preparation of the report.

1303. AIRCRAFT EXTENSIONS

1. When units desire to maintain an aircraft beyond the scheduled end of tour/period date for any reason OPNAV Instruction 03110.11 and COMNAVAIRPAC Instruction 5442.2 provide the necessary guidance regarding the aircraft extension.

1304. RETENTION, TRANSFER AND DISPOSITION OF AIRCRAFT RECORDS

1. Aircraft record cards (Alpha Cards) OPNAV Form 5442/9 will be retained for twelve months after strike or transfer of the aircraft in accordance with OPNAV Instruction 5442.2.

2. All Log Books will be transferred with the aircraft.

3. In the case of a strike, the logs will be destroyed upon completion of the investigation unless otherwise directed. In the event that civilian property or a death is involved the logs will be sent to:

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

DIRECTOR
WASHINGTON NATIONAL RECORDS CENTER
GENERAL SERVICES ADMINISTRATION
WASHINGTON D. C. 20409

4. Preflight and daily inspection forms and pilots weekly inspection forms will be retained until completion of the next calendar inspection.
5. OPNAV XRAY reports will be retained for one year.
6. Naval Aircraft Flight Records will be handled in accordance with MCO 3760.1.

1305. "B" STATUS AIRCRAFT. Aircraft in "B" status will be subject to standard upkeep and will be test flown only. Flights will be scheduled at the discretion of the unit Aircraft Maintenance Officer only to ensure aircraft readiness.

1306. AIRCRAFT INVENTORY RECORDS

1. Aircraft inventory records shall be maintained in accordance with NAVAIR Instruction 13090.1 and instructions contained in the Inventory Log.
2. Care shall be taken to ensure that all numbered columns and signature lines are in consonance, i.e., inventory column three is signed for on line three.
3. The actual number of items being inventoried by line number shall be entered in the appropriate column and not check marks.

1307. DAILY AIRCRAFT AVAILABILITY REPORT; SUBMISSION OF

1. The Daily Aircraft Availability Report shall be submitted by each Marine Aircraft Group assigned to the ~~First Marine Aircraft Wing~~. For units located aboard MCAS Iwakuni, the report will be submitted no later than 0900 daily utilizing the format in enclosure (1). Deployed Squadrons will report direct to this Headquarters by Priority Confidential message no later than 0600 daily utilizing format cited in enclosure (1). Reports are not required on Sundays and Holidays. The report shall include all aircraft in the reporting custody of Squadrons within each Aircraft Group for the day reported on, and will reflect the status of those aircraft as of 0600 on the day the report is submitted.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

2. Definitions. For the purpose of this report the following definitions apply:

a. Operational Ready: This column reports an aircraft capable of performing all missions assigned. A Full Systems aircraft.

b. Not Operationally Ready: An aircraft not capable of performing any of the assigned missions.

c. Not Operationally Ready Supply: An aircraft which is incapable of performing its assigned missions because of a lack of a part, component or other material.

d. Not Operational Ready Unscheduled Maintenance: An aircraft which is incapable of performing its mission pending correction of an aircraft discrepancy which grounded the aircraft.

e. Reduced Material Condition Scheduled Maintenance: Reported when preventative maintenance is being performed or discrepancies are being corrected on mission essential sub-systems during scheduled maintenance periods and the work being done is not of such nature as to cause the aircraft to be reported in a "Not Operationally Ready" condition.

f. Reduced Material Condition Unscheduled Maintenance: Reported if the mission performance limitation is being or will be corrected by organizational and/or intermediate level maintenance during periods other than during regular scheduled maintenance.

g. Not Fully Equipped: A condition status of an operating unit aircraft which indicates the aircraft is capable of performing one or more of the unit primary mission(s) but with some limitations in operational capability due to lack of parts or components.

1308. COSA POOL AIRCRAFT

1. COMNAVAIRPAC Instruction 5442.2_ contains the guidelines for the COSA Pool Aircraft.

2. COSA Pool Aircraft are reported in B1 through BM status codes and are flown once every seven (7) days. Each flight will be a test flight.

3. COSA Pool Aircraft will not be cannibalized under any circumstances.

DATE: _____

	H&MS	SQDN	SQDN	SQDN
A. SQUADRON;				
B. MODEL AIRCRAFT	TYPE	TYPE	TYPE	TYPE
C. N/A	ACFT	ACFT	ACFT	ACFT
D. N/A				
E. NO OF ACFT ASSIGNED;	_____	_____	_____	_____
F. NO OF ACFT IN REWORK;	_____	_____	_____	_____
G. NO OF ACFT ON HAND;	_____	_____	_____	_____
H. NO OF ACFT OP READY (A1A);	_____	_____	_____	_____
I. NO OF ACFT W/FULL SYS CAP (A10)	_____	_____	_____	_____
J. NO OF ACFT NORM F/SCHED MAINT;	_____	_____	_____	_____
K. NO OF ACFT NORM F/UNSCHED MAINT;	_____	_____	_____	_____
L. NO OF ACFT NORS;	_____	_____	_____	_____
M. NO OF ACFT NORM W/OUTSTANDING REQ;	_____	_____	_____	_____
N. NO OF REQUISITIONS NFE;	_____	_____	_____	_____
O. NO OF REQUISITIONS NORS;	_____	_____	_____	_____
P. FLIGHT HOURS SINCE LAST REPORT;	_____	_____	_____	_____
Q. TOTAL FLIGHT HOURS FOR THE MONTH;	_____	_____	_____	_____

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ENCLOSURE (1)

R. TOP SIX TROUBLE ITEMS (IDENTIFY BY NOUN NAME AND FIIN SEQUENCE):

<u>SQUADRON</u>	<u>NOUN NAME</u>	<u>FIIN SEQUENCE</u>
H&MS	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
SQDN	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
SQDN	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
SQDN	1.	
	2.	
	3.	
	4.	
	5.	
	6.	

DAILY AIRCRAFT AVAILABILITY REPORT FORMAT
(DEPLOYED)

- A. SQUADRON
 - B. MODEL AIRCRAFT
 - C. CNO ALLOWANCE *
 - D. FMFPAC ALLOWANCE *
 - E. NUMBER OF AIRCRAFT ASSIGNED
 - F. NUMBER OF AIRCRAFT IN REWORK
 - G. NUMBER OF AIRCRAFT ON HAND
 - H. NUMBER OF AIRCRAFT OPERATIONALLY READY (A1A)
 - I. NUMBER OF AIRCRAFT WITH FULL SYSTEMS CAPABILITIES (A10)
 - J. AIRCRAFT NORM FOR SCHEDULED MAINTENANCE
 - K. AIRCRAFT NORM FOR UNSCHEDULED MAINTENANCE
 - L. NUMBER OF AIRCRAFT NORS
 - M. NUMBER OF AIRCRAFT NORM WITH OUTSTANDING REQUISITIONS
 - N. NUMBER OF REQUISITIONS NFE
 - O. NUMBER OF REQUISITIONS NORS
 - P. FLIGHT HOURS SINCE LAST REPORT
 - Q. TOTAL FLIGHT HOURS FOR THE MONTH
 - R. TOP SIX SUPPLY TROUBLE ITEMS **
- * SQUADRONS REPORT THESE COLUMNS NA. FOR CG 1ST MAW USE ONLY
- ** REPORT ONLY TROUBLE ITEMS. DO NOT EXCEED SIX

ENCLOSURE (2)

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

CHAPTER 14
INDIVIDUAL MATERIAL READINESS LIST

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1401. ALLOWANCE LISTS

1. Information regarding allowance lists applicable to Aviation Activities is contained in Chapter 8 of OPNAV Instruction 4790.2.

1402. COMMANDERS RESPONSIBILITIES

1. The Commanding Officer of an activity assigned material and equipment on the basis of the allowance list shall:

a. Have on hand only such articles of equipment and material required for the accomplishment of assigned missions.

b. Incorporate approved changes to allowance lists.

2. Squadrons will ensure that the range and quantity of material and equipment authorized is on hand. Allowance list items no longer required to accomplish the assigned mission will be recommended for deletion from the applicable allowance list in accordance with FMFPAC Order 4441.5.

3. All squadrons shall maintain a current and continuing inventory of all accountable items authorized by allowance lists. Custody cards on each accountable item will be kept available for review by inspecting teams.

1403. INDIVIDUAL MATERIAL READINESS LIST (IMRL) RESPONSIBILITIES

1. Each IMRL holder will assign an IMRL Officer in writing with a copy to the Group and Wing. Additionally each Marine Aircraft Group will designate an Officer as the IMRL Officer in writing with a copy to the Wing.

2. The Squadron Material Officer will perform additional duties as the IMRL Officer, however, assistance must be provided by all sections within the maintenance department. The Squadron IMRL Officer shall:

a. Maintain the squadron IMRL.

b. Ensure the squadron IMRL is an accurate reflection of the GSE requirements of the squadron. In this respect the on-hand must equal the authorized allowance or correspondence/documents must be on file to account for the difference.

c. Ensure prompt and accurate submission of recommended changes to the squadron IMRL.

d. Ensure prompt and accurate submission of Transaction Reports.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

e. Maintain a file of all Transaction Reports until the change is accurately reflected in an updated IMRL.

f. Coordinate inventory of IMRL equipment.

3. The Group IMRL Officer shall:

a. Manage the IMRL program within the Marine Aircraft Group.

b. Maintain an up-to-date copy of each IMRL held by subordinate commands.

c. Review each transaction Report submitted by subordinate units for accuracy and ensure its forwarding in accordance with paragraph 1402 of this order.

d. Review each request for change to the IMRL submitted by subordinate units for accuracy and ensure its forwarding through the chain-of-command.

e. Comment as to the applicability of each IMRL change request to other subordinate IMRL holders with a like maintenance function.

4. The Wing IMRL Officer shall:

a. Manage the IMRL Program within the Wing.

b. Maintain an up-to-date copy of each IMRL held by subordinate commands.

c. Review each Transaction Report submitted by subordinate IMRL holders for accuracy.

d. Maintain a file of all Transaction Reports until the change is reflected accurately in an updated IMRL.

e. Review each request for a change to an IMRL for accuracy and forward through the chain-of-command. Comment on the applicability on each IMRL change request to the other subordinate units that have like maintenance functions.

f. Establish and conduct a program of instruction for subordinate IMRL holders.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

1404. TRANSACTION OF ACCOUNTABLE TYPE SUPPORT EQUIPMENT REPORT

1. The transaction report is the standard report that is submitted on an as-occurring basis each time a reportable item is received or transferred or the condition code changes between O and F. Reporting procedures are detailed in appendix 1 to this chapter.

2. The transaction report card is a five (5) part card. Copy one, pre-printed for mailing, of the transaction report card, will be submitted NAVAIRSYSCOMREPAC. Copy number two (green) will be forwarded via the MAG IMRL Officer to the Wing IMRL Officer. Copy number three (pink) will be forwarded to CG, FMFPAC (Attn: G-4 AMM). Copy number four (yellow) will be forwarded to COMNAVAIRPAC (Attn: Code 435). Copy number five (hard copy) will be maintained by the submitting activity until the change is accurately reflected in an updated IMRL.

3. Transaction Report cards will be obtained direct from Navy Supply Center, San Diego under FSN 0190-022-5300, 11ND General Form 4440/23 (7-68), U/I Box (600) unit price \$19.00.

4. NAVAIR report control symbol 4440-5 is assigned to this report. (See appendix 1 of this chapter for report format and Enclosure (2) of FMFPAC Order 4441.5D for examples of reports.

1405. INVENTORY OF ON-HAND ACCOUNTABLE TYPE SUPPORT EQUIPMENT

1. An IMRL inventory shall be conducted every nine months by each activity assigned an IMRL. Inventories shall commence not earlier than 45 days prior to the inventory completion date. The inventory completion date is the date the inventory is due at NAVAIRSYSCOMREPAC. Inventory due dates are established by FMFPAC and must be strictly adhered to. The IMRL inventory report (Report symbol 4440/3) will reflect the transaction serial numbers used as a result of the inventory and shall be submitted to NAVAIRSYSCOMREPAC via the parent Group with information copies to COMNAVAIRPAC (Code 435), FMFPAC (Code G4 AMM), and this Headquarters (Attn: G-4 AMO) utilizing the format set forth in appendix 2 of this chapter.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

2. The following eight phases shall constitute the requirements for IMRL Physical Inventories.

a. PHASE I - Physical Inventory. Phase I shall be accomplished by identifying and marking physically all items within the squadron. List identifying data of equipment without references to an IMRL or a custody card.

b. PHASE II - Custody Card Screen with IMRL. Phase II is a screening of the IMRL against the custody card to ensure there is a custody card for all MARC Code "D", "E", "R", or "L" items listed in the IMRL.

c. PHASE III - Physical Inventory Comparison with Custody Cards. Phase III is the process of comparing the results of Phase I with the custody cards to verify the on-hand quantities.

d. PHASE IV - Changes of Allowance. Phase IV is accomplished by reviewing each item in the IMRL with the section having cognizance over the item to verify adequacy of allowances.

e. PHASE V - Declaration of Excesses. Phase V is the process of screening those items in excess of squadron requirements. Upon this determination those items in excess will be submitted to the Parent Group for disposition.

f. PHASE VI - Requisitioning. During Phase VI the squadron shall place approved requirements as determined by the preceding phases, on order. Additionally, ensure outstanding requisitions have valid status.

g. PHASE VII - Transaction Reporting. During Phase VII all differences between stated on-hand balances in the current IMRL and actual on-hand balances shall require a transaction report. All transaction reports originated as a result of the IMRL Inventory shall be noted in block 11 therein.

h. PHASE VIII - IMRL Inventory Report. The IMRL inventory report is submitted as the final phase of the inventory, in accordance with paragraph 1405.1.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

3. During the period subsequent to submission of the IMRL Physical Inventory and until receipt of the IMRL reprint no transaction report cards shall be submitted.

1406. Recommended Changes to the IMRL and ADMRL.

1. The basic ADMRL from which IMRLs are constructed is determined on the basis of tasks to be accomplished, previous experience with similar equipment and weapon systems, available facilities, personnel and other factors. These determinations are continuously reviewed and modified in response to recommendations received from operating activities, TYCOMS, ADMRL technical review conferences, etc. Therefore, all recommended changes must contain clear and concise statements of justification and other data required for evaluation.

2. The IMRL holder is responsible for the continuous review of its IMRL and the submission of recommended changes to NAVAIRSYSCOMREPAC via the chain-of-command for appropriate action in accordance with the format shown in appendix 3 to this chapter.

3. In view of the above and in order to ensure the availability of all elements required for evaluation, recommended IMRL and ADMRL revisions must include the following elements of information:

- a. IMRL or ADMRL segment (Airframe, Power Plant, Avionics)
- b. Applicability (Type Aircraft, Type Power Plant, Avionics System and Number etc.)
- c. Type of recommendation (Addition, Deletion, Replacement, Increase, Decrease, Maintenance Level Change, other)
- d. Specific Recommendation (including allowance quantities for new items, old and new allowance quantities for increases/decreases).
- e. Clear and concise statements of justification, information sources and other pertinent information.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

- f. Quantity on hand of the requested item.
 - g. Present methods being utilized to accomplish the task without the recommended change.
4. Recommended changes to the Authorized Allowance (A/A) column of the activity's IMRL may be approved by the Wing with the following exceptions:
- a. The A/A column may not exceed the (C/A) Computed Allowance. If the requested change to the A/A column exceeds the C/A column a change request must be submitted in accordance with paragraph 1406.3 of this order.
 - b. All changes to the A/A column of the IMRL for Pre-Positioned (PP) coded "L" items will be made in accordance with Paragraph 1406.3 of this order.
 - c. PP coded "E" items may be adjusted only to the degree that the A/A column of IMA's allowance plus one supported OMA's allowance. All other change requests must be submitted in accordance with paragraph 1406.3 of this order.
 - d. NAVAIRSYS COMREPAC, COMNAVAIRPAC and CG FMFPAC will be included as info addressees on all correspondence.
 - e. Appendix 4 of this chapter provides the format for requesting a change in the authorized allowance.

1407. DISPOSITION OF EXCESS GSE

1. All GSE determined to be in excess of a units requirements will be declared as excess to this headquarters via the Group in accordance with the provisions of COMNAVAIRPAC Instruction 4500.5. No excesses will be BCMed prior to approval of the Wing IMRL Officer. The Group will screen its subordinate units and redistribute those assets as required to fill existing shortages.
2. After satisfying subordinate units requirements and in any event not later than three working days the group will originate a message listing excess equipment to this Headquarters in accordance with the format contained in appendix 5 of this chapter. Each group within 1st MAW will be an info addressee of this message.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

3. Upon receipt of an excess message this headquarters will assign a serial number and direct the groups to screen the message for requirements and advise this Headquarters of requirements within 10 days. Negative reports will be required. Items that are required will be requested by message using the format contained in appendix 5.
4. Upon completion of actions directed above this headquarters will declare the remainder of the excesses to CG FMFPAC for disposition.
5. On receipt of CG FMFPAC disposition instructions the holding unit will ship the item within 10 days advising all concerned shipping data.
6. Upon receipt of correspondence indicating an item will be provided from an excess list the designated recipient should advise the shipping unit if shipping instructions are not received within 10 days and the item within 30 days after shipment for air or surface shipment and 60 days for ocean shipment.

1408. SURVEY PROCEDURES

1. Survey will be initiated for MARC D and E IMRL GSE when a decrease in the assets of the unit is experienced.
2. In addition to surveying lost, stolen or damaged items, survey procedures may also be initiated for items which are obsolete or beyond economical repair (BER). For the purpose of this instruction, the following criteria are established:
 - a. Obsolete: Any item of GSE which is applicable to an aircraft, engine or system that is no longer within the active inventory. Any item of GSE which has been superseded by new equipment and is considered unsuitable for retention due to advanced age.
 - b. Beyond Economical Repair: When the repair cost for this item, as adjudged by at least an intermediate maintenance activity, equals or exceeds the initial cost of the equipment as carried on the Supply Officers records.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

3. The clerical and procedural aspects of completing a survey and filling out the S and A form 154 will be as outlined in volume II of the Naval Supply Manual.
4. Normally, formal survey procedures are utilized only in cases where question surrounds the circumstances of the loss, destruction or disappearance of the item to be surveyed or in cases of substantial unit value. Informal survey procedures are much more expedient and fill accountability requirements for the majority of surveys.
5. Unit condition, in the case of damaged, BER and obsolete equipment, should normally be determined by maintenance vice supply personnel, except in cases of shipping damage or loss during shipment.
6. Upon completion of local survey action, approval and disposition instructions will be provided as follows:
 - a. MARC D and E/SM and R fifth position code O, G, F, H, or E items valued at \$1,000 or less: Complete survey, dispose of item locally and provide copies of the survey form to the MAG, CG 1st MAW, CG FMFPAC, COMNAVAIRPAC, and NAVAIRSYSCOMREPAC as appropriate.
 - b. MARC D and E/SM and R fifth position code O, G, F, H, or E items valued at over \$1,000: Final approval and disposition instructions will be provided via the chain of command. The complete survey form will be submitted, via the appropriate chain of command, to NAVAIRSYSCOMREPAC.
7. Items requiring approval by higher authority will be maintained in present condition until final disposition instructions are furnished by NAVAIRSYSCOMREPAC.
8. The Group Maintenance Officer shall assist the surveying officer in determining the economical repairability of unservicable GSE items and provide such information in writing as requested. In arriving at a determination concerning whether or not an item is economically repairable consideration will be given, but not necessarily limited to the following factors:

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

- a. Original procurement cost.
- b. Cost of repair within the IMA (including materials and manhours).
- c. Cost of packing/crating and shipment to and from an overhaul/rework facility.
- d. Replacement cost.

9. The IMA Maintenance Officer's signature will appear on the survey request in the recommendations block, since he has provided assistance in the survey of the equipment.

10. If determined to be economically repairable, the item will be repaired within the IMA complex or reported to the Wing with a request for rehab/overhaul as appropriate.

11. In the event that the IMA determination indicates that the item is not economically repairable and the unit cost is less than \$1,000 the surveying Officer may properly recommend cannibalization of servicable components prior to effecting local disposition to salvage. If the equipment was sent to the IMA on a Work Request (OPNAV Form 4790/36) this form will be attached to the survey request as enclosure (2) to the initial request, and the signature of the IMA Maintenance Officer will appear on the survey request, in the recommendations block.

12. If an item's unit cost is in excess of \$1,000 additional information is required before a survey can be effected. Again, if assistance is provided by the IMA, the procedure is the same as paragraph 1408.11 of the order. If the equipment is a QM-6 item, a work sheet for preventative maintenance and technical inspection of engineer equipment will accompany the survey request as enclosure (2) to the survey request.

13. If the equipment is lost, a statement from the originator giving written description of actions taken to locate the equipment will be provided as an enclosure to the initial request.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

14. The Group Supply Officer is responsible for maintaining a survey monitor file for all materials surveyed by supported units. The Group Supply Officer will effect local disposition of unserviceable materials which have been determined uneconomically repairable in accordance with the procedures contained herein.

15. Transaction Reports shall be submitted in accordance with paragraph 1404 of this chapter on all accountable equipment upon completion of survey actions.

1409. IMRL REQUISITIONING

1. Fleet Controlled (Accountable) IMRL requisitions will be submitted by msg to FLTAVNMATOPAC and prepared in accordance with appendix 6 of this chapter. Information copies will be provided this headquarters and the requiring units. The remarks section of the requisition will include the following:

a. Justification such as initial outfitting, backfitting, or replacement.

b. For replacement, cite applicable UR number/survey number plus certification the defective unit to be replaced is beyond maintenance repair capability.

2. Non-Fleet Controlled (Consumable) IMRL requisitions will be submitted to NSD SUBIC and prepared in accordance with appendix 6 of this chapter.

3. Fund requests for NSA/DSA IMRL items chargeable to OFC-09 funds, in addition to the necessary exception data, shall include the restrictive note, "Do not exceed amount cited without approval of requisitioner".

4. Requisitions for NSA/DSA IMRL items chargeable to OFC-09 funds, in addition to the necessary exception data, shall include the restrictive note, "Do not exceed amount cited without approval of requisitioner".

5. IMRL requisitions will be reviewed by the Group IMRL Officer to ascertain that a valid requirement exists and cannot be filled from excess GSE on hand and screened by the Group Supply Department for completeness.

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6. All follow-up actions and maintenance of requisition status is the responsibility of the squadron concerned.

7. All message requisitions/follow ups will be drafted by the squadron concerned and released by the Group Supply Officer.

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

AMSE REPORTING PROCEDURES

Block Explanation

1 IMRL IDENT. NR. The number appearing here is the accounting number as indicated on each page of the IMRL immediately after the identifying heading "ACTIVITY ACCOUNT NR". This number is commonly called the "IMRL NUMBER". IMRL numbers are assigned by NAVAIRSYSCOMREPAC at the direction of CG, FMFPAC.

2 FEDERAL STOCK NO. (MANUFACTURERS PART NO. IF FSN NOT AVAIL. The FSN of the item actually reported on is entered here. If no FSN is available then enter the part number of the item actually held. Do not enter the five digit manufacturer's code. If more than one part number is listed on the item, list the prime part number with additional part numbers in parentheses. This will alert NAVAIRSYSCOMREPAC to the possibility of duplicate listing of the item and that special attention is required in the machine processing of this item.

3 TRANS. SER. NO. The transaction serial number is entered here. The serial number will be a four digit number. The first digit reflects the calendar year the report is submitted. e.g. 0=1970; 1=1971; 2=1972, etc. The remaining three digits will be the consecutive number from 001-999. Squadrons will renumber from 001 under the following conditions:

(1) Upon reaching a consecutive number of 999.

(2) At the start of each calendar year.

Squadrons holding more than one IMRL will use a separate set of serial numbers for each IMRL.

4. NOMENCLATURE. Enter the nomenclature of the item reported on as printed in the IMRL. Do not use over 19 letters. In the event no nomenclature appears in the squadron's IMRL, enter the nomenclature as determined from existing supply publications; or if not available, enter the nomenclature which best describes the item, in parentheses. For avionics items without

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a nomenclature, enter the AN nomenclature and the avionics system number the item pertains to, in parentheses. The parentheses will alert NAVAIRSYSCOMREPAC to the absence of the nomenclature within the squadron's IMRL or that the item reported is not listed in the squadron's IMRL.

- 5 JULIAN DATE. Enter the Julian Date the transaction report is prepared. (Example: 15 March 1971 is 1074.)
- 6 IMRL PAGE NO. Enter the page number of the IMRL the item reported on appears. If the item reported on is a substitute item then the page number of the prime item will be listed. If the item reported on is not listed in the squadron's IMRL and cannot be established as a substitute item then enter "XXX". The "XXX" will alert NAVAIRSYSCOMREPAC to a new item which requires special attention.
- 7 IMRL ITEM NO. The number appearing in the A/C model/List/Item no. column of the IMRL is entered here. If the item reported on is a substitute item then the item number of the prime will be listed here. Leave blank if the item reported on is not listed in the squadron's IMRL and cannot be established as a substitute or an interchangeable item.
- 8 TOTAL QUANTITY AUTHORIZED. Enter the total quantity authorized for the item reported on as listed in the authorized allowance column of the squadron's IMRL, or that quantity approved by higher authority after the printing date of the IMRL for prime items only. Do not attempt to compute an allowance if a code appears in the IMRL without an accompanying numeric allowance. In that event enter the code only. If the item is not listed in the IMRL as a prime item this block will be left blank.

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9. TRANSFERRED TO/RECEIVED FROM. Enter the name of the activity the item is received from or transferred to. If the squadron is the holder of more than one IMRL and the transaction is from one the the IMRLs to another IMRL, the squadron and IMRL number to which the item is transferred will be entered here. in the event of an inventory gain or loss leave this block blank.

10. AMSE TRANSACTIONS. Enter the quantity received or transferred by condition code. (CONDITION CODE R-1 and R-3 will not be used). On hand quantity will be the total quantity on hand after the completion of the transaction of the reported item, in block 2. All AMSE Transaction reports must have a number in the received or transferred column of either condition code O/A or X/F. Zero on-hand column of block 10 with a numeric zero.

NOTE: The total on-hand for both conditions codes O/A and X/F will be listed even though there has been no change since the last report.

11. AUTHORITY/REASON (DOCUMENT NR/SURVEY NR.). Enter the movement document number/TCN number or survey number in the block. In the event the item is transferred from one IMRL to another within the same squadron enter "INTRA-SQUADRON IMRL TRANSFER", in this block. If the item is acquired or lost by inventory, enter "INVENTORY LOSS" or "INVENTORY GAIN" as appropriate. This in no way relieves the reporting unit of the requirement for submission for survey reports as required by existing instructions. Transaction reports generated as a result of the annual inventory will be so noted in this block as ANNUAL INVENTORY with a GAIN or LOSS added if appropriate.

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12. ACTIVITY. Enter the activity which holds the IMRL number listed in block 1.

13. SIGNATURE (INCLUDING RANK) The signature and rank of the squadron IMRL Officer will appear here.

Local use Section FOR LOCAL USE BY ACTIVITIES FOR EQUIPMENT IDENTIFICATION/LOCATION/CUSTODY AS DESIRED:
If the totals of block 8 and block 10 plus alternates are the same, leave blank. If the total of block 8 is greater than block 10, one or more of the following will appear:

- a. Requisition number for shortages and quantity on order.
- b. Identifying data of correspondence requesting a decrease in the authorized allowance.
- c. FIIN and quantity of alternates on hand.

If the total of block 8 is less than the total of block 10 plus alternates, one or more of the following will appear:

- a. Identifying data of pending survey of the excesses.
- b. Identifying data of correspondence requesting a change in allowance.
- c. Identifying data or correspondence declaring the excesses to a higher headquarters.
- d. Identifying data of correspondence authorizing the holding of the excesses.

NOTE: Corrections are to be made to blocks 1, 2, and 10 only be transaction reports. One

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transaction report will be submitted deleting the entry and another with the correct data. Corrections to other blocks will be made by letter and then only if they directly affect the printing of the transaction within the IMRL or if directed to do so by a higher headquarters.

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ANNUAL INVENTORY REPORT FORMAT

From: Commanding Officer, Marine Attack Squadron 000
To: Naval Air Systems Command Representative, Pacific
[Code 2533]

Subj: Annual Physical Inventory of MARC "D" and "E" on
hand GSE, [Report Symbol 4440-3]

Ref [a] COMNAVAIRPAC INST 4440.8

1. A physical inventory of MARC "D" and "E" GSE was completed on [date] as required by reference [a]. Equipage records accurately reflect on hand quantities and all transactions have been properly reported.

2. Transaction report serial numbers _____ through _____ apply.

3. IMRL ~~4~~ [IMRL NO] dated _____ applies.

NOTE: Paragraphs 2 and 3 will be repeated for each IMRL held by the IMRL holder as paragraphs 4 and 5, 6 and 7, etc.

/s/ Commanding Officer

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Appendix 2

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

FORMAT FOR REVISION TO ADMRL/IMRL

IMRL NO. _____ DATED _____

RECOMMENDED CHANGE TO _____ SEGMENT.

Airframe, Power Plant, Avionics

APPLICABLE TO _____ AIRCRAFT
A-4, F-4, A-6, J-79, T-53, Avionics System Number

TYPES OF RECOMMENDATION: ADDITION [], DELETION [], REPLACEMENT [],
 INCREASE [], DECREASE [], MAINTENANCE LEVEL CHANGE [],
 OTHER [] EXPLAIN _____
 FSN, P/N, ANY OTHER IDENTIFICATION _____

NOMENCLATURE _____

QUANTITY ON HAND _____

RECOMMENDED ALLOWANCE

INTERMEDIATE MAINTENANCE LEVEL [PRESENT]

1-4	5-8	9-12	13-16	17-24	25-32	33-64	65-125	126-250	251-450

INTERMEDIATE MAINTENANCE LEVEL [RECOMMENDED]

ORGANIZATIONAL MAINTENANCE LEVEL [PRESENT]

ORGANIZATIONAL MAINTENANCE LEVEL [RECOMMENDED]

SOURCES OF IDENTIFICATION:

JUSTIFICATION FOR REVISION: [USE ADDITIONAL SHEET IF REQUIRED]

PRESENT METHODS BEING UTILIZED TO ACCOMPLISH MISSION WITHOUT
 RECOMMENDED REVISION:

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

MESSAGE FORMAT FOR IMRL AUTHORIZED ALLOWANCE COLUMN ADJUSTMENT

FROM: MAG ONE FIVE

TO: CG FIRST MAW

INFO: NAVAIRSYS COMREPAC
CG FMFPAC
COMNAVAIRPAC
MARATKRON TWO THREE TWO

UNCLAS: E F T O//N04440//

IMRL AUTH ALLOW COLUMN ADJUSTMENT

A. COMNAVAIRPAC LTR 4441/MCG SER 751/8623 OF 27 OCT 69

B. IMRL F4J 020

1. IAW REF A, REQ BELOW LISTED AUTH ALLOW COLUMN ADJUST REF B.

READ IN FOUR COLUMNS:

IMRL LINE ITEM	FIIN	FROM	TO
120	565-4308	000	001
240	908-0029	001	000

BT

[SAMPLE]

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

SAMPLE EXCESS EQUIPMENT MESSAGE

012345Z MAR 71

FROM: MAG ONE FIVE

TO: CG FIRST MAW

INFO: MAG ONE TWO
MWSG ONE SEVEN
MAG THREE SIX

UNCLAS: E F T O //NO4570//

PASS TO G-4 IMRLO

EXCESS EQUIPMENT

A. WGO P4790.2

1. IAW REF A, THE FOLLOWING ITEMS ARE DECLARED
TO BE IN EXCESS OF THE UNIT'S REQUIREMENTS:

SECTION I

<u>P/N</u>	<u>FSN</u>	<u>NOMENCLATURE</u>	<u>QTY</u>	<u>COND</u>	<u>CODE</u>
------------	------------	---------------------	------------	-------------	-------------

SECTION II

<u>P/N</u>	<u>FSN</u>	<u>NOMENCLATURE</u>	<u>QTY</u>	<u>COND</u>	<u>CODE</u>
------------	------------	---------------------	------------	-------------	-------------

BT

(SAMPLE)

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STANDING OPERATING PROCEDURES ARE AIRCRAFT MAINTENANCE

SAMPLE EXCESS EQUIPMENT REQUIREMENT MESSAGE

012346Z MAR 71

FROM: MAG ONE FIVE

TO: CG FIRST MAW

UNCLAS: E F T O //NO4570//

EXCESS EQUIPMENT SER NR 38-71

PASS TO G-4 IMRLO

A. WGO 4570.3

B. CG FIRST MAW 281715Z APR 71

C. CG THIRD MAW 261422Z APR 71

1. IAW REFS A AND B THE FOLLOWING ITEMS ARE REQUIRED.

<u>FIIN</u>	<u>NOMENCLATURE</u>	<u>QTY</u>	<u>FOR</u>	<u>REQN NO</u>
-------------	---------------------	------------	------------	----------------

BT

(SAMPLE)

APPENDIX 5

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

FLEET CONTROLLED IMRL REQN

FROM: MAG ONE FIVE

TO: FLEAVNMATOPAC

INFO: CG FIRST MAW
MARFITATKRON TWO THREE TWO

UNCLAS: E F T O //NO4400//

PASS TO G-4 INRLO

MILSTRIP FLEET CONTROLLED IMRL REQN (MCC"X")

1. A05/N83/W/49209445766/EA/00002/R/09115/0300/1017/R/Y/
09242/A/Y6/2R/AW3/*999/5Q/XRMKS: COMPASS, CALIBRATOR; 07187/2592080-5
BACKFITTING
(F4J02 IMRL, LINE 1710 PAGE 44)
A/A-2 O/H-0 O/O-0

BT

* ----PRI 02 will be utilized when maintenance capability
limited/degradedPRI 05 will be utilized when replenishing or ordering
items, the lack of which will not degrade or limit the main-
tenance effort.

(SAMPLE)

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

NON-FLEET CONTROLLED IMRL REQ

FROM: MAG ONE TWO

TO: NSD SUBIC

INFO: CG FIRST MAW
MARALLWEATKRON FIVE THREE THREEUNCLAS: E F T O //NO4440//
MILSTRIP REQ
PASS TO G-4 IMRLO1. A05/NVZ/W/49209726066/EA/00002/R/09112/0300/1516/R/X/09193/
A/Y6/2R/AW3/05/999RMKS: TOOL-LAP SEAT EJECTION SEAT
INITIAL OUTFITTING
(A6A02 IMRL, LINE 154 PAGE 22)
A/A-2 O/H-0 O/O-0

DO NOT EXCEED AMOUNT CITED WITHOUT APPROVAL OF REQUISITIONER

\$85.00 \$170.00

BT

(SAMPLE)

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CHAPTER 15
AIRCRAFT FUELS, OILS, AND GREASES
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1501. FUEL CONTAMINATION

1. Samples of suspected contaminated fuel will be taken to the Materials Engineering Division of the nearest available laboratory.
2. Samples shall be taken and delivered utilizing fuel sampling kit S/N RM-8115-719-4111-G332. NAVAIR Instruction 10340.3 contains the guidelines to be used in fuel sampling.
3. All personnel involved in fueling aircraft or quality surveillance of aircraft fuel systems will be familiar with and use the guidelines established in OPNAV Instruction 4790.2 and NAVAIR Instruction 10340.3.
4. In the event it is suspected that contaminated fuel is being delivered to aircraft, Group S-4, Wing G-4 and Station S-4 will be notified immediately and the affected aircraft grounded. No additional fuel will be accepted from the delivering unit [fuel truck, TAFDS, etc.] pending completion of the investigation.
5. For deployed or cross-country aircraft encountering fuel contamination problem at other than home base, the Commanding Officer or Station Duty Officer of the Station where the aircraft is being or has been refueled shall be notified.

1502. UTILIZATION OF FUELS

1. NAVAIR Instruction 10341.1 provides current information and instructions relative to the use of primary and emergency fuels.

1503. REFUELING [GROUND]

1. A stringent, forceful and effective safety program will be pursued by all personnel engaged in the ground refueling of aircraft.
2. Ground refueling techniques will be a primary subject to cover in the technical training of personnel assigned aircraft refueling responsibilities.
3. Approved, operable fire extinguishing equipment shall be readily available during all fuel/refueling operations.

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4. NAVWEPS 06-5-502, NAVWEPS 06-5-503, NAVAIR Instruction 10345.2, and NAVAIR Instruction 10345.3 pertain to refueling aircraft.

1504. PURGING FUEL TANKS

1. NAVAIR Instruction 10345.1 sets forth the basic instructions for the repair, modification, and cleaning of fuel tanks.
2. Specific sealing techniques are contained in the Maintenance Instruction Manual of the aircraft concerned.

1505. AIRCRAFT ENGINE LUBRICATING OILS

1. NAVAIR Instruction 10350.1 contains basic information pertaining to utilization of aircraft engine lubricating oils.
2. Stringent quality control measures will be taken to prevent oil contamination.
3. NAVAIR Instruction 4730.8 establishes the NASC Aeronautical Oil Analysis Program.
4. Contaminated engine oil coolers will not be re-installed unless they have been completely disassembled and cleaned. Flushing the cooler will not suffice to remove contamination.

1506. CONTAMINATED OIL COOLERS

1. Contaminated oil coolers will be identified by painting a red band around the cooler and then shipping to NARF for overhaul.

1507. HOT REFUELING

1. NAVAIR 06-5-503 approves and sets forth "HOT" pressure refueling procedures and guidelines for all Naval Activities ashore.
2. Handbooks of Maintenance Instructions, Station and Group SOP's further amplify these instructions as they pertain to the specific aircraft and geographical location.
3. Available data indicated "HOT" refueling has been approved for the A4A/B/C/E, F-4A/B/C, RF-4B, F-8A/B/C/D/E, A-6A/EA, TF-9J, CH-46A/D and CH-53A/D.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

4. Gravity refueling should not be performed with engines running.
5. Although "HOT" refueling is approved for the majority of Wing Aircraft, it remains with the unit commanders to approve the use of the system within their command.
6. Unit commanders will ensure involved personnel are intimately familiar with established procedures and safety regulations pertaining to "HOT" refueling.

1508. Fuel Samples

1. All aircraft fuel tank drains and accessible fuel system strainers shall be opened and fuel drained from each point during each daily and preflight aircraft inspection prior to the operation of the engine. The drained fuel will be retained in the glass jar until the next fuel sample is taken. If fuel contamination is found the Aircraft Maintenance Officer will be notified immediately.

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CHAPTER 16

CETS / NETS

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

1601. CONTRACT ENGINEERING AND TECHNICAL SERVICES (CETS)1. Discussion

a. There are two principal types of contract personnel who provide onsite services at squadron and group levels, FSR and CFS. FSR personnel provide advisory service and liaison between their company and the military user of their company's product. CFS personnel provide technical assistance and instruction to the military users, but are not prohibited from establishing liaison with their company. Enclosure (1) of NAVAIR Instruction 4350.2 forbids the use of FSRs in lieu of CFSs.

b. FSR personnel, in numbers greater than one per aircraft group per given company, limit the number of CFS personnel, who through scheduled OJT and classroom training, can ensure the self-sufficiency directed by higher authority.

c. Although CETS personnel cannot be supervised by a government official, they are subject to local administrative and security regulations as pointed out in enclosure (1), paragraph 2.A of NAVAIR Instruction 4350.2.

2. Engineering and Technical Services Requirement (ETS REQ) Format

a. Enclosure (1) of NAVAIR Instruction 4350.2 contains the standard form for requesting new CETS personnel. Alpha through Lima must be completed with information other than "not applicable". Mike may be omitted if desired, but usually should contain the task description to aid NAESU in writing the task contract.

b. Expiration date of task is the date (or an earlier one) that the task will expire under the limitations imposed by paragraph 5.b of NAVAIR Instruction 4350.2. For example, assume that the activity support date (ASD) is February 1967 and an ETS REQ is submitted in May 1967 with a commencement date of 1 July 1968 because the 12 month limitation is determined by the ASD rather than the commencement date. This task will expire unless an exception is requested of (and granted by) NAVMAT ten weeks prior to February 1968. It is apparent from the above that if a task is not filled for the full allowable 12 months, the 12 month limitation still applies.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

c. Before determining the designation, CFS or FSR, carefully examine the support requirement. If the requirement is for liaison with the company, then FSR is the correct designation if the requesting aircraft Group has no other FSR on board from the same company. If an FSR from the same company is on board, then no requirement exists as this FSR can provide liaison with the company and give advisory service on any aircraft system. If the requirement is for technical assistance and classroom training or OJT, then CFS is the correct designation. If both training and liaison are required, then CFS is again the correct designation, as CFS personnel are not, and cannot be, prohibited from establishing liaison with their companies. However, FSR personnel are prohibited from teaching.

d. When "certified" or "C" is used in Echo, this is saying that the task is within the limitations set forth in paragraph 6.b of NAVAIR Instruction 4350.2. This, if the ASD is 12 months or more prior to the submission of the ETS REQ, the task cannot be certified; it must be inspected by NAVMAT. ETSREQ requiring exception must contain considerably more justification (Lima) than one which falls within the limitations.

3. Arriving CETS - Administrative Procedures

a. All CETS personnel appearing at Squadron Level will be reported immediately to the parent Group S-2, S-4 and Maintenance Officer.

b. All CETS personnel reporting at group level will be reported immediately to the G-4 section of this Headquarters by the most expeditious means. This report will indicate whether security clearance and "need to know" have been verified.

c. If "need to know" and security clearance cannot be verified at Group level, the Group will immediately notify this Headquarters by priority message with NASC (Code AIR-41413), CNAP, COMFAIRWESTPAC, and NAESU, Philadelphia as information addressee.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

d. If security clearance and "need to know" cannot be verified by this Headquarters, the person will be denied admission to the station until verification is received.

4. CETS Employment and Administration

a. CETS personnel will be strictly employed within the limits defined by the task letter.

b. CFS and FSRN personnel are required to complete a monthly "certificate of service". These reports are submitted on a standard form furnished by the NAESU detachment, Iwakuni. The reports are submitted via each representative's company to NAESU. NAESU uses them to determine payments due for service and to determine legal employment of individual CETS personnel as defined by the task contract and letter. In addition to the copies required by the company and aircraft Group, this Headquarters required one legible copy of each certificate submitted. Specific directions for completing the certificate are contained on the cover of the pads received from NAESU. Maintenance and Avionics Officers are enjoined to obtain and retain a copy of these directions to ensure correct and accurate completion of the certificates.

c. Request for authority to take passage in naval ships and military aircraft (commonly called Naval Technician Authority or NTA) will be directed to this Headquarters. NAESU has all the necessary information of FSRN and CFS personnel for causing the authority to be issued by NASC. A minimum of two weeks lead time is required.

5. Terminating from Task

a. The NAESU Detachment Officer or NAESU Coordinator will endorse the Letter of Introduction (LOI) with the date and time of the last working date in task. The original endorsements given to the incumbent and a copy forwarded to NAESU Headquarters.

b. The terminating office will advise the incumbent to return his Navy Technician Authorization (NTA), both non-combatant cards (DD489's), and Letter of Introduction to NAESU Headquarters via his cognizant plant Field

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

Service Manager. This procedure is necessary to insure that company records are proper and because the company is responsible for NTS's and DD 489's issued to their men. If the incumbent is going into another NAESU task he should retain the NTA and both DD 489's and return only the Letter of Introduction.

c. Should a company representative turn his credentials into the terminating office, that office must forward them to NAESU Headquarters. If a Letter of Introduction, DD 489, or NTA is lost, an Affidavit must be prepared giving the details of the loss. This affidavit must be forwarded to NAESU Headquarters.

6. Engineer Control Distribution Report

a. An ECDR is published by NAESU in May and November each year. Each aircraft Group will receive two copies of applicable portions of this report. One copy will be corrected and returned to this Headquarters as directed by the covering letter which accompanies the ECDR. One copy will be retained by the Group to be used as a worksheet during the subsequent six months.

b. When receiving an ECDR, aircraft Groups will review all CETS requirements with a view towards eliminating those not absolutely required and reducing new requirements to a minimum. During FY 67, the average cost to NAESU per man-day was \$110; hence, it behooves all hands to use CET services judiciously.

c. Requests for ETS shall be submitted only if the services cannot be provided from local in-house resources. Neither NETS nor CETS are to be used to augment local manpower shortages and this policy would be a violation of Civil Service Laws, DOD, CNM, and NASC policy.

7. CETS Travel

a. All CETS travel will be approved by the G-4 Section of this Headquarters prior to performance of travel. All CETS travel cost will ultimately be borne by the U.S. NAVY.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

b. Upon approval, a travel authorization will be issued by the NAESU Detachment Officer (NDO). Aircraft Groups and Squadrons will not issue travel authorization to CETS.

c. A contractor task may be relocated from one aircraft Group, Squadron or geographical location to another. When the necessity for such relocation arises, aircraft Groups or Squadrons will notify the NCO or NDO that such a requirement exists.

8. Visit Request Validity

a. In the event a Group or Squadron has reason to question the validity of a visit request from a company, this Headquarters (Attn: G-4) will be notified and given full particulars. No clearance or access will be granted until a verification has been received from this Headquarters.

1602. NAVAL ENGINEERING AND TECHNICAL SPECIALISTS (NETS)

1. NETS is a concept imposed by DOD and NASC. This concept is designed to replace most CETS with military or civil service engineering or technical services. One Field Service Representative (FSR) will be retained within this Headquarters for each engine and each airframe. These personnel will provide the necessary liaison between manufacturers and units of this command. All Contract Field Services (CFS) will eventually be replaced by civil service personnel.

2. NET specialists will be assigned to weapon systems or general support teams. Each team will consist of a team leader (CHIEF WARRANT OFFICER), an assistant (Gunnery or Master Sergeant), and several civil service personnel. The team leader and his assistant will provide liaison between user commands and team members. The team leader will also provide liaison between user commands and team members. The team leader will also provide minor administrative functions for the team.

3. Major administrative functions, such as travel orders and personnel record keeping, will be performed by the NCO or NDO in accordance with Section III of NAESU Instruction P5400.1E. All travel and training for NETS will be funded by NAESU.

STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

4. As NAESU civil service personnel are hired, they will be phased into one or more positions held by CFS personnel. After a period of indoctrination, the CFS billets or billets will be deleted.

5. NETS personnel will be used primarily for instruction [OJT or classroom] of Marines in the installation, operation and maintenance of weapons, systems. Occasionally, they may assist with a maintenance problem which requires a high degree of knowledge or skill, but they must not be used habitually to augment the maintenance effort of squadron personnel.

1603. TEMPORARY TASK RELOCATION

1. When requesting a Temporary Task Relocation, the formal request must be submitted to this Headquarters [NLO].

2. Justification for the relocation must accompany the request.

1604. WORKING HOURS

1. The work week prescribed in the contracts under which Contract Engineering and Technical Services [CETS] are procured is eight hours per day, five days per week. This corresponds to the normal work week of most government activities. Operational necessity or emergencies may require military units to work irregular hours and it is desirable that CETS personnel be available for consultation and advice during these hours. Since CETS personnel may not work more than forty hours per week, a specified work schedule, which may involve working on a shift basis, will be devised by them to ensure a maximum of forty working hours per week when the military unit serviced works irregular hours.

2. Since part of the task is consultation and advice, contractors should require that their representatives keep the cognizant personnel of the serviced activity apprised of their whereabouts during the activity's working hours and of how they may be reached for emergency calls during non-working hours. Also, since the various elements of a task defy specific description and change frequently, contractors should enjoin their representatives to seek out the needs of the activity served and make every effort to satisfy those needs.

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1605. OVERTIME

1. Because contractor representatives frequently are classified as salaried professionals, many NAESU contracts do not contain provisions for overtime compensation; however, in order for overtime work to be reimbursable, prior approval from the Commanding Officer, NAESU, must be obtained.

2. Requests for overtime services shall be forwarded to NAESU by the command concerned, via the logistic Chain of Command, with full explanation of the necessity therefore in performance of the task.

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CHAPTER 17

TECHNICAL TRAINING
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1701. TECHNICAL TRAINING

1. Technical Training has and always will be of prime importance to Marine Aviation. With the ever changing maintenance procedures and desire for quality workmanship; formal school, technical, NARF and OJT training are the only methods by which technicians may retain their proficiency.
2. Although man hours may be lost from direct maintenance through technical training, this will be more than justified through quality assurance and accelerated repair of defective units. This statement, of course, is contingent upon the fact that the technical training program is efficient, well organized and emphasized.
3. OPNAV Instruction 4790.2 will be adhered to for required records and reports of technical training. Individual qualification records will be maintained to ensure the maximum training of the individual technician within his field. An example is that of the Avionics technician and what equipment he is qualified to repair; or the Engine technician and to what depth he can perform repairs on a specified model engine.
4. When possible, technical training classes will be scheduled to offer technicians an insight into related occupational specialties. This practice also informs maintenance personnel of the technical problems inherent in other specialties. Gained knowledge will never be a deterrent to quality workmanship, squadron readiness or promotions.
5. Maintenance Officers will ensure a minimum of one hour technical training per week for each man assigned to the Maintenance Department.

1702. ON THE JOB TRAINING (OJT)

1. OJT is a constant training program in effect for each technician during every working hour.
2. A prime target of a supervisor is that each of his men is constantly in a training status. Because it is felt a man cannot accomplish a task within his MOS is not

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a reason to assign him another job. Teach him. Only in this way can we gain the well trained technician we will always need.

3. It is true that operational commitments invariably negate a planned training program, but there will come a point in time (possibly your watch), when we will be without fully trained technicians and concurrently, operational commitments will fail. OJT is the tool for sharp, well trained and informed technicians.

4. Records and reports for OJT are contained in OPNAV Instruction 4790.2 and shall be adhered to.

1703. TRAINING, CALIBRATION/QUALIFICATION

1. All personnel involved in the calibration/qualification of test/measuring equipment will be intimately familiar with CNAP Instruction 4355.2 and its reference instruction/publications.

2. An energetic and effective program will be instituted and continued to ensure calibration/qualification personnel are available and fully trained to perform their mission within the maintenance levels assigned cognizance. Maximum utilization of OJT will preclude loss of this capability.

3. In the event training cannot be arranged, this Headquarters will be so advised and assistance requested.

1704. TRAINING, AVIONICS

1. Supported activities (OMA) avionics personnel will be assigned on an equitable basis, to the supporting IMA as required, to perform maintenance on avionics equipment. Controlled rotation of personnel assigned to the IMA's on a temporary basis not to exceed 90 days, will increase the development of experienced personnel, in all phases of avionics maintenance functions.

2. Supporting IMA's will establish a training program utilizing the guidelines set forth in OPNAV Instruction 4790.2. Close liaison with supported OMA's will be maintained so that established training programs are compatible.

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In addition to normal IMA level training, emphasis will be directed to line maintenance procedures in the performance of OMA level maintenance for assigned aircraft. It is recommended that IMA personnel be assigned on a temporary basis, to a supported OMA for training and familiarization of assigned aircraft. Such assignments are contingent upon the availability of personnel, workloads and training requirements of the activities concerned.

1705. TRAINING, AVIATORS EQUIPMENT/SAFETY & SURVIVAL/CRYOGENICS

1. Technical training will include both the operational and safety precautions involved in each task. Maximum use of the training aids furnished with the GSE Training Kit #2 will be utilized in the training program.

2. Lesson plans will be prepared and utilized for the training program. They will help provide a standardized and continued program of qualifying personnel. Individual training will be recorded on the forms prescribed in OPNAV Instruction 4790.2.

3. Previously prepared lesson plans originating from officially recognized schools may be used. However, all guides will be screened and up-dated prior to use.

4. A Personnel Training Status Board shall be initiated, which will list those tasks or equipment requiring operation/accomplishment, by personnel and shall reflect the general level of qualification of the individual, for each particular task or equipment utilized.

1706. TECHNICAL TRAINING, AGENDA

1. Within the Maintenance Department, there are a number of subjects that properly belong in the training schedule for all hands. These subjects are in addition to those specifically oriented to a specific MOS.

2. Technical training courses will include, but are not limited to, the below listed subjects in addition to those bearing directly on a technicians primary MOS:

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a. SAFETY

- (1) Fire Fighting
 - (a) Gasoline
 - (b) Oil
 - (c) Hot Fuel
 - (d) Paper/wood/rubber
 - (e) Brakes (Hot)
- (2) Flight Line Operations
 - (a) Aircraft Danger Areas
 - (b) Foreign Object Damage
 - (c) Operation of Vehicles
 - (d) Aircraft Security
 - (e) Tire inflation/overinflation dangers
 - (f) Radar danger areas (as applicable)
 - (g) Noise levels and effects on hearing
 - (h) Refueling hazards
 - (i) Use of pressure air
- (3) Shop Hazards
 - (a) Metal Shop
 - 1 Machine danger areas
 - 2 Hazards in operating machinery
 - 3 Safety equipment (goggles, etc)
 - (b) Hydraulic Shop
 - 1 Fluids on deck
 - 2 Effects of fluid in eyes/mouth
 - 3 Action of fluids under high pressure
 - (c) Avionics Shop
 - 1 Electrical Hazards
 - 2 Radiation Hazards
 - 3 Noise (pitch) Hazards
 - 4 Electrocution
 - (d) Power Plants
 - 1 Fluids on deck
 - 2 Effects of fuel residue to eyes and internal organs
 - 3 Handling Hazards
 - (e) Support Equipment
 - 1 Fluids on deck
 - 2 Effects of mo-gas/Diesel on lungs, etc.
 - 3 Effects of carbon monoxide
 - 4 Handling Hazards

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- (f) Aviators Equipment
- 1 Cleanliness
 - 2 Properties of LOX/LN2
 - 3 Hazards in peculiar equipment

b. First Aid (Recommend Corpsman representation)

- (1) Burns
- (2) Artificial resuscitation
- (3) Electrical Shock
- (4) Foreign fluids in the eyes
- (5) Swallowing foreign fluids
- (6) Cuts/Excessive bleeding/wounds
- (7) Fainting/collapse
- (8) Broken bones

1707. "A" SCHOOL GRADUATE EVALUATION REPORT

1. Upon graduation from an NATTC Class A school, each graduate is provided NATTC 1540/56 form as his SRB.
2. Within 6 months, this form is to be completed by his reporting senior and returned to NATTC reflecting the performance of the technician on the job.
3. An objective and complete grading of the individuals performance assists NATTC immeasurably in the purification and adjustment of their training program. Recently, it was pointed out that reports are received on only about 7% of the Marine graduates. This is unacceptable.

1708. INSTRUCTOR CHECK LIST

1. The following check list will be utilized by the assigned Technical Training instructor to assist in assuring an effective Squadron Technical Training program:
 - a. Classroom reserved.
 - b. Classroom size adequate.
 - c. Classroom lighting adequate.
 - d. Classroom seating adequate.
 - e. Classroom temperature approximately 70 degrees.
 - f. All required training aids available. (Cutaways, samples, paper, pencils, chalk, blackboard, projectors.)
 - g. Lesson plans prepared and available.
 - h. Attendee list on hand
 - i. Personnel clearances noted (if required)
 - j. Locally prepared form available to submit names and training class attended to training section.

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1709. CONTRACTOR ENGINEERING AND TECHNICAL SERVICES (ETS)

1. When available maximum utilization of CETS personnel will be utilized as instructors for Technical Training.

1710. AIRCRAFT TIRES AND WHEELS (CNAP INST 4700.12)

1. For Intermediate Activities: A minimum of 80 hours of OJT conducted under the supervision of a qualified NCO for all personnel involved in the handling/maintenance of tires/wheels before being allowed to work independent of supervision.

2. For Organizational Activities: Personnel within operational squadrons and other organizational maintenance units involved in only the removal and replacement of wheels, shall receive OJT involving a minimum of 10 wheel changes before being allowed to work independent of supervision.

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CHAPTER 18
SAFETY REGULATIONS
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1801. AVIATION AND GROUND SAFETY PROGRAMS

1. Wing Order P3750.9 established a comprehensive Aviation Safety Policy and Program for the 1st Marine Aircraft Wing.
2. Wing Order P5100.1 provides the necessary safety procedures and instructions for implementation of the Ground Safety Program, in the 1st Marine Aircraft Wing.
3. NAVMAT P5100 (Safety Precautions for Shore Activities) will be utilized as a guide for all shop safety programs.

1802. SAFETY PRECAUTIONS GENERAL

1. Safety Regulations are of prime consideration in all units and will be included as a major item in all Technical Training Programs.
2. Each shop shall have General Safety Precautions and applicable shop safety precautions in the most conspicuous place. They shall be read and initialed by all assigned personnel.
3. Safety shoes will be worn by all personnel in the Aircraft Maintenance Section on the flight line area, shop area and hangar.
4. Noise from aircraft presents a personal injury potential. A hearing conservation program shall be maintained with approved hearing protectors worn by all personnel in exposed areas. Refer to page 18-5 this chapter, for FSN and/or part number for hearing protectors.
4. No aircraft shall be moved without a man in the cockpit to man the brakes.
6. When taxiing or towing an aircraft in congested areas, sufficient wing/rotor walkers shall be assigned to accompany the aircraft to prevent a collision with other aircraft, equipment or object.
7. Fire Lanes shall be properly marked and kept clear at all times.

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8. Before starting an aircraft engine, the wheels of the aircraft shall be chocked and the parking brakes if installed, set.
9. When an aircraft engine is started by personnel other than pilots or taxi pilots for testing or warm up purposes, except VR class multi engine aircraft equipped with parking brakes, the aircraft shall be tied down.
10. Prior to starting jet aircraft engines, by personnel other than pilots, the air intake screens shall be installed.
11. Prior to starting an aircraft engine the area around the aircraft or portable test cell will be policed for foreign objects.
12. No aircraft engine will be started without personnel with fire extinguishers approved for the purpose, being in the immediate area of the aircraft/engine.
13. Fire extinguishers shall be checked daily and prior to the starting of aircraft/engines.
14. No high power turn up of jet aircraft engines will be performed except in a high power turn up area, approved for turn up.
15. At the high power turn up area, radio communication will be available to alert the tower or crash crew in case of fire or other emergencies.
16. All personnel except pilots will be certified by their Commanding Officer for low and high power turn up of aircraft engines. It is recommended that the number of personnel certified for high power turn up be restricted to qualified personnel of check crews for trimming and checking of aircraft engines and qualified personnel of the power plant test cell.
17. A tail rotor and rotary wing blade tip danger area chart shall be posted in the flight line office and pilots ready room of helicopter squadrons in full view of all concerned.
18. An engine run up danger area chart shall be posted in the flight line office and pilot's ready room of fixed wing jet aircraft squadrons in full view of all concerned.

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19. Aircraft returning from a flight or abort with hot wheels and brakes shall be directed to the hot brake area.

1803. FIRST AID

1. Emergency first aid instructions to include resuscitation, shall be made a part of the training program.
2. A Resuscitation Method Chart shall be posted in each shop.
3. Emergency first aid material shall be on hand in each shop within the limits imposed by the Medical Department.
4. Personnel suffering from minor injuries will be transported to the Station Hospital or Sick Bay immediately.
5. Personnel seriously injured, incapacitated or in shock will be made as comfortable as possible and the Station Hospital or Sick Bay notified. The injured person will be transported to the Station Hospital or Sick Bay by ambulance.

1804. RADIOGRAPHY OPERATORS SAFETY REGULATIONS

1. No personnel under 18 years of age will be allowed to work in radiation areas.
2. Operation of the X-RAY unit will be in a lead lined booth or room or in a roped off area 100 feet in radius. The roped off area will be identified by radiation warning signs posted around the working area.
3. Only qualified radiography operators will be allowed in the radiation area during operation of the X-RAY unit.
4. The X-RAY control unit will be locked at all times, the unit is not in use. The key to the lock will be retained by the operator.
5. Do not approach closer than 25 feet when the tube head is energizing.
6. Always remain clear of the primary radiation beam.

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7. Always wear personnel monitoring devices, Dosimeter for daily readings and film badges for monthly readings.
8. A safe working area of 5 MR or less will be maintained.
9. A geiger counter or survey meter will be used to monitor the area during all X-RAY operations.
10. Applicable medical instruction shall be adhered to for personnel exposed to radiation.

1805. SAFETY REGULATIONS FOR PRESSURE AIR

1. All Hi/Lo Air Compressors used in the support of the aircraft maintenance effort will have the Hi-Pressure outlets stenciled "Hi-Pressure Air".
2. Hi-Pressure air will not be used to operate air driven tools.
3. Air driven tools will not be used without an air pressure regulator in the supply line.

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1806. FSN/Part Numbers for Hearing Protectors

NOISE PROTECTION: Hearing Protectors

EAR MUFF: Navy Stock Number RD 4240-759-3290 LF50

MANUFACTURER: David Clark Company, Incorporated, Worcester, Massachusetts.

Persistent regular "use" of ear protectors is the most important factor in prevention of noise induced hearing loss.

<u>No.</u>	<u>Part No.</u>	<u>Description</u>
1.	ASP-184	Dome Assembly
2.	SP-1660	Puff Filter
3.	SP-2014	Seal, Plastic
4.	SP-2061	Dome
5.	SP-3B	Retaining Ring
6.	ASP-137	Headband Assembly
7.	ASP-160	Headpad Assembly
8.	ASP-80	Stirrup Assembly
9.	SP-6	Stirrup
10.	SP-234	Stirrup Clamp
11.	SP-1645	Headband

Plugs, Ear:	Noise Protection	Case Ear Plug [Container
V-51R	<u>Single Flange</u>	for ear plugs]
Extra Large	6515-664-7859	6515-299-8287, \$9.12 per case
Large	6515-299-8288	12¢/man box of 12 \$1.44
Medium	6515-299-8289	
Small	6515-299-8290	
Extra Small	6515-664-7858	

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TRIPLE FLANGE

small 6515-082-2676
regular 6515-082-2675

Ear protectors may be ordered with sound powered communicators
Headset H-173/AIC FSN 5965-675-8799
Cord for Headset FSN 5995-631-8566
Extension Cord FSN 5995-106-0916

Cotton, impregnated: Noise protection
FSN: 6515-721-9092, Disposable, 100's
Recommended for transport passengers.

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CHAPTER 19

PUBLICATIONS/DIRECTIVES/CORRESPONDENCE/FORMS

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1. The maintenance, upkeep, and requisitioning of Naval Aeronautical publications is contained in chapter 13 of OPNAV Instruction 4790.2.
2. Squadron Maintenance Officers are responsible to ensure a complete and up to date file of all publications and directives pertaining to the maintenance and management of naval aircraft and its supporting equipment are maintained within the maintenance department in accordance with the maintenance level assigned.
3. The AMO is responsible to the Commanding Officer for the validity of the units files of publications, correspondence, directives, messages, etc., pertaining to the maintenance/management of assigned Naval aircraft. The technical library is normally maintained by a 6082 clerk in the Quality Assurance section.
4. The squadron's AMO may assign the Avionics and/or Weapons Divisions to maintain his master files of applicable publications pertaining to their particular requirements.
5. This Headquarters (G-4 AMO) will maintain current files of all directives, publications, correspondence, etc., pertaining to model aircraft assigned to the 1st Marine Aircraft Wing.
6. Managers throughout the maintenance Chain of Command will ensure excess applicable publications, correspondence, directives, etc., are forwarded to the lowest echelon of maintenance effected.

1902. PUBLICATIONS

1. Units in custody of, or supporting Naval aircraft will maintain a complete file of publications affecting or pertaining to the model aircraft/GSE/SSE supported in accordance with the maintenance level assigned.
2. Publications will be filed in binders supplied for that purpose through normal supply channels.

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a. FSN for binders

2" 9G27510-889-3519

3" 9G17510-889-3520

3. Publications will be filed in same sequence as listed in the NAVSUP 2002, Section VIII, part C. A location card of all technical publications will be maintained in the aircraft maintenance office and changes distributed accordingly.

4. Changes/revisions to technical publications will be made immediately upon receipt. A record of changes made will be recorded in card files and initialed. An outdated publication is a dangerous tool and will undermine an otherwise effective maintenance program.

1903. LETTER TYPE DIRECTIVES

1. Letter type directives are changes and bulletins pertaining to aircraft/systems/aircraft maintenance support equipment/etc.

2. Units in reporting custody of, or having maintenance support responsibilities of Naval aircraft shall maintain a complete file of letter type directives pertaining to the aircraft assigned and associated equipments supported.

3. Interim manual changes/bulletins will be made immediately upon receipt, then filed.

4. Letter type directives will be filed in separate binders.

1904. INSTRUCTION/ORDERS/NOTICES

1. Instructions, orders, notices pertaining to the maintenance of aircraft and related components will be filed in numerical sequence, by originator, and the master file maintained in the quality assurance office of each unit in reporting custody of or maintenance support of naval aircraft.

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2. Instructions, orders, and notices will be maintained on file till the self-cancellation date becomes effective or another cancels it.

1905. CORRESPONDENCE-MESSAGES

1. Correspondence/messages will be filed and retained for a period of one year.

2. Interim changes/bulletins will be filed with the printed formal copies of changes/bulletins in proper numerical sequence.

3. Letters/messages originated or received in accordance with current directives pertaining to the accounting of aircraft/engines or support equipment will be filed in a folder identified by the report symbol and title (OPNAV XRAY, ATO, ETR, etc.).

4. When originating correspondence/message referencing an interim change or bulletin, the interim change or bulletin number will be used, not the date-time-group of the message.

5. Copies of interim bulletins/changes not received through initial distribution, and not available from the parent group, may be requested from the Wing AMO. Requests will be submitted informally by guard mail.

1906. CORRESPONDENCE/MESSAGE TRAFFIC

1. Maintenance departments of units OPCON 1st MAW will not take action on maintenance type correspondence/message traffic unless:

a. The squadron is action (to) addressee on the letter/message, or

b. Action has been directed by this headquarters.

c. Often a unit will receive correspondence/messages pertaining to maintenance of an aircraft as an "info" or "copy to" addressee that will subsequently require action on their part. In the interim, a senior echelon of command may elect to modify or reject the contents of the letter/message. Therefore, units will hold "info" correspondence in abeyance until action is directed by a higher echelon of command. This does not preclude preliminary inspection action by AMO on his own volition.

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d. Units will perform action required as directed in the text of the letter/message. If no limitations are set forth; the action will be completed as soon as possible.

e. Correspondence/message traffic applicable to the maintenance of aircraft will be filed in the Aircraft Maintenance Administration Office in such a manner as to expedite research and location when required. The Navy filing system is recommended for use, utilizing the numbered categories as noted in the Navy Filing System Manual.

f. Reporting custodians of Naval Aircraft and aircraft maintenance support activities will ensure that CG, 1st MAW is an addressee on all correspondence/ messages they originate pertaining to the maintenance/assignment of aircraft and its related components and supported equipment.

g. Reporting custodians of Naval aircraft operational control to 1st MAW receiving message/correspondence on which 1st MAW is not an addressee will ensure that the Wing AMO receives a copy.

1907. WING LIBRARY

1. Technical publications at the wing library will not leave the office. If a publication is not held by a unit it may be ordered through wing adjutant section.

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CHAPTER 20

RECURRING REPORTS

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1	AVIONICS PER- SONNEL	GROUP AVIONICS	WGO 4790.2	LTR	FMAW	28TH OF EA MONTH
2	MOBILE MAINT FACVAN TRANS/ RECEIPT	GROUP	FMFPAC 090428Z JUN71	MSG	FMFPAC FMAW	AS CHANGES OCCUR
3	QUALIFICATION SUMMARY	GROUP QUAL LAB	CNAP INST 4355.3	11ND NARP 4355.11	SEE REF	15TH OF EA MONTH
4	SHOEHORN INV SELECTED ECM COMPONENTS	GROUP	CNAP INST 3430.4A	MSG	FMAW	28TH OF EA MONTH
5	KY-28 IMPL- MENTATION	GROUPS ASSIGNED KY-28	WGO 02200.2	MSG	FMAW	LAST OF EA MONTH
6	TEST BENCH OUT OF SER- VICE	GROUP	CNAP INST 4790.6	MSG	SEE REF	8TH DAY OUT SERVICE
7	KY-28 LOSS	GROUPS ASSIGNED KY-28	WGO 02200.1	MSG	SEE REF	AS LOSSES OCCUR
8	SHOEHORN LOSS	GROUP	WGO 010550.12	MSG	SEE REF	48 HRS AFTER LOSS

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	TITLE	SUBMITTED BY	REFERENCE	FORMAT	DIST:	WHEN DUE
9	SHOEHORN TRANS- FER/RECEIPT	GROUP	WGO 010550.12	MSG	SEE REF	WITHIN 48 HRS OF TRANSACT.
10	TEST BENCH IN SERVICE	GROUP	CNAP INST 4790.6	MSG	SEE REF	AS OCCURS
11.	NOAP LABORATORY	NOAP LABORA- TORY	FMEPACO 4730.1	MSG	SEE REF	15TH DAY OF MO FOLLOWING END OF, QTR.
12	COUNTING ACCELE- ROMETER READING	SQDNS WITH ACCELEROMETERS	NAVAIR INST. 13920.1	NAVAIR FORM 13920/1	SEE REF	BY 10TH OF MO CHANGES/TRANS
13	KEY MAINTENANCE PERSONNEL	SQDNS	FMAW 260851Z MAY 71	MSG / LTR	FMAW	AS CHANGES OCCUR
14	AIRCRAFT AVAIL- ABILITY	SQDNS	WGO 4790.2	SEE REF	FMAW	DAILY
15	GSE REHAB	GROUP	CFWP INST 13850.1	SEE REF	CFWP FMAW	SEE REF
16	GSE MATERIAL CONDITION	GROUP	CMAF INST	SEE REF	CFWP FMAW	UPON RECEIPT OF DISCREPANT

	TITLE	SUBMITTED BY	REFERENCE	FORMAT	DIST:	WHEN DUE
17	EXCESS NAVY RFI/ NON RFI GSE	GROUP	WGO 4570.3	MSG	FMAW	SEE REF
18	OPNAV XRAY	SQDNS	CNAP INST 5442.2	MSG	SEE REF	SEE REF
19	AIRCRAFT ACCOUNT- ING AUDIT RPT	SQDNS	CNAP INST 5442.2	SEE REF	CNAP CFWP FMAW	SEE REF
20	AIRCRAFT ENGINE TRANSACTION	SQDNS	CNAP INST 13700.9	MSG	SEE REF	SEE REF
21	END OF QUART- ER	SQDNS	CNAP INST 13700.9	SPD LTR	SEE REF	SEE REF
22	AIRCRAFT DIS- CREPANCY REPORT	SQDNS	CNAP INST 13000.8	NAVWEPS 13070/4	CFWP FMAW	SEE REF
23	PORTABLE JET ENGINE TEST STAND	GROUP	CFWP INST 13900.1	MSG	CFWP FMAW	LAST DAY OF MONTH
24	JET ENG TEST OUT OF SER- VICE	GROUP	CFWP INST 13900.1	MSG	CFWP FMAW	SPEC REPORT OUT OF SER- VICE OVER 48 HRS

	TITLE	SUBMITTED BY	REFERENCE	FORMAT	DIST:	WHEN DUE
25	QECK. INVENTORY	GROUP	CFWP INST 13000.10	MSG	CFWP FMAW	SEE REF
26	GB-1A UTILIZA- TION	H&MS-12 & H&MS-15	FMAW (R) 180737Z JAN71	MSG	FMAW FMFPAC	5TH OF EA MONTH
27	GB-1A UTILIZA- TION QUARTERLY	H&MS-12 & H&MS-15	ADMIN FMFPAC 180445Z DEC68	MSG	FMAW FMFPAC	15TH OF 1st MO EACH SEC- CEEDING QTR
28	FLT EQUIP PER- PERSONNEL UTIL- IZATION	GROUP FLIGHT EQUIPMENT	WGO 4790.2	LTR	FMAW	5TH WORKING DAY EACH MO
29	PRE - MID POST DEPLOYMENT	GROUP	CNAP INST 4730.3	LTR	CNAP FMAW	10 DAYS FOL- LOWING IN- PECTION
30	PAR WORK RE- QUEST	SQDNS	CNAP INST 4710.3	CNAP GEN 4710/1	FMAW CEWP PAR LIAISON	3 WEEKS PRIOR TO INDUCTION DATE
31	UR NOT REQUIR- ING ENGINEER- ING INVEST'GTN	SQDNS	OPNAV INST 4790.2	OPNAV FORM 4790/47	SEE REF	WHEN MATERIAL IS FOUND UN- SAT
32	UR REQNG ENGINEERING INVESTIGATION	SQDNS	OPNAV INST 4790.2	MSG	SEE REF	SEE REF

	TITLE	SUBMITTED BY	REFERENCE	FORMAT	DIST:	WHEN DUE
33	SAFETY UR	SQDND	OPNAV INST 4790.2	MSG	SEE REF	SEE REF
34	CER ENG REPAIR BEYOND 45 DAYS	H&MS ASSIGNED CER	CNAP INST 4700.17	MSG	SEE REF	SEE REF
35	CER ENG REPAIR BEYOND 60	H&MS ASSIGNED CER	CNAP INST 47700.17	MSG	SEE REF	SEE REF
36	TECHNICAL DIR- ECTIVE NOT INC LIST #2	SQDND	NASCRP INST 13050.1	IBM LISTING	NASCRP	WITHIN 5 DAYS AFTER RECEIPT
37	SPECIAL INT/ HANGAR QUEEN	SQDND	WGO 4790.2	MSG	FMAW	AFTER A/C DWN 30 DAYS
38	GSE MISUSE	SQDND	WGO 4790.2	LTR	FMAW	UPON OCCUR- ANCE
39	UNSAT EQUIP	GROUPS	MCO 4700.1 MCO 00265.1	DD FORM 1686	SEE REF	SEE REF
40	GSE STATUS	GROUPS	WGO 4790.2	PHONE CALL	FMAW	0900 DAILY

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STANDING OPERATING PROCEDURES FOR AIRCRAFT MAINTENANCE

CHAPTER 21

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CHAPTER 22

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