Will The ACE Be Sustainable? T-AVB Issues And Concerns

CSC 1995

SUBJECT AREA - Aviation

EXECUTIVE SUMMARY

Title: Will the ACE be Sustainable? T-AVB Issues and Concerns

Author: Major Curtis J. Powell, United States Marine Corps

Thesis: The value of the Aviation Logistics Support Ship (T-AVB) was amply demonstrated in OPERATION DESERT SHIELD/DESERT STORM. Unfortunately, in the afterglow of success, a loss of momentum has beset this valuable program raising many issues and concerns regarding the future of large scale Aviation Combat Element (ACE) sustainment.

Background: The T-AVB is absolutely critical to ACE sustainment in operations greater than 30 days or those encompassing a heavy sortie schedule. The increased doctrinal emphasis on rapid, sustainable forces "from the sea" has further highlighted the importance of the T-AVBs. While highly successful in the Gulf War, a stagnation of training, funding, modernization and a lack of program understanding has created an atmosphere of "benign neglect" which seriously questions the ability of the T-AVBs to be ready to deploy in support of a contingency or war. For example, during the recent FY 96 Budget Review T-AVB modernization funding was decreased 58%, thereby stretching the modernization horizon to five years per ship. Considering that eight of the top ten critical upgrades are for safety/mission and the scheduled 2008 deactivation of the T-AVBs, this type of funding profile places the viability of the program in jeopardy. The paucity of fullscale peacetime exercises, lack of standard operating procedures, personnel training and critical capability shortfalls also contribute to questionable future readiness.

Recommendation: Many of the issues and concerns can be solved simply through additional emphasis and training. A coordinated, proactive program strategy, coupled with vigorous exercises and leadership attention can ensure that the T-AVB will meet expectations in the future.

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE **1995**	2. REPORT TYPE	3. DATES COVERED **00-00-1995 to 00-00-1995**
4. TITLE AND SUBTITLE **Will the ACE be Sustainable? T-AVB Issues and Concerns**		5a. CONTRACT NUMBER
		5b. GRANT NUMBER
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)		5d. PROJECT NUMBER
		5e. TASK NUMBER
		5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **United States Marine Corps, Command and Staff College,Marine Corps University,2076 South Street, Marine Corps Combat Dev Command,Quantico,VA,22134-5068**		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)
12. DISTRIBUTION/AVAILABILITY STATEMENT **Approved for public release; distribution unlimited**		
13. SUPPLEMENTARY NOTES		
14. ABSTRACT		
15. SUBJECT TERMS		

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**38**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

TABLE OF CONTENTS

INTRODUCTION 1

BACKGROUND 2

ISSUES AND CONCERNS 5
- FUNDING 5
- MATERIAL/CAPABILITY DEFICIENCIES 6
- READINESS AND TRAINING ISSUES 9
- READINESS 9
- TRAINING 13

RECOMMENDATIONS 16
- FUNDING 16
- HELO DECK 16
- CARGO BOOMS 17
- SELF-DEFENSE 17
- MALS T-AVB TRAINING, MAINTENANCE, SECURITY, AND SAIL (TMS2) TEAMS 18
- MALS SPONSORSHIP PROGRAM (MSP) 19
- PUBLISHING AN SOP 19
- TRAINING 20
- STREAMLINE ACTIVATION CHAIN 21
- THE FUTURE 22

CONCLUSION 22

ENDNOTES 25

BIBLIOGRAPHY 28

APPENDICES A-1
- APPENDIX A-- GENERAL CHARACTERISTICS A-1
  - TYPICAL MOBILE FACILITY A-3
  - MF LOADING OPERATIONS A-4
  - CARGO BOOM CONFIGURATION A-6
  - FLIGHT OPERATIONS A-7
- APPENDIX B-- ACTIVATION SEQUENCE B-1
- APPENDIX C-- TRANSALTS LIST C-1
- APPENDIX D-- FY 96 BUDGET REVIEW D-1
- APPENDIX E-- THREAT MATRIX E-1

INTRODUCTION

The Marine Corps doctrine of task organization embodies flexibility of deployment and employment, minimal response times, and force sustainment. Virtually all marine Air Ground Task Forces (MAGTFs) employ aviation assets, from a composite squadron to an entire Marine Aircraft Wing (MAW). A critical aspect of force sustainment is the ability to provide continuous intermediate-level maintenance support to deployed aircraft once operations commence. The aircraft employed in the smaller MAGTFs derive their support from air-capable amphibious ships with minor augmentation from the parent Marine Aviation Logistics Squadron (MALS) Intermediate Maintenance Activity (IMA). In the late 1970s, the Marine Corps determined that a better means of supporting the number of aircraft employed in the larger MAGTFs was necessary. This required deploying the MALS in a flexible and rapid method without generating additional strategic airlift requirements.

In the early 1980's, the Marine Corps discovered an ideal method that capitalized on proven civilian containership technology. Through the conversion of two Seabridge-class containerships, the Navy & Marine Corps placed two Aviation Logistics Support Ships (T-AVBs) in service (see Appendix A for characteristics). These ships

can quickly deploy task-organized intermediate-level maintenance support, with the bulk of this support housed in 8'x 8'x 201 containers called mobile Facilities (MFs) (see Appendix A, pg. A-3). The T-AVBs are not merely containerships. The IMA can operate in these MFs while loaded aboard the T-AVB or offloaded ashore in a contingency area.

The value of the T-AVBs as a force multiplier was amply demonstrated in Operations DESERT SHIELD AND DESERT STORM. Unfortunately, in the afterglow of success, a loss of momentum has beset this valuable program raising many issues and concerns regarding the future of large-scale Aviation Combat Element (ACE) sustainment. The purpose of this paper is to stimulate debate, highlight concerns and suggest ideas in the hope of regaining the momentum of the T-AVB program.

BACKGROUND

The Aviation Logistics Support Ship (T-AVB) primary mission is to provide dedicated fast sealift for the movement of a task organized Marine Aviation Logistics Squadron (MALS) Intermediate Maintenance Activity (IMA) to a contingency area to support the fixed and rotary wing aircraft of the Marine Air-Ground Task Force (MAGTF) Aviation Combat Element (ACE) in either an amphibious or Maritime Prepositioning Force operation. Individual workcenters are housed in Mobile Facility (MFs) vans and embarked aboard the T-AVB. The T-AVB can be configured in

two ways: (1) with 300 MF vans, of which 186 would be functional, or (2) with 644 vans in a pure transport (no repair enroute) configuration.1 In the functional mode, the MALS is capable of conductiong at-sea repair of aeronautical components. The T-AVB is also capable of offloading the MALS at a secure port or instream with the use of lighterage.

The ships, the SS CURTISS and the SS WRIGHT, are maintained in Reduced Operating Status 5 (ROS-5) by the Maritime Administration (MARAD). The SS Wright is layberthed at Baltimore, MD, and the SS WRIGHT at Port Hueneme, CA. A civilian, commercial U.S. Merchant Marine retention crew is stationed aboard each ship to monitor equipment and conduct vessel maintenance. Upon receipt of a request for activation, additional civilian crew are hired, ship systems are brought on-line, and the ship sails to arrive at the Sea Port of Embarkation (SPOE) for loading within 120 hours of activation, and arrival into the theater of operations by D+20 (see Appendix B for details).2

The T-AVB is absolutely critical to ACE sustainment in operations lasting more than 30 days or those conducting a heavy schedule of combat sorties. The Fly-In Support Package (FISP), which accompanies the Fly-In Echelon (FIE)

aircraft, only contains 30 days of organizational-level (remove and replace) repair parts at combat utilization rates.3 Consequently, sustained aircraft readiness and availability is dependant on the arrival of IMA support and additional spare parts. Considering the scarcity of many aeronautical components and the transportation lag time when sourcing replacement assets from CONUS, the in-theater repair provided by the T-AVB is the only efficient way to maintain an acceptable level of combat-ready aircraft.

The T-AVB mission has increased in importance through recent changes in doctrine. The increased doctrinal emphasis on rapid, sustained forces "from the sea" highlights the need for a responsive and sustainable ACE.4 Consequently, the role of the T-AVB has grown in importance as the centerpiece of the ACE expeditionary maintenance capability. Only through regular exercises will the Marine Corps be able to achieve the required T-AVB readiness to support this doctrinal focus and meet the criterion as outlined in the Required Operational Capabilities and Projected Operational Environment (ROC/POE) for the T-AVB (OPNAVINST 3501.202A). Mobility capability 14.5 of the instruction states:

> Conduct peacetime activation, mount-out and movement exercises of selected personnel and equipment to ensure capability of contingencies involving naval forces short of a general war.

In order to meet the D+20 arrival timeframe, frequent exercise of the ship systems incorporating the MALS logistics capabilities is necessary. Outside of the difficult OPERATION DESERT SHIELD/DESERT STORM loadout, exercise activity has been static or greatly limited in scope. Accordingly, the experience level and the number of MALS Marines throughout the Corps familiar with T-AVB operations is rapidly declining. A review of the Marine Corps Lessons Learned System (MCLLS) yielded no fewer than five submissions (MCCDC (WF)-2, HQMC (ASL, POR, LPO)) recommending that annual T-AVB exercises be conducted to prevent the re-occurrence of the same problems. A common theme to these lessons learned was that T-AVB activation and loading timelines did not meet expectations. The decline of the experience base, coupled with delays in ship modernization/alteration and a lack of program understanding within marine aviation, has created an atmosphere of "benign neglect" which seriously questions the ability of the T-AVBS to be ready to deploy in support of a contingency or war.

ISSUES AND CONCERNS

The significant issues and concerns involving the T-AVB program can be categorized into three main areas: (1) funding for modernization, (2) material and capability deficiencies, and (3)

readiness and training issues.

Funding. First, modernization funding is a major concern considering the fact that many of the critical ship alterations (TRANSALTS) based on Fleet Operational Need Statements (FONS) from the Gulf war have not been incorporated. The recently re prioritized list (see Appendix C) ranges from such items as the emergency intercom system (#1) to the crash boat cradle (#22), with a total funding requirement of roughly $3.2 million **per ship.**

During the FY 96 budget review process, the Sealift Modernization (T-FMP) line of the CNO (N42) T-AVB budget was significantly decreased **(58%)** from its FY 95 high of $1.652 million to an annual average of $700,000 for the FY 97-01 time frame (see Appendix D).5 This decremented funding level stretches the modernization period for the needed alterations into almost **five years for each ship!** The second highest alteration priority, the IMA electrical upgrade, is consequently unfunded due to its high price tag -- $1.4 million/ship. This electrical upgrade is absolutely critical to the IMA mission. unless this funding decline is reversed in the near future, critical upgrades to the T-AVBs will not be accomplished, or if completed, will be done just in time for their scheduled 2008 deactivation.6

Material/Capability Deficiencies. While the T-AVBs provide

tremendous sustainment capacity to the ACE, the ships have some material and capability deficiencies that warrant discussion. Those that have been identified and programmed via a Fleet Operational Need Statement (FONS), such as shipboard communications, are excluded from this discussion despite their importance. Instead, the focus is on those issues which have been overlooked or require further examination and discussion.

First, the T-AVBs are strictly day Visual Flight Rules (VFR) helicopter capable, unlike the maritime Pre-Positioning Squadron (MPS) ships and the T-AHs (hospital ships) which have night capability as well. While Instrument Flight Rules (IFR) capability may be unwarranted, certainly a night capable flight deck is necessary. A large portion of aircraft maintenance is done at night in preparation for the next day's flight schedule, therefore access to the supply and maintenance capabilities of the T-AVBs is essential. Intermediate level maintenance is a 24-hour-a-day operation and, while at sea in a functional mode, the restriction of daylight hours on the shuttling of critical aeronautical components from the beach to the T-AVBs results in unnecessary aircraft readiness degradation. Many OPLANS assume an average aircraft readiness rate of 90%; this cannot realistically be achieved with this restricted flight deck.

Second, the ten 30-ton cargo booms aboard each T-AVB are old, slow and deteriorating.7 The booms are obviously vital to the T-AVB mission; however their early 1960's technology, using a "yard and stay" type system (see Appendix A, pg. A-6), is prone to breakdown. Since these old booms are virtually extinct in the commercial containership fleets, spare parts are no longer manufactured or stocked. Additionally, few merchant sailors are familiar with this type of boom, resulting in a higher incidence of damage to both the cargo and the booms. The booms are easily bent during on/offload operations and replacement parts can only be obtained through cannibalization of the SS Cape Nome.8 The SS Cape Nome is the third of the four Seabridge-class ships from which the two T-AVBs were converted. The fourth ship, with all its potential spare parts, was sold for scrap. The SS Cape Nome is berthed with the James River Reserve Fleet and rapidly running out of usable parts.

The third capability deficiency involves self-defense. While the T-AVB's concept of employment specifies that it will be used in a "secure" port, the ever-expanding depth of the battlefield makes the targeting of ports and rear areas more likely than in past conflicts. Additionally, the now-defunct Sealift Survivability Program identified the MPS, T-AHs and T-AVBs as High-Value Targets (HVTs) as part of the U.S. Strategic Sealift Fleet.9 The critical role the T-AVB

plays in ACE sustainment, coupled with the fact that it operates many high-value, one-of-a kind test benches and other assets, makes it a lucrative target. U.S. air superiority will most likely remain free from direct challenge by an aggressor air force in the foreseeable future; however, an attack on vulnerable sustainment (rear) forces could quickly dilute American airpower. The targeting of high-value ships, such as the T-AVB, is a logical means of equalizing the battle for the potential aggressor. The loss of an in-theater T-AVB would severely cripple the air operations of the ACE for an extended period of time.

The T-AVB is a vulnerable ship. During OPERATION DETERMINED WARRIOR, many of the ship's vulnerabilities were identified.10 For example, it is extremely easy to board the ship undetected through large gaps in the stern gate hinge area and travel the entire length of the ship through a concealed, man-sized vent plenum. Ship takeover is easily accomplished through use of the fire-fighting system which allows for the selective flooding of key compartments with carbon dioxide. Both the carbon dioxide system control room and the aft steering compartment are within 50 feet of the stern gate, making the task of ship takeover quick and easy.

Externally, the Sealift Survivability Program identified the greatest threats as light manned aircraft and high-speed, small surface craft (see Appendix E).11 The ship has no organic weapons and the embarked marines provide only a moderate amount of small arms firepower to defend against these threats.

Rear area security, by doctrine, is the responsibility of the rear area units.12 Consequently, the security of the T-AVB is the responsibility of the embarked marine Aviation Logistics Squadron (MALS) in conjunction with the ship's Master.13 Currently, there is no existing SOP for T-AVB security and no specific training within the MALS for this type of operation.

Readiness and Training Issues.

Readiness. T-AVB readiness is the responsibility of many diverse agencies, but lacks a central coordinating or quality control agent for the Marine Corps to inspect and ensure the continued readiness of the ships. The maritime Administration (MARAD) and the Military Sealift Command (MSC) are only concerned, by charter, with the major physical plant readiness. while physical plant readiness is currently high, this is due in large part to the activation of both ships last year vice alternating years as programmed.14

The ability to rapidly deploy entails many other

details such as initial outfitting items (galley and berthing equipment, safety gear, etc.), manuals, publications, essential equipage, and the general maintenance of marine spaces and equipment. Each time the ships are activated, the deploying MALS scrambles to locate these items and get the "Marine portion" of the ship up to habitability and safety standards. There has been some improvement in this area. Last year after both exercises, Marine Corps accountable items were locked into storage boxes and placed in specific spaces; however, the T-AVBs still need an agent, such as a "sponsor MALS" to ensure their readiness from the Marine Corps perspective.

Another readiness issue is the lack of a Marine Corps-wide SOP for T-AVB operations. In addition, current doctrinal publications (NWP 22-10, FMFM 1-5) do not include employment information on the T-AVB. While there are many draft SOPS circulating among the Marine Aircraft Wings (MAWS), a consolidated manual is long overdue. Much like the Marine Corps Aviation Supply Desktop Procedures (MCO 4400.177x) and the Naval Aviation Maintenance Program (OPNAVINST 4790.2x), a T-AVB Operations Manual should be omnipresent in every MALS and integrated into their training plan. Exacerbating this problem further is the inaccurate, outdated and, in many cases, missing

T-AVB Information Manual. This Naval Sea Systems Command (NAVSEA) document has not been revised since 1986, falling behind in documenting changes to the ship's physical plant and operation. The lack of this documentation and an SOP for a system as vital and complex as the T-AVB is inexcusable.

A vital readiness issue that remains unaddressed is the use of commercial longshoremen in on/offload operations. Essentially, the blending of military and civilian longshore personnel in these complex, high tempo operations does not work.15 Both marines and ship's crew have expressed concern over the inflexibility of commercial longshoremen and their unlikely availability in foreign ports. Even internal maritime Administration (MARAD) documents cite the problems longshoremen posed for the Gulf War loadout.16 Not only did they cause a delay in the ship's departure, they were unavailable in key ports such as Bahrain and Jubayl that supported OPERATION DESERT SHIELD/DESERT STORM. The available longshoremen were allocated to offloading the higher priority ground ordnance and equipment. The crucial point is that we are continuing to assume that longshoremen will satisfactorily handle these tasks, when experience invalidates this assumption. The time value of the T-AVB would greatly increase through the incorporation of a self-contained on/offload capability consisting of a combination of ship's crew and

embarked MALS Marines.17 18 Not only are they intimately familiar with the MF vans and ship systems, they also have a vested interest in the speedy and safe handling of these sensitive, high-value assets. OPERATION DETERMINED WARRIOR and AGILE PROVIDER proved the concept of self-contained on/offload capability works.19

The sequence to initiate the activation of the T-AVBs (Appendix B) is unnecessarily cumbersome and results in bureaucratic in fighting during the pre-deployment workups. The MPS ships and the T-AHS (hospital ships) both fall directly under the cognizance of the Military Sealift Command (MSC) as the type commander, even during inactive periods. The T-AVBs, on the other hand, fall under the maritime Administration (MARAD) until such time as activation and sea trials are complete. OPCON is then passed to the respective MSC area commander during embarkation, the numbered Fleet commander during transit, and finally the CATF/CMPF upon arrival in the AOR. Regardless of the efficiency or inefficiency of MARAD, the additional hurdle of activating the ship through MARAD, vice directly with MSC, lacks sufficient justification.20 In addition, activation orders and funding flows would be substantially streamlined by placing the T-AVBs with their

MPS sister ships directly under MSC control, rather than have them competing for funds and attention in the common pool of MARAD ships.

Training. The deficiency in training and experience with the T-AVB is a serious problem, yet one which can be greatly ameliorated within a very short time. Marine aviation, and in particular Marine Aviation Logistics Squadron (MALS) personnel, must be well-versed in the employment capabilities and limitations of the T-AVB. The aviation community is making a critical, but weak, assumption that the T-AVB will function in the future as advertised or in the manner that was demonstrated in the Gulf War. Many of the advantages and workarounds enjoyed during that conflict may be unavailable the next time. For example, we may not have the luxury of debarking the supply packups to the beach, or be able to reconfigure the load two or more times upon arrival in theater. A secure port may be unavailable, necessitating either in-stream offload or complete operational capability offshore. The instream offload capability has yet to be tested and experienced seamen are skeptical of its success in anything but calm seas.21 Only through the proper training and exercise of all the functions required of a T-AVB in war will the Marine Corps be able to count on the sustainment it provides.

Only a select few within the aviation logistics community have the experience and knowledge to successfully plan the loadout of the T-AVB. Envision a multi-dimensional puzzle which must satisfy the competing constraints of form, fit, function, weight/balance and power requirements (to name a few) and you have an rough idea of the "Rubic's Cube" process of load planning. This perishable skill is literally an art and a science. The addition of the T-AVB Automated Load Planning System (TALPS), essentially an artificial intelligence/expert system, will be helpful but still requires significant training when fielded.22 Since each MALS is capable of deploying aboard the T-AVB, their key operations and maintenance personnel must be trained and practiced in this important task.

T-AVB exercises have historically been constrained by the conflicting goals of realistic training and home-base readiness requirements. With one set of MF vans per MALS, it is very difficult to satisfy both goals without a willingness on the part of the aviation commander to disrupt the peacetime daily routine. Typically only a select few, non-critical MF vans are loaded aboard during an exercise. For example, supply support in the form of Peculiar Contingency Support Packages (PCSPs) and Common Contingency

Support Packages (CCSPs) is virtually never embarked or operated in accordance with the concept of employment.23 In addition, the Naval Aviation Logistics Command Management Information System (NALCOMIS) has not been employed during activations. This system is essential to aviation maintenance/supply communication and documentation. Consequently, the experience of MALS automated data processing personnel in operating aboard the T-AVB, as designed, is minimal. The T-AVB program suffers from a lack of full scale operation during peacetime in order to highlight problems and elevate the operational commander's awareness of the T-AVB's capabilities and limitations.24 If the T-AVB were exercised according to the Marine Aviation Logistics Support Program (MALSP) during major operational exercises (like AGILE PROVIDER), meaningful exercise data could be used to evaluate the ship's ability to support and sustain the ACE according to current Defense Planning Guidance.25 The aviation logistics community must stop deceiving itself that T-AVB operations will go as planned without ever truly testing the system on a regular basis. We must train as we fight!

T-AVB exercises must include the Combat Service Support Element (CSSE) in order to educate both aviation and ground logisticians on the extensive coordination required in this

type of operation. Too often aviation logisticians overlook the ground support requirements such as the vehicles and material handling equipment needed to support a T-AVB in both exercises and contingencies. Conversely, ground logisticians erroneously assume the T-AVB is self-contained and will fly parts on and off the ship.26 The Marine Wing Support Squadron and Port Operations Group (POG) coordination with the embarked MALS is critical to ensuring that the T-AVB's product-repaired components--can get to the ACE.

RECOMMENDATIONS

Funding. The decrement in modernization funding must be continually challenged and reversed if the T-AVB is to have the ability to safely and effectively provide support to the ACE. Eight of the top ten priority ship alterations are directly related to safety and survivability (see Appendix E).27 The remaining two items are mission essential -- the satellite tracking antenna and the IMA electrical upgrade. Continued aggressive sponsor intervention in the Program Objective Memorandum (POM) and budget submissions, mid-year reviews and Navy Comptroller (NAVCOMPT) markups is required. At the same time, the marine Corps aviation leadership must be sensitized to this vital issue. Another suggestion might be to

emphasize the association of the T-AVB program with MPS and reap some of the "halo effect" of MPS funding.

Helo Deck. Despite the modernization funding shortfall, the addition of a night-capable flight deck must be explored further. The last available modification cost estimate for both a night and IFR capable deck modifications was $126,000/per ship.28 Without IFR capability, the cost of adding deck edge lighting, etc., should be considerably less. A day limited ship of this importance is inconsistent with expeditionary warfare doctrine.

Cargo Booms. The ideal solution to this problem, albeit expensive, would be to replace the ten booms with four modern twin-pedestal cargo cranes (Haaglunds), such as those used on the MPS ships.29 Not only are these cranes more reliable, but are typically twice as fast as the current T-AVB booms. Another, but less expensive, alternative would be to contract for the manufacture of specific high failure rate boom components in order to build a spares pool. While a poor investment in old, failing technology, it may be the only feasible solution. Either way, the boom issue is one which demands action now prior to exhausting all spares. The bottom line is that without the booms operational, the T-AVB cannot loadout and deploy.

Self-Defense. Assuming that the Sealift Survivability Program will not be reestablished, the Marine Corps should

conduct a formal risk assessment of the T-AVBs to confirm the vulnerabilities uncovered during both the Gulf War and OPERATION DETERMINED WARRIOR. Additionally, each MALS should establish the core of a T-AVB security force and train these Marines in ship defense and clearing skills. Organic MALS personnel, with the addition of one MOS 0369 (Infantry) Gunnery Sergeant for weapons employment and tactics coordination, can handle the security needs of the T-AVB. The security mission does create additional personnel overhead, but is consistent with doctrine and a worthwhile investment. The development of an SOP regarding security that will establish the procedures and coordination required between the ship's crew and the embarked marines is essential. For example, the Commander of Troops (COT) and the ship's master must concur and coordinate weapons use and the various levels of alert.30 To augment the limited organic firepower of the MALS, the addition of crew served weapons such as the M-1 (.50 cal) machinegun and the attachment of a Stinger missile team should greatly increase the survivability of the T-AVB against the most likely threats.31

MALS T-AVB Training, Maintenance, Security and Sail (TMS2)Teams. Obviously, not all marines in each MALS can be experienced in T-AVB operations. The most efficient means of ensuring deployment readiness in each MALS is to

develop a small cadre of planners, boom operators, security force personnel, and MF van maintenance experts from which to train and build from in the event of a contingency. Formalized as an additional duty under the cognizance of the MALS S-3, personnel from this cadre would attend conferences, participate in, observe exercises, and periodically train aboard the ship. The establishment of the TMS2 Teams will ensure that each MALS has a base of experience for T-AVB operations, instead of the few dedicated Marines scattered throughout the aviation logistics community.

MALS Sponsorship Program (MSP). Acting as a quality control agent, each year one MALS (or a pair) should be tasked with the oversight (sponsorship) of their respective T-AVB as part of an MSP. During periodic visits during the year, the oversight MALS would inspect, clean, inventory and improve marine spaces as well as coordinate with the civilian retention crew on other readiness issues. The sponsor MALS TMS2 Team would be responsible for validating SOPs, updating the T-AVB Information Manual, and coordinating all exercises during their year. The best way to gain exposure and training, as well as guard marine Corps interests in the T-AVBs, is to get each MALS actively engaged instead of the limited number of "expert MALS" that

currently exist.

Publish an SOP. Consolidate the various draft SOPs and the Navy publications into an FMFM on T-AVB Operations. This document must be scrubbed for compatibility with Marine Corps and Navy doctrine and be reviewed by each Marine Aircraft Wing (MAW). Additionally, the publication would be updated, as necessary, after each exercise and validated by the sponsor MALS annually. Headquarters, U.S. Marine Corps (HQMC) should task the sponsor MALS to accomplish this validation.

Training. The importance of realistic training of each MALS with the T-AVB cannot be overemphasized. When the MAWs participate in a major or joint exercise, the Training Exercise and Employment Plan (TEEP) should reflect the employment of the T-AVB as the source of ACE sustainment. At the same time, educate Navy and Marine leadership on the potent logistics capabilities inherent in the T-AVB, with emphasis on its interoperability with other sustainment forces in theater. Utilization will not only increase experience and exposure, but also help justify funding support for the program.

The extent of participation by the host MALS in exercises must increase so that the T-AVB is the source of

sustainment for the ACE and not "gamed" through repeated trips ashore for repaired parts. Load what is needed and operate as if there was no facility ashore from which to draw assets. Exercise the offload of the Intermediate Maintenace Activity (IMA) via lighterage. Supply should embark the appropriate material for support (PCSPs and CCSPs) and embark the communication and documentation systems, NALCOMIS. Aviation supply personnel must become comfortable with T-AVB operations and employ their full capabilities in support of the IMA. All MALS workcenters should be housed and operating in MF vans, even at home base, so that they are ready to simply shut the doors and deploy. Too often they retreat to the comfort of a warehouse or hangar. In addition, develop a self-contained on/offload capability with MALS marines as boom operators.

T-AVB training without the ship can be accomplished through use of the Combined Arms Staff Trainer (CAST). This CAST is a facility for tactical wargaming containing rooms, communication equipment, and "gameboards" to accommodate most scenarios. The sequencing of loading, unloading and CSSE interface can easily be made into a scenario for MALS and Port Operations Group (POG) personnel to practice. The CAST was used for the rehearsal of OPERATION DETERMINED WARRIOR with great success.32 The coordination of cargo

booms, ground assets and the loading sequence can be effectively gamed with scale mock-ups and ship drawings.

Finally, each MALS TMS2 Team should undergo a MCCRESS-type evaluation of loading out their unit aboard the T-AVB. This could involve some loading aboard the ship or strictly be a CAST evaluation. The evaluation aboard ship could include such events as a boom operator proficiency test, the generation of a viable load plan and security force drills. An evaluated event of this type, every other year for example, is the only true incentive to drive a realistic T-AVB training program. The MALS must be ready to deploy and know how to efficiently and effectively employ their capabilities -- a contingency focus.

Streamline Activation Chain. The T-AVBs belong directly under the Military Sealift Command (MSC), just like the MPS and T-AHs. Having ADCON remain with one agency during both inactive and active periods facilitates readiness. Additionally, the T-AVB activation would be faster and smoother with one less bureaucracy involved. To further streamline the process, each MARFOR should have an "emergency breakout book", which would contain pre-formatted letters, orders and funding documents. Only essential appropriation sub-heads and dates would have to be filled in. This would take much of the mystery out of the who, what, when and where of activation.

The Future. The T-AVBs are scheduled, according to CNO (Code N422C) to be stricken in 2008. There has been no design work or formal analysis done to develop the follow-on T-AVB. Given the length of the POM process, engineering work and construction time, HQMC (ASL) should begin as soon as possible on an initial concept which incorporates the latest in containership technology. The follow-on T-AVB may not have to be new from the keel up. The conversion of a variety of ships, such as a Roll On/Roll Off (RO/RO) ship, may work well. The new plant should be diesel-electric vice steam for greater reliability and less breakout time.33 Finally, the current T-AVBs could be re-engined and re-craned--a Service Life Extension Program (SLEP)--if found to be more economical.

CONCLUSION

Airpower provides the majority of the heavy firepower of the MEF, playing a pivotal role in virtually all battlefield activities. This tremendous capability, however, can only remain viable past 30 days in a contingency or combat environment with the support of the T-AVB. Potent, rapid, and mobile logistics is not only a force multiplier, but is wholly compatible with the flexible force concept engendered in the "From the Sea..." doctrine. The T-AVB provides flexibility and speed; it can transport the Intermediate Maintenance Activity (IMA) to the

theater, repair components enroute/at sea, offload ashore to operate, and even retrograde and move in support of the scheme of maneuver. The vulnerability of the IMA would be much greater if flown in or delivered by commercial containership to the theater, simply because of the IMA's immobility. The T-AVB provides mobility and uninterrupted support while on the move -- something few logistics systems can accomplish.

The success of the T-AVB in the Gulf War proved the concept was correct; however, there were many workarounds and extraordinary efforts that made it possible.34 In the warm afterglow of success, many programs suffer from a loss of momentum. The T-AVB is no exception. It's time to fix the problems and validate the lessons learned from that conflict. Is the aviation logistics community, in conjunction with marine aviation leadership, ready to step up and save the program from this benign neglect? Or are we willing to assume that the T-AVB will be ready, work as advertised in modes yet untested, and not place our Marines at risk? The T-AVB is far from just another containership; its operation is complex, dangerous and involves a number of perishable skills. Without proper funding, training, and aggressive sponsorship, the program will wither from apathy. marine aviation must come to the realization that the T-AVB is as essential to the air campaign as MPS equipment is to the Ground

Combat Element (GCE) and CSSE.

The sky is not falling. Many of the issues and concerns expressed in this paper can be solved simply through additional attention and training. A coordinated, proactive program strategy, coupled with vigorous exercises and leadership attention can ensure that the T-AVB will meet expectations in the future. To be smug over past success and make sweeping assumptions is an invitation to disaster.

Logistics is not glorious - but then neither would be the impact of not having adequate, sustained air support.

ENDNOTES

1. Commandant of the Marine Corps (CMC Code ASL-36) Information Paper ASL 36/TAVBPPP, subject: "Aviation Logistics Support Ship (T-AVB) Program," 25 May 1993.

2. CMC (ASL-36), "Aviation Logistics Support Ship (T-AVB) Program"

3. Fleet Marine Force Manual (FMFM) 5-1, Organization and Function of Marine Aviation (Washington, DC: Department of the Navy, October 1991), 2-12.

4. Naval Doctrine Publication (NDP) 1, Naval Warfare, (Washington, DC: Department of the Navy, March 1994), 67.

5. Michael J. Krebsbach, LCDR, USN, "CNO (N422C) FY 96 Budget Review," brief presented at MCAS Cherry Point, NC, 19 September 1994.

6. Krebsbach brief.

7. William J. Abernathy, Master Mariner (U.S.). Interview by author, 3 February 1995. Captain Abernathy was Master of the SS CURTISS during Operations DESERT SHIELD/DESERT STORM and has also commanded the SS WRIGHT. He has deployed with both ships in every exercise since the Gulf War.

8. Abernathy interview.

9. Headquarters U.S. Marine Corps, Warfighting Requirements Branch, Security Analysis for MPS and T-AVB Ships, August 1991, 2.

10. Joseph F. Buranosky, LtCol, USMC and Curtis J. Powell, Maj, USMC, "Operation DETERMINED WARRIOR: A Winning Opportunity for Training", Marine Corps Gazette, December 1994, 71.

11. Headquarters U.S. Marine Corps, Security Analysis for MPS and T-AVB Ships, 17.

12. William F. Stringer, Major, USMC, "MET Rear Area Operations," lecture presented at the U.S. Marine Corps Command and Staff College, 19 January 1995.

13. Headquarters U.S. Marine Corps, Security Analysis for MPS and T-AVB Ships, 9.

14. Abernathy interview.

15. Abernathy interview.

16. Leonard Walsh, General Engineer, Maritime Administration memorandum to file, subject: "INFORMATION: T-AVB CURTISS DESERT SHIELD Activation Report," 6 September 1990.

17. Abernathy interview.

18. Buranosky and Powell, 71.

19. R. G. Cox, Major, USMC and B. Anderson, Major, USMC "After Action Reports from Operation DETERMINED WARRIOR and AGILE PROVIDER," brief presented at T-AVB TRANSALT/Planning Conference, MCAS Cherry Point, NC, 19 September 1994.

20. A reliable source who wishes to remain anonymous.

21. Abernathy interview.

22. Steven S. Choate, Captain, USMC, TALPS Project Officer at the Naval Aviation Maintenance Office (NAMO 414-1) Patuxent River, MD, telephone interview by author, 10 February 1995.

23. James Sasser, Major, USMC, CMC (Code ASL-36) T-AVB Program Officer, telephone interview by author, 18 January 1995.

24. Commandant of the Marine Corps (CMC Code ASL) message to COMMARFORPAC and COMMARFORPAC, subject: "T-AVB Exercise," 240002Z Jan 1995.

25. CMC (Code ASL) message 240002Z Jan 1995.

26. Abernathy interview.

27. James Sasser, Major, USMC, "T-AVB TRANSALT/Planning Conference," draft memorandum, 20 January 1995, enclosure (3).

28. Michael P. Flowers, Major, USMC, "T-AVB TRANSALT/Planning Conference," memorandum, 1 November 1994, enclosure (4).

29. Abernathy interview.

30. Headquarters U.S. Marine Corps, Security Analysis for MPS and T-AVB Ships, 10.

31. Headquarters U.S. Marine Corps, Security Analysis for MPS and T-AVB Ships, 20.

32. Buranosky and Powell, 70.

33. Abernathy interview.

34. Abernathy interview.

BIBLIOGRAPHY

Abernathy, William J. Master Mariner (U.S.). Master of SS CURTISS during Operations DESERT SHIELD/DESERT STORM and each T-AVB exercise since. Interview by author 3 February 1995.

Buranosky, Joseph F. LtCol., USMC, and Maj. Curtis J. Powell, USMC. "Operation DETERMINED WARRIOR: A Winning Opportunity for Training," Marine Corps Gazette, December 1994, 67-72.

Chief of Naval Operations. Draft Instruction 3501.202A. Subject: "Required Operational Capabilities and Projected Operational Environment (ROC/POE) for the Aviation Logistics Support Ship (TAVB)." May 1993.

Choate, Steven S. Capt., USMC, TALPS Project Officer at the Naval Aviation maintenance office (NAMO 414-1) Patuxent River, MD. Telephone interview by author, 10 February 1995.

Commandant of the Marine Corps (CMC Code ASL). Message to COMMARFORPAC and COMMARFORLANT. Subject: "T-AVB Exercise." 240002Z Jan 1995.

Commandant of the Marine Corps (CMC Code ASL-36). Information Paper. ASL-36/TAVBPPP. Subject: "Aviation Logistics Support Ship (T-AVB) Program." 25 May 1993.

Cox, R. G. Maj., USMC and Maj. B. Anderson, USMC. "After Action Reports from operation DETERMINED WARRIOR and AGILE PROVIDER." Briefing presented at the T-AVB TRANSALT/Planning Conference, MCAS Cherry Point, NC, 19 September 1994.

Department of the Navy. Fleet Marine Force Manual (FMFM) 4-1: Combat Service Support. Washington, DC: GPO, 1993. PCN 139 000273 00.

Department of the Navy. Fleet Marine Force Manual (FMFM) 5-1: Organization and Function of Marine Aviation. Washington, DC: GPO, 1991. PCN 139 000354 00.

Department of the Navy. Naval Doctrine Publication (NDP) 1: Naval Warfare. Washington, DC: GPO, 1994. SN 070OLP0000100.

BIBLIOGRAPHY
(con't)

Department of the Navy. T-AVB Information Manual. Washington, DC: Naval Sea Systems Command, 1986.

Flowers, Michael P., Maj., USMC. Memorandum. Subject: "T-AVB TRANSALT/Planning Conference." 1 November 1994.

Headquarters, U.S. Marine Corps, Warfighting Requirements Branch. Security Analysis for MPS and T-AVB Ships. Study. August 1991.

Krebsbach, Michael J. LCDR., USN. "CNO (N422C) FY 96 Budget Review." Briefing presented at the T-AVB RANSALT/Planning Conference, MCAS Cherry Point, NC, 19 September 1994.

Marine Corps Lessons Learned System (MCLLS), database. Lessons learned numbers: 92718 73574, 42431-89765, 52350-79696, and 30576-61990. Quantico, VA. Downloaded 3 February 1995.

Naval Surface Warfare Development Group. Draft TACMEMO OH 5-82. Subject: "Aviation Logistics Ship (T-AVB) Employment." February 1994.

Sasser, James, Maj., USMC, T-AVB, Program Officer (CMC Code ASL-36). Telephone interview by author, 18 January 1995.

Sasser, James, Maj., USMC, T-AVB Program Officer (CMC Code ASL-36). Draft memorandum. Subject: "T-AVB TRANSALT/Planning Conference." 20 January 1995.

Sims, William H. Initial Activation of West Coast T-AVB. CNA Research Memorandum 90-3. Alexandria, VA: The Center for Naval Analyses, April 1990.

Stringer, William F. Maj., USMC. "MET Rear Area Operations." Lecture presented at the U.S. Marine Corps Command and Staff College, MCB Quantico, VA, 19 January 1995.

Third Marine Aircraft Wing. Draft Wing Order P3125.1. Subject: "Third Marine Aircraft Wing (3D MAW) Aviation Logistics Support Ship (T-AVB) Standard Operating

Procedures (Short Title: T-AVB SOP)." 7 October 1992.

Walsh, Leonard, General Engineer, Maritime Administration. Memorandum to file. Subject: "INFORMATION: T-AVB CURTISS DESERT SHIELD Activation Report." 6 September 1990.

IMAGES THAT APPEAR WITH DOCUMENT

APPENDIX B

T-AVB ACTIVATION SEQUENCE
COMMAND RELATIONSHIPS

➢ JCS provides force options to the National Command Authorities for direction and guidance. Among these options is the MAGTF ACE Commander's request (via the MEF) for the T-AVB.

➢ The Unified Commanders, based on JCS guidance, are responsible for the planning and employment of forces within their Area of Responsibility (AOR). The Fleet Commander-in Chief (FLTCINC) Naval Component Commander exercises operational control (OPCON) of the T-AVB and initiates the activation process.

➢ The Commander, Military Sealift Command (COMSC) is the type commander for the T-AVB. Upon receipt of the activation order via the chain of command addressed above, COMSC orders the Maritime Administration (MARAD) to activate the vessel.

➢ MARAD uses the retention crew (civilian U. S. Merchant Marine) and local shipyard to reactivate ship systems in preparation to get underway. The T-AVB readiness status, ROS-5, means that once systems are brought on-line, the ship sails to conduct sea trials and must arrive at the Sea Port of Embarkation (SPOE) within 5 days.

➢ Change of operational control (CHOP) from MARAD to MSC occurs upon successful completion of sea trials. MARAD continues to crew and operate the T-AVB, receiving orders from the respective MSC Area Commander.

➢ After the embarkation phase and during transit, OPCON of the T-AVB shifts to the appropriate numbered Fleet Commander even though the T-AVB can steam independently. ADCON is retained by the MSC Area Commander.

➢ The T-AVB, upon arrival in the AOR, CHOPs to the Commander, Amphibious Task Force (CATF), MAGTF Commander, or Commander, Maritime Prepositioning Force (CMPF), as applicable.

Source: OH 5-82 COMNAVSURFWARDBVGRU TACMEM0, "Aviation Logistics Support Ship T-AVB) Employment" (Draft)

APPENDIX C

T-AVB FONS/TRANSALT COST ESTIMATE

RE-PRIORTIZED

NO.	PRI/TYPE		TITLE	FONS	CURTISS	WRIGHT
401	1	M	EMERGENCY INTERCOM	3	$336,102	$336,102
001	2	M	ELECTRICAL (IMA)	2	$1,447,845	$1,447,845
101	3	M	HELO CONTROL STATION	7	$265,367	$263,757
501	4	M	HELO DECK FIREFIGHTING SYSTEM	4	$77,891	$98,939
404	5	U	COMMUNICATIONS	7C	$59,275	$59,275
602	6	I	EMERG BREATH DEVICE STORAGE	9	$39,500	$39,500
302	7	I	EMERG LTG BATTLE LIGHTS	18	$32,490	$32,490
402	8	I	SATELLITE TRACK ANT	6	$18,330	$22,824
305	9	I	HOLD NO. 2,3,5, LIGHTS	E	$71,328	$71,328
303	10	M	MEDICAL EMER LIGHTS	A	$5,921	$5,921
403	11	U	HELO DECK	7A	$126,231	$126,231
102	12	M	EXPEDIENT DECKS	11	$54,296	$49,012
301	13	I	FLIGHT DECK BATTERY CHARGER	11A	$8,967	$8,967
405	14	I	INERTIAL NAV SYSTEM	13	$36,922	$36,711
605	15	I	BULK CURTAINS & BERTH LIGHTS L	19	$245,896	$245,896
604	16	I	DRINKING FOUNTAINS	16	$9,439	$9,439
103	17	M	DECK LIFTS	17	$35,785	$38,705
603	18	I	FIRST AID KITS/STATIONS	15	$3,172	$3,172
105	19	I	ACCESS, TO HOLD NO. 1	C	$58,930	$63,851
304	20	I	OLD NO. 1 LIGHTS	D	$28,092	$28,092
606	21	M	CARPENTER SHOP & BOSUN STORES	20	$114,937	$115,017
601	22	I	CRASH BOAT CRADLE	7B	$8,957	$8,957
104	23	I	ACCESS, NO. 2 HATCH	B	$51,609	$47,592
			TOTAL		$3,137,282	$3,159,623

APPENDIX D

FY96 BUDGET REVIEW
($, THOUSANDS)

PROGRAM	FY95	FY96	FY97	FY98	FY99	FY00	FY01
TAVB (2)	5,791	7,481	5,468	5,708	6,219	6,303	6,387
TRAINING/EXERCISE	1,738	1,674	1,804	1,741	1,848	1.950	2,055
ACTIVATION	CURTISS	WRIGHT	CURTISS	WRIGHT	CURTISS	WRIGHT	CURTISS
T-FMP	1,652	1,000	700	600	650	700	750

APPENDIX R

THREAT MATRIX

TOP TEN THREATS TO THE T-AVB
(BY OPERATING ENVIRONMENT)

RANK	**HOME PORT/SPOE**	**BLUE WATER** (enroute)	**BROWN WATER** (200 miles of land	**OFFLOAD AREA**
1	Sabotage	Light A/C manned	Light A/C manned	Small Surface Craft
2	Light A/C manned	Sabotage	Small Surface Craft	Swimmers
3	Swimmers	Mines	Missiles	Light A/C manned
4	Small Surface Craft	Small Surface Craft	Mines	Mines
5	Boarders	Missiles	Small Arms	
6	Harassment	Submarines	Boarders	Sabotage
7	Missiles (Portable)	Damage from Accidents/ Weather	Damage from Accidents/ Weather	Damage from Accidents/ Weather
8	Damage from Accidents/ Weather	Small Arms	Small Arms	Small Arms
9	Mines	Missiles (Portable)	Missiles (Portable)	Car Bombs
10	Small Arms	Boarders	Harassment	Boarders

Source: *Security Analysis for MPS and T-AVB Ships, August 1991*