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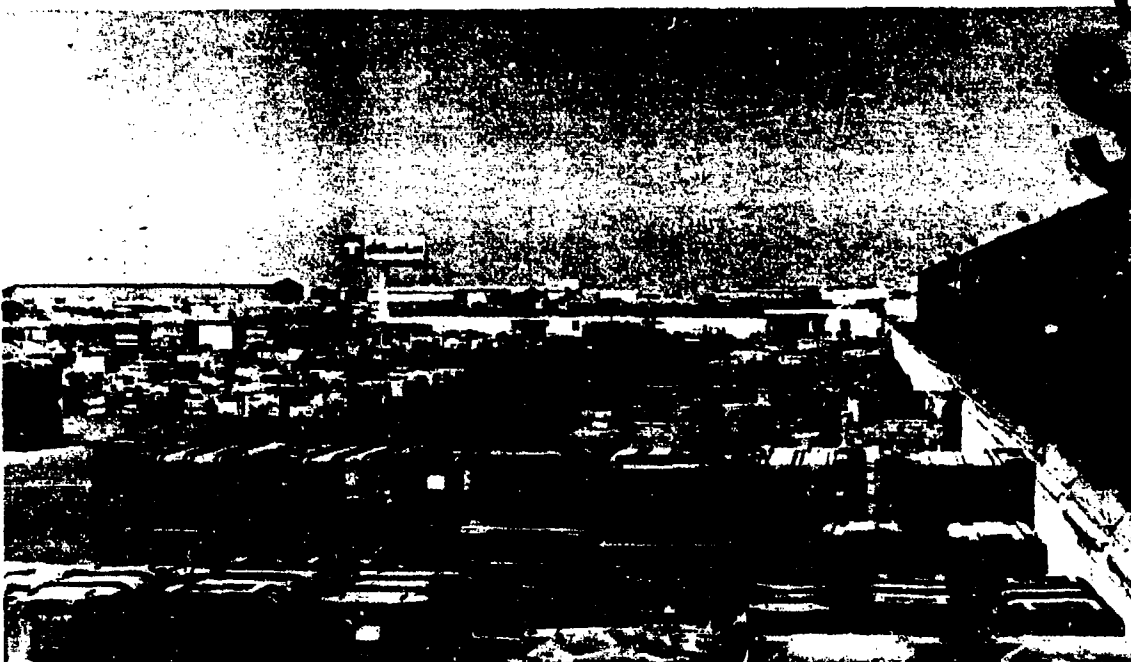
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CRDEC-TR-412

**U.S. ARMY SUPPORT GROUP FORWARD PACKAGING OPERATIONS
IN THE PERSIAN GULF**



Dean V. Hansen

PRODUCIBILITY ENGINEERING SUPPORT DIRECTORATE

September 1992

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13. ABSTRACT (Maximum 200 words) This report is based on observations made by a packaging specialist assigned to the U.S. Army Support Group Forward during Operation Desert Storm and redeployment of U.S. forces. This report covers Class II, Class IIIp, and Class IX materials. The purpose of the report is to share observations of strong and weak points of packaging and redeployment operations. The topics covered in this report include environmental conditions, condition of packaging being received from the Continental United States (CONUS) and Overseas CONUS (OCONUS), condition of materials being received from the field, military customs requirements, personnel staffing, packaging practices employed, cleaning and drying operations, packaging equipment, hazardous materials handling and shipments, marking, packaging of electronics and night-vision equipment, boxing and crating operations, classified materials, quality-assurance issues, communications conclusions, and recommendations for future deployments and redeployments.				
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PREFACE

The work described in this report was funded by the U.S. Army Depot Systems Command, Chambersburg, PA. This work was started in March 1991 and completed in August 1991.

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U.S. ARMY SUPPORT GROUP FORWARD PACKAGING OPERATIONS IN THE PERSIAN GULF

PURPOSE

The following is a report based on my observations as a packaging specialist while assigned to the U. S. Army Support Group-Forward (USASG-F) during a period of approximately six months in Saudi Arabia. The purpose of this report is to share observations of our strong and weak points in packaging operations in support of Operations Desert Shield, and Desert Storm.

BACKGROUND

The plan to return vast amounts of U.S. materials to the supply system is unprecedented. We can all remember seeing old film footage of allied troops destroying huge amounts of military materials at the end of World War II; such practices as dumping aircraft off ships, throwing ammunition in rivers, burning unwanted equipment or selling it to other Governments at real bargain rates. In Korea most of the equipment stayed in place to maintain an uneasy peace. Vietnam was similar to the Korean solution but on a larger scale and with a tragic ending. The Persian Gulf War presented a different set of circumstances. The U.S. Military was required to return the materials to this country due to unprecedented budget limitations and the desire not to leave excess materials in such an unstable region. On top of this, the Arab world wanted the foreign troops out of the region as soon as practical. The decision was made to return these assets to the supply system and save billions of dollars. USASG-F was tasked with the mission to move class II, class IIIp, class IV, and class IX materials, a first for Army Logistics. Another fact that added to the mission was that U.S. Military planners planned for the worse case scenario. Planning went forward for a high intensity war that would last six months. All usage rates were based on that probability, but the ground war was over in 100 hours. This had far reaching repercussions for the retrograde operation. The materials that were slated to be consumed in the war were now slated to be returned to the supply system.

ENVIRONMENTAL CONDITIONS

Temperature extremes, ranging from night time lows in the forties with daytime highs of 130° fahrenheit. Relative humidity along the coastal areas can reach 80 to 100 percent. Sandstorms are a common occurrence. Sandstorms comprised of a talc like sand get into everything ! People who have not served in this environment can not appreciate the extent that sand can intrude into equipment and materials. Another common problem is that the intense rays of the sun cause ultraviolet (UV) damage to many items. In a barren desert environment packed goods offer insects, plants, mold, fungi, and animals shelter from the elements.



This item was washed with water and allowed to dry for 24 hours. At the end of the 24 hours this component began to show evidence of rust on all surfaces.

CONDITION OF PACKAGING BEING RECEIVED FROM CONUS AND OCONUS.

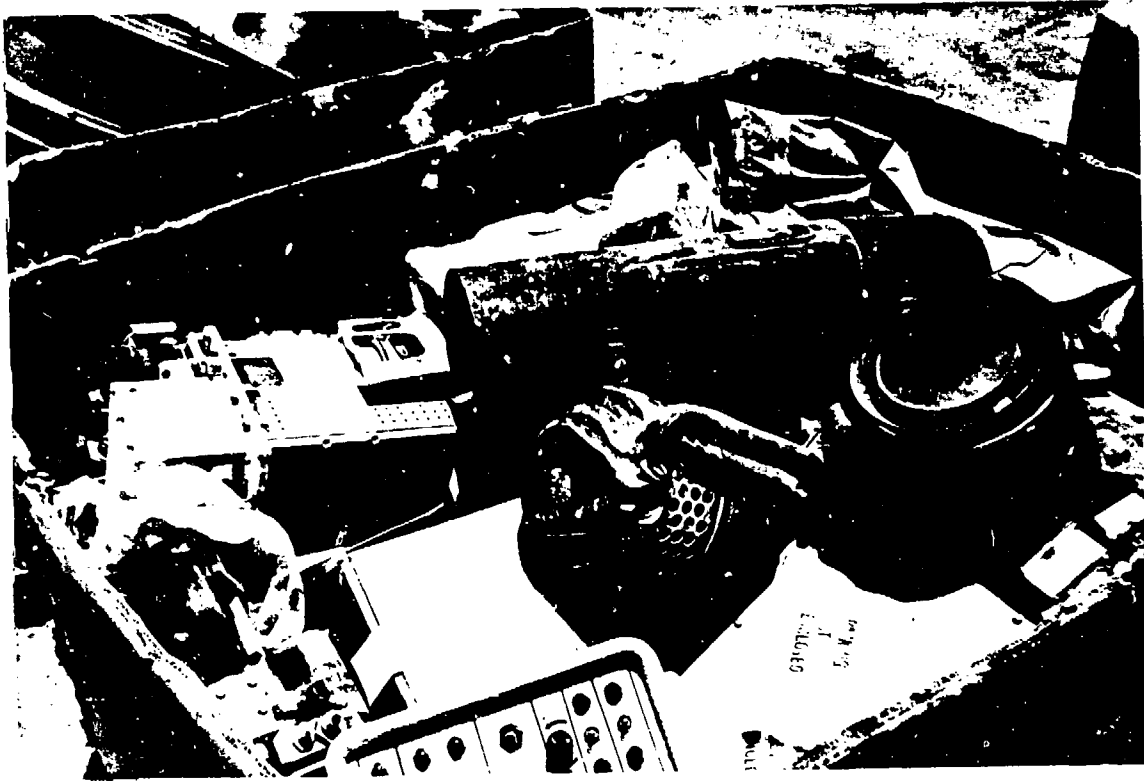
Many items received in theater were packaged using commercial packaging practices. This practice caused a breakdown in the return of materials to conus/oconus destinations. Since most of the materials were not expended they required repackaging prior to shipment. USASG-F, with their resources, were unable to properly repack materials. Fiberboard seemed to be the rule of packaging when items were shipped from depots. True, most items were protected by seawans; however most packaging suffered from a lack of proper inside storage and multiple handling. Many of the materials received in theater were unservicable prior to their issue.



At times even level A packaging failed to offer the required protection. These 8 inch gun tubes were packaged level A but rough multiple handling defeated the packaging. The barrier materials used were destroyed and the skids had to be replaced prior to redeployment. These weapons never made it to the field.

CONDITION OF MATERIALS BEING RECEIVED FROM THE FIELD.

Much of the class IX materials sent to the gulf was sent in seavans. The materials were over packed in tri-wall containers. The majority of class IX materials were afforded level B protection. In the field, push packs were common. In theory a push pack was a container or group of containers designed for a particular type of unit with enough spare/repair parts for the unit to operate for a given time (i.e. 30, 60, 90 days) without further class IX support. When staged in the forward areas, these push packs were opened so troops could sort through them to obtain the parts they required. When a new repair part was found the old part was discarded in the push pack. Furthermore these containers were not stored indoors, but were left open, exposed to the elements. Even, tri-walls that were not opened contained large amounts of sand. One sealed tri-wall was down loaded and the sand weighed. The sand weighed 70 lbs. When the old parts were discarded, many heavy items were dumped into the containers on top of new items, causing additional damage. Part of the reason 100 percent of the push packs were opened was that the first person to remove the packing list envelope did not usually return it or the high winds would blow it away. The personnel requiring parts from that point on had to go through container after container until they got lucky and found what they were looking for. This multiple searching of containers further damaged items and offered a prime chance for pilferage to occur. Almost all tri-walls that had separate lids were returned to USASG-F without the lids, the high winds would blow any loose items away in short order. Most tri-walls were not reusable. Another hazard that was encountered with outside storage was the introduction of rodents, insects and fungus into containers and their contents. I personally saw a large poisonous scorpion in one container; personnel down loading containers for processing at USASG-F were at obvious risk.



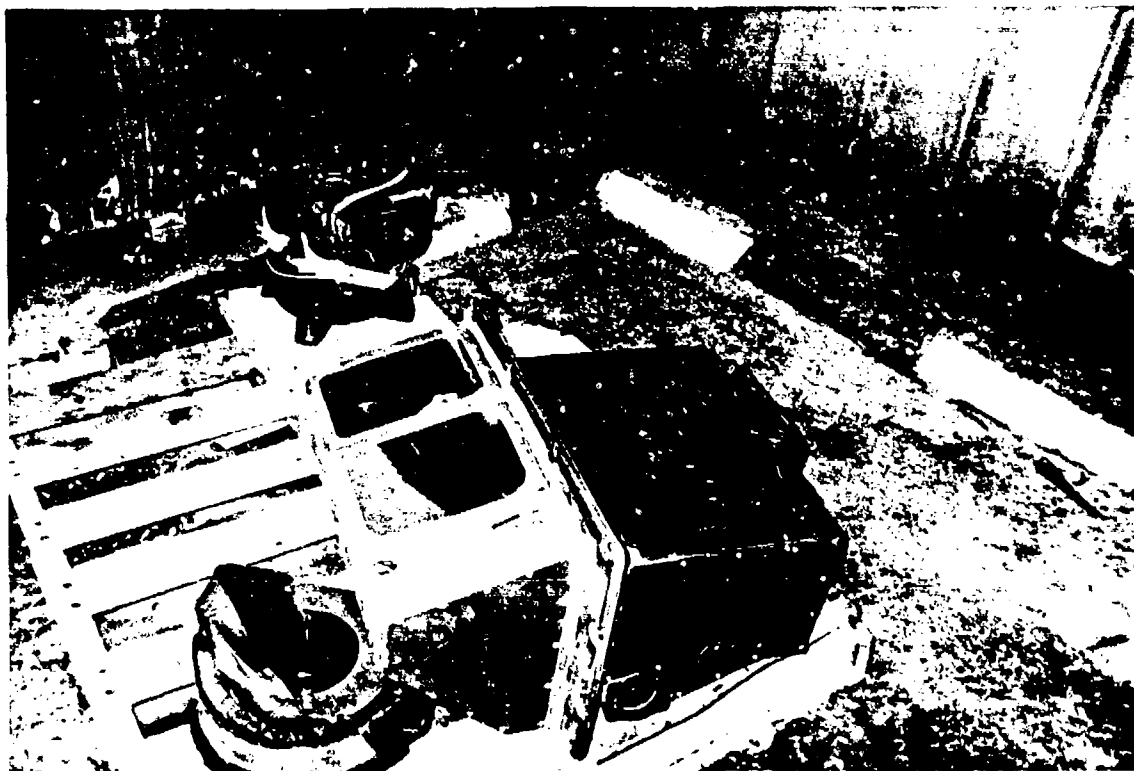
This picture shows typical field returns. Note the electronic equipment and night vision items placed in the container with no cushioning. Also note that there are new items and retrograde items in the same container. The tri-wall container has been destroyed by the method of opening. This particular container sat outside for months and was full of sand.

MCI (MILITARY CUSTOMS INSPECTORS)

The U.S. CUSTOMS and U.S. DEPARTMENT OF AGRICULTURE placed certain requirements on materials returning to CONUS. U.S. CUSTOMS required the materials to be inspected to insure no contraband was shipped to the U.S. CUSTOMS were not difficult to meet. The DEPARTMENT OF AGRICULTURE required a major effort for compliance.

The requirements was that all returning materiel be completely cleaned and be free of soil, fungi, molds, animal parts and insects. The major concern is that the soil in the gulf region contains anthrax spores. If these spores would reach CONUS it could cause an agricultural disaster. Removing the soil from the materiel was a problem area that required a large investment of manpower and resources. The cleaning operation was a continuous bottle neck in production. Materiels were improperly cleaned, causing damage throughout the operation. Many complex, expensive items were washed with high pressure water and were improperly dried (i.e. high pressure water was sprayed into turbo chargers). The cleaning process

turbo chargers). The cleaning process was also applied to unused items, in their original depot pack. The cleaning of unused items resulted in their preservative coatings being removed. USASG-F did not have the ability to reapply these preservatives so the item would, at that point, start to deteriorate. Placing wet metal parts into packaging and then placing these items in seavans for the long trip home caused additional damage. The additional damage caused by the cleaning will require a major effort by depots and contractors to correct. The only other cleaning methods used were wiping and compressed air. The cleaning requirements were a main driver of retrograde operations.



This photo shows three common problems. 1.) Note the gear set in the forefront is still wrapped in its barrier material and has preservative applied. Its packaging was destroyed and is now going to be washed with high pressure water. There will be no preservative reapplied after cleaning. 2.) The large item on the pallet is the gunners primary sight for the Bradley fighting vehicle. (It is the the most expensive single component on the Bradley, a night vision device.) It is waiting to be washed by high pressure water. 3.) The small item to the rear of the pallet is a new compressor, still mounted to its method II mounting board. The method II pack was destroyed to allow washing of this new component. Method II packs are used to protect items- from very small amounts watervapor, now it will be washed with high pressure water. All these processes are being driven by Dept. of Agriculture requirements.

PERSONNEL

- a. Poor recruitment policies.
- b. No packaging expertise among people doing packaging work.
- c. People in charge of packaging who have no packaging training or background.

199 TH STAFFING PROBLEMS. The 199 th SUPPLY PARTS COMPANY was assigned to support USASG-F and had a strength of approximately 200 personnel. But due to other commitments their numbers were never constant and it is difficult to plan work when your pool of manpower is always changing. The civilian work force was more focused, they did not have the traditional military duties to preform. The civilians were also motivated by money (any time away from work came out of their overtime pay). The civilians were more proficient at scheduling their church time, PX time, etc, during non-duty time. At times the 199th was working at 50 percent of their personnel strength; whereas the civilian work force was in the 80 to 90 percent range, at all times. Even with their recurring personnel strength problems the 199th was critical to the ability of USASG-F to maintain the work load.

THE 199 TH SUPPLY PARTS COMPANY WAS REQUIRED TO MAINTAIN THE FOLLOWING NON-PACKAGING RELATED OPERATIONS.

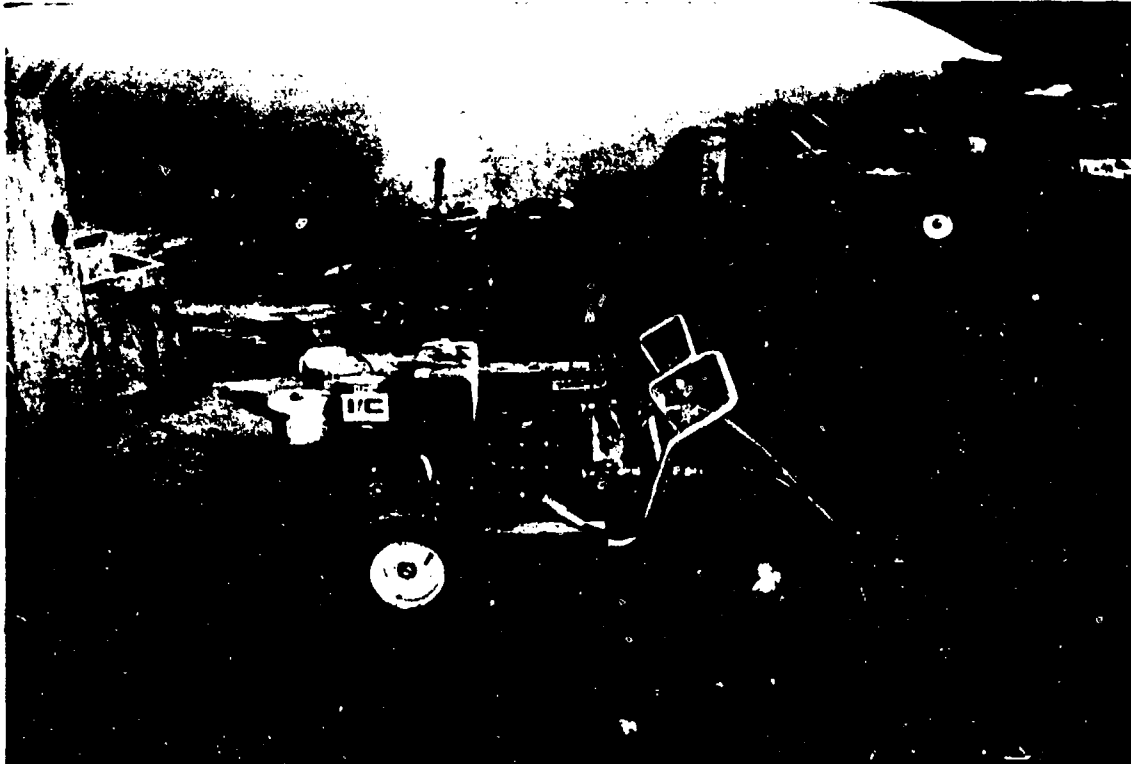
Sewing detail
Expo guard
Barracks guard
Unit motor pool
Supply room
Unit PX
Unit mess hall
Unit operations
Unit CBR
Unit armor
Unit HQ
Day off weekly
CO's driver
Mess hall head count
Unit details

IN ADDITION THE UNIT SUFFERED A MANPOWER DRAIN FROM THE FOLLOWING:

Pregnancies
Discharges; ets hardship, disciplinary, medical
Church
Love boat (R & R)

PACKAGING PRACTICES

- a. There were none.
- b. Each command should have had people in country to work on special problems.
- c. Improper shipping containers used.
- d. No cushioning used in most cases.
- e. No ability to apply preservative oils.
- f. No over all game plan.

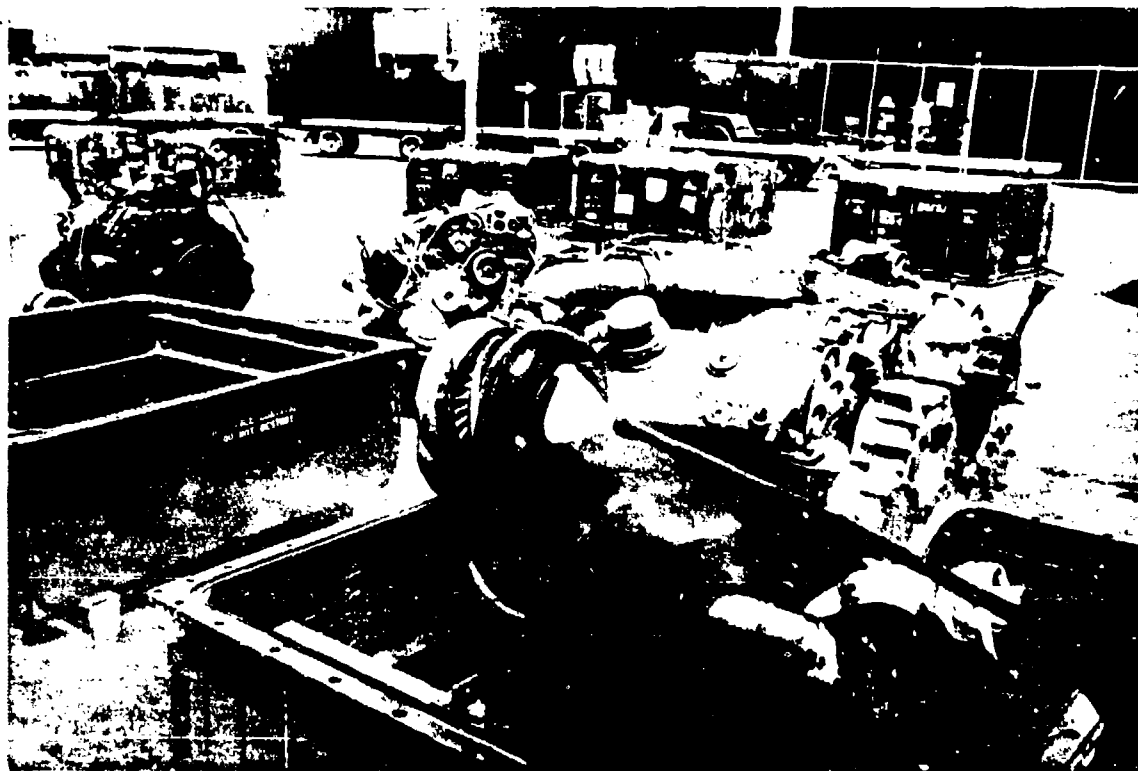


One of the high pressure washers used by USASG-F

CLEANING & DRYING PROBLEMS

- a. Only two methods of cleaning available.
 - 1. High pressure water (3000 psi)
 - 2. Air dry
- b. Demountable crates were removed, so items could be cleaned, and not put back on; they were trashed. This loss of crates meant items could not be stacked in seavans, resulting in not using shipping cube to its full potential.
- c. Cutting open foam-in-place packs to clean items.
- d. Diesel engines were washed with high pressure water. The engines were not prepared for cleaning. Missing components allowed water access into the engine blocks, where it was not drained. This allowed water to remain inside the engine until disassembled for stateside re-

build. This practice was applied to all engines processed through USASG-F. Of special note was that many new engines were received by USASG-F with only parts missing (starters, turbochargers, fan belts). Inventory control of many Class IX items were lost in-country. The troops could not get certain critical parts, but they could get complete engines. The troops would order the complete engine, strip a few parts that were needed and is then turn in the new engine as retrograde. These new engines were processed the same way that old/used engines were processed. This condition was appalling. (also see MCI page 6)



This engine is being cleaned at the SASCO facility. Note the operator is spraying high pressure water into the turbocharger. This water will enter the engine and turbo charger. After several months in shipment, this condition causes extensive damage.



These engines and transmissions are being dried at the SASCO facility. The engines are still mounted in their shipping containers. They were tipped over by a fork lift to drain water. Note the weight of the second item is being supported by the turbocharger. This process caused extensive damage to the item. Also note the loose components on the ground, they were thrown away.

LACK OF PACKAGING EQUIPMENT

- a. No stencil machines.
- b. No heat sealers.
- c. No serviceable cushioning materials. Air shipment initially caused damage to bubble wrap.
- d. Misuse of packaging materials.
- e. Shortages of available packaging materials.
- f. No foam-in-place equipment or operators.

HAZARDOUS MATERIALS

UPON MY ARRIVAL AT USASG-F THE FOLLOWING WERE NOT IN PLACE.

- a. Hazardous materials certifiers.
- b. Hazardous materials labels and placards.
- c. Stencil machines for marking.
- d. Requirements documents for packaging of hazardous materials.
- e. The hazardous materials stamp for marking the 1348s.
- f. Many of the required containers for shipment of hazardous materials.
- g. Segregated storage areas for hazardous materials.
(Many materials were improperly stored.)
- h. No one was made responsible for hazardous materials issues.
- i. No hazardous materials handlers.
- j. No training for the people handling hazardous materials.
- k. Minimal protective clothing.
- l. No material safety data sheets available.
- m. No spill or clean up plan.
- n. No SOP for hazardous materials.
- o. Little or no fire fighting equipment.
- p. No phone numbers posted for fire dept.
- q. No phone or radio communications at remote sites.
- r. Radioactive monitoring only done for items after they were packaged. No survey prior to packaging! (We did receive damaged radioactive items, what about contamination?)



Typical outdoor storage of hazardous materials. These pallets contain drums of DS2. Prior to this photo being taken there were over 200 pallet loads of STB placed 30 inches to the left of the DS2. This condition was allowed to go on for 6 months prior to my arrival. The troops operating this facility at Al Mara had no hazardous materials training. DS2 and STB are not compatible. At this Class III facility there were hundreds of hazardous conditions. Leakers were a daily occurrence and little was done to correct problems.

MARKING

Lack of expertise in MIL-STD-129

Much mismarking of:

Quantities

No National Stock Numbers

Levels of Pack and Preservation

Total lack of use of special handling markings

PACKAGING OF ELECTRONIC EQUIPMENT

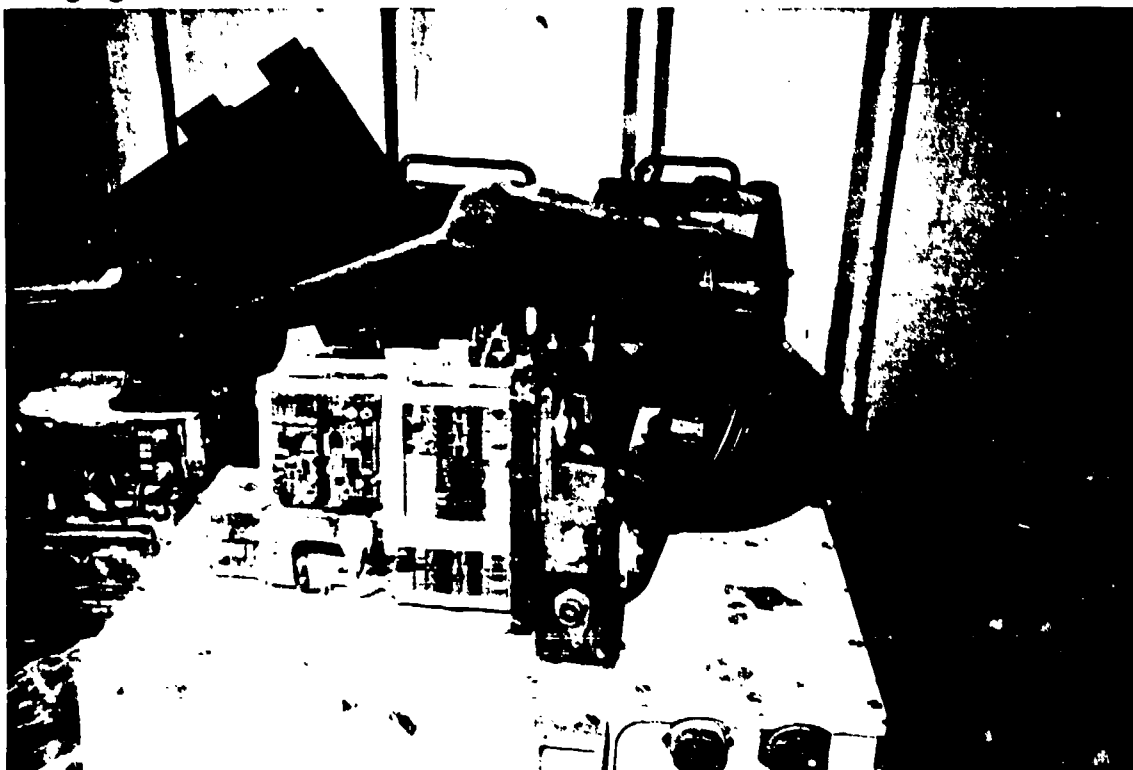
Electronic equipment received less than ideal packaging. Upon my arrival at USASG-F it was apparent that no one on-site understood what damage could occur to items susceptible to electrostatic discharge (ESD) or electromagnetic induction (EI). Packaging materials were on hand in limited quantities to deal with such problems but these materials were exhausted in short order on items not requiring ESD/EI protection. When questioning personnel I found that no one understood the meaning of the ESD labels. There were no ESD workstations on site and no one in management seemed receptive to including ESD/EI protective measures into the production lines. Many new ESD/EI packs were opened to be inspected by QA, MCI or the curious. These items may have suffered damage. In addition, these items were then coded condition code A and shipped to the depots. After handling the ESD/EI items received they should have been reinspected and repackaged prior to being returned to depot stock. The only available method of cleaning these items was by compressed air. Many times circuit cards were packed without cushioning and placed in a container with heavy items, causing further damage. In my opinion all fragile electronic items being returned from Operation Desert Shield, Desert Storm should be inspected and tested prior to reentering the supply system.



The circuit cards (in foreground) on this pallet were all new. Many are ESD/EI items, removed from the protective packaging to be processed. This pallet was moved 300 feet by fork lift. Several cards were damaged by falling through the pallet members and being crushed. Keep in mind these items were returned to the depots condition code A.

NIGHT VISION EQUIPMENT

Night vision equipment received the same level of care given other common items, such as truck parts and water heaters! No special care was taken in their processing or packaging. In view of their high cost and sensitivity these items suffered major damage. The only cushioning applied to these items was bubble pack or kempack. It was common to see these items damaged during handling by materials handling equipment. No one on site had experience in packaging these items.



The night vision device (in the foreground) shows the typical handling received by such items. Night vision devices suffered further damage due to improper handling and packaging.

BOXING AND CRATING OPERATIONS

The box and crate shop at USASG-F was another problem area which restricted the volume of materials being processed. Upon my arrival the shop had only one table saw, one band saw and one radial arm saw. In addition there were no pneumatic nailers. With more than a billion dollars of material to be crated, boxed, skidded, repaired, blocked and braced these conditions were outrageous. It took a period of 4 months after my arrival before these conditions were relieved. In addition, during the first 9 months of the operation, lumber was expensive and very hard to obtain in the required quantities. Only after ARCENT and the 321 MMC determined that in-theater stocks were to be redeployed to conus/oconus did enough lumber become available.



Open crates awaiting air shipment. Note the MIL-B-131 material being used to stop leaking oil. Also note that the items are falling out of the crates. These crates are nonmilitary in design. This is a Method III pack with no barrier protection.

CLASSIFIED MATERIALS

Classified Class IX materials coming in from the field and King Khalid Military City (KKMC) were in the same containers as the ordinary Class IX. These items were not identified and no one knows how long they sat outside unsecured. Only when the items were down loaded from incoming containers were they identified as classified materials, by the computer used to generate shipping documents. Many times these items sat in holding areas for days before being processed. At first when these items were identified as classified no procedure was in place to process them. USASG-F lacked a security area to store these items, personnel with clearances to handle these items, and a game plan to insure proper security. In addition, security investigators had to be notified about the security violations. Security personnel would have to have time to perform an initial investigation, before materials could be released for shipment.

QUALITY ASSURANCE (QA) PROBLEMS

- a. No cost analysis done. Was it cheaper to send it home or dispose of it at hazardous waste site?
- b. Majority of QA work centered around a quick visual inspection and whether the shelf life was good or not.
- c. Majority of QA workers did not have a QA background.
- d. Where were the Report of Discrepancies (R.O.D.) ? I was informed that no R.O.D.s were going to be sent to USASG-F, they did not have time to reply to them. They should have gotten informational R.O.D.s at least. As it was USASG-F was under the opinion that everything they did was just fine. There was a total lack of packaging supervision.
- e. Some people at USASG with no QA background wanted to ship large quantities of items to Defense Reutilization and Marketing Office, (DRMO) even when the computer said to return the items to depot. Leave the QA work to QA people.

COMMUNICATIONS

Communication between USASG-F and Depot Systems Command (DESCOM) was a one way street, with little information flowing from USASG-F. DESCOM has packaging experts with many years of experience but they were unaware of the packaging practices going on in the Gulf. DESCOM needed someone on site, at the staff level, not first line supervision; to be totally dedicated to identifying problems and solving them, with support from DESCOM. As it was DESCOM packaging people were in the dark about most of the problems, until they showed up state side.

CONCLUSIONS

Many factors made USASG-F's job difficult, and most were beyond USASG-F control. The environmental conditions are unfavorable for packaging and packaging operations. The condition of packaging received from the depots was not level A. When the packaging was handled many times and stored outside the items suffered. The storage facilities were less than ideal. The short length of the War and the large amount of materials remaining caused additional problems. These problems were beyond the control or planning ability of USASG-F capabilities.

On the other hand there was much that could have been corrected. The hazardous materials problems should have been aggressively corrected early on. The Dept of Agriculture requirements should have been expected. If items needed to be cleaned completely, the ability to reapply protective finishes should have been available. The lack of properly trained personnel applying for positions was another area that could have been foreseen. (Depots did not want to give up packaging people when they needed them the most). Packaging policies should have been planned for and a plan put into writing.

When the site selection was made a packaging specialist should have been part of that team. All necessary cleaning and drying equipment and procedures should have been on hand before the operation got started. A special shipment of basic packaging supplies should have been shipped early in the build-up. After the initial packaging supplies reached theater, replacement supplies should have been staged and ready to ship on short notice.

Specialized items (Electronics, Weapons, Classified, Night Vision, Hazardous Materials) require special handling, processing and packaging; this requires people who work in the special areas, not beginners. Boxing and crating operations need skilled personnel and the equipment in-place. The QA people have to be involved up front, their decisions affect packaging. Quality Assurance personnel must do proper cost analysis to determine if it is cost effective to ship items to storage or send them to DRMO. The military assigned to package items must have a basic knowledge of packaging practices. Even the most motivated troops need to be trained for the job they are expected to perform. A dedicated packaging specialist must be on the staff not operating as a first line supervisor (I was).

Communications are critical. There are many people, at activities world wide, who could have supported USASG-F, if only asked. The experts can not help if they are unaware of the problems. The mad rush for quantity shipped must be weighed against quality shipped. There is no reason to ship items that will be going to DRMO upon inspection in the state side depots. All through the operation checks must be made (i.e., RODs, latest shipping cost data, depot concerns, item managers comments, equipment needs, personnel requirements and so much more) to insure that the operation is pro-active.

Operations like the one undertaken by USASG-F are not a simple task. The people who direct the operations must have the proper background and must look beyond their operation. Their actions have a long term affect on Army Funds and Readiness. A short cut here and there must be carefully weighed against the damage items may receive prior to reentering the supply system. Simply put, proper packaging techniques add value and save ARMY assets. Proper planning and communications is the KEY.

RECOMMENDATIONS

The U.S. Military must be able to carry out its mission no matter what environment they are required to operate in. That goes for military packaging also. When a soldier is involved in a war the last thing he will think about is packaging. That is good because when we in the packaging field do our job no one notices us. But when an item is urgently needed and is damaged due to a packaging failure we must examine this failure and prevent it from happening again. It is important that the lessons learned in this conflict not be forgotten and we must strive to overcome our short comings. These considerations are just as important in peace time. We are expected to defend our Nation in a time of shrinking budgets so all assets must be protected properly.

Procurement Practices

Procurement of materials is critical for Army readiness. It is easy for an item manager to procure all items packaged level C. Level C packaging will present an up front savings in packaging cost but there can be a negative to this type of procurement. When troops deploy overseas in war time conditions, the packaging procured for domestic shipments will seldom protect the item under the new conditions. All items that may be deployed in time of war must be stocked in level A packaging. This Level A packaging may only represent a small percentage of the stocked levels but allows for immediate deployment of such materials. The reason so many materials arrived in the Gulf in level C packaging is that these items were not stocked level A in sufficient quantities to be sent to the war zone. The depots were under tremendous pressures to ship material and had little time to repack items.

Military Customs Inspections

The Military Customs Inspector (MCI) program has been in place for many years. It should have been no surprise to the experienced logistician. Methods to clean items in the field have been developed. The use of plugs and tapes can keep water out of items during the cleaning cycle. Simple field methods can be used to apply preservatives to these items.

Site Selection

The site selection is a critical consideration in the initial deployment plan, a packaging specialist should be included. Such things as communications, electric service, compressed air, drainage, water supply, security areas, computer support, first aid, fire fighting ability, security, safety, storage areas, work flow, operating surfaces, lighting, loading and unloading areas, shelter, facilities for personnel and food supply must be planned for.

Personnel

Personnel is the most important aspect of the operation. Good people overcome problems. If the operation is going to be a packaging one, staff it with people who know packaging. During the War the depots needed their packaging people and were unwilling to give them up. The best way to handle this problem is to inform the depots that they will provide a certain number of employees in an emergency to deploy. Other organizations within the Dept of Defense have employees in this status ready to deploy. This number of employees may be rounded out with employees similar to those used by USASG-F. The packaging people could form the basis of experience and the others could learn as they go. The people involved in the recruitment process should insist that packaging backgrounds be documented and packaging people be given priority for deployment. A requirement for a supervisor slot should require a strong packaging background, not a high grade. Another alarming aspect of the personnel area was the total lack of troops trained as packaging personnel. The Army does not have a dedicated Military Occupational Skill (MOS) for packaging. This means that a company size unit of 200 hard working troops could arrive ready to work and not know how to get the job done. That is what happened when the 199th Supply Parts Company arrived in March of 92. While in the Gulf I was able to observe U.S. Marine Corps packaging operations in the Al Jubayl area. The Marines were primarily a stand alone operation. Currently the Marines have an MOS for packers. Their skill and ability in packaging their own material was outstanding. Training does make a difference!

Packaging Practices

Packaging practices must be developed and written down. Data must be collected on previous deployments. Plans must be made now to deploy for the next conflict. Staffing must be developed, equipment and supply needs must be developed. These actions should also include QA, Transportation, Hazardous materials certifiers and handlers, safety, security, computer support, maintenance, supply and others. After these plans are developed they must be reviewed from time to time to insure their accuracy. Suggested reference material for units involved in the repackaging operations is TM 746-10, titled, General Packaging Instructions for Field Units.

Packaging Supplies

A detailed listing of packaging materials must also be developed (planners should be prepared to deploy under the worse case situation.) Not only must a listing of materials be developed but where to obtain these materials and how they will be transported. Additionally a plan of action must be developed for the re-supply of the initial supply of materials. Specialized items that must be shipped must also be considered. Specialized containers for items like night vision devices, ESD, EI, and hazardous materials must also be added to the packaging materials.

Box and Crate Shop Operations

The box and crating shop must also be equipped and supplied. This would require radial arm saws, table saws, band saws, pneumatic nailers, hand saws, hand tools, spare blades and saw parts, air hoses and fittings, nails, bolts, rulers and lumber. In addition the saws must be able to operate on any current found.

Processing of Classified Materials

A plan will also be needed to process classified items that are turned in. This plan must include personnel with security clearances. An SOP or guidelines should be prepared with detailed instructions on how to handle classified materials. This plan shall be coordinated with the security office.

Hazardous Materials

Upon my arrival at USASG-F I noticed that there were limited materials on site for the processing of hazardous materials. There were no hazardous materials certifiers. USASG-F had been shipping hazardous materials for approximately six months in violation of several laws and regulations. This condition could have only been corrected by having certified personnel and materials on hand to legally ship the materials. Planning should include the required personnel and materials deployed with the initial group of workers. In addition, a person skilled in the monitoring and certification of radioactive materials will be required to provide health physics requirements.

COMMUNICATIONS

Communications are critical to just about everything we do in life and the same is true for a redeployment operation. While communications was good at the the USASG-F site, the flow of information in and out of theater was poor. A system of communications with the the stateside command, depots, item managers, supply personnel and the packaging community should be established. This line of communications could be by telaconference, individual phone calls, or written form. In addition the points of contact should be put out to all organizations that may have questions or input. The reports of deficiencies should be forwarded for review. It is important to identify problems at the earliest possible point. Documentation should be keep on all correspondence to be used in an after action report.

QUANTITY VERSUS QUALITY

Without question the amount of tonnage, line items, seavans shipped was the prime consideration of operations at USASG-F. The mad rush for quantities shipped must be weighed against quality shipped. There is no reason to ship items that will be going to DRMO upon inspection in the state side depots. USASG-F had the services of DRMO in Saudi Arabia. There is no reason to pay shipping cost back to an American disposal site. A balance must be struck between the amount of materials shipped and their condition upon arrival at the depots. The operations could have maintained the levels of production by working smarter not harder. The best way to accomplish this is to use experienced packaging personnel.

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