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IMPROVING CARGO VISIBILITY
IN THE JOINT DEPLOYMENT SYSTEM

August 1986

George E. Mueller
Robert F. Rozycki
Click D. Smith, Jr.

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LOGISTICS MANAGEMENT INSTITUTE
6400 Goldsboro Road
Bethesda, Maryland 20817-5886

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The Joint Chiefs of Staff and Unified Commander rely on the Joint Deployment System (JDS) for timely deployment information. That system does not provide the visibility of in-transit cargoes they would need to revise lift allocations, order diversions or evaluate the effects of lost or delayed cargoes. The major shortcoming is in tracking movements of nonunit cargo; resupply items. Planned movements of nonunit cargo in the JDS are identified by class of supply and cargo identification number. Actual movements are initiated and tracked in the Defense Logistics Supply System (DLSS) by individual requisitions which contain no links to the cargo identification number.

There is a method whereby the link between actual and planned cargo movements could be established by utilization of the Federal Supply Classification (FSC); (the first four digits of the National Stock Number). Procedures are recommended whereby the FSC of air and surface shipments would be translated into supply classes and both would be entered into the JDS for actual shipments.

The CINCs and other supported commanders need visibility on selected critical items of resupply which is not currently available in the JDS. A method has been devised whereby a limited number of critical items could be tracked in the JDS.

The JDS contains more information on unit cargo than is necessary. A recommendation is made to reduce unit cargo data in the JDS has been developed.

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Executive Summary

IMPROVING CARGO VISIBILITY IN THE JOINT DEPLOYMENT SYSTEM

The Joint Chiefs of Staff and Unified Commanders rely on the Joint Deployment System (JDS) for timely deployment information. That system does not provide the visibility of in-transit cargoes they would need to revise lift allocations, order diversions, or evaluate the effects of lost or delayed cargoes. The major short-coming is in tracking movements of nonunit cargo, that is, resupply items.

Planned movements of nonunit cargo are identified in the JDS by class of supply and cargo identification number. Actual movements are initiated and tracked in the Defense Logistics Standard System (DLSS) by requisition number/transportation control number, which identifies items by National Stock Number, not class of supply, and contain no links to the JDS cargo identification number. JDS users cannot, therefore, compare actual movements in the DLSS with planned movements in the JDS.

Class of supply is too general a category to give resupply items the needed visibility. For example, class of supply identifies a cargo as ammunition, but not what kind. For most cargoes, summarizing their contents by FSC would give the primary users of the JDS the amount of detail they need.

The Air Force and the Joint Deployment Agency have agreed on a prototype procedure for air shipments to bridge the gap between the JDS and DLSS. It would translate the Federal Supply Classification (FSC) (the first four digits of the National Stock Number) on requisitions into class of supply and would create new or revised cargo identification numbers for actual shipments. The prototype procedure is a step in the right direction. The same should be done for surface shipments.

However, new FSCs should be created for major end items, to distinguish them from spare parts.

We recommend the following actions by the Assistant Secretary of Defense (Acquisition and Logistics) [ASD(A&L)], the Joint Chiefs of Staff (JCS), or both.

- *ASD(A&L): Task the Defense Logistics Standard Systems Office to establish procedures for adding FSC to the Advance Transportation Control and Movement Document and ask the Secretary of the Army to direct the Military Traffic Management Command to use that information, rather than water commodity codes, to categorize surface shipments.*

- *JCS: Task the Joint Deployment Agency to provide summary nonunit cargo movement information to JDS users in FSC groupings upon request.*

- *ASD(A&L): Establish a DoD-wide program to identify and create separate FSCs for major end items.*

- *ASD(A&L): Ask JCS to establish criteria and procedures for using project codes to identify critical items in the movement process.*

- *ASD(A&L) and the JCS: Coordinate tasking of the Defense Logistics Standard Systems Office and the Joint Deployment Agency to establish procedures for tracking critical items.*

Tracking the movements of unit cargo — equipment belonging to deploying units — presents different problems. Much information is provided in the JDS about both planned and actual moves, but the information is not as accurate or timely as it should be. The Military Departments and Transportation Operating Agencies are developing systems that will improve the accuracy of unit movement data. To reduce the demands on the JDS and improve the timeliness of the information it supplies, we recommend minimizing the amount of information about unit cargo movements that is routinely provided by JDS to its users. Specifically, we recommend that:

> *JCS direct the Joint Deployment Agency to limit unit cargo movement information routinely provided to JDS users to unit identification and dates of departure from the port of*

embarkation and planned or actual arrival at the port of debarkation.

Some users would have to look to other systems for detailed movement information. The priority for the JDS, however, should be to provide the JCS and the unified commanders with timely, operational information to monitor deployments and respond to changing strategic or tactical situations.

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1. PROBLEM

In the event of war, the Joint Chiefs of Staff (JCS), the Commanders-in-Chief (CINCs) of Unified Commands, and other users of the Joint Deployment System (JDS) would not have the timely visibility of cargoes they would need to revise air and sealift allocations, order diversions, and evaluate the effects of lost or delayed cargoes. Though the JDS is intended to serve these purposes (and many others), many users find that the information it provides about cargo movements lacks sufficient detail and lags actual movements too much to satisfy their requirements.

The reasons are many. The JDS — a large collection of procedures, directives, and automated data processing systems — is still evolving. Its initial goals were ambitious, leading some users to expect more information and quicker response than was possible. In exercises, its inability to satisfy artificial information requirements has sometimes drawn undeserved criticism. It serves a diverse group of users who do not agree on requirements for cargo movement information. Some want great detail, while others want only summary information.

For nonunit cargo — resupply items — the JDS currently has the capability to provide its users only summary information about planned moves. It does not have the capability to accurately portray the contents of nonunit cargoes once an operation plan (OPLAN) is executed. For unit cargo — equipment belonging to deploying units — it provides data about both planned and actual moves, but there are errors in the planning data base and system response times are poor. The slow response is directly attributable to the inability of the JDS computers and communications to handle the large volume of movement data.

The JDS should not be expected to fulfill all of its users' needs for cargo movement information. Most requirements for detailed information can and should

be provided by information systems operated or being developed by the Military Departments. The first priority for the JDS should be to provide the timely, operational information needed by the JCS and CINCs to monitor deployment or to respond to changing strategic or tactical situations. We discuss our views of the most important information requirements and recommendations for satisfying them in two categories: nonunit (or resupply) cargo and unit cargo.

2. VISIBILITY OF NONUNIT CARGO MOVEMENTS

Nonunit cargos are resupply items. Though the JDS now provides only general information about planned moves of nonunit cargo – weight, cube, and class of supply – it does not provide updated information about actual moves. Users of the JDS think it should, but disagree about the amount of detail required.

Users, such as Commander-in-Chief, Europe (CINCEUR), who have well-developed support structures and logistics information systems, want only summary information about cargo movements from the JDS and place a premium on timeliness of the information. Commander-in-Chief, U.S. Central Command, on the other hand, has a new organization with few established support capabilities or logistics information systems in theater; his staff wants as much cargo movement information as the JDS can provide. The Component Commanders, too, generally want detailed information about cargo movements, and some look to the JDS to provide it.

The JDS computer and communications capacities cannot handle the large volume of data necessary to track movement of nonunit cargo items in as great detail as some users want. Complete "visibility" of nonunit cargo moves is unrealistic. Summary level information is the most that can be expected at this time. However, summarizing most items by Federal Supply Class (FSC) rather than by class of supply, as is now done, would improve cargo visibility substantially. The exception is "critical" items, those items identified by the CINCs as items the lack of which would jeopardize mission success. For critical items, more detailed information – item identification and quantity – is needed in the JDS, and we believe it can be provided. We discuss first the general problem of providing useful movement information in the JDS about nonunit cargoes and how to obtain the summary

information we think necessary. We then turn our attention to critical items and how to provide detailed information about their movements.

PROVIDING SUMMARY INFORMATION

The major barrier to visibility of nonunit cargo movements in the JDS is incompatibility between the way cargoes are identified during planning in the JDS and the way they would be identified during execution under the Defense Logistics Standard System (DLSS).[1] The movements of military units and cargo needed to support an OPLAN are specified by the Time-Phased Force and Deployment Data (TPFDD). Nonunit cargo moves in the TPFDD are planned moves of one of ten classes of supply, each move identified by a Cargo Identification Number (CIN).

When an OPLAN is executed, actual resupply actions are activated by MILSTRIP requisitions, each of which covers individual items of supply. The items are identified by National Stock Number,[2] not by class of supply, and there is no link of the requisition to the CIN in the TPFDD.

Actual movements of resupply items may therefore differ substantially from those in the TPFDD. Furthermore, comparison of planned and actual movements is difficult because of the different materiel categories used in JDS and DLSS and the lack of any link of actual movements under DLSS to the CIN used to identify planned movements.

A recent MILSTAMP change will help bridge the gap between the DLSS and the TPFDD processes. Though it does not solve all problems, it is a move in the right

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[1]The DLSS is comprised of the various standard Department of Defense logistics systems, such as the Military Standard Requisitioning and Issue Procedures (MILSTRIP), and the Military Standard Transportation and Movement Procedures (MILSTAMP).

[2]The Federal Supply Classification, described in Department of Army Supply Bulletin 708-21, is a commodity classification designed to serve supply functions. The classification consists of commodity groups and subgroups. The latter are called Federal Supply Classes and are identified in a four-digit coding structure. The FSC is identified in the first four digits of a National Stock Number.

direction. The vehicle for information transfer will be additional data provided on the Advance Transportation Control and Movement Document (ATCMD) that supports every shipment in the Defense Transportation System. The data to be provided will be developed differently for air and sea shipments.

For air shipments, the shipping activity will enter the FSC of the material being shipped under a specific ATCMD. At the Service's air clearance authority, these ATCMDs will be rolled up in the following sort sequence:

- Port of Embarkation – Port of Debarkation combination
- Service
- FSC
- Air Dimension Code
- Availability Lift Date.

A tape summary will be transmitted to the Joint Deployment Agency (JDA) where the FSCs will be converted to supply classes and subclasses. Conversion of FSCs to supply classes is a necessary step to facilitate the weight and cube comparison of actual and planned movements. The data will then be used to either adjust weight and cube data of existing CINs or create new CINs to cover the shipment. A prototype effort has been agreed upon by the Air Force and JDA to provide the annotated ATCMDs.

The more detailed cargo identification information obtainable from the FSCs could be used to provide more cargo visibility. To do this, the JDA should retain the data on FSC related to each CIN that is adjusted or created until the movement terminates at the POD. This information could be made available to JDS subscribers to enable them to access better cargo identification than supply class.

A different procedure is planned for surface shipments. Instead of having the shipper annotate the ATCMD with the FSC, the Military Traffic Management

Command (MTMC) will make the conversion from the water commodity codes[3] to FSCs on the ATCMD using a conversion table that it has developed. For both air and water shipments, the JDA displays the actual tonnage of the adjusted or reconstructed CIN in the JDS.

This process will provide JDS users with information, in TPFDD CIN format, that they can use to estimate the status and content of cargo movements. Comparison of actual with planned movements, however, will still be imperfect. The translation of FSCs and water commodity codes into supply classes cannot be more than approximate. Though conversion from FSCs to class of supply is fairly straightforward for most items, FSCs do not distinguish between end items, which should be translated to supply class VII, and repair parts and components, which should be translated to supply class IX. The solution is to create new FSCs for major end items. This is a cataloging function which would require some work, but the benefit of compatibility between FSCs and class of supply would make it worthwhile.

There are many more FSCs than water commodity codes. Many water commodity codes are breakouts of a few FSCs, while others could relate to several FSCs. A prime example of the latter is water code 700 – general cargo – which MTMC converts to FSC 999 – miscellaneous items. This could represent substantial tonnage being attributed to a catchall FSC that could comprehend any or all of the ten supply classes. Many of the water commodity codes apply to commodities that could fall within several FSCs. (Examples of these are 581 – automotive parts and 653 – instruments.) The solution is to process water shipments in the same manner as air shipments; and have the shipping activity include the FSC in the ATCMD data.

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[3]Water Commodity Codes, defined in DoD 4500.32-R (MILSTAMP), are used by MTMC to identify commodities for ocean manifesting, Military Sealift Command billing, cost accounting, and contractor payment.

DETAILED CRITICAL ITEM INFORMATION

The Unified Commanders have identified a group of items in the Unified Commanders Critical Item List, the lack of which would jeopardize the accomplishment of the mission. Though summary information and movement of nonunit cargo is sufficient for most resupply items, the JCS and CINCs need the visibility of movements of these critical items, at least while they are in transit from POE to POD.

No DoD-wide information system — JDS or DLSS — now has the ability to track critical items. Resupply items (except bulk fuels) are generally shipped in response to individual requisitions prepared, submitted, and processed according to the MILSTRIP. Though the Army, via its Logistics Intelligence File, can routinely track individual requisitions (despite some reporting and processing lags), the other Services cannot accomplish that to the same degree. Even if they could, the large volume of requisitions with a high-priority designation — 40 percent — would preclude separating critical items from others under current procedures. Simply creating a new, higher priority would not help; experience shows that requisitions migrate to the highest priority available.

There is a method whereby critical items could be tracked through JDS while in transit from POE to POD. MILSTRIP provides for a JCS project code that could be used to identify requisitions for critical items. A separate MILSTAMP Transportation Control Number (TCN) would be necessary for each requisition containing such a JCS project code to identify the materiel in the movement process. As the transportation documentation is processed in automated systems, the use of a project code could be used to trigger transmission of images of MILSTAMP in-transit data card information to the JDS. For air shipments, the MILSTAMP TK-7 and TK-6 in-transit data cards could be used. For surface shipments, TK-7 data would

have to be transmitted to the JDS by the POE at the time of shipment and by the POD at the time of receipt.

To meet the Unified Commanders' needs for timely reporting of in-transit data, it is imperative that the in-transit data be transmitted to the JDS on a real-time basis. Use of bar-coded TCNs on shipments in conjunction with prepositioned Transportation Control and Movement Document (TCMD) data would greatly facilitate this process.

The in-transit information would be held in the JDS until receipt data from the PODs have been processed to clear the shipment. In-transit data could be automatically transmitted to the appropriate CINC or could be obtained when needed from the JDS.

OTHER DETAILED ITEM INFORMATION

Limiting JDS information to summary information (including Federal Supply Class) on all nonunit cargo identification, except critical items, will leave some users of the JDS without the detailed, item information they would like to have. For example, those concerned with port management and diversion and reconstitution of cargoes need detailed information that would not be available from the JDS. On the other hand, such information cannot now be obtained from JDS in sufficient detail or quickly enough.

We believe that the item-specific data needed by non-transportation personnel could be captured at the supply depots (or other locations) where containers are "stuffed" using bar codes or microcircuit memory cards and held in a computer data base, off-line, until needed. The information could then be accessed on an exception basis, via the JDS or through DLSS information systems.

3. VISIBILITY OF UNIT CARGO MOVEMENTS

Unit cargo is equipment that accompanies deploying military units. Assuring visibility of movements of unit cargo in the JDS presents few of the difficulties encountered with movements of nonunit cargo.

In TPFDD development, unit cargo moves are assembled through a detailed process that starts with the identification of notional, or type units, required to support a specific OPLAN. The movement characteristics of the selected type units are extracted from the Type Unit Data File (TUCHA),[1] using the Force Requirements Generator (FRG) program of the Joint Operations Planning System (JOPS) and entered into the TPFDD file. Later, when the plan is sourced,[2] the type units are replaced by actual units and the actual weight and cube movement requirements of the selected units.

The complaints about visibility of unit cargo movements in the JDS boil down to two: (1) inaccuracy of the data and (2) slowness in retrieving the desired information.

Steps are underway to improve data accuracy. The Army's Transportation Coordinator Automated Command and Control Information System (TC ACCIS), under development, will provide more accurate unit equipment data. Similar systems are in early stages of development in the other Services.

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[1]This file contains the movement characteristics: number, size and weight of personnel, supplies, and equipment of a type unit.

[2]"Sourcing" is a term used in the joint planning community. In the TPFDD process, the first iteration of planning involves the identification of unit and resupply needs in notional terms. Notional resupply requirements are developed by class of supply using planning factors. Sourcing of the requirement involves the identification of individual items of supply in a given supply class movement, and the determination of current asset availability and the depot source for the available assets.

The Transportation Operating Agencies (TOAs), too, are developing interfaces with the JDS to support unit deployment reporting. For the Military Airlift Command (MAC), the Military Air Integrated Reporting System (MAIRS) will interface with the JDS to report airlift arrival and departure information. MTMC is developing the Automated System for Processing Unit Requirements (ASPUR) to interface with TC ACCIS to receive unit movement from installation transportation officers. ASPUR, interacting with the Mechanized Export Traffic System II (METS II) and Terminal Management System On Line System (TOLS) will provide movement data to the JDS through the MTMC Headquarters Computer.

We have noted the slowness of the JDS in providing movement information. Existing and planned JDS computer and communications capabilities would be quickly overwhelmed during a deployment by attempts to draw detailed information about movements from the system.

For unit cargo movements, we believe the solution is to reduce the amount of information provided in the JDS to monitor unit movements. The prime users of JDS need to know only the unit identification and dates of departure and arrival of unit cargoes. The additional information, when needed, could, and in our view, should be obtained on an exception basis from systems other than the JDS.

Reducing the amount of unit cargo movement information provided via the JDS would not only improve the response time for obtaining essential information, but would make room in the JDS for important detailed information about "critical" items of nonunit cargo.

4. RECOMMENDATIONS

In earlier chapters, we have discussed the requirements for cargo movement visibility in the JDS, the problems in providing that visibility, and our conclusions about what should be done. In summary, these are our conclusions:

- The JDS should provide only summary-level information about nonunit cargo moves, except for CINC-identified critical items. The summary information should be obtained by preserving the FSC information used to adjust or create CINs to cover shipments enroute. To do that accurately, new FSCs should be created for major end items, and shipping activities should enter FSCs on Advance Transportation Control and Movement Documents for both surface and air shipments.

- The JDS should provide item identification, weight, and quantity information about critical items of nonunit cargo while they are between ports of embarkation and debarkation. A JCS project code should be used to identify critical items on requisitions and track them in the DLSS.

- Detailed information about nonunit cargoes other than critical items should be provided by powers outside the JDS.

- The JDS should limit the information it provides about unit cargo moves to unit identification and dates of departure from the POE and closure at the POD.

Based on these conclusions, we recommend the following actions by the Assistant Secretary of Defense (Acquisition and Logistics) [ASD(A&L)] and/or the Joint Chiefs of Staff (JCS).

VISIBILITY OF NONUNIT CARGO MOVEMENTS

Recommendation #1

ASD(A&L) task the Defense Logistics Standard Systems Office to establish procedures for adding FSC to the Advance Transportation Control and Movement Document and ask the Secretary of the Army to direct the MTMC to use that information, rather than water commodity codes, to categorize surface shipments.

Recommendation #2

JCS task JDA to provide summary nonunit cargo movement information to JDS users in FSC grouping upon request.

Recommendation #3

ASD(A&L) establish a DoD-wide program to identify, and create separate FSCs for major end items.

Recommendation #4

ASD(A&L) ask JCS to establish criteria and procedures for using project codes to identify critical items in the movement process.

Recommendation #5

ASD(A&L) and JCS coordinate tasking the Defense Logistics Standard Systems Office and the Joint Deployment Agency to jointly establish procedures for tracking critical items.

VISIBILITY OF UNIT CARGO MOVEMENTS

Recommendation #6

JCS direct the JDA to limit unit cargo movement information, routinely provided to JDS users, to unit identification and dates of departure from the port of embarkation and planned or actual arrival at the port of debarkation.

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