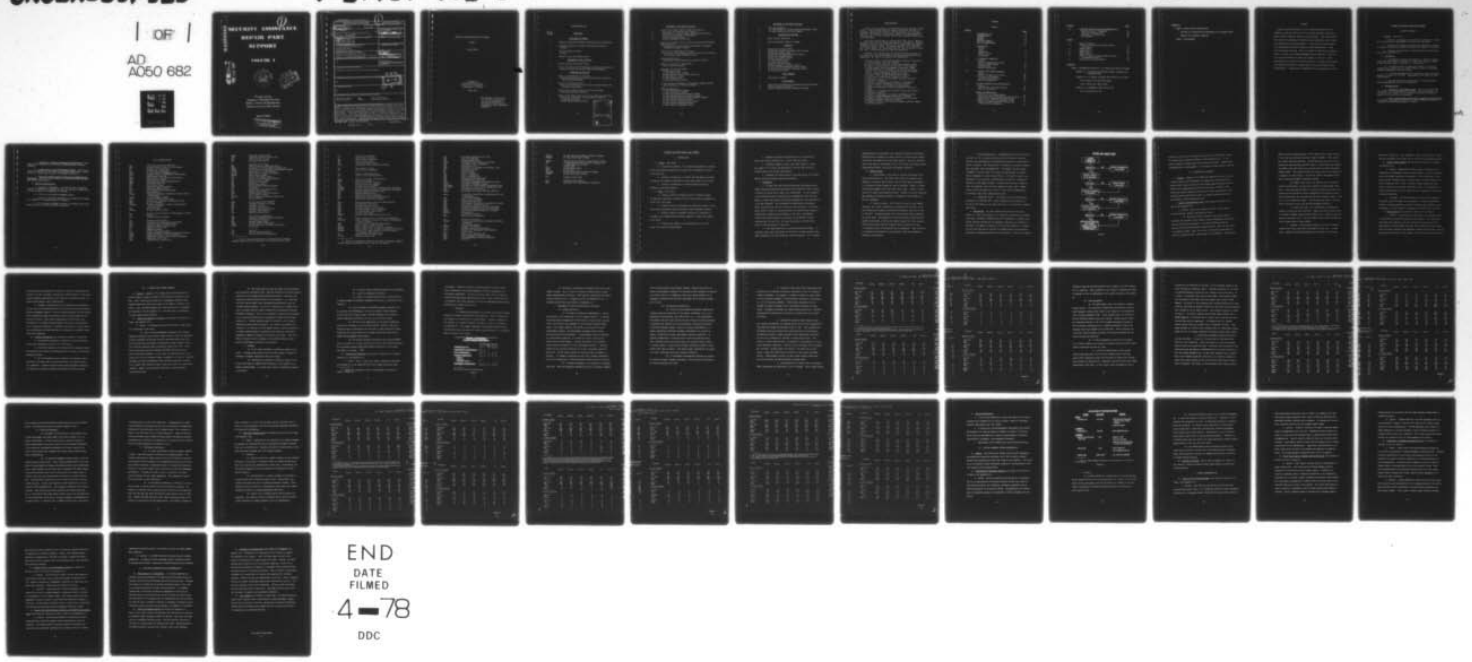
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SECURITY ASSISTANCE REPAIR PART SUPPORT

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Weapon systems in the international logistics (IL) community have increased so much that DA questioned the US ability to provide repair part support without diminishing US readiness. This study answers that question by analyzing US industrial base capabilities and the IL repair part program. It also evaluates methods of projecting military hardware system supportability. Three major conclusions are made: US industrial capability is adequate, IL repair part program management must be improved to cure problems in repair part support, and there are unexploited methods for looking ahead at military hardware system supportability. Comprehensive recommendations for improvements are made.

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SECURITY ASSISTANCE REPAIR PART SUPPORT

VOLUME I

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Engineer Studies Group
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April 1977

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ABSTRACT

Weapon systems proliferation in the international logistics (IL) community caused DA to ask if the US can provide necessary repair part support without adversely impacting on US readiness. This study answers that question by analyzing US industrial base capabilities and IL repair part program policies and procedures. It also evaluates methodologies for looking ahead at military hardware system supportability. Three major conclusions are made. First, US industrial capability is adequate. Second, IL repair part program management must be improved to stop current IL-caused problems in repair part support to US forces. These improvements can be made with existing resources. Finally, there already are unexploited methods for looking ahead at military hardware system supportability. Comprehensive recommendations for improvements are made.

SECURITY ASSISTANCE REPAIR PART SUPPORT

EXECUTIVE SUMMARY

1. Purpose. This study:

a. Assesses the adequacy of US industrial capability to satisfy US and IL repair part requirements in the FY 77-81 time frame.

b. Assesses the adequacy of policies and procedures to prevent IL support from adversely impacting on repair part support to US forces.

c. Presents a methodology for looking ahead at military hardware system supportability.

2. Conclusions.

a. US industrial capability is adequate to satisfy IL and US repair part requirements in the FY 77-81 time frame. However, demands on that capability must be programed in a timely manner.

b. IL causes problems in repair part support to US forces. Although these problems were not severe enough to reduce US readiness, readiness improvement rates were slowed.

c. IL program management must be improved to reduce IL-related problems in support to US forces. Improvements can be made with existing resources.

d. Existing methods for looking ahead at military hardware system supportability have not been exploited.

3. Recommendations.

a. Align US and IL Program Designs. This is a critical task and reflects the central theme of this study. When accomplished, full IL benefits to US support will be realized and adverse IL impacts on support to US forces will be eliminated.

b. Build a total weapon system support program from MSC level up. US technical and managerial expertise is thus concentrated to protect US readiness and provide high-quality IL support.

c. Consolidate IL Support Management Responsibilities. This would prevent issuance of conflicting, nonimplementable IL program guidance.

d. Conduct Joint IL and US Management Reviews. The 1975 CSA-sponsored Army Security Assistance study created institutional visibility of IL. ODCSLOG must now give it management visibility.

e. Exploit the MICOM Visibility Forecast and DARCOM Systems Assessments. This gives DA the ability to look ahead at military hardware system supportability.

4. Additional Observations.

a. Normalize IL management. The time has come to eliminate "special" IL management techniques and use the existing US supply structure and procedures to accommodate IL customers.

b. CCSS is a very powerful management system.

c. Accurate IL inventory knowledge is not essential for logistics planning if IL program designs are adequate.

d. DLA is preparing changes to their IL procedures that could adversely affect DA unless carefully coordinated.

LIST OF ABBREVIATIONS

AAO	authorized acquisition objective
ACSI	Assistant Chief of Staff for Intelligence
ADP	Automatic Data Processing
AGI	annual general inspections
ALMC	US Army Logistics Management Center
ALMSA	Automated Logistics Management Systems Agency
ALT	administrative leadtime
AMASM	Army Military Assistance and Sales Manual
AMD	average monthly demand
AMDEX	Army Maintenance Data Exchange System
AMDF	Army Master Data File
AOD	area oriented depot
AOQ	authorized operating quantity
APC	armored personnel carrier
APOM	Army Program Objective Memorandum
AR	Army Regulation
ARCSIP	Automated Requirement Computation System--Initial Provisioning
ARMCOM	US Army Armaments Command
ASA	Assistant Secretary of the Army
ASACG	Army Security Assistance Coordinating Group
ASAP	as soon as possible
ASD(ISA)	Assistant Secretary of Defense (International Security Affairs)
ASF	Army Stock Fund
AVSCOM	US Army Aviations Command
BLS	Bureau of Labor Statistics (US Department of Labor)
B/O	backorder
BOE	blanket open end agreement
CAA	Concepts Analysis Agency
CASA	Coordinator for Army Security Assistance
CCP	collection and consolidation point
CCSS	Commodity Command Standard System
CDS	commercial direct sales
CG	Commanding General
CIA	Central Intelligence Agency
CISIL	Central Integrated Systems International Logistics
CLRTX	Command Logistics Review Team Extended
CLSSA	Cooperative Logistics Supply Support Agreement
COA	Comptroller of the Army
COCP	customer order control point

CONUS	Continental United States
CRDD	commitment required delivery date
CSA	Chief of Staff, US Army
CSP	concurrent spare parts
DA	Department of the Army
DAAS	Defense Automatic Addressing System
DAMPL	Department of the Army Master Priority List
DARCOM	US Army Materiel Development and Readiness Command
DA STD	Department of the Army Standard
DCSLOG	Deputy Chief of Staff for Logistics
DESCOM	Depot Support Command
DIA	Defense Intelligence Agency
DIL	Director of International Logistics
DLA	Defense Logistics Agency
DOD	Department of Defense
DON	demand order number
DPPG	Defense Program Planning Guidance
DRC	see DARCOM
DRD	Demand Return and Disposal File
DSA	Defense Supply Agency
DSAA	Defense Security Assistance Agency
DSS	Direct Support System
DSU/GSU	direct support unit/general support unit
DX	direct exchange
ECOM	US Army Electronics Command[1/]
EDS	equipment distribution system
EOH	equipment on hand
EOQ	economic order quantity
EOR	Equipment Operationally Ready
ES	equipment serviceability
ESG	Engineer Studies Group
FAD	force activity designators
FMAC	Financial Management Advisory Committee
FMC	Food Machine Corporation
FMS	foreign military sales
FMSO	foreign military sales order
FORDAD	Foreign Disclosure Automated Data System
FY	fiscal year
GA	grant aid
GAO	General Accounting Office
GSA	General Services Administration

1/ ECOM was redesignated ERCOM (US Army Electronics Readiness Command) shortly after the information cut-off date for this study.

IIQ	initial issue quantity
IL	international logistics
IPD	issue priority designator
IPG	Issue Priority Group
IRO	Inventory Research Office
ITAD	Intelligence Threat Analysis Detachment
JCS	Joint Chiefs of Staff
JLC	Joint Logistics Commander
LIF	Logistic Intelligence File
LOA	letter of offer and acceptance
MAAG	Military Assistance Advisory Group
MACOM	major Army commands
MAD	Material Assistance Designator
MAP	Military Assistance Program
MICOM	US Army Missile Command 2/
MILSCAP	Military Standard Contract Administration Procedures
MILSTEP	Military Supply Transportation Evaluation Procedures
MMD	material management decision file
MRQ	maximum release quantity
MSA	maintenance support agreements
MSAP	Military Security Assistance Projection
MSC	DARCOM major subordinate command
NASA	National Aeronautics and Space Administration
NCAD	New Cumberland Army Depot
NDP	National Disclosure Policy
NICP	national inventory control point
NORM	not operationally ready maintenance
NORS	not operationally ready supply
NSN	national stock number
NSNMDR	national stock number master data record
OACSI	Office, Assistant Chief of Staff for Intelligence
OASD(ISA)	Office, Assistant Secretary of Defense (International Security Affairs)
OBRA	Office of Business Research and Analysis
OCSA	Office, Chief of Staff, US Army
ODCSLOG	Office, Deputy Chief of Staff for Logistics
ODCSOPS	Office, Deputy Chief of Staff for Operations and Plans
ODCSRDA	Office of the Deputy Chief of Staff for Research, Development, and Acquisition
OMA	operation and maintenance, Army
OP Code	ownership purpose code

2/ MICOM was redesignated MIRCOM (US Army Missile Readiness Command) shortly after the information cut-off date for this report.

PAA	Procurement Appropriations, Army
P&B	price and budgeting
PCF	program change factor
PCLTR	procurement cycle leadtime requirement
PCR	procurement cycle requirement
PDF	program data file
PEMA	procurement of equipment and missiles, Army
PLT	production leadtime
PM	project manager
POC	point of contact
POD	point of debarkation
POE	point of embarkation
POM	Program Objective Memorandum
P&P	procurement and production
PPBS	Planning, Programming, and Budgeting System
PROMS	Procurement Management System
PROT-IPD-H	protected for issue priority designators--high
PROT-IPD-L	protected for issue priority designators--low
PWD	procurement work directive
PWRMO	protectable war reserve material objective
RAM-D	reliability, availability, maintainability, and dependability
RCS	report control symbol
RCYR	repair cycle requirement
RDD	required delivery date
RDES	requirements determination and execution system
RDT	requirements determination time
RDTE	research, development, test, and evaluation
RDTR	requirements determination time requirement
RECAP	Review and Command Assessment of Programs
REOR-PT	reorder point
RO	requirements objective
ROID	Report of Item Discrepancy
SA	Secretary of the Army
SAMPAP	Security Assistance Master Planning and Phasing Worksheets
SCR	system change request
SECDEF	Secretary of Defense
SIC	Standard Industry Classification
SIMS-X	Selected Item Management System Extended
SL	safety level
SLAC	support list allowance card
SMGC	supply management grouping codes
SMGD	supply management grouping designators
SSA	see CLSSA

TARCOM	US Army Tank and Automotive Readiness Command
TROSCOM	US Army Troop Support Command
UMMIPS	Uniform Military Materiel Issue Priority System
UPZ	(foreign military sales contract designator for Jordan HAWK sale in 1976)
US	United States
USAAA	US Army Audit Agency
USAF	US Air Force
USAILCOM	US Army International Logistics Command
USAREUR	United States Army, Europe
VSL	variable safety level
WFO	Washington Field Office
WLRR	wholesale level replenishment requirement

SECURITY ASSISTANCE REPAIR PART SUPPORT

I. INTRODUCTION

1. Purpose. This study:

a. Assesses the adequacy of US industrial capability to satisfy US and international logistics (IL) repair part requirements in the FY 77-81 time frame.

b. Assesses the adequacy of policies and procedures to prevent IL support from adversely impacting on repair part support to US forces.

c. Presents a methodology for looking ahead at military hardware system supportability.

2. Scope. This study:

a. Conducts specific and general tests to evaluate overall US industrial capability to satisfy US and IL repair part requirements in the FY 77-81 time frame.

b. Presents specific procurement and production issues to illustrate how misconceptions about US industrial base inadequacy develop.

c. Analyzes logistic management indicators to determine if IL repair part programs have had adverse impacts on repair part support to US forces.

d. Evaluates the adequacy and compatibility of IL and US repair part support program designs.

e. Examines functional responsibilities for integrating IL repair part support programs into a "total" support program.

f. Evaluates commercial direct sale (CDS) impacts on repair part support to US forces and Department of the Army (DA) ability to routinely detect and control these impacts.

g. Evaluates the effectiveness of existing methods for looking ahead at military hardware system supportability.

3. Background.

a. An April 1976 Army Security Assistance Coordinating Group (ASACG) meeting discussed and questioned the US industrial base's ability to satisfy future US and IL repair part requirements. It was recognized in this discussion that US industrial base inadequacies could not only impact on future Army Security Assistance programs but, more importantly, on US Army readiness. The Coordinator for Army Security Assistance (CASA) requested this study as a result of that discussion. The Office, Deputy Chief of Staff for Logistics-Director of International Logistics (ODCSLOG-DIL) assumed study sponsorship in May 1976. The Engineer Studies Group (ESG) presented a study plan to the ODCSLOG IL Study Steering Group in July 1976. The plan was approved, and this study report is the end product of that plan.

b. This study deals with a routine peacetime environment. It considers repair part requirements for US forces, foreign military sales (FMS) customers, Grant Aid recipients, and CDS customers. All IL support

program policies and procedures were reviewed to forecast requirements. Although specific examples are taken from five critical weapon systems, conclusions are aimed at the total supply system. This study benefited from a wide range of participants (e.g., the DA Staff, all supply system organizational levels, and several intelligence agencies).

4. Reader's Guide.

a. Three studies. This study is actually three major study efforts rolled into one. The major study topics are industrial base adequacy, IL policies and procedures, and IL sales impact assessments. It is printed in three volumes for ease of handling. Volume I includes the Executive Summary and a short main report paper. Volume II concentrates on IL policy and procedure details. Volume III reviews industrial base adequacy and evaluates methods of assessing IL sales impacts on US force readiness.

b. Levels of detail. The US Army IL system is very complex. Therefore, this study is presented at varying levels of detail to prevent burdening all readers with detailed information they have no need to deal with. Top-level managers will find the main report summarizes the entire study. Policymakers will find the annexes normally provide expanded discussions of each study element adequate for their purposes. Action officers will find the extensive detail necessary for their implementing actions in the annexes and the appendixes. Some repetition of information was necessary in this design to keep the information presented in perspective.

c. Study recommendations. Recommendations are first presented at points in the IL system description where they logically develop. They are then consolidated in recommendations sections or tabularized in detail in figures. This presentation is intended to accurately separate major and minor study recommendations. For example, the main report recommends IL and US repair part support program designs be aligned. Such an alignment is a major policy thrust. In Volume II--Annex A and Appendix A-3, very specific recommendations are made for changing key elements of each support program. Although these specific recommendations are important, they are minor compared to major policy changes. Action offices may select all or part of these minor recommendations to formulate their final implementation plans.

d. Information cutoff. This report is based on information available up to February 1977. Newer information was included up to the April 1977 release of the draft study only if it affected the primary study logic.

5. Methodology. The study analysis involved five steps (see Figure 1). First, the adequacy of US industrial capability was assessed using major subordinate command (MSC) and US Department of Commerce data. Second, existing and special new management indicators were analyzed to determine if IL impact on support to US forces was beneficial or adverse. The next two steps were to evaluate IL program policies and procedures according to conceptual design and actual execution. Finally, the lessons

STEPS IN ANALYSIS

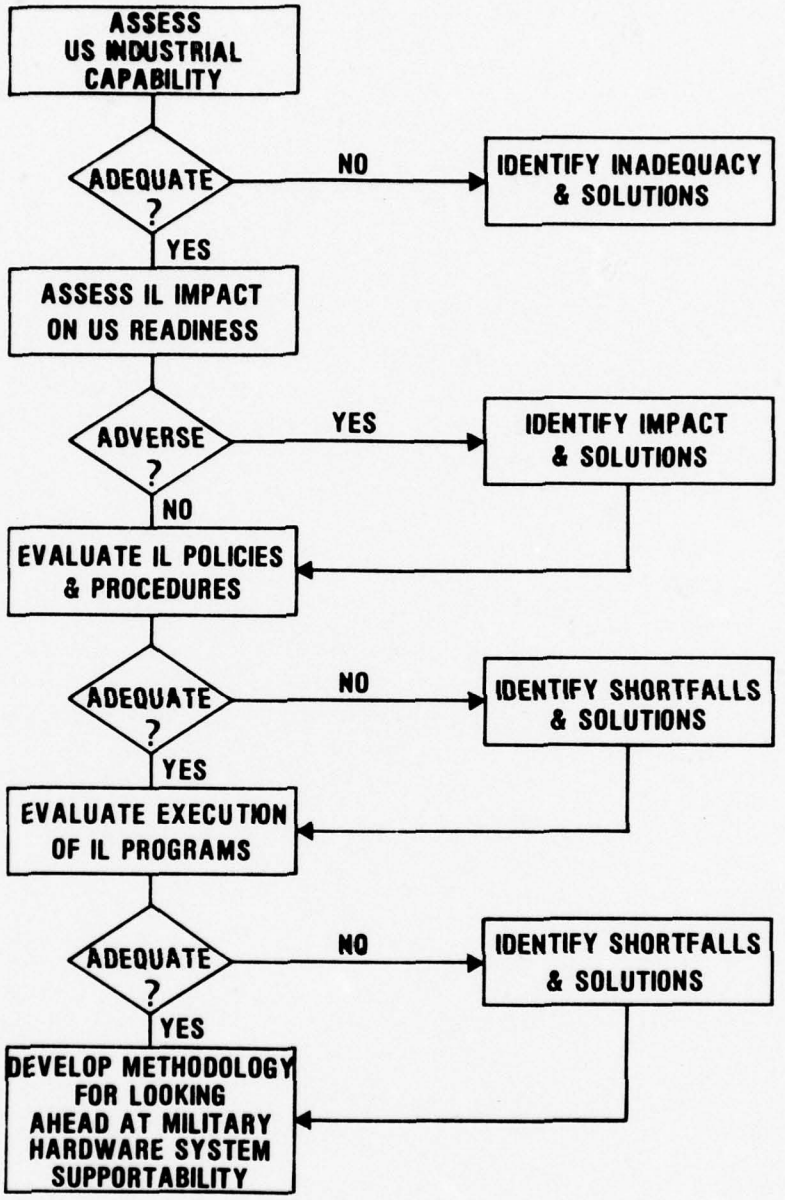


Figure 1

learned in the first four analysis steps were used in developing a method of looking ahead at military hardware system supportability. It was often necessary to repeat steps before making conclusions. Comprehensive recommendations for improvements or corrections are made whenever required.

II. US INDUSTRIAL CAPABILITY

6. General. Adequacy of US industrial capability to satisfy future IL and US repair part requirements was assessed by conducting specific supportability tests on real parts from weapon systems using MSC data and verified with independently obtained US Department of Commerce data. During this process, several case histories of part supportability were developed which identified the basis for popular misconceptions about the adequacy of the US industrial base.

7. Specific Supportability Tests (see Volume III--Section II of Annex B and Appendix B-1).

a. Method. Repair part samples from five critical weapon systems underwent specific supportability tests.

(1) The weapon systems considered are popular among IL customers and represent a wide range of material management and procurement and production environments. The Improved HAWK and TOW were selected from the US Army Missile Command (MICOM). These are low inventory density systems. Thus, any errors in forecasting requirements or production capability have a quick impact on US readiness. The M60 tank

family and M113 armored personnel carrier family were selected from the US Army Tank and Automotive Readiness Command (TARCOM). These systems have higher inventory densities. Forecasting errors here can often be absorbed by cross-leveling worldwide assets to satisfy emergency demands. The AN/VRC-12 FM radio family was selected from the US Army Electronics Command (ECOM). This system becomes less visible when it is included as a component of other systems. In addition, ECOM is challenged by many small business procurement management problems.

(2) Sample repair parts were selected from a listing of weapon system-peculiar, operationally essential US Army-managed repair parts. Final selection was made in an iterative interview process with representatives from MSC's materiel management and procurement and production directorates and its weapon system project manager offices. This is not a pure statistical sample. The selection was biased to include diverse industrial sectors and materiel management problems.

(3) Worst case repair part requirements and industrial capability projections were developed. Demand data were extracted from the Commodity Command Standard System (CCSS) files. Inventory data were obtained from many sources. MSC procurement history files provided production capabilities of known bidders.

b. Findings. The production capability of known US bidders exceeded worst case repair part requirements in each case. In many cases, capability exceeded requirements by 200 percent or more (see

Figure B-4, Volume III). This capability cannot be used, however, unless funds are available at the right time to activate the procurement process.

8. Industry Trend Analysis (see Volume III--Section II of Annex B and Appendix B-2).

a. Method. Assuming MSC estimates might be optimistic, ESG accomplished an independent industry trend analysis. Nineteen industrial sectors from eight industries were analyzed. The US Department of Commerce provided evaluation data. Criteria used to evaluate industry production capability were: value of product shipped, employment rates, number of producers, and capital expenditure rates. The Department of Defense (DOD) portion of sector output was also considered in evaluating US demand flexibility.

b. Findings. All 19 industrial sectors were found capable of satisfying future US repair part requirements. Although technological advances, foreign competition, and other problems cause temporary sector turbulence, no future production capability restrictions were indicated.

9. Misconceptions (see Volume III--Section III of Annex B).

a. Method. A second specific repair part test surfaced causes of misconceptions concerning industrial base adequacy. The second test identified parts expected to go into backorder status within 90 days. Thirty-three of the 63 sample parts were thus classified in short supply. This test result indicated that management problems exist because, ideally, parts should never fall in short supply. Several case histories developed

during this test are presented to identify a variety of production, procurement, and user situations causing short supply conditions. Each case history includes a description of the situation, corrective actions, US supply system impacts, and IL implications.

b. Findings. Misconceptions of US industrial base inadequacy can be traced to misinterpretations of the intricate, delicately balanced, materiel management process. Critical process parameters include requirements forecasting, budget forecasting, timing, and procurement and production activities. Some process imbalances are controllable (e.g., improvement of IL support program designs) and some are uncontrollable (e.g., contractor bankruptcy). Frequently, very specific events causing process imbalances are misinterpreted as indications of a general industrial base inadequacy.

10. Specific Conclusions (see Volume III--Section V of Annex B).

a. US industrial capability is adequate to satisfy peacetime repair part requirements in the FY 77-81 time frame.

b. Popular misconceptions of industrial base inadequacy abound. Misconceptions are caused by misinterpretations of events in the materiel management process.

c. The US procurement process requires that adequate funds be provided at the right time to ensure availability of necessary production capability. Improved forward-looking supply management techniques are required to prevent procurement and production-related problems.

III. IL REPAIR PART SUPPORT PROGRAMS

11. General. Adequacy of IL program policies and procedures to prevent adverse IL impact on support to US forces was assessed in two ways. First, existing and special new IL management indicators were analyzed seeking any objective evidence of IL impacts on support to US forces. Next, conceptual designs and actual execution of IL programs were compared to the US programs (i.e., the base case) to determine if IL caused supply system problems.

12. Impacts on Support to US Forces (see Volume II--Section II of Annex A and Appendix A-2).

a. Method. A two-phased analysis plan was used to make objective conclusions in this area.

(1) First, existing management indicators were reviewed. Readiness indicators used by Office, Deputy Chief of Staff for Operations and Plans (ODCSOPS) and ODCSLOG reflected improving trends since 1975. The US Army Materiel Development and Readiness Command (DARCOM) indicators reflected improving supply performance trends since 1974. The US Army International Logistics Command (USAILCOM) indicators did not provide additional insights. At this point, ESG would have had to conclude that IL did not adversely impact on support to US forces. Improving readiness and supply performance trends indicated expected IL benefits (e.g., larger "hot" production bases, lower unit costs, etc.) were being realized. However, this conclusion could not be verified without analyzing more data.

(2) The second analysis phase was based on special management indicators developed by ESG. Existing indicators were found lacking sensitivity to US supply system funding restrictions. Therefore, ESG indicators stratify supply activity by fund category (i.e., Army Stock Fund (ASF) and secondary item Procurement Appropriations, Army) and customer program category. The first 15 indicators are a simple redisplay of standard Military Supply Transportation Evaluation Procedures (MILSTEP) information. Each of the remaining 14 indicators was designed as an index which directly shows incremental US supply system changes caused by IL. The ESG indicators make IL activity in the US supply system more visible than ever before. As a result, by comparing the intensity of IL activity in the US supply system to logic shortfalls in IL support program designs or execution, more objective conclusions regarding IL impacts on support to US forces can be made. Until visibility is given to each IL program, it is doubtful whether a fully objective measurement procedure can be devised.

b. Findings.

(1) IL has caused problems in repair part support to US forces. Although those problems were not severe enough to reduce US readiness, readiness improvement rates were slowed.

(2) Conclusions on problems IL creates in support to US forces can be made by comparing ESG indicators to key elements of IL support program design. IL creates three types of problems for support to US forces.

(a) US supply system financial flexibility is restrained.

(b) Assets are prematurely released.

(c) Erratic IL demand patterns divert the attention of US supply managers from general management activities to IL-peculiar "fire-fighting."

(3) Current DARCOM and USAILCOM management indicators are not adequate for determining if IL and US customers receive adequate service from the US supply system. MILSTEP documents contain data to prepare additional indicators, but they are not currently used.

(4) MSC level data aggregation is the highest permitting detection of IL impacts on the US supply system. However, fund and IL program category stratification are necessary to detect MSC-level impact. Visibility of IL sales activity on a weapon system basis would vastly improve MSC management effectiveness.

(5) ESG special indicators distilled from existing MILSTEP data are suitable to at least partially meet the FY 79-83 Defense Planning and Programming Guidance Memorandum (PPGM) instruction to link supply performance to funding. (38)[1/]

13. Policies and Procedures (see Volume II--Section III of Annex A, Appendix A-1, and Appendix A-3).

a. Method. Each IL repair part support program was evaluated to determine if it was compatible with the US supply system and other

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1/ Numbers in parentheses refer to bibliographic references in Annex C, Volume III.

IL programs. Evaluation criteria included program objective, requirements determination and assets management, financial management, and performance measurement. The lack of a clear audit trail of changes to outdated FMS regulations complicated this task. Many critical policies or procedures were found inadequate or were not implementable when finally identified and tracked to MSC level.

b. Findings.

(1) Extensive improvements in IL repair part support program designs are possible and desirable (see Figure 2). Specific findings are too numerous for presentation in the main paper. Instead, a summary of the analysis of IL support programs in Volume II, Annex A is presented in paragraph 12c. The summary highlights some program design and execution shortfalls and illustrates how these shortfalls permit IL to adversely impact on support to US forces.

POLICIES & PROCEDURES
POTENTIAL PROGRAM IMPROVEMENTS

	CSP	CLSSA	DEFINED LINE	BOE	CDS
PROGRAM OBJECTIVE	✓		✓	✓	✓
REQUIREMENTS DETERMINATION	✓	✓			
ASSET MANAGEMENT	✓	✓	✓	✓	✓
FINANCIAL MANAGEMENT	✓	✓	✓	✓	✓
• PRICING					
• BUDGETING					
• OBLIGATION AUTHORITY					
PERFORMANCE MEASUREMENT	✓	✓	✓	✓	✓

"✓" indicates a potential for improvement exists.

Figure 2

(2) CDS must be considered an acceptable part of any total support program. Thus, it must be routinely considered within normal supply organizational structures. This requires transferring CDS responsibility from CASA (i.e., a temporary office) to ODCSLOG-DIL (i.e., a permanent staff office) (see Volume II--Appendix A-3).

c. Highlights of support program design shortfalls.

(1) Program objectives.

(a) US support programs are complementary. Initial provisioning is the cornerstone of the US support program. It provides on-hand operating stockage and on-order backup of repair parts, special tools, and ancillary test equipment at user through wholesale supply levels. The "supply pipeline" thus formed is the basis for the US replenishment program. US replenishment programs satisfy routine recurring field unit requirements. A replenishment quantity, described as a requirements objective, is on hand or on order at any time to satisfy these routine demands. Special requirements are considered nonrecurring and "additive" to the requirements objective. "Additive" quantities are procured in addition to routine requirement objective quantities. The US supply pipeline is operational when equipment is deployed. If a demand is generated the day after equipment deployment, an initial stockage part is used and pipeline backup parts move forward.

(b) IL support programs are not designed to complement each other. They are negotiated separately and are not formally combined

into a self-sustaining total support program. Current policy does not require replenishment programs to be operational when equipment is deployed. As a result, there is an immediate break in the supply pipeline if IL equipment is deadlined the day after deployment and an initial stockage part is used.

(2) Requirements determination.

(a) US initial provisioning requirement computations recognize physical constraints of the support environment (e.g., unit geographical distributions, part shelf-life, etc.). The replenishment requirement objective which evolves from the initial provisioning process is automatically adjusted in size when demands, supported inventories, or delivery leadtimes change. Assets for special requirements or to support significant additional equipment deployments are procured in advance in addition to normal requirements objective quantities. US pipeline augmentation is completed before additional demands mature. Thus, programed nonrecurring requirements are satisfied without impact on routine support. Supply system economic constraints, however, often prevent this ideal situation. The supply manager understands and accepts the "risks" associated with these economic restraints.

(b) IL requirement determination problems are related to artificial support program constraints. No historical justification for these constraints was found.

1. Concurrent spare parts (CSP) requirements computations do not consider the physical constraints of the IL customer's support environment. For example, a standard 12 months of supply based on total inventory purchased is offered whether equipment is distributed at 1 or 10 in-country locations. Additionally, quantities are not designed to support customers until replenishment programs are operational. Although the customer may change offered quantities, a USAILCOM representative indicated over 90 percent of accepted CSPs are accepted as offered.

2. Cooperative Logistics Supply Support Agreement (CLSSA) requirements are computed as part of the fully integrated US requirement and budget forecasting process in CCSS. CCSS processes are incompatible with the current policy directing use of an artificially restrained 17 months of supply instead of full requirements objectives and the policy permitting IL customer to change CLSSA values. This results in either using US funds to prefinance IL requirements or in procuring inadequate quantities. Problem severity increases with increasing part leadtime. Related impacts on support to US forces vary by MSC. Figure 3 identifies CLSSA activity intensity in three MSCs and DARCOM overall. MICOM probably receives the most impact because MICOM parts have long leadtimes and small wholesale stockage levels.

3. FMS defined-line or blanket open end agreement (BOE) requirements are determined by the IL customer. The US supply system

% DOLLAR VAL OF REQS BY FUN

MICOM

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	134	143	241	116	121	147
ASF	177	195	274	128	153	186 [1]
PEMA2	123	133	234	112	116	138
U.S. ONLY	100	100	100	100	100	100
ASF	100	100	100	100	100	100
PEMA2	100	100	100	100	100	100
IL ONLY	34	43	141	16	21	47
ASF	77	95	174	28	53	86
PEMA2	23	33	134	12	16	38
IL PROGRAM CATEGORY						
FMS ONLY [2]	25	37	119	11	13	37
ASF	44	74	121	18	21	60
PEMA2	20	30	118	9	12	31
SSA ONLY	9	5	20	3	7	9
ASF	33	19	47	6	31	36
PEMA2	3	3	14	2	3	5
GA ONLY	0	0	1	0	0	0
ASF	0	1	6	2	0	0
PEMA2	0	0	0	0	0	0

1/ Example: In 1Q FY 77, IL increased the value of MICOM demands for ASF-funded repair parts by 86 percent over the value that would have been received from US forces only.

2/ "FMS Only" includes all CSPs, BOEs, and defined-line sales cases. This "rollup" obscures individual program performance. Unfortunately, this is the only way these data are presently stored in MILSTEP files.

DRC

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	115	121	130	115	115	119
ASF	119	135	134	121	116	119
PEMA2	111	112	127	109	114	119
U.S. ONLY	100	100	100	100	100	100
ASF	100	100	100	100	100	100
PEMA2	100	100	100	100	100	100
IL ONLY	15	21	30	15	15	19
ASF	19	35	54	21	16	19
PEMA2	11	12	27	9	14	19
IL PROGRAM CATEGORY						
FMS ONLY	9	13	23	9	10	12
ASF	11	18	24	13	10	9
PEMA2	7	9	22	6	11	15
SSA ONLY	4	6	5	4	3	5
ASF	6	13	7	6	5	8
PEMA2	2	2	4	2	2	3
GA ONLY	1	2	1	1	0	1
ASF	1	3	1	1	0	1
PEMA2	1	0	0	1	0	0

DEMAND INDEX 2
OF REQS BY FUND CAT (US ONLY BASE)

1Q77	ECOM	1Q76	2Q76	3Q76	4Q76	7T	1Q77
	CUSTOMER CATEGORY						
147	TOTAL MSC	111	108	114	106	136	111
186 1/	ASF	132	118	123	107	132	113
108	PEMA2	103	104	102	103	143	109
100	U.S. ONLY	100	100	100	100	100	100
100	ASF	100	100	100	100	100	100
100	PEMA2	100	100	100	100	100	100
47	IL ONLY	11	8	14	6	36	11
86	ASF	32	18	23	7	32	13
38	PEMA2	3	4	2	3	43	9
	IL PROGRAM CATEGORY						
37	FMS ONLY	9	6	12	6	34	8
60	ASF	27	15	21	6	30	10
31	PEMA2	1	2	1	2	42	6
9	SSA ONLY	1	1	1	0	1	2
36	ASF	3	2	1	0	1	2
5	PEMA2	1	1	0	1	0	3
0	GA ONLY	0	0	0	0	0	0
0	ASF	1	1	0	0	1	0
0	PEMA2	0	0	0	0	0	0

percent over
dual program

1Q77	TACOM	1Q76	2Q76	3Q76	4Q76	7T	1Q77
	CUSTOMER CATEGORY						
	TOTAL MSC	127	148	136	142	114	133
	ASF	123	151	136	141	110	122
	PEMA2	133	142	137	142	129	160
119	U.S. ONLY	100	100	100	100	100	100
119	ASF	100	100	100	100	100	100
119	PEMA2	100	100	100	100	100	100
100	IL ONLY	27	48	36	42	14	33
100	ASF	23	51	36	41	10	22
100	PEMA2	33	42	37	42	29	60
19	IL PROGRAM CATEGORY						
19							
19	FMS ONLY	13	21	24	22	8	20
	ASF	9	17	25	20	5	8
	PEMA2	20	29	23	25	24	48
12	SSA ONLY	11	20	9	17	4	11
9	ASF	12	25	8	19	4	11
15	PEMA2	9	10	11	13	3	8
5	GA ONLY	2	6	2	2	0	2
8	ASF	1	8	2	1	0	2
3	PEMA2	3	2	2	3	1	2
1							
1							
0							

Figure 3

recognizes them when the defined-line case is signed or the BOE requisition is submitted. These programs are not formally integrated with other IL programs to form a complementary total support program as they should be.

(3) Asset management.

(a) US replenishment assets are placed in a general purpose account. All authorized customers may draw from this account. Supply managers release assets based on the urgency of the requisition issue priority designator (IPD). Other program assets are reserved in special ownership purpose codes until needed. General purpose stocks are sometimes diverted to fill other program requirements because of severe penalties encountered (e.g., delayed deployment or depot work stoppage) when these demands are not satisfied. These diversions can cause short duration supply turbulence until assets purchased for the special program are delivered.

(b) IL asset management policies vary by program. All IL assets, however, are placed in US general purpose accounts unless special reservation actions are taken.

1. A CSP, FMS defined-line or BOE customer theoretically must wait a full delivery leadtime before receiving assets unless adequate US assets are available to permit early release. Asset release is controlled by a commitment required delivery date (CRDD) established at MSC level. If the "extra" assets purchased for the IL

customer are not delivered by the CRDD, IL and US demands compete on an equal IPD basis for available assets. Standard procedures for the critical CRDD determination process are not, however, used at MSC level. As a result, IL customers often receive early CRDDs. Additionally, MICOM just discovered a CCSS logic flaw that permits early release of BOE demands. The extent of this premature asset release problem can be identified by observing the business intensity of CSP, BOE, and other defined-line programs in the US supply system. This business intensity is shown in Figure 4. The figure displays data on ECOM, MICOM, TARCOM, and a DARCOM summation to illustrate how IL effects vary by MSC and are often obscured when data are aggregated. US readiness was not, however, reduced because CRDDs are normally only a few months too short. Thus, supply managers can control asset releases until the "additional" assets bought for the IL customers replenish the general purpose asset account.

2. CLSSA asset management problems decrease as case age increases. IL access to US assets must be restrained only while the case is maturing. After case maturity, IL and US customers receive assets on an equal IPD basis. Artificial time restraints on the maturing process and general nonimplementability of current policies in this area permit premature and, in some cases, immediate asset release. Thus, the US supply system must often wait a full delivery leadtime to replace this asset instead of just the few months delay which occurs in other IL programs. The extent of this premature asset release problem

DEMAND INDEX 4

IL ONLY AVG $ VAL DUE NOW / US ON

MICOM

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	92	93	96	90	93	97
ASF	112	106	123	91	110	106
PEMA2	93	101	95	101	99	105
U.S. ONLY	100	100	100	100	100	100
ASF	100	100	100	100	100	100
PEMA2	100	100	100	100	100	100
IL ONLY	66	72	87	44	58	88
ASF	144	122	173	65	148	127
PEMA2	63	109	82	130	88	155
IL PROGRAM CATEGORY						
FMS ONLY 1/	72	70	72	80	63	118
ASF	125	97	142	125	88	129
PEMA2	55	107	56	202	166	165
SSA ONLY	61	85	106	59	56	70
ASF	160	201	201	81	175 2/	132
PEMA2	103	113	121	94	64	144
GA ONLY	60	23	54	5	46	59
ASF	95	44	157	13	111	10
PEMA2	156	136	112	45	146	131

1/ "FMS Only" includes all CSPs, BOEs, and defined-line sales cases. This "rollup" obscures individual program performance. Unfortunately, this is the only way these data are presently stored in MILSTEP files.

2/ Example: In FY 7T, IL CLSSA requisitions for ASF-funded repair parts had an average value equal to 175 percent of the average value of a US ASF requisition. In both cases the requisitions require immediate release of assets.

DRC

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	105	107	107	105	105	105
ASF	106	115	115	108	105	107
PEMA2	102	101	98	104	107	103
U.S. ONLY	100	100	100	100	100	100
ASF	100	100	100	100	100	100
PEMA2	100	100	100	100	100	100
IL ONLY	206	245	208	183	207	187
ASF	247	396	326	229	200	219
PEMA2	132	130	89	246	264	165
IL PROGRAM CATEGORY						
FMS ONLY	193	221	217	198	293	130
ASF	202	276	375	249	231	129
PEMA2	108	141	70	334	503	172
SSA ONLY	218	324	231	239	172	289
ASF	305	609	316	324	219	391
PEMA2	181	128	116	214	101	166
GA ONLY	214	174	112	82	97	169
ASF	204	325	151	72	88	172
PEMA2	171	88	109	153	238	137

DEMAND INDEX 4
VAL DUE NOW / US ONLY AVG $ VAL DUE NOW

7T	1Q77	ECOM	1Q76	2Q76	3Q76	4Q76	7T	1Q77
		CUSTOMER CATEGORY						
93	97	TOTAL MSC	102	101	110	102	134	107
110	106	ASF	107	109	118	101	130	107
99	105	PEMA2	100	99	100	101	140	106
100	100	U.S. ONLY	100	100	100	100	100	100
100	100	ASF	100	100	100	100	100	100
100	100	PEMA2	100	100	100	100	100	100
58	88	IL ONLY	179	153	479	156	1468	312
148	127	ASF	360	349	697	149	1256	335
88	155	PEMA2	109	75	165	171	2039	312
		IL PROGRAM CATEGORY						
63	118	FMS ONLY	202	226	985	271	3192	434
88	129	ASF	405	523	1409	258	2813	466
166	165	PEMA2	145	124	310	274	3760	568
56	70	SSA ONLY	177	115	125	58	141	225
175 2/	132	ASF	325	181	148	36	161	183
64	144	PEMA2	122	95	155	465	122	276
46	59	GA ONLY	123	58	88	31	142	98
111	10	ASF	276	171	93	28	191	152
146	131	PEMA2	55	17	82	40	54	45

res individual program
les.
alue equal to 175 percent
release of assets.

7T	1Q77	TACOM	1Q76	2Q76	3Q76	4Q76	7T	1Q77
		CUSTOMER CATEGORY						
		TOTAL MSC	117	128	116	122	104	110
		ASF	113	129	115	118	101	110
		PEMA2	123	125	116	128	115	110
105	105	U.S. ONLY	100	100	100	100	100	100
105	107	ASF	100	100	100	100	100	100
107	103	PEMA2	100	100	100	100	100	100
100	100	IL ONLY	561	788	369	513	187	261
100	100	ASF	454	797	354	432	136	267
100	100	PEMA2	599	511	309	535	351	297
207	187							
200	219	IL PROGRAM CATEGORY						
264	165							
		FMS ONLY	444	646	292	379	190	101
		ASF	242	396	296	269	74	98
		PEMA2	599	656	283	561	468	237
233	130	SSA ONLY	702	1109	712	979	239	694
231	129	ASF	742	1385	633	990	248	755
503	172	PEMA2	576	529	600	792	205	422
172	289	GA ONLY	659	598	228	264	85	391
219	391	ASF	491	779	218	142	75	314
101	166	PEMA2	674	178	112	215	137	195
97	169							
88	172							
238	137							

Figure 4

2

can be evaluated by observing CLSSA business intensity in the US supply system. This business intensity is shown in Figures 3 and 4.

(4) Financial management.

(a) US budgets are stratified by funds needed to buy US Army requirements and funds needed to buy other customer (i.e., US and IL) requirements. If the US Army does not receive accurate and timely reimbursement for customer orders, its own financial flexibility is restrained and requirements programed for US forces cannot be procured. Theoretically, MSC customer order control points (COCP) ensure proper reimbursements.

(b) IL financial management problems impact on the US supply system in several ways. First, CLSSA incompatibilities with integrated US requirements and budget forecasting processes must be mentioned again. These problems are so severe that in December 1976 MICOM stopped buying CLSSA pipeline stocks for new CLSSA cases, new systems added to current cases, plus all CLSSA pipeline in excess of a 17-month requirement. New Comptroller instructions in this area provide only a partial problem solution. Second, time consumed in COCP operations is not considered in CRDD determinations. This aggravates premature asset release problems. Also, until overall COCP operations are declared efficient (i.e., a May 1976 US Army Audit Agency (USAAA) audit cited inefficiencies in COCP operations), the US may be receiving inadequate reimbursement for customer orders. In February 1977, a DARCOM internal audit team started

a followup review of these COCP operations. CLSSA-generated US supply system financial restrictions severity can be evaluated by reviewing the intensity of CLSSA business in the US supply system. That intensity is shown in the "SSA Only" line of the ESG indicators. Financial restriction and premature asset release problems possibly developing from COCP operations can be evaluated by comparing all IL business in the "IL Only" line of the ESG indicators (see Figures 3 and 4).

(5) Performance measurement.

(a) US supply performance is measured against MILSTEP criteria. Specific programs are monitored by program managers. The clearest indications of supply system activity are obtained by stratifying indicators by fund category and not aggregating data above MSC level. This permits evaluators to appreciate effects of operational restraints inherent in each fund category and to appreciate peculiar MSC management environments. Although this level of data is available in MILSTEP, current displays are more highly aggregated. This aggregation reduces the effectiveness of many indicators.

(b) IL performance measurement is difficult to accomplish because IL activity cannot be fully stratified by program. For example, the data ESG used to develop special indicators were obtainable only with CSP, BOE, and other defined-line cases rolled up into an "FMS" line. However, the ESG indicators still vastly increased present visibility of IL activity in the US supply system. For example, information

shown in Figures 5, 6, and 7 was the basis for the conclusion that IL diverts US supply managers' attention from general management operations to IL-peculiar firefighting.

14. Functional Responsibility (see Volume II--Section III of Annex A and Appendix A-3).

a. Method. Responsibility for execution of IL support programs was examined by reviewing FMS contract preparation procedures from MSC level up to USAILCOM level. Emphasis was placed on methods used to integrate individual programs into total support programs.

b. Findings.

(1) Specific repair part support programs are not currently designed to satisfy each IL customer's needs on a weapon system basis. This can be practically performed only at MSC level. Additionally, all FMS and CDS programs are not now considered in formulation of total support programs.

(2) Responsibility for support programs is scattered in several offices and at different supply levels. Additionally, non-standard procedures are used in program development processes. These conditions prevent formation of comprehensive total repair part support programs and obscure IL program management information.

(3) Sources for IL program policies and procedures are scattered. This results in policy statements that restrain the operational flexibility of supply managers or are not implementable.

DEMAND INDEX
IL ONLY REQS MAN PROC / US

MICOM

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	146	192	673	146	176	263
ASF	163	240	711	203	186	351
PEMA2	132	147	631	108	168	195
U.S. ONLY	100	100	100	100	100	100
ASF	100	100	100	100	100	100
PEMA2	100	100	100	100	100	100
IL ONLY	47	94	578	46	78	167
ASF	63	144	618	104	89	257 1/
PEMA2	32	47	533	8	69	97
IL PROGRAM CATEGORY						
FMS ONLY 2/	35	83	548	16	55	143
ASF	42	127	575	35	52	215 1/
PEMA2	29	41	516	4	56	86
SSA ONLY	11	9	26	9	23	19
ASF	21	14	37	20	36	32
PEMA2	3	5	15	3	13	9
GA ONLY	0	0	2	19	0	4
ASF	0	1	5	49	0	8
PEMA2	0	0	0	0	0	1

1/ Example: In 1Q FY 77, IL FMS requisitions for ASF-funded repair parts caused a 215 percent increase in MSC ASF manual processing workload over what would have been expected from US forces. Total IL impact resulted in a 257 percent increase in MSC workload.

2/ "FMS Only" includes all CSPs, BOEs, and defined-line sales cases. This "rollup" obscures individual program performance. Unfortunately, this is the only way these data are presently stored in MILSTEP files.

DRC

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	129	133	204	137	133	159
ASF	132	139	191	146	137	166
PEMA2	117	116	249	107	125	140
U.S. ONLY	100	100	100	100	100	100
ASF	100	100	100	100	100	100
PEMA2	100	100	100	100	100	100
IL ONLY	29	34	107	38	34	61
ASF	32	40	93	48	37	68
PEMA2	17	17	151	7	26	42
IL PROGRAM CATEGORY						
FMS ONLY	19	23	92	22	20	49
ASF	21	26	77	28	20	55
PEMA2	15	14	144	4	19	34
SSA ONLY	7	5	9	7	9	8
ASF	9	6	10	9	11	9
PEMA2	1	2	5	1	5	5
GA ONLY	1	5	4	7	4	2
ASF	2	7	5	10	5	3
PEMA2	0	0	1	1	1	1

DEMAND INDEX 7
MAN PROC / US ONLY REQS MAN PROC

ECOM

1Q77		1Q76	2Q76	3Q76	4Q76	7T	1Q77
	CUSTOMER CATEGORY						
263	TOTAL MSC	108	107	109	114	109	130
351	ASF	110	109	111	117	109	144
195	PEMA2	105	104	103	107	108	119
100	U.S. ONLY	100	100	100	100	100	100
100	ASF	100	100	100	100	100	100
100	PEMA2	100	100	100	100	100	100
167	IL ONLY	8	7	9	15	9	32
257 1/	ASF	10	10	12	18	9	44
97	PEMA2	5	4	3	8	8	20
	IL PROGRAM CATEGORY						
143	FMS ONLY	7	5	4	8	4	16
215 1/	ASF	8	7	5	10	4	24
86	PEMA2	4	2	1	4	5	9
19	SSA ONLY	0	1	3	3	3	11
32	ASF	0	1	4	3	4	18
9	PEMA2	0	0	1	1	2	6
4	GA ONLY	1	0	1	3	1	3
8	ASF	1	0	2	3	1	2
1	PEMA2	0	0	0	2	1	4

ease in MSC
ted in a 257

idual program

TACOM

1Q77		1Q76	2Q76	3Q76	4Q76	7T	1Q77
	CUSTOMER CATEGORY						
1Q77	TOTAL MSC	215	192	298	203	173	168
	ASF	277	222	375	233	202	220
	PEMA2	110	111	117	112	109	107
	U.S. ONLY	100	100	100	100	100	100
159	ASF	100	100	100	100	100	100
166	PEMA2	100	100	100	100	100	100
140	IL ONLY	119	97	204	102	76	90
100	ASF	177	129	282	133	100	119
100	PEMA2	10	11	16	12	9	7
100	IL PROGRAM CATEGORY						
61	FMS ONLY	88	63	168	86	52	83
68	ASF	130	84	234	113	69	111
42	PEMA2	7	7	10	7	6	3
	SSA ONLY	29	12	12	12	9	5
49	ASF	43	15	15	16	12	6
55	PEMA2	2	2	2	1	1	2
34	GA ONLY	2	21	23	3	14	0
8	ASF	2	29	32	4	19	0
9	PEMA2	0	1	3	2	1	1
5							
2							
3							
1							

Figure 5

DEMAND INDE
IL ONLY REQS MGT CONT / US
(BY FUND CA

MICOM

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	109	120	133	117	124	131
ASF	111	123	144	127	123	143
PEMA2	106	116	123	108	126	120
U.S. ONLY	100	100	100	100	100	100
ASF	100	100	100	100	100	100
PEMA2	100	100	100	100	100	100
IL ONLY	8	20	31	16	24	30
ASF	10	22	41	26	22	42
PEMA2	6	16	23	8	25[1/]	19
IL PROGRAM CATEGORY						
FMS ONLY[2/]	3	12	12	9	6	10
ASF	4	16	21	18	7	15
PEMA2	2	8	5	2	5	5
SSA ONLY	5	6	17	5	17	15
ASF	6	6	17	5	14	17
PEMA2	3	8	16	4	19[1/]	12
GA ONLY	0	0	1	1	0	4
ASF	0	0	1	2	0	8
PEMA2	0	0	0	0	0	1

1/ Example: In FY 7T, 1L CLSSA requisitions for PEMA2-funded repair parts caused a 19 percent increase in the MSC PEMA2 manual processing workload by reason of management control of parts in critical supply over what would have been expected from US forces. The total IL impact resulted in a 25 percent increase in the PEMA2 category.

2/ "FMS Only" includes all CSPs, BOEs, and defined-line sales cases. This "rollup" obscures individual program performance. Unfortunately, this is the only way these data are presently stored in MILSTEP files.

DRC

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	107	107	107	105	107	109
ASF	108	107	106	105	106	108
PEMA2	105	107	110	105	112	111
U.S. ONLY	100	100	100	100	100	100
ASF	100	100	100	100	100	100
PEMA2	100	100	100	100	100	100
IL ONLY	7	6	8	5	8	8
ASF	7	6	8	5	6	8
PEMA2	5	7	10	5	12	11
IL PROGRAM CATEGORY						
FMS ONLY	1	3	3	3	3	4
ASF	1	3	4	3	2	3
PEMA2	2	3	2	2	4	5
SSA ONLY	4	2	4	1	4	4
ASF	4	2	3	1	2	3
PEMA2	2	3	6	1	6	5
GA ONLY	0	0	0	1	0	1
ASF	0	0	0	1	0	1
PEMA2	0	0	0	1	1	1

DEMAND INDEX 8
S MGT CONT / US ONLY REQS MGT CONT
(BY FUND CAT)

ECOM

1Q77		1Q76	2Q76	3Q76	4Q76	7T	1Q77
	CUSTOMER CATEGORY						
131	TOTAL MSC	103	103	102	104	105	106
143	ASF	103	102	102	103	101	104
120	PEMA2	101	103	102	105	108	108
100	U.S. ONLY	100	100	100	100	100	100
100	ASF	100	100	100	100	100	100
100	PEMA2	100	100	100	100	100	100
30	IL ONLY	3	2	2	4	5	6
42	ASF	3	2	2	3	1	2
19	PEMA2	1	3	3	5	8	9
	IL PROGRAM CATEGORY						
10	FMS ONLY	1	1	0	2	3	5
15	ASF	1	1	0	1	0	1
5	PEMA2	1	2	0	4	5	6
15	SSA ONLY	0	0	1	0	1	0
17	ASF	0	0	1	0	0	0
12	PEMA2	0	0	2	0	1	0
4	GA ONLY	1	0	0	0	0	0
8	ASF	1	0	0	0	0	0
1	PEMA2	0	0	0	0	0	1

increase in the MSC
t would have been
.
ividual program

TACOM

1Q77		1Q76	2Q76	3Q76	4Q76	7T	1Q77
	CUSTOMER CATEGORY						
	TOTAL MSC	131	113	115	107	112	103
	ASF	168	120	105	107	106	107
	PEMA2	107	107	109	108	106	105
	U.S. ONLY	100	100	100	100	100	100
	ASF	100	100	100	100	100	100
	PEMA2	100	100	100	100	100	100
	IL ONLY	32	11	10	7	7	5
	ASF	70	15	10	6	7	5
	PEMA2	7	7	9	8	6	5
	IL PROGRAM CATEGORY						
	FMS ONLY	4	3	5	4	3	2
	ASF	4	3	5	3	3	2
	PEMA2	4	3	4	5	3	1
	SSA ONLY	27	7	2	2	2	1
	ASF	64	11	2	2	2	1
	PEMA2	2	2	2	1	1	2
	GA ONLY	0	0	2	1	1	0
	ASF	0	1	1	0	0	0
	PEMA2	0	0	2	1	1	0

Figure 6

2

PERCENT OF REQUISITIONS MANU
MANAGEMENT CON

MICOM

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	26.7	14.3	9.4	15.6	18.1	17.1
ASF	20.7	12.3	7.6	12.0	13.1	13.2
PEMA2	41.0	18.7	12.1	22.4	26.8	25.1
U.S. ONLY	33.2	16.0	18.8	16.5	19.3	20.6
ASF	26.2	14.4	13.1	12.8	14.3	15.6
PEMA2	47.8	19.1	29.3	22.0	27.6	29.1
IL ONLY	8.0	9.2	3.5	11.5	14.2	10.7
ASF	6.9	7.4	3.7	9.4	9.2	9.5
PEMA2	12.2	16.9	3.4	28.6	23.7	14.4
IL PROGRAM CATEGORY						
FMS ONLY 1/	5.4	7.7	1.6	18.5	6.6	5.0
ASF	5.2	7.0	2.3	18.3	6.4	5.1
PEMA2	5.7	10.2	0.9	19.6	6.8	4.6
SSA ONLY	11.8	15.5	16.7	14.1	25.2	22.2
ASF	8.5	9.1	10.0	8.9	11.7	13.9
PEMA2	61.3	53.0	39.2	35.4	91.5 2/	90.9
GA ONLY	10.4	6.8	9.1	3.0	7.1	78.3
ASF	11.4	5.4	6.4	2.3	7.7	79.0
PEMA2	0.0	41.7	43.1	52.4	0.0	74.2

1/ "FMS Only" includes all CSPs, BOEs, and defined-line sales cases. This "rollup" obscures individual program performance. Unfortunately, this is the only way these data are presently stored in MILSTEP files.

2/ Example: In FY 7T, 91.5 percent of CLSSA requisitions for PEMA2-funded parts were manually processed for reasons of management control of critical items.

DRC

	1Q76	2Q76	3Q76	4Q76	7T	1Q77
CUSTOMER CATEGORY						
TOTAL MSC	6.4	4.7	4.8	5.4	5.4	5.4
ASF	5.1	3.7	3.6	4.2	3.7	3.8
PEMA2	23.4	18.1	17.4	21.7	30.4	27.0
U.S. ONLY	6.3	4.7	5.1	5.5	5.4	5.4
ASF	5.0	3.7	3.8	4.3	3.7	3.8
PEMA2	24.0	18.1	23.9	21.4	29.9	27.7
IL ONLY	7.1	4.6	3.1	4.2	6.3	5.5
ASF	6.3	3.5	2.6	3.2	3.3	3.7
PEMA2	15.8	17.6	4.7	29.7	35.2	22.0
IL PROGRAM CATEGORY						
FMS ONLY	3.5	4.1	1.8	4.0	5.1	3.4
ASF	2.7	3.1	1.9	3.2	2.9	2.2
PEMA2	9.4	14.0	1.5	29.4	18.8	12.3
SSA ONLY	12.4	7.1	8.4	5.1	9.5	10.4
ASF	11.3	5.3	4.9	3.7	4.5	6.2
PEMA2	34.3	31.4	40.2	33.7	84.8	70.0
GA ONLY	9.1	2.7	3.2	3.9	3.5	11.5
ASF	7.3	2.2	2.3	2.9	1.7	9.3
PEMA2	28.4	11.4	23.3	25.3	61.7	41.2

REQUISITIONS MANUALLY PROCESSED FOR MANAGEMENT CONTROL

ECOM

T 1977		1Q76	2Q76	3Q76	4Q76	TT	1Q77
	CUSTOMER CATEGORY						
17.1	TOTAL MSC	6.1	8.2	9.5	6.2	8.7	5.8
13.2	ASF	5.8	7.6	8.2	5.4	4.5	2.7
25.1	PEMA2	6.7	9.7	14.0	8.6	21.5	15.5
20.6	U.S. ONLY	6.1	8.3	9.6	6.2	8.5	5.7
15.6	ASF	5.8	7.8	8.3	5.5	4.6	2.7
29.1	PEMA2	6.8	9.7	13.8	8.3	20.3	14.8
10.7	IL ONLY	5.5	5.3	8.7	5.4	15.1	9.0
9.5	ASF	5.8	3.8	6.0	3.3	1.8	1.5
14.4	PEMA2	4.4	10.8	28.9	20.0	68.1	35.2
	IL PROGRAM CATEGORY						
5.0	FMS ONLY	6.3	7.3	5.6	5.6	18.6	11.1
5.1	ASF	5.5	4.6	4.0	2.6	1.8	1.4
4.6	PEMA2	10.3	24.5	23.9	38.0	79.3	54.1
22.2	SSA ONLY	0.5	3.2	14.1	4.8	12.7	3.7
13.9	ASF	0.7	2.6	8.0	4.2	2.2	1.6
90.9	PEMA2	0.0	4.9	65.8	14.9	58.4	10.9
78.3	GA ONLY	11.0	3.1	7.1	5.4	9.0	10.7
79.0	ASF	17.0	3.2	8.4	5.0	1.3	2.3
74.2	PEMA2	1.5	3.0	3.1	6.2	44.8	23.1

2/

individual program

y processed for

TACOM

T 1977		1Q76	2Q76	3Q76	4Q76	TT	1Q77
	CUSTOMER CATEGORY						
	TOTAL MSC	1.5	1.4	1.5	1.7	1.9	2.2
	ASF	0.8	0.8	0.8	1.1	1.2	1.5
	PEMA2	46.3	45.7	48.4	52.3	54.6	59.5
5.4	U.S. ONLY	1.2	1.3	1.4	1.7	1.8	2.3
3.8	ASF	0.5	0.7	0.8	1.1	1.2	1.5
27.0	PEMA2	45.9	45.9	48.8	52.6	55.5	60.2
5.4	IL ONLY	7.8	2.9	1.8	1.8	2.0	1.5
3.8	ASF	7.0	2.1	1.0	1.0	1.3	1.0
27.7	PEMA2	52.6	42.0	44.6	48.1	43.9	49.4
5.5	IL PROGRAM CATEGORY						
3.7							
22.0							
	FMS ONLY	1.8	1.8	1.4	1.5	1.9	1.0
	ASF	0.8	1.0	0.8	0.7	1.1	0.7
	PEMA2	51.8	37.3	39.0	50.8	38.4	39.7
3.4	SSA ONLY	20.5	6.4	2.8	2.4	2.5	2.8
2.2	ASF	19.9	5.3	1.6	1.8	1.9	1.6
12.3	PEMA2	58.5	69.6	56.9	37.9	51.4	65.9
10.4	GA ONLY	1.8	1.0	2.3	2.4	1.7	3.7
6.2	ASF	1.0	0.7	0.9	0.9	1.0	2.3
70.0	PEMA2	40.0	22.0	47.7	50.0	62.5	43.4
11.5							
9.3							
41.2							

Figure 7

2

15. Specific Conclusions.

a. IL has created problems in repair part support to US forces. Although those problems were not severe enough to reduce US readiness, readiness improvement rates were slowed.

b. IL repair part program management improvements are possible and desirable for reducing adverse IL impacts on support to US forces. Areas requiring improvements are support program designs, functional responsibility assignments, and management information.

c. Improvements can be readily made using existing resources.

IV. MILITARY HARDWARE SYSTEM SUPPORTABILITY

16. General. ESG learned many lessons about materiel management, procurement and production processes, and IL and US support program designs while executing the first four steps in this analysis. This information was applied towards developing a method for looking ahead at military hardware system supportability.

17. Supportability Assessment Methods (see Volume III--Section IV of Annex B and Appendix B-1).

a. Method. The study analyzed existing methods of assessing the future supportability of military hardware systems (see Figure 8). Each analysis presents the background, strengths, weaknesses, and an overall evaluation of the specific method. Recommendations for improvement of individual programs or integration of several programs are presented.

EVALUATION OF EXISTING METHODS

METHOD	EVALUATION	COMMENT
SPECIAL		
1974 HAWK STUDY	VERY GOOD	GOOD TRANSITION FROM WEAPON SYSTEM TO SUPPLY SYSTEM PROBLEMS EXPLOITED AT MICOM
AUTOMATED		
MICOM VISIBILITY	BRILLIANT	ADOPT DARCOM-WIDE ASAP
RECURRING		
DARCOM SYSTEM ASSESSMENT (RED TEAM)	GOOD	INCREASE IL INPUT TURN FOCUS TO FUTURE TRANSITION FROM WEAPON SYSTEM TO SUPPLY SYSTEM PROBLEMS
DARCOM RECAP	GOOD	HIGHLY AGGREGATED NOT FOR WORKING-LEVEL USE
DARCOM PROMS	SOUNDS GOOD a/	GIVE FUTURE FAIR TREATMENT

a/ *PROMS (Procurement Management System) was not fully implemented at the time this study was written.*

Figure 8

b. Findings.

(1) Existing methods for looking ahead at military hardware system supportability are not being exploited. For example, over 70 individual systems assessments have been performed, but DARCOM has not performed a comprehensive overview assessment directed at improving the total supply system.

(2) The MICOM visibility forecast is a brilliant management aid. It should be immediately adopted DARCOM wide. Visibility is fully automated and integrated into CCSS. No additional resources or external inputs are required. It forecasts asset shortfalls for 15-24 months, thus forcing audits of CCSS data and permitting corrective management action before short supply develops. Additionally, it has a "what if" option which could be used to develop impact statements. Visibility is an exceptionally effective vehicle for assessing military hardware system supportability in the near term (0-2 years).

(3) The DARCOM annual system assessment program can be easily used to conduct a mid-term (2-5 year) supportability assessment. Report orientation must, however, be changed from historical reporting to forward-looking planning.

18. Specific Conclusion. The US Army can improve its ability to look ahead at a military hardware system supportability by exploiting existing methods.

V. PRIMARY RECOMMENDATIONS

19. Align US and IL Program Designs (see Volume II--Section IV of Annex A and Appendix A-1).

a. General. This critical task reflects the central theme developed during this study; i.e., "Applying standard US supply management principles to IL programs prevents IL-related US supply system problems."

Artificial program constraints must be removed to accomplish this task. This concept change eliminates final traces of Military Assistance Program (MAP)-oriented thinking from IL programs. IL programs will thus be fully compatible with the US Army standard supply system.

b. Specific. Volume II--Section IV of Annex A presents comprehensive recommendations for this task. ODCSLOG-DIL should establish an expert IL repair part policy-making panel to expeditiously exploit these recommendations. Special attention should be placed on resolving CLSSA problems. Panel members should be drawn from all supply levels to ensure revised policies are implementable. Comptroller representatives to the panel should advise on audit trail adequacy and legality of reimbursements. The program manager's preeminence will thus be recognized.

20. Build Total Support Programs from the Bottom Up (see Volume II--Sections IV and V of Annex A).

a. General. Total support programs should be established on a weapon system basis. This policy gives US supply managers specific visibility of IL activity in the US supply system. In addition, it extends a reasonable level of financial flexibility to IL customers by permitting use of different support programs for different weapon systems. The total support program must be formed at MSC level where there is the technical expertise to form a total program. The overall monitorship of each IL customer's involvement in the US supply system should remain at USAILCOM. Finally, ODCSLOG should be concerned with designing support

system policies and procedures and not being involved in day-to-day IL program operations.

b. Specific. ODCSLOG adoption of the FMS management plan concept described in Volume II--Section IV of Annex A will expedite implementation of this recommendation. The FMS management plan concept is a simple adaptation of reverse planning to ensure appropriate support is available when the end item is deployed. The IL policy panel must ensure policies are compatible with this FMS management plan concept.

21. Consolidate IL Management Responsibilities (see Volume II--Sections IV and V of Annex A).

a. General. Many current IL program management problems can be solved by consolidating IL program management responsibilities. Placing IL policy responsibility in one office and publishing policies in one document will prevent release of incomplete or conflicting guidance to field organizations. Individual policy elements can then no longer be changed without realizing impacts on the total support system. Procedural standardization and centralized responsibility for total weapon systems support programs will further improve overall management of IL repair part sales activities.

b. Specific. Strong ODCSLOG-DIL control of the IL policy panel will naturally place responsibility for IL program policies in one office. These policies should be published in an Army Military Assistance and Sales Manual (AMASM). This creates a central policy reference document

which prevents future fragmentation of IL policy and reduces duplication of regulations at ODCSLOG and DARCOM. Finally, after ODCSLOG ensures policies are implementable, USAILCOM can publish a standard procedural guide that is fully compatible with the US supply system. This prevents MSC operational mistakes.

22. Conduct Joint IL and US Management Reviews (see Volume II--Sections IV and V of Annex A and Appendix A-2).

a. General. The 1975 Chief of Staff, US Army (CSA)-sponsored Army Security Assistance study created institutional visibility of IL. (77) However, appropriate IL management visibility for repair part programs never developed. ODCSLOG must now ensure this occurs.

b. Specific. Conducting joint IL and US management reviews permits both US and IL program managers to appreciate where IL activity is concentrated in the US supply system. This insight permits definite management actions to prevent IL from adversely impacting on support to US forces. The ESG special indicators will be a great help in conducting such reviews and improving US supply management indicators overall.

23. Exploit the MICOM Visibility Forecast and DARCOM Systems Assessments (see Volume III--Sections IV and V of Annex B and Appendix B-1).

a. General. These existing methods of assessing the future supportability of military hardware system supportability should be exploited. The MICOM visibility forecast provides an excellent near-term (0-2 year) assessment capability with a powerful "what if" option.

Combining both methods provides an excellent mid-term (2-5 year) assessment capability.

b. Specific. The MICOM visibility forecast should be adopted DARCOM wide. In addition, system assessment report orientation should be changed from historical reporting to forward-looking positive planning.

VI. ADDITIONAL OBSERVATIONS AND RECOMMENDATIONS

24. Normalization of IL Management. IL program management was extracted from the mainstream of US supply system operations during the turbulent political period following the 1973 Arab-Israeli War. Although this helped the US Army meet US security assistance goals at that time, it now causes undesirable US supply system turbulence. For example, removing MSC IL divisions from materiel management directorates and elevating them to directorate status fostered creation of special rules and constraints for IL programs that are incompatible with the US system. The time has come to eliminate "special" IL management techniques and use existing US supply structures and procedures to accommodate IL customers.

25. CCSS is an Amazing System (see Volume II--Appendix A-1). Early in this study, concern was expressed that CCSS was not as effective an automated supply management system as reported. This study concluded CCSS is an amazingly powerful system. The only shortfall noticed was the lack of a formal method for auditing CCSS files. DARCOM adoption of the MICOM visibility forecast will, however, correct this weakness.

26. Knowledge of Inventory Data (see Volume III--paragraph 3 of Appendix B-1). Knowledge of IL inventories is not critical to logistical planning for two reasons. First, US funds cannot be used to buy assets in anticipation of IL needs except for CLSSAs. However, the CLSSA customer must notify the US of the inventory supported. Second, if IL policies and procedures are adequate, IL customers will be prevented from receiving assets for one delivery leadtime. Thus, US assets are protected. Knowledge of IL inventories is, however, more important for strategic planning. ODCSLOG can make two improvements in this area. First, routinely provide the Defense Intelligence Agency (DIA) with FMS and CDS data. DIA does not currently receive this information. Second, purify the Defense Security Assistance Agency (DSAA) data. Some DSAA inventory data, which are provided to Congress, are potentially misleading.

27. DLA Interface (see Volume II, page A-48). The Defense Logistics Agency (DLA) (formerly DSA) is developing IL program management changes because they discovered IL has been restraining its financial flexibility. ODCSLOG should coordinate these changes with DLA to ensure that US Army IL programs are not adversely affected.

LAST PAGE OF MAIN PAPER