MATERIEL READINESS COMMAND TASKING
AUTHORITY FOR EQUIPMENT SUBSYSTEMS

MARCH 1982

U.S. ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY
LOGISTICS STUDIES OFFICE
FORT LEE, VIRGINIA 23801

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The word "he" is intended to include both the masculine and feminine genders; any exception to this will be so noted.
Materiel Readiness Command Tasking Authority for Equipment Subsystems

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Logistics; Supply; Weapons System; Development/Readiness Project Officer; Level II Managers; Data Interchange System.

This report examines the need for establishing a single point of control, with appropriate authority, at the system/end item readiness command level to assure that the commands providing subsystems/supporting equipment are planning, programming, funding, and procuring consistent with the system/item manager's readiness requirements. To understand the problems inherent in maintaining a satisfactory readiness posture for a fielded system one must understand the problems associated with fielding a new system. The study recommends certain
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LOGISTICS STUDIES OFFICE
PROJECT NUMBER 017

FINAL REPORT
MARCH 1982

RICHARD MARTINKO

LOGISTICS STUDIES OFFICE
US ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY
FORT LEE, VIRGINIA 23801
MRC system managers have total mission responsibilities which are frequently at cross purposes with the split subsystem logistic support mission. The study examines the need for establishing a single point of control, with appropriate authority, at the system/end item readiness command level to assure that the commands providing subsystems/supporting equipment are planning, programming, funding, and procuring consistent with the system/item manager's readiness requirements. To understand the problems inherent in maintaining a satisfactory readiness posture for a fielded system one must understand the problems associated with fielding a new system. The study recommends certain changes to regulatory guidance affecting Level II managers and strongly recommends that a formal training course be established which covers the Data Interchange System, SSN file, BOIP file and other key files and data systems which impact on fielding a new system and maintaining a fielded system in a satisfactory readiness condition.
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EXECUTIVE SUMMARY

1. Authority for the Study. The Directorate for Systems Management (DRSTS-W), US Army Troop Support and Aviation Materiel Readiness Command (TSARCOM), is the sponsor of this study. Tasking was by letter, DRSTS-W, HQ TSARCOM, 12 September 1980, subject: Request for Logistics Studies Office (LSO) Assistance. The basic guidance was augmented by a DD Form 1498 and the Study Directive.

2. Problem Statement. To determine the tasking authority required for TSARCOM and other MRCs to manage readiness of major systems through control of subsystems.

3. Objective. To determine the need for establishing a single point of control, with appropriate authority, at the system/end item readiness command level to assure that the commands providing subsystems/supporting equipment are planning, programming, funding, and procuring consistent with the system/item manager's readiness requirements.

4. Scope of the Study. The study will examine this problem from an overall DARCOM perspective with specific emphasis on DARCOM/MRC policies pertaining to management of major system and related subsystems.

5. Limits. The study investigation will be limited to subsystems and will not consider parts or assemblies lower than subsystems. Recommendations will be confined to those prerogatives available to DARCOM.

6. Methodology. The study involved a review of current regulations and other documentation related to the subject area and visits to HQ, US Army Materiel Development and Readiness Command (HQ DARCOM), US Army Troop Support and Aviation Materiel Readiness Command (TSARCOM), Communications-Electronics Command (CECOM), and Materiel Readiness Support Activity (MRSA).
7. Conclusions.
   a. To understand fully how to manage and maintain a fielded system one must be thoroughly familiar with the procedures, key documents and files needed to develop and transition a new major weapon system.
   b. The Data Interchange System (DIS) is well conceived and a workable system but can only be effective if fully understood by users of the system.
   c. The DIS can only be as effective as the currency and accuracy of the files supporting it.
   d. The Basis of Issue Plan (BOIP) and Standard Study Number (SSN) file are complementary documents essential to fielding of new systems and incremental increases once fielded.
   e. Level II managers to be effective must have greater visibility, increased authority and direct communication with commands providing support equipment.
   f. In the context of the current regulation Full Funding (AR 37-42) has limited potential for managing fielded systems.
   g. Commands responsible for fielding complex weapon systems must develop and fully document mutual agreements with the supporting command(s).
   h. There is a need to standardize terminology in the commands in designating Level II managers.

8. Recommendations.
   a. That an automated routine be developed to query the BOIP and SSN files.
   b. That DARCOM-R 614-13 be revised to require:
      (1) That standard terminology be applied to designating Level II managers.
      (2) That Memorandums of Understanding/Agreements be reached between commands fielding complex major weapon systems.
      (3) That the command having primary program management responsibility should take the initiative in developing and documenting mutual agreements between commands.
(4) That the authority given to Level II managers be enhanced to the maximum degree possible short of Program Manager status to assure that lines of communication are open and maintained throughout the life cycle of the major weapon system.

c. That a formal training program be established at a DARCOM school to train personnel in the intricacies of the Data Interchange System (DIS), Structure and Composition System (SACS), Basis of Issue Plan (BOIP), Standard Study Number (SSN), and other files and data systems used in conjunction with fielding a new system or maintaining a fielded system in a fully mission readiness state.
1. **Statement of the Problem.** To determine the tasking authority required for TSARCOM and other MRCs to manage readiness of major systems through control of subsystems.

2. **Background.** MRC system managers have total mission responsibilities which are frequently at cross purposes with the split subsystem logistic support mission. As an example, the UH-1 helicopter airframe is managed by TSARCOM; avionics are managed by CECOM; weapons are managed by ARRCOM; and missiles are managed by MICOM. The airframe manager (TSARCOM) is vitally interested in overall authority to direct actions that would lead to attainment of Full Mission Capable (FMC) standards for the fleet. Under the present control system, each separate MRC has the authority to manage their subsystems independently.

3. **Study Objective.** To determine the need for establishing a single point of control, with appropriate authority, at the system/end item readiness command level to assure that the commands providing subsystems/supporting equipment are planning, programming, funding, and procuring consistent with the system/item manager's readiness requirements.

4. **Scope of the Study.** The study will examine this problem from an overall DARCOM perspective with specific emphasis on DARCOM/MRC policies pertaining to management of TSARCOM systems and related subsystems.

5. **Limits.** The study investigation will be limited to subsystems and will not consider parts or assemblies lower than subsystems. Recommendations will be confined to those prerogatives available to DARCOM.

6. **Discussion.**
   a. **Introduction.** There are many pitfalls associated with fielding a new major system and then maintaining that system in a state of readiness once it is
fielded. To understand the problems inherent in maintaining a readiness posture for a fielded system one must understand the problems associated with fielding a new system into the Army inventory. This is particularly important since many of the same problems identified with a new system are evident in maintaining a fielded system.

b. Introducing a new system into the Army inventory. Included in the Army's major item inventory are such Associated Support Items of Equipment (ASIOE) as trucks, vans, shelters, etc., which are needed to support a system in the field and components such as air conditioners, generators, etc., which are part of a major system. A major problem in the management of such items and/or systems is the interchange of procurement appropriation major item data between two or more Materiel Readiness Commands (MRCs)/Materiel Development Commands (MDCs) responsible for the development of new systems and/or responsible for determining requirements, planning, programming and budgeting for such items.

(i) When a materiel developer within the Army is designing a new weapon system, the developer tries to incorporate existing Army adopted items within that system to the maximum extent possible, particularly major items. This, of course, is done to cut down on developmental and operating costs. The process followed by an MDC to determine if new developmental items are required or if existing items can be used is as follows:

(a) Review SB 710-1-1, Standard Study Number System and Replacement Factors, and Chapter 2, SB 700-20, Army Adopted/Other Items Selected for Authorization/List of Reportable Items, for Army-adopted items which are possible candidates for components and/or ASIOE.

(b) Review specifications of likely candidates to determine if they can be used with or without modification.
(c) Contact responsible materiel readiness commands requesting that they provide selected major items on a loan basis for experimentation and testing.

(2) After the materiel developer has arrived at the final proposed functional design, a Basis of Issue Plan (BOIP) feeder data report is submitted to the Training and Doctrine Command (TRADOC). This report states the new "Z" item number for the new item(s), assigned Standard Study Number (SSN), the major support items which are separately authorized in TOE, MTOE, TDA, and/or Common Table of Allowances (CTA) and major items that will be components of the new system.

(3) Once the materiel developer has submitted his BOIP feeder data, the materiel developer must determine how long it will take to purchase and field the new system. Assuming that some of the equipment to be used in the new system are off-the-shelf items, the developer can go to industry to determine the procurement leadtime and the cost for such items.

(4) Since the complete assemblage undoubtedly would include some major items which must come from other MRCs, the developer must go to these commands for the procurement leadtimes and unit costs. The Data Interchange System (DIS) is the DARCOM process used by the materiel managers and developers to obtain data about components and ASIOE needed to assemble and field a weapon system. The governing document for the DIS is DARCOM Regulation 700-5, Major Item Management. However, other regulations most notably ARs 71-2, Basis of Issue Plans, and 710-60, Standard Study Number System and Replacement Factors, affect the data interchange process by directly influencing requirements for and availability of component and associated major items.

(5) As used here, the term component refers to a major item which loses its visibility when integrated into a major item assembly, but which is required to complete that assembly. Authorizations for component major items are not
reflected on a unit's authorization document. An ASIOE, on the other hand, is not integrated into another major item assembly, but is required to operate or maintain that assembly. Authorizations for ASIOE are reflected either on the authorization document of the unit having the assembly or on the authorization document of another organization supporting that unit. Preparing the interchange of PA Item Data, is accomplished through the use of DARCOM Forms 1275 and 1275A. The instructions for preparing and processing these forms are contained in Appendix F of DARCOM-R 700-5. Upon the receipt of completed DARCOM Forms 1275 and 1275A, the materiel developer compiles the data from all sources into a single data base for the new system. Until the new system is fielded, the materiel developer should continuously request interchange data from the component and separately authorized supporting end item managers at the MRCs in order to maintain an up-to-date fielding plan for the new system. The request for additional data must be in line with each Program Objective Memorandum (POM)/Army Materiel Plan (AMP) cycle. Additionally, the materiel developer must insure that its new system and separately authorized ASIOE are loaded into the Structure and Composition System (SACS), that component managers have changed their Standard Study Number (SSN) data files to show the new system as a generating item for their component items, and inform DA/DARCOM when shortage of funds for any of these items will affect the fielding of the new system. Once a new system is fielded incremental increases may be required in future years. Incremental increases in a weapon system must follow many of the same actions associated with fielding a new system. For example, requirements for components/ASIOE must be placed on the procuring commands by the using command through the mechanism of the DIS. These actions must be accomplished sufficiently in advance of need to assure that the procuring command has sufficient time to incorporate the requirements in their budget submission.
At this point it appears appropriate to describe in greater detail some of the key systems and files that impact on the fielding of a new system and its subsequent impact on the fielded system.

(a) The SACS stores force structure information in the form of Modified Tables of Organization and Equipment (MTOE) and relates them to the line item identified equipment which is required to equip the MTOEs. If one needs to know how many tanks or trucks are needed to equip a designated force, SACS is designed to provide the answer. Unfortunately, the SACS file is subject to the same problems which face many of our computer systems. If the information is inaccurate or incomplete, it is reflected in the data extracted from the file.

(b) Another system which impacts later on our ability to field a system and maintain it in a readiness posture relates to the Army's documentation system which is oriented to the development, staffing and formal approval of Tables of Organization and Equipment (TOE). TOEs, when approved, represent the Army's manning and equipping goals for various types of units such as Tank Battalions, Infantry Companies, etc., and are kept on permanent file in The Army Authorization Documentation System (TAADS) by TRADOC. As new doctrine and equipment generate requirements to change TOEs, they are staffed, approved and sent to TRADOC where they are held and used to update TAADS biannually through the use of Consolidated Change Tables (CCTs) which cover all approved changes to all TOEs since the last CCT. CCTs are also sent out to all major Army commands (MACOMs) which are then responsible for updating their MTOEs accordingly. Recent studies have indicated that Army MACOMs frequently do not implement Army CCTs into their MTOEs. Army materiel and personnel requirements thus are seriously distorted since the SACs does not add up materiel requirements from TOEs but rather from MTOEs.

(c) The Standard Study Number (SSN) system is another key system which assigns to each major item in the Army inventory a standard number. The SSN
contains three types of information: the SSN of each major item; various factors such as the Peacetime Replacement Factor (PRF); and the component to end item relationship of each major item and the assemblies of which it is a component. Many difficulties arise in using the SSN system because many users do not understand how to use the file and there is much confusion in identifying and differentiating between what is a component and what represents an ASIOE. The SSN also is found to be frequently incomplete and inaccurate because it contains ASIOE entries for items which should not be there and is short of many components which should be included. This is another area where Army requirements lose visibility and, as a result, do not show up in the Army Acquisition Objective (AAO).

(d) The Basis of Issue Plan is still another system vital to fielding a new system and assuring the readiness of fielded systems. The BOIP starts with the feeder data submitted by DARCOM to TRADOC. Intensive staffing within TRADOC creates a fully fleshed out BOIP which delineates the details of the equipment and all other actions that it will generate; e.g., personnel requirements. The BOIP file feeds modernization information to SACS which in turn feeds the AAO. Unfortunately, problems occur because BOIPs are frequently inaccurate and incomplete or as occasionally occurred in the past, a BOIP was simply not prepared for the system being fielded.

(7) For a system to be fielded expeditiously and with some reasonable assurance that it is complete and accurate in every detail requires that all of the procedures described above are fully coordinated, and that the required data is fed into the AAO so that the MRCs can procure the items needed to field a complete system.

(8) Some of the specific management problems associated with the PA Data Interchange System are described below:
(a) Not all materiel developers prepare the PA interchange requests until they get into trouble.

(b) Sometimes the developer identifies a major item as a component when it should be separately authorized.

(c) Required delivery dates are frequently unrealistic resulting in the materiel developer providing higher authority with fielding data that is incompatible with the procurement leadtimes of various items.

(d) PA interchange requests arrive after project procurements are agreed on.

(e) During budget hearings funding for the system is cut but component/ASIOE managers are not notified and they keep on buying; or the component/ASIOE budgets are cut and the system cannot be fielded due to lack of component and/or supporting items.


(1) Once a system has been fielded logistical responsibility for managing that system is normally transferred to an MRC. There are elaborate procedures for effecting the transfer of a weapon system from an MDC to an MRC. Basically, the MRC must go through the same steps described earlier for the materiel developer. This is particularly true when requirements for the system increase and follow-on procurement is required. Essentially, the only difference in managing a fielded system is that those steps pertaining to SACS/BOIP are not required. When a system transitions from an MDC to an MRC one must rely on the supply system to take over to maintain the system. If proper lines of communication have been established and maintained between and among commands, the fielded system can be maintained in a fully mission capable status. It is absolutely essential that the logistic and management relationships existing between commands be kept open at all times.
(2) There are a number of actions that can be taken to enhance the readiness posture of fielded systems. These include:

(a) Changes to DARCOM-R 614-13.

1. DARCOM-R 614-13, Development/Readiness Project Officers, establishes DARCOM policy and procedures for the appointment and use of Development/Readiness Project Officers (DPO/RPO). It further calls for the use of standardized terminology for designating individuals to intensively manage programs which do not qualify under the established criteria for program/project/product management, as outlined in AR 70-17.

2. Missions assigned to DPO/RPO require extensive interfaces within DARCOM and/or the Department of Defense and/or other agencies and present unusual difficulties which need expeditious action to meet high priority requirements.

3. The DPO/RPO are normally chartered by the appropriate DARCOM major subordinate commander or activity head for either a short term duration or an indefinite period. However, when a program requires extensive interface outside the DARCOM community, and the major subordinate commander or activity head considers it appropriate, he may request the CG, DARCOM, to charter the DPO/RPO in order to promote management actions among involved agencies. A circular is utilized for designating a DPO/RPO needed for a short period of time (up to 12 months), and a regulation for periods exceeding 12 months. Under any circumstances, DPO/RPO offices are not to be used to direct, coordinate, or duplicate the operations of program/project/product managers.

4. When more than one DARCOM major subordinate command or activity participates in a program, Memorandums of Understanding and/or Agreements or Letters of Instruction should be utilized in determining which commands or activities will charter the DPO/RPO. These documents are also to be used to define the specific
responsibilities of each participating element in whatever detail is necessary to insure effective and efficient development, integration, and support through all appropriate life cycle phases covered during existence of the DPO/RPO office. If it is determined that a charter should be issued by HQ DARCOM, this can be accomplished by the command or activity preparing and submitting a draft circular or regulation for approval.

5. At the US Army Troop Support and Aviation Materiel Readiness Command RPOs are identified as Level II managers with Item Managers classified as Level III. Of the array of RPOs within TSARCOM, three (3) are designated as DARCOM RPOs. For example, there is an RPO designated for Aviation Life Support Equipment (ALSE) with a DARCOM supported charter. This designation gives the RPO for ALSE full line authority of the CG, DARCOM, as delegated to the CG, TSARCOM, for the accomplishment of the ALSE readiness mission. This permits the RPO for ALSE to have a much wider latitude in his logistic and management relationships with other commands and activities within DARCOM, higher authority, and with the other Services. It appears advisable to elevate other RPOs within this command and other commands to the status of DARCOM Project Officers (DARCOM charter) where a particular system, for one reason or another, requires more intensive management. A change to DARCOM-R 614-13 to the effect that those positions in the commands (Level II managers) with complex system/subsystem responsibilities should be elevated to the status of DARCOM Project Office status to enable them to have direct lines of communication with their counterparts in other commands. This would facilitate and assure having a system fully capable of performing its assigned mission in the field. This should be supported further with Command Agreements (Memorandums of Understanding) between and among commands and activities responsible for complex systems. DARCOM-R 614-13 should specifically
state that command agreements, covering specific major systems, must be reached between and among commands covered by this regulation. The MRC designated as having primary program management responsibility should take the initiative in developing and documenting mutual agreements between and among commands. Specifically, MOUs should:

a. Serve as a management tool to assure that two-way communications have been established between commands.

b. Establish responsibilities and identify milestones between commands to assure readiness of fielded systems.

c. Establish realistic schedules for meeting support requirements. Management decisions that are planned must be communicated sufficiently far in advance with supporting commands to assure that the planning, programming and budgeting system cycle is not affected adversely.

6. DARCOM-R 614-13 additionally calls for standardization of terminology for those individuals designated to intensively manage programs which do not qualify under the established criteria for program/project/product management, as contained in AR 70-17. Although TSARCOM complies with this standardization requirement and has individuals designated as RPOs, this is not necessarily true of all MRCs. CECOM, for example, has established so-called Project Control Boards made up of functional people. These boards are headed by a Project Leader who usually is a production engineer. This organizational arrangement is comparable to the RPO (Level II) managers at TSARCOM and other commands. For the sake of conformity with the regulation it would be desirable for all commands within DARCOM to standardize the terminology used for designating Level II managers. Standardization would facilitate communication between commands responsible for fielding major systems.
(3) Training. There appears to be a general lack of knowledge and understanding among personnel both in the development and readiness commands regarding the use of the Data Interchange System, SSN file and the various other systems and files discussed earlier which are used to field and maintain a system in a fully mission-capable posture. A formal training program should be established or existing courses expanded at such schools as the Army Logistics Management Center to cover fully the intricacies of the Data Interchange System, the SSN file, SB 700-20, and other systems and files which directly affect the fielding of a new system or impact on its readiness posture once it is fielded.

(4) Full Funding.

(a) Another area for consideration is the application of the "full funding" concept to weapon system management. AR 37-42, dated 18 March 1970, Full Funding of Army Procurement Programs, implements Department of Defense Directive 7200.4, dated 30 October 1979, Full Funding of DOD Procurement Programs. As stated therein,

"Full funding is the term used to describe the principle which has been applied by the Congress in providing funds for the Department of Defense programs which are covered within the Procurement title of the yearly appropriation act. It has no application to any other appropriations (Military Personnel, Operations and Maintenance, and Research, Development, Test and Evaluation) contained in other titles of the act. The objective is to provide funds at the outset for the total estimated cost of a given item so that the Congress and the public can clearly see and have a complete knowledge of the full dimensions and cost when it is first presented for an appropriation. In practice, it means that each annual appropriation request must contain the funds estimated to be required to cover the total cost to be incurred in completing delivery of a given quantity of usable end items, such as aircraft, missiles, ships, vehicles, ammunition, and all other items of equipment."

The general policy expressed in the regulation is that funds for the total estimated cost of an item be available in the year in which procurement action is initiated for that item. Under certain conditions this regulation permits the procurement of long leadtime components in advance of the fiscal year in which the related end item is to be procured.
(b) Generally speaking, this regulation is extremely restrictive by limiting advance funding on a selective basis with the further requirement that procurements be fully justified on their merits. It also states that operating or replenishment spares are not included in weapon system investment estimates.

(c) On this basis, the full funding concept seems to have very limited application to weapon system management. Even if the regulation were made less restrictive in its application, some serious disadvantages are apparent. The weapon system manager utilizing the full funded concept would be primarily interested in developing and fielding his specific weapon system without necessarily being concerned about the broad application of common components/ancillary equipment identified with other weapon systems and/or other major items. Furthermore, once a system is fielded, requirements for spares/ancillary equipment become a concern of the normal supply system and the weapon system manager would have little interest or concern with that aspect of the problem. In our current logistic system each of our MRCs has a broad perspective of total requirements for all weapon systems as a whole, thus enabling the command to manage the total requirement not just one segment applicable to a specific weapon system. Weapon system management will create unique pipelines into each of the MRCs with corresponding pockets of money labeled for each unique weapon system. This situation could well compound and far exceed the problems now identified with our current way of doing business. The current organization of the commands seems best suited to meet our needs for fielding complex weapon systems with interrelated system/subsystem components.

(d) As discussed earlier in this paper, we must rely on the present system of exchanging information utilizing the data interchange system in fielding new systems or in ordering increments of that system once it is fielded. We should
then rely on the normal supply system to accomplish those actions required to assure that the system fielded is in a fully mission-capable status. As also stated earlier there is much misunderstanding among logisticians in the use of the data interchange system and additional training and experience will be required to overcome this deficiency. Proper maintenance of the files used to identify components and ancillary equipment must be achieved so that we have an accurate and complete record to permit a smooth and efficient exchange of data between and among commands. Finally, the commands over the years have developed and built a cadre of people knowledgeable in their commodity oriented system. We must continue to rely on that knowledge and expertise if we are going to field efficient and reliable weapon systems. We don't have to restructure our commands to achieve this; however, we must do a much better job in using the current system.

7. Conclusions.
   a. To understand fully how to manage and maintain a fielded system one must be thoroughly familiar with the procedures, key documents and files needed to develop and transition a new major weapon system.
   b. The Data Interchange System is well conceived and a workable system but can only be effective if fully understood by users of the system.
   c. The DIS can only be as effective as the currency and accuracy of the files supporting it.
   d. The Basis of Issue Plan (BOIP) and Standard Study Number (SSN) file are complementary documents essential to fielding of new systems and incremental increases once fielded.
   e. Level II managers to be effective must have greater visibility, increased authority and direct communication with commands providing support equipment.
   f. In the context of the current regulation Full Funding (AR 37-42) has limited potential for managing fielded systems.
g. Commands responsible for fielding complex weapon systems must develop and fully document mutual agreements with the supporting command(s).

h. There is a need to standardize terminology in the commands in designating Level II managers.

8. Recommendations.
   a. That an automated routine be developed to query the BOIP and SSN files.
   b. That DARCOM-R 614-13 be revised to require:
      (1) That standard terminology be applied to designating Level II managers.
      (2) That Memorandums of Understanding/Agreements be reached between commands fielding complex major weapon systems.
      (3) That the command having primary program management responsibility should take the initiative in developing and documenting mutual agreements between commands.
      (4) That the authority given to Level II managers be enhanced to the maximum degree possible short of Program Manager status to assure that lines of communication are open and maintained throughout the life cycle of the major weapon system.
   c. That a formal training program be established at a DARCOM school to train personnel in the intricacies of the Data Interchange System, SACS, BOIP, SSN and other files and data systems used in conjunction with fielding a new system or maintaining a fielded system in a fully mission readiness state.
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2. DARCOM-R 614-13, Development/Readiness Project Officers, 12 Aug 76.
3. AR 95-33, Army Aircraft Inventory, Status, and Flying Time Reporting, RCS CSGLD-1837 (R1), 1 Dec 79.
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