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VOLUME 5
DATA MANAGEMENT STUDY

APPENDIX C
CONTRACTOR DATA PACKAGE
MANUFACTURING (MG)

PREPARED BY

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MANUFACTURING MANAGEMENT
VOYAGER SPACECRAFT SYSTEM PROJECT

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DATA MANAGEMENT AND CONTROL TASK
VOYAGER SPACECRAFT SYSTEM PROJECT

PREPARED FOR

JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
4800 OAK GROVE DRIVE
PASADENA, CALIFORNIA

UNDER JPL CONTRACT No. 951112

GENERAL  ELECTRIC

MISSILE AND SPACE DIVISION
Valley Forge Space Technology Center
P. O. Box 8555 • Philadelphia, Penna. 19101

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INTRODUCTION

This appendix presents the Contractor Data Package (Data Item Matrix, Data Requirement Descriptions, User Flow Diagrams, Document Relationship Tree, and Frequency and Phasing Charts) for Manufacturing (MG).

These data relate to the planning, designing, tooling and processes, scheduling, ordering, manufacturing, testing, fabricating, production control, assembly, and reporting necessary to produce a finished product from a set of drawings and specifications.

The complete list of Contractor Data Package appendixes is as follows:

- Appendix A - Technical Description and System Engineering (SE)
- Appendix B - Planetary Quarantine (PQ)
- Appendix C - Manufacturing (MG)
- Appendix D - Configuration Management (CM)
- Appendix E - Quality Assurance (QA)
- Appendix F - Test (TE) and Mission Operations (MP)
- Appendix G - Reliability Assurance (RA)
- Appendix H - Logistics and Support (LS)
- Appendix I - Overall Management (MA), Scheduling (SC), and Manning and Financial (MF)
- Appendix J - Procurement and Contracting (PC)
- Appendix K - Data Management (DM)
- Appendix L* - Facilities (FA)
- Appendix M* - Safety (SA)
- Appendix N* - Site Activation for Launch (AL)
- Appendix O* - Science (SI)
- Appendix P* - Related Project Interfaces (RP)
- Appendix Q* - Advanced Missions (AM)

* Appendixes L through Q prepared under Contract NAS 7-584

DATA ITEM NUMBER	1 of 3 DATA ITEM <u>MANUFACTURING</u>	DESCRIPT
	<u>DRAWINGS</u>	
MG-001	Drawings, Interface Tools, Jigs and Fixtures	Drawings for tools, jigs, and fixtures co interfaces.
MG-002	* Drawings, Tools, Jigs and Fixtures	Drawings for tools, jigs, and fixtures oth with system interfaces.
	<u>MANUALS</u>	
MG-005	* Manual, Certification and Training	A manual based on NASA military and cu be used in GE/customer approved training tion of operators/inspectors.
MG-006	* Manual, Hardware Handling	An instruction manual for protecting and during transportation and at work place f during test and inspection.
	<u>PLANS</u>	
MG-009	Plan, Manufacturing	Defines the contractual requirements to reliability, and schedules for the assem prime hardware.
MG-010	Plan, Storage	A plan to stock and store completed fligh manner assuring prime status.
MG-011	Plan, Manufacturing Detailed Flow and Inspection (Assembly Diagram)	A hardware flow plan for sequential fabr

* KEY INFORMAL DATA

DATA ITEM LIST/USER MATRIX

FUNCTION	APPLICABILITY TO FUNCTIONAL USERS AT CONTRACTOR LEVEL															
	SE	PQ	MG	CM	QA	TE	RA	LS	MA	SC	PC	MF	MP	DM	FA	
Concerned with system	U	-	A	U	R	U	-	-	-	-	-	-	-	-	-	
Other than those concerned	U	-	A	U	R	U	-	-	-	-	-	-	-	-	-	
Customer requirements to go to school for certification	-	-	A	-	R	-	U	-	-	-	-	-	-	-	-	
Handling of hardware fabrication areas	-	U	A	-	R	U	U	U	-	-	-	-	-	-	-	
Must be met for quality, assembly and fabrication of	U	U	R	-	U	U	U	-	PM	U	U	-	-	-	U	
Test equipment in a	-	U	R	-	R	U	R	U	PM	-	U	-	-	-	U	
Inspection or assembly.	-	U	A	-	R	U	U	U	U	U	U	-	-	-	-	

					APPLICABILITY AT SUBCONTRACTOR/VENDOR/SUPPLIER LEVELS							APPLICABILITY TO PROJECT BOARDS											
					PRINCIPAL SUB-CONTRACTORS	MAJOR SUB-CONTRACTORS	KEY SUBCON AND VENDORS	OTHER VENDORS	KEY SUPPLIERS	KEY SUBSUPPLIERS	CONFIGURATION CONTROL	CONFIGURATION MANAGEMENT	DATA REVIEW	DESIGN REVIEW	FAILURE REVIEW	INTEGRATED SAFETY	INTEGRATED TEST	MAKE OR BUY	MATERIAL REVIEW	SOURCE EVALUATION	SOURCE SELECTION		
SA	AL	SI	RP	AM																			
U	U	-	-	-	(S)	(S)	(S)	NA	(S)	NA	-	-	-	-	-	-	-	-	-	-	-		
U	-	-	-	-	(S)	(S)	(S)	NA	NA	NA	-	-	-	-	-	-	-	-	-	-	-		
U	U	-	-	-	S	S	(S)	NA	(S)	(S)	-	-	-	-	-	-	-	-	-	-	-		
U	-	-	-	-	S	S	(S)	NA	(S)	NA	-	-	-	-	-	-	-	-	-	-	-		
U	-	-	-	-	S	S	(S)	NA	(S)	(S)	-	-	-	-	-	-	U	-	-	-	-		
U	-	-	-	-	S	S	(S)	NA	(S)	NA	-	-	-	-	-	-	U	-	-	-	-		
U	-	-	-	-	S	S	(S)	NA	(S)	NA	-	-	-	-	-	-	-	-	-	-	-		

DATA ITEM NUMBER	2 of 3 DATA ITEM <u>MANUFACTURING</u>	DESCRIP
	<u>PROCEDURES</u>	
MG-003	Procedure, Manufacturing Operating	Defines the controls and manufacturing p into detailed shop planning.
MG-004	Manufacturing Standing Instructions (MSIs)	
	<u>RECORDS</u>	
MG-007	Record, Methods and Tool Sheets	
MG-008	Sheet, Planning Fabrication/Assembly	A detailed step-by-step instruction for t sequence, including implementation step
	<u>REPORTS</u>	
MG-016	Report, Line of Balance	Report to determine planned manufactur actual performance in meeting overall s
MG-017	* Report, Producibility	Summarizes the producibility analysis a potential problem areas caused by design good control during fabrication.
MG-018	* Report, Receiving	
MG-019	* Report, Stock Inventory	This report is used to determine the ava hardware needed for meeting fabrication lished reorder cycle.

* KEY INFORMAL DATA

DATA ITEM LIST/USER MATRIX

FUNCTION	APPLICABILITY TO FUNCTIONAL USERS AT CONTRACTOR LEVEL														
	SE	PQ	MG	CM	QA	TE	RA	LS	MA	SC	PC	MF	MP	DM	
processes for incorporation	-	R	A	-	U	U	R	-	-	-	-	-	-	-	
	-	R	A	-	R	U	-	-	-	-	-	-	-	-	
	-	-	A	-	-	-	-	-	-	-	-	-	-	-	
the fabrication or assembly s.	U	U	A	-	U	U	U	U	R	U	U	-	-	-	
ing performance versus schedules.	-	-	A	-	-	-	-	-	U	U	U	-	-	-	
and delineates specific a which will require	U	U	A	-	U	-	U	-	-	-	-	-	-	-	
	-	-	A	-	U	U	-	-	-	-	U	U	-	-	
availability of parts and schedule and estab-	-	-	A	U	-	-	-	U	-	-	-	U	-	-	

U - USE R - REVIEW AUTHORITY A - APPROVAL AUTHORITY PM - PROJECT MANAGER A

						APPLICABILITY AT SUBCONTRACTOR/VENDOR/SUPPLIER LEVELS						APPLICABILITY TO PROJECT BOARDS											
						PRINCIPAL SUB-CONTRACTORS	MAJOR SUB-CONTRACTORS	KEY SUBCON AND VENDORS	OTHER VENDORS	KEY SUPPLIERS	KEY SUBSUPPLIERS	CONFIGURATION CONTROL	CONFIGURATION MANAGEMENT	DATA REVIEW	DESIGN REVIEW	FAILURE REVIEW	INTEGRATED SAFETY	INTEGRATED TEST	MAKE OR BUY	MATERIAL REVIEW	SOURCE EVALUATION	SOURCE SELECTION	
FA	SA	AL	SI	RP	AM																		
-	U	-	-	-	-	S	S	(S)	NA	(S)	NA	-	-	-	-	-	-	-	-	-	-	-	-
-	U	-	-	-	-	(S)	(S)	(S)	NA	(S)	NA	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	(S)	(S)	(S)	NA	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-
U	U	-	-	-	-	S	S	(S)	NA	(S)	(S)	-	-	-	-	-	-	U	-	-	-	-	-
-	-	-	-	-	-	(S)	(S)	(S)	NA	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	S	(S)	(S)	NA	(S)	NA	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-

DATA ITEM NUMBER	3 of 3 DATA ITEM <u>MANUFACTURING</u>	DESCRIP
	<u>REPORTS</u> (Cont'd)	
MG-020	Report, Fabrication/Assembly	
MG-021	Report, Hardware Status	
	<u>REQUESTS</u>	
MG-012	*Request, Manufacturing Planning	A production control request specifying a manufacturing operations to be performed
MG-013	*Request, Special Tool(s)	A request to build special tools for the manufacturing of a controlled drawing so that changes may be made
	<u>SCHEDULES</u>	
MG-014	Schedule, Detail Assembly	
MG-015	Schedule, Shop Loading	

* KEY INFORMAL DATA

2-5

DATA ITEM LIST/USER MATRIX

FUNCTION	APPLICABILITY TO FUNCTIONAL USERS AT CONTRACTOR LEVEL															
	SE	PQ	MG	CM	QA	TE	RA	LS	MA	SC	PC	MF	MP	DM	FA	
	U	U	A	-	U	U	U	U	-	-	U	-	-	-	-	
	-	-	A	-	U	U	U	U	U	U	-	-	-	-	-	
and detailing the step-by-step on a specific piece of hardware.	-	-	A	-	U	-	-	-	-	U	-	-	-	-	-	
manufacturing shop; will be on be added as required.	-	-	A	-	U	-	-	-	-	U	-	-	-	-	-	
	-	-	A	-	U	-	-	U	-	U	-	-	-	-	-	
	-	-	A	-	U	-	-	-	-	U	-	-	-	-	-	

						APPLICABILITY AT SUBCONTRACTOR/VENDOR/SUPPLIER LEVELS						APPLICABILITY TO PROJECT BOARDS												
						PRINCIPAL SUB-CONTRACTORS	MAJOR SUB-CONTRACTORS	KEY SUBCON AND VENDORS	OTHER VENDORS	KEY SUPPLIERS	KEY SUBSUPPLIERS	CONFIGURATION CONTROL	CONFIGURATION MANAGEMENT	DATA REVIEW	DESIGN REVIEW	FAILURE REVIEW	INTEGRATED SAFETY	INTEGRATED TEST	MAKE OR BUY	MATERIAL REVIEW	SOURCE EVALUATION	SOURCE SELECTION		
	SA	AL	SI	RP	AM																			
	-	-	-	-	-	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-			
	-	-	-	-	-	S	NA	S	NA	NA	NA	-	-	-	-	-	-	-	-	-	-			
	-	-	-	-	-	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-			
	-	-	-	-	-	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-			
	-	-	-	-	-	S	S	(S)	NA	NA	NA	-	-	-	-	-	-	-	-	-	-			
	-	-	-	-	-	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-			

2-6-2 2-8-10

USER FLOW DIAGRAMS

Manufacturing Data User Flow Diagrams have been developed to show the time phasing functions and data uses during the Voyager Program. The principal feature of these diagrams is the identification of functions which interface with systems office, contractor Voyager Project and procurement source activities.

Following contract award, early emphasis is placed on preparation of the major subcontractor's work statements and schedule requirements. After systems design review, and continuing through launch, major manufacturing activities are:

SDR through PDR

- Finalize manufacturing plan.
- Formulate make or buy plan.
- Review subcontractor make or buy plans.
- Conduct producibility engineering studies on contract technical requirements.

PDR through HDR

- Develop manufacturing operating procedures.
- Continue producibility engineering evaluations.
- Establish plan to meet storage requirements.
- Develop special tooling drawings.
- Prepare detailed procurement plan.
- Procure component parts and materials.
- Prepare hardware sterilization and handling manuals.
- Fabricate thermal and structural model hardware.

HDR through CDR

- Update manufacturing technical procedures, plans, and schedules.
- Fabricate or modify tools, jigs and fixtures.
- Review engineering model drawings and material requirements.
- Procure component parts.

- Fabricate engineering model components.
- Receive and checkout purchased materials.

CDR through FACI

- Prepare purchase requisitions for substituted parts and materials.
- Evaluate suppliers and quotes.
- Establish resident prime contractor production engineers at selected subcontractors.
- Update Manufacturing Standing Instructions.
- Procure, fabricate and assemble TA, PTM & OSE hardware.

FACI through MAR

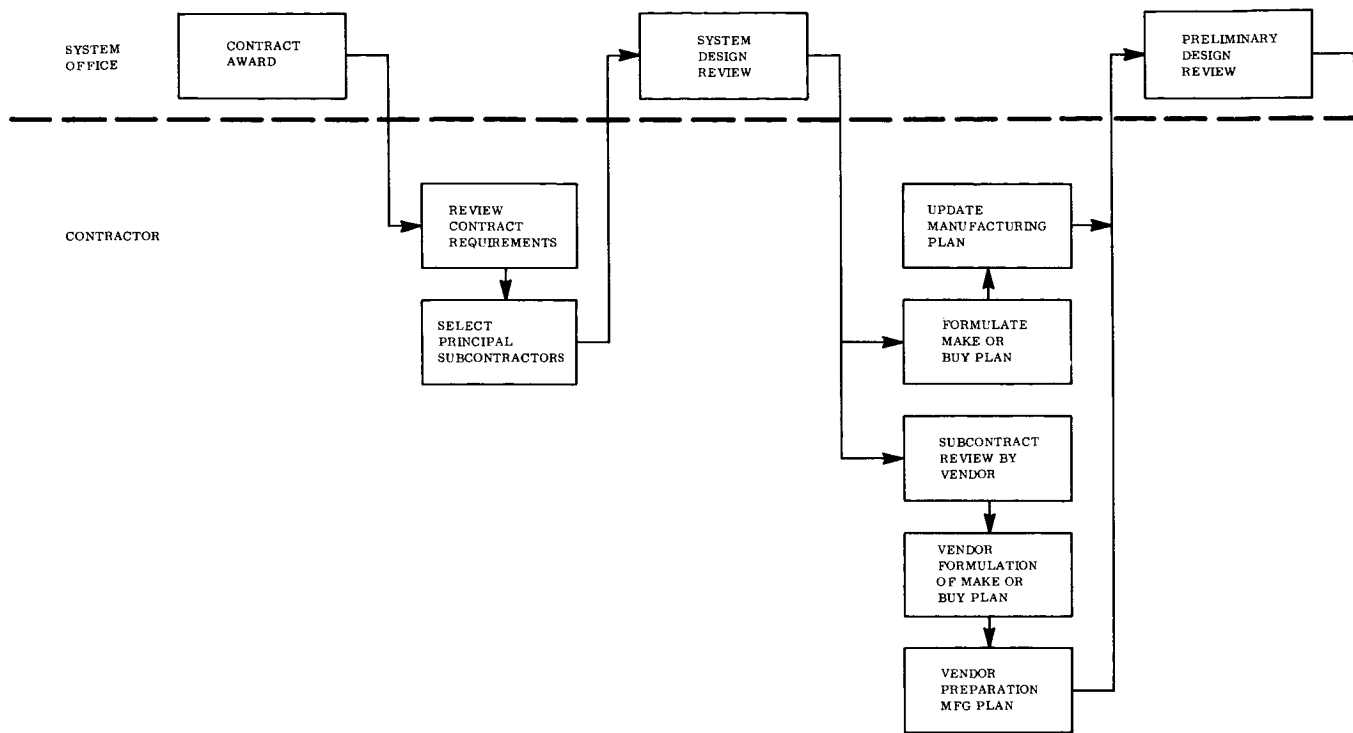
- Modify tools, jigs and fixtures.
- Establish packing and shipping and storage procedures for launch operations.
- Release all flight hardware purchase orders.
- Reevaluate fabrication and assembly techniques.
- Fabricate and assemble FA and OSE.
- Submit hardware for mission acceptance review.

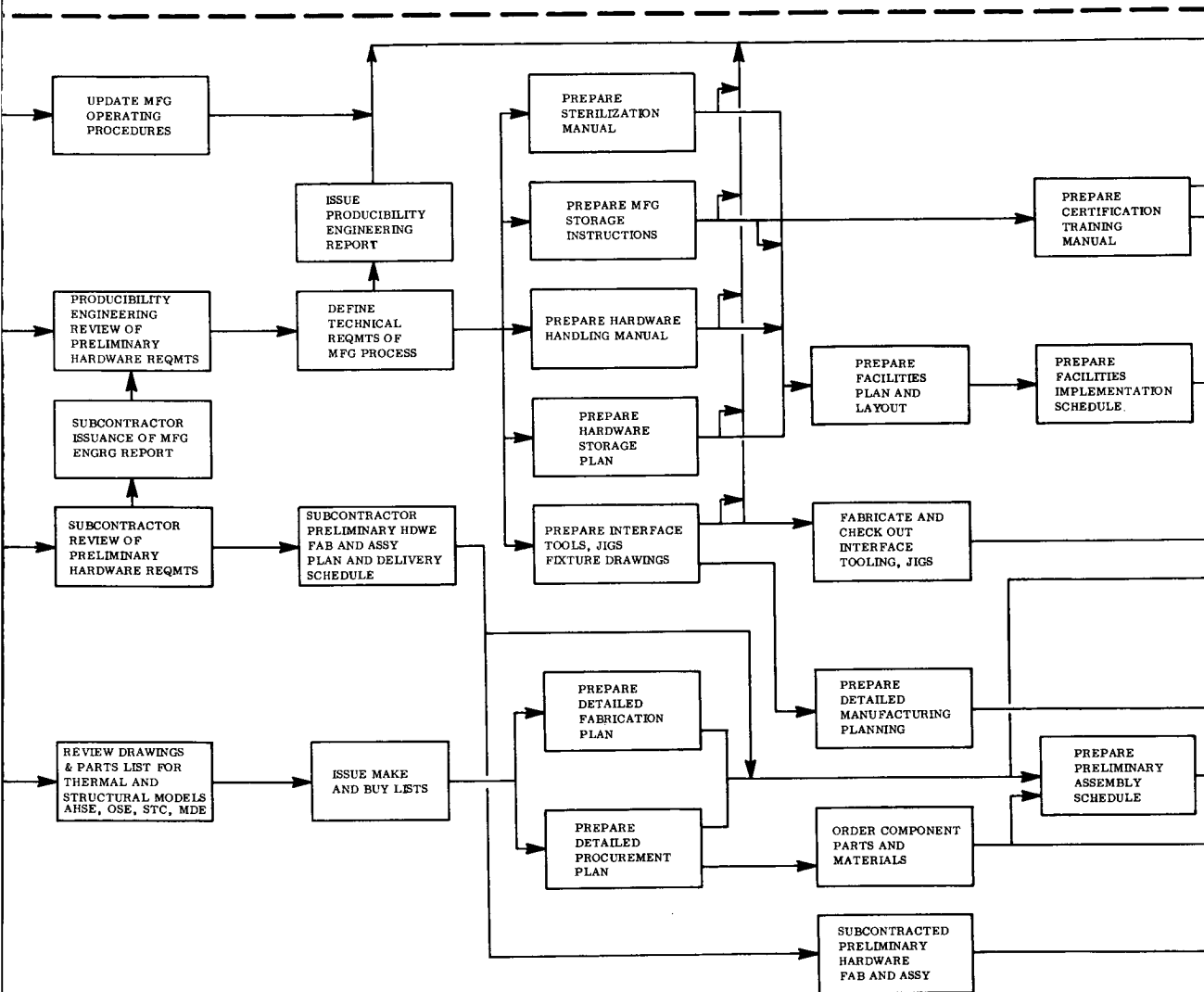
MAR through Launch

- Pack and ship flight articles and OSE.
- Receive and store hardware at launch site.
- Provide manufacturing support for launch operations.

Manufacturing User Flow Diagrams

<u>Figure Number</u>	<u>Title</u>
C-1	Manufacturing User Flow Diagram - Summary (2 sheets)
C-2	Manufacturing User Flow Diagram - Contract Award Through Preliminary Design Review
C-3	Manufacturing User Flow Diagram - Preliminary Design Review Through Hard Design Review (2 sheets)
C-4	Manufacturing User Flow Diagram - Hard Design Review Through Critical Design Review (3 sheets)
C-5	Manufacturing User Flow Diagram - Critical Design Review Through First Article Configuration Inspection
C-6	Manufacturing User Flow Diagram - First Article Configuration Inspection Through Launch





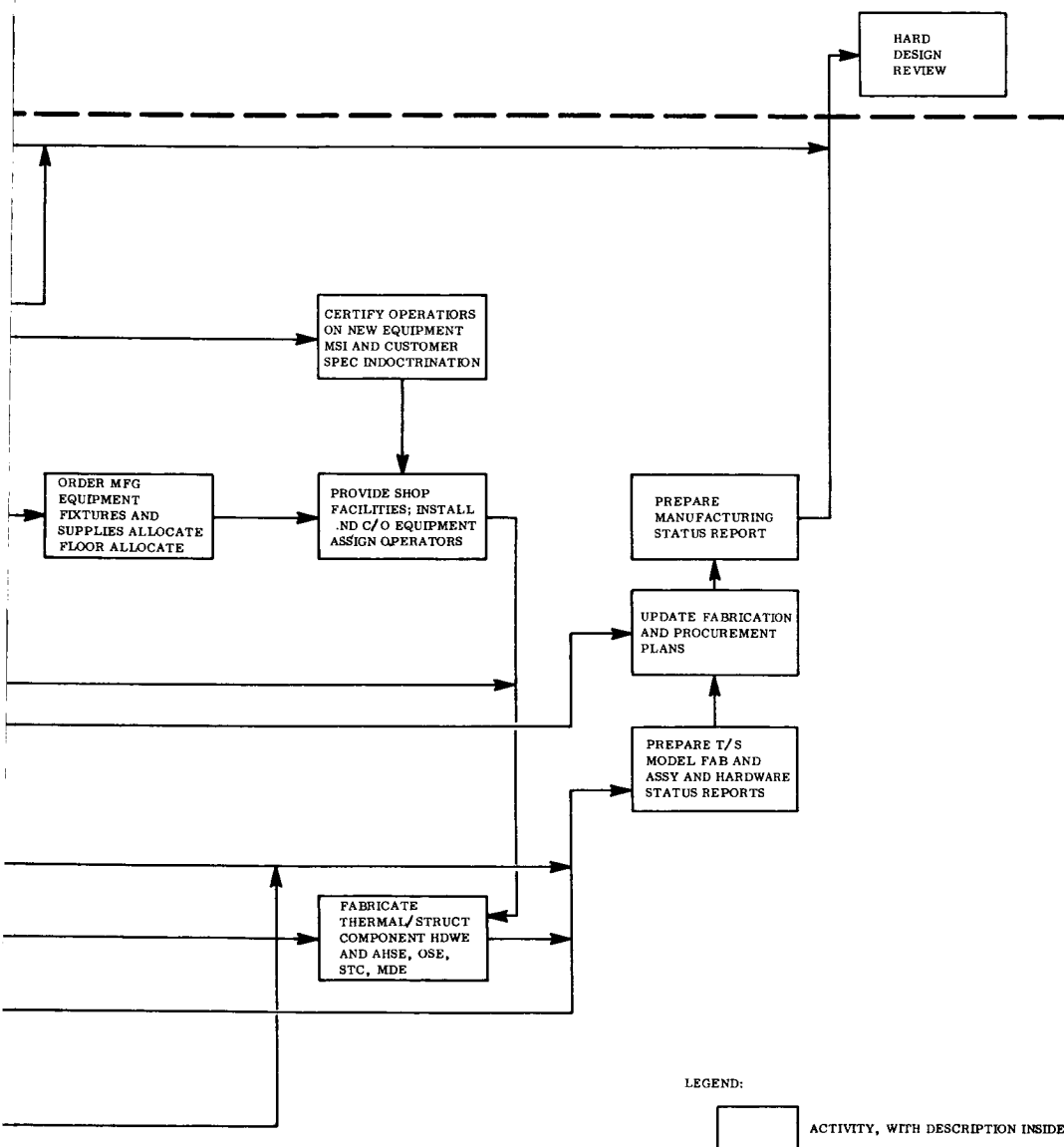
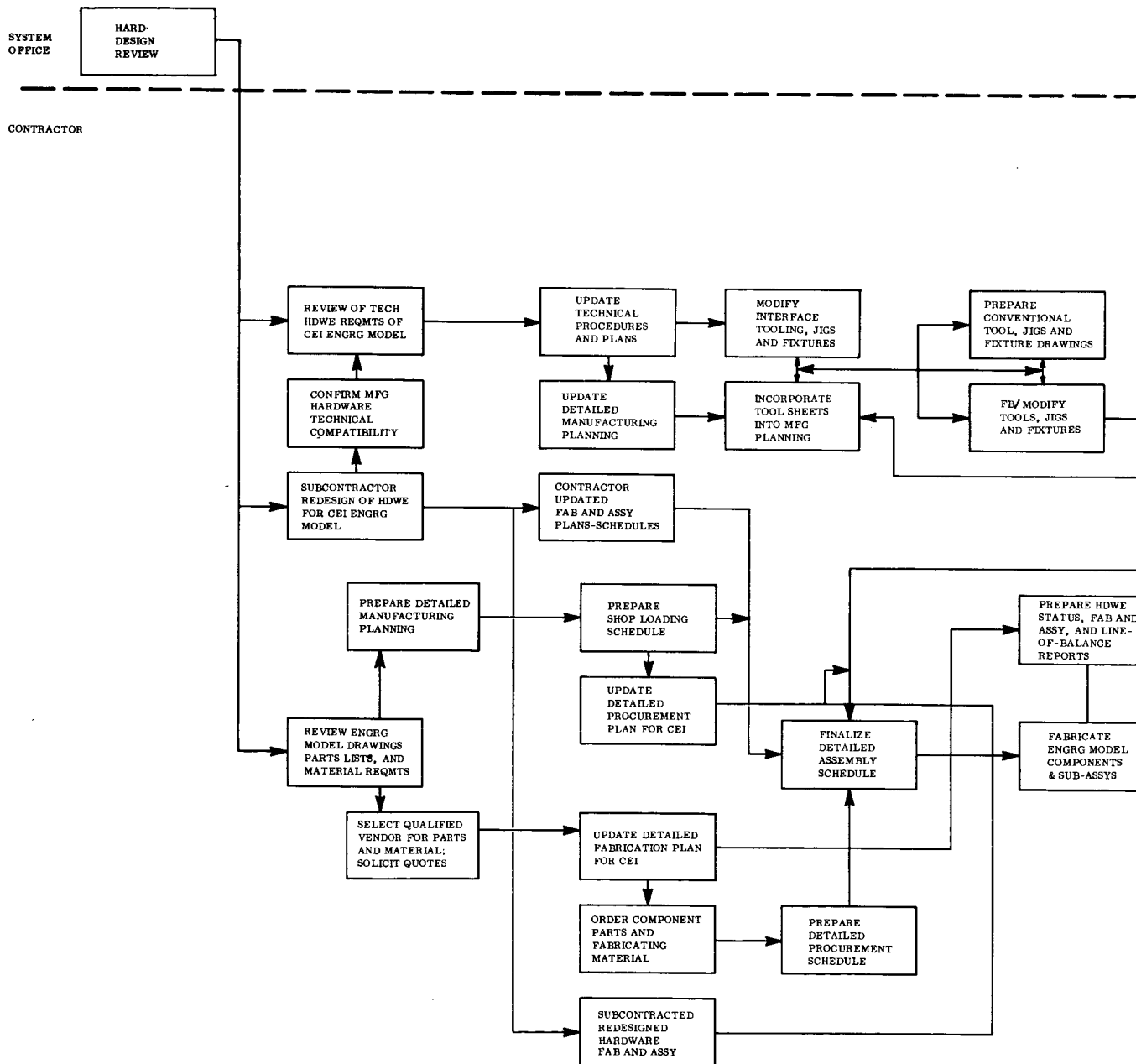
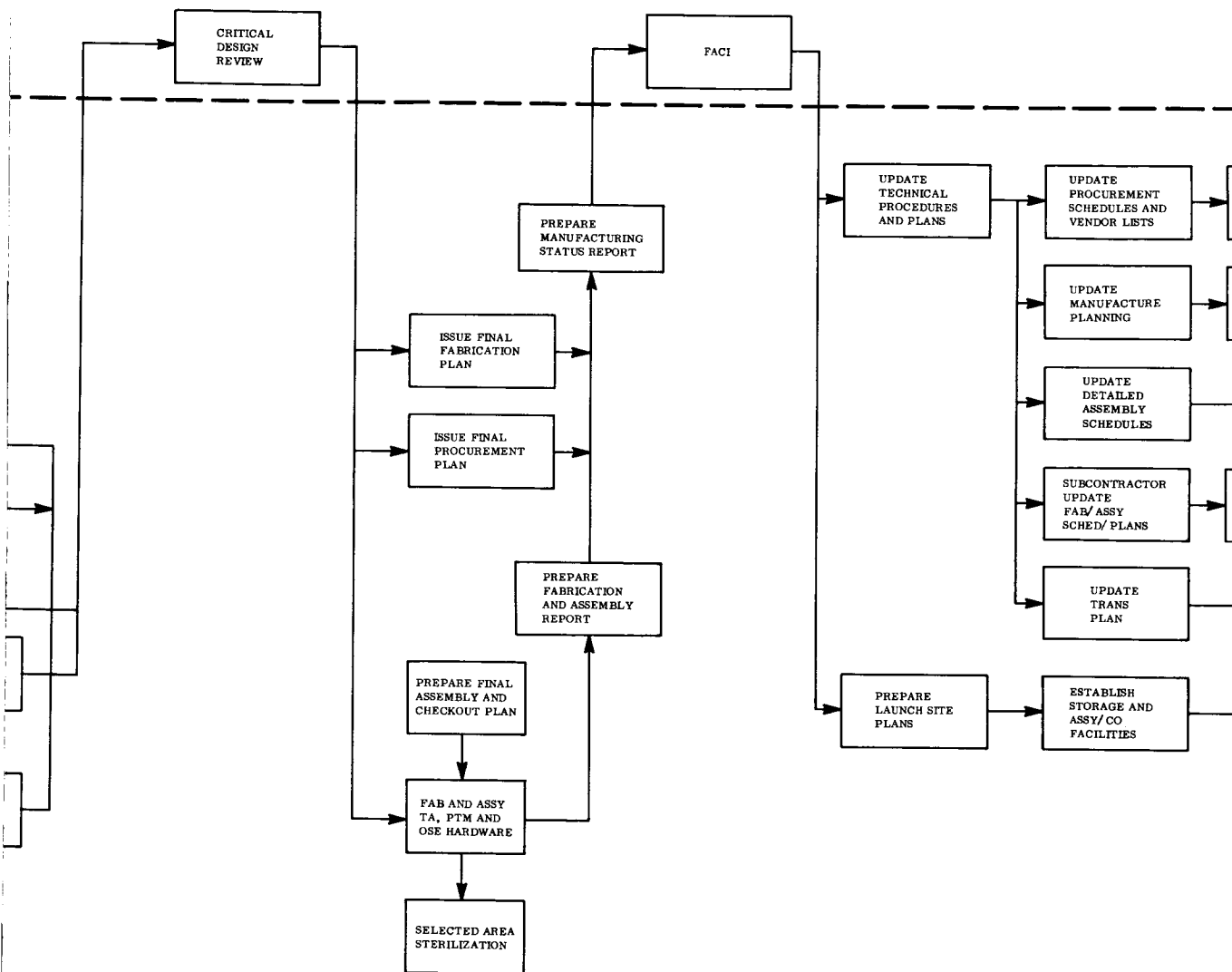
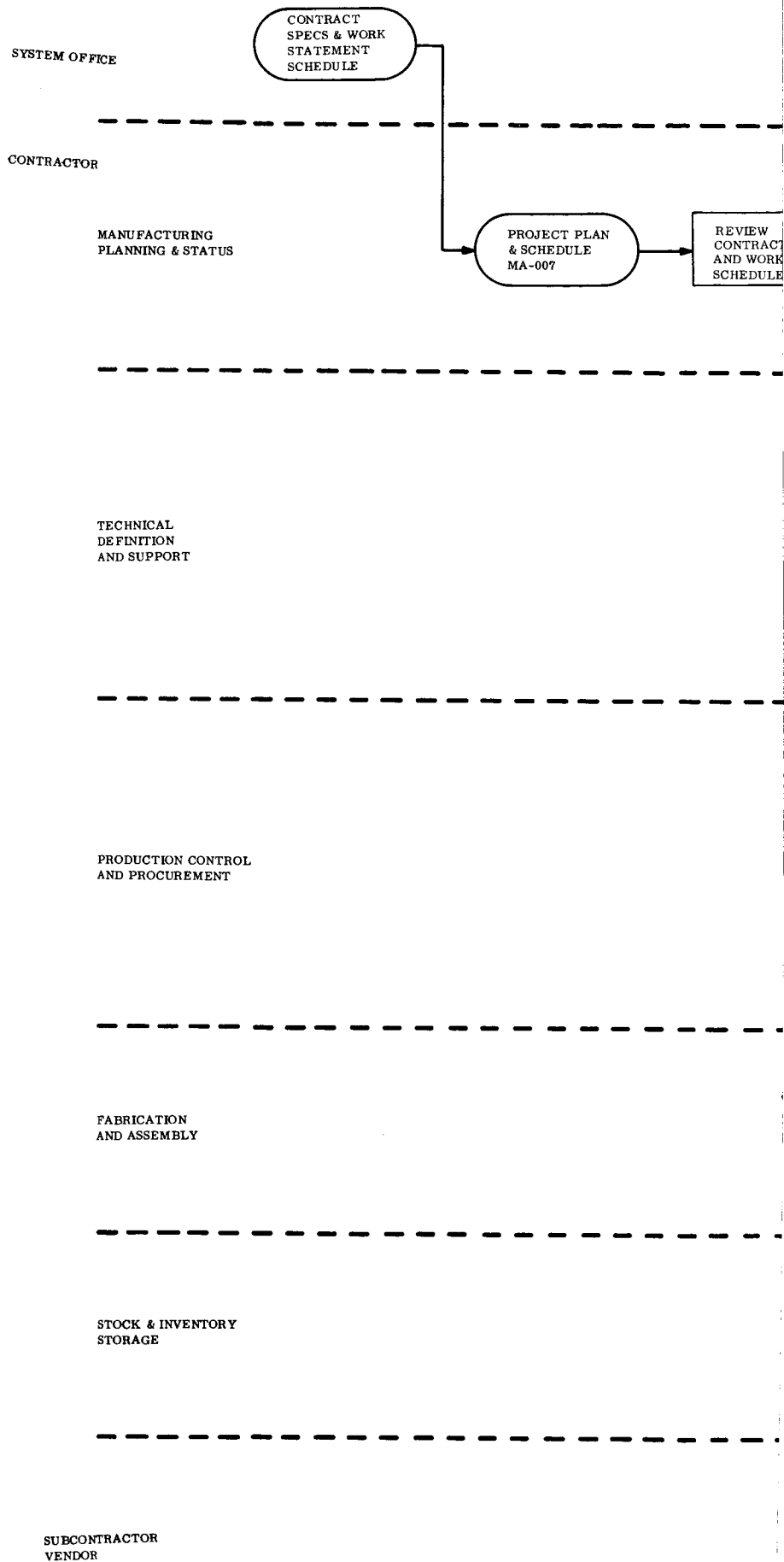


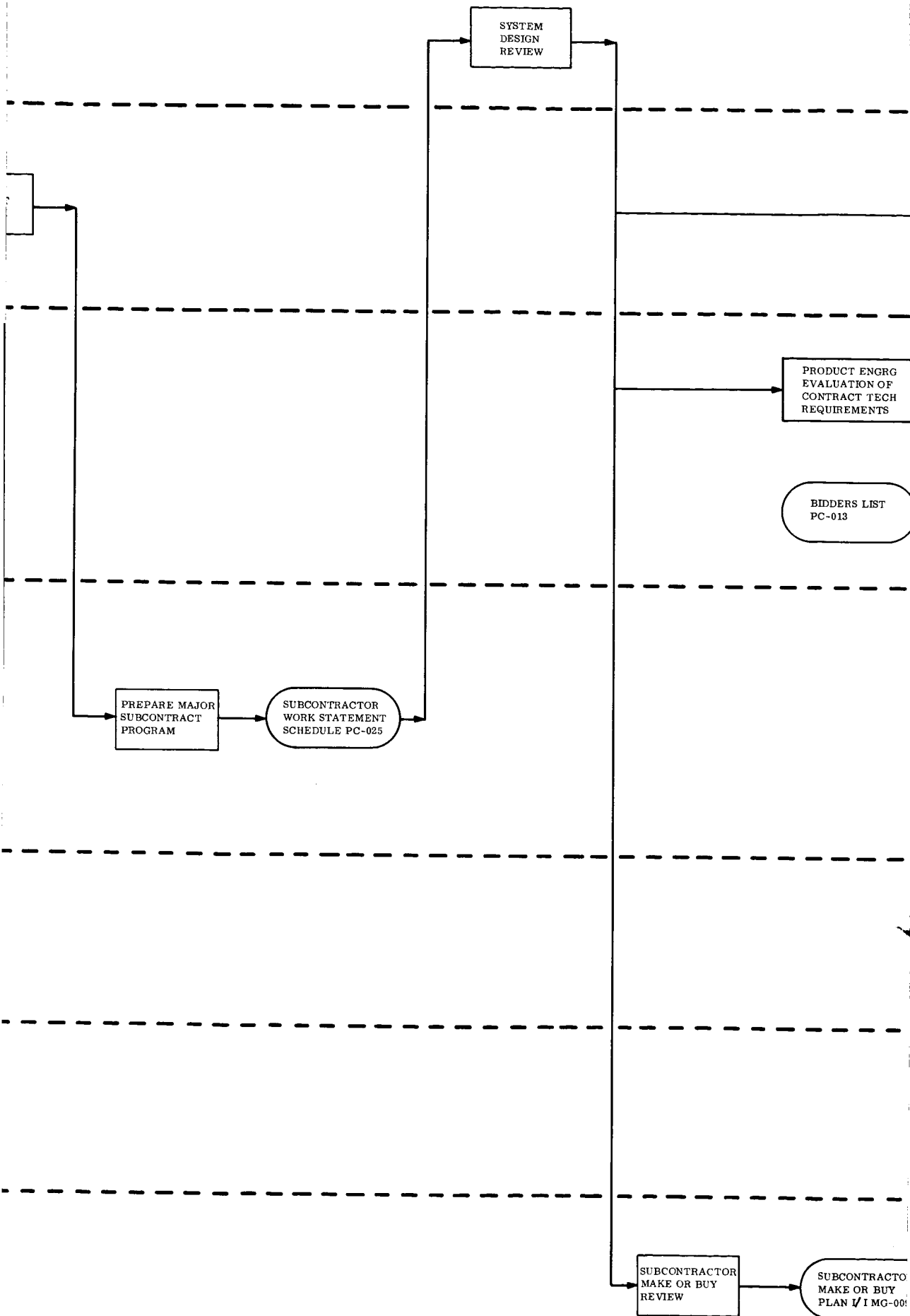
Figure C-1. Manufacturing User
Flow Diagram - Summary
(Sheet 1 of 2)

3-6-2

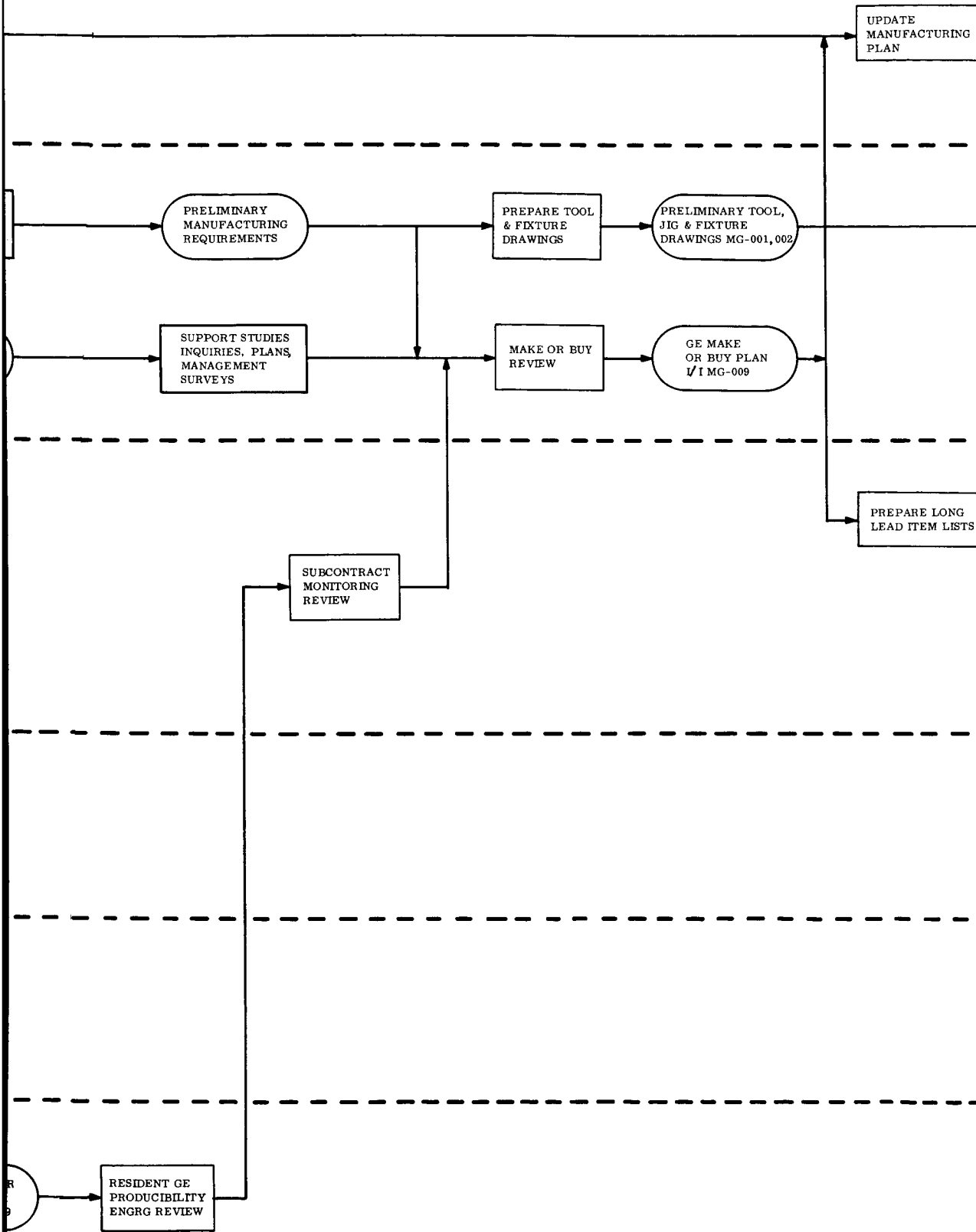








3-10-1



3-10-2

FINAL GE
MANUFACTURING
PLAN MG-009

LONG LEAD
ITEM LIST
LS-001

QUALIFIED
SUPPLIER LISTS
PC-013

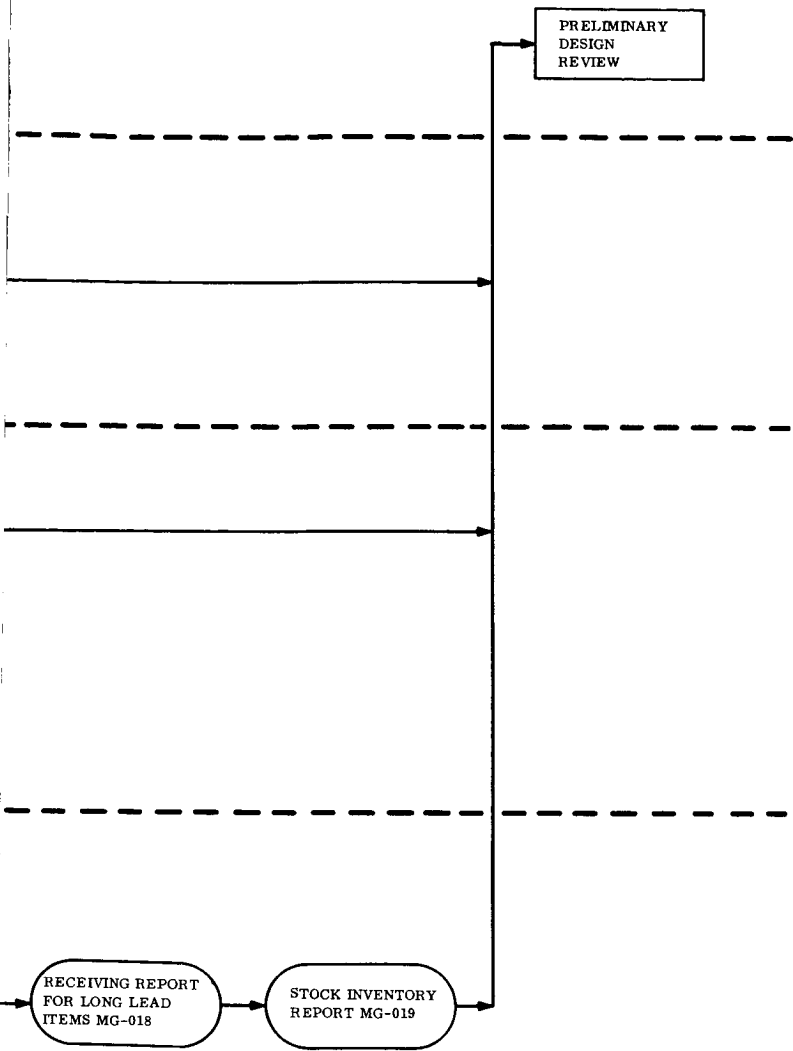
PREPARE M/R AND
P/O FOR LONG
LEAD ITEM

PURCHASE ORDERS
FOR LONG LEAD
ITEMS

FABRICATE
TEST & SHIP
LONG LEAD ITEMS

RECEIVING
INSPECTION
OF LONG LEAD ITEMS

3-10-3



LEGEND:

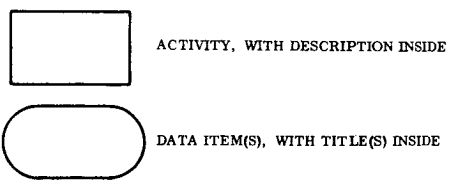


Figure C-2. Manufacturing User Flow Diagram - Contract Award Through Preliminary Design Review

3-10-4

SYSTEM OFFICE

PRELIMINARY
DESIGN
REVIEW

CONTRACTOR

MANUFACTURING
PLANNING & STATUS

APPROVED
MANUFACTURING
PLAN MG-009

TECHNICAL
DEFINITION
& SUPPORT

PRELIMINARY DESIGN
DRAWINGS, PARTS LISTS
& SPECIFICATIONS
SE-028, 027, 029, 056

PRODUCIBILITY
ENGRG EVALUATION
ATION HWWE
QUIREMENTS

PRODUCTION CONTROL
AND PROCUREMENT

APPROVED MAKE
OR BUY PLAN I/I
MG-009

MODEL & OSE
DRAWINGS &
PARTS LISTS
SE-029, 059, 060, 062

PREPARE ENCRG
MODEL & OSE
FABRICATION,
ASSY & TEST
SCHEDULE

FABRICATION
AND ASSEMBLY

STOCK AND INVENTORY
STORAGE

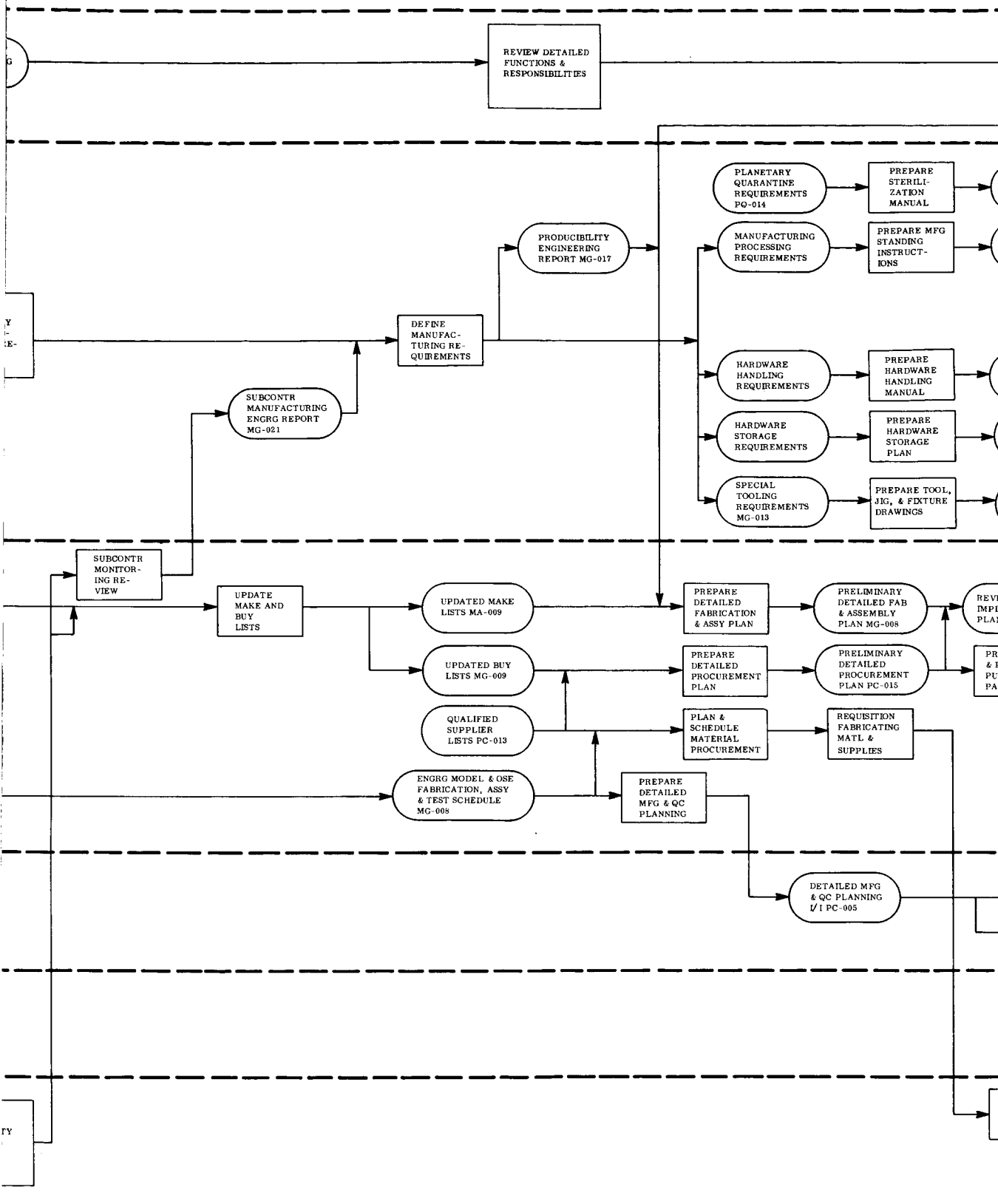
SUBCONTRACTOR
VENDOR

SUBCONTR
HARDWARE
REQUIREMENTS
PC-027

SUBCONTR MANU-
FACTURING ENGRG
EVALUATION HWWE
REQUIREMENTS

SUBCONTR
MANUFACTURING
ENGRG REPORT
MG-021

RESIDENT C
PRODUCIBIL
ENGINEERING
IN-HOUSE
REVIEW



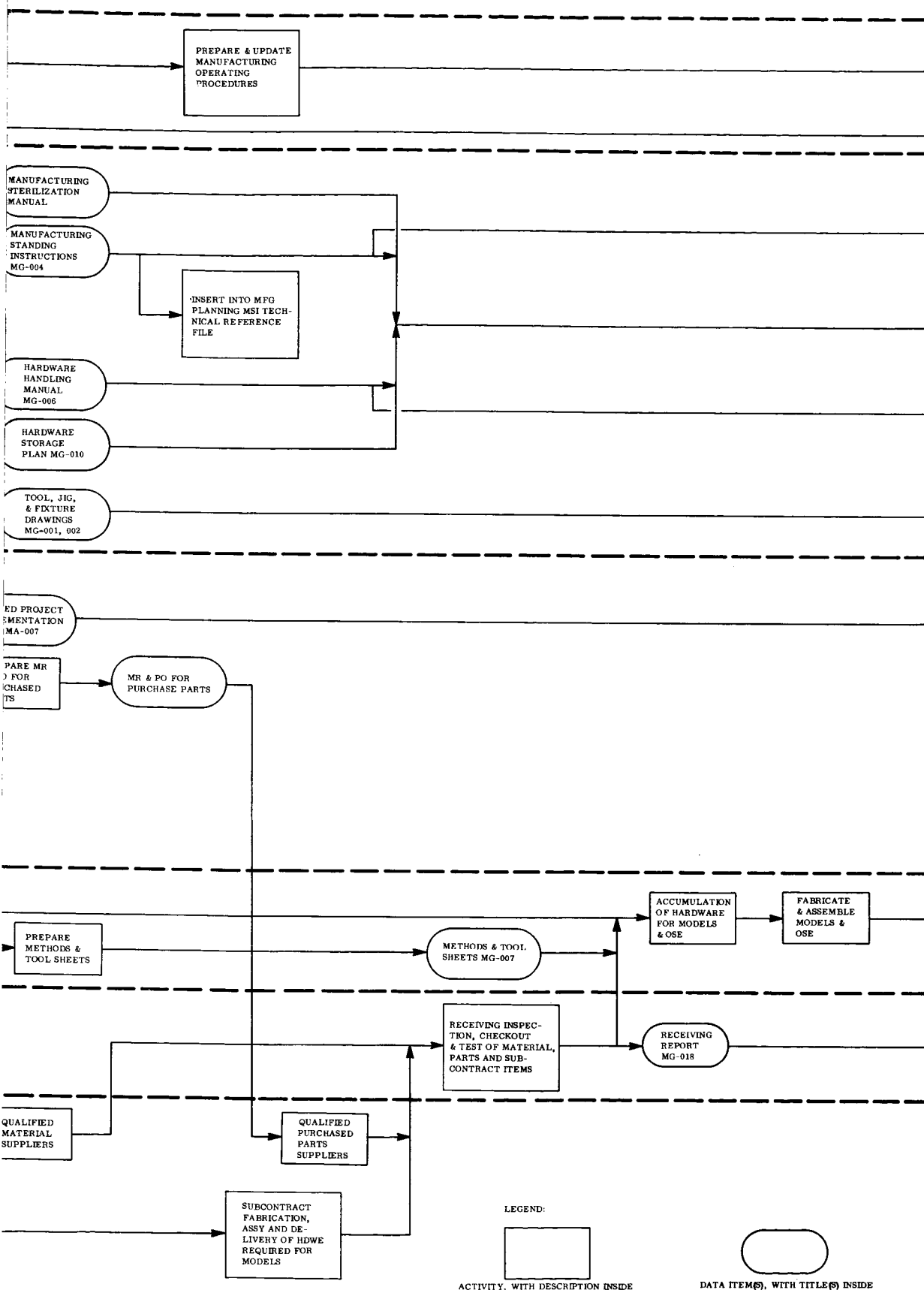


Figure C-3. Manufacturing User Flow Diagram - Preliminary Design Review Through Hard Design Review (Sheet 1 of 2)

SYSTEM OFFICE

CONTRACTOR

MANUFACTURING
PLANNING & STATUS

PREPARE MP
HARDWARE
STATUS
REPORT

PREPARE V
CERTIFICAT
TRAINING M

TECHNICAL
DEFINITION
& SUPPORT

EQUIPMEN
BROCHURE
VENDOR Q

PRODUCTION CONTROL
AND PROCUREMENT

HARDWARE STATUS
REPORT MG-021

ACCUMULATION
OF HARDWARE
FOR MODELS
& OSE

FABRICATE
& ASSEMBLE
MODELS &
OSE

MODELS & OSE
FABRICATION &
ASSEMBLY REPORT
MG-020

FABRICATION
AND ASSEMBLY

STOCK AND
INVENTORY
STORAGE

RECEIVING
REPORT
MG-018

STOCK
INVENTORY
REPORT MG-019

INDC
MFG
& SU

SUBCONTRACTOR
VENDOR

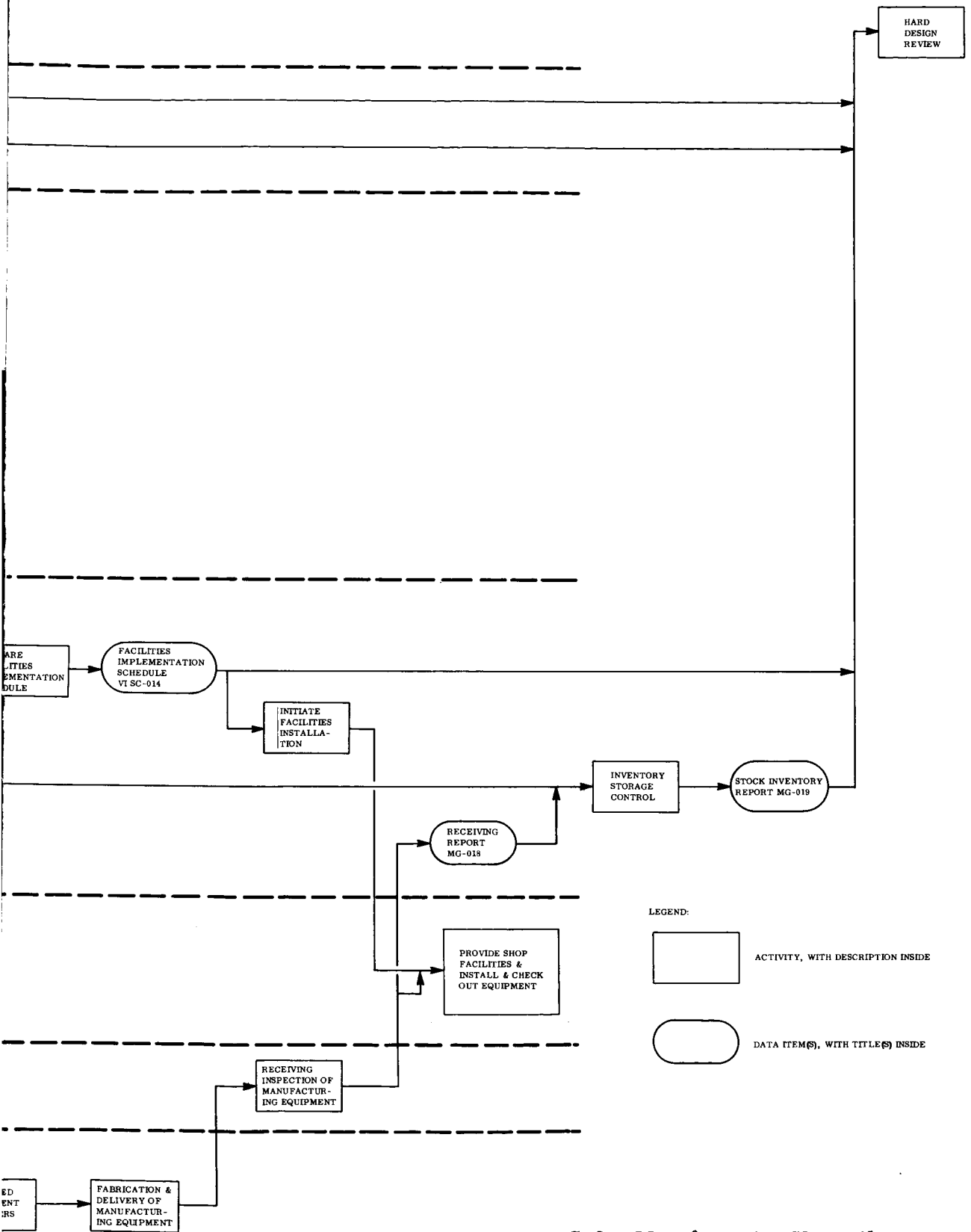
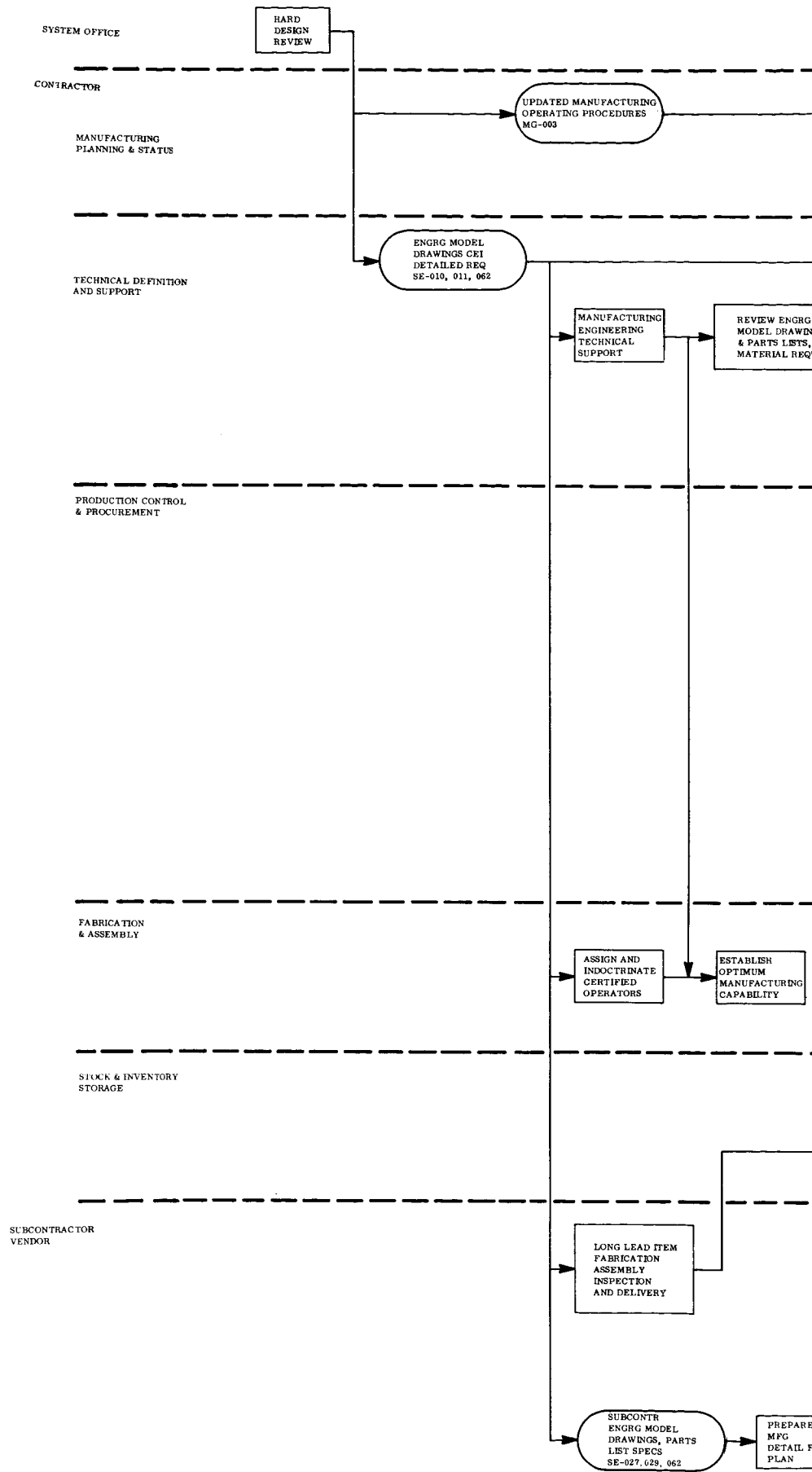
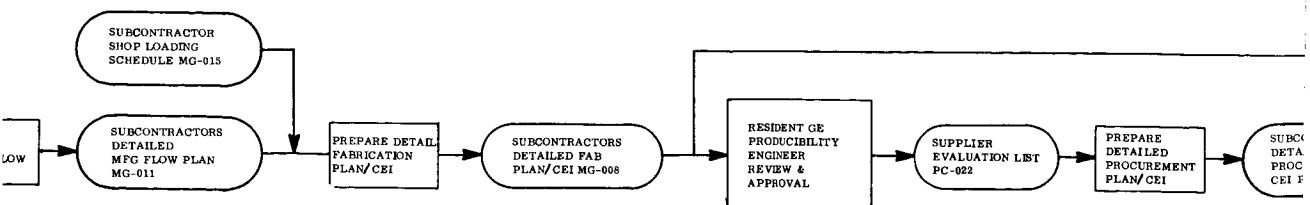


Figure C-3. Manufacturing User Flow Diagram - Preliminary Design Review Through Hard Design Review (Sheet 2 of 2)

3-14-2

2





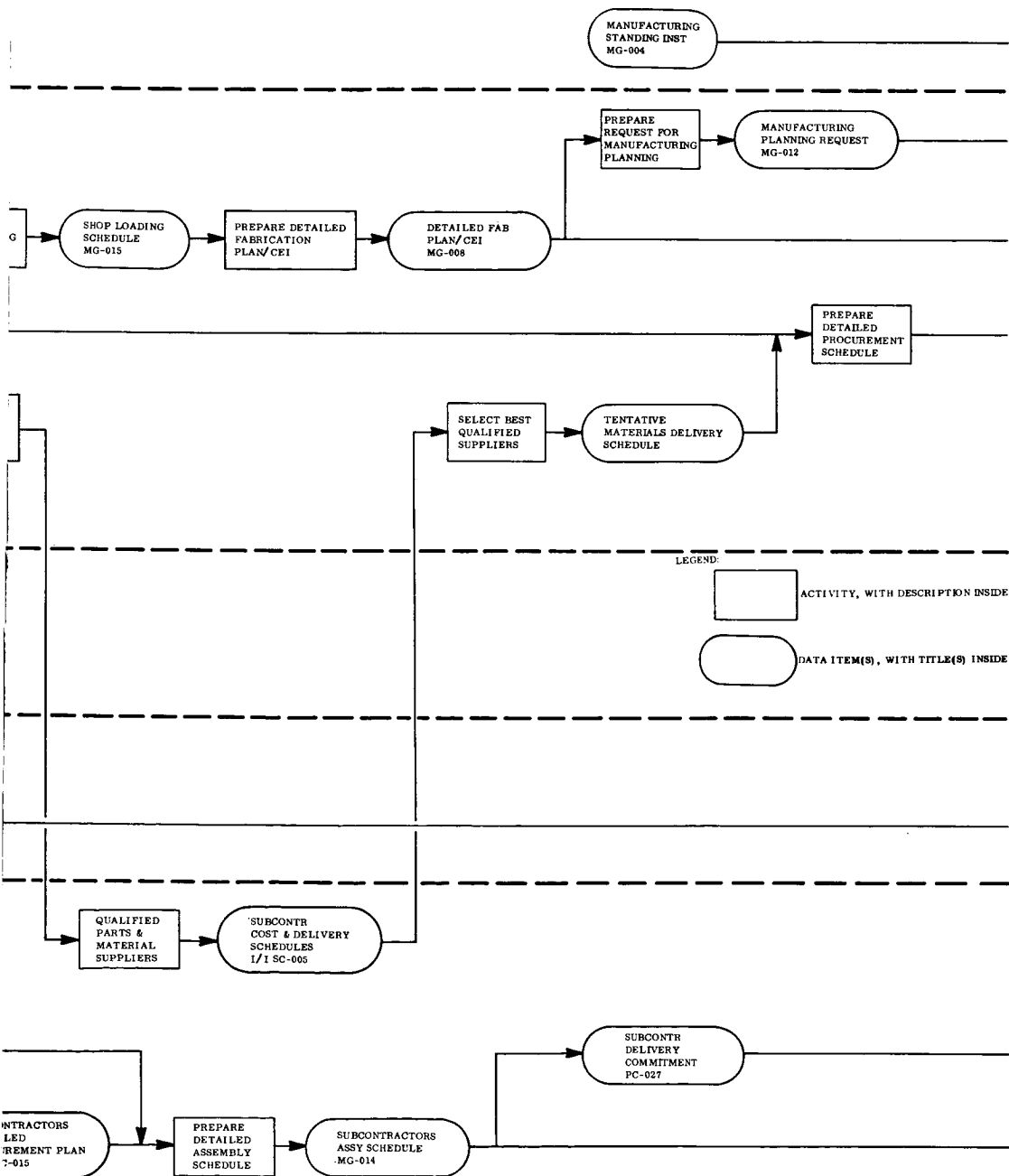


Figure C-4. Manufacturing User Flow
Diagram - Hard Design Review Through
Critical Design Review
(Sheet 1 of 3)

SYSTEM OFFICE

CONTRACTOR

MANUFACTURING
PLANNING & STATUS

TECHNICAL DEFINITION
AND SUPPORT

MANUFACTURING
STANDING INSTR
MG-004

PREPARE
REQUEST FOR
MANUFACTURING
PLANNING

MANUFACTURING
PLANNING REQUEST
MG-012

PREPARE
DETAILED
MANUFACTURING
PLANNING

DET
PLA

PRODUCTION CONTROL
& PROCUREMENT

TENTATIVE
MATERIALS DELIVERY
SCHEDULE

PREPARE
DETAILED
PROCUREMENT
SCHEDULE

DETAILED
PROCUREMENT
SCHEDULE PC-026

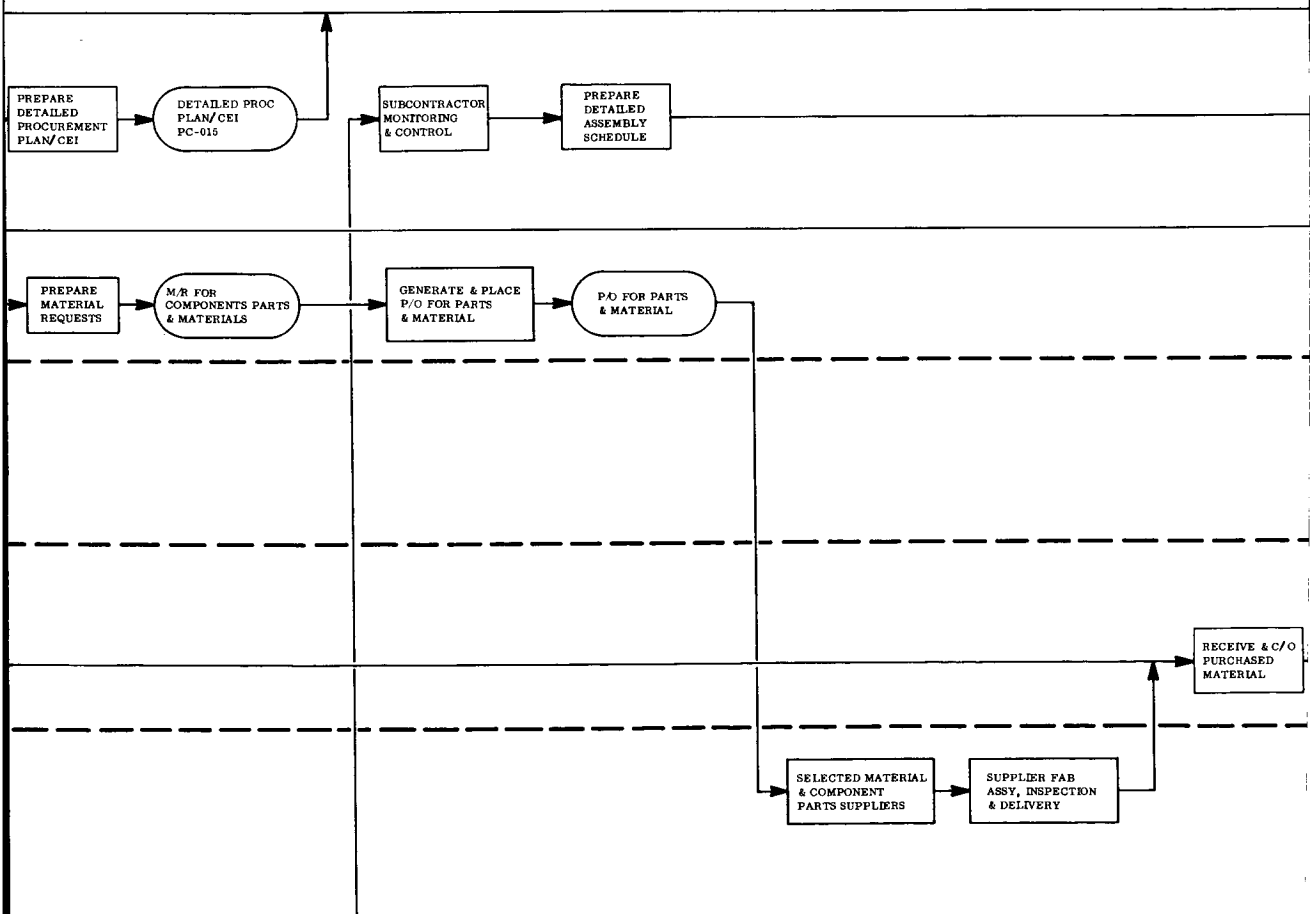
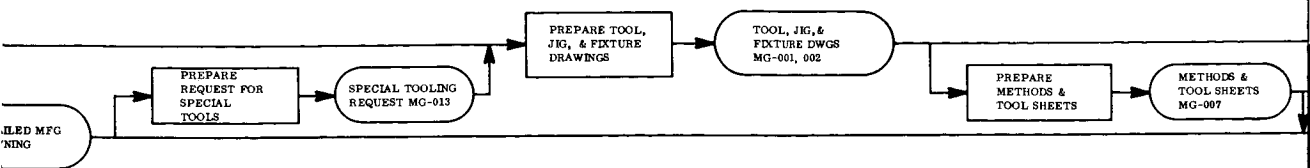
MANDATORY MATL
DELIVERY
SCHEDULE

FABRICATION
& ASSEMBLY

STOCK & INVENTORY
STORAGE

SUBCONTRACTOR
VENDOR

SUBCONTRACTOR
DELIVERY
COMMITMENT
PC-027



3-18-1

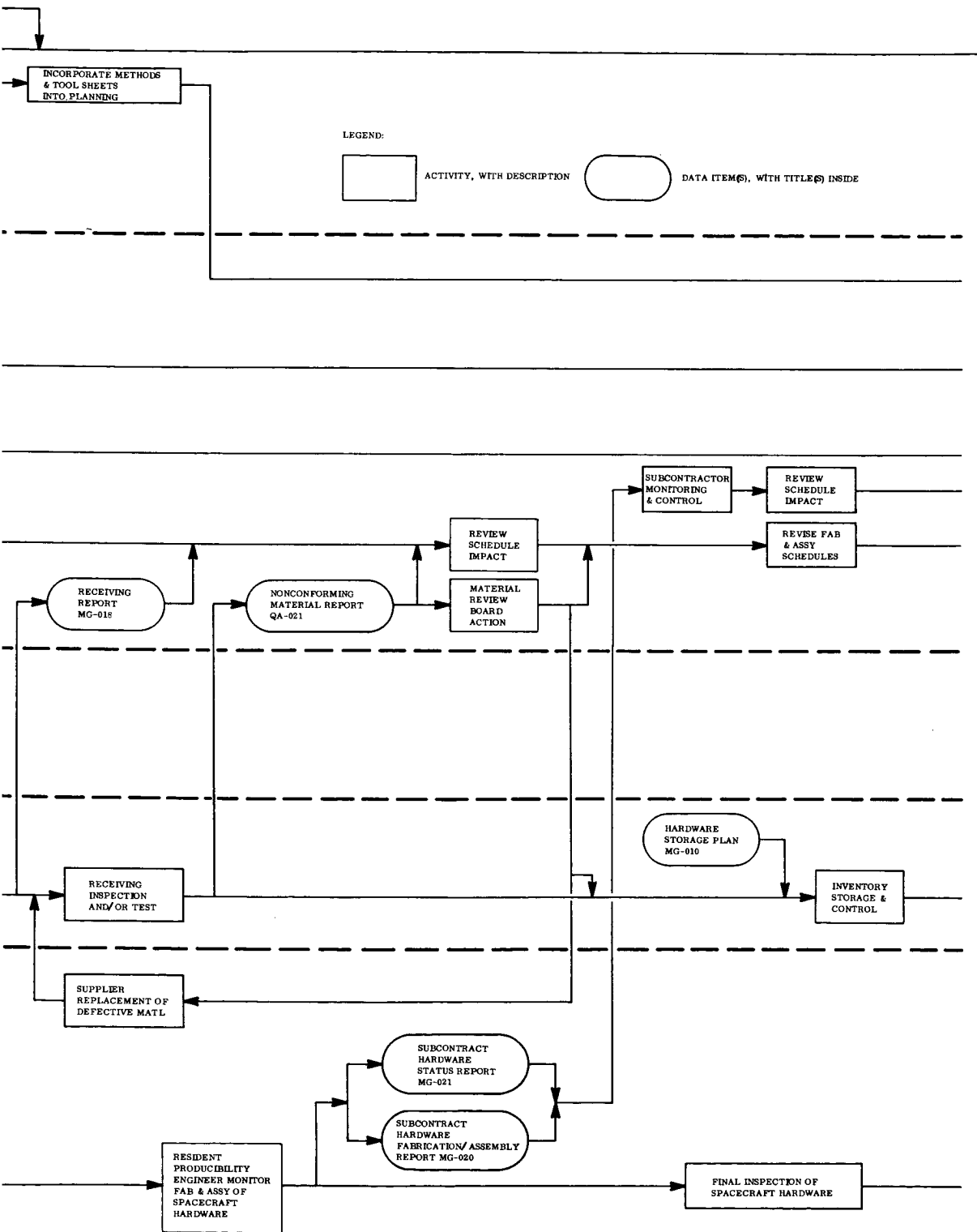


Figure C-4. Manufacturing User Flow Diagram - Hard Design Review Through Critical Design Review
(Sheet 2 of 3)

3-18-2

CONTRACTOR

MANUFACTURING PLANNING & STATUS

TECHNICAL DEFINITION AND SUPPORT

PRODUCTION CONTROL
& PROCUREMENT

MANUFACTURING
PLANNING PLUS METHODS
& TOOL SHEETS
MG-007

FABRICATE
TOOLS, JIGS
& FIXTURES

DETAILED ASSY
SCHEDULE MG-014

**SUBCONTRACTOR
MONITORING
& CONTROL**

REVIEW
SCHEDULE
IMPACT

REVISE FAB
& ASSY
SCHEDULES

INITIATE
PIECE-PART
& SUBASSY
MANUFACTURING

STOCK
INVENTORY
REPORT MG-019

FABRICATION & ASSEMBLY

ACCUMULATE
SPACECRAFT &
USE HARDWARE
& SOFTWARE

FABRI
ENGRO
COMPO
SUBAS

STOCK & INVENTORY
STORAGE

HARDWARE
STORAGE PLAN
MG-010

HARDWARE
HANDLING
MANUAL MG-006

INVENTORY
STORAGE &
CONTROL

DISPATCH
MATERIAL
TO SHOPS

SUBCONTRACTOR
VENDOR

FINAL INSPECTION OF SPACECRAFT HARDWARE

SUBCONTRACTED
HARDWARE FOR
ENGRG MODEL

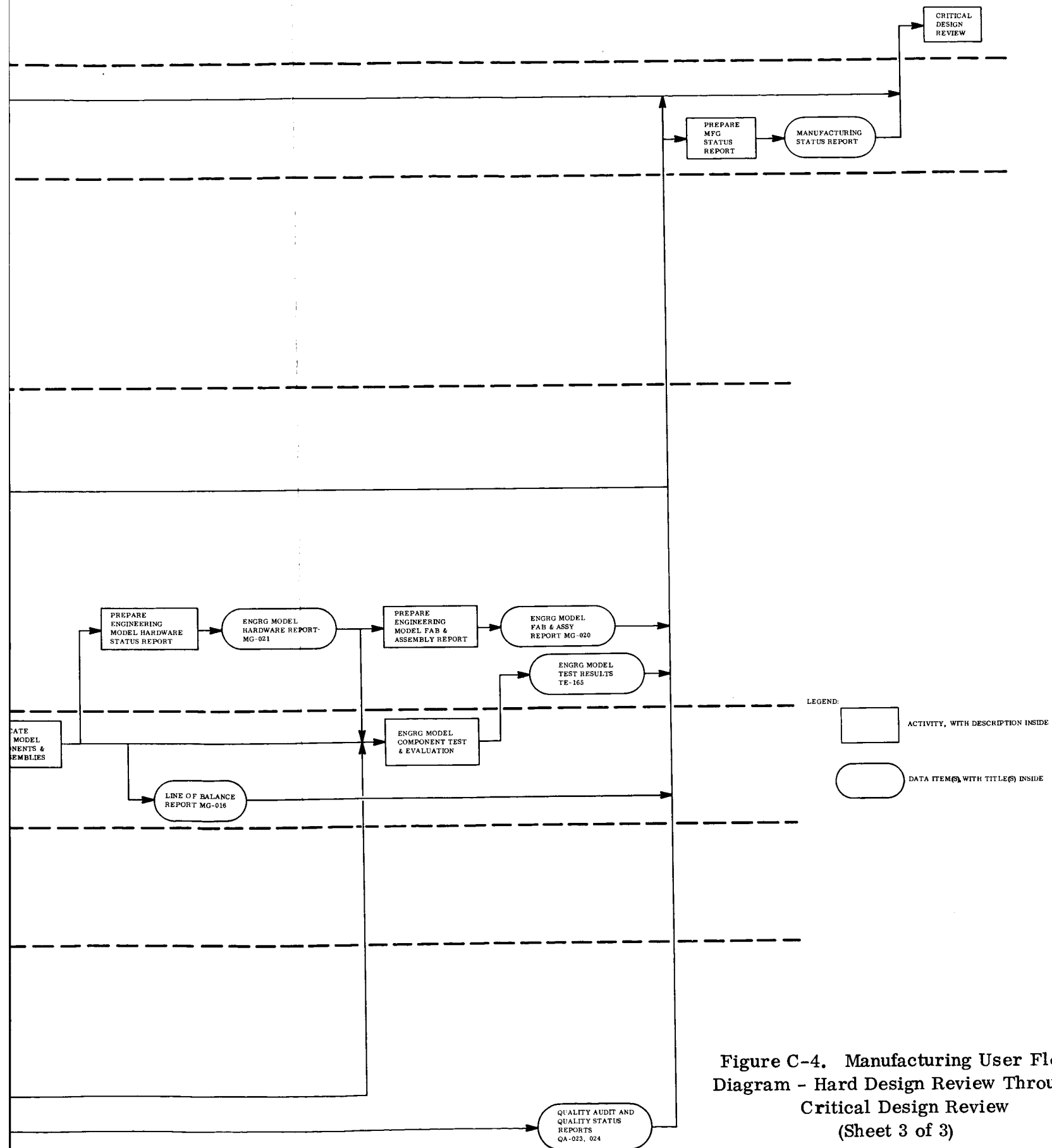
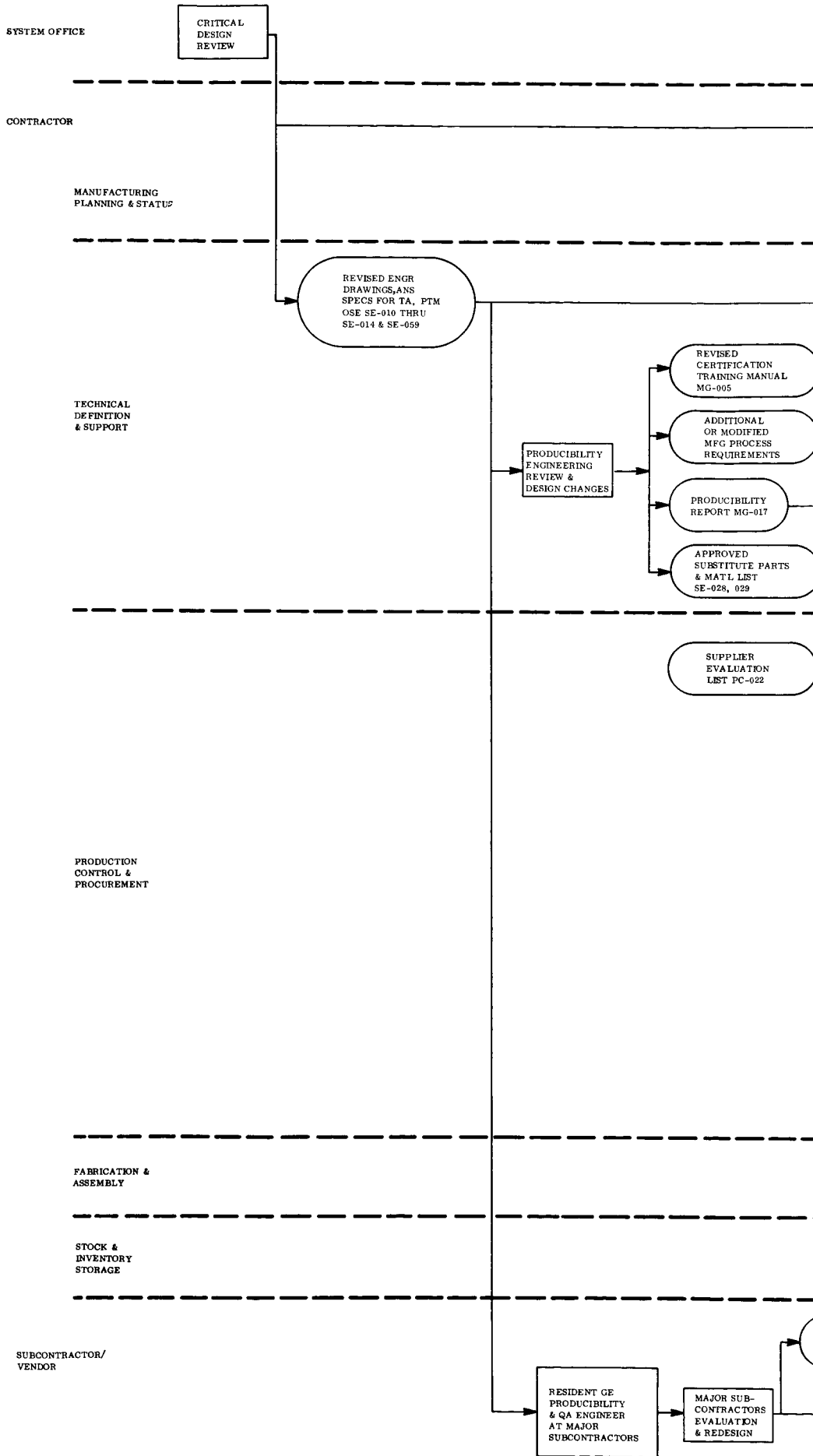
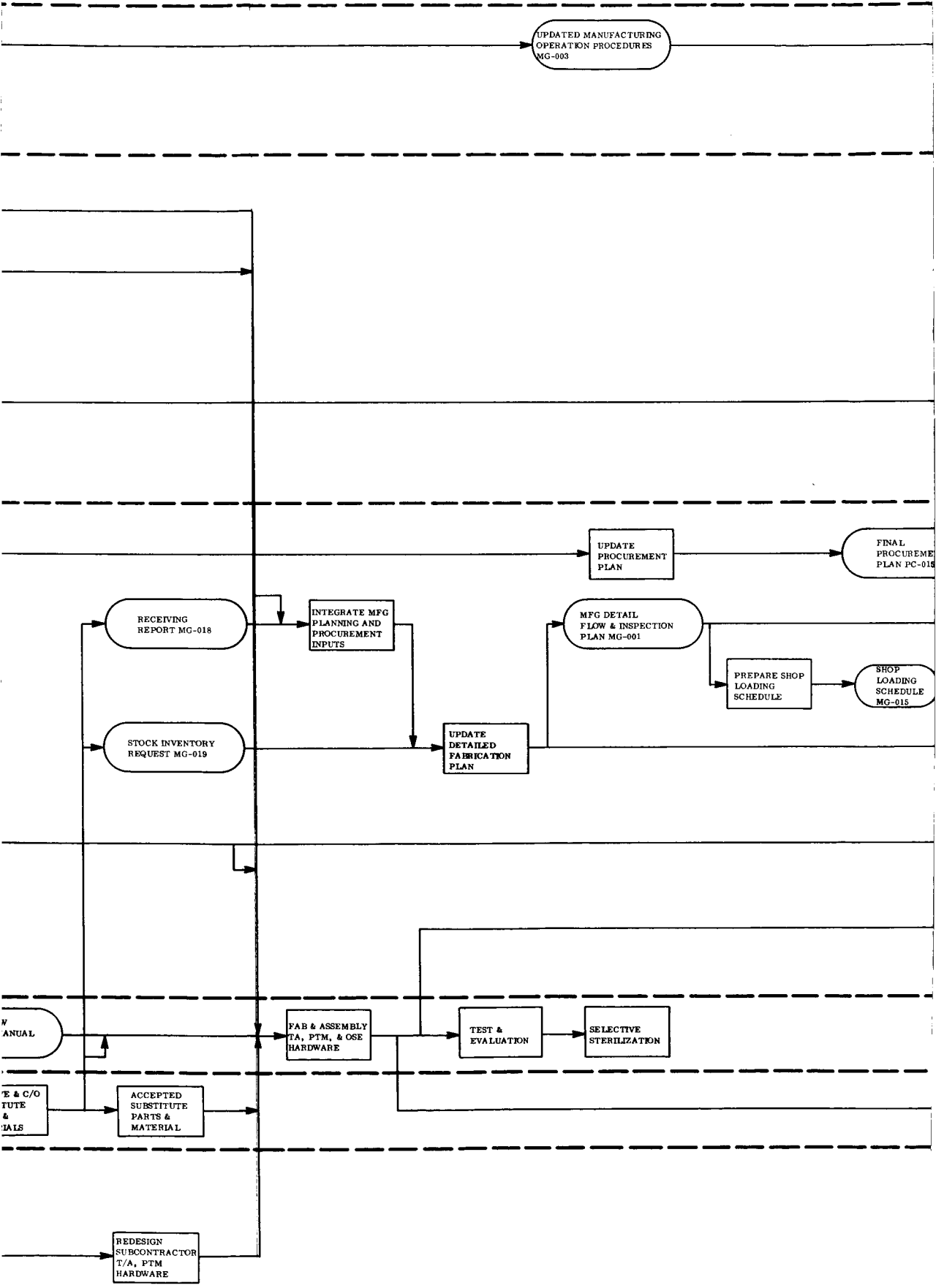


Figure C-4. Manufacturing User Flow Diagram - Hard Design Review Through Critical Design Review
(Sheet 3 of 3)





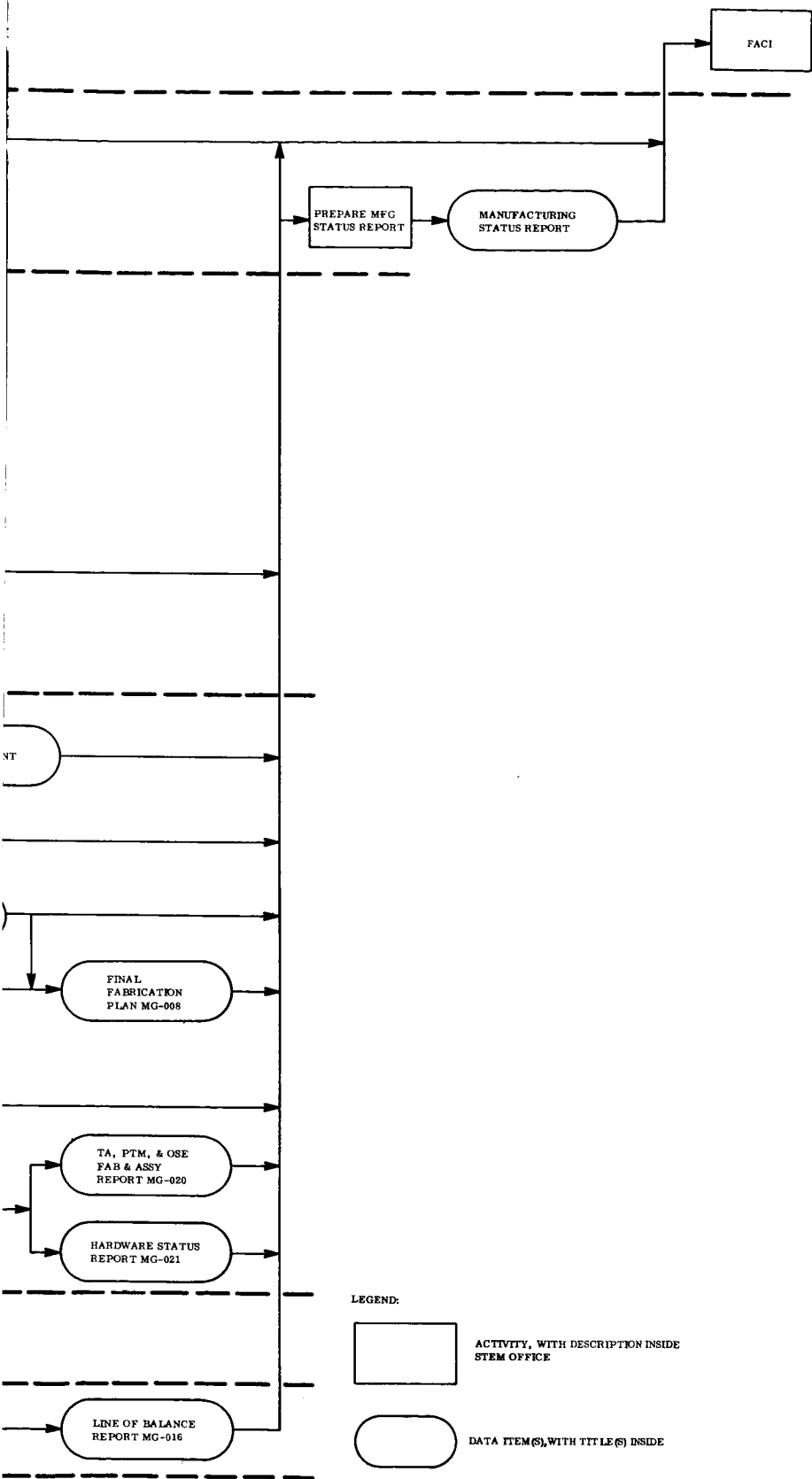
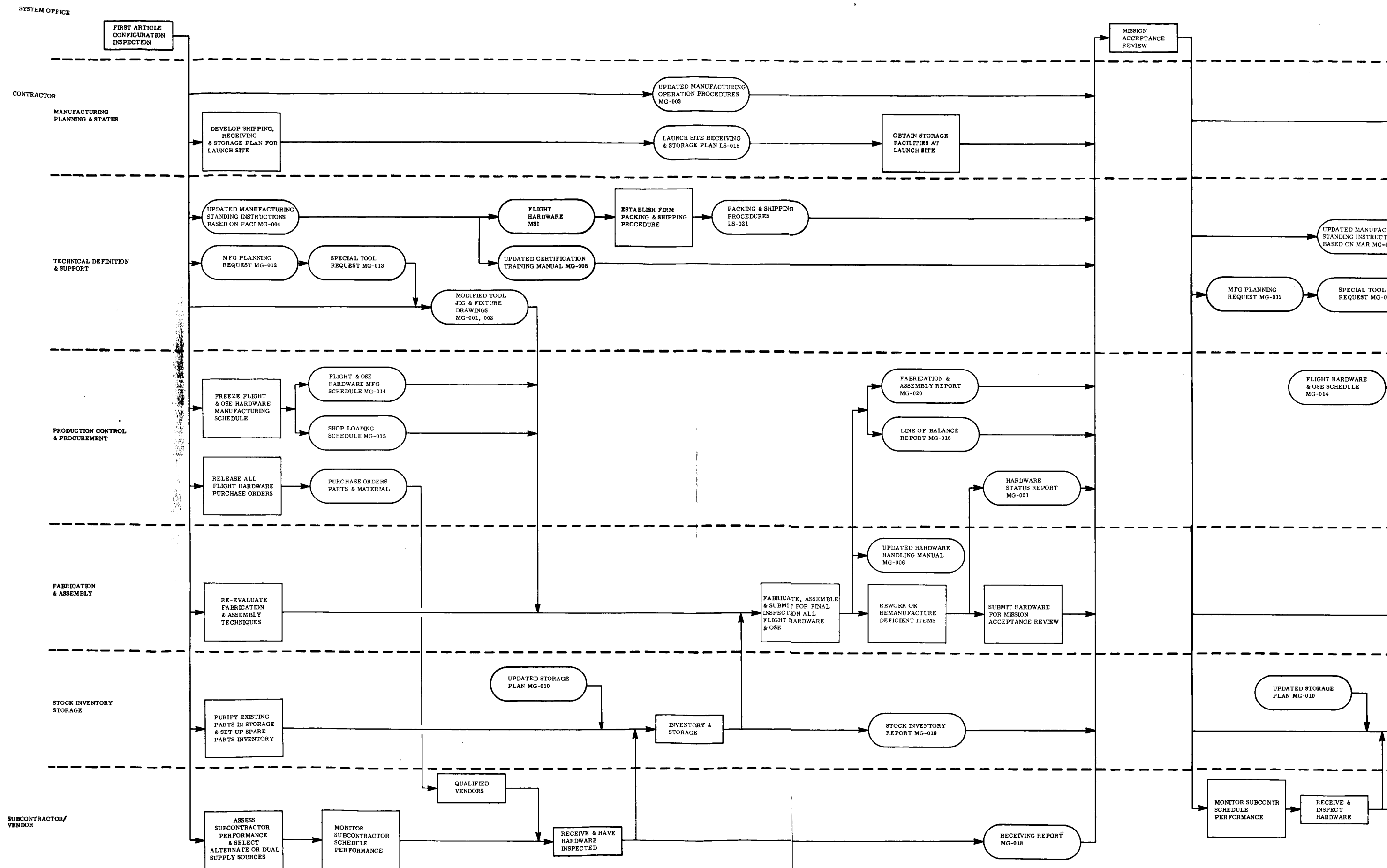
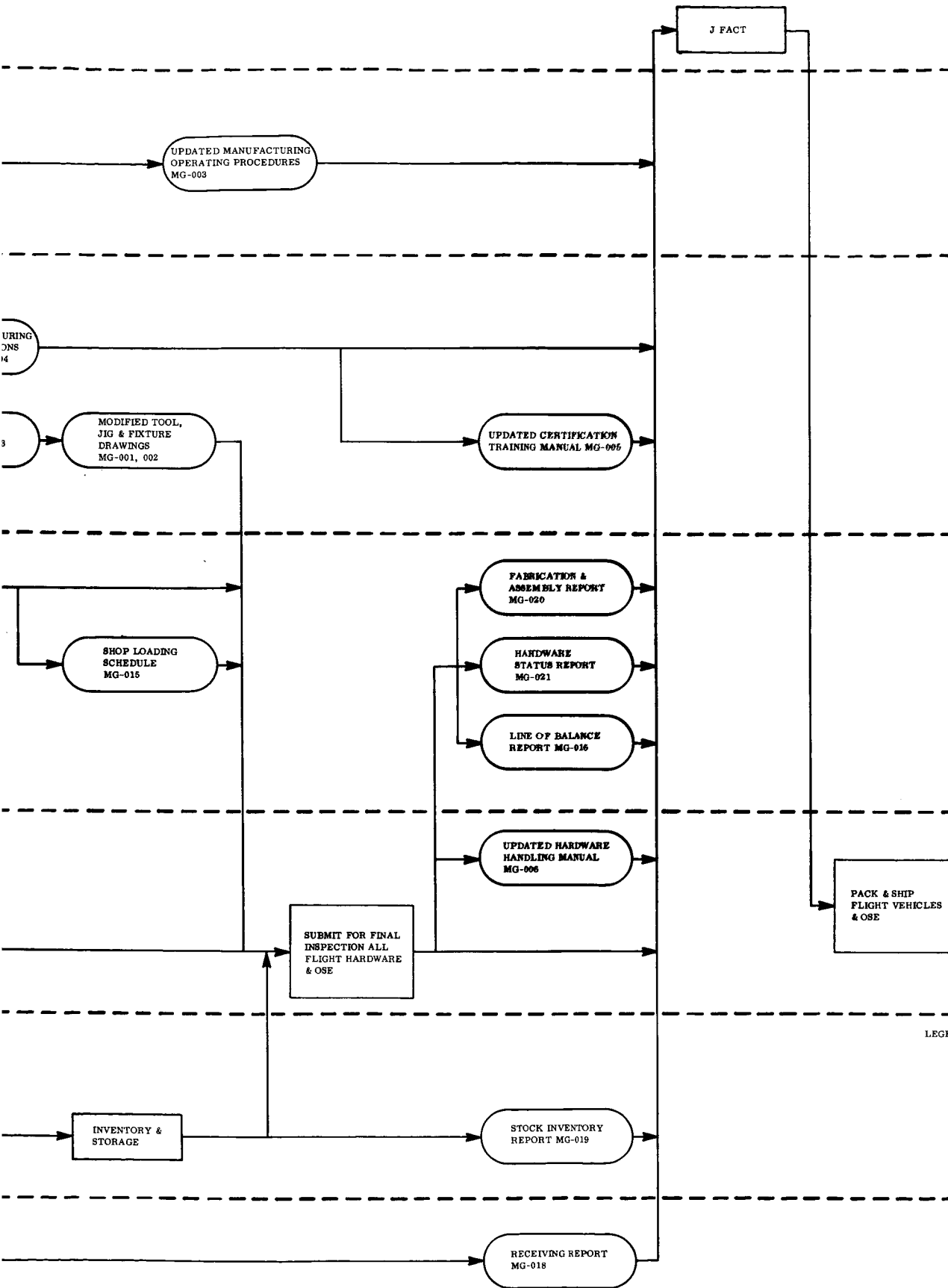


Figure C-5. Manufacturing User Flow Diagram - Critical Design Review Through First Article Configuration Inspection





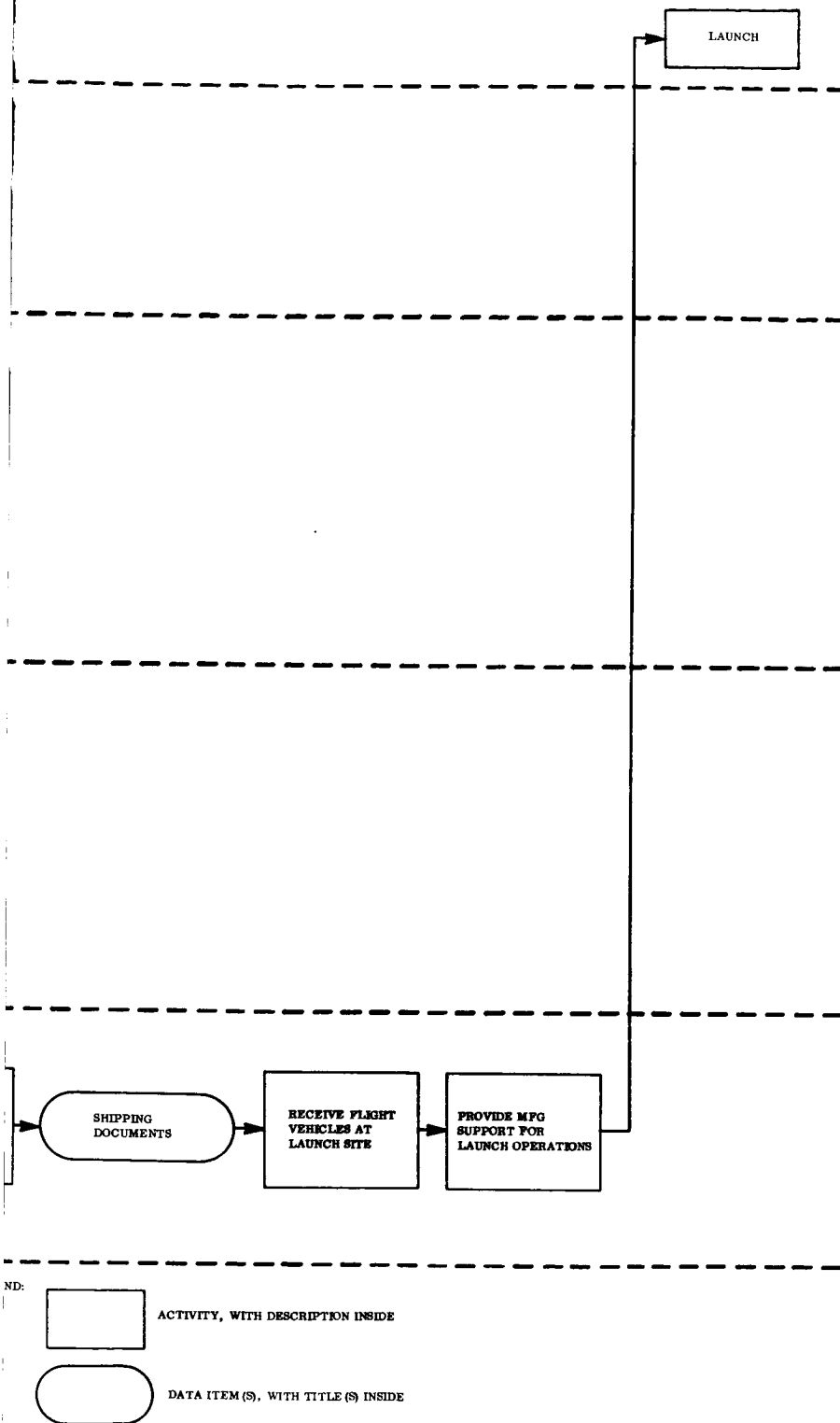


Figure C-6. Manufacturing User Flow
Diagram - First Article Configuration
Inspection Through Launch

3-29-24

3-29-3

Manufacturing Data Requirement Descriptions

<u>DRD Number</u>	<u>Title</u>
MG-001	Drawings, Interface Tools, Jigs and Fixtures
MG-002	*Drawings, Tools, Jigs and Fixtures
MG-003	Procedure, Manufacturing Operating
MG-004	Manufacturing Standing Instruction (MI)
MG-005	*Manual, Certification and Training
MG-006	*Manual, Hardware Handling
MG-007	Record, Methods and Tool Sheet
MG-008	Sheet, Planning, Fabrication/Assembly
MG-009	Plan, Manufacturing
MG-010	Plan, Storage
MG-011	Plan, Manufacturing Detailed Flow and Inspection (Assembly Diagram)
MG-012	*Request, Manufacturing Planning
MG-013	*Request, Special Tool(s)
MG-014	Schedule, Detail Assembly
MG-015	Schedule, Shop Loading
MG-016	Report, Line of Balance
MG-017	*Report, Producibility
MG-018	*Report, Receiving
MG-019	*Report, Stock Inventory
MG-020	Report, Fabrication/Assembly
MG-021	Report, Hardware Status

*Key Informal Data

GE EXHIBIT DRD MG-001

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:
ORGANIZATION ORIGINATING REQUIREMENT:	CODE:	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY:	DATE:	CONTRACT NO.:	DRD NO.:
	MG			T. F. Smyth	7/28/67		MG-001
TITLE OF DOCUMENT: DRAWINGS, INTERFACE TOOLS, JIGS AND FIXTURES				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION:		TASK OR SUBTASK:	DRL ITEM NO.:
				Manufacturing			
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:
TYPE OF DOCUMENT: ☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:
USE OF DOCUMENT: Used for the manufacture of matched and coordinated tooling used to assure compatibility of mechanical interfaces.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES: To be determined	
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:	
				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:	
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: SE-057, Drawings, (Category B) for Interface Control SE-059, Drawings, (Category E) for Manufacture and Procurement of Prime Hardware				FREQUENCY OF ISSUE:		PUBLICATION DATE:	
				☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED One time		SDR	
						UPDATE (FREQUENCY OR MILESTONE): As required thru J FACT ESTIMATED EXPIRATION DATE:	
CLASSIFICATION: ☐ SECRET ☐ GROUP 1 ☐ CONFIDENTIAL ☐ GROUP 2 ☐ SECRET RESTRICTED DATA ☐ GROUP 3 ☐ CONFIDENTIAL RESTRICTED DATA ☐ GROUP 4 ☒ UNCLASSIFIED ☐ PROPRIETARY ☐ PUBLIC DOMAIN ☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN							
FORM OF DATA: KIND OF DATA: ☐ PRINTED DOCUMENT ☐ ABSTRACT ☐ INSTRUCTION ☐ CHART ☐ BROCHURE ☐ LETTER ☐ DIAGRAM ☐ BULLETIN ☐ LIST ☒ DRAWING ☐ CATALOG ☐ LOG ☐ FILM (STATIC OR MOTION) ☐ CONTRACT ☐ MANUAL ☐ ILLUSTRATION ☐ DIRECTIVE ☐ MEMORANDUM ☐ MODEL ☒ DISCLOSURE ☐ MINUTES ☐ RECORDING (TAPE OR DISC) ☐ ENGINEERING CHANGE ☐ PLAN ☐ COMPUTER CARD ORDER ☐ PROCEDURE ☐ COMPUTER TAPE ☐ REQUEST FOR ENGINEER- ☐ REGULATION ☐ MICROFILM (W/OR W/O CARD) ING CHANGE PROPOSAL ☐ REPORT ☐ OTHER ☐ ENGINEERING CHANGE ☐ SCHEDULE PROPOSAL ☐ SPECIFICATION ☐ HANDBOOK ☐ STANDARD ☐ INDEX ☐ VOUCHER				REFERENCE DOCUMENTS: MIL-D-1000			
				APPLICABLE STANDARDS: MIL-STD-100			
				REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)			
DRAFT		DATE		PREPUBLICATION PROOF		DATE	
SUBMIT FOR REVIEW TO:							
		BY				BY	
SUBMIT FOR APPROVAL TO:		BY				BY	
Manager, Manufacturing							

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:
MG-001

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. These drawings shall include all the information necessary to fabricate the tooling. They will include sufficient information to satisfy the needs for acquiring identical items as defined in MIL-D-1000.
2. These drawings shall conform to the requirements for Form 2 drawings as specified in MIL-D-1000.
3. A set of drawings for tooling shall consist of, as appropriate, those drawings specified in MIL-STD-100 and shall meet the requirements specified therein.
4. Drawings shall be maintained current with the configuration of the tooling.

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-002

VOYAGER DATA REQUIREMENT DESCRIPTION						DRD APPROVED BY:		DATE:		DATA CATEGORY:																													
ORGANIZATION ORIGINATING REQUIREMENT:		CODE: MG	OFFICE RESPONSIBLE FOR DRD:		CODE:	DRD PREPARED BY: T. F. Smyth		DATE: 7/28/67		CONTRACT NO.:		DRD NO.: MG-002																											
TITLE OF DOCUMENT: *DRAWINGS, TOOLS, JIGS AND FIXTURES						ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:		DRL ITEM NO.:																													
						ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:		LEVEL NO.:																													
						ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:		FILE NO.:																													
TYPE OF DOCUMENT: ☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION						ORGANIZATION RESPONSIBLE FOR DOCUMENT STORAGE:		NO. OF COPIES: To be determined																															
USE OF DOCUMENT: Used for the manufacture of tools, jigs and fixtures, other than matched and coordinated tooling, which are used in the fabrication, assembly and installation of prime equipment.						ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:																															
						ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:																															
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: SE-059, Drawings (Category E) for Manufacture and Procurement of Prime Hardware						FREQUENCY OF ISSUE:		PUBLICATION DATE:																															
						☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED One time		SDR																															
								UPDATE (FREQUENCY OR MILESTONE): As required Thru MAR _____																															
CLASSIFICATION:								ESTIMATED EXPIRATION DATE:																															
☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED						☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN		☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN																															
FORM OF DATA: KIND OF DATA: ☐ PRINTED DOCUMENT ☐ ABSTRACT ☐ INSTRUCTION ☐ CHART ☐ BROCHURE ☐ LETTER ☐ DIAGRAM ☐ BULLETIN ☐ LIST ☒ DRAWING ☐ CATALOG ☐ LOG ☐ FILM (STATIC OR MOTION) ☐ CONTRACT ☐ MANUAL ☐ ILLUSTRATION ☐ DIRECTIVE ☐ MEMORANDUM ☐ MODEL ☒ DISCLOSURE ☐ MINUTES ☐ RECORDING (TAPE OR DISC) ☐ ENGINEERING CHANGE ORDER ☐ PLAN ☐ COMPUTER CARD ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ REGULATION ☐ MICROFILM (W/OR W/O CARD) ☐ ENGINEERING CHANGE PROPOSAL ☐ REPORT ☐ OTHER ☐ SCHEDULE _____ _____ ☐ SPECIFICATION _____ ☐ STANDARD _____ ☐ VOUCHER _____ ☐ HANDBOOK _____ ☐ INDEX						REFERENCE DOCUMENTS: MIL-D-1000																																	
						APPLICABLE STANDARDS: MIL-STD-100																																	
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)																																							
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SUBMIT FOR APPROVAL TO: _____	_____	_____	_____																																				
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Manager, Manufacturing	_____	_____	_____																																				

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-002

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. These drawings shall include all the information necessary to fabricate the tooling as well as certification and verification of their proper calibration and suitability.
2. These drawings shall consist of, as appropriate, those drawings specified in MIL-STD-100 and shall meet the requirements specified therein.
3. Drawings may be prepared in conformance to the Form 3 requirements of MIL-D-1000.
4. The following relaxed provisions are applicable:
 - a. Noncritical dimensions may be indicated as nominal, minimum or maximum.
 - b. Noncritical surfaces need not be indicated.
 - c. Common hardware and materials may be specified by their commercial designation.
 - d. Marking of parts may be omitted.
 - e. Scale need not be maintained.
 - f. Free hand drafting may be used if desired.

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-003

VOYAGER DATA REQUIREMENT DESCRIPTION						DRD APPROVED BY:	DATE:	DATA CATEGORY:	
ORGANIZATION ORIGINATING REQUIREMENT:		CODE: MG	OFFICE RESPONSIBLE FOR DRD:		CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-003
TITLE OF DOCUMENT: PROCEDURE, MANUFACTURING OPERATING						ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing	TASK OR SUBTASK:	DRL ITEM NO.:	
						ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:	DRL NO.:	LEVEL NO.:	
						ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:	DDL NO.:	FILE NO.:	
TYPE OF DOCUMENT: ☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION						ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES: 30	
USE OF DOCUMENT: Establishes areas of responsibility, planned routines and standard courses of action for the Manufacturing Section.						ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:	
						ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:	
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: None						FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED One time		PUBLICATION DATE: PDR	
								UPDATE (FREQUENCY OR MILESTONE): As required	
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED						☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN		ESTIMATED EXPIRATION DATE:	
FORM OF DATA: KIND OF DATA: ☒ PRINTED DOCUMENT ☐ ABSTRACT ☐ INSTRUCTION ☐ CHART ☐ BROCHURE ☐ LETTER ☐ DIAGRAM ☐ BULLETIN ☐ LIST ☐ DRAWING ☐ CATALOG ☐ LOG ☐ FILM (STATIC OR MOTION) ☐ CONTRACT ☐ MANUAL ☐ ILLUSTRATION ☐ DIRECTIVE ☐ MEMORANDUM ☐ MODEL ☐ DISCLOSURE ☐ MINUTES ☐ RECORDING (TAPE OR DISC) ☐ ENGINEERING CHANGE ORDER ☒ PROCEDURE ☐ COMPUTER CARD ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ REGULATION ☐ COMPUTER TAPE ☐ ENGINEERING CHANGE PROPOSAL ☐ REPORT ☐ MICROFILM (W/OR W/O CARD) ☐ SCHEDULE ☐ OTHER ☐ HANDBOOK ☐ STANDARD _____ _____ ☐ INDEX ☐ VOUCHER _____						REFERENCE DOCUMENTS:			
						APPLICABLE STANDARDS:			
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)									
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SUBMIT FOR REVIEW TO: _____		_____		_____		_____		_____	
_____		BY _____		_____		_____		BY _____	
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_____		_____		_____		_____		_____	
SUBMIT FOR APPROVAL TO: _____		BY _____		_____		_____		BY _____	
_____		_____		_____		_____		_____	
Manager, Manufacturing		_____		_____		_____		_____	

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

DRD NO.:

MG-003

SPECIAL INSTRUCTIONS:

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

The procedures define the internal administrative and functional manufacturing responsibilities to meet the overall program objectives and requirements and consist of the following:

1. Purpose
2. Definitions of terminology
3. Detailed description of procedure
4. Number of procedure
5. Date issued
6. Revision status

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-004

VOYAGER DATA REQUIREMENT DESCRIPTION					DRD APPROVED BY:		DATE:		DATA CATEGORY:				
ORGANIZATION ORIGINATING REQUIREMENT:		CODE:	OFFICE RESPONSIBLE FOR DRD:		CODE:	DRD PREPARED BY:		DATE:		CONTRACT NO.:	DRD NO.:		
		MG				T. F. Smyth		7/28/67			MG-004		
TITLE OF DOCUMENT: PROCEDURE, MANUFACTURING STANDING INSTRUCTIONS (MSI)						ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION:		TASK OR SUBTASK:		DRL ITEM NO.:			
						Manufacturing							
						ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:		LEVEL NO.:			
						ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:		FILE NO.:			
TYPE OF DOCUMENT:						ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES:					
☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION								20					
USE OF DOCUMENT: The MSI establishes the technical basis for detailed shop planning. It defines and controls manufacturing processes.						ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:					
						ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:					
						FREQUENCY OF ISSUE:		PUBLICATION DATE:					
						☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED		One time					
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-003, Procedure, Manufacturing Operating MG-009, Plan, Manufacturing QA-009, Plan, Quality Assurance Program QA-013, Procedure, Test/Inspection						CLASSIFICATION:		GROUP 1 GROUP 2 GROUP 3 GROUP 4 PROPRIETARY PUBLIC DOMAIN		SPECIAL HANDLING NASA DISCREET JPL DISCREET PROJECT DISCREET NOFORN			
						☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED							
FORM OF DATA:						KIND OF DATA:		REFERENCE DOCUMENTS:					
						☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER		☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX		☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☒ PROCEDURE ☐ REGULATION ☐ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER			
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)						APPLICABLE STANDARDS:							
SUBMIT FOR REVIEW TO:						DATE		PREPUBLICATION PROOF		DATE			
BY													
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SUBMIT FOR APPROVAL TO:						DATE		PREPUBLICATION PROOF		DATE			
BY													
BY													
BY													
Manager, Manufacturing													

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-004

The approved parts list will be the basis for determining materials to be specified in the MSI for use in the fabrication processes.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. Subject and scope
2. Related material and process specifications
3. Materials and equipment to be used
4. Safety precautions
5. Detailed description of the process, including the use material and the critical control procedures
6. Criteria for in-process and final inspection of process results

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-005
TITLE OF DOCUMENT: *MANUAL, CERTIFICATION AND TRAINING				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing	TASK OR SUBTASK:	DRL ITEM NO.:	
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:	DRL NO.:	LEVEL NO.:	
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:	DDL NO.:	FILE NO.:	
TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☒ REFERENCE ☐ INFORMATION				USE OF DOCUMENT: Instruction manual based on NASA and Military requirements to be used in the customer approved GE Certification and Training School for training and certifying operators and inspectors for critical processes, e.g., welding, soldering, potting, bonding, etc.			
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-009, Plan, Manufacturing QA-009, Plan, Quality Assurance Program				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:	NO. OF COPIES: 50		
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:	INFORMATION CUTOFF DATE OR MILESTONE:		
				ESTIMATED COST (\$) FOR SINGLE PREPARATION:	DATE DATA DUE TO USER:		
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED ☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN ☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED One time		PUBLICATION DATE: PDR	
				UPDATE (FREQUENCY OR MILESTONE): Monthly thru J FACT		ESTIMATED EXPIRATION DATE:	
				FORM OF DATA: ☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER			
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)				REFERENCE DOCUMENTS:			
APPLICABLE STANDARDS:							
SUBMIT FOR REVIEW TO: _____ _____ BY _____ _____ _____ _____ SUBMIT FOR APPROVAL TO: _____ BY _____ Manager, Manufacturing				PREPUBLICATION PROOF _____ _____ BY _____ _____ _____ _____			

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

DRD NO.:

MG-005

SPECIAL INSTRUCTIONS:

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

This document will define the following:

1. Outlines all processes requiring training certification.
2. Course content.
3. Identifies certification and recertification periods for the various processes.
4. Instructions for operator training and good workmanship acceptance criteria are based on approved NASA and military training school documents.
5. Pictorial illustration for defining good workmanship.
6. Delineates approved ancillary materials to support the process and the approved process equipment.
7. Defines the approved training time requirements for certification.

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-006

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:																												
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-006																												
TITLE OF DOCUMENT: *MANUAL, HARDWARE HANDLING				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:	DRL ITEM NO.:																												
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:																												
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:																												
				TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☒ REFERENCE ☐ INFORMATION																															
USE OF DOCUMENT: This manual is issued as an instruction for the proper selection and use of methods and equipments for the handling of parts, components and assemblies.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES: 25																													
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:																													
				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:																													
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-004, Instructions, Manufacturing Standing MG-009, Plan, Manufacturing RA-009, Plan, Reliability Program TE-160, Procedure, Equipment (Spacecraft and Operational Support) Assembly and Handling				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED One time		PUBLICATION DATE: PDR																													
						UPDATE (FREQUENCY OR MILESTONE): Monthly thru J FACT																													
						ESTIMATED EXPIRATION DATE:																													
CLASSIFICATION:																																			
☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED				☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN ☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN																															
FORM OF DATA:				REFERENCE DOCUMENTS:																															
KIND OF DATA: ☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX ☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☒ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☐ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER				APPLICABLE STANDARDS:																															
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)																																			
<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">DRAFT</th> <th style="width:10%;">DATE</th> <th style="width:30%;">PREPUBLICATION PROOF:</th> <th style="width:10%;">DATE</th> </tr> </thead> <tbody> <tr> <td>SUBMIT FOR REVIEW TO: _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____ BY _____</td> <td>_____</td> <td>_____ BY _____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>SUBMIT FOR APPROVAL TO: _____</td> <td>_____ BY _____</td> <td>_____ BY _____</td> <td>_____</td> </tr> <tr> <td colspan="2">Manager, Manufacturing</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>				DRAFT	DATE	PREPUBLICATION PROOF:	DATE	SUBMIT FOR REVIEW TO: _____	_____	_____	_____	_____ BY _____	_____	_____ BY _____	_____	_____	_____	_____	_____	_____	_____	_____	_____	SUBMIT FOR APPROVAL TO: _____	_____ BY _____	_____ BY _____	_____	Manager, Manufacturing		_____	_____				
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Manager, Manufacturing		_____	_____																																

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:
MG-006

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

This document will define the following:

- | | |
|---|--|
| --Safety for personnel and the hardware | --Electrical and chain hoists |
| --Lifting and turnover slings | --Rider fork and pallet trucks |
| --Transport and assembly dollies | --Handling and installation fixtures |
| --Storage and transportation containers | --Sketches and drawings will be included |

The manual specifies the procedure that must be used for handling hardware. It lists in specific detail the "Do" and the "Do Not" methods that will be used. The how to accomplish is identified to the various subassembly and assembly categories or part number if applicable.

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-007

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-007
TITLE OF DOCUMENT: RECORD, METHODS AND TOOL SHEETS				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:	DRL ITEM NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:
				TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☐ REFERENCE ☒ INFORMATION			
USE OF DOCUMENT: The Methods and Tool Sheet is a supplement to Fabrication/Assembly planning. It records a special or repetitive operation or use of a tool.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES: 20	
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:	
				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:	
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-001, Drawings, Interface Tools, Jigs and Fixtures MG-002, *Drawings, Tools, Jigs and Fixtures MG-004, Manufacturing Standing Instructions (MSIs) MG-008, Sheets, Planning, Fabrication/Assembly				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED One time		PUBLICATION DATE: PDR	
						UPDATE (FREQUENCY OR MILESTONE): As required	
						ESTIMATED EXPIRATION DATE:	
CLASSIFICATION: ☐ SECRET ☐ GROUP 1 ☐ CONFIDENTIAL ☐ GROUP 2 ☐ SPECIAL HANDLING ☐ SECRET RESTRICTED DATA ☐ GROUP 3 ☐ NASA DISCREET ☐ CONFIDENTIAL RESTRICTED DATA ☐ GROUP 4 ☐ JPL DISCREET ☒ UNCLASSIFIED ☐ PROPRIETARY ☐ PROJECT DISCREET ☐ PUBLIC DOMAIN ☐ NOFORN							
FORM OF DATA: KIND OF DATA: ☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX ☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☐ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER ☒ Record				REFERENCE DOCUMENTS: APPLICABLE STANDARDS:			
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)							
		DRAFT	DATE	PREPUBLICATION PROOF		DATE	
SUBMIT FOR REVIEW TO:		_____	_____	_____		_____	
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		BY	_____	BY		_____	
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		_____	_____	_____		_____	
		BY	_____	BY		_____	
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		_____	_____	_____		_____	
		Manager, Manufacturing					

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:
MG-007

Sketches are recommended to describe more clearly the operation and/or use of the tool. A second sheet is supplied with the form for this purpose.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. Drawing number of parts or assemblies upon which the operation or tool was used.
2. Operation name, i.e., milling, drilling, etc.
3. Work station designation.
4. Operation cycle time.
5. Detailed description of method to be employed including instructions for use of tools.
6. Revision status of the record sheet and current issue date.
7. Planner's name (original).
8. Date planned (original).

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-008

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-008
TITLE OF DOCUMENT: SHEETS, PLANNING, FABRICATION/ASSEMBLY				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:	DRL ITEM NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:
TYPE OF DOCUMENT: ☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION							
USE OF DOCUMENT: A detailed step-by-step instruction for the performance of a fabrication or assembly sequence, including in-process and final inspection steps.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES: 3	
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:	
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-004, Manufacturing Standing Instructions (MSIs) MG-009, Plan, Manufacturing MG-012, Request, Manufacturing Planning SE-006, Plan, Cleanliness Control SE-059, Drawings (Category E) for Manufacture and Procurement of Prime Equipment				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:	
				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED As required		PUBLICATION DATE: PDR UPDATE (FREQUENCY OR MILESTONE): Not applicable ESTIMATED EXPIRATION DATE:	
CLASSIFICATION: ☐ SECRET ☐ GROUP 1 ☐ CONFIDENTIAL ☐ GROUP 2 ☐ SPECIAL HANDLING ☐ SECRET RESTRICTED DATA ☐ GROUP 3 ☐ NASA DISCREET ☐ CONFIDENTIAL RESTRICTED DATA ☐ GROUP 4 ☐ JPL DISCREET ☒ UNCLASSIFIED ☐ PROPRIETARY ☐ PROJECT DISCREET ☐ PUBLIC DOMAIN ☐ NOFORN							
FORM OF DATA: KIND OF DATA: ☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX ☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☒ PLAN ☐ PROCEDURE ☐ REGULATION ☐ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER				REFERENCE DOCUMENTS:			
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)							
		DRAFT	DATE	PREPUBLICATION PROOF		DATE	
SUBMIT FOR REVIEW TO:		_____	_____	_____		_____	
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SUBMIT FOR APPROVAL TO:		_____	_____	_____		_____	
		_____	_____	_____		_____	
		BY _____	_____	BY _____		_____	
		_____	_____	_____		_____	
		_____	_____	_____		_____	
		Manager, Manufacturing	_____	_____		_____	

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

DRD NO.:

MG-008

SPECIAL INSTRUCTIONS:

Changes to Planning, Fabrication/Assembly are made in response to alteration notices (AN's) of hardware drawing changes. Changes are recorded on the change record sheet.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. Part or assembly drawing reference
2. Program name
3. Planner's name
4. Planning bill of material (if required)
5. Tool and fixture list
6. Work station designation
7. Operation standard times
8. Detailed step-by-step fabrication or assembly instructions
9. Detailed step-by-step inspection instructions
10. Method sheets (as required)
11. Change record sheet

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-009

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:		DATA CATEGORY:	
ORGANIZATION ORIGINATING REQUIREMENT:		CODE:	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY:	DATE:		CONTRACT NO.:	DRD NO.:
		MG			T. F. Smyth	7/28/67			MG-009
TITLE OF DOCUMENT: PLAN, MANUFACTURING					ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION:		TASK OR SUBTASK:		DRD ITEM NO.:
					Manufacturing				
					ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:		LEVEL NO.:
					ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:		FILE NO.:
TYPE OF DOCUMENT: ☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION					ORGANIZATION RESPONSIBLE FOR DOCUMENT STORAGE:		NO. OF COPIES:		
USE OF DOCUMENT: The Manufacturing Plan defines the system contractors modus operandi for the procurement, fabrication and assembly of prime hardware to meet the quality and reliability requirements while fulfilling the schedule requirements. It defines the organizational elements within manufacturing and their functional requirements.							20		
					ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:		
					ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:		
					FREQUENCY OF ISSUE:		PUBLICATION DATE:		
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: PC-015, Plan, Procurement QA-009, Plan, Quality Assurance Program RA-009, Plan, Reliability Program SC-002, Schedule, Project Level (PERT)					☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED		SDR		
							UPDATE (FREQUENCY OR MILESTONE):		
							As required thru HDR		
							ESTIMATED EXPIRATION DATE:		
CLASSIFICATION:					☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN		☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN		
☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED									
FORM OF DATA: ☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER _____					KIND OF DATA: ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX				
					☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☒ PLAN ☐ PROCEDURE ☐ REGULATION ☐ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER				
					REFERENCE DOCUMENTS:				
					APPLICABLE STANDARDS:				
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)									
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SUBMIT FOR REVIEW TO: _____									
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SUBMIT FOR APPROVAL TO: _____									
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Project Manager _____									

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

DRD NO.:

MG-009

SPECIAL INSTRUCTIONS:

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

The Manufacturing Plan defines the following:

1. Functional responsibilities and organizational elements
2. Facilities required
3. Manpower levels required
4. Program, detail assembly, shop and procurement schedules that will be used
5. Labor reporting system that will be used
6. Documentation systems (formal and informal)
7. Stock keeping philosophy and method of charging materials and standard stock items
8. Transportation system to be used on the program
9. Logistic support
10. Hardware handling procedures
11. Preliminary make or buy decisions

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

4

PAGE 1 OF 2

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

DRD NO.:

MG-010

SPECIAL INSTRUCTIONS:

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. Purpose and scope
2. Applicable documents
3. Reference
4. Matrix of items to be stored
5. Storage schedule
6. Environmental requirements
7. Handling and protection
8. Control procedures
9. Interface checking equipment - special requirements and agreements
10. Revision status

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-011

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:		DATA CATEGORY:						
ORGANIZATION ORIGINATING REQUIREMENT:		CODE:	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY:	DATE:		CONTRACT NO.:	DRD NO.:					
		MG			T. F. Smyth	7/28/67			MG-011					
TITLE OF DOCUMENT: PLAN, MANUFACTURING DETAILED FLOW AND INSPECTION (ASSEMBLY DIAGRAM)					ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION:		TASK OR SUBTASK:		DRD ITEM NO.:					
					Manufacturing									
					ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:		LEVEL NO.:					
					ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:		FILE NO.:					
TYPE OF DOCUMENT: ☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION					ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES:							
USE OF DOCUMENT: The hardware flow plan indicates the assembly sequence and the terminal location at which a particular sub-assembly must be assembled before subsequent assemblies can be installed. It also identifies the required inspection stations.							15							
					ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:							
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-009, Plan, Manufacturing PC-015, Plan, Project Procurement QA-009, Plan, Quality Assurance Program SC-002, Schedule, Project Level (PERT) SE-059, Drawings, (Category E) for Manufacture and Procurement of Prime Hardware					ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:							
					FREQUENCY OF ISSUE:		PUBLICATION DATE:							
					☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED		HDR UPDATE (FREQUENCY OR MILESTONE): As required thru FACS ESTIMATED EXPIRATION DATE:							
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED					☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN		☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN							
FORM OF DATA: ☐ PRINTED DOCUMENT ☐ CHART ☒ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER					KIND OF DATA: ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX					☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☒ PLAN ☐ PROCEDURE ☐ REGULATION ☐ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER				
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)					REFERENCE DOCUMENTS:									
SUBMIT FOR REVIEW TO: _____					APPLICABLE STANDARDS:									
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SUBMIT FOR APPROVAL TO: _____														
_____ BY _____														
Manager, Manufacturing														

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:
MG-011

The manufacturing hardware flow plan is especially useful when alternate assembly sequences are requested because of late deliveries, incorporation of alteration notices, etc.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

This plan will be in the form of a diagram and contain the following:

1. The flow of hardware in the normal buildup of the hardware.
2. It will show the test cycles of the various subassemblies, the location of them and also their duration.
3. The terminal location of certain specific subassemblies beyond which the assembly cannot continue until the designated operations are performed.
4. The timing sequence for the availability of the shipping containers and handling dollies.
5. The inspection stations for the assembly buildup.
6. Subassembly drawing numbers.
7. Manufacturing and inspection operation numbers (correlated to the applicable planning).

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-012

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:		DATA CATEGORY:		
ORGANIZATION ORIGINATING REQUIREMENT:		CODE:	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY:	DATE:		CONTRACT NO.:	DRD NO.:	
		MG			T. F. Smyth	7/28/67			MG-012	
TITLE OF DOCUMENT: *REQUEST, MANUFACTURING PLANNING					ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION:		TASK OR SUBTASK:		DRD ITEM NO.:	
					Manufacturing					
					ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:		LEVEL NO.:	
TYPE OF DOCUMENT: ☐ CONTROL ☒ ACTION ☐ REFERENCE ☐ INFORMATION					ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:		FILE NO.:	
USE OF DOCUMENT: The request for planning places an order on Fabrication/Assembly planners to generate Fabrication/Assembly planning for a specific item of hardware. It also identifies the shop order to be charged.					ORGANIZATION RESPONSIBLE FOR DOCUMENT STORAGE:		NO. OF COPIES:			
							5			
					ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:			
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-014, Schedule, Detail Assembly QA-008, Plan, Inspection					ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:			
					FREQUENCY OF ISSUE:		PUBLICATION DATE:			
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED					☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN		☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN		UPDATE (FREQUENCY OR MILESTONE):	
									HDR	
									ESTIMATED EXPIRATION DATE:	
FORM OF DATA: ☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER					KIND OF DATA: ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☒ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX		☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☐ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER		One time As required	
									REFERENCE DOCUMENTS:	
									APPLICABLE STANDARDS:	
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)										
SUBMIT FOR REVIEW TO:		DRAFT		DATE		PREPUBLICATION PROOF		DATE		
BY						BY				
SUBMIT FOR APPROVAL TO:										
BY						BY				
Manager, Manufacturing										

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:
MG-012

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. Drawing number of part or assembly to be planned
2. Description of item (i. e. , name or designation)
3. Quantity required
4. Date planning required
5. Date planning promised
6. Actual completion date
7. Program name
8. Shop order number
9. Requestor's name and phone number
10. Planner's name and phone number
11. Production control code

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-013

[illegible]

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-013

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. Part or assembly drawing number of item requiring the tool
2. Shop order number
3. Requestor's name
4. Program name
5. A detailed description of tool desired and of its specific use. This may include sketches.
6. Proposed vendor (if applicable)
7. Date tool is required
8. Number and date of request

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-014

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:				
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-014				
TITLE OF DOCUMENT: SCHEDULE, DETAIL ASSEMBLY				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:	DRL ITEM NO.:				
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:				
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:				
TYPE OF DOCUMENT: ☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION											
USE OF DOCUMENT: Is used to schedule the fabrication of all the parts and subassemblies necessary for the program. It is also used to determine the need date for purchased parts.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES: 10					
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:					
				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:					
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-015, Schedule, Shop Loading SC-004, Schedule, Task and Subtask Level (PERT) SC-005, Schedule, Task and Subtask Level (Milestone)				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED One time		PUBLICATION DATE: HDR					
						UPDATE (FREQUENCY OR MILESTONE): As required					
						ESTIMATED EXPIRATION DATE:					
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED				☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN ☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN							
FORM OF DATA: ☐ PRINTED DOCUMENT ☒ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER				KIND OF DATA: ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX ☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☐ REPORT ☒ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER				REFERENCE DOCUMENTS:			
				APPLICABLE STANDARDS:							
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)											
DRAFT		DATE		PREPUBLICATION PROOF		DATE					
SUBMIT FOR REVIEW TO:		BY		BY							
SUBMIT FOR APPROVAL TO:		BY		BY							
Manager, Manufacturing											

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-014

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

This document will define the following:

1. A list of all parts and subassemblies
2. The date the items on the list will be delivered to test
3. The date the items on the list will be delivered to stock
4. The date the vendor will deliver the items that are purchased
5. Fabrication and test cycle times

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-015

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-015
TITLE OF DOCUMENT: SCHEDULE, SHOP LOADING				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:	DRL ITEM NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:
				TYPE OF DOCUMENT: ☒ CONTROL ☐ ACTION ☐ REFERENCE ☐ INFORMATION			
USE OF DOCUMENT: This document is used to allocate manpower and facility time against hardware delivery requirements.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES: 6	
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:	
				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:	
				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☒ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☐ OTHERWISE, AS SPECIFIED		PUBLICATION DATE: HDR	
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-008, Sheets, Planning, Fabrication/Assembly MG-014, Schedule, Detail Assembly SE-007, Schedule, Work Package and Cost Account Level (Milestone)						UPDATE (FREQUENCY OR MILESTONE): As required	
						ESTIMATED EXPIRATION DATE:	
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED				☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN ☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN			
FORM OF DATA: ☐ PRINTED DOCUMENT ☒ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER				KIND OF DATA: ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX ☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☐ REPORT ☒ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER			
REFERENCE DOCUMENTS:				APPLICABLE STANDARDS:			
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)							
DRAFT		DATE		PREPUBLICATION PROOF		DATE	
SUBMIT FOR REVIEW TO: _____		_____		_____		_____	
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Manager, Manufacturing		_____		_____		_____	

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:
MG-015

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

This document will contain the following:

1. A list of all parts and subassemblies that will be fabricated in house
2. The date the item will be delivered to test or stock whichever is applicable
3. The number of hours allocated to the job
4. The quantity of items required
5. Remarks (problems anticipated, slippage dates, etc)

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-016

VOYAGER DATA REQUIREMENT DESCRIPTION						DRD APPROVED BY:		DATE:		DATA CATEGORY:	
ORGANIZATION ORIGINATING REQUIREMENT:		CODE: MG	OFFICE RESPONSIBLE FOR DRD:		CODE:	DRD PREPARED BY: T. F. Smyth		DATE: 7/28/67		CONTRACT NO.:	DRD NO.: MG-016
TITLE OF DOCUMENT: REPORT, LINE OF BALANCE						ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:		DRL ITEM NO.:	
						ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:		LEVEL NO.:	
						ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:		FILE NO.:	
TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☐ REFERENCE ☒ INFORMATION						ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO OF COPIES: 10			
USE OF DOCUMENT: Provides a production control graphic display for balancing actual shop events against planned events and providing "red flag" problem indications for management action.						ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:			
						ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:			
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-014, Schedule, Detail Assembly SC-004, Schedule, Task and Subtask Level, (PERT) SC-005, Schedule, Task and Subtask Level, (Milestone)						FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE AS SPECIFIED Maintain current		PUBLICATION DATE: HDR			
								UPDATE (FREQUENCY OR MILESTONE): Thru J FACT			
								ESTIMATED EXPIRATION DATE:			
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED			☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN			☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN					
FORM OF DATA: ☐ PRINTED DOCUMENT ☒ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER		KIND OF DATA: ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX				☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☒ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER		REFERENCE DOCUMENTS:			
						APPLICABLE STANDARDS:					
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)											
SUBMIT FOR REVIEW TO:			DRAFT		DATE		PREPUBLICATION PROOF		DATE		
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SUBMIT FOR APPROVAL TO:			BY _____		_____		_____		BY _____		
Manager, Manufacturing			_____		_____		_____		_____		

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:
MG-016

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

The report shall consist of the following three interrelated charts:

1. Objective Chart - Cumulative graph of quantity of items versus schedule time.
2. Production Plan Chart - Manufacturing cycle chart depicting predicted fabrication time versus time left to complete to meet project schedule.
3. Progress Chart - Depicts planned rate of production to meet project schedule against which actual hardware status is plotted.

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:																												
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-017																												
TITLE OF DOCUMENT: *REPORT, PRODUCIBILITY				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:	DRL ITEM NO.:																												
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:																												
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:																												
				TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☐ REFERENCE ☒ INFORMATION																															
USE OF DOCUMENT: The Producibility Report summarizes the findings and recommendations resulting from the producibility analysis of new designs and forms a part of the Preliminary Design Review.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO OF COPIES: 20																													
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:																													
				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:																													
				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED As required.		PUBLICATION DATE: PDR																													
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: SE-059, Drawings (Category E) for Manufacture and Procurement of Prime Hardware				UPDATE (FREQUENCY OR MILESTONE): Not applicable		ESTIMATED EXPIRATION DATE:																													
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED				☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN		☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN																													
FORM OF DATA: ☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER				KIND OF DATA: ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX				☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☒ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER																											
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)				REFERENCE DOCUMENTS:																															
				APPLICABLE STANDARDS:																															
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">DRAFT</th> <th style="width: 10%;">DATE</th> <th style="width: 30%;">PREPUBLICATION PROOF</th> <th style="width: 10%;">DATE</th> </tr> </thead> <tbody> <tr> <td>SUBMIT FOR REVIEW TO: _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____ BY _____</td> <td>_____</td> <td>_____ BY _____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>SUBMIT FOR APPROVAL TO: _____</td> <td>_____ BY _____</td> <td>_____ BY _____</td> <td>_____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Manager, Manufacturing</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>								DRAFT	DATE	PREPUBLICATION PROOF	DATE	SUBMIT FOR REVIEW TO: _____	_____	_____	_____	_____ BY _____	_____	_____ BY _____	_____	_____	_____	_____	_____	_____	_____	_____	_____	SUBMIT FOR APPROVAL TO: _____	_____ BY _____	_____ BY _____	_____	Manager, Manufacturing		_____	_____
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Manager, Manufacturing		_____	_____																																

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-017

The Producibility Report may be used to document requests for producibility changes in the event agreement cannot be reached verbally between the design engineer and the producibility engineer and the producibility engineer does not sign the drawing.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. Name of hardware item
2. Drawing number
3. Producibility engineer's name
4. Memorandum number
5. Distribution list
6. A detailed review of those design features and requirements which are deemed to be excessively difficult and/or costly to fabricate.
7. Detailed recommendations for improvements and/or changes which will render the designs more producible.

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-018

VOYAGER DATA REQUIREMENT DESCRIPTION						DRD APPROVED BY:		DATE:		DATA CATEGORY:							
ORGANIZATION ORIGINATING REQUIREMENT:		CODE:	OFFICE RESPONSIBLE FOR DRD:		CODE:	DRD PREPARED BY:		DATE:		CONTRACT NO.:		DRD NO.:					
		MG				T. F. Smyth		7/28/67				MG-018					
TITLE OF DOCUMENT: *REPORT, RECEIVING						ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION:		TASK OR SUBTASK:		DRL ITEM NO.:							
						Manufacturing											
						ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:		LEVEL NO.:							
TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☐ REFERENCE ☒ INFORMATION						ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:		FILE NO.:							
USE OF DOCUMENT: Used to inform procurement and production managers of the delivery of purchased items.						ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO OF COPIES 10		ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE					
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: PC-026, *Schedule, Project Procurement						ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:		FREQUENCY OF ISSUE:		PUBLICATION DATE					
										☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☐ WEEKLY ☐ DAILY ☒ OTHERWISE, AS SPECIFIED		SDR					
										As required		UPDATE (FREQUENCY OR MILESTONE)					
												Not applicable					
CLASSIFICATION:						ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:		ESTIMATED EXPIRATION DATE:							
☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED						☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN		☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN									
FORM OF DATA:						KIND OF DATA:		REFERENCE DOCUMENTS:		APPLICABLE STANDARDS:							
☒ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER						☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX						☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☒ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER					
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)																	
SUBMIT FOR REVIEW TO:				DRAFT		DATE		PREPUBLICATION PROOF		DATE							
BY								BY									
SUBMIT FOR APPROVAL TO:				BY				BY									
Manager, Manufacturing																	

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-018

The Receiving Report is prepared on one of the multiple copies of the purchase order so that the order and the record of its receipt are recorded on the same page. Copies for distribution are made of this sheet.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

1. Purchase order number
2. Vendor number
3. Various control code numbers (internal)
4. Delivery instructions
5. Material request (MR) number and date
6. Shop order number
7. Requestor
8. Buyer
9. Order date
10. Price of total order
11. Contract number
12. Vendor certification status
13. Vendor name and address
14. Procurement approval
15. Items procured (name and quantity and price each)
16. Quantity received
17. Date received
18. Signature of receiving clerk.

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-019

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY		DATE:	DATA CATEGORY:
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-019
TITLE OF DOCUMENT: *REPORT, STOCK INVENTORY				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:	DRL ITEM NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:
TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☐ REFERENCE ☒ INFORMATION							
USE OF DOCUMENT: The stock inventory report is used by production control (PC) in determining the availability of hardware necessary to meet production schedules and in determining the reorder point for additional quantities.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STORAGE:		NO. OF COPIES: 5	
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:	
				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:	
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-018, Report, Receiving PC-026, *Schedule, Project Procurement				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☒ WEEKLY ☐ DAILY ☐ OTHERWISE, AS SPECIFIED Maintain current		PUBLICATION DATE:	
						UPDATE (FREQUENCY OR MILESTONE): Not applicable	
						ESTIMATED EXPIRATION DATE:	
CLASSIFICATION: ☐ SECRET ☐ CONFIDENTIAL ☐ SECRET RESTRICTED DATA ☐ CONFIDENTIAL RESTRICTED DATA ☒ UNCLASSIFIED				☐ GROUP 1 ☐ GROUP 2 ☐ GROUP 3 ☐ GROUP 4 ☐ PROPRIETARY ☐ PUBLIC DOMAIN			
☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN							
FORM OF DATA: ☐ PRINTED DOCUMENT ☐ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☒ OTHER <u>Computerized Report</u>				KIND OF DATA: ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX			
				REFERENCE DOCUMENTS: 			
				APPLICABLE STANDARDS: 			
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)							
DRAFT		DATE		PREPUBLICATION PROOF		DATE	
SUBMIT FOR REVIEW TO:							
		BY				BY	
SUBMIT FOR APPROVAL TO:		BY				BY	
<u>Manager, Manufacturing</u>							

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-019

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

The stock inventory report itemizes the following:

1. An alpha-numeric listing of all parts, ie., piece parts, electronic parts, completed assemblies and subassemblies by program.
2. Quantity in stock.
3. Stock withdrawals by quantity and date.
4. Usage code.

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-020

VOYAGER DATA REQUIREMENT DESCRIPTION						DRD APPROVED BY:		DATE:		DATA CATEGORY:							
ORGANIZATION ORIGINATING REQUIREMENT:		CODE: MG		OFFICE RESPONSIBLE FOR DRD:		CODE:		DRD PREPARED BY: T. F. Smyth		DATE: 7/28/67		CONTRACT NO.:		DRD NO.: MG-020			
TITLE OF DOCUMENT: REPORT, FABRICATION/ASSEMBLY									ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing			TASK OR SUBTASK:			DRL ITEM NO.:		
									ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:			DRL NO.:			LEVEL NO.:		
									ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:			DDL NO.:			FILE NO.:		
									TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☐ REFERENCE ☒ INFORMATION								
USE OF DOCUMENT: This report provides a detailed list of problem situations affecting schedule and delivery of hardware items, with a summary of actions taken and resulting schedule changes.									ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:			NO. OF COPIES: 10					
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-014, Schedule, Detail Assembly MG-015, Schedule, Shop Loading MG-021, Report, Hardware Status SC-004, Schedule, Task and Subtask Level (PERT) SC-005, Schedule, Task and Subtask Level (Milestone)									ESTIMATED MANHOURS FOR SINGLE PREPARATION:			INFORMATION CUTOFF DATE OR MILESTONE:					
									ESTIMATED COST (\$) FOR SINGLE PREPARATION:			DATE DATA DUE TO USER:					
									FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☒ WEEKLY ☐ DAILY ☐ OTHERWISE, AS SPECIFIED			PUBLICATION DATE: PDR UPDATE (FREQUENCY OR MILESTONE): Weekly ESTIMATED EXPIRATION DATE:					
									CLASSIFICATION: ☐ SECRET ☐ GROUP 1 ☐ SPECIAL HANDLING ☐ CONFIDENTIAL ☐ GROUP 2 ☐ NASA DISCREET ☐ SECRET RESTRICTED DATA ☐ GROUP 3 ☐ JPL DISCREET ☐ CONFIDENTIAL RESTRICTED DATA ☐ GROUP 4 ☐ PROJECT DISCREET ☒ UNCLASSIFIED ☐ PROPRIETARY ☐ PUBLIC DOMAIN ☐ NOFORN								
FORM OF DATA: KIND OF DATA: ☒ PRINTED DOCUMENT ☐ ABSTRACT ☐ INSTRUCTION ☐ CHART ☐ BROCHURE ☐ LETTER ☐ DIAGRAM ☐ BULLETIN ☐ LIST ☐ DRAWING ☐ CATALOG ☐ LOG ☐ FILM (STATIC OR MOTION) ☐ CONTRACT ☐ MANUAL ☐ ILLUSTRATION ☐ DIRECTIVE ☐ MEMORANDUM ☐ MODEL ☐ DISCLOSURE ☐ MINUTES ☐ RECORDING (TAPE OR DISC) ☐ ENGINEERING CHANGE ORDER ☐ PLAN ☐ COMPUTER CARD ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☒ REPORT ☐ COMPUTER TAPE ☐ ENGINEERING CHANGE PROPOSAL ☐ SCHEDULE ☐ MICROFILM (W/OR W/O CARD) ☐ HANDBOOK ☐ SPECIFICATION ☐ OTHER ☐ INDEX ☐ VOUCHER									REFERENCE DOCUMENTS:								
									APPLICABLE STANDARDS:								
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)																	
				DRAFT		DATE		PREPUBLICATION PROOF				DATE					
SUBMIT FOR REVIEW TO: _____				_____		_____		_____				_____					
_____				BY _____		_____		_____				BY _____					
_____				_____		_____		_____				_____					
_____				_____		_____		_____				_____					
SUBMIT FOR APPROVAL TO: _____				BY _____		_____		_____				BY _____					
Manager, Manufacturing				_____		_____		_____				_____					

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-020

Reports are updated weekly and constitute a continuous history of schedule problem resolution.

Updated reports are presented for discussion at weekly status meetings with the Manager, Manufacturing.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

Problem and action summary.

1. Component name and identification number
2. Priority of action
3. Fiscal week the problem was reported
4. Problem statement
5. Required action
6. Date action promised complete
7. Function responsible for action
8. Name of manager preparing report and date

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

GE EXHIBIT DRD MG-021

VOYAGER DATA REQUIREMENT DESCRIPTION				DRD APPROVED BY:		DATE:	DATA CATEGORY:
ORGANIZATION ORIGINATING REQUIREMENT:	CODE: MG	OFFICE RESPONSIBLE FOR DRD:	CODE:	DRD PREPARED BY: T. F. Smyth	DATE: 7/28/67	CONTRACT NO.:	DRD NO.: MG-021
TITLE OF DOCUMENT: REPORT, HARDWARE STATUS				ORGANIZATION RESPONSIBLE FOR DOCUMENT PREPARATION: Manufacturing		TASK OR SUBTASK:	DRL ITEM NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT REPRODUCTION:		DRL NO.:	LEVEL NO.:
				ORGANIZATION RESPONSIBLE FOR DOCUMENT DISTRIBUTION:		DDL NO.:	FILE NO.:
				TYPE OF DOCUMENT: ☐ CONTROL ☐ ACTION ☐ REFERENCE ☒ INFORMATION			
USE OF DOCUMENT: The hardware status report is used to record the status of hardware by reporting the latest schedule changes as they occur.				ORGANIZATION RESPONSIBLE FOR DOCUMENT STOWAGE:		NO. OF COPIES: 15	
				ESTIMATED MANHOURS FOR SINGLE PREPARATION:		INFORMATION CUTOFF DATE OR MILESTONE:	
INTERRELATIONSHIP WITH OTHER DATA REQUIREMENTS: MG-014, Schedule, Detail Assembly MG-015, Schedule, Shop Loading PC-003, *Report, Incentive Contract Analysis				ESTIMATED COST (\$) FOR SINGLE PREPARATION:		DATE DATA DUE TO USER:	
				FREQUENCY OF ISSUE: ☐ ANNUALLY ☐ SEMI-ANNUALLY ☐ QUARTERLY ☐ BI-MONTHLY ☐ MONTHLY ☐ SEMI-MONTHLY ☐ BI-WEEKLY ☒ WEEKLY ☐ DAILY ☐ OTHERWISE, AS SPECIFIED		PUBLICATION DATE: PDR	
						UPDATE (FREQUENCY OR MILESTONE): Weekly	
CLASSIFICATION:				ESTIMATED EXPIRATION DATE:			
☐ SECRET ☐ GROUP 1 ☐ CONFIDENTIAL ☐ GROUP 2 ☐ SECRET RESTRICTED DATA ☐ GROUP 3 ☐ CONFIDENTIAL RESTRICTED DATA ☐ GROUP 4 ☒ UNCLASSIFIED ☐ PROPRIETARY ☐ PUBLIC DOMAIN ☐ SPECIAL HANDLING ☐ NASA DISCREET ☐ JPL DISCREET ☐ PROJECT DISCREET ☐ NOFORN							
FORM OF DATA:				REFERENCE DOCUMENTS:			
KIND OF DATA: ☐ PRINTED DOCUMENT ☒ CHART ☐ DIAGRAM ☐ DRAWING ☐ FILM (STATIC OR MOTION) ☐ ILLUSTRATION ☐ MODEL ☐ RECORDING (TAPE OR DISC) ☐ COMPUTER CARD ☐ COMPUTER TAPE ☐ MICROFILM (W/OR W/O CARD) ☐ OTHER ☐ ABSTRACT ☐ BROCHURE ☐ BULLETIN ☐ CATALOG ☐ CONTRACT ☐ DIRECTIVE ☐ DISCLOSURE ☐ ENGINEERING CHANGE ORDER ☐ REQUEST FOR ENGINEERING CHANGE PROPOSAL ☐ ENGINEERING CHANGE PROPOSAL ☐ HANDBOOK ☐ INDEX ☐ INSTRUCTION ☐ LETTER ☐ LIST ☐ LOG ☐ MANUAL ☐ MEMORANDUM ☐ MINUTES ☐ PLAN ☐ PROCEDURE ☐ REGULATION ☒ REPORT ☐ SCHEDULE ☐ SPECIFICATION ☐ STANDARD ☐ VOUCHER							
APPLICABLE STANDARDS:							
REVIEWS AND/OR APPROVALS REQUIRED: (LIST IN ORDER OF SUBMITTAL)							
DRAFT		DATE		PREPUBLICATION PROOF		DATE	
SUBMIT FOR REVIEW TO: _____		_____		_____		_____	
_____ BY _____		_____		_____ BY _____		_____	
_____		_____		_____		_____	
SUBMIT FOR APPROVAL TO: _____		_____ BY _____		_____ BY _____		_____	
_____		_____		_____		_____	
Manager, Manufacturing		_____		_____		_____	

VOYAGER DATA REQUIREMENT DESCRIPTION - 2ND SHEET

SPECIAL INSTRUCTIONS:

DRD NO.:

MG-021

A weekly meeting is held where the latest promises are reviewed. A plan is made to improve the promises, if possible, and the hardware status is updated and reissued.

SPECIAL DISTRIBUTION: (IF DISTRIBUTION IS NOT COVERED BY AN EXISTING DDL WRITE IN DISTRIBUTION BELOW)

OUTLINE OF CONTENTS:

The Hardware Status Report identifies the following:

1. Lists all the parts and subassemblies by name and identification number that are required in the fabrication of the vehicle
2. Depicts whether it is a make item or a buy item
3. Shows current promise date of each item resulting from activities of subordinate items

(CONTINUE ON THIRD SHEET, IF NECESSARY, AND AFFIX TO THIS DRD.)

DOCUMENTATION RELATIONSHIP TREES

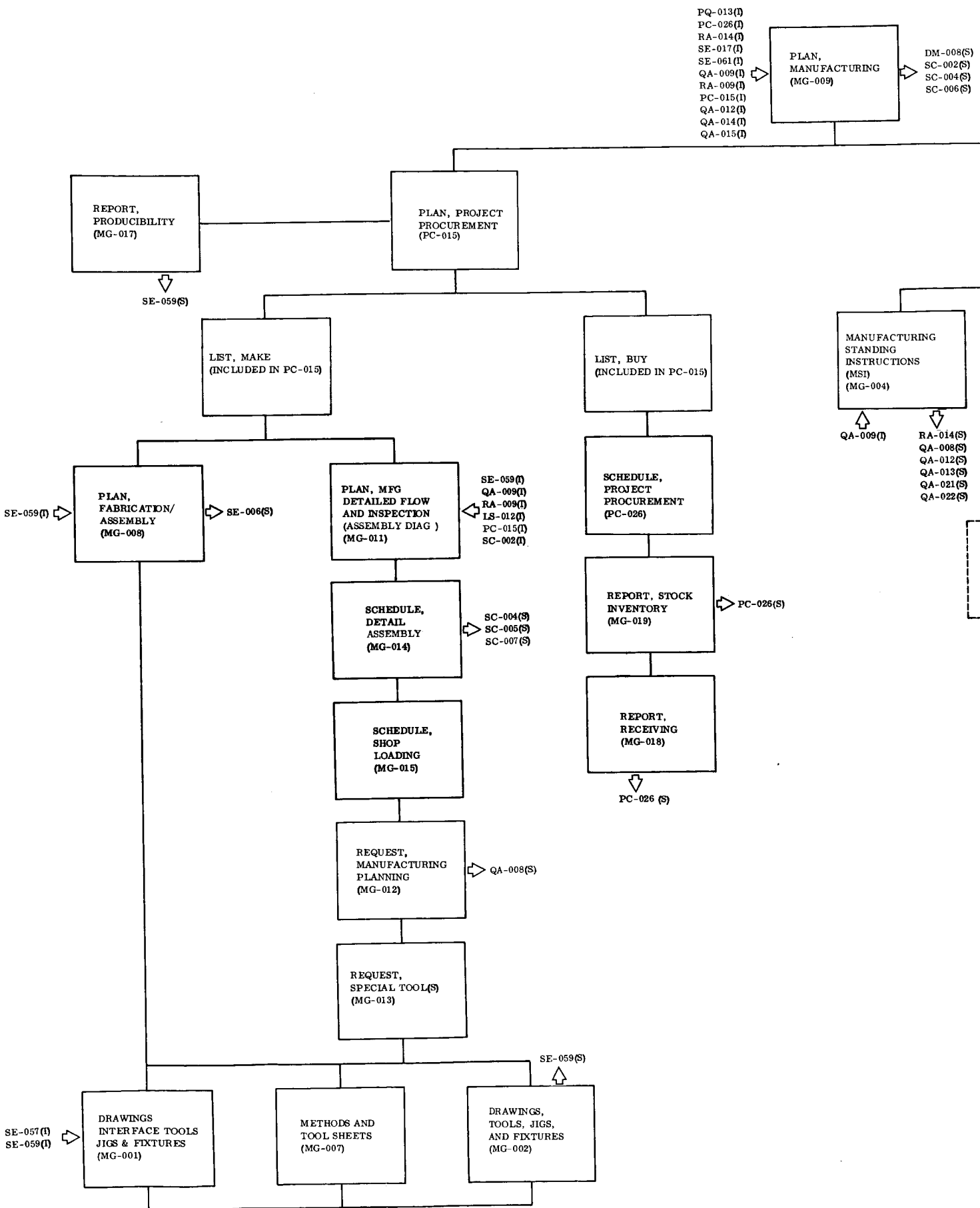
A documentation relationship tree has been prepared to show the relationships of data items within each functional category as well as their relationships across categories.

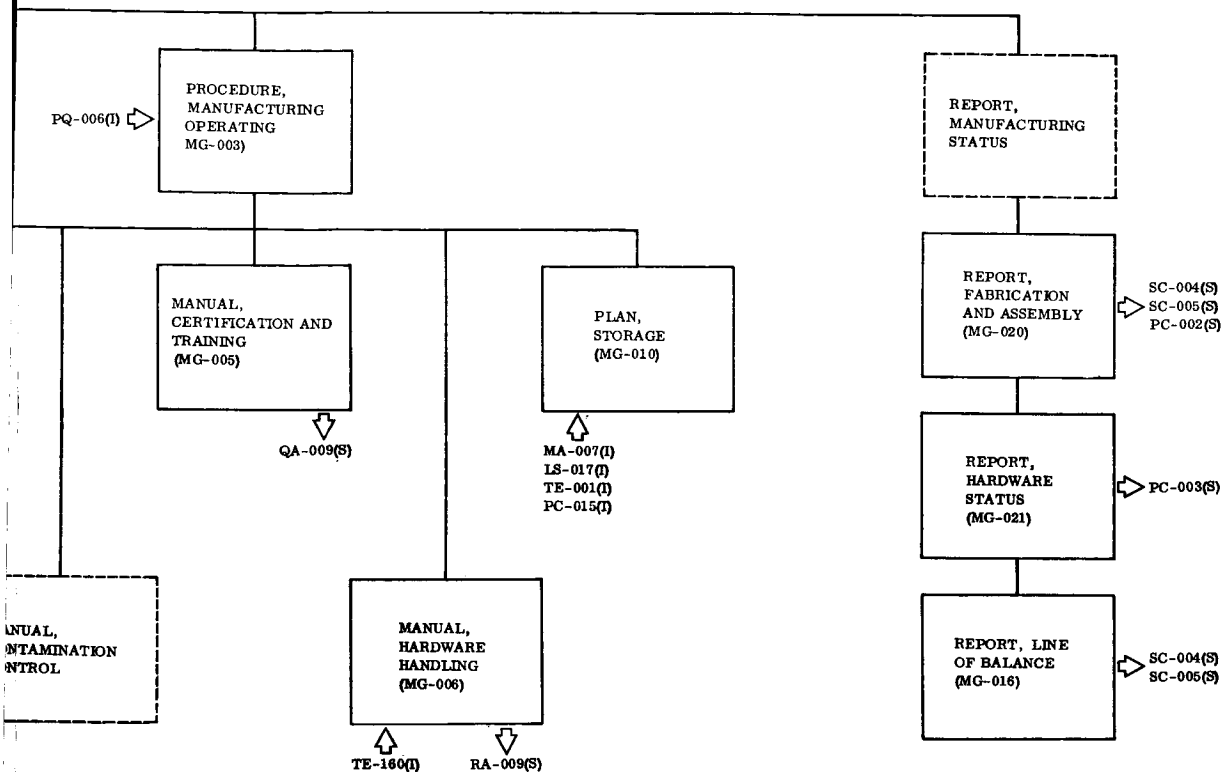
Relationships within each functional category are shown by constructing a tier pattern beginning with the top-level (or governing) data item and relating in descending order all data items within the category to this top-level data item. (The location of a data item at a given level on the diagram does not necessarily indicate the importance of that specific item but identifies and defines its relation to all other data items in that category.)

Relationships between data items in one category and data items in other functional categories are shown by (1) shaded arrows to indicate the direction of the relationship and (2) an alphabetic code to indicate the nature of the interrelationship as follows:

- a. Data items needed for preparation and/or support of the referenced item. (I)
- b. Data items that are supported or needed by this data item. (S)
- c. Data items that relate "to" and provide information of a general nature but are not required in an input or support role. (G)

Each data item appearing on the Data Item List (DIL) was examined and evaluated with respect to its contribution to, or dependence upon, data items appearing in other categories and is included in the diagrams. Additionally, certain data elements indicated in the user flow diagrams (but currently not identified as individual data items) have been shown within a dashed rectangle to clarify relationships.





LEGEND:

(I) INDICATES DATA ITEMS NEEDED FOR PREPARATION OR SUPPORT OF THE REFERENCED ITEM (INPUT).

(S) INDICATES DATA ITEMS THAT ARE SUPPORTED OR NEEDED BY THIS ITEM.

(G) DATA ITEMS THAT RELATE TO AND PROVIDE INFORMATION OF A GENERAL NATURE BUT ARE NOT REQUIRED IN AN INPUT OR SUPPORT ROLE

↑ INDICATES PRINCIPAL RELATIONSHIP (I, S, OR G) BETWEEN DATA ITEMS IN OTHER FUNCTIONAL CATEGORIES.

--- DATA ELEMENT NOT CURRENTLY IDENTIFIED AS A DATA ITEM.

Figure C-7. Manufacturing Documentation Relationship Tree (MG)

DATA ITEM PHASING/FREQUENCY

Time phasing and preparation of data items associated with the Manufacturing function are shown on the Manufacturing Data Item Phasing and Frequency Matrix, Figure C-8. The following assumptions were used as a basis for determining these estimates:

- a. Data items list of December 15, 1966, was used as the baseline.
- b. Eight equivalent spacecraft will be produced (including breadboards, structural test models, thermal test models, proof test models, system test models and two flight vehicles).
- c. Two sets of OSE will be produced.
- d. Spacecraft and OSE will consist of approximately 352 CEI's.
- e. Each spacecraft will consist of: (estimated)

28 Prime equipment (CEI's) broken down into	
36 Identification Items (CEI's) and	
85 Engineering Critical Components (CEI's)	149
Assume 11 Subassemblies for each Identification Item	396
Assume 34 Subassemblies for each Engineering Critical Component (CEI's)	2,040
Total Spacecraft Assemblies	2,585
8 Equivalent Spacecraft	20,680
- f. Each set of OSE, AHSE, MDE will consist of: (estimated)

36 Prime equipment (CEI's) broken down into	
135 Identification Items (CEI's) and	
18 Engineering Critical Components (CEI's)	
11 Subassemblies for each Identification Item	1,485
24 Subassemblies for each Engineering Critical Component	432
Total OSE, AHSE, MDE Assemblies	2,106
Two sets of OSE	4,212
- g. Estimated piece parts per spacecraft 100,000
- h. Estimated piece parts per set OSE 70,000

Distribution and density of data item preparation requirements are shown in Manufacturing Data Item Density Profile, Figure C-9. Requirements are shown as averages per month by project review periods and include both formal and key informal data items.

MANUFACTURING
(MG)

DATA ITEM TITLE	QUANTITY	FREQUENCY	TOTAL
MG-001 Drawings, Interface Tools, Jigs & Fixtures			
MG-002 *Drawings, Tools, Jigs & Fixtures			
MANUALS			
MG-005 *Manual Certification and Training			
MG-006 *Manual, Hardware Handling			
PLANS			
MG-009 Plan, Manufacturing			
MG-010 Plan, Storage			
MG-011 Plan, Manufacturing Detailed Flow & Inspection (Assembly Diagram)			
PROCEDURES			
MG-003 Procedure, Manufacturing Operating			
MG-004 Manufacturing Standing Instruction (MSI)			
RECORDS			
MG-007 Record, Methods and Tool Sheets			
MG-008, Sheets, Planning Fabrication/Assy			
REPORTS			
MG-016 Report, Line of Balance			
MG-017 *Report, Producibility			
MG-018 *Report, Receiving			
MG-019 *Report, Stock Inventory			
MG-020 Report, Fabrication/Assembly			
MG-021 Report, Hardware Status			
REQUESTS			
MG-012 *Request, Manufacturing Planning			
MG-013 *Request, Special Tool(s)			
SCHEDULES			
MG-014 Schedule, Detail Assembly			
MG-015 Schedule, Shop Loading			
TOTALS			

*Key Informal Data

A	Annual	O/T	One Time
S/A	Semi-Annual	A/R	As Required
WK	Weekly	U	Update
MO	Monthly	I/U	One Update
B/W	Bi-Weekly	DA	Daily
B/M	Bi-Monthly	Q	Quarterly

SDR STEM DEFINITION Mo PDR 9 Mo S/C and OSE DESIGN PDR 2 Mo HDR 12 Mo ENGR HDWE, FAB, ASSY, TEST HDR 5 Mo CDR 17 Mo FLT. S/C ASSY TEST C/O CDR 4 Mo FACI 14 Mo T/A HDWE PROC. FAB & TEST FACI 9 Mo MAR 1 Mo FLT. HDWE PROC. FAB.															
QUANTITY	FREQUENCY	TOTAL	QUANTITY	FREQUENCY	TOTAL	QUANTITY	FREQUENCY	TOTAL	QUANTITY	FREQUENCY	TOTAL	QUANTITY	FREQUENCY	TOTAL	QUANTITY
50	O/T	50	50	O/T	50	50	O/T	50				25	O/T	25	10
500	O/T	500	1000	O/T	1000	1000	O/T	1000	1000	O/T	1000	600	O/T	600	
			1	U/Mo	9	1	U/Mo	12	1	U/Mo	17	1	U/Mo	14	1
			1	U/Mo	9	1	U/Mo	12	1	U/Mo	17	1	U/Mo	14	1
1	I	1	1	U	1										
			1	I	1	1	U	1				1	U	1	
						1	Q	4	1	F	1				
			1	Mo	1	1	2/U	2	1	3/U	30	1	2/U	2	
			70	O/T	70	10	O/T	10	10	O/T	10	10	O/T	10	
			4000	O/T	4000	3000	O/T	3000							
			12,000	O/T	12,000	6,000	O/T	6,000							
						1	Wk	52	1	Wk	74	1	Wk	61	1
			100	O/T	100				100	O/T	100				
2,000	A/R	2,000	5000	A/R	5000	1500	A/R	1500	10000	A/R	10000	5000	A/R	5000	1000
			1	Wk	40	1	Wk	52	1	Wk	74	1	Wk	61	1
			1	Wk	40	1	Wk	52	1	Wk	74	1	Wk	61	1
			1	Wk	40	1	Wk	52	1	Wk	74	1	Wk	61	1
						12000	O/T	12000	6000	O/T	6000	3000	O/T	3000	500
			1000	O/T	1000	1000	O/T	1000	1000	O/T	1000	1000	O/T	1000	500
						500	O/T	500		O/T	250	100	O/T	100	100
						5	Mo	60	5	Mo	85	5	Mo	70	5
			2,551		24004			38877			18546				

I	Initial	CDR	Critical Design Review
F	Final	FACI	First Article Configuration Inspection
N/R	New and Revised	MAR	Mission Acceptance Review
SDR	System Design Review	J FACT	Joint Flight Acceptance
PDR	Preliminary Design Review		Composite Testing
HDR	Hard Design Review		

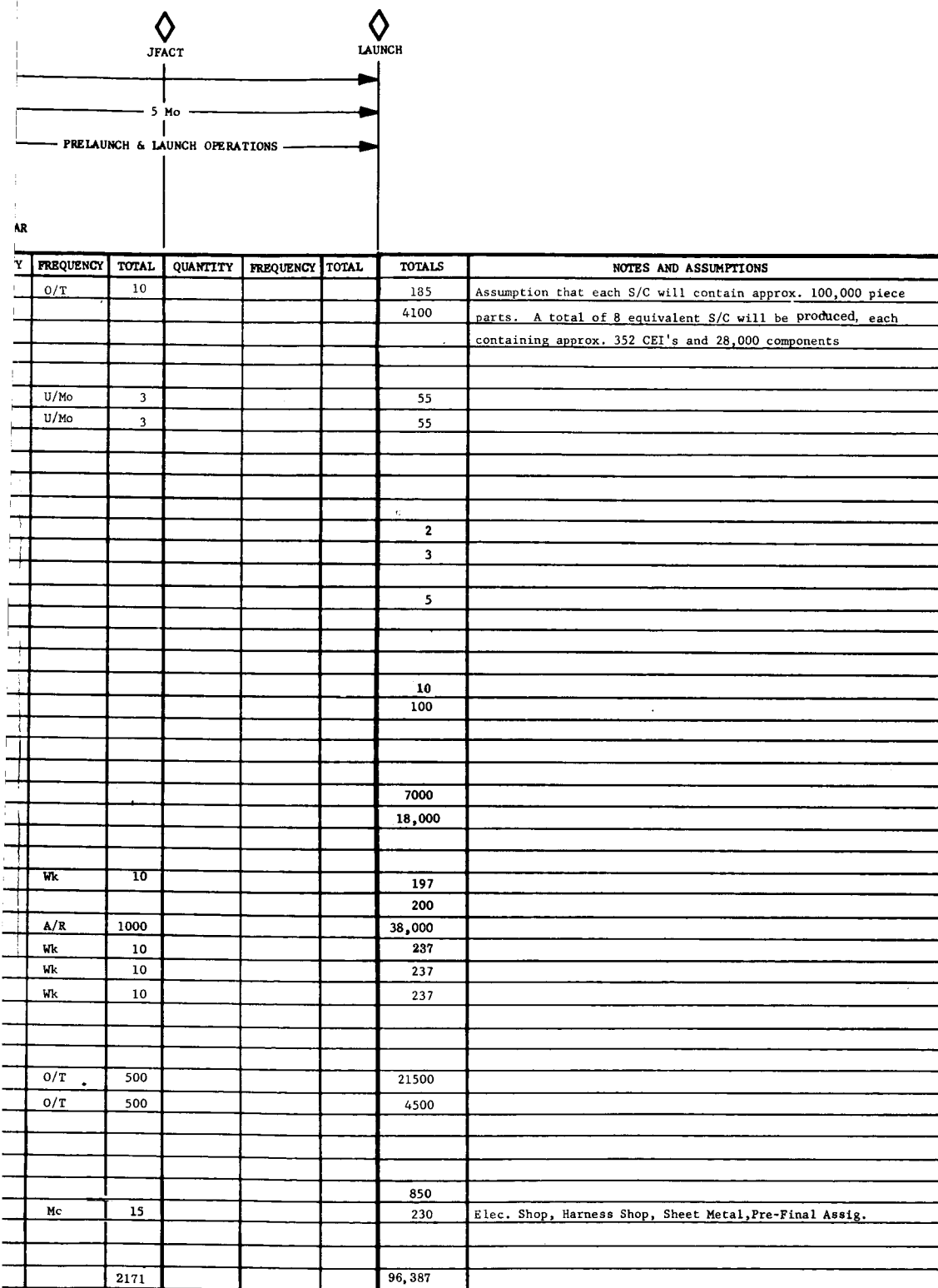


Figure C-8. Manufacturing Data Item Phasing and Frequency Matrix

NOTE: ALL VALUES LESS
THAN 100 NOT TO
SCALE

LEGEND:

FORMAL DATA

KEY INFORMAL DATA

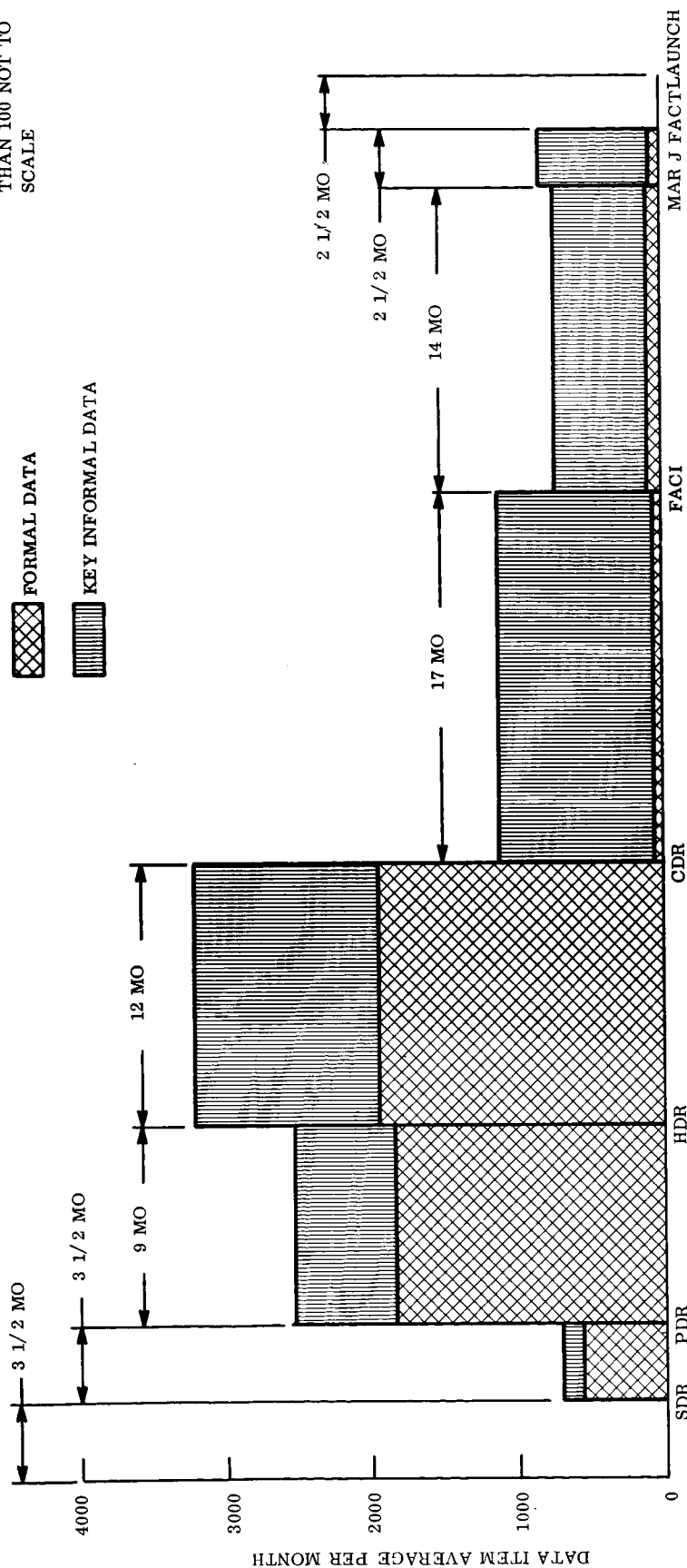


Figure C-9. Manufacturing Data Item
Density Profile