



DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
WASHINGTON, D.C. 20362-5101

NAVSEAINST 4130.11A
OPR 56X3
29 March 1988

IN REPLY REFER TO

NAVSEA INSTRUCTION 4130.11A

From: Commander, Naval Sea Systems Command

Subj: JOINT CONFIGURATION MANAGEMENT OF MARINE GAS TURBINE EQUIPMENT, AND GAS TURBINE SHIP ENGINEERING CONTROL SYSTEM EQUIPMENT

Ref: (a) NAVSEAINST 4130.12
(b) NAVSEA 56X3 Ltr Ser 586 of 17 Sep 1985 (Notal)
(c) DOD-STD-480A
(d) MIL-STD-490

1. Purpose

a. To reissue policies, procedures, and objectives governing an effective Configuration Management (CM) Program for Marine Gas Turbine Equipment (MGTE), and gas turbine ship Engineering Control System Equipment (ECSE).

b. This revision updates organizational codes and administrative procedures, adds the Landing Craft Air Cushioned Program (LCAC), and revises the component items list for tracking configuration.

2. Cancellation. NAVSEAINST 4130.11 of 1 August 1979.

3. Scope. The policies and procedures of this instruction apply to Naval Sea Systems Command (NAVSEA) designated Program Managers, the Internal Combustion/Gas Turbine Engines Division (NAVSEA 56X3), the Control Engineering (* Division (NAVSEA 56Z4), and those naval activities responsible for the development design, production, and support of MGTE and ECSE.

4. Background. NAVSEA 56X3 and NAVSEA 56Z4 are responsible for planning and directing requisite actions for the introduction and continuation of an effective, Integrated Logistic Support (ILS) base for all naval MGTE and ECSE, respectively, from the initial phases of introduction through their life cycles.

5. Objective. This instruction will provide for the continuance of NAVSEA control of those elements of MGTE and ECSE system configurations for which standardization between and among ship applications is necessary in order to minimize the impact upon ILS without adversely affecting ship performance and mission capability.

6. Policy

a. The Program Manager Ships shall continue to exercise overall ship systems program responsibilities specified in individual charters. The recognized authority and responsibilities of the Program Manager Ships for acquisition and logistics planning for total ship systems shall not be

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①

relinquished. Further, PMS 314, PMS 377, PMS 400, and SEA 931 shall continue overall ship systems responsibility for cognizant operational ships, including the issuance of applicable Ship Alterations (SHIPALTs) when required.

*) b. NAVSEA 56X3 is responsible for the implementation of the MGTE Joint Configuration Management Program and is designated Chairman of the MGTE Joint Configuration Board (JCB). NAVSEA 56Z4 is responsible for the implementation of the ECSE Joint Configuration Management Program and is designated chairman of the ECSE JCB.

c. The Joint Configuration Management Program for MGTE and ECSE shall be in accordance with the policies and guidance of references (a), (b), (c), and (d), as supplemented by the procedures and associated figures in this instruction.

d. The policies and procedures of this instruction will be modified and updated, as required, to provide NAVSEA control of new MGTE and ECSE.

7. Action. All JCB member addressees shall:

a. Initiate action to implement and comply with the provision of applicable sections of this instruction.

b. Designate members of the JCBs or confirm present membership after receipt of this instruction.


H. L. YOUNG
Vice Commander

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SECTION I

MARINE GAS TURBINE EQUIPMENT (MGTE), AND GAS TURBINE SHIP ENGINEERING CONTROL SYSTEM EQUIPMENT (ECSE), CONFIGURATION MANAGEMENT (CM) DESCRIPTION AND IMPLEMENTATION PROCEDURES

1.1 Configuration Management (CM) Identification

1.1.1 Marine Gas Turbine Equipment (MGTE). The Naval Sea Systems Command (NAVSEA), SEA 56X3, will have cognizance over all MGTE being used, or to be used, for main propulsion and/or ship's service power systems, except those under Research and Development (R&D) control of NAVSEA 05R.

1.1.2 Gas Turbine ship Engineering Control System Equipment (ECSE). NAVSEA 56Z4 will have cognizance over the gas turbine ship ECSE for the following ship classes: CG 47, DD 963, DDG 993, FFG 7, LCAC, PHM 1/3, AOE 6, and AE 36.

1.1.3 Product Baseline (PBL). MGTE and gas turbine ship ECSE PBLs will be established as outlined in the subsequent sections.

1.1.4 Maintenance of PBL. Configuration Items (CIs) may be added or deleted from the PBL, but the status of a CI shall be changed only by Joint Configuration Board (JCB) action.

1.2 CM Control

1.2.1 Items to be Controlled. All items that have been outlined in the PBL shall be strictly controlled through the CM discipline.

1.2.2 Methods of Control. The method of control shall be through the JCB established by this instruction.

1.2.2.1 Officers. The officers of the JCB shall be the Chairperson, Alternate Chairperson, and Secretary.

1.2.2.1.1 Chairperson. The JCB shall be chaired by NAVSEA 56X3 when MGTE changes are involved and by NAVSEA 56Z4 when ECSE changes are involved. If both MGTE and ECSE changes are involved, then NAVSEA 56X3 shall chair the JCB.

1.2.2.1.2 Alternate Chairperson. In the absence of the Chairperson, NAVSEA 56X34 shall assume the duties of the Chairperson.

1.2.2.1.3 Secretary. The primary duties of the JCB Secretary shall be administrative details, as assigned by the Chairperson.

1.2.2.2 Membership. The JCB membership shall be composed of representatives from NAVSEA organizations that may be involved in one or more of the following activities or functions associated with MGTE and ECSE:

- o Research, Development, Testing, and Evaluation (RDT&E)
- o Acquisition
- o Engineering
- o Integrated Logistics Support (ILS)
- o Production
- o Maintenance
- o Operation
- o Safety
- o Supply Support

The NAVSEA codes that have been designated and/or assigned one or more activities or functions associated with MGTE and gas turbine ship ECSE include:

- o NAVSEA 56X3
- o PMS 307 (SNEP)
- o PMS 314 (DD 963, DDG 993, FFG 7, PHM 1/3, RAN)
- o PMS 376 (Spanish Navy)
- o PMS 377 (LCAC)
- o PMS 383 (AOE/AE)
- o PMS 400 (CG 47, DDG 51)
- o NAVSEA 56X32
- o NAVSEA 56X34
- o NAVSEA 56Z4
- o NAVSEA 56Z42
- o NAVSEA 05R3 (RDT&E)
- o NAVSEA 91 (Advisory Member)
- o SPCC 05122
- o SPCC 05123
- o NAVSSES 033
- o NAVSEA 931

The above NAVSEA codes shall assign a representative and an alternate representative to membership on the JCB. When contract award is made for a new ship class employing MGTE and ECSE, the applicable project manager shall provide representation to the JCB.

1.2.3 Instruments of Control. The standard instruments of control are the Class I Engineering Change Proposal (ECP), the Request for Deviation (RFD), and the Request for Waiver (RFW). These documents are defined and their use explained in references (a) and (c).

1.2.3.1 Change Proposals and Deviation/Waiver Requests. The Class I ECP is the instrument used to propose a change to the present, approved configuration and usually will affect the present and future equipment population. An RFD is required prior to manufacturing a configuration-controlled item that departs from particular performance or design requirements of a contract specification, drawing, or other document. The RFD applies to a specific number of items or period of time. An RFW is a request to accept a CI which, during production,

is considered suitable for use. RFDs and RFWs are limited in scope to certain serial-numbered components of the approved configuration.

1.2.3.1.1 Procedures. All ECPs, RFDs, and RFWs to the approved configuration of MGTE and ECSE must be coordinated and submitted through proper contractual procedures and established NAVSEA policy. A standard flow for review and disposition shall be implemented as illustrated in Figure 1-1.

1.2.3.1.2 Time Frames. Processing times of proposals and requests shall be predicated on the priority of the ECP or the classification of an RFD or RFW. The target time frames from receipt by NAVSEA to submission for contractual action shall follow reference (c).

1.2.3.2 Technical Review of ECPs, RFDs, and RFWs. NAVSEA 56X32, the designated technical office for MGTE, and NAVSEA 56Z42, the designated life cycle office and technical office for ECSE, shall be tasked by NAVSEA 56X3 or NAVSEA 56Z4 to review each ECP, RFD, and RFW for technical feasibility and impact on all classes of ships prior to convening the JCB meeting.

1.2.3.3 Configuration Control Boards (CCBs). The JCB and Project Manager Ships (PMS) CCBs shall interface in accordance with the following general guidelines in the MGTE and ECSE programs.

1.2.3.3.1 Joint Configuration Board (JCB). A JCB meeting shall be convened at the end of the initial reviewing time allotted for the ECP, RFD, or RFW. This meeting is held to present and discuss recommendations concerning the ECP, RFD, or RFW with the JCB membership. After the presentation by a representative of the technical/life-cycle office, the Chairperson of the JCB shall make a recommendation to the members for acceptance, rejection, modification, or deferral of the ECP, RFD, or RFW. Each member shall sign the JCB Recommendation Log, indicating concurrence or non-concurrence with the Chairperson's recommendation.

1.2.3.3.2 Program Manager Ships (PMS) CCB. After each JCB meeting, the individual CCBs shall also review each ECP, RFD, or RFW, giving consideration to JCB recommendations. NAVSEA 56X3 and NAVSEA 56Z4 shall be represented on the Program Manager Ships (PMS) CCBs with the full rights and privileges granted to the membership for all matters pertaining to MGTE and ECSE, respectively.

1.2.3.3.3 Reclama. If, for any reason, the NAVSEA 56X3 or NAVSEA 56Z4 member of the Program Manager Ships (PMS) CCBs disagrees with the CCB Chairperson's final recommendations, NAVSEA 56X3 and NAVSEA 56Z4 may file a reclama with the NAVSEA Acquisition Panel (NAP). Also, the Chairperson of the JCB may use the reclama procedures for deferred decisions. The PMS shall forward to NAVSEA 56X3 for MGTE and to NAVSEA 56Z4 for ECSE copies of PMS CCBs directives, letters of rejection, implementation papers, and contract modifications associated with MGTE and gas turbine ship ECSE.

1.3 Configuration Status Accounting (CSA)

1.3.1 CSA System. The NAVSEA 56 CSA system for MGTE and ECSE is similar to the CSA systems established within the Naval Air Systems Command (NAVAIR). The system is managed for NAVSEA 56 by NAVSEA 56X3. The system is primarily designed to record approved ECP changes against PBL configurations and to maintain a current status of approved ECPs to be incorporated as Technical Directives (TDs) in individual, serialized hardware components. The CSA system will interface with the Weapon Systems File where the PBL will be the Allowance Parts List (APL) with the status of approved ECP changes specified in a "Change APL" for each serialized component.

1.3.2 Modification Directives. Approved ECPs will be incorporated into MGTE and ECSE through TDs in accordance with reference (b). The TDs will document the alteration of the baseline configuration. Any equipment that is not defined in a PBL of MGTE or ECSE will be modified or changed through the standard Fleet Modernization Program (FMP), Ship Alteration/Machinery Alteration (SHIPALT/MACHALT) procedure and recorded in the Ship Alteration Management Information System (SAMIS).

1.4 Audits. The primary purpose of equipment configuration audits is to compare an item's actual physical makeup with that given in the current baseline identification. NAVSEA 56X3 and NAVSEA 56Z4 do not intend to hold audits but, at their discretion, may observe and monitor PMS audits. These audits will reveal any discrepancies that may exist between the technical documentation and the actual physical and functional parameters of the hardware. The differences will be corrected to establish the current baseline for the equipment.

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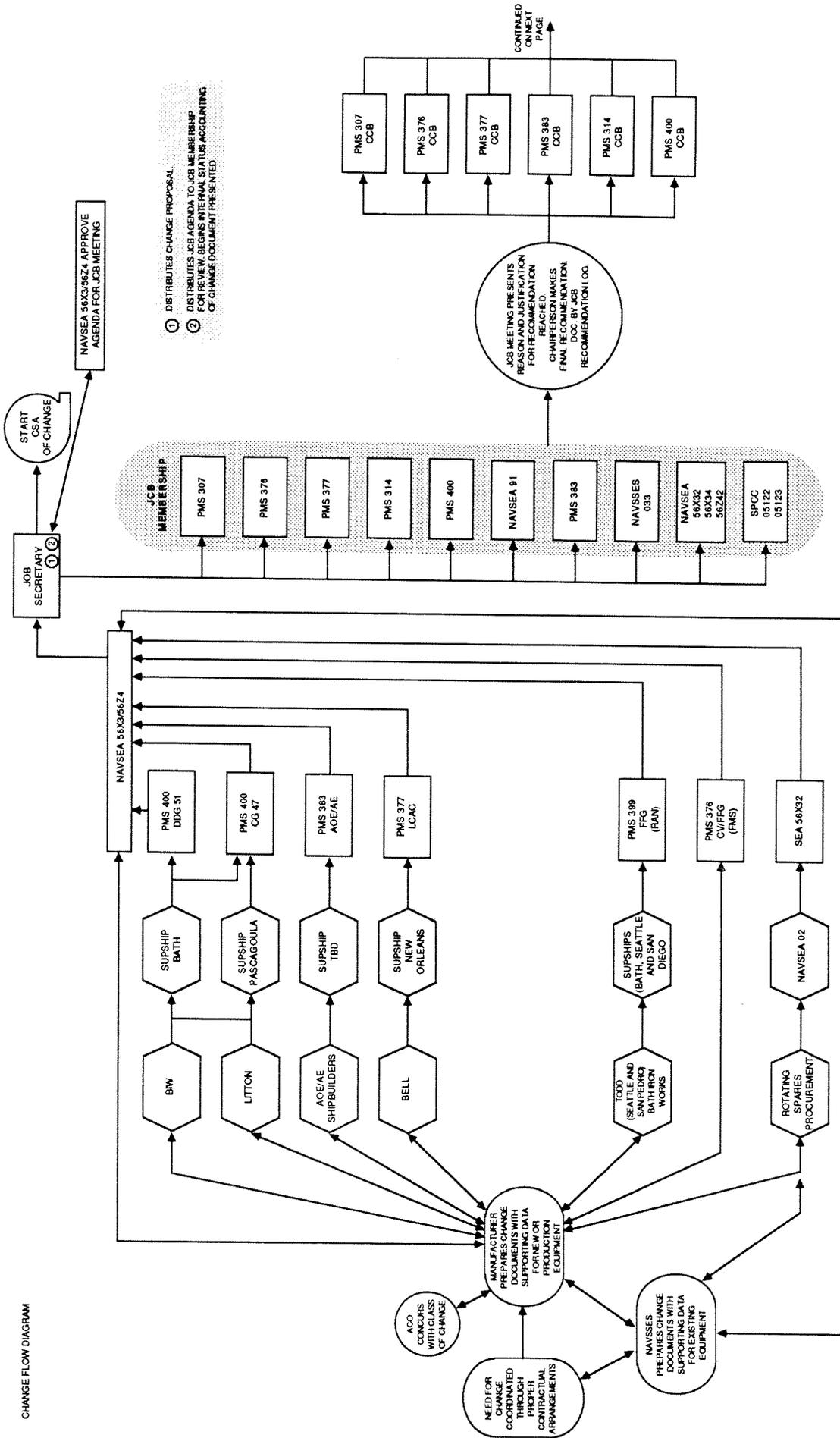


FIGURE 1-1

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CHANGE FLOW DIAGRAM (CONT)

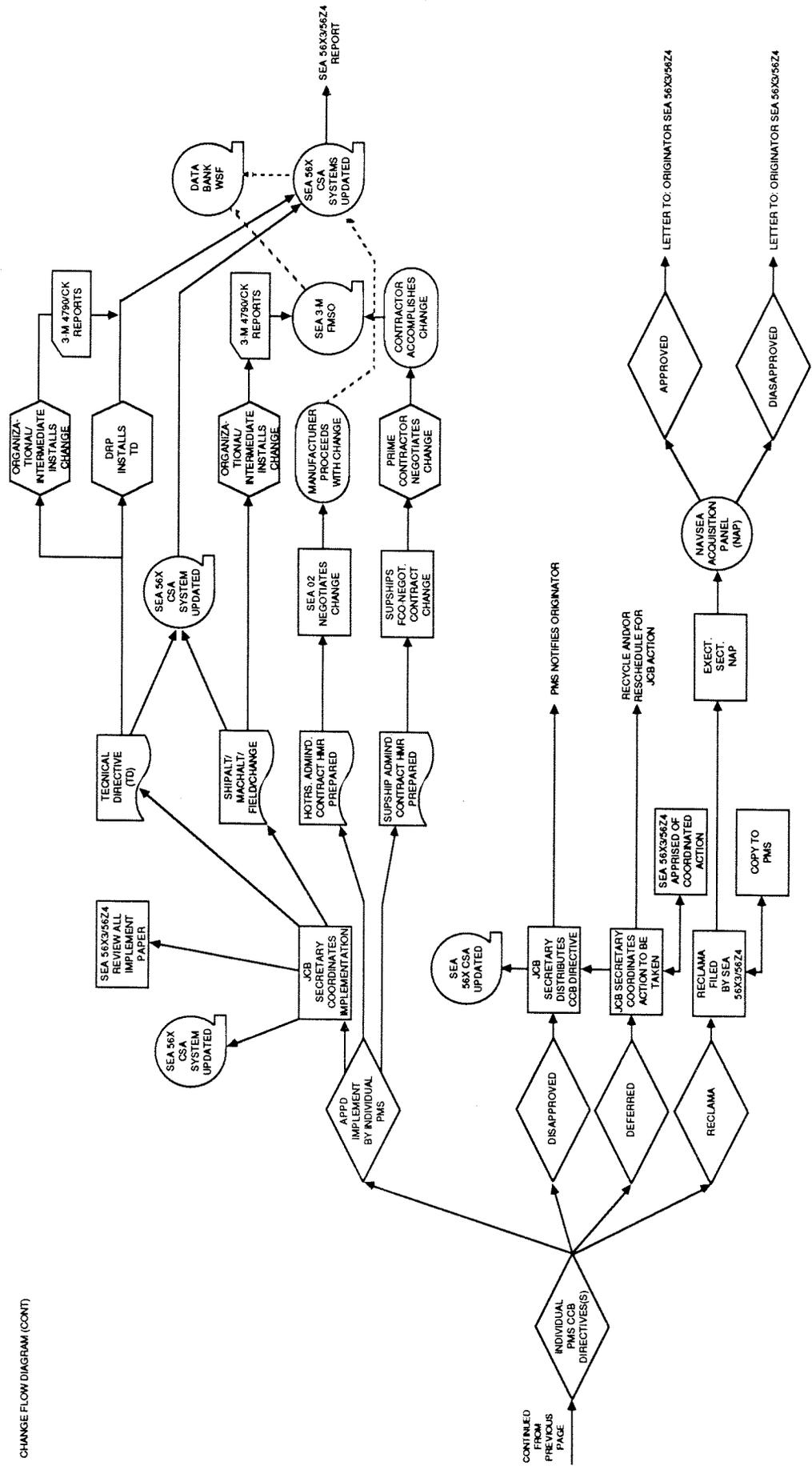


FIGURE 1-1 (Cont)

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SECTION II

LM2500 MARINE GAS TURBINE

2.1 CM Identification.

2.1.1 Gas Turbine Components. The LM2500 Propulsion Gas Turbine Module is composed of five major CIs (reference Figure 2-1 of this section), which are identified as the LM2500 PBL and have been brought under joint configuration control.

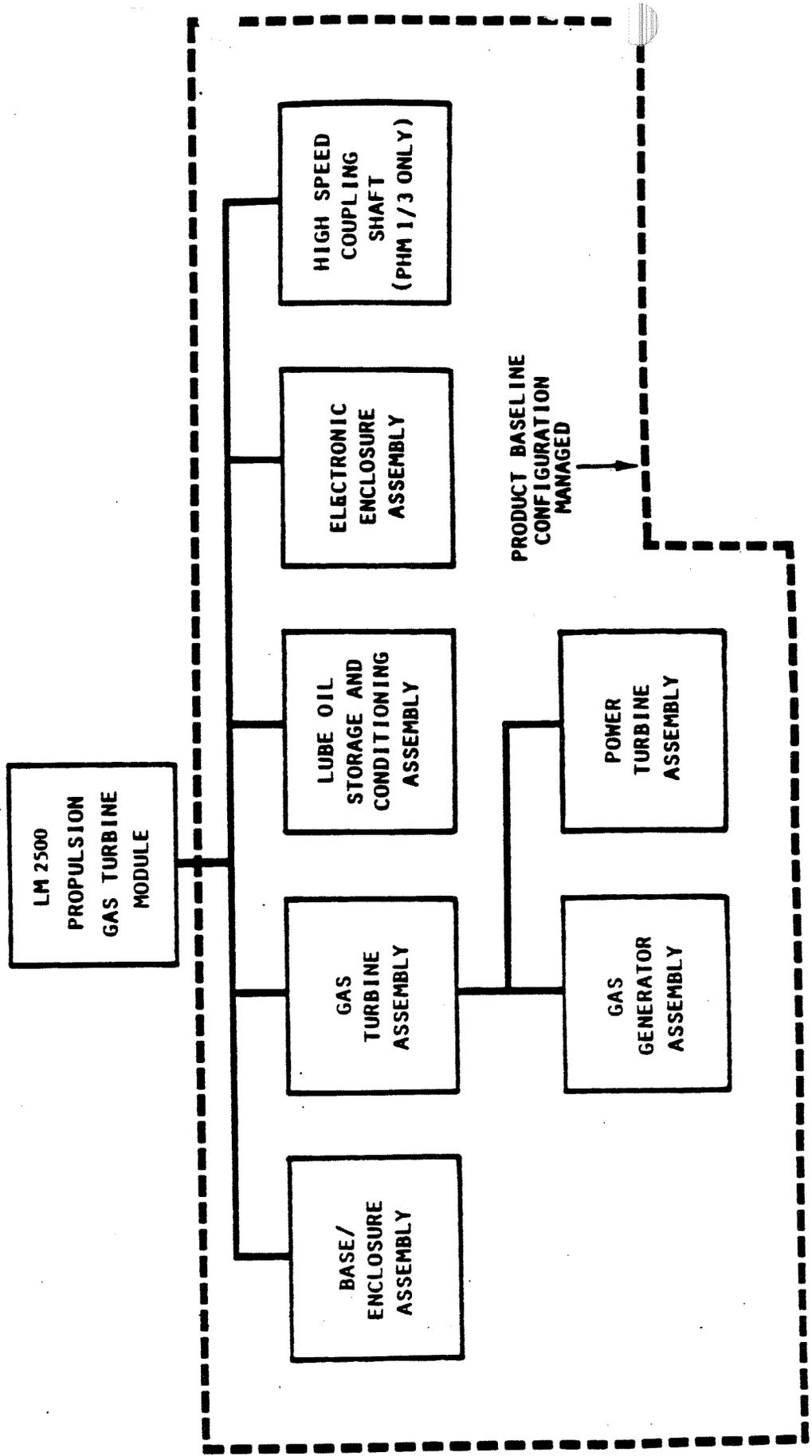
- o Gas Turbine Assembly
 - Gas Generator Assembly
 - Power Turbine Assembly
- o Lube Oil Storage and Conditioning Assembly
- o Electronic Enclosure Assembly
- o Base/Enclosure Assembly
- o High Speed Coupling Shaft (PHM 1/3 only).

2.1.2 Use/Organization. The LM2500 Propulsion Gas Turbine Module is produced by General Electric Company (G.E.), Cincinnati, Ohio, for the DD 963, DDG 993, PHM 1/3, FFG 7, CG 47, AOE 6, AE 36 and DDG 51 ship classes. The Royal Saudi Naval Force, and Royal Australian and Spanish Navies also use the LM2500. The Navy also procures LM2500 assemblies directly from G.E. as stock rotating spares.

2.1.3 PBL Definition. The PBL for all LM2500 engines and the DD 963 Class LM2500 propulsion gas turbine module was established 15 May 1976, with the USS SPRUANCE (DD 963) PBL. The PBL comprises all APLs associated with the LM2500. The current PBL consists of the basic APLs of 15 May 1976, plus all outstanding Change APLs derived from approved ECPs (TDs) against the LM2500 equipment. Ship class and Navy stock rotating spare acquisitions shall contractually invoke the LM2500 PBL for items of commonality between ship classes.

2.2 CM Control - LM2500 CIs. All CIs that have been outlined in the LM2500 PBL shall be strictly controlled through the CM discipline by the LM2500 JCB established by this instruction (reference Figure 1-1 of Section I and Figures 2-1 and 2-2 of this section).

LM2500 MGT PRODUCT BASELINE



PRODUCT BASELINE CONFIGURATION MANAGED

FIGURE 2-1

LM2500 MARINE GAS TURBINE JCB MEMBERSHIP ORGANIZATION

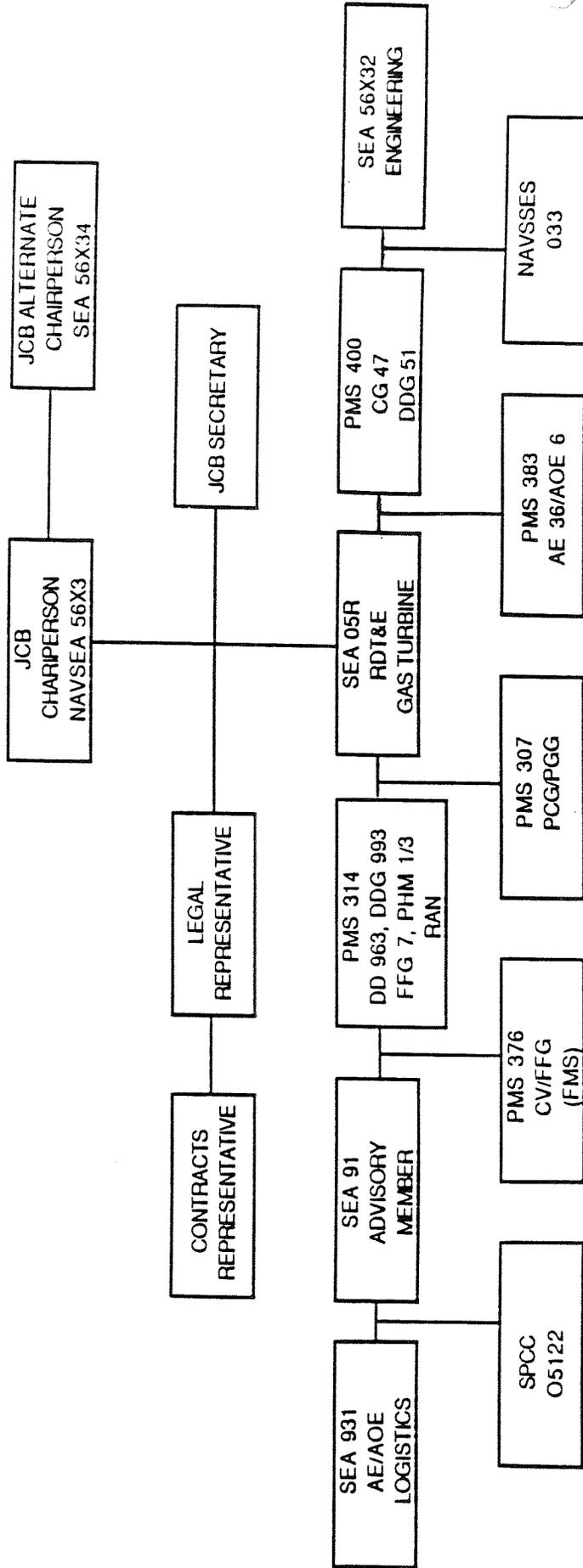


FIGURE 2-2

17/18B

SECTION III

501-K17/K34 MARINE GAS TURBINE

3.1 CM Identification

3.1.1 Gas Turbine Components. The 501-K17/K34 MGT and interfacing components comprise six major CIs (reference Figure 3-1 of this section), which are identified as the 501-K17/K34 PBL and have been brought under joint configuration control:

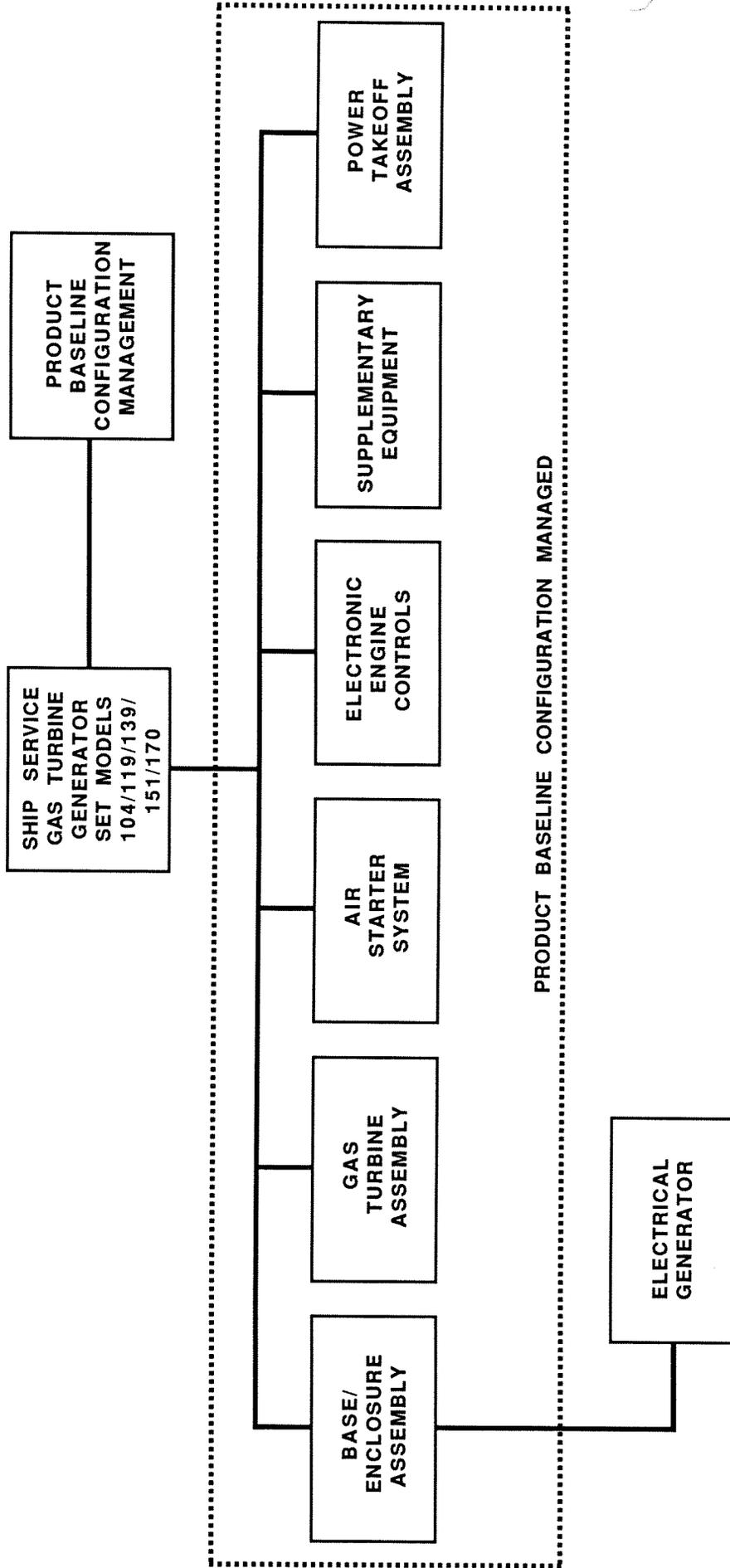
- o Gas Turbine Assembly
- o Air Starter System
 - Air Starter
 - Starter Regulators, High and Low Pressure
- o Electronic Engine Controls
 - Local Control Panel
 - Electronic Governor Control Assembly
- o Power Takeoff Assembly
- o Supplementary Equipment
 - Main Reduction Gearbox
 - Speed Temperature Control
 - Inlet and Exhaust Plenums
 - Lube, Fuel, Bleed, Vent, Cooling, Electrical, and Firefighting Service Components
 - Engine Mount Assembly
- o Base/Enclosure Assembly.

3.1.2 Use/Organization. The 501-K17/K34 MGT is produced by Allison Gas Turbine Division, Indianapolis, Indiana, and delivered to Stewart & Stevenson Services, Inc., Houston, Texas, for use in the Ship's Service Gas Turbine Generator Set Model 104 and Model 170 for the DD 963 Class, Model 119 for the DDG 993 Class, Model 139 for the CG 47 Class, and Model 151 for Spanish Navy Foreign Military Sales (FMS) application. The K34 model number for the DDG 51 Class is to be determined. The Navy also procures 501-K17/K34 assemblies directly from Allison as stock rotating spares.

3.1.3 PBL Definition. The PBL for the 501-K17/K34 engine was established on 15 May 1976, with the DD 963 Class PBL. The PBL comprises all APLs associated with the 501-K17/K34. The current PBL consists of the basic APLs of 15 May 1976, plus all outstanding change APLs derived from approved ECPs (TDs) against the 501-K17/K34 equipment. Ship class and Navy stock rotating spare acquisitions shall contractually invoke the 501-K17/34 PBL.

3.2 CM Control - 501-K17/K34 CIs. All CIs that have been outlined in the 501-K17/K34 PBL shall be strictly controlled through the 501-K17/K34 JCB established by this instruction (reference Figure 1-1 of Section I and Figures 3-1 and 3-2 of this section).

501-K17/K34 MGT PRODUCT BASELINE

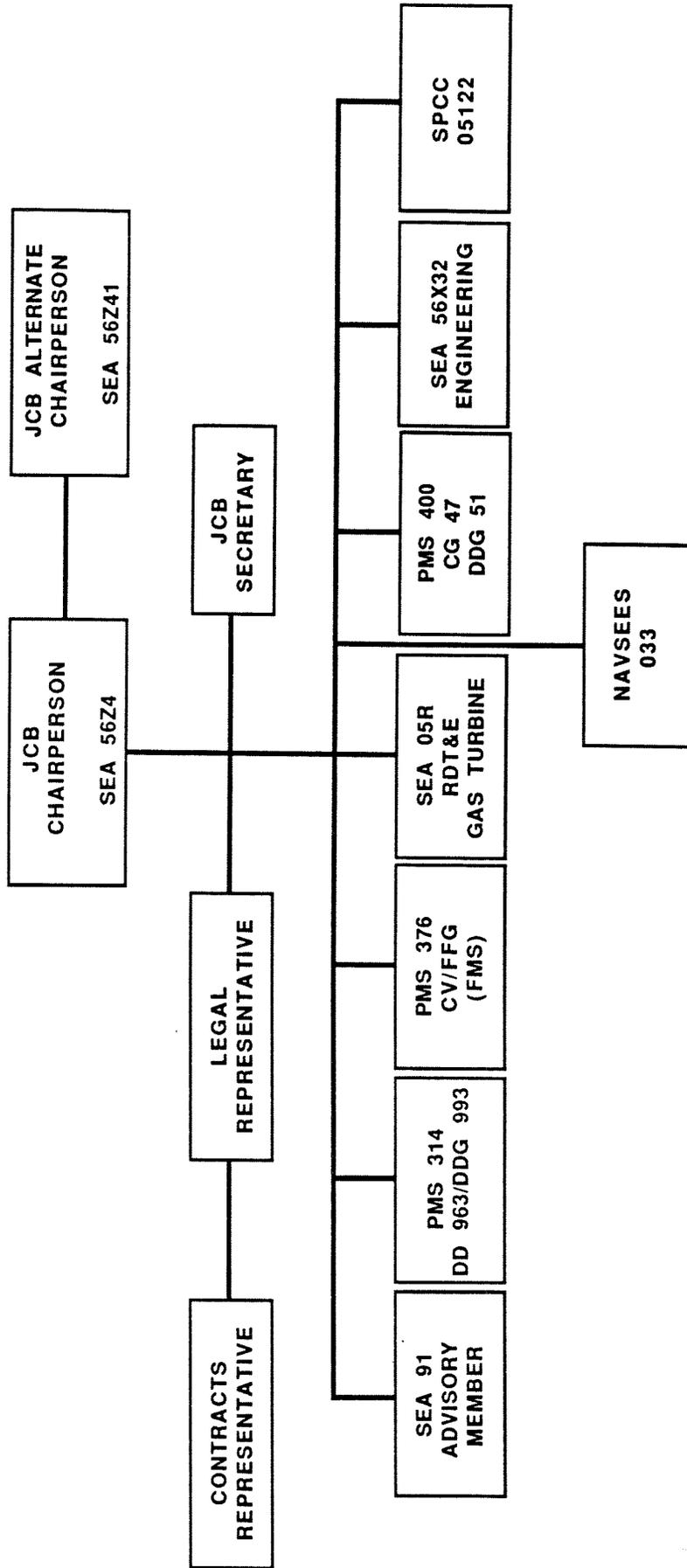


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FIGURE 3-1

501-K17/K34 MARINE GAS TURBINE JCB MEMBERSHIP ORGANIZATION



21-22B
21-22B
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SECTION IV

IM/ME831-800A MARINE GAS TURBINE

4.1 CM Identification

4.1.1 Gas Turbine Components. The IM/ME831-800A MGT consist of two components, the turbine power unit and the power section assembly, which are identified as the IM/ME831-800A PBL and have been brought under joint CM.

4.1.2 Use/Organization. The IM/ME831-800A MGT is produced by Garrett Turbine Engine Company, Phoenix, Arizona, for the ship's service power unit in the PHM 1/3 Classes. The Navy also procures IM/ME831-800A assemblies directly from Garrett as stock rotating spares.

4.1.3 PBL Definition. The PBL was established in May 1979. The current PBL consists of the basic APLs of May 1979, plus all outstanding Change APLs derived from approved ECPs (TDs) against the IM/ME831-800A equipment. Ship class and Navy stock rotating spare acquisitions shall contractually invoke the IM/ME831-800A PBL.

4.2 CM Control - IM/ME831-800A CIs. All CIs outlined in the IM/ME831-800A PBL shall be strictly controlled through the IM/ME831-800A JCB established by this instruction (reference Figure 1-1 of Section I and Figure 4-1 of this section.)

IM/ME831-800A MARINE GAS TURBINE JCB MEMBERSHIP ORGANIZATION

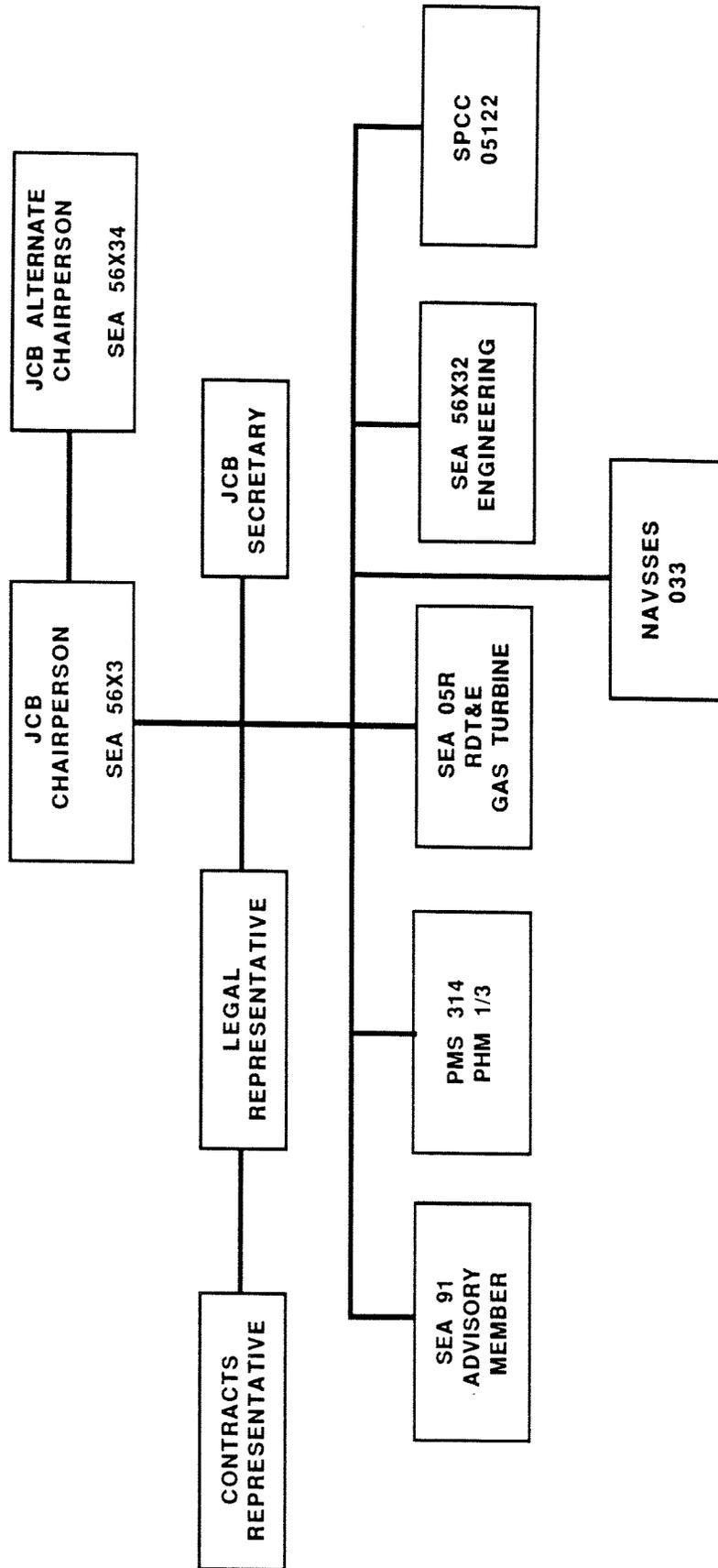


FIGURE 4-1

24 (24)

SECTION V

TF40B MARINE GAS TURBINE

5.1 CM Identification

5.1.1 Gas Turbine Components. The TF40B MGT will be identified by a PBL comprising nine major CIs (reference Figure 5-1 of this section) and will be brought under joint configuration control after the PBL is established:

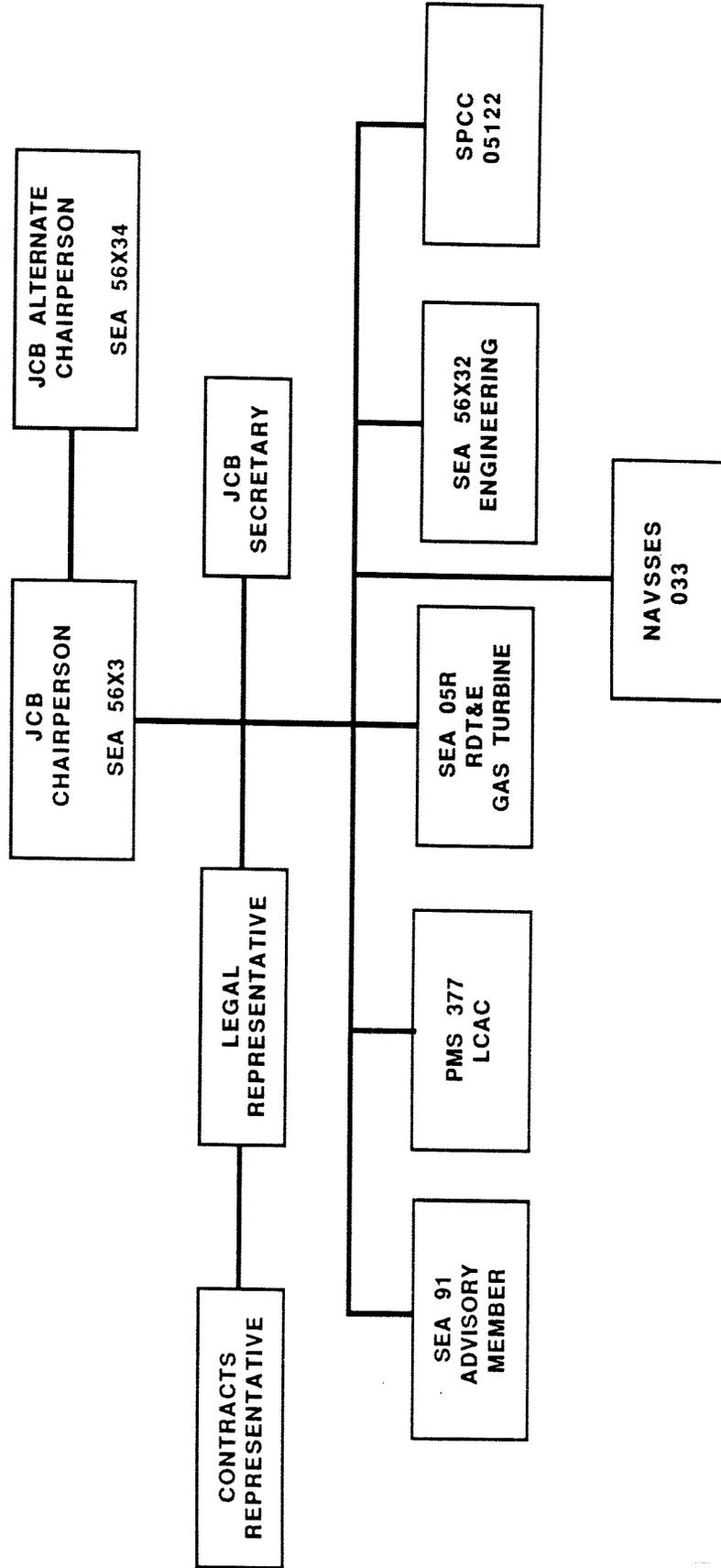
- o System Assembly
- o Electronic Control Box
- o Engine Assembly
- o Gas Producer Module
 - Compressor Air Valve
- o Combustor Turbine Module
- o Accessory Gearbox Module
 - Fuel Pump
 - Fuel Valve Assembly
 - Lube/Scavenge Pump
- o Pneumatic Starter
- o Inlet Housing Module
- o Oil Sump Module.

5.1.2 Use/Organization. The TF40B MGT is produced by AVCO Lycoming Division, Stratford, Connecticut, for propulsion and lift of the Landing Craft, Air Cushion (LCAC). The Navy also will procure TB40B module assemblies directly from AVCO Lycoming as stock rotating spares.

5.1.3 PBL Definition. The PBL was planned for establishment in 1987. The Navy shall control the PBL.

5.2 CM Control - TF40B CIs. All CIs outlined in the PBL shall be strictly controlled through the TF40B JCB established by this instruction (reference Figure 1-1 of Section I and Figures 5-1 and 5-2 of this section).

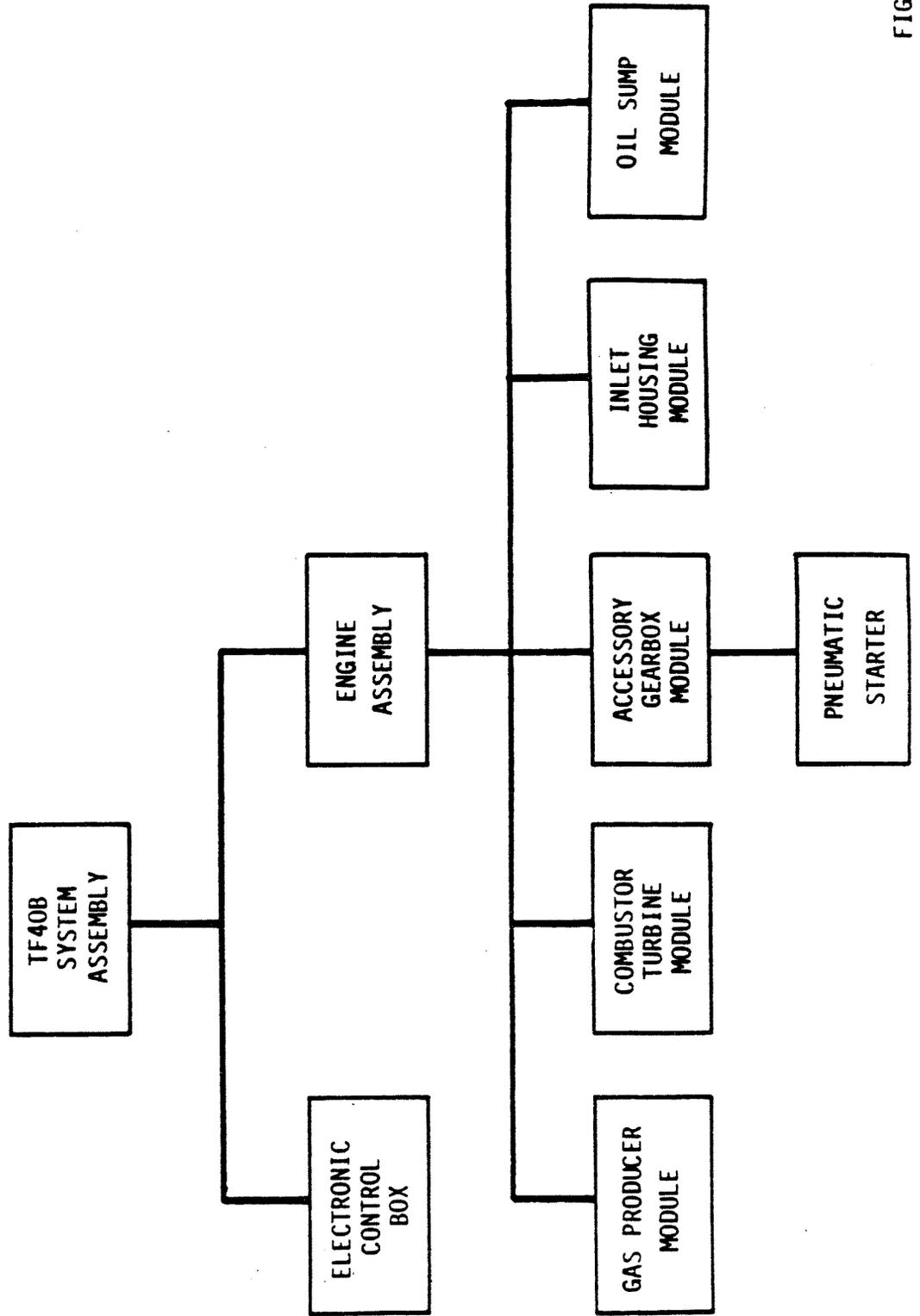
TF40B MARINE GAS TURBINE JCB MEMBERSHIP ORGANIZATION



26 (26)

FIGURE 5-1

TF40B MARINE GAS TURBINE EQUIPMENT



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SECTION VI

T-62T-40-7 MARINE GAS TURBINE

6.1 CM Identification

6.1.1 Gas Turbine Components. The T-62T-40-7 MGT will be defined by a PBL comprising five major CIs (reference Figure 6-1 of this section) and brought under joint configuration control after the PBL is established:

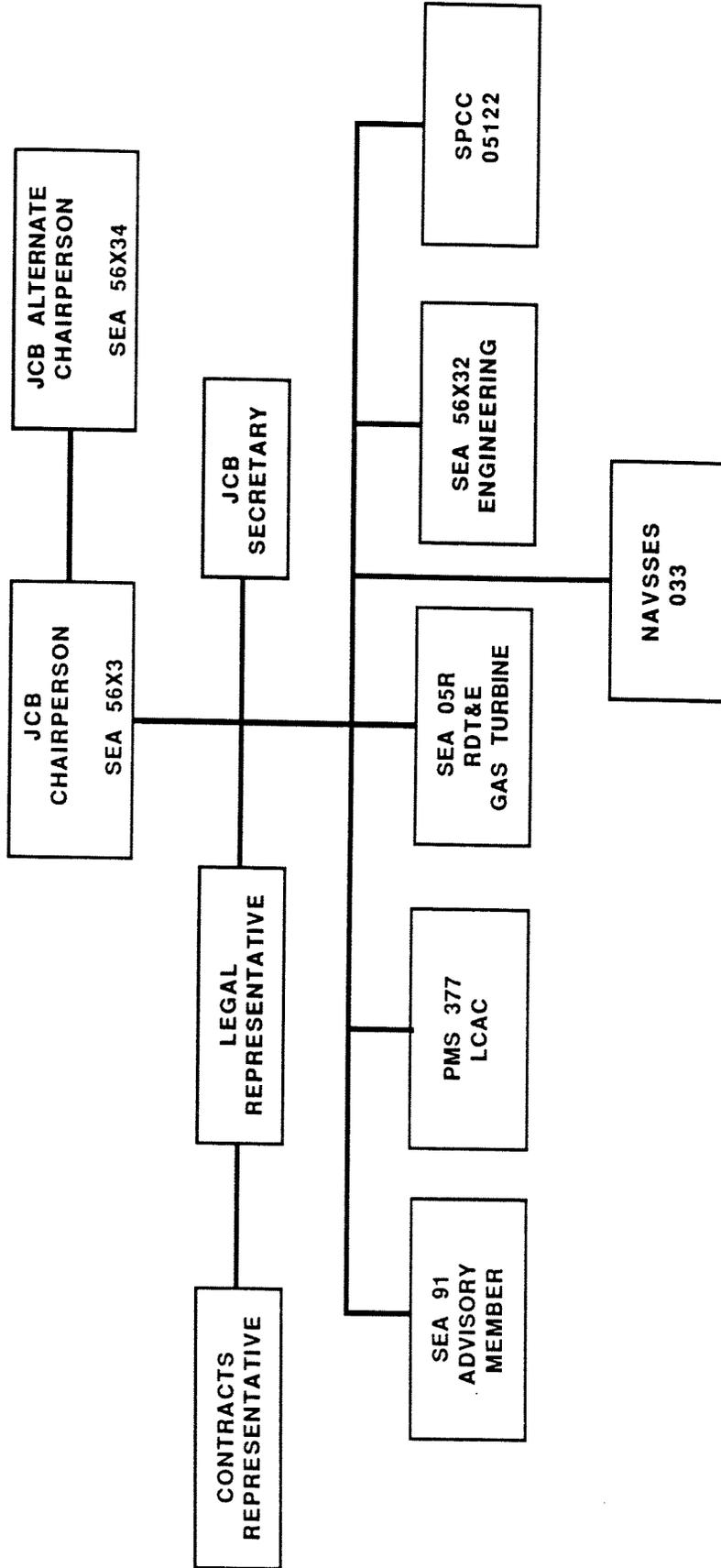
- o Engine Assembly
- o Power Unit
 - Bleed Air Valve
 - Start Bypass Valve
- o Reduction Drive Assembly
 - Fuel Pump Assembly
 - Accelerator Control Assembly
- o Starter Assembly
- o Electronic Sequencing Unit.

6.1.2 Use/Organization. The T-62T-40-7 MGT is produced by Turbomach, San Diego, California, for electrical power generation in the LCAC. The Navy will also procure T-62T-40-7 assemblies directly from Turbomach as stock rotating spares.

6.1.3 PBL Definition. The PBL was planned for establishment in 1988. The Navy shall control the PBL.

6.2 CM Control - T-62T-40-7 CIs. All CIs outlined in the PBL shall be strictly controlled through the T-62T-40-7 JCB established by this instruction (reference Figure 1-1 of Section I and Figures 6-1 and 6-2 of this section).

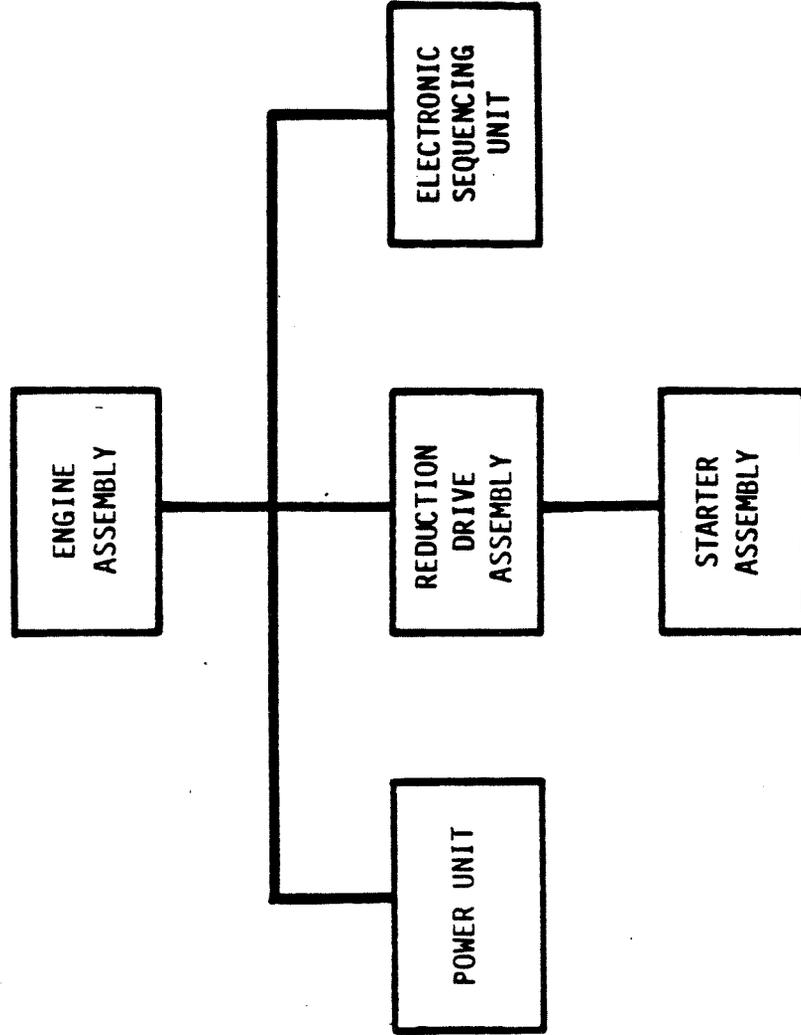
T-62T-40-7 MARINE GAS TURBINE JCB MEMBERSHIP ORGANIZATION



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FIGURE 6-1

T-62T-40-7 MARINE GAS TURBINE EQUIPMENT



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SECTION VII

GAS TURBINE SHIP ENGINEERING CONTROL SYSTEM EQUIPMENT

7.1 CM Identification

7.1.1 Gas Turbine Ship ECSE. The ECSE has been identified by various ship class PBLs and has been brought under joint configuration control. The various class systems/subsystems are identified in Figures 7-1, 7-2, 7-3, and 7-4 of this section.

7.1.2 Use/Organization. The various ECSE functions are basically the same. However, because of different manufacturers, they are physically different. The DD 963, DDG 993, CG 47, and DDG 51 Class systems are manufactured by Litton Guidance and Control Systems, Woodland Hills, California, and by Litton, Amecom Division, College Park, Maryland. The FFG 7 Class system is manufactured by General Electric, Daytona Beach, Florida, and Technical Associates of New Orleans (TANO), New Orleans, Louisiana. The LCAC and PHM 1/3 Class systems are manufactured by ELDEC, Lynnwood, Washington. Other vendors for the AE 36 and AOE 6 Class systems are yet to be determined.

7.1.3 PBL Definition. The PBLs for the DD 963, DDG 993, FFG 7, PHM 1/3, CG 47 and DDG 51 Classes have been established as previously discussed herein. The PBL for the LCAC was planned for establishment in 1988. The PBLs for AOE 6 and AE 36 will be established during construction of the ships.

7.2 CM Control

7.2.1 ECSE CIs. All CIs outlined in the PBLs shall be strictly controlled through the JCB established by this instruction (reference Figure 1-1 of Section I and Figures 7-1, 7-2, 7-3, 7-4, and 7-5 of this section).

7.2.2 JCB Membership. A JCB has been established for the DD 963/DDG 993/CG 47 Classes, FFG 7 Class, PHM 1/3 Classes, AE 36 Class, AOE 6 Class, and LCAC Class. The cognizant DDG 51 PMS shall be a member of the specific JCB.

GAS TURBINE SHIP ENGINEERING CONTROL SYSTEM EQUIPMENT DD 963/DD 993/CG 47/DDG 51 CLASSES

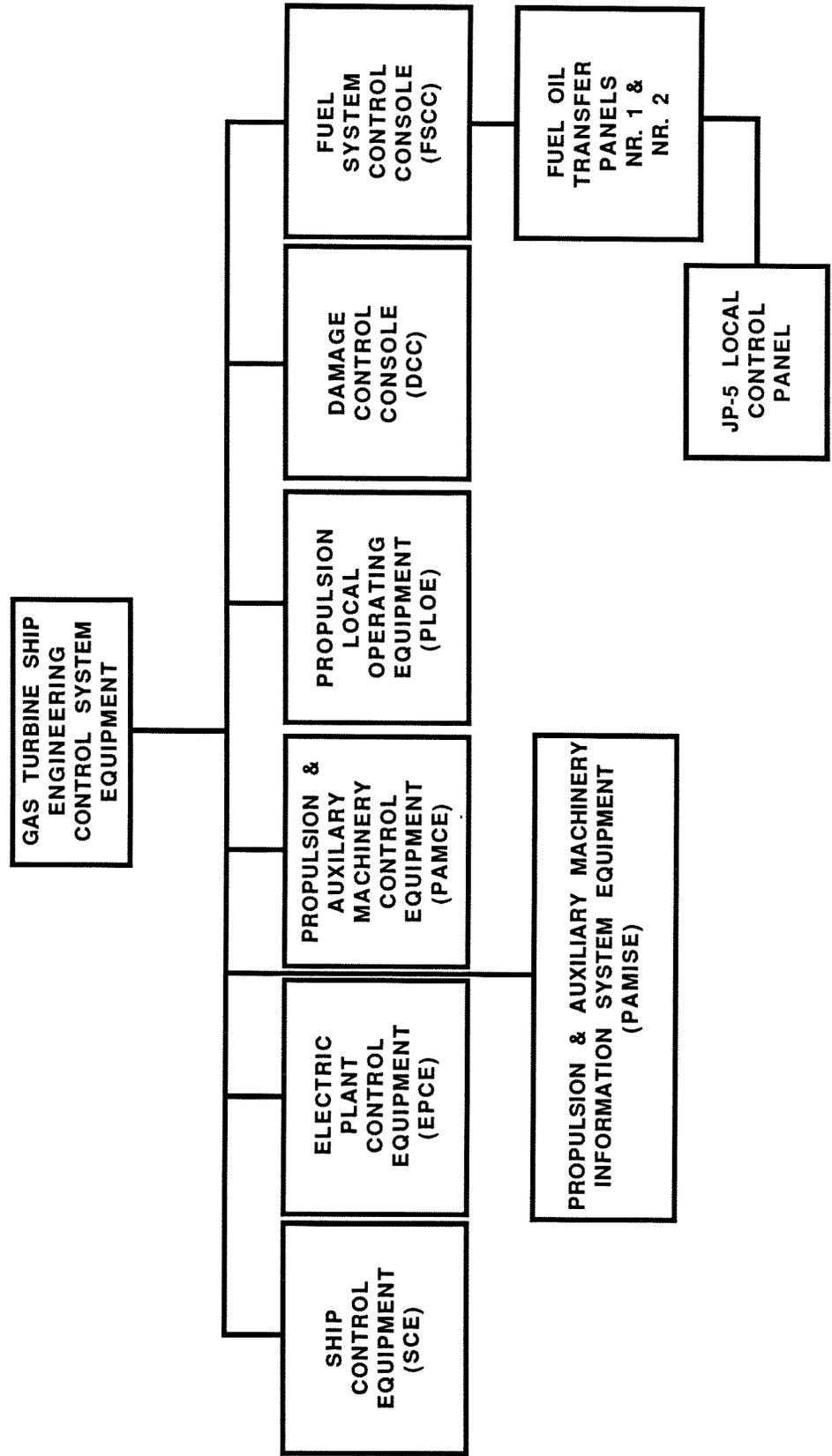
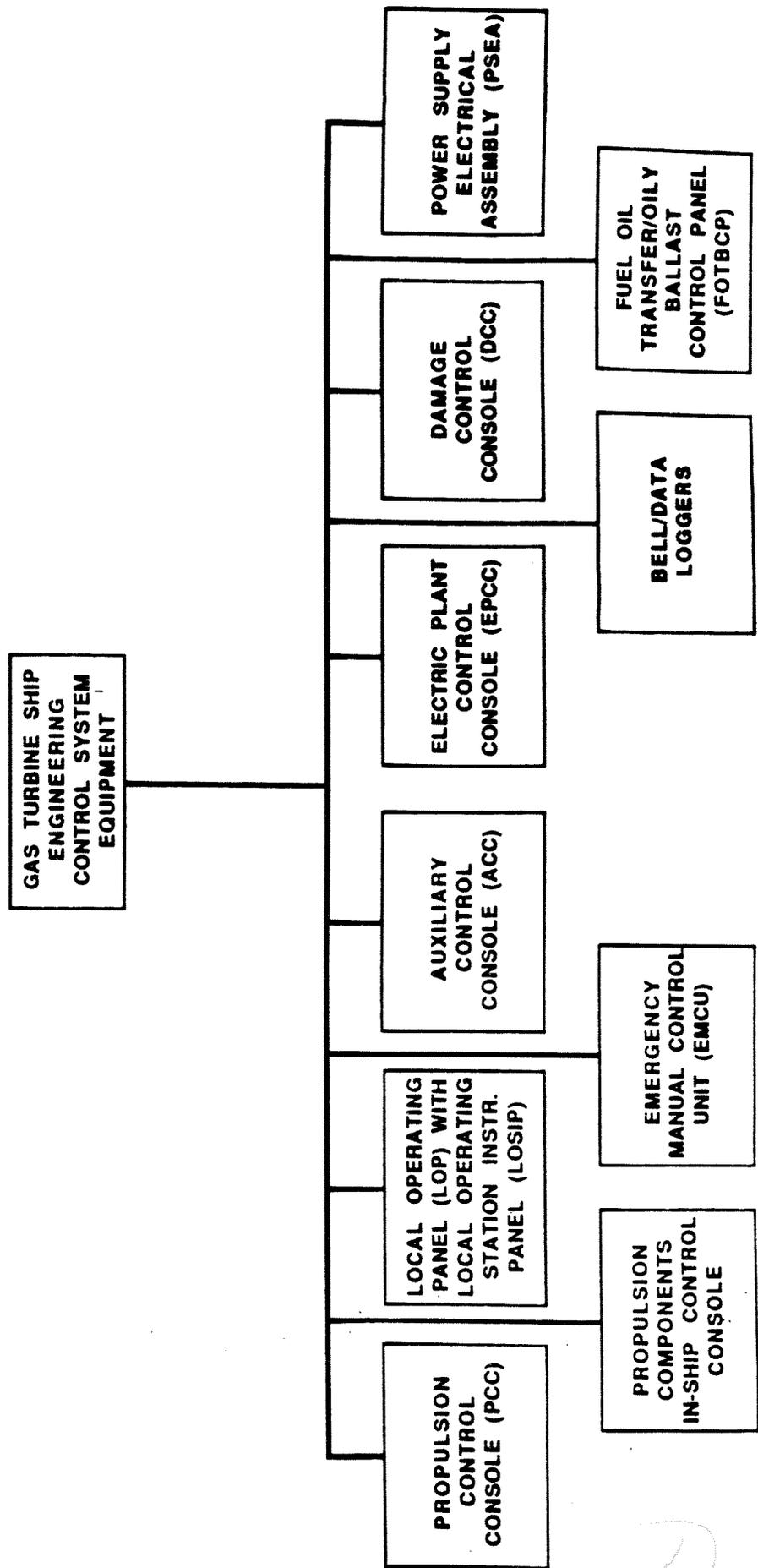


FIGURE 7-1

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GAS TURBINE SHIP ENGINEERING CONTROL SYSTEM EQUIPMENT - FFG 7 CLASS



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ENGINEERING CONTROL SYSTEM EQUIPMENT

PHM 1/3 CLASSES

ENGINEER'S OPERATING
STATION (EOS) CONSOLE

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ENGINEERING CONTROL SYSTEM EQUIPMENT

LCAC CLASS

ALARM AND MONITORING
SYSTEM (AMS)

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GAS TURBINE SHIP ENGINEERING CONTROL SYSTEM JCB MEMBERSHIP ORGANIZATION

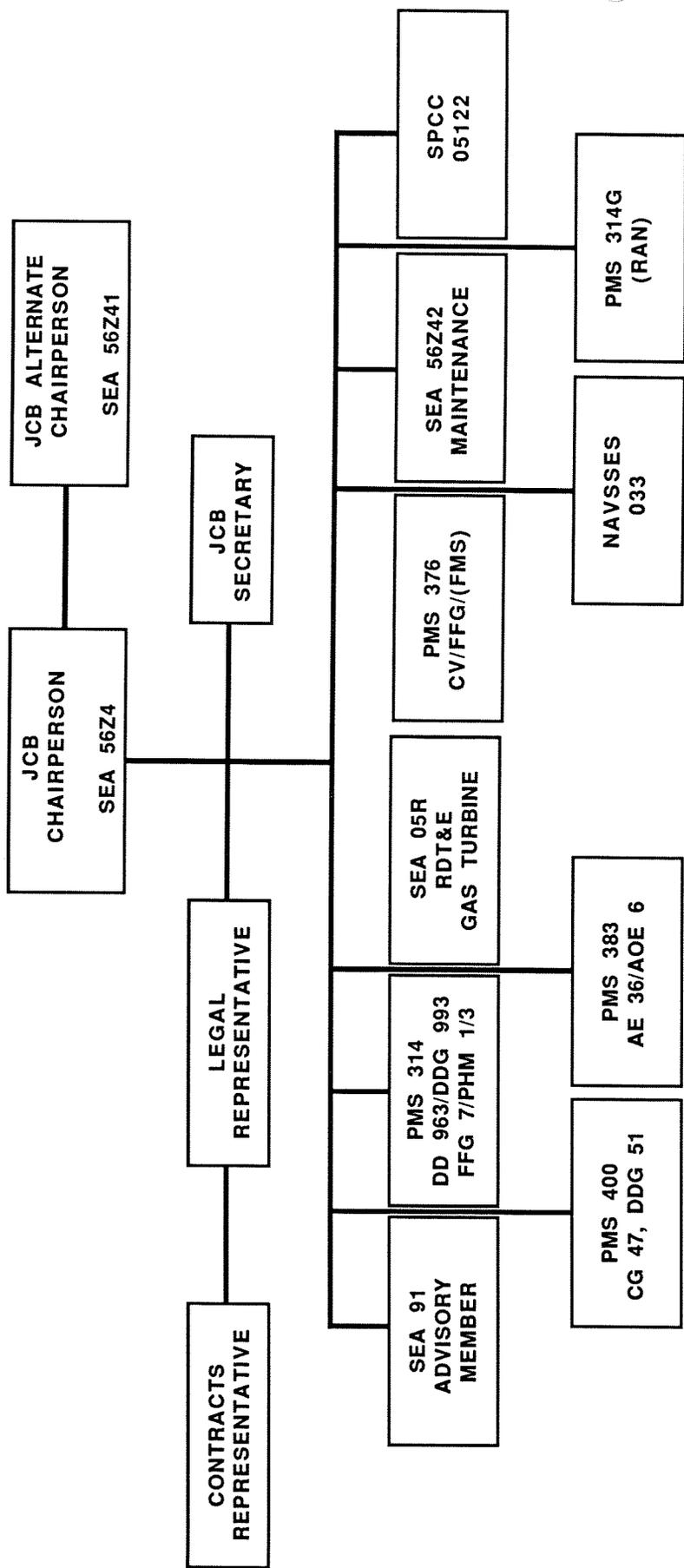


FIGURE 7-5

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