

Annual Report 1971

**Aerospace Industries
Association**



AIA OFFICERS

R. D. O'NEAL, *Chairman of the Board*
DAVID S. LEWIS, *Vice Chairman of the Board*
KARL G. HARR, JR., *President*
SAMUEL L. WRIGHT, *Vice President/Secretary*
C. R. LOWRY, *Vice President*
CARLYLE H. JONES, *Vice President for Public Affairs*
GEORGE F. COPSEY, *Treasurer*

EXECUTIVE COMMITTEE

R. D. O'NEAL, *The Bendix Corporation*
DAVID S. LEWIS, *General Dynamics Corporation*
WILLIAM P. GWINN, *United Aircraft Corporation*
KARL G. HARR, JR., *Aerospace Industries Association of America, Inc.*
T. ROLAND BERNER, *Curtiss-Wright Corporation*
PAUL THAYER, *Ling-Temco-Vought, Inc.*
S. N. McDONNELL, *McDonnell Douglas Corporation*
GERARD A. FULHAM, *Pneumo Dynamics Corporation*

BOARD OF GOVERNORS

DONALD S. MALMBERG, *Vice President—Marketing, Abex Corporation*
WILLIAM L. GORE, *Senior Vice President, Aerojet-General Corporation*
A. G. HANDSCHUMACHER, *President, Aeronca, Inc.*
JAMES R. KERR, *President, Avco Corporation*
R. D. O'NEAL, *President, Aerospace-Electronics Group,
The Bendix Corporation*
T. A. WILSON, *President, The Boeing Company*
T. ROLAND BERNER, *Chairman and President, Curtiss-Wright Corporation*
DAVID S. LEWIS, *Chairman & Chief Executive Officer,
General Dynamics Corporation*
MARK MORTON, *Vice President & Group Executive, Aerospace Group,
General Electric Company*
L. J. EVANS, *Chairman of the Board, Grumman Aerospace Corporation*
RAND V. ARASKOG, *Vice President & Group Executive, ITT Defense Space Group*
PAUL THAYER, *Chairman of the Board, President & Chief Executive Officer,
Ling-Temco-Vought, Inc.*
DANIEL J. HAUGHTON, *Chairman of the Board,
Lockheed Aircraft Corporation*
T. G. POWNALL, *President, Aerospace Group, Martin Marietta Corporation*
S. N. McDONNELL, *President, McDonnell Douglas Corporation*
ROBERT ANDERSON, *President & Chief Operating Officer, North American
Rockwell Corporation*
THOMAS V. JONES, *Chairman & President, Northrop Corporation*
JOHN B. LAWSON, *Executive Vice President, Aerospace & Defense Systems
Operations, Philco Ford Corporation*
GERARD A. FULHAM, *Chairman of the Board & Chief Executive Officer,
Pneumo Dynamics Corporation*
B. F. RAYNES, *Chairman and Chief Executive Officer, Rohr Corporation*
J. F. FORSTER, *Chairman of the Board and President, Sperry Rand Corporation*
R. C. JACKSON, *Chairman and Chief Executive Officer, Teledyne Ryan
Aeronautical*
E. J. DUCAYET, *President, Bell Helicopter Company, Textron, Inc.*
S. C. PACE, *Executive Vice President, TRW Inc.*
WILLIAM P. GWINN, *Chairman and Chief Executive Officer,
United Aircraft Corporation*
T. J. MURRIN, *Executive Vice President—Defense, Westinghouse Electric
Corporation*
KARL G. HARR, JR., *President, Aerospace Industries Association of America, Inc.*



CONTENTS

2	Message to the Membership
3	Aerospace Operations Service
8	Aerospace Procurement Service
14	Aerospace Research Center
17	Aerospace Technical Council
27	International Service
29	Office of Public Affairs
32	Traffic Service
34	Transport Aircraft Council
36	Organization and Functions



KARL G. HARR, JR.

MESSAGE TO THE MEMBERSHIP

During 1971 the Association intensified its efforts to find solutions to a wide range of industry problems.

Experts drawn from member corporations and members of the AIA staff focused a comprehensive study effort on some 20 elements of the broad and complex field of Government procurement, including three subjects examined in conjunction with other member associations of the Council of Defense and Space Industry Associations (CODSIA). All of these studies were transmitted to the Commission on Government Procurement, and widely distributed elsewhere.

In mid-1970 the AIA, at the direction of the Board of Governors, established the Aerospace Research Center for the purpose of studying in depth broad areas of importance to the industry. During 1971 the Center published and disseminated reports of four studies:

“National Technology Support,” concerning the U. S. research and development effort.

“Aerospace Profits vs Risks,” concerning increasing risks and declining profits.

“Federal Procurement Principles,” concerning the urgent need for a basic set of broad principles

to guide Government procurement and to bring order to the vast collection of statutes, directives, regulations, policies and forms that now impact adversely on procurement officials and industry producers alike.

“Aerospace and the U.S. Economy,” concerning the industry’s performance, problems and place in the economy.

A fifth study, covering International R&D Trends and Policies, was in the final stages of preparation at year’s end.

The problems of the industry were reflected in most of the principal statistics for the year:

- Sales continued their expected decline, from \$24.9 billion in 1970 to \$23.3 billion in 1971.
- Employment dropped from 1,069,000 in December, 1970, to an estimated 931,000 a year later.
- Total aerospace sales to the Department of Defense were \$13.3 billion compared with \$14.6 billion in 1970.
- Profits (as a percentage of sales after taxes) dipped slightly, preliminary figures indicate, from 2.0 percent in 1970 to 1.9 percent in 1971.
- Space sales again declined, from \$3.58 billion in 1970 to \$3.22 billion in 1971.
- Commercial aerospace sales, primarily of jet transports, rose from \$4.58 billion to \$4.90 billion—a 7.1 percent increase compared with a 13.7 percent rise from 1969 to 1970.

- Backlog at the end of the year was estimated to be \$22.0 billion, compared with \$25.2 billion at the end of 1970.
- Non-aerospace sales fell from \$2.676 billion in 1970 to \$2.361 billion in 1971. These represent work done by aerospace firms in areas such as urban transportation, pollution control, marine sciences and water desalination.
- Aerospace exports continued to increase as they have since 1964. They rose from \$3.397 billion in 1970 to \$4.300 billion in 1971—a 26.6 percent increase mainly resulting from sales of transport aircraft, which climbed 34.2 percent from \$1.283 billion to \$1.722 billion. Military exports increased 24.0 percent, from \$887 million to \$1.100 billion.
- Imports of aerospace products were valued at \$355 million, a 15.3 percent increase from \$308 million in 1970.

The Association staff, with the support of key personnel in member companies, maintained a high level of activity in many areas during 1971. Highlights are covered in the following sections of this Annual Report.

Respectfully submitted,

A handwritten signature in cursive script that reads "Karl G. Harr, Jr.".

KARL G. HARR, JR.
President

AEROSPACE OPERATIONS SERVICE

The Aerospace Operations Service during 1971 was engaged in more than 100 widely diversified projects pertaining to manufacturing methods, industrial mobilization, reduction of pollution, subcontracting, weapon system support, airline support, liaison with other national and international associations, technical manual improvements, and improved quality assurance techniques.

These projects are directed toward reducing costs to industry and Government by advancing the state of the art and broadening knowledge through cooperative efforts and exchange of information.

Computer-Aided Manufacturing

Work continued in 1971 on Phase II of a three-phase program on Computer-Aided Manufacturing. The scope is limited to computer graphics applications for manufacturing engineering functions in aerospace manufacturing and to interfaces with other developing systems, such as computer-aided design. By the end of 1971, Phase II was approximately 90 percent complete. Early 1972 efforts will be directed toward producing additional computer programming specifications and preparation of a suitable package for bid proposals. The final phase of this activity is to implement the specifications into a working system. This project shows promise of substantial cost reduction in process and tool planning, tool designing and numerical control programming.

Titanium Fuselage Skin Panel Contouring

As titanium is being used for fuselage skins in increasing quantities, a project was undertaken in 1971 to examine current and future methods of contouring fuselage skins and compiling data for hot and cold contouring methods. The report on this project compares data on seven typical skin panels which represent the most widely-used panels. The configurations include doubly-contoured skins and panels with features such as:

- Uniform and tapered thickness
- Packeted panels
- Integrally ribbed panels

This report has a significant impact on the aerospace industry as it is the first industry study to establish design features that influence the selection of the contouring method and associated processing.

Manufacturing Symposia

Two AIA Manufacturing Symposia were held in 1971. They were:

- Technical Advancements Pertinent to Manufacturing Equipment and Related Production Methods
- Packaging and Handling Engineering of the Space Shuttle

Approximately 150 people attended these symposia, and over 15 topics were discussed at each symposium. Some typical titles are: Machine Tools for Space Age Composites, Noise Control and Hearing Conservation, Current Industry Applica-

The Aerospace Operations Service supports top level cooperative studies and coordination in the areas of manufacturing, materiel management, product support, quality assurance, service publications, and spare parts. Six committees supervise numerous task groups in initiating studies and responding to the industry's customer requests for assistance on mutual problems and interests.



W. A. "DICK" PULVER
*Lockheed Aircraft Corporation
 Chairman, Manufacturing Committee*



CHARLES P. KISH
*Martin Marietta Corporation
 Chairman, Material Management Committee*



PHIL I. HARR
*General Dynamics Corporation
 Chairman, Quality Assurance Committee*



JACK L. NEAL
*General Electric Company
 Chairman, Service Publications Committee*



ROBERT A. BARNARD
*Lockheed Aircraft Corporation
 Chairman, Product Support Committee*



GERALD J. GERBERT
*McDonnell Douglas Corporation
 Chairman, Spare Parts Committee*

tion of Direct Numerical Control (DNC) and Computerized Packaging Data.

National Industrial Wastewater Survey

The aerospace industry was one of 20 industries selected by the Environmental Protection Agency (EPA) to study the industrial wastewater effluent. AIA surveyed all of our member companies to obtain data and worked with EPA to help establish effluent standards.

Increased Machine Tool Reliability

Since some member companies were experiencing high percentage down-times (60 percent) during the first year numerically controlled machine tools were installed, a study was made to increase machine

tool reliability. The study verified actual instances of poor reliability and defined 20 factors contributing to such poor performance. These factors have been submitted to National Machine Tool Builders Association (NMTBA) which is taking positive action to correct the problems.

Socio-Economic Areas in Subcontracting

In 1971 AIA continued to work with officials of Congress, the Small Business Administration (SBA), Department of Defense (DoD), Department of Commerce Office of Minority Business Enterprise (DoC OMBE), Office of Economic Opportunity (OEO), etc., to inform them of the work the aerospace industry is doing in the socio-economic areas in subcontracting on Government contracts. The in-

dustry is doing an outstanding job of subcontracting with small business, minority business enterprises, etc., but many in the Government and in Congress, in particular, are not aware of this.

Weapons Systems Product Support

Responding to a request from DoD to develop and help implement ideas which would have the effect of providing more maintenance and logistics support yield from constrained budget dollars for weapon systems, AIA conducted a study and presented recommendations covering the following remedial actions.

- Utilization of existing contractor capabilities for component repair and overhaul, especially for new sub-systems.

- Extension of interim contractor supply support until design stability in the weapon system is confirmed.
- Adoption of philosophies and techniques used by commercial airlines to reduce maintenance costs and increase aircraft availability.
- Establishment of contractor repository system for data, i.e., drawings for which no absolute need date is specified, but which can be furnished promptly when ordered.
- Provision for flexibility in specification requirements for special support equipment so that the design may be adopted to realistic operating environments.
- Discontinuance of the practice of substituting Civil Service employees for qualified contractor technical representatives as weapons system technical advisors.

Implementation of these actions could lead to significant cost savings by the Government and expanded work programs by industry.

In late 1971 DoD issued a memorandum stressing to the military services the importance of relying on the contractor for logistic support prior to design stabilization. The memorandum covered several of the AIA recommendations, and provided guidance for stimulating the military services to use contractor facilities and services rather than to build up duplicate Government capabilities at unnecessary expense.

Contractor Field Service Support

A strong AIA position in opposition to the expansion program initiated by the Naval Aviation En-

gineering Services Unit (NAESU) to convert 600 contractor field service personnel and tasks to Civil Service by the end of Fiscal Year 1973 has been presented to DoD and Navy officials.

Emphasis focused on the magnitude of this conversion program which will eliminate about 50 percent of the Field Service work force of all Navy-oriented aerospace contractors. This action is expected to cause a wholesale loss of technical expertise to weapon systems support programs and a degradation of liaison between the factory and field activities. Industry concern over these adverse effects and the efforts of NAESU to convert contractor representatives to Civil Service prompted the establishment of an AIA task group to determine the role that the contractor representative plays in support of a prime contractor's delivered weapon system and to clarify any misconception of this role by customer representatives.

Utilizing available cost information, the group has determined that NAESU cost comparisons do not include total direct/indirect costs and that comparable contractor services would cost the Navy 26.5 percent less than when accomplished through Civil Service. These findings, together with recommendations for revising the DoD directive pertaining to the restrictive use of contractor field service personnel, were presented to the Government. The Secretary of the Navy later directed NAESU to suspend temporarily its conversion efforts.

World Airline Suppliers' Guide

Concern over constraints imposed by airline support policies

now in force with various suppliers, and the announcement that the Air Transport Association was planning to issue a revision to the World Airline Suppliers' Guide to supplement current individual airline support documents prompted an AIA review of the current edition of this Guide.

Although this Guide is not a contractual requirement, it has a prominent role in providing assistance to the manufacturer/supplier for establishing a single outline of policy against which all airlines can operate. AIA participation in the ATA revision review was necessary because there is worldwide reference to the Guide. AIA recommendations were presented to ATA emphasizing the purpose of the Guide as an aid in the formulation of the individual supplier/operator support policy, rather than serving as the substitute for a formal agreement or as a specification or instrument to govern and regulate the business relationship between supplier and operator.

Subsequent discussion with ATA have confirmed acceptance of the AIA views and have resulted in an invitation for a closer working relationship with ATA for mutual consideration of both the operator and supplier viewpoints in the future revisions.

World Airlines Technical Operations Glossary— Second Edition

A continuing airline/manufacturer coordination program has been developed jointly by AIA, the Association Internationale des Constructeurs de Materiel (AICMA), the Air Transport Association and the International Air Transport Association to provide for the periodic

revision of the World Airlines Technical Operations Glossary.

The initial edition of this publication, prepared through the joint efforts of the four trade groups, was distributed worldwide to both the airlines and their manufacturing suppliers during October 1970.

Since that time, operating experiences have revealed the need for updating the Glossary in order to maintain its objective of providing improved interindustry communication through the use of common terms and definitions which are relevant to airlines' technical operations.

A second edition of this Glossary reflecting recommended improvements, including those submitted by AIA, was distributed during July 1971. Definitions currently used in the ATA specifications for service publications and supply data and those in the Glossary should ultimately be standardized with those depicted in the Glossary prevailing as the accepted definitions where differences now occur.

Review and Comment on Government Specifications

In 1971 AIA reviewed and commented on eight Government specifications concerning quality assurance that were either a new proposal or a proposed change to an existing specification. The field varied from "Inspection Process, Magnetic Particle" to "Subcontract Quality Program Requirements." Many AIA recommendations were accepted and used when the specification was published.

Improved Procurement Quality Assurance

In 1970 the Air Force requested AIA's assistance to "have a new look at all of the factors affecting

product quality as applied to materials and components procured by the prime contractors from various suppliers." In 1971 the Air Force's Systems Command accepted the Phase I recommendations, and the project group started on Phase II to plan and steer more detailed studies in selected areas to effect appropriate implementation. Briefings on this program have been given to the Commanding General of the Army Materiel Command and to the Commander of the U. S. Navy Material Command. Indications are that the Navy and the Army may join this effort.

Air Transport Association Liaison

Joint review efforts of AIA members in the spare parts area and their counterparts in SBAC (Society of British Aerospace Companies) and the French USIAS (Union Syndicale des Industries Aeronautiques et Spatiales) with the Air Transport Association were extended to service publications.

Subsequently, an AIA proposal for a revision to the ATA specification of manufacturers' technical data publications was presented which included a new concept of depicting information for troubleshooting by use of shaded schematics to identify functional components.

This concept covers requirements for both mechanical and electrical components and combines operation and test functions on the same tasks, thereby enabling a mechanic who is unfamiliar with the component or system to service, troubleshoot, and repair the unit in a much shorter time. Much interest has been expressed by ATA in this proposal and an AIA follow-up study

to determine the feasibility of applying this information to microfilm reproduction capabilities. Subsequently, AIA was informed that its proposed requirements would be included in the next revision of the ATA specification scheduled for issuance early in 1972.

Responding to an ATA invitation, AIA completed a rewrite of wiring diagram requirements which would provide basic maintenance manual information in the form of new and expanded schematics, equipment lists, and hook-up charts. This rewrite also provided supplementary wiring data, primarily for use by engineering technicians, thus eliminating previous requirements which would have resulted in excessive prototype costs to the manufacturer and in similar costs to the airlines in their maintenance and modification operations. It is anticipated that these wiring requirements will also be incorporated in the next revision of the ATA technical data publications specification.

AIA continued its coordination review activities with the British SBAC and the French USIAS trade groups in further refinement of requirements for provisioning, order processing and invoicing techniques for the ATA supply/data processing specification. AIA recommendations were presented to ATA which would eliminate inconsistencies between this specification and its companion technical data publications specification and promote a better understanding and increased utilization of these specifications by the manufacturers and their airline customers.

DoD Consolidation of Provisioning Documentation

In response to a DoD invitation, AIA participated in the studies by

a DoD group which has as its assignment the development and implementation of plans to reduce the proliferation and duplication of military services provisioning documents cited on contracts.

AIA provided suggested solutions and pointed out possible problem areas that may result from this conversion.

It was noted that the best practical approach for establishing this provisioning consolidation and standardization would be through their application to individual homogeneous groups of products, such as aircraft, engines, accessories, and aerospace ground equipment. This approach received fa-

vorable consideration, and AIA was asked to coordinate future anticipated industry efforts through the establishment of a CODSIA (Council of Defense and Space Industry Associations) project in order to bring together the widest range of industry views on this subject.

Technical Manual Specification Reviews

AIA recommendations were provided to the Air Force during 1971 on six specifications concerning illustrated parts breakdown manuals, engine and engine accessories configuration change manuals, technical work orders, equipment loading and off-loading instruc-

tions, operational and organizational maintenance checklists, and checkout and installation of non-munition accessories.

The latter four of these documents represented AIA's continuing effort to assist in reducing redundant procedures and conflicting requirements of the military services under the DoD Technical Manual Specification Standardization (TMSS) program. Recommendations were also furnished to the Army for helicopter flight manual performance charts. The end results of these reviews were to keep technical manual costs down while improving effectiveness of the manual for the user.

AEROSPACE PROCUREMENT SERVICE

During 1971 the Aerospace Procurement Service continued its efforts concerned with proposed revisions and additions to Government policies, procedures and practices relating to business activities of our member companies.

Commission on Government Procurement

The Commission on Government Procurement has afforded industry a long-needed opportunity to recommend broad improvements in the Federal procurement system. Accepting that opportunity, the Procurement and Finance Council transmitted to the Commission studies in ten important areas: Analysis of USAF Requests for Proposals; Cost Disallowances: Causes and Effects; Cost or Pricing Data; Federal Reports: Impact on Procurement; Government-owned Facilities and Property; Industry Funded Research and Development; Renegotiation: The Act and Its Implementation; Risk Elements in Government Contracting; Role of The Contracting Officer; and Types of Contracts and Their Selection. In addition, the Council participated with other councils and committees of AIA in preparation of four studies: Essential Technical Steps and Related Uncertainties in DoD Weapon Systems Development; Impact of Government Procurement on Subcontractors; Management Systems in Future Government Procurement; and Small Business Subcontracting by Aerospace, as well as with the Council of Defense and Space In-

dustry Associations (CODSIA) in three studies: Government Competition with Private Industry; Government Contract Terminations; and Organizational Conflicts of Interest.

At the close of 1971, most of the Commission Study Groups had completed their reports. The Commission staff is now preparing the Commission's Report. AIA is continuing to maintain liaison with the Commission staff to provide any further assistance that may be requested.

Contract Financing, Profits and Prices

During 1970 the Department of Defense announced new policies to increase the investment of contractors in the performance of defense contracts.

Under the new policy, DoD will not make progress payments or make reimbursement more often than every two weeks and contractor requests for such payments must be based on cash disbursements to subcontractors and suppliers rather than on the basis of "costs incurred." Additionally, the alternate liquidation rate on progress payments is not available until first-article delivery or the accumulation of a year's cost data, whichever is earlier.

AIA commented to the DoD on this action, indicating it to be particularly inappropriate at a time when the industry was in a period of depressed earnings, reduced volume, and additional investment requirements. The DoD, however,

The Aerospace Procurement Service supports the functions of finance, accounting, and contract administration activities pertaining to procurement, patents, industrial relations, industrial security, government reports and manpower utilization. One Council and three principal committees provide a medium for conducting evaluations and resolving problems of mutual concern to government and industry.



DONALD N. PITTS
TRW Inc.
 Chairman, Procurement and
 Finance Council



GERALD D. BRADLEY
Garrett Corporation
 Chairman, Industrial
 Relations Committee



WILLIAM J. BURKE
IBM Corporation
 Chairman, Industrial
 Security Committee



W. A. GEBHARDT
Bendix Corporation
 Chairman, Patent Committee

advised that the new policy would be made effective on January 1, 1972. AIA worked with CODSIA in the development of Defense Procurement Circulars (DPC 94 and 96) to implement the new policy.

In the long term, DoD intends to recognize the added financial burdens assumed by the contractors by a revision of the Weighted Guidelines, to include a factor representing a return on contractor capital employed. As an interim measure, however, the Weighted Guidelines have been revised to provide an added profit factor in consideration of the additional financial costs brought about by the change in billing frequency and the requirement to reimburse material suppliers prior to seeking progress payment or cost reimbursement from the Government.

The interim added profit factor will be used pending completion of a DoD study directed toward giving greater recognition to the investment factor in negotiating profits and fees. AIA is participating with CODSIA in discussions and communications with DoD regarding this topic. CODSIA has indicated to DoD the complexities of the DoD approach and the limitations of a study devoted to past contracts. At year's end, the DoD study was being continued, with indications

that selected contracts to be negotiated in 1972 will be included in the testing process. CODSIA will continue to monitor developments.

In a closely allied area, AIA members have followed the DoD practices of using the "should cost" technique in negotiating contract prices. Experiences of member companies under "should cost" reviews by DoD, and the procedures and practices followed, have been assessed to serve as a basis for determining what further action AIA should undertake in this field.

Cost Accounting Standards

During the year AIA participated with CODSIA in a program of periodic discussions with the staff of the Cost Accounting Standards Board regarding the material under development for promulgation as Regulations or Standards.

On December 30, 1971, the first proposed regulation and two standards were published. An initial review indicates that the regulation goes beyond the requirements of the law (P.L. 91-379) and could introduce an entirely new dimension in Government contracting. Under the proposed regulation, contractors will be required to file a "Disclosure Statement" setting forth their accounting procedures and

practices. The two standards require a contractor to consistently follow the disclosed practices of estimating, proposing, and recording costs during contract performance. The only penalty provided in the law is a price adjustment in the event that failure to follow disclosed practices or standards causes increased costs to the Government. The proposed regulation, however, also provides for contract or sub-contract termination for failure to comply. At year's end, CODSIA comments on the proposed regulation and standards were in preparation.

Economic Stabilization Program

One of the more important activities of the Service in 1971, and one which continues, was to establish effective liaisons with the various agencies brought into being to carry out the President's Economic Stabilization Program and with the Federal agencies whose procurements would be affected by the Program.

Under Phase I, the 90-day freeze, AIA participated with CODSIA in developing a working relationship with the Office of Emergency Preparedness (OEP), the agency charged with monitoring the freeze, as well as DoD, NASA and GSA.

CODSIA served principally as a medium through which industry identified problem areas requiring guidance from these agencies. Within DoD, the ASPR Committee was assigned responsibility for the implementation of the freeze and CODSIA inputs to that Committee were reflected in the Defense Procurement Circular No. 91, issued for that purpose. In the course of this effort, a meeting between the ASPR Committee Chairman and CODSIA representatives developed a set of "Minutes" containing five general guidelines and answers to fifteen key questions which were used as guidance by both contractors and contracting officers.

During Phase I, AIA also acted independently of CODSIA in connection with matters peculiar to the aerospace industry. In this regard, when it became apparent that the 90-day Phase I would be followed by a Phase II of longer duration, AIA prepared and transmitted to the OEP a paper outlining the problems encountered by the aerospace industry under Phase I and requirements of our procurement processes, in both the commercial and procurement markets, which would require consideration in the development of Phase II. The OEP furnished our paper to each member of the Price Commission but, at the close of the year, no specific action had been taken.

Under Phase II, AIA has continued to participate with CODSIA in communications with the Price Commission on Government procurement matters, in the continuing liaison with the affected Federal agencies, and has acted independently as to subjects unique to the needs of the aerospace industry. A presentation was made to the Price Commission staff (Office of Policy

Development) on the problems being encountered in the commercial market, and a paper detailing these problems and suggesting solutions was proposed and transmitted to the Price Commission in mid-December 1971.

Other AIA activities relating to Phase II include daily contacts with the staffs of both the Price Commission and Pay Board in order to keep advised of the latest developments, to advise as to problems identified by our member companies and, when requested, to furnish information about the industry.

Cost Principles

The annual rate of proposed revisions to the ASPR Cost Principles declined in 1971 to six. Hopefully, this indicates a trend toward the stabilization of Cost Principles.

Because of the impact of the Cost Principles on earnings, all are important; however, three which were proposed and issued in 1971—Independent Research and Development (IR&D) Costs; Bid and Proposal (B&P) Costs; and Deferred Research and Development Costs—are of particular significance. The development of these principles has been complicated by the provisions of P.L. 91-441. This law requires IR&D and B&P advance agreements from certain contractors and also places constraints in that DoD's reimbursement of IR&D costs required by the work for which reimbursement is sought must have a "potential relationship to a military function or operation."

AIA participated with CODSIA in developing and transmitting in-depth comments on the proposed Cost Principles. These efforts resulted in the elimination of cost sharing from the first dollar in ad-

vance agreements on IR&D costs and limitation of the requirement for advance agreements to prime contracts and subcontracts under which cost or pricing data must be submitted in accordance with P.L. 87-653.

At year's end, CODSIA was continuing efforts to revise the Cost Principles as they impact on deferred IR&D costs.

For some time, Government auditors have been classifying certain contractor activities, such as public relations and public information, as advertising, in order to disallow the costs of such activities under the constraints enacted by Congress on defense contractor advertising. A comprehensive analysis of the Congressional action with respect to advertising, and how the auditors' actions are contrary to Congressional intent, was prepared and transmitted to DoD in October 1971. At the close of the year, DoD had not responded.

Warranties and Consequential Damages

Prior efforts in 1969 and 1970 led to the publication in February 1971 of Defense Procurement Circular (DPC) No. 86, establishing formal policy and contract clauses limiting contractor liability to the Government as to warranties and consequential damages arising from defective products, after final acceptance. While it had long been the practice and intent of DoD to hold contractors responsible only for correction of defects or comparable remedies, affirmation and clarification was needed. DoD recognized the need for cost-effective policies and procedures, and the DPC represented a major step in this direction.

It later became apparent that refinement and augmentation of the regulation was necessary, and that additional studies of this complex subject were required in order to realize the full benefits of the recommended approach. Much additional documentation was developed and presented through CODSIA to DoD and to the Commission on Government Procurement. It is expected that additional and revised regulatory coverage will be forwarded by the Armed Services Procurement Regulation Committee to industry for comment early in 1972.

Product Liability

Efforts seeking an appropriate solution of the problem of the potential liabilities of aircraft manufacturers and their suppliers to the public and to passengers in both national and international air transportation continued during 1971.

In the domestic field, proposed legislation has been prepared, identified as the Air Travel Public Protection Plan (ATPPP), which is patterned after the Price-Anderson Act used in the field of nuclear energy. In general, the proposed legislation would require the airlines to carry omnibus-type insurance which would cover all parties having potential liabilities up to a stated amount, and the Government would provide indemnification for recoveries in excess of the insured liability. The ATPPP is presently under consideration by senior officials of the airlines and aircraft manufacturers.

In the international field, the United States had diplomatically accepted the Guatemala Protocol, which would amend the Warsaw Convention and place an absolute ceiling of \$100,000 for the recovery

for death or personal injuries of passengers in foreign air transportation. The Protocol also provides that a participating state can establish a supplemental system under which recoveries in excess of the limitations imposed by the Protocol can be achieved. AIA has submitted to the State Department a proposed supplemental system which follows the concept of the ATPPP and which would extend the coverage of the Warsaw Convention, as amended by the Guatemala Protocol, to aircraft manufacturers and their suppliers.

The Air Transport Association (ATA) has also filed proposed supplemental systems with the State Department. Several discussions have been had with representatives of both the State Department and ATA as to the proposed supplemental systems.

At the close of the year, the State Department had not acted upon any proposed supplemental system.

Indemnification

The many years of industry effort seeking appropriate and adequate protection of the public and Government contractors against damages or catastrophic losses resulting from the performance of Government contracts bore fruit during 1971. President Nixon issued a revised Executive Order which removed certain limitations on the application of P.L. 85-804 and which should make the provisions of that statute available to contractors doing business with the National Aeronautics and Space Administration.

During the year, AIA prepared a proposal on this subject which

was presented to the Commission on Government Procurement. The cognizant study group of the Commission held two days of public hearings on this topic at which the AIA proposal was discussed at length and, in general, favorably received. A supplemental paper was then prepared and forwarded to the Commission.

NASA Acquisition Study

In June 1971 NASA completed its "Management Study of Acquisition Process" and established three committees: Project Planning, Requests for Proposals (RFP), and Source Evaluation Board (SEB), to implement the findings of the Study.

In December 1971 NASA requested AIA, on behalf of the aerospace industry, to review and submit recommendations concerning material drafted by the RFP Committee. This committee is responsible for reviewing procedures and practices regarding RFP documentation requirements and proposing changes to simplify the RFP and reduce such requirements.

A task group comprised of senior management members from a cross-section of AIA councils and committees commenced consideration of the initial output of the RFP Committee on a proposed "Work Breakdown Structure" handbook.

During 1972 the task group anticipates working on the following drafts: Statement of Work Handbook, Review of Functional Management Requirements at Time of RFP (R&QA, Safety, Technology Utilization, Labor, Security, Financial Management, etc.), "Shopping List" of RFP Requisites, and Guidelines for Preparation of RFP's handbook.

Management Systems and Reports

A revised Cost/Schedule Control Systems Implementation Guide is presently under coordination within the DoD. Information has been provided that the Guide, when issued, will include revisions based on recommendations urged for several years by AIA.

In a related action, NASA, in October 1971, published a manual entitled "Procedures for Contractor Reporting of Correlated Cost and Performance Data," which contains NASA's basic requirements for cost/schedule control systems and related reporting. As published, the Manual satisfactorily accommodates a number of recommendations made by the AIA, and proper implementation thereof will meet NASA's needs without imposing unwarranted burdens on contractors.

During 1971, DoD continued its implementation of the Military Standard Contract Administration Procedures (MILSCAP) system. As a result of several meetings between DoD and AIA representatives, it now appears that the DoD's implementation of MILSCAP may be less extensive than previously indicated.

AIA also participated in hearings before the Office of Management and Budget (OMB) as to several new or revised reporting systems and reports submitted by Federal agencies under the Federal Reports Act of 1942. The end result of such efforts reduced redundant or unnecessary reporting requirements.

Government-Owned Facilities and Property

AIA continued its close working liaison with DoD offices concerned with Government facilities and

property, and, in particular, in the development and implementation of an improved Industrial Preparedness Program. Studies conducted in connection with this Program, which seeks to improve and insure an adequate mobilization base, have had an impact on the "Five-Year-Phase-out Program." Thus, although the "Phase-out Program" is still in effect, it is now recognized that it will be necessary, in some cases, for contractors to retain Government facilities and property.

In connection with pending legislation which would authorize DoD to negotiate the in-place sale of Government property to possessing contractor, AIA went on record in support of the concept.

Industrial Relations and Security

AIA continued to oppose the Office of Federal Contract Compliance's proposed Form A, which is a self-analysis and evaluation form intended to act as a standard for the development of an Affirmative Action Program. AIA contended that Government contractors who have developed an AAP with goals and timetables should be exempt, and submitted a proposed clause to that effect. To date, the Office of Management and Budget has not approved the form.

Implementation of the Occupational Safety and Health Act by the Department of Labor has resulted in the submission of AIA comments on proposed regulations to inspections, citations and proposed assessment of penalties to recordkeeping requirements, and to rules of procedure of Occupational Safety and Health Review Commission.

AIA continued its liaison with Government administrators of the Defense Industrial Security Program

and, through CODSIA, submitted comments and suggestions on 20 proposed changes to the Industrial Security Manual. AIA was presented the Defense Supply Agency Award for exceptional professional competence and cooperation in the development of industrial security procedures.

Patents

In August 1971, President Nixon issued a revised Presidential Policy Statement on Patents, one purpose of which was to enlarge the authorization of agency heads to grant greater rights in inventions to contractors. AIA submitted suggested changes to the Armed Services Procurement Regulation (ASPR) to expedite the implementation of the revised Presidential Patent Policy, and to improve the present ASPR coverage dealing with inventions and patents.

Concurrently with the issuance of the revised Presidential Patent Policy, the President directed the Administrator of the General Services Administration to promulgate regulations for the licensing, including exclusive licensing, of Government-owned patents. Responsive to this direction, a proposed revision of the Federal Property Management Regulation (FPMR) was prepared and transmitted to industry for review and comment. About the same time, NASA issued proposed revisions to the patent licensing regulations of that agency.

Working with CODSIA, comments were prepared and filed on the proposed licensing regulations of both the GSA and NASA. At the close of the year, neither agency had taken any action with respect to the proposed licensing regula-

tions. However, a meeting has been arranged between the cognizant NASA officials and representatives of CODSIA to discuss the CODSIA presentation on the NASA proposed regulations.

The Department of Transportation (DoT) proposed extensive revisions to their regulations on patents. Here, too, comments were prepared and filed suggesting improvements to the proposed DoT regulations.

In 1971 the Department of Interior's Office of Saline Water issued new regulations covering the disposition of rights to inventions un-

der contracts issued by that agency, upon which AIA had previously commented. The revised regulations do not reflect acceptance of any of AIA's suggestions and, accordingly, a paper is now in preparation expressing views on the revised regulation, pointing out in particular how they will tend to decrease incentives for industry to seek contracts with the Office of Saline Water.

Proprietary Information

The Environmental Protection Agency (EPA) issued a proposed

rulemaking under which information provided by industry to that agency would be made available to the public. Because much of the information provided to the EPA is of the type normally held confidential by a company, AIA prepared and transmitted comments, taking vigorous exception to the proposed rulemaking and suggesting appropriate language under which proprietary information would be adequately protected.

AEROSPACE RESEARCH CENTER

1971 was the first full year of operation for the AIA's newest organizational arm, the Aerospace Research Center. By year's end the Center had completed and published four major studies, initiated two others, prepared two research reports and had led the development of several special papers.

The Aerospace Research Center devoted its resources and efforts to an examination of several subjects of broad national as well as industry concern. During 1971, these centered around the critical and complex questions of declining research and development support, the future role of aerospace in the national economy and basic government-industry relationships. The published analyses and studies received wide public dissemination in an effort to improve understanding of these complex subjects and to contribute toward the search for solutions to growing problems.

The Aerospace Research Center provides a special focal point and expertise within the Association through which the aerospace industry can comprehensively examine current and emerging issues of major importance. Separated from day to day operational matters, its professional, interdisciplinary research staff can examine each issue from the perspective and with the depth of study necessary to derive broader understanding and develop meaningful conclusions and recommendations. The Center also can bring to bear the judgment, knowledge and depth of experience available within the industry, as well as

of others prominent in the Government, academic and other professional communities.

The Aerospace Research Center represents not only an important new capability, but is also dedicated to expanding knowledge, improving understanding and being a distinctly credible source of literature regarding the aerospace industry.

The Center recognizes, however, that its research may have only a minimal effect if the means are not found to make sure that policy makers, in both the public and private sectors, are aware of the findings and their relevance to issues of public concern. Thus publication is regarded as an essential part of the research process. The following summarizes the publications issued during 1971.

NATIONAL TECHNOLOGY SUPPORT

Much of the economic growth of the United States can be attributed to the level of scientific and technical resources applied to furthering technological advance. Moreover, national security and the relative international position of the U.S. can be linked closely to the willingness of the Government to allocate economic resources to the exploration and solution of technologically sophisticated problems. The study is an examination of recent national research and development trends, which provides an overview of current and historical expenditures for research and development within both the Government and industry.

The Aerospace Research Center conducts research, analyses and advanced studies designed to bring perspective and understanding to the issues, problems and policies which affect the aerospace industry and, due to its broad involvement in our society, affect the nation itself.



Special attention is given to the shifting allocation of Federal R&D funds and to DoD and NASA expenditures as these constitute the major portion of the Federal R&D effort. Also considered is the role attributable to advanced technology in economic growth and in national security, and current social attitudes of the nation.

The conclusions derived from the study underscore how important it is that the nation improve both the level and direction of Federal support. Particularly needed is an explicit national technological strategy and the establishment of longer range R&D priorities, with funding adequate for their attainment.

AEROSPACE AND THE U.S. ECONOMY

This study examines the economic structure of the aerospace industry and its relationship to the national economy, international trade, and national policy considerations. It identifies the role and contributions of industry and compares its key characteristics with those of other U.S. manufacturing industries. Critical problems confronting the aerospace industry and its economic profile are examined in considerable depth.

The study finds that the aerospace industry plays a unique and crucial role in the economic structure of the United States. More than any other industry, it is tied to the requirements of national policy and the effects of international events.

As the primary developer and producer of the nation's advanced commercial transport, weapon and space systems, the industry's size, structure, organization, skills and product lines are determined pri-

marily by national requirements. As a major supplier to government, it is subject to constraints and controls imposed through procurement policies and practices of the Federal Government which differ significantly from those in the commercial marketplace. At the same time the industry must compete in the commercial marketplace for economic and human resources under the same economic disciplines that affect all other industries.

The study notes that aerospace accounts for a larger share of the nation's expenditures on R&D and technological advance than any other industry group, giving it an unmatched importance to long-term growth in productivity and national economic vigor.

These unique characteristics are also major contributing factors to the industry's current depressed economic condition. Other significant factors compounding the situation, as well as the complex public and policy issues surrounding them, are examined. A companion study is underway which will explore potential corrective measures.

AEROSPACE PROFITS vs RISKS

Studies conducted to determine profit levels in defense work for the Government have been not only of broad interest, but also have created considerable controversy. The controversy, which centers around the question of whether such profits should be measured in relation to sales, equity capital or total capital, has tended to obscure two other important factors. One is the trend of defense profits, however measured, and its implications for the future. The other is the vital relationship between risk and profit.

The major purpose of this study is to investigate the adequacy of profits in the aerospace industry and the adequacy of profit opportunities in relation to risks assumed by the industry.

The analysis goes behind financial risk and reviews other complex factors which create uncertainty in government contracting. Four basic categories of risk are highlighted: research and development risks, production risks, risks associated with depending essentially upon one buyer, and market risks. It examines the nature and extent of capital risks and refutes some popular misconceptions. The trend of growing shift of risk to contractors is highlighted, as well as causes. The ability to quantify risks and the appropriateness of various measurements of rate of return are also reviewed.

Finally, future implications for the industry are discussed and recommendations provided aimed at maintaining the economic strength and technological capability of the aerospace industry.

FEDERAL PROCUREMENT PRINCIPLES

The results of this study are presented as a public proposal in the national interest. The proposal, simply stated, is to enact into law a set of Federal Procurement Principles which will establish the framework for governing, with fairness and equity, the fundamental contracting relationships between the Federal Government and the private sector.

No such list of explicit principles currently exists. The study concludes that this void is an underlying reason for many of the troublesome problems being experienced in government contracting

and for serious inefficiencies in the economy which, in the national interest, should be corrected.

The study traces the entire history of Federal procurement of goods and services from private industry and its impact on the U.S. economy. It reviews the basic and essential roles and responsibilities of the Federal Government as they

relate to procurement by its agencies and of private enterprise which serves to fulfill government needs. It looks at the regulatory aspects of Federal procurement. The need for regulation is reviewed as well as the scope of regulatory actions and the magnitude and nature of their impact. The study also recognizes the challenges and difficulties in

moving a proposal of this magnitude from concept to promulgation and suggests alternative approaches.

Since its issuance, the study and its proposals have been formally endorsed by the entire Council of Defense and Space Industry Associations, as well as by other organizations interested in improving the Government procurement process.

AEROSPACE TECHNICAL COUNCIL

During 1971 the Aerospace Technical Council provided a channel of communication with senior technical management officials in the Government.

The objective of such communication is to bring the industry perspective into consideration while Government policy is being formulated and, through a productive exchange of industry-Government views, to work toward mutually acceptable solutions to technical management problems having significant impact on the aerospace industry.

There were many effective exchanges of ideas on such subjects as the NASA Technology Utilization Program, the NASA Acquisition Study and its implementation, the development and implementation of the DoD Directive 5000.1—Major Systems Acquisition, IR&D policy and the new DoD IR&D Council, technical risk analysis, test and evaluation in the system acquisition process, technical transfusion and leveling in relation to final contractor selection, and prototyping policy. Attention was focused on two of these significant problem areas by the formation of Council *ad hoc* groups. One concentrated on the defense prototyping approach and another on technical evaluation criteria for evaluating contractors' IR&D programs.

Early in the year the Council streamlined the organization of its division and committee structure for more efficient utilization of association resources. Functions were combined so that its former three divisions were reduced to two and

its former 13 committees were reduced to 10.

Defense Prototype Approach

When it became evident that the DoD was moving toward a "fly before you buy" concept or "prototype approach," the Council documented the industry's position and perspective on how this approach could and should relate to overall defense policies in maintaining an adequate technology base and reducing the uncertainties associated with major weapon systems development.

The industry position supports the need for a prototype approach and agrees with the importance of implementing a well planned approach in a wide range of product areas. The industry-proposed approach identified five types of prototypes, both program and non-program, and related them to the activities, phases, and milestones involved in the DoD system development cycle.

The Council pointed out to DoD that the prototype approach must address the orderly promulgation of technology achievements to provide a continually updated and broad technology base. If it is to appropriately address many varied situations, the approach must have maximum flexibility. Additional emphasis is thus required in the early phases of Exploratory and Advanced Development to achieve more through hardware demonstration and less through "paper."

The Aerospace Technical Council is the industry's top level technical advisory body through which broad technical and management problems affecting both government and industry are reviewed and solutions sought.



WILLIS M. HAWKINS
Lockheed Aircraft Corporation
 Chairman, Aerospace Technical Council



DR. A. C. HALL
Martin Marietta Corporation
 Chairman, Technical Management Policy Group



WILLIAM E. HOLLEYHEAD, JR.
LTV Aerospace Corporation
 Chairman, Technical Contract Requirements Committee



KENDALL PERKINS
McDonnell Douglas Corporation
 Chairman, Airworthiness Requirements Division



HOWARD R. HEGBAR
Goodyear Aerospace Corporation
 Chairman, Technical Specifications Division



RALPH B. LIGHTFOOT
United Aircraft Corporation
 Chairman, Rotorcraft Airworthiness Requirements Committee



GEORGE T. CASTLE
McDonnell Douglas Corporation
 Chairman, Transport Airworthiness Requirements Committee



JOSEPH D'AMICO
Grumman Aerospace Corporation
 Chairman, Standardization Management Policy Group



WILLIAM D. GREENFIELD
TRW Inc.
 Chairman, Electronic Systems Committee



RICHARD E. RUSSELL
The Boeing Company
 Chairman, Aircraft Noise & Emission Control Committee



FRED J. HUGHES
Westinghouse Electric Corporation
 Chairman, Flight Testing & Operations Committee



KEN W. HERON
McDonnell Douglas Corporation
 Chairman, Materials and Structures Committee



RICHARD L. GREETAN
Northrop Corporation
 Chairman, National Aerospace Standards Committee



MERRILL H. ADAMS
United Aircraft Corporation
 Chairman, Propulsion Committee

Such an approach, properly implemented, should result in significant reduction of cost and performance uncertainties before long term commitments are made and thereby reduce the possibility of major cost growths.

The Council supported the DoD prototype development approach within the foregoing context and strongly urged its implementation.

Independent Research and Development

IR&D is an essential ingredient to the future of the aerospace industry and the Council continues to give priority attention to policies and practices which directly affect industry's IR&D efforts. Public Law 91-441 introduced the concept of the need for some potential relationship of a contractor's IR&D effort to a military function or operation in order for the effort to be reimbursable by DoD.

This law also, within certain limits, requires that a dollar ceiling on IR&D effort be established by advance agreement between the DoD and its contractors. These restrictions have led DoD to place more emphasis on the technical evaluation of contractors' IR&D programs. The new DoD IR&D Policy Council was established to fill a void in overall policy guidance to military negotiators. To assist DoD, the Council is developing a proposed set of technical evaluation criteria for contractor's IR&D programs which, when adopted, is expected to be an important ingredient in improving negotiations of advanced agreements.

Weapon Systems Development Study

The final report of Phase IV of the Weapon Systems Development

Study which was completed late in 1970 was summarized in the 1970 AIA Annual Report. Early in 1971, Phase IV of that continuing industry effort to improve the systems acquisition process was briefed at high levels in DoD and NASA. During the year, recommendations of the study were discussed with many appropriate government officials and were the basis for major inputs to the Commission on Government Procurement.

There is much evidence that this project which documented the "unk-unk" (unknown-unknown) situations and the inherent uncertainties in high technology systems development has already had significant impact on Executive Branch policy makers, on Congress, and others and will undoubtedly have even fuller impact in the years ahead. The new DoD directive on Major Systems Acquisition Policy reflects many of the significant industry recommendations in its rational philosophy of systems development. Similarly, the recent internal study by NASA of the NASA Acquisition Process also reflects recommendations of the AIA weapon systems development series of studies. It is apparent that the truth of inherent uncertainties in high technology systems development has taken root and is being recognized in Government policy documents. A job that remains, however, is to see that such policy is properly implemented, and the Council will continue its follow-up.

Support to the Commission on Government Procurement

The Council took an active role in the overall AIA effort in support of the congressional Commission on Government Procurement. The

Council and its committees led three and participated in 11 of the 22 initiative study efforts which were undertaken by AIA in support of the Commission's study effort. These initiative AIA studies resulted in reports which were designed to assist the Commission and its study groups.

Management Systems in Future Government Procurement

An initiative project was conducted to examine the recent background of defense and space management systems development, application, and control; identify the lessons learned; and provide practical recommendations for management systems of the future. Though this effort was initiated primarily in support of the Commission on Government Procurement, the final report was also sent to the appropriate government agencies in the Executive Branch, where the recommendations contained in the report are considered to have potentially wide applicability. The report expresses the philosophy that there are basic and common objectives for the management of major system procurements by several Executive Branch agencies, that a minimum number of common management systems for use by such agencies offers the best opportunity for effective and economical management utilizing a common industrial base, and that it would be wasteful if the evolving requirements of other executive departments did not take maximum advantage of the lessons learned from experience gained in DoD and NASA acquisitions.

The report recommends for common usage the DoD definition of a management system. It identifies

and defines seven generic management systems which are recommended for use in future Government procurement and discusses their development, control, and application. In examining the management systems used in past and current procurements, and the actual needs for management systems in the contractual interface, it was concluded that a much reduced number of management systems, properly oriented, coordinated and integrated would provide for a more effective and efficient relationship.

Thus, the following seven generic management system categories were identified to satisfy this purpose:

- System Engineering Management
- Configuration Management
- Integrated Logistics Support Management
- Integrated Financial Management
- Quality Assurance Management
- Contractor Procurement System Management
- Government-Furnished Property, Facilities and Equipment Management

To provide both the Government and industry a stabilized base of management system requirements which can be appropriately tailored to each individual procurement and should result in reducing the overall costs of major system procurements, these recommendations were made:

- DoD should implement an effort to revise, consolidate and cancel existing management systems, with the objective of developing documents to cover only the seven identified generic management system categories: utilize the criteria contained in the report to evaluate

the documents developed to cover these generic management systems; apply these generic management systems to all major defense procurements, tailored to meet the needs of each program; relate all data requirements, selectively applied and drawn from the same data base, to the specific management system which contains the source requirement; and to conduct the overall effort through a centralized control function within DoD.

- Other Executive Branch departments and agencies which are currently or may in the future be involved in major system procurements should give consideration to using elements of the defense generic management system, when they are developed. This is preferable to the development of unique requirements for their procurement which could be costly when contracting with a common industrial base. In any case, the evaluation criteria and the centralized department or agency control concept, as discussed in the report, should be applied.

Reliability and Maintainability in Defense Systems to Reduce Operations and Maintenance Costs

The high cost in resources to support defense systems in their operational environment is of major concern to the DoD. Thus, DoD is looking for innovations in their approach to achieving more reliable and more maintenance-free weapon systems. A Council task group was formed to examine this problem

and to prepare useful recommendations for DoD use.

The task group is considering the difficulty of defining realistic reliability requirements and the difficulty of measuring the degree of achievement, the enigma of total cost concept in relation to current procurement decisions, the kinds of contracts during development, the possible need for a Government reliability and maintainability research center, and improved standardization management programs. Several innovative ideas are also being examined for possible future study and application by the DoD. This effort is continuing into 1972.

Configuration Management

An Air Force standard and manual for implementing the DoD tri-service requirements for configuration management were issued in April 1971, after a major review effort by industry. Most AIA objections to these documents in draft form were eliminated in the published volumes. The development by DoD of additional standard data elements for configuration management was followed closely and constructive comments were provided as new data elements were proposed. The development of a tri-service standard and manual on computer program development documentation is being followed informally with the anticipation that a formal industry review will be made when drafts of these documents have been agreed upon within the military services. The development of a joint-agency configuration management policy document to replace the current DoD directive on configuration management also has been followed informally.

Systems Engineering Management

The test experience by the Air Force with its forerunner military standard on systems engineering management has been followed closely to become aware of the lessons learned and of the further development of the Air Force document for wider application.

The development of a contractually applicable standard for tri-service coordination was delayed somewhat during the development of DoD Directive 5000.1 on major systems acquisition, which includes a requirement that a top policy directive on defense systems engineering be developed at DDR&E level. The development of the policy document is being followed informally with the expectation that it will be subject to industry review in 1972.

Human Engineering Requirements

There has been a continuing industry need for more realistic military requirements in the area of human engineering. Reviews were made of the DoD tri-service standard and manual during 1971 and comments were submitted to DoD. The standard is listed as an authorized management system in the DoD management systems manual yet it does not meet many of the criteria for an appropriate management system.

It is not compatible with policies concerning "tailoring" of a management system to meet program requirements nor does it specify requirements or objectives rather than detailed procedures. The Council plans a special effort in 1972 to attain better DoD human engineering requirements documents.

Technical Data Management

There was a continuing effort directed at the attainment of realistic, standardized contractual data requirements. In discussions with data managers in the three Services and in the OSD staff, the Council continued to urge that the quantity of data be minimized commensurate with the real need for such data and that delivery be specified only at the appropriate time.

The progress of the military services in converting their data requirements documentation to the loose-leaf Data Item Description format specified and indexed in the tri-service DoD Authorized Data List (ADL) was followed closely.

This task has been completed by the Army and Air Force, but not yet by the Navy, and the DoD ADL has been reissued periodically to index the converted data requirements. Much work yet remains to standardize the requirements among the services.

The publishing of a proposed DoD specification containing unrealistic requirements for quality control over technical data was opposed and, thus far, the industry opposition has been successful in forestalling the application of such controls.

Several projects were conducted to promote improvements in the requirements of military standards or specifications in such areas as electrical wiring diagrams, micro-filming requirements, engineering drawings, etc.

Computerized Part Requirement

As an input to the overall AIA initiative effort which involves the development of a computer-aided manufacturing (CAM) system, the

Council has assumed an active role in the development of a specification for that portion of the system which will document engineering design for machined parts. This part of the system will be a computerized part requirement (CPR) or computer-based file which will serve as a means of communication between engineering design and manufacturing.

It will contain part geometry, stock information, special parameters and notes, quality assurance data, and other non-geometry elements necessary for the manufacture of the part. The essential purpose of the CPR is to define the part and the special processes established by design criteria in a way most useful for computer applications in the manufacturing planning and process.

The specification for the CPR will cover its content and form as it would exist as a computerized file in the CAM system. The specification will be completed during 1972 for incorporation into the set of specifications also under development for all other portions of the CAM system.

Airworthiness Standards

AIA continued to respond fully to the Federal Aviation Administration's proposed changes to the airworthiness rules and draft advisory circulars that propose acceptable means of showing compliance with the aircraft certification rules.

Working closely with the FAA's airworthiness requirements personnel, an AIA working group provided industry positions at meetings covering a wide variety of airworthiness subjects. Technical analyses and positions were provided at meetings on safety measures for aircraft fuel

systems, crashworthiness, runway research program, aircraft ground operational procedures, cockpit voice recorders, use of reduced thrust for takeoff and others.

Instead of proposing to amend the transport category airworthiness standards to cover supersonic type aircraft, the FAA will establish the certification basis for the Concorde by special conditions. The AIA requested and has been designated by the FAA as an interested party in this rule-making action. As such, AIA comments have been submitted on some FAA proposed Concorde Special Conditions and others were being reviewed.

Aircraft Noise and Emission Control

The highlights of AIA's aircraft noise and emission control activities centered around four major actions. First, AIA responded to the FAA's advance notice of proposed rule making concerning civil airplane noise reduction retrofit requirements. The AIA concluded in the comprehensive response to the FAA that before such a rule is adopted, it should be determined that any retrofit requirements are both economically reasonable and technologically practicable.

This point was reiterated in the AIA's in-depth comments submitted to the FAA in response to a notice of proposed rule-making to change the aircraft type certification noise standards. The Council completed a technical study of aircraft gas turbine engine exhaust emissions which examined the components of the emissions and projected achievable levels of emissions in engines of the future.

The study was provided to the Environmental Protection Agency,

other Government agencies and the airlines. During the year, Council representatives served in a technical consulting role on aircraft noise to the President's Aviation Advisory Commission.

Safety Measures for Aircraft Fuel Systems

Council representatives continued their support of the FAA's Advisory Committee on Fuel Systems Fire Safety, composed of representatives of the FAA, AIA, airline operators, flight engineer and the pilot associations and the U.S. Air Force. The objective of the advisory committee is to foster and encourage the development and testing of means for achieving protection against fuel system fires and explosions, promote trial applications of qualified operational systems, document information on weight, cost and reliability of protective systems and provide advice on amending the airworthiness requirements.

The Committee viewed the installation of a liquid nitrogen inerting system in an FAA DC-9 aircraft and is monitoring the service experience of the aircraft with the inerting system installed. The FAA has deferred the issuance of a notice of proposed rule-making to require inerting of fuel systems of transport category aircraft pending the results of the DC-9 tests. Further, the Committee continued its consideration of all protective systems and devices, currently available and those under development.

The AIA continued to support the Committee's objective of reducing aircraft fuel fire hazard by all practical means including design features, operational procedures and fuel selection, processing and handling.

International Airworthiness Requirements

AIA continued to monitor AICMA (The Association of European Aerospace Constructors) efforts to develop a joint code of airworthiness requirements. The code is being developed by aerospace manufacturers' representatives of France, Germany, Netherlands, United Kingdom, Italy, Sweden and Belgium with a view to easing import/export problems within Europe and the certification problems of joint projects.

The Chairman of AICMA's Airworthiness Committee visited the AIA during the year and advised of the progress being made in this joint effort. AIA will be afforded the opportunity to review and comment on the draft code in 1972.

Flight Test Requirements

The effort to provide for better contractual descriptions of flight testing requirements and proceedings has continued at a high level during the year. It is considered that the present method of controlling contractors' flight testing operations by means of a service regulation leaves much to be desired since it provides neither the contractor nor the Government a degree of protection that would be available should the requirements be incorporated directly in the contract. An industry position on this matter is being prepared for presentation to DoD.

The flight safety program which was initiated a year ago by the development of a statistical report system of aircraft accidents and incidents has been expanded to develop recommended practices and procedures for the conduct of contractor flight test programs. AIA is

concerned by a growing movement within the Government to have all flight testing conducted by military personnel. Such a change would substantially dilute the contractor's authority and control over his test programs without relieving him of any responsibility for the performance under his contract.

Effort will be made during 1972 to reverse this movement and insure that the contractor maintains control over his program and contractual responsibilities. The activities of the staff responsible for the administration of the AIA programs related to flight testing were expanded somewhat during the year to provide a focal point for action on regulatory matters which might not be directly related to flight testing but would be related to the operation of aircraft by member companies in support of Government programs or general company affairs. In this area, successful negotiations with the FAA were concluded to avoid having contractors' flight operations classified as those of a "commercial operator." Such a classification would have resulted in the contractor incurring considerable unnecessary expense in the conduct of his flight operations.

Standardization Management

AIA has continued to work with the OSD staff and the military services in the development of a common contractual requirements document to cover requirements for the contractor's standardization management program. A former Navy specification has been superseded and combined with a recently published tri-service standard. There is a continuing effort underway, however, to improve the program requirements of the new

document and to appropriately integrate the Air Force standard which specifies a parts control board approach.

An overall management scheme for DoD hardware standardization was developed by AIA, endorsed by industry and is currently being pursued with DoD. The objective is to provide an economical standardization system sufficiently responsive to the needs of the ultimate user (Government) and intermediate user (system designer) to warrant their participation and confident use of the resulting standards.

The dollar value of standardization can be seen from the military (DESC) inventory of 600,000 electronic line items, including 518,000 non-standard items covered by 259,000 industry prepared drawings. The military estimate of the cost of this non-standard inventory is over \$1,250,000,000. This includes drawing cost, contractor justification, contractor testing, Government evaluation, and drawing file and FSN cost. Thus, a 10 percent reduction of these non-standard electronic parts, which would seem easily achievable by the proposed management scheme, would result in a savings of \$125 million.

A matter of some concern has been the trend towards lack of Government support for standardization activity. A case in point is the recent move by the National Bureau of Standards to eliminate its administrative support of the Interagency Screw Thread Committee. This action would leave the Screw Thread Handbook, which is considered to be an important document to the propulsion system manufacturers, without a Government sponsor. AIA representatives plan to meet with representatives of the National Bureau of Standards and

the Department of Commerce in an effort to negotiate continued Government sponsorship of this important activity.

U.S. Metric System Study

The three-year metric system study authorized by Public Law 90-472 and conducted by the National Bureau of Standards, has been completed, and the Secretary of Commerce has submitted a report to Congress.

In his report, "A METRIC AMERICA—A Decision Whose Time Has Come," the Secretary recommends that the United States change to the International Metric System (SI) through a coordinated national program over a ten-year period. Within broad guidelines, various sectors of society such as education, manufacturing, Government agencies, commercial trade, labor and standardization activities would formulate their own plans in concert with a central coordinating body established by Congress.

Changeover costs, estimated to be between \$6 and \$14 billion in the manufacturing industry, would "lie where they fall." However, the report recommended that excessive conversion costs may be ameliorated by accelerated depreciation allowances, investment tax credits, or expansion of tax deductible conversion costs.

Department of Commerce emphasizes a "rule of reason" in making changes to the metric system. Some measurements, such as the gauge of railroad tracks and real estate deeds, may never be changed. International civil aviation now uses both measurement systems in air navigation and there is unlikely to be any early change, particularly in units used for air-to-ground com-

munications in traffic control or for calibration of flight instruments.

During 1971, a bill (S2483) was introduced in Congress, and it is expected that hearings will be scheduled both in the Commerce Committee of the Senate and the House Committee on Science and Astronautics.

An AIA project group provided a focal point for industry inputs to the NBS study team, and for providing information on the progress of the study to AIA member companies. A policy statement on aerospace threaded fasteners was developed and forwarded to the NBS study group. The statement indicated primarily that current U.S. inch fasteners employ advanced concepts not available in fasteners produced to current metric standards.

In a related area, Council representatives are participating as technical consultants to special committees of the American National Standards Institute (ANSI) and to the Society of Automotive Engineers (SAE), who are developing a proposed optimum metric fastener system for application to aerospace threaded fasteners and threaded fittings.

Electronic Systems

Rapid technological growth necessitated revision of military specifications for aerospace electronic systems in 1971. AIA assisted the Air Force, Navy and Army in the revision of six key documents including:

- General specifications for electronic systems for aircraft, missiles, spacecraft.
- General specifications for test equipment for aerospace electronic systems.

- Electromagnetic Compatibility Design Requirements and related test procedures.

These efforts have significantly reduced the impact of contractual requirements by making the referenced documents usable whenever applicable, in lieu of costly development of unique contractual technical requirements.

Design Requirements

Contractual statements of baseline design requirements and related test procedures for aerospace vehicles and their systems are usually accomplished by reference to Government specifications.

The amount of engineering and test effort on a given contract can be greatly reduced if these Government specifications are realistic, up-to-date and already coordinated and accepted by both the customer and contractor.

Much of the Council's activity is addressed to commenting on military specifications and standards. Considering that the current DoD Index of Specifications and Standards lists over 40,000 active documents, all applicable to contractual application, the need for this orderly and economical AIA review process is apparent.

Microcircuits

AIA has been the catalyst for the efficient and effective development of an acceptable microcircuit specification tree (including military standards for definitions, test methods, application guidelines, packaging, parameters to be controlled, General Design and Quality Assurance, and detail device specifications) with the major work being

done by Air Force, Defense Electronic Supply Center (DESC) and the F-15 Parts Control Board.

During the past year, 19 USAF specifications for 79 widely used microcircuit types have been generated. DESC and the F-15 Parts Control Board received and acted on comments from other large potential users (F-14, B-1, space shuttle, and committees of AIA and EIA, etc.), to the extent that these could be handled in the tight coordination cycle. Nine of these specifications covering 36 device types have been coordinated with the Army, Navy, NASA and over 300 companies, including AIA members, and response has been favorable to acceptance as tri-service documents without major change.

AIA is now directing its attention to maintaining these documents up-to-date and again being the catalyst for development of additional needed documents by the military, including characterization and testing of hybrid microcircuits, uncased semiconductor chips, metal oxide semiconductor circuits (MOS), and large scale integrated circuits (LSI).

National Aerospace Standards

National Aerospace Standards (NAS) are a series of industry specifications and standards covering a wide variety of special industry requirements, from airport planning and large numerical controlled machine tools, to close tolerance, high strength fasteners and environment resistant electrical hardware.

More than 1,200 NAS documents have been published with approximately six new standards, and 75 revisions accomplished in the past year. Current projects cover development of standards on such items

as threaded fasteners, blind fasteners, titanium rivets, and self-locking nuts.

Recently national attention has been focused on NAS 1524 covering identification and calculation of savings resulting from standardization activities. The standard contains nine formulas for calculating cost savings and lists 52 tangible and intangible factors to be considered. Specific cost factors are presented as developed from industry surveys and specialized sources. Application of the standard by several companies has confirmed the usefulness of the document in deriving significant standardization savings.

Material and Process Specification

The aerospace industry invests considerable resources in the review of Government specifications on materials and processes, and in the development of industry documents where needed, in order to assure acceptable and usable documents of minimum cost.

The review of specifications provides Government agencies preparing these documents with current user experience and advice, and alerts industry to the latest requirements of the military services. Approximately 35 materials and process documents were reviewed in 1971, with an acceptance on the part of the Government of 75 percent of the industry recommendations.

A trend toward greater acceptance of industry documents on the part of the Government has been noted. This has resulted from reduced manpower and budget resources available to Government agencies, as well as strong recom-

mendations on the part of industry. A recent noteworthy action was the acceptance of 350 industry documents (Aerospace Materials Specifications) for listing in the DoD Index of Standards and Specifications as acceptable materials documents.

For the longer range, AIA is urging that an independent study be made of all aerospace material specification activities, with a view towards full utilization of available resources and elimination of duplicating activity.

Structural Design Criteria

Industry specialists have worked with Government agencies in the development and revision of more than 30 specifications covering design criteria for aircraft, missile and space systems.

Major efforts and contributions were made on revisions to a series of documents covering structural design and testing of aircraft, and to an Engineering Design Handbook for Helicopters. Industry recommendations were submitted on criteria specifications covering aircraft structural integrity, sound pressure levels, environmental testing, environmental control systems, crew station requirements, crashworthy aircraft systems and aerospace fastener requirements.

Environmental Test and Limits

There is a long history of activity, within the AIA, on environmental service conditions. Joint Government-AIA efforts produced MIL-STD-810 with the hope that it would be the standard for testing all types of equipment supplied to the Government. Further effort

concentrated on bringing the testing of electronic equipment under the umbrella of MIL-STD-810, and in addition attempted to standardize or minimize the requirements for environmental design and the test limits.

Some success is apparent since the Air Force and Army are using MIL-STD-810 in their detail equipment specifications. However, the Navy has consistently maintained its intent to continue use of MIL-T-5422. The reasoning is based on the fact that MIL-STD-810 is limited to how a test is to be performed and does not provide specific test limits.

AIA developed a proposal encompassing tests, test limits, and design requirements. This was submitted to the military services in early 1971, but was not accepted. However, at that time DoD agreed to organize a task group of military personnel and industry representatives to resolve the MIL-T-5422 and MIL-STD-810 problem. In January 1972, the task output from two meetings was circulated for comments on MIL-STD-810 proposed revision and proposed MIL-STD-811. This effort is geared for completion of its task in 1972, and will result in large dollar savings in future environmental design and testing of new systems.

Propulsion Systems

In recent years there has been a growing trend toward the requirements for turbine engine propulsion systems and rocket propulsion systems to have many identical characteristics.

This trend has been accelerated by the requirements for reusable rocket propulsion systems; the expanding technology which has un-

der investigation several hybrid systems, and the very high altitude and speed operating regime of turbine propulsion systems.

A point of primary concern is the proliferation of single service propulsion system requirements which has become very obvious during the year. It would appear that with the dissolution of the

Aeronautical Standards Group there is no longer a driving force within the Department of Defense toward the multi-service coordination of system requirements.

AIA is actively conducting a review of this situation and is preparing a report for presentation to policy level members of DoD and

to service components. Concurrently, a study is being made of those elements from the gas turbine propulsion system related to development and service use which will now be required in those rocket propulsion systems which are programmed for reuse, such as the space shuttle.

INTERNATIONAL SERVICE



GEORGE H. KRONMILLER
United Aircraft Corporation
Chairman, International
Committee

The International Service is a guidance and coordination point for the exporting segment of the aerospace industry. Operating through the International Committee, its primary activity is the development of a platform for the exchange of views between industry and government agencies, to assist in creating, within the national interest, the optimum environment for increasing aerospace exports.

U. S. aerospace exports in 1971 totaled \$4.3 billion, establishing a new high. Commercial aerospace exports, bolstered by significant foreign deliveries of wide bodied jets, reached \$3.2 billion. Commercial jet transport aircraft manufacturers and suppliers during 1971 relied heavily on foreign business.

Because of world wide international security commitments of friendly nations, there is a continued need for U. S. aircraft equipment. Military aerospace exports reached a total of \$1.1 billion in 1971—an increase of 24 percent over 1970. The impressive total of \$4.3 billion in U. S. aerospace exports represents 18 percent of the industry's total sales for 1971. Aerospace imports totaled \$355 million for 1971.

During 1971, due to serious balance of payments and dollar stability problems, the Congress and the Administration focused on international trade. An International Economic Policy Council, chaired by the President, was established, providing a high-level forum for the discussion and resolution of international economic issues.

International Finance

Important gains were made in the development of facilities and procedures for the export credit financing of U. S.-made capital goods, including commercial aerospace products.

The President signed into law the Export Expansion Finance Act of 1971 which removed the Export-Import Bank from the limiting provisions of the Unified Budget and extended the Bank's lending limit to \$21 billion. These provisions will now allow Eximbank to provide additional financing by raising private capital for the national export expansion program.

Private Export Funding Corporation (PEFCO) began operations May 26, 1971. PEFCO was organized to mobilize additional private capital to assist in financing U. S. exports. This will be accomplished by purchasing medium and long-term debt obligations of foreign importers of U. S. exports. These foreign importer obligations and the timely payment of interest on PEFCO's notes will be guaranteed by the Eximbank.

The expansion of the Eximbank and the activation of PEFCO have brought a national awareness to the importance of exports and provided U. S. exporters with improved competitive financing. Both activities were endorsed and supported by the AIA International Committee and AIA member companies.

The Foreign Military Sales Act with its provisions to guarantee private sector financing of military aerospace products was used during much of 1971. The International Committee's Military Export Finance Task Force conducted seminars with commercial bankers and U. S. Government officials in an effort to obtain new sources of export credit financing.

Export Controls

The export controls for commercial aerospace products were reviewed in part in 1971 and some relatively unsophisticated product categories can now be exported without validated licenses. Whereas this is a beginning, there are numerous aerospace items falling well below the current state-of-the-art which should be decontrolled under the provisions of the existing Export Administration Act. In 1971, AIA recommended:

- The Commerce Department should take leadership in the progressive decontrol of exports proposed in the Export Administration Act.
- The Commerce Department should realistically analyze and modify U. S. unilateral control of commercial products in line with the COCOM (15-nation Coordinating Committee on Strategic Commodity Control) restrictions.
- Positive action should be taken to extend MFN (Most Favored Nation) trading privileges to selected Eastern European nations in addition to Yugoslavia and Poland.
- Relaxation of commercial export controls is a prerequisite to the improvement of the nation's worldwide trading relations and ability to meet foreign competition, and will bring a significant new dimen-

sion to our export capability.

- Administrative improvement of export controls should be continued to correct the costly and time-consuming delays which industry constantly encounters.

The AIA International Committee completed a series of reviews and recommendations for the improvement of regulations and procedures of the International Traffic in Arms Regulations. The Office of Munitions Control, Department of State, accepted several recommendations of the AIA International Committee. These refinements in the regulations will assist industry. The national disclosure policy and the DoD controls affecting strategic trade require review in order to develop an increase in high technology exports.

1971 Programs

By using the International Committee meetings as a forum, the various trends and factors of international aerospace foreign competition were explored during 1971. Market analysts, Government officials and foreign researchers cooperated by presenting studies and recommendations on current and projected developments of direct concern to the aerospace industry. In this program every major aerospace product category was reviewed.

Trade Policy

During 1971, U. S. trade policy problems were brought into national focus. A deteriorating balance of trade and balance of payments combined with weakening of the dollar and serious inflation brought about emergency actions by the President. A reappraisal of the economic impact of imports and exports was conducted by the International Economic Policy Council and the Executive Branch agencies.

Aerospace exports, a substantial part of the nation's high technology exports, were analyzed in depth and even though 1971 was a record export year, projects for the near-term indicated a decrease. The first session of the 92nd Congress was concluded without the passage of a trade bill. The Revenue Act of 1971 became law on December 10, 1971 and included the DISC (Domestic International Sales Corporation) provision which provides tax deferral procedures for income from export sales.

The AIA Trade Policy Task Force conducted an analysis and made a presentation of the principal issues concerning trade policy and the effect of these issues on the aerospace industry. Following Phase I of the new economic program of the Administration, the International Committee sponsored a symposium which considered all aspects of trade policy which affect the aerospace industry.

OFFICE OF PUBLIC AFFAIRS



JAMES ALLEN
Northrop Corporation
Chairman, Public
Affairs Council

The Office of Public Affairs seeks to inform the public about the aerospace industry's goals and accomplishments in support of national security and in the fields of space exploration, civil aviation, commerce, international trade and its efforts to achieve national goals in areas other than aerospace.

In 1971 AIA focused significant resources on a program of informing a broad section of the public about complex subjects of major importance to the industry, the Government and, ultimately, the entire nation.

The three main areas covered by this effort were:

Aerospace industry and the economy.

Research and development.

The Government procurement process.

The reports that resulted from the studies made by member company experts and AIA staff were given wide distribution among opinion leaders and policy makers, both inside and outside of the Government—the Executive Branch (The White House, Departments, Agencies, Commissions, the military services), Congress, educators (in law, business administration, engineering), bankers, other associations and national organizations, and a variety of general and specialized news media throughout the country.

This effort, coupled with the production of other AIA publications, made 1971 “The Year of Publications” for the association. More than 330,000 units were prepared, published and distributed.

Studies and Reports

Beginning in April 1971 the Aerospace Research Center provided the following four studies that resulted in reports which were given wide distribution:

*National Technology Support
Aerospace Profits vs Risks*

Aerospace and the U.S. Economy

Federal Procurement Principles

These reports generated considerable comment in news media and by individual recipients.

AIA initiated a major program of studies in late 1970 to examine various elements of the Government procurement process, and to make recommendations for improvements. These studies were in direct support of the Commission on Government Procurement's investigations of all aspects of Federal procurement. The resulting reports from the AIA study program were issued throughout the year and were completed in September with a total of 20 studies, not including the Phase I, II, III reports of the weapon systems development series that had been completed earlier.

Each of these reports was followed by an eight-page “pocket summary” that was given a much wider initial distribution than that of the full report. Response to this AIA effort to focus study on problems that have developed throughout the complex procurement process was excellent.

The reports and companion pocket summaries in this series include:

Essential Technical Steps and Related Uncertainties in Department of Defense Weapon Systems Development

Risk Elements in Government Contracting

Federal Reports: Impact on Procurement

Analysis of USAF Requests for Proposals
 Small Business Subcontracting by Aerospace
 Cost Disallowances: Causes and Effects
 Inventions and Patents in Government Contracting
 Cost or Pricing Data
 Industry Funded Research and Development
 Types of Contracts and Their Selection
 Proprietary Data: An Essential Asset
 Defense Prototype Approach
 Renegotiation: The Act and Its Implementation
 Government-Owned Facilities and Property
 Role of the Contracting Officer
 Organizational Conflicts of Interest (CODSIA)
 Government Competition with Private Industry (CODSIA)
 Government Contract Terminations (CODSIA)
 Impact of Government Procurement on Subcontractors
 Management Systems in Future Government Procurement

Other Publications

Aerospace Magazine: In order to compensate for greater requirements in other areas—notably the study program—the association's bi-monthly magazine schedule was cut to four issues for the calendar year. Two of these issues, "Society and Aerospace Technology" and "Exports" were built around a single theme, a fact which has given these issues a useful life as a reference document which can be supplied in response to requests for information on these subjects. The first of these themed issues replaced the

special publication concerning technological spinoffs from aerospace industry which had been published during preceding years.

Aerospace Facts and Figures, 1971/72, is distributed by the McGraw-Hill Publishing Company. This book continues to be the authoritative and complete compilation of aerospace industry statistics available each year.

Commercial Aircraft Exports, published in cooperation with The Boeing Company, General Electric Company, Lockheed Aircraft Corporation, McDonnell Douglas Corporation and United Aircraft Corporation.

Two Vertical Lift Manuals: "Directory of Helicopter Operators in the United States and Canada" and "Heliports—Helistops in the United States, Canada, Puerto Rico." These are the only manuals of their type and complete content available to the growing world of helicopter users.

Miscellaneous. During the early part of 1971 the Office of Public Affairs continued to expand the Speakers Kit, first issued late in 1970, with issues of filler facts, quotes, fact sheets and excellent speeches by member company executives and others. AIA also caused information on subjects of importance to the industry to be distributed to new media throughout the country. The annual report, covering AIA activities for 1970, was distributed within AIA and to Government agencies, private organizations and news media.

Special Projects

SST Support: The first three months of 1971 saw the climax of industry support of the U.S. supersonic transport development program. AIA, in cooperation with in-

terested member companies and other groups, was active in preparing and disseminating factual information about the program.

Television News Report: With the endorsement of the Public Affairs Council, AIA produced a television news feature based on the year-end report and forecast delivered annually by President Karl G. Harr, Jr. before the Aviation/Space Writers Association at Washington, D.C. This five-minute news feature, narrated by Mr. Harr, was distributed to 250 television stations in 100 prime market areas during the first week in December. The film was made possible by the response of AIA member companies in providing film of aerospace industry activities in fields varying from space exploration to medicine and from satellite communications to mass transportation.

Statistical Service

The expanded AIA Public Affairs program of gathering, preparing and distributing industry statistical reports continued to meet with wide acceptance. Thanks to the support of member companies in providing information and to the cooperation of Government departments and agencies this program has done much to establish the association as a prime source of accurate, timely and complete statistical information about the aerospace industry. Primary documents prepared and distributed include:

- Monthly and Quarterly analyses of imports and exports of aerospace industry.
- Semi-annual aerospace employment surveys and estimates.
- Semi-annual backlog order reports.
- General industry economic data.

Acrospace Reference Library

The AIA library includes both standard aeronautics and astronautics publications and special collections of news clippings, background information, biographies, speeches, annual reports, information about associations and organizations, and aviation history. This library, which is one of the best repositories of detailed aerospace information, continues to provide valuable information and reference documents to staff members, member companies, AIA committees, and authorized visitors from Government, business and educational institutions.

Activities of the President

Karl G. Harr, Jr., also made formal appearances before civilian au-

diences on subjects ranging from the state of the industry and its future, to the importance of research and development. Audiences included the Central Florida Section of the American Institute of Aeronautics and Astronautics; a Princeton University forum; the Stanford University Graduate School of Business; the Aviation/Space Writers Association national convention; the Work-Factor Associates; the Wharton School of Finance and Commerce of the University of Pennsylvania graduate division; the Hartford, Conn., Rotary Club; Parks College of Aeronautical Technology in Illinois (commencement), and the December meeting of the Aviation/Space Writers Association in Washington, D.C., which is the occasion for his annual aerospace review and forecast.

Mr. Harr testified or submitted statements in support of legislative matters of direct interest to the industry before various committees of the Congress. Included were appearances before the Transportation Subcommittee of the House Appropriations Committee in support of U.S. SST legislation, and before a subcommittee of the House Committee on Public Works on legislation relating to a proposed Washington, D.C., heliport.

Meetings

The Public Affairs Council met twice during the year—a two-day meeting in March at Washington, D.C., with the annual national news media reception, and a one-day meeting at Los Angeles at the end of September.

TRAFFIC SERVICE



JAMES T. WELTY
Honeywell Inc.
Chairman, Traffic Committee

The Traffic Service is responsible for obtaining adequate, economical and efficient transportation facilities for the aerospace industry.

A major portion of the effort of Traffic Service during 1971 was devoted to representing the interest of the AIA before the transportation regulatory agencies, primarily the ICC.

Although member companies of AIA employ all modes of transportation, principal reliance is placed on the railroads and motor carriers to move the quantities of material, components and parts which go into the manufacture of aerospace products. This is especially the case with respect to the larger components. A considerable volume of tonnage, however, is moved via air, tonnage which can be accommodated by that mode and which requires the speed and safety of air transportation.

The coordination and representation of members' interests before the ICC most often begins at the time carriers publish docket proposals for consideration by their rate bureaus. These bureaus are located throughout the United States with prescribed jurisdictional boundaries established on a geographical basis.

By a specific provision of the Interstate Commerce Act they operate with anti-trust immunity. In this way groups of carriers are permitted jointly to agree to and publish freight rates and the rules and regulations which govern their application. Traffic Service and the Traffic Committee maintain a close watch over proposals which emanate from such bureaus and take action, where required, to oppose them.

This is an area where an industry approach can accomplish results more effectively and economically than can otherwise be obtained by the individual efforts of company traffic managers. A Rate and Classification Subcommittee of the Traffic Committee is assigned responsibility to identify and recommend AIA actions in this area. Thirteen such actions were taken by Traffic Service during 1971 and in most instances were successfully concluded, making appeal to the ICC unnecessary. At issue were such matters as increased charges on small shipments, aircraft parts, large and bulky aerospace articles and changes to carrier billing practices which if adopted would have materially increased the administrative costs of AIA members.

Traffic Service was a participant in ten ICC cases during 1971. These proceedings were concerned with the rates, service and practices of motor carriers and railroads and were instituted either on the complaint of AIA or in the Commission's own motion.

AIA participation in these ICC cases was preceded by an action before a carrier rate bureau, as discussed earlier. The following ICC cases are illustrative: Increased rail freight rates on aircraft parts; unreasonable household goods carrier accessorial, weighing and credit charges; unduly restrictive and confiscatory claim settlement rules of rail and motor carriers; an investigation of the practices of motor carriers which severely restrict the

service available to move shipments from vendors and subcontractors into the facilities of aerospace prime contractors.

AIA filed a pleading as an intervenor in Civil Action T-4926 before the United States District Court in Topeka, Kansas. In this action the nation's railroads are seeking to obtain a reversal of an earlier ICC decision in favor of AIA holding as unlawful an attempt by the carriers to limit to \$300,000 their liability for negligent damage to aerospace shipments. This case is still in litigation.

All transportation litigation handled by Traffic Service, whether it be before carrier rate bureaus, a regulatory agency or the courts, is coordinated with member companies through the Traffic Committee. The Committee holds three scheduled meetings a year at which time all pertinent carrier docket proposals and dispositions are reviewed, their impact on individual members determined and an analysis made of evidence available to support subsequent AIA actions.

At such times *ad hoc* task forces are assigned responsibility to target in on specific problem areas and to work closely with Traffic Service in the preparation of AIA positions and their presentation, including the assignment of responsibility for AIA witnesses to present factual testimony.

Overall savings in the amount of \$1,226,000 were reported by AIA member company traffic managers

resulting from the successful outcome of litigation handled by Traffic Service in 1971.

Coordination with Government Agencies

Throughout the year the activities of Traffic Service and the Traffic Committee were closely coordinated with the various agencies of the Government so as to ensure effective and nonconflicting representation of positions, particularly so in the freight rates and litigation area. Several of the cases discussed above concerned issues in which AIA and the Military Traffic Management and Terminal Service had a mutual interest and with respect to which joint action was taken. Such coordination of efforts made a material contribution to the success of the ventures.

At the same time, task forces of the Traffic Committee undertook advance reviews and analyses of various proposed government rules and regulations affecting the traffic and transportation activities of AIA members. Action in these areas centered primarily on proposed issuances of the Office of Hazardous Materials (DoT), the Department of Defense and the various commands of the military services.

Air Cargo Development

A continuing objective of the Traffic Committee is the promotion and development of a viable air

cargo industry. In furtherance of this objective several panel discussions were held in 1971 with air cargo executives for the purpose of reviewing shippers' requirements and the capability of air carriers to satisfy them. Panel discussions were also held with surface van carriers for the purpose of examining the practical and regulatory aspects related to the development of a joint surface/air program for the transportation of containerized shipments of household goods.

Task forces are spearheading the efforts of the Traffic Committee in these areas. Traffic Service is also an active participant in two CAB cases concerned with the development of air cargo: Docket 19923, in the matter of air carrier freight liability and claims practices; and Docket 22859, a general investigation of air freight rates and practices.

Cost Savings

Traffic Service during 1971 continued its program of gathering and exchanging ideas and information relating to improved techniques used by member companies to support government cost savings efforts. Successful actions by individual aerospace traffic managers resulted in savings of approximately \$11 million. The results of coordinated actions taken under the aegis of the AIA Traffic Committee are reflected in this amount.

TRANSPORT AIRCRAFT COUNCIL



J. B. CONNELLY
The Boeing Company
Chairman, Transport
Aircraft Council

The Transport Aircraft Council coordinates and presents transport aircraft and engine manufacturers' views with respect to commercial air transport matters; it plans and gives direction to AIA actions designed to promote the most effective and efficient potential of civil air transport aircraft.

The Transport Aircraft Council during 1971 was actively engaged in the promotion of the exchange of technical information designed to contribute to the reduction of constraints on the growth of air commerce with the Executive and Legislative branches of Government as well as the other segments of the air transportation industry.

A program was developed for implementation in 1972 with its major thrust at the preservation of U. S. leadership in commercial air transport development and sales. This program will call for the deep involvement of all members of the Council, in addition to participation by the air carriers and airport management interests.

Publications

In 1971 a report entitled "STOL Aircraft Future Trends" was published and distributed. This report describes the characteristics, trends and growth projections for short take-off and landing (STOL) aircraft and synthesizes the parameters of such future aircraft for use by operators, airport planners and communities.

It is expected that this document will become an important source for airport planners concerned with the trends in short take-off and landing aircraft design characteristics which might influence the design and operation of STOL ports of the future. Under consideration is the preparation of a general position paper on the overall requirements of short haul air

transportation systems. Preliminary work is underway.

Other major activities include:

- Establishment of a cooperative program with the Aviation Advisory Commission to make recommendations for the future development of the international airport/airways system.
- Close cooperation with the Department of Transportation in the development of the Cost Allocation Study as required by the Airport/Airways Development Act.
- An expansion of the test distribution of the standard data format for the collection and assembly of airport physical operating and economic data. The success of the initial test phase of this program on the major hub airports brought about this expansion to cover the small hub airports in the continental United States. In addition, this program is under study by international airport groups for possible adoption on a world-wide basis.
- Negotiations with the Air Navigation Commission of the International Civil Aviation Organization to adopt the industry-developed format, Airplane Characteristics for Airport Planners (NAS 3601), for use in the program to study aircraft/infrastructure compatibility.
- Participation with NASA in the development of its STOL experimental aircraft program

which was initiated in the fall of 1971. Industry recommendations were adopted in their entirety by NASA prior to the initiation of the program.

- Establishment of a cooperative program with the FAA to develop the program for the National Aviation System Planning Review Conferences.

- Development of industry positions to the White House Domestic Council relating to the economic well-being of the commercial air transport industry in connection with the "New Technology Opportunities Program."
- Continuation of the effort to organize an international as-

sociation of aerospace manufacturers with the goal of obtaining observer status at the proceedings of the International Civil Aviation Organization.

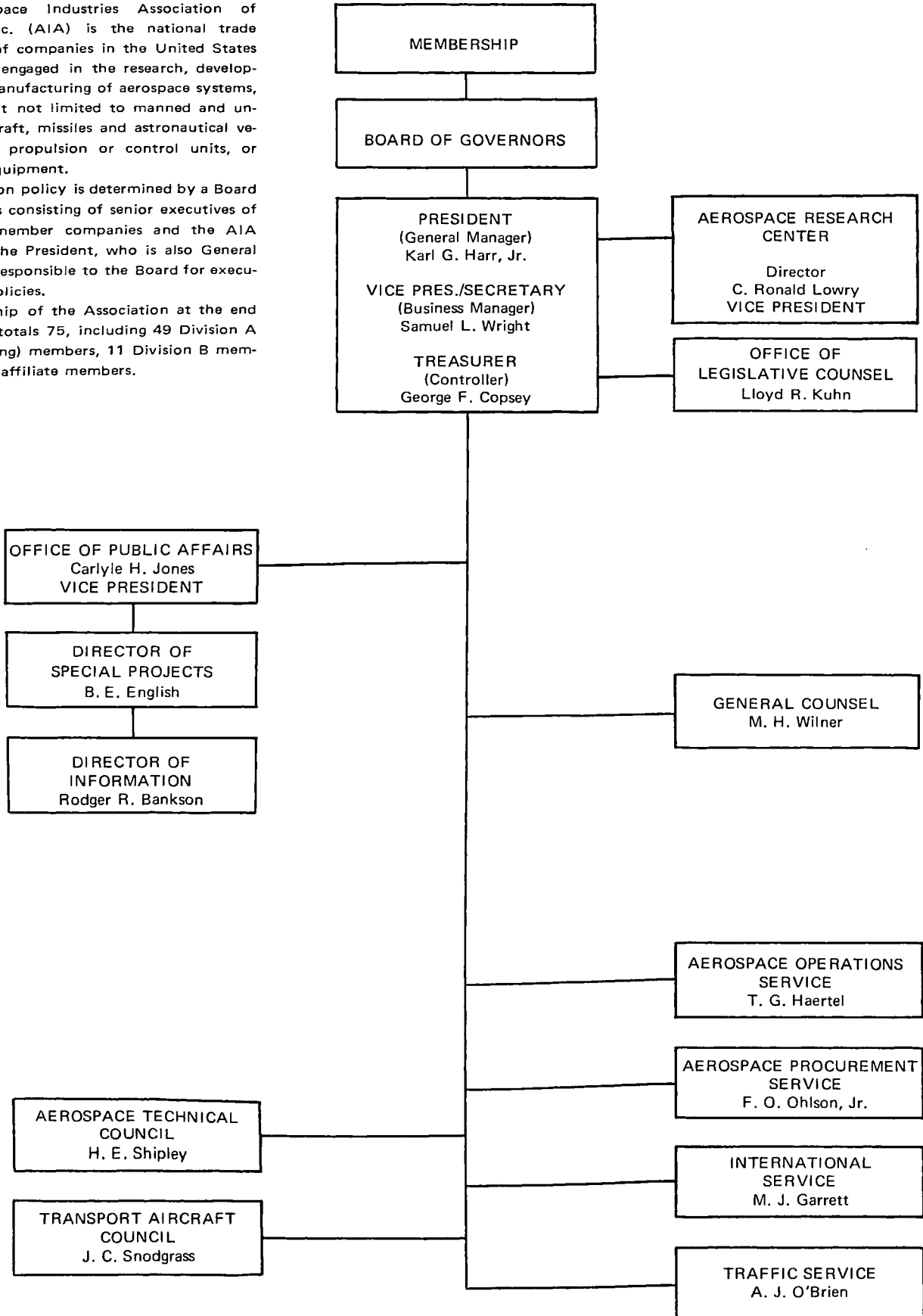
ORGANIZATIONAL CHART

(January 1, 1972)

The Aerospace Industries Association of America, Inc. (AIA) is the national trade association of companies in the United States of America engaged in the research, development and manufacturing of aerospace systems, including but not limited to manned and unmanned aircraft, missiles and astronomical vehicles, their propulsion or control units, or associated equipment.

Association policy is determined by a Board of Governors consisting of senior executives of twenty-six member companies and the AIA President. The President, who is also General Manager, is responsible to the Board for execution of its policies.

Membership of the Association at the end of the year totals 75, including 49 Division A (manufacturing) members, 11 Division B members, and 15 affiliate members.



AIA MEMBERSHIP

MANUFACTURING MEMBERS

ABEX CORPORATION
AERODEX, INC.
AEROJET-GENERAL CORPORATION
AERONCA, INC.
AMPHENOL SAMS
 The Bunker-Ramo Corp.
AVCO CORPORATION
THE BENDIX CORPORATION
THE BOEING COMPANY
CCI CORPORATION
CHANDLER EVANS INC.
 Control Systems Division of Colt Industries
CURTISS-WRIGHT CORPORATION
THE GARRETT CORPORATION
GENERAL DYNAMICS CORPORATION
GENERAL ELECTRIC COMPANY
 Aerospace Group
 Aircraft Engine Group
GENERAL MOTORS CORPORATION
 Detroit Diesel Allison Division
THE B. F. GOODRICH COMPANY
 Aerospace & Defense Products
GOODYEAR AEROSPACE CORPORATION
GRUMMAN AEROSPACE CORPORATION
 A Subsidiary of Grumman Corporation
GYRODYNE COMPANY OF AMERICA, INC.
HEATH TECNA CORPORATION
HERCULES INCORPORATED
HONEYWELL INC.
IBM CORPORATION
 Federal Systems Division
ITT (DEFENSE-SPACE GROUP)
 ITT Aerospace/Optical Division
 ITT Avionics Division
 ITT Defense Communications Division
KAISER AEROSPACE & ELECTRONICS CORPORATION
LEAR SIEGLER, INC.
LOCKHEED AIRCRAFT CORPORATION
LTV AEROSPACE CORPORATION
MARTIN MARIETTA CORPORATION
McDONNELL DOUGLAS CORPORATION
MENASCO MANUFACTURING COMPANY
NORTH AMERICAN ROCKWELL CORPORATION
NORTHROP CORPORATION
PHILCO-FORD CORPORATION
 Aerospace & Defense Systems Operations
PNEUMO DYNAMICS CORPORATION
RAYTHEON COMPANY
 Missile Systems Division
ROHR CORPORATION
THE SINGER COMPANY
 Aerospace and Marine Systems Group

SOLAR, DIVISION OF INTERNATIONAL HARVESTER CO.
SPERRY RAND CORPORATION
SUNDSTRAND AVIATION, DIVISION OF
 SUNDSTRAND CORPORATION
TELEDYNE CAE
TELEDYNE RYAN AERONAUTICAL
TEXTRON, INC.
 Bell Aerospace Company
 Bell Helicopter Company
THIOKOL CHEMICAL CORPORATION
TOOL RESEARCH AND ENGINEERING CORPORATION
TRW INC.
UNITED AIRCRAFT CORPORATION
WESTINGHOUSE ELECTRIC CORPORATION
 Aerospace Electrical Division
 Aerospace and Electronic Systems Division
 Astronuclear Laboratory

DIVISION B MEMBERS

AVIQUIPO, INC.
PARKER & COMPANY INTERNATIONAL, INC.
MANUFACTURERS AIRCRAFT ASSOCIATION, INC.
BRUKNER, CLAYTON J.
CONDON, CYRIL HYDE
DE SEVERSKY, A.P.
FALES, HERBERT G.
HANKS, COL. STEDMAN SHUMWAY
SIKORSKY, I. I.

HONORARY LIFE MEMBERS

LOENING, ALBERT P.
LOENING, GROVER

DIVISION OF AFFILIATE MEMBERS

AIR CARRIER SERVICE CORP.
ASSOCIATED AEROSPACE ACTIVITIES, INC.
AVIATION WEEK & SPACE TECHNOLOGY
BOOZ, ALLEN APPLIED RESEARCH, INC.
BRITISH AIRCRAFT CORP. (U.S.A.), INC.
COMMERCE OVERSEAS CORPORATION
EASTERN AIRCRAFT CORP.
INFORMATION HANDLING SERVICES, INC.
LYBRAND, ROSS BROS. & MONTGOMERY
NATIONAL AVIATION CORP.
NATIONAL CREDIT OFFICE, INC.
TEXACO, INC.
TRANSAERO, INC.
U. S. AVIATION UNDERWRITERS, INC.
EDWIN C. WALTON



AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.
1725 DE SALES STREET, N.W., WASHINGTON, D. C. 20036