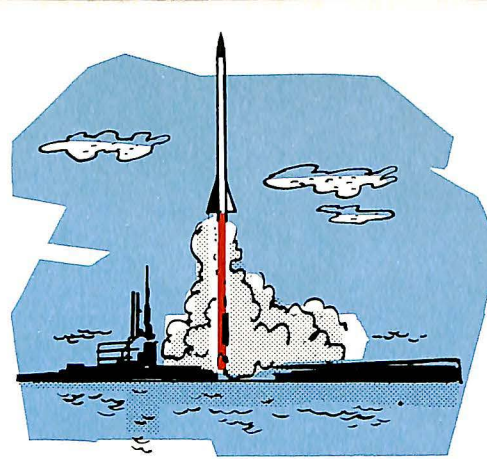
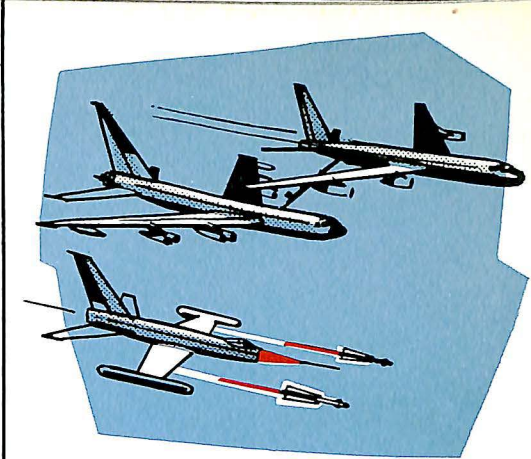


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NAVY



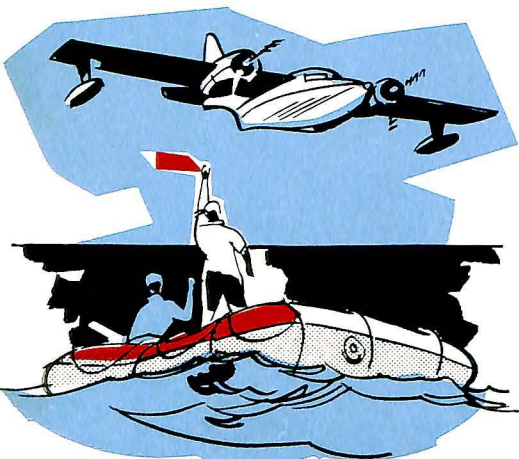
AIR FORCE



COMMERCIAL AIRLINES

# 1957 annual report

AIRCRAFT INDUSTRIES ASSOCIATION OF AMERICA, Inc.



COAST GUARD



MARINE CORPS



BUSINESS FLYING

AIR POWER  
For Peace  
For Defense



HELICOPTERS



AGRICULTURAL FLYING

AIRCRAFT INDUSTRIES ASSOCIATION OF AMERICA, Inc.



1957

# annual report

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AIA Member Companies

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**AIA Organization Chart**

**AIA Officers**

*President:* ORVAL R. COOK

*Vice Chairman:* DEWITT C. RAMSEY

*Vice President and Western Region Manager:* LELAND D. WEBB

*Secretary-Treasurer:* HARRISON BRAND, JR.

## **TO THE BOARD OF GOVERNORS:**

THE fiscal year ended October 31, 1957, has been one of the most extraordinary in the peak-and-valley history of the aircraft industry. The first seven months were normal. Production of military materiel proceeded at a relatively high level on schedules intended by the services to peak in early 1958. Important progress was made in research and development, and in related sciences there were achievements of breakthrough proportions. Employment was on a rising scale, reaching approximately 910,000 by early summer. Commercial and other civil aircraft production and development progressed importantly.

But the last five months of the year were marked by almost incredible confusion, resulting in a lowering of effort in the aircraft industry. Ironically, over those same five months, a series of announcements by Soviet Russia contributed little to America's peace of mind, for it became known that Russia had developed and tested both intermediate-range and intercontinental ballistic missiles and had exploded a nuclear device at high altitude. Also, she had placed an earth satellite in orbit in advance of our own Vanguard project for the International Geophysical Year, and immediately after the close of the AIA fiscal year, she launched an additional satellite of large proportions to an orbit over a thousand miles above the earth.

The sequence of events affecting the aircraft industry, from mid-May through October, was so rapid and so radical that the industry found itself thrown out of tempo, out of phase and into a state of uncertainty. It arose from a difficult fiscal situation within the Department of Defense in which it was discovered that the current rate of expenditure would exceed the \$33 billion limit for fiscal year 1958 (ending June 30) by some \$2 billion. Since it was national policy not to ask Congress for an increase in the statutory national debt ceiling of \$275 billion, it was necessary for the armed forces to stay within the \$33 billion

spending limit. Especially stringent was the rapidly dwindling supply of funds available during the remaining months of calendar 1957.

First indications that major changes were in prospect in military contracts came in May, when the industry was told that the services would have to effect rigid economies. Shortly afterward, progress payments were sharply curtailed and defense contractors were instructed to reduce overtime to a bare minimum. This came on the heels of an announcement that there would be a speed-up in emphasis on guided missiles, at the expense of manned aircraft programs.

On June 20, leading airframe, engine and systems and components manufacturers were summoned to Washington by the Air Force and were told that it would be necessary to make drastic economies. There followed, through July and August, a series of cut-backs, stretch-outs and cancellations by the services in both aircraft and missile contracts which affected practically all categories of the industry effort, except ballistic missiles. As a result of this lower level of activity, contractors reduced personnel sharply, retired facilities, cancelled or stretched out subcontracts, and took other steps to lower costs. In a number of cases where advanced contracts were cancelled completely, there were heavy lay-offs of personnel.

On September 25, it was announced that these measures were not enough; that expenditures had not declined to the extent desired. This was not surprising to the manufacturers, despite their instant efforts to cooperate. Reduction in progress payments had forced them to speed up their billings. Employment costs could not be reduced immediately, considering union agreements, severance pay and fringe benefit provisions, and work schedules had to be rearranged. While overtime was practically eliminated, direct labor costs rose in many cases in order to maintain some important schedules. There simply had not been time for these measures to become fully effective. More-

over, as schedules were stretched out, unit costs were going up.

In a final drastic move to reduce spending, the Air Force announced that it would limit payments to contractors for work done to the extent necessary to stay within the specified expenditure rate. The contractors would have to finance the difference themselves, even though the interest on such heavy borrowings would not be admitted as cost of contract. It was implied that such interest charges must be taken out of profits, which were already only about half the national industrial average. It soon became known that the Navy would impose similar measures. In the aggregate, it was estimated from an AIA survey of companies that the total amount involved in such financing would be around a billion dollars. It became questionable whether some companies would be able to borrow to the extent necessary, and it appeared that further heavy cancellations, stretch-outs and cutbacks would become imperative.

On October 29, in the waning days of the AIA fiscal year, the situation was alleviated to some degree in a statement of policy enunciated by the new Secretary of Defense, the Hon. Neil H. McElroy. He announced that the Government would pay its bills on time, which was tantamount to breaking the expenditure barrier for the remainder of calendar 1957; that defense contractors would be asked to finance a greater proportion of their inventories and work-in-process, and that such investment by contractors would be taken into consideration in determining fixed fee or allowable profit, although interest on borrowed capital would not be allowed as cost of contract. The industry learned that progress payments would be at a rate of 70 per cent and that, in future, companies holding cost-plus-fixed-fee contracts would be encouraged to finance up to a maximum of 20 per cent.

Although it will not be without hardship in some cases, the new policy at least serves to stabilize an otherwise confused situation and will permit more orderly planning in the future work of the industry.

### ***Aircraft Industry Cooperation***

Throughout this series of extraordinary events, the aircraft industry made every effort to cooperate with the military services, despite the uncertainties and disruptions suddenly brought upon the companies.

However, in view of the circumstances and in the interest of keeping the record straight, this Association seriously questions the necessity for the precipitate and disorderly manner in which these changes were wrought. It is incomprehensible to us that such a difficult fiscal problem could not have been foreseen, long in advance of the time when it apparently was first recognized. The trend lines of inflation, of growing complexity, of shortened lead time which the in-

dustry had achieved in cooperation with the services, of the new weapon systems and other factors contributing to higher costs should have been visible.

It is not for us to judge the importance of maintaining the expenditure ceiling at all costs. It is not for us to question the elimination, reduction or delay of airframe or missile projects. These are administrative and military decisions. Nor can we have valid opinions as to what our military strength levels should be.

What we are concerned with are the effects of such extensive measures, coming in rapid succession in the short period of less than five months. The aircraft industry has long been proclaimed by the military as a full partner in the defense team. It is a complex industry, widely dispersed and reaching into tens of thousands of subcontracting and supplying companies. Accustomed as we are to rapid expansion to achieve difficult feats of supplying the nation's air arms, it is not reasonable to expect us to assimilate efficiently a whole series of radical changes in so brief a time.

This has worked a hardship which, in all honesty, we believe was unnecessary.

### ***Production***

During the year, the nation's aircraft manufacturers delivered a total of fewer than 12,500 aircraft for civil and military use. In 1956, about 14,000 planes, including 6,800 military and 7,200 civil aircraft were built. Output for the military services in 1957 declined to more than 5,000 units, thereby providing further evidence of the greater impact of guided missiles. Airlines, corporations and other civil users took delivery of approximately 6,500 aircraft. Despite the fact that many jet and turboprop transports, now in production, will be delivered beginning next year, about 330 piston-engine airliners were delivered to domestic and foreign airlines in the last year. Sales volume in 1957 rose substantially over AIA's 1956 fiscal year, but some members felt the repercussions of military cutbacks and stretch-outs much more keenly than others.

### ***Turbine Transports***

Toward the end of the AIA fiscal year, the first production model all-jet transport was rolled out and several of the other jets and propjets were scheduled to follow shortly thereafter. These new aircraft, slated for use by airlines in this country and abroad, will serve to reduce travel time to almost half of what it is today. The first propjet aircraft will enter airline service in 1958; the all-jet transports will begin service about one year later. To date, the major producers of turbine-powered transports have booked firm orders for over 550 aircraft and have granted options for at least 150 more.



**AIA Committee Structure**

To streamline the various AIA activities and make them more productive, a task force is studying the committee structures and charters to eliminate unnecessary or overlapping groups and to assure that all necessary functions are covered. Various changes will be proposed in the near future. In the meanwhile, there was created the Procurement and Finance Committee, combining the Accounting and Controllers Committee and the Legal Committee, which had many kindred interests. The new committee appears to be working out very well.

**Western Region Office**

In virtually all respects, the activities of the Western Region office paralleled those of AIA headquarters in Washington. However, there were a number of local and regional problems which demanded action. The Pacific Coast Tax and Legal Committees were deeply concerned about the attempts by California's Los Angeles, San Diego and Alameda Counties to tax the industry for its possessory interest in Government-owned materials and work-in-process.

A lower court ruled in favor of the aircraft industry in March and the decision was noted on the court records in June. Los Angeles County officials appealed to the California Supreme Court in August. The case is expected to reach that court within 15 months of the time of appeal. In the interim, Los Angeles County is continuing to tax the industry under a new and much-more-drastic formula, but the Defense Department has refused to reimburse the industry for these taxes, taking the view that the taxes are illegal under the lower court's decision. The industry has filed an appeal with the Defense Department.

Among other Pacific Coast developments was a ruling by the Los Angeles County Air Pollution Board which would require the expenditure of millions of dollars by the aircraft industry for filtering equipment to control paint fumes and other solvents. Although it is not formally an AIA group, the Industrial Waste Council set up by area aircraft plants is working on possible solutions and will receive all possible support from AIA's Western Region Office.

**Finances, Membership**

A fiscal year 1958 budget has been approved by the Board of Governors at a figure less than the 1957 budget.

During the year, the Association recorded a net loss of two members.

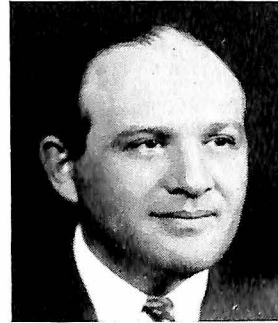
Respectfully submitted,



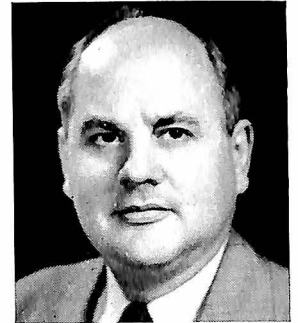
PRESIDENT

November 1957

1957  
BOARD OF  
GOVERNORS



VICTOR EMANUEL  
*Chairman, Avco Manufacturing Corp.*



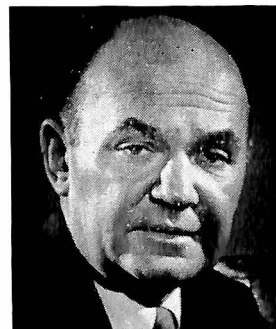
LESTON P. FANEUF  
*President, Bell Aircraft Corp.*



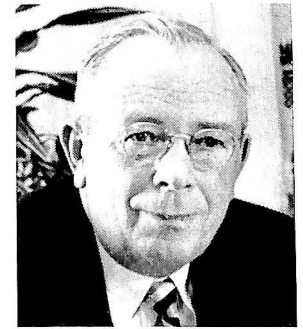
ROY T. HURLEY  
*Chairman, Curtiss-Wright Corp.*



DONALD W. DOUGLAS, SR.  
*Chairman, Douglas Aircraft Co., Inc.*



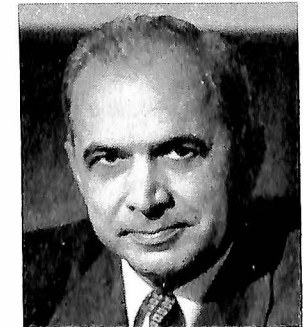
LEON A. SWIRBUL  
*President, Grumman Aircraft Engineering Corp.*



L. A. HYLAND  
*Vice President, Hughes Aircraft Co.*



MUNDY I. PEALE  
*President, Republic Aviation Corp.*



T. CLAUDE RYAN  
*President, The Ryan Aeronautical Co.*



**MALCOLM P. FERGUSON**  
*President, Bendix Aviation Corp.*  
*Chairman, First half 1957*



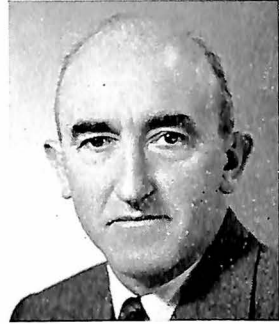
**WHITNEY C. COLLINS**  
*President, Northrop Aircraft, Inc.*  
*Chairman, Second half 1957*



**ORVAL R. COOK**  
*AIA President*



**DEWITT C. RAMSEY**  
*AIA Vice Chairman*



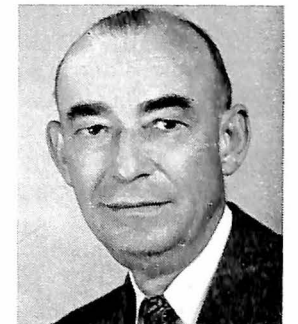
**WILLIAM M. ALLEN**  
*President, Boeing Airplane Co.*



**C. J. MCCARTHY**  
*Chairman, Chance Vought Aircraft, Inc.*



**C. J. REESE**  
*President, Continental Motors Corp.*



**JOSEPH T. McNARNEY**  
*President, Convair Div. of General Dynamics Corp.*



**RICHARD S. BOUTELLE**  
*President, Fairchild Engine & Airplane Corp.*



**J. C. GARRETT**  
*President, The Garrett Corporation*



**E. W. LAPIERRE**  
*Executive Vice President, General Electric Co.*



**E. B. NEWILL**  
*General Manager, Allison Div., General Motors Corp.*



**ROBERT E. GROSS**  
*Chairman, Lockheed Aircraft Corp.*



**GEORGE M. BUNKER**  
*Chairman, The Martin Company*



**J. S. McDONNELL**  
*President, McDonnell Aircraft Corp.*



**J. H. KINDEBERGER**  
*Chairman, North American Aviation, Inc.*



**CARL G. HOLSCHUH**  
*President & General Manager, Sperry Gyroscope Co.*



**FREDERICK C. CRAWFORD**  
*Chairman, Thompson Products, Inc.*



**H. M. HORNER**  
*Chairman, United Aircraft Corp.*



**L. E. LYNDE**  
*Vice President, Westinghouse Electric Corp.*

## ORGANIZATION AND FUNCTIONS

THE national trade association of the manufacturers of aircraft, guided missiles, rockets and engines, accessories, parts, materials and components used in the construction and operation of complete aircraft and missiles, is the Aircraft Industries Association of America, Inc.

Incorporated under the laws of the State of New York and having its principal headquarters in Washington, D. C., AIA is made up of all major airframe and engine producers and many major suppliers of aircraft and missile equipment.

AIA is concerned with the industry-wide aspects of aircraft research, development and production. It represents the industry's viewpoints and interests to the Government, the Congress, the military services, allied and other industries and to the many segments of the public. It is cognizant of legislation and regulations that might affect the aircraft industry. It attempts to work out cooperatively among its members and with appropriate agencies and organizations the solutions to problems of interest.

Policy direction of the Association's activities is vested in a Board of Governors which is composed of the chief executive officers of various member com-

panies. Under this policy, AIA activities are carried on by committees and councils representing every phase of aircraft production and aircraft industry management. Each committee consists of high level company representatives especially qualified in the various fields of responsibility.

Through its seven Services and 30 Committees, the Association provides facilities for handling the multitude of technical, financial, legal, tax, public and industrial relations, patent, traffic and other problems. The helicopter and utility airplane interests of the Association are banded under councils, each of which has staff service.

AIA is made up of 145 members, including 125 voting members and 20 affiliates.

Chief executive officer is the President, who also is General Manager, while a Vice-President performs the duties of general manager of the Western Region office at Los Angeles. The seven AIA Services, including the Utility Airplane Council and the Helicopter Council, operate under direction of the President. The Secretary-Treasurer acts as business manager and handles all membership and financial matters.



## EXPORT SERVICE



WORKING primarily through the Export Committee and the five permanent subcommittees, AIA's Export Service during the year concentrated on industry-wide foreign trade problems which do not infringe on the competitive efforts of individual firms.

Close and continuing liaison has been maintained with more than a dozen Government agencies (and their various divisions and bureaus), with the military and diplomatic officials of more than 60 foreign nations, with numerous international financial organizations and with various other groups to accomplish the objectives of the Export Service.

### *Release of Security Data*

This is one of the continuing problems facing companies trying to export aviation products. The Export Committee has given the project a high priority



in its planning, and consultations with the Defense Department and the military services have resulted in notable progress.

Nevertheless, it is a fact that U. S. aircraft export sales have suffered important setbacks because foreign producers are in a position to offer comparably advanced designs sooner and are able to disclose technical data that helps divert sales of military and civil aircraft and parts from traditional U. S. suppliers. It is impossible to over-emphasize the importance of this situation.

Governments of foreign countries with well-established aircraft industries are resorting to many expedients to bolster their economies, defenses and prestige by subsidizing exports in various forms. In the principal aircraft-producing nations abroad, the governments own or effectively control the major manufacturers and the national airline, making export subsidization a matter of simple bookkeeping. Combination or "tie-in" export sales are accomplished with little difficulty.

### ***Billion in Exports***

A total of \$1,059,300,000 worth of U. S. aeronautical products was shipped overseas during 1956, a 45.4 per cent increase over 1955. That year, in turn, showed a 17.5 per cent increase in exports over 1954.

The 1956 export total represented 11.2 per cent of the industry's total output, as against 10.1 per cent in 1955 and 7.5 per cent in 1954. The 1956 exports are therefore calculated to have provided daily employment for 91,213 of the industry's production workers. Since official figures are lacking, it is estimated that aviation's dependence on exports (military and civil) is substantially greater than that of any other U. S. defense manufacturing industry.

For the first six months of 1957, U. S. aviation exports registered a 5 per cent drop from the same period of 1956, from \$568,725,000 to \$537,684,000. Principal reason for the decline, it is believed, is the reduction in the military aid shipments of the Government. It is expected, however, that 1957 direct factory shipments of civil and military aviation materiel will be significantly greater than in 1956. It is unknown, however, whether factory shipments will climb enough to compensate for, or exceed, curtailment of exports due to the drop in foreign aid.

### ***Export Committee Organization***

Seventy-one executives, representing 36 AIA manufacturing members interested in overseas trade, make up the Export Committee. During the year, members of the Export Service staff distributed more than 200 memoranda to members of the Committee and the various subcommittees. Included in the latter category are the Advisory Subcommittee (20 members),

Export Finance Subcommittee (14 members), Military Aid Subcommittee (9 members), Military and Civil Liaison Subcommittee (12 members) and the Surplus Disposal Subcommittee (8 members).

### ***Export Committee Activities***

Three major meetings were held during the year. The first, in Washington in February, was basically a symposium on Security Release for Export of Aviation Products and Related Technical Data. Various U. S. Government representatives from the State, Commerce, Defense, Navy and Air Force Departments participated.

The second meeting, in New York in June, involved detailed progress reports from the five subcommittee chairmen on their activities. Also on the agenda were addresses and discussions by officials of the Export-Import Bank, the Defense Department and the Air Force.

The third meeting, to be held in Palm Springs, Calif., in December, will be concerned with export financing and other subjects of special interest to Pacific Coast companies.

### ***Financing of Aircraft Exports***

Encouraging results have been produced as a result of meetings and discussions with Government and private financing organizations. In addition, the Export group is continually seeking the development of new sources of aircraft export financing. However, to realize a reservoir of finances sufficient to meet the industry's needs in the immediate future, concentrated efforts by industry finance executives and more extensive participation by financial institutions will be required. As a result of the activities of the Export Finance Subcommittee, the interest and participation of the Export-Import Bank and several commercial banking institutions has increased considerably.

### ***Latin American Aviation Conference***

About 300 persons, representing civil and military aviation interests from all Latin American nations and a host group from 42 AIA member companies, attended last year's meeting. Special tribute must be given the USAF's Caribbean Air Command for helping to organize the meeting and transporting to and from Miami the military delegations of Argentina, Brazil, Chile, Costa Rica, Cuba, Dominican Republic, Ecuador, San Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Paraguay, Peru and Venezuela.

The conference had one basic purpose—to explore and define mutual problems and try to find means of solving them. It gave civil and military aviation leaders of 19 Latin American republics an opportunity to meet with representatives of the American aircraft industry, the U. S. Air Force and U. S. civil agencies concerned with aviation to describe their

areas of concern and make recommendations on how they could be overcome.

The objectives of this high-level conference were strictly adhered to during the meeting. All comments indicate that this first Inter-American aviation assembly was a great success in bringing together such an important group and resolving so many matters of mutual concern.

### **Foreign Military Aid**

Because the aviation aspects of the Military Aid Program seem to be heading toward greater materiel self-sufficiency of the NATO and other Allied air forces, the Export Committee is now concentrating its attention on the problems of providing follow-on spares and technical service for U. S. aircraft equipment already in the hands of our military allies. The U. S. Government's plans in this regard are being closely followed and the American aircraft industry is supporting the creation of a permanent NATO organization to handle this problem.

### **Foreign Military and Civil Liaison**

The reports of U. S. Foreign Service officers on foreign aviation activities have become much more useful to the aircraft industry as a result of changes in reporting techniques recommended by the Export Service and AIA management. Both the State and

Commerce Departments have instituted a revised report schedule originally proposed by the Military and Civil Liaison Subcommittee. This group's activities are also responsible for a revised State Department regulation covering the export of unclassified technical data, which has proved more acceptable to U. S. aircraft manufacturers.

Soon to appear is another result of the subcommittee's efforts in the past, a more extensive release of aviation export statistics by the Bureau of the Census. This data will make available to aircraft manufacturers the detailed figures required for preparation of accurate analyses of the foreign markets.

### **Military Surplus Disposal**

The subcommittee most concerned with this activity is urging the Government to advise the original manufacturers of plans to sell surplus equipment further in advance of the proposed sale. Naturally, companies whose products are being offered for sale are interested not only in the impact those sales will have on the market but also the revenue potential in modifying and overhauling that equipment. To keep posted on the increasing volume of Government-surplus planes, engines, accessories, instruments and related spares, the Surplus Disposal Subcommittee is maintaining liaison with cognizant Government agencies.



## INDUSTRY PLANNING SERVICE



**T**HE AIA's Industry Planning Service is responsible for dealing with all important problems influencing the business and administrative operations of the aircraft and missile industry. It maintains close working relationships with the various military services and other Government organizations on the laws, regulations, directives, specifications and orders of various types which have a bearing on the industry's business

activities. To accomplish its objectives, the Industry Planning Service works through 10 committees.

### **INDUSTRIAL RELATIONS COMMITTEE**

#### ***Labor-Management Relations***

With a number of major union contracts expiring between now and next spring, the committee is concerned with trends in bargaining demands with some companies already negotiating the new contracts. Most of our member companies have been operating under two or three-year contracts, with re-opening clauses which permit wage negotiations each year of the contract.

#### ***Manpower***

The year has seen a considerable reduction in the over-all employment figures for the industry.

As a result of contract stretch-outs and cancellations, the engineering shortage which has existed for the

past several years has eased, although there is still an unfilled demand for top level engineers and scientists. The supply of engineers leaving college with B.S. degrees showed an encouraging increase during the past year and the prospects for a continued increase are good. The supply of skilled mechanics generally is now at least equal to the demand, with a slight surplus existing in some areas. The committee has decided that although the present unsettled conditions make it difficult to determine the engineering needs of our industry during the coming year, the best course of action will be to press for an improvement in college curricula so that graduating engineers will be upgraded qualitatively as well as quantitatively. The committee will seek to achieve this by inviting engineering faculty members to visit our plants and, where practical, to offer summer employment to instructors.

#### ***Legislative Action***

No significant labor legislation was passed during the last session of Congress. The committee has continued to study proposed legislation to determine whether any action was necessary to present the views of the aircraft industry. It is their opinion that possible action in this area should be delayed until the next session of the 85th Congress when the results of the 1957 McClellan Subcommittee hearings will be easier to evaluate.

### **INDUSTRIAL SECURITY COMMITTEE**

#### ***Commission on Government Security***

The committee continued to work with the staff of this Commission until the final report was completed and submitted to the President on June 30th. Copies were made available to committee members and a study is now being made of the report in order to present comments to the Defense Department.

#### ***Industrial Security Manual***

At the national meeting of this committee in May, representatives from each of the armed services and the Department of Defense discussed areas in the administration of the security regulations where improvements might be made. Recently the DOD Office of Security Policy asked that the AIA committee comment on proposed revisions to the Security Manual while the revisions are in the development stage.

#### ***Industrial Security Advisory Committee to the Department of Defense***

The six members of AIA's Security Committee, who have served on the above Department of Defense Committee of 17 members since its formation, have continued to work with the group throughout the year.

### **PATENT COMMITTEE**

The committee evaluated the new Part 2 of Section IX of the Armed Services Procurement Regulation

on "Data and Copyrights" and prepared industry comments. In summary, these were that the basic philosophy was unsound and the provisions did not counteract the major objections which had been presented to the Department of Defense by the Aircraft Industries Association and other organizations. Later, a subcommittee met with Defense Department representatives to discuss experiences of member companies in negotiating contracts under the new provisions and to urge further consideration of the aircraft industry's problems. The results of this meeting were inconclusive, although Defense Department representatives did indicate that there would be no radical departure from past procurement policies, particularly with regard to the larger and more complex items of aeronautical equipment.

Legislation proposed in the 85th Congress affecting patents has not progressed far enough to warrant submission of industry's viewpoint on the various issues.

### **PRESERVATION AND PACKAGING COMMITTEE**

The efforts of the committee were concentrated on two principal objectives:

(1) Promoting intra-committee exchange of information on improved preservation and packaging methods;

(2) Securing changes in Government specifications and procedures permitting less costly preservation and packaging of military products, with no sacrifice of effectiveness.

In meeting discussions, committee members exchanged information on usage of packaging materials, methods of reducing tare and cube and interpretations of Government specifications. They also received advance notice of revisions of specifications and of permissible deviations. The committee submitted comments and recommendations to the appropriate Government agencies on:

(1) Proposed Electric Accounting Machine Procedure for submitting Packaging and Transportation Data;

(2) Packaging for Guided Missile Systems, MIL-P-9024A (USAF);

(3) Proposed Military Standard—Lumber for Containers;

(4) Proposal for a less costly Alternate Acceptance Testing Plan for incorporation in MIL-P-116c, Methods of Preservation.

### **MATERIALS COMMITTEE**

No significant changes occurred in the regulations dealing with the Defense Materials System and subcontractors—the committee's two principal fields of interest. At the end of the year, however, cost reduction studies by Government agencies and by member companies indicated savings in overhead costs would

result from a further streamlining of Defense Materials System reporting procedures. As soon as a decision is made by the Government on its minimum requirements, the committee will submit recommendations.

The committee has decided to recommend retention of the priorities and allocation features of the Defense Materials System since these are not burdensome and are needed to solve transient materials shortages similar to those occurring last year when an "X" rating was assigned to the ICBM and when tantalum capacitors were allocated.

Individual committee members are reviewing Government subcontracting regulations to develop recommendations that would reduce overhead costs and cost of the materials purchased. Their findings will determine whether the committee can develop a coordinated industry recommendation.

#### PROCUREMENT AND FINANCE COMMITTEE

This committee was created this year to handle all matters which had been under the jurisdiction of the Accounting and Controllers Committee and its Procurement Regulations Subcommittee, as well as the Legal Committee.

##### *Indemnification Against Unusual Hazards*

The committee has been concerned with the extent of liability of a contractor engaged in unusual and hazardous operations. A special task group has been cooperating with the Department of Defense in attempting to arrive at solutions for the numerous and complicated problems involved. Although legislation already exists for indemnifying contractors to a limited degree in connection with damage resulting from such operations, the conclusion reached by the committee and the Department of Defense is that broader coverage, written into new legislation, is necessary. The Department of Defense and a committee task group have been preparing legislation which would adequately protect the aircraft industry. It is expected that the proposal will be in suitable form for introduction and possible enactment during the next session of the Congress.

During the last session of Congress, a proposal limited to indemnification for damage resulting from the performance of contracts with the Atomic Energy Commission was enacted into law.

##### *Contract Cost Principles*

For seven years, the Department of Defense has been considering the adoption of a single set of contract cost principles. These would be applicable not only to cost-reimbursement type contracts but also to fixed-price contracts and would cover the settlement of all terminated contracts. The Department of Defense has recently supplied a draft of its proposal, which will be reviewed and commented on.

There has also been under development within the Department of Defense a proposed revision of Section XV of the Armed Services Procurement Regulation, and drafts have been reviewed and commented on by this committee. Because the proposed Comprehensive Set of Cost Principles is designed to replace the cost principles for CPFF contracts alone, the proposed revision of ASPR Section XV now appears to have been abandoned. This abandonment is in line with the position taken by this committee, which is that despite imperfections, the cost principles in the existing ASPR Section XV are preferable to those set forth in the various drafts of a proposed revision.

##### *Settlement of Terminated Contracts*

This committee has been working for approximately four years on a proposal to completely revise Section VIII of the Armed Services Procurement Regulation. The section contains the policies and procedures for settling terminated contracts. A draft of the proposed revision of ASPR Section VIII was recently reviewed by a task group. The position taken by the task group was that with certain fundamental exceptions (removal of the profit formula from the termination clause; regulation and treatment of work done by a prime contractor with respect to subcontracts in negotiating the over-all profit allowance; a wider delegation of authority for settling subcontractor claims) a general and over-all revision should not be made at this time because of the confusion which would exist by the proposed rearrangement of certain words in existing paragraphs or by the omission or addition of other words. It was concluded that considerable doubt existed and would continue to exist, particularly in the minds of termination officers, as to whether or not an actual change of policy had occurred by reason of any such rearrangement, omission or addition of words. This matter is still under consideration and the task group will continue to work with the Department of Defense and the military on this project.

##### *Contract Finance Problems*

This committee has been concerned with the recurring problems which arise in the financing of defense contracts. The policies of the Department of Defense with respect to progress payments have been discussed with officers of the DOD and the military services on numerous occasions. One particular aspect of the progress payment situation was the method of balancing out Government payments to contractors. As a result of efforts made by a task group, the Department of Defense's policy in this respect was substantially improved during the last year. But the tight cash situation has caused DOD to reduce the percentages for the making of progress payments. Various other policies were adopted by the DOD in an effort to live within a prescribed cash budget. The major con-

tractors, for example, have been required to submit forecasts of expenditures. This committee has concerned itself with these problems and has worked with the Department of Defense to achieve the least expensive method of having the industry furnish the financial forecasts desired.

One committee task group considered a legislative proposal making appropriations on an expenditure basis instead of that currently used by the Congress. On the Air Force partial funding policy, it was concluded that the directive which required the Air Force's action made it unnecessary for this committee to take any further action. Certain doubts were expressed as to the feasibility of appropriations on the basis of expenditures. It was concluded that clarification would be necessary either in the legislation, prior to enactment, or in the subsequent regulations providing for administration of the law. The proposal, S. 434, was passed by the Senate during the last session; the companion bill, H.R. 8002, was reported by the House Committee on Government Operations and is on the action calendar ready for consideration when the second session of the 85th Congress convenes in January, 1958.

#### ***Compensation Payable to Contractor Personnel at Air Force Test Bases***

In cooperation with the Air Force, this committee has been working to arrive at a satisfactory policy on compensation for contractor personnel stationed at isolated Air Force test bases. The matter is pending.

#### ***Technical Data and Proprietary Rights***

Although the coordination of the position of this industry with the Department of Defense of the policies concerning the treatment of technical data and proprietary rights was assigned by the Board of Governors to the Patent Committee, the Procurement and Finance Committee has been occupied with the developments which have occurred because of legal and financial aspects. This committee still is involved with the problem and will continue to give every possible assistance to the other committee.

#### ***Rental Rates for Use of Government Equipment***

Payments for Government equipment in use by contractors and subcontractors for defense contracts, as well as for limited commercial business, have been of continuing concern to this committee. The Office of Defense Mobilization has issued two policy directives requiring a uniform rental payment by all contractors and subcontractors using Government equipment or, in lieu thereof, an appropriate reduction in final prices to the Government. At the present time, amounts received as rental payments go into the general fund of the Treasury and are therefore not available for further expenditure. Accordingly, as

one solution, the Department of Defense may sponsor legislation which will permit contracting agencies to receive and spend amounts obtained as rental payments. Work on this problem will continue.

#### ***Advertised vs. Negotiated Procurement***

Pending in the 85th Congress is a proposal, H.R. 8711, which calls for an increase in the dollar amount and number of defense contracts entered into through advertised bids. Because of the limited application of the provisions of the bill, the committee decided to adopt a policy of insuring that negotiation of contracts which are not susceptible to the advertised bid procedure would not be impaired.

#### ***Ground and Flight Risk Contract Clause***

The committee has been working with the Department of Defense in the preparation of a suitable contract clause covering this subject. The matter is of prime importance to airframe manufacturers, since the policy involves the extent of insurance coverage for "aircraft in the open," while in production or after completion but prior to acceptance by the Government. Although the Government has adopted the policy of being a self-insurer for this type of risk, the proposed contract clause, which is to be ASPR Paragraph 10-404, leaves many gaps which place a contractor in a vulnerable position. The group within the DOD with which the committee has been working has prepared a revised draft of its proposal, as a result of written comments submitted by the committee and following oral discussions of the problems involved. The new draft is expected to be available in the near future for further review.

#### ***Depreciation and Accelerated Amortization***

This subject has been of continuous concern to this committee. Recently enacted was legislation which places immediate restrictions upon the use of the accelerated amortization program and provides for complete termination on December 31, 1959. Although still used by many members of AIA, the value of the accelerated amortization program seems to have been lessened by changes in the Internal Revenue Code of 1954 which permit the recovery of approximately two-thirds of the cost of a facility in the first half of its normal span of productive use. There is, however, a proposal (H.R. 9544) pending in the current Congress which would eliminate these methods for determining the deduction for depreciation for tax purposes. If this proposal were enacted, it would tend to discourage long-range investment on which the risks cannot be clearly foreseen. It would also discourage the early replacement of old equipment with new and improved equipment. And it would be more difficult to obtain financing for capital investment, especially for small business concerns. As a result, this committee has recommended that AIA take all necessary and proper



actions to make this industry's position known to the appropriate Congressional committees.

**State Taxation of Government-Owned Personal Property**

The problems arising from taxes which are being assessed by certain counties in California on personal property in the possession of contractors are of major significance. This is not truly personal property but is intended to go into an end item delivered to the Federal Government or with respect to which title has already vested in the Federal Government. The situation has existed in California since 1953 and has become more acute in succeeding years. The original test cases which were before the local courts in California were decided in favor of the contractors. The tax authorities have appealed the rulings to the Supreme Court of California and have indicated that, if the new decisions still turn out in favor of the contractors, an appeal will be taken to the Supreme Court of the United States. In the meantime, the Department of Defense has adopted a policy, believed to be at least partially based on the desire to reduce cash expenditures, that contractors will not be reimbursed for any further payments of taxes which may be assessed until and unless the legality of these taxes is fully sustained. Discussions have been held by a task group of the committee with the Department of Defense General Counsel and representatives of the military services in an effort to have continued in force the practice of reimbursing contractors for taxes which are paid to California tax authorities pending a final judicial determination.

**Other Problems**

During the past year some of the other problems considered by this committee pertain to the rights of a contractor under the Disputes Clause, the obligation procedure of the military services with respect to the procurement of spare parts, the use of predetermined overhead rates, the Bureau of Aeronautics correction of defects clause, engineering change procedures, incentive revision of fees (CPFF contracts), clauses for cost reimbursement in research and development contracts, master bailment agreements and the contract clause for unqualified contractor-furnished equipment.

**QUALITY CONTROL COMMITTEE**

**Liaison Panels**

The Air Force liaison panel studied the need for and feasibility of a new specification for quality control of weapon systems to enhance their over-all reliability. The Air Force accepted the panel's recommendation that the objective could be obtained through minor revisions of the existing quality control specification, MIL-Q-5923C.

The Army Ordnance liaison panel presented the committee's recommendations on MIL-G-14461 (ORD),

"Quality Control of Missile and Rocket Material," a new surveillance type specification, to Army Ordnance inspection personnel.

**Subcommittee and Projects**

Information was exchanged on the advances made in non-destructive testing involving use of ultrasonic immersion testing, stub meter and radiography on materials such as brazed stainless steel honeycomb panels, adhesive bonded panels and high-strength aluminum and steel plate and forgings.

**SPARE PARTS COMMITTEE**

The past year has seen an unusual amount of Spare Parts Committee activity in the study of practically all major spare parts procedures. Some of the revisions have been completed while others are still under study by the military services and the committee.

**Logistics Study Group**

One of the most important contributions made by the Spare Parts Committee is its work on the Logistics Study Group, a joint activity of the committee, the military services and the Department of Defense. The purpose of this activity is to develop a system for the exchange of all types of spare parts information between the contractors and the military services by electronic data processing methods, which probably will save the Government and the contractors large sums of money.

**Provisioning Procedures**

After reviewing the basic provisioning procedures revisions proposed by the USAF and the Bureau of Aeronautics, the committee made recommendations to each of the services. In addition, the committee assisted in the development of the Department of Defense "Uniform Provisioning Technical Documentation" for electronics.

**Spares Procurement Trend**

The services are working toward improved management of high cost spare parts and deferring procurement of these spares until all possible information and experience with the equipment has been obtained. Accordingly, the committee has helped develop plans designed to:

- (1) Expedite production parts for availability as spares;
- (2) Have the USAF return items to the contractors for use in current production;
- (3) Improve the Hi-Valu reporting system.

In the field of low value spares, the committee assisted in grouping maintenance and overhaul parts in kits instead of many individual item procurements. This "kitting" procedure was tested on certain commodities and is now being expanded to all commodities, materially reducing the number of catalog items.

On other low value spare parts, the procurement cycles have been extended so that fewer procurements and deliveries need be made, providing more time for the management of high cost items where the large dollar volume exists.

#### *Design Change Procedures*

The committee worked with the Air Force and Navy to develop better methods so that vendors and prime contractors could provide information on the full effect of design changes. New forms for this purpose have been developed and existing methods of supplying parts application data are still under study. Much thought has also been given to the problem of identifying interchangeable parts with noninterchangeable components. An acceptable solution may be near.

#### *Cataloging*

The services are decentralizing their cataloging activities. Some of the decentralization has resulted in revised procedures, and contractors are being called upon to prepare larger numbers of item descriptions, particularly for Navy cataloging. The services have kept the committee advised of proposed changes and received committee recommendations. Meanwhile, plans for eliminating the provisioning catalog and expanding the use of the illustrated parts catalog are being studied.

### STATISTICS AND REPORTS COMMITTEE

Efforts to streamline Government requirements to have them conform to established industry bookkeeping systems occupied much of the committee's time during the year. Another topic requiring a considerable amount of attention during the same period was the Defense Department's shortage of funds during the last half of the fiscal year. This resulted in a need for accurate estimates of the aircraft industry's production and the bills to be presented to the Air Force and the other services during the ensuing months.

The Air Force's first request for detailed information of this type in July would have required substantial investment of industry time and money. Efforts by the committee resulted in withdrawal of the original Air Materiel Command request and substitution of a simpler forecasting report. Continuing efforts by the USAF to reduce costs and cut back paper work have stimulated the creation of three committee task forces to work with AMC on simplified reporting systems.

During the year, the committee demonstrated to the services that eight types of reports involving IRAN contractors' "Maintenance and Modification Cost Reports," airframe contractors' "Make or Buy" reports, engine status reports, traffic management reports, a series on handbook preparation and costs and an ARDC report on bailed items could be eliminated.

In another instance, the Air Force Procurement Instruction, which formerly called for an annual physical inventory of Government property in contractors' plants, has been modified to require this inventory in accordance with normal commercial practice (i.e., every three or more years). One contractor estimates that \$50,000 was being spent to take stock of Government tools and equipment each year.

Other major committee projects during the year included assistance to the Air Force in establishing control of aircraft inventories and helping to formulate new USAF and Navy techniques for Program Progress reports in the areas of research and development and production.

#### *"Ariation Facts and Figures"*

The 1957 edition, published in May, updated the material in earlier issues. Preparatory work on the 1958 edition is under way, including discussions leading to the publication of more specific information on the type and kinds of aircraft and engines being bought by the military.

#### *Statistics*

The Statistics and Reports staff inaugurated a new set of data, the Aircraft Material Price Index, computing each month the weighted average of prices paid by aircraft and engine manufacturers.

### TAX COMMITTEE

Although interested in all tax problems, the committee's principal concern during the past year has been with state and local tax matters. The members of this committee are representatives of the companies located on the Pacific Coast. Accordingly, the major problem has been the taxes assessed by certain counties in California on personal property in the possession of contractors which is sold to the Federal Government or with respect to which title has previously vested in the Federal Government. The members of the committee have worked with and furnished advice to the members of the Procurement and Finance Committee on various ramifications of this problem.

#### *Other Problems*

This committee has also been concerned with the tax treatment of amounts paid to employees as tuition and to prospective employees for travel expenses in connection with employment interviews. Also of concern have been regulations of the Internal Revenue Service dealing with research and experimental expenditures and depreciation allowances, and regulations governing payments to employees during illness. A task group of the committee worked on these problems and attended hearings held by the Internal Revenue Service before issuance of the regulations.



## PUBLIC RELATIONS SERVICE



THE increasing importance of the aircraft industry to our national security and the nation's defense effort was reflected by a substantial expansion of effort in the activities of the Public Relations Service.

Two major problems affected the aircraft industry during the past year which resulted in national concern for the health of the industry and its ability to discharge its responsibilities for the maintenance of the nation's security.

First, as a result of the economic crisis confronting the Federal Government, the long-range program for reducing the level of activity of the industry in the aircraft manufacturing field was scrapped and this level of activity was reduced on a "crash" basis. Across the nation contracts and subcontracts were cancelled, labor forces were reduced and some plants were closed. It had been planned to effect these reductions through normal attrition over a period of years. However, due to circumstances beyond the control of the industry, these actions had to be taken virtually overnight with resultant dislocation of local economies.

Second, with the missile coming of age as a production weapon, the industry was well along in the transition of its developmental and production organizations from manned aircraft to guided missiles. As a result, the industry was placed in the unfortunate position of discharging workers in one community while hiring new employees in a different location.

Interpretation of these changes in the status of the industry placed an unusually heavy and complex work load on the industry's Public Relations Service. In

addition, the basic AIA program to keep the public informed on all problems and activities of the aircraft industry continued with increased emphasis. Among the areas receiving special attention were:

- (1) The role of the aircraft industry in the development of guided missiles.
- (2) The time, price and performance advantages inherent in the development and production of guided missiles by competitive private industry.
- (3) The necessity for adequate management, engineering and production teams to provide complex aeronautical weapons in the shortest time and at the least cost.
- (4) The impact of the aircraft industry on the nation's economic health and security.
- (5) The aircraft industry's efforts to provide aircraft and missiles for the Army, Navy and Air Force at the lowest possible cost.
- (6) The growing use of transports, utility aircraft and helicopters in commercial operations.
- (7) The rapid development of power plants, electronics systems and other components indispensable to modern high speed, high altitude flight.

### *Information Service*

The Public Relations Service, with personnel in Washington, Los Angeles and New York, expanded its service to all types of news media during the year. Close relations were maintained with editorial representatives of newspapers, magazines, radio and television, business publications, wire services and syndicated columnists. Also continuing its growth during the 12 months was the Public Relations Service's liaison with officials of the various branches of the armed forces, other Government agencies, trade associations and national organizations to help promote common objectives.

Public Relations Service increased the number of AIA informational releases and simultaneously provided member companies of the Association with increased coverage of significant developments affecting aviation in Congress, in the Pentagon and other elements of the Government.

Members of the press throughout the country were provided with several thoroughly researched background memoranda on such diverse subjects as electronics in the aircraft, power plants for planes and missiles and the future of general aviation.

Internally, PR Service personnel helped supply key AIA officials, including the President and the Western

Region general manager, with the information necessary for them to make important speeches in various parts of the country.

In addition to answering thousands of queries from news-gathering organizations, the Service also complied with increasing numbers of requests for information from such non-media groups as members of Congress, financial houses, encyclopedias, schools, graduate students and non-AIA manufacturing companies.

#### ***Public Relations Advisory Committee***

The AIA Public Relations Advisory Committee, made up of the public relations directors for the major companies in the industry, convened several times during the twelve month period to study mutual problems and to provide direction for members of the Public Relations Service staff. The PRAC executive committee, which was started last year, has been of inestimable value to the AIA Public Relations staff by providing detailed policy guidance and by reviewing plans and programs.

#### ***Air Traffic Control***

During the year, the aircraft industry, and especially that segment of it located in the greater Los Angeles area, was confronted with edicts from civil aviation regulatory agencies of the Government which threatened to impose impossible restrictions on experimental and pre-delivery test flights. Public relations officials of AIA and member companies, working with industry flight-test experts, brought the matter to the attention of the appropriate authorities and succeeded in getting the orders modified.

#### ***Publications***

AIA's official monthly publication, PLANES, continued to increase its circulation which is now approximately 75,000. The contents of each issue, pointing up the aircraft industry's achievements or problems, are receiving wider distribution as a result of pickups by newspapers, wire services and radio and television broadcasters. The four-page feature article in each issue, begun in August 1956, has been widely accepted and requests for additional copies of these feature articles frequently top the 100,000 mark. In addition, full-page PLANES charts on such subjects as speeds and altitudes, engines and missiles have proved very popular with schools, the military services, etc. and requests for reprints of these charts are continuing to come in long after the chart was originally published.

As part of the cooperative program with The American Legion, AIA again provided information for the monthly LEGION AIR REVIEW, which is also being widely quoted in the national press. This publication is currently being distributed to approximately 18,000 American Legion posts.

Another monthly publication which has found wide acceptance by the press is the LETTER TO AVIATION WRITERS. Supplying writers with both background and current information about aviation matters, this bulletin has been the source of many articles in newspapers and magazines throughout the country, and has provided media with current statistical data on employment, aircraft production, etc.

Two booklets published in 1956, PLANE VIEWS and CAREER OPPORTUNITIES IN THE AIRCRAFT INDUSTRY, remained in demand during the last 12 months, especially with teachers and students.

Several standard reference works, including new editions of the AIRCRAFT YEAR BOOK, AVIATION FACTS AND FIGURES, and U. S. AVIATION TODAY, were published during the 12 month period. Current plans call for an enlarged and more interesting edition of the AIRCRAFT YEAR BOOK for 1957-1958 and future years.

#### ***Radio-Television***

Hundreds of television stations in all parts of the country carried one or more of AIA's new 26-minute documentary-type public-service films during the year. Included were "Design for Survival," which details the industry's problems and accomplishments since World War II, "The High Road," which tells the story of commercial and military air transport, and "Men and Missiles," which is a most comprehensive report on the role and types of missiles and features the aircraft industry's activities in the development and production of these new weapons. Nearing completion at year's end was another film, "Power in the Air," the story of aircraft engines.

#### ***Aviation Education***

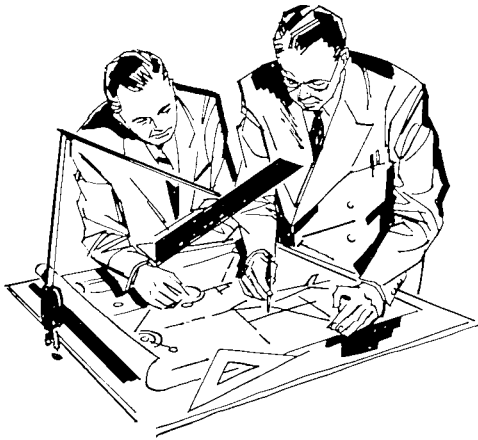
The Public Relations Service continued to maintain close liaison with the National Aviation Education Council, providing effective support for NAEC's teacher-written aviation booklet program. Efforts along this line appear to be bearing dividends with the U. S. Office of Education reporting that youngsters are showing an increased interest in science and mathematics for the first time in nearly 50 years.

#### ***Industrial Editors Program***

Under the guidance of Public Relations Service personnel, the Aircraft Industry Editors Conference has now reached the stage where editors of internal and external publications of AIA member companies are devoting more space to general industry problems and achievements while continuing to report fully on their own companies' activities. Through the Air Transport Association, a group of airline publication editors has created a comparable organization patterned after the Aircraft Industry Editors Conference. A joint meeting of the two editorial groups took place at Colorado Springs during the year.



## TECHNICAL SERVICE



THE rapid advances being made in scientific developments and the application of basic research data to new engineering concepts of aeronautical products has resulted in design limitations and new problems of concern to the industry. Coupled with this trend has been an increased emphasis on new manufacturing equipment and production techniques, as well as materials, which are necessary to produce the structural strength and performance capabilities of guided missiles, high-performance aircraft, power plants and equipment. Similarly, these swift technological advancements have created serious procurement-specification and design-requirement problems for the military services and an intensive cooperative program with the industry, through the AIA's engineering and manufacturing committees, has continued throughout the year.

### *Delineation of Industry's Cooperative Technical Activities*

In keeping with the current national effort to reduce expenditures and to eliminate duplicate cooperative activities being sponsored or supported by the industry, the Board of Governors adopted the following principles for guidance of AIA's member companies and their technical committees.

- Formal participation in cooperative industry standardization efforts should be limited to those in which the participant is a user and not a manufacturer of the product.
- Activities of sole or primary interest to the aeronautical industry should be sponsored by the AIA and not by some organization representing several or all industries. Conversely, problems affecting

more than just the aeronautical industry should normally be handled outside AIA.

- Long-range programs that are basically the responsibility of the Government should not be undertaken as industry-sponsored committee activities other than to outline the problem at hand and to develop recommendations (to the Government) as to the type of program that should be initiated. Industry should provide committee advisory services only at Government request.
- Formal joint programs among several trade associations or professional societies and involving the AIA should be avoided.

### *Appointment of Special Committee on AIA Committee Reorganization*

Following a staff analysis and recommendations on more effective utilization of the AIA's technical and semi-technical activities, the Board of Governors, at its May meeting in Williamsburg, appointed a special committee to study the functions, organization and operation of AIA committees concerned with engineering, manufacturing, quality control and field service matters. Purpose of this study is to develop recommendations to the Board on optimum AIA committee structure in these areas and to eliminate overlapping or unnecessary activities as well as to improve the effectiveness of the industry's cooperative efforts.

### *Drafting Practices*

Major activity of the Drafting Practices Panels of the various industry segments in the past year has been concerned with the rewriting, at the request of the services, of requirements of MIL-D-5028 (Drawings and Data Lists) with respect to drawings for articles purchased from other sources by prime contractors.

Although the proprietary aspects of design drawings presented unique problems to each segment of industry, a consolidated AIA recommendation was presented to the Government with action still pending.

As a further step toward alleviation of difficulties encountered by companies who contract with several military agencies, discussions have been held with Department of Defense officials on the possibility of across-the-board standardization of drafting requirements for all military agencies. Preliminary work has been initiated, with AIA representation on the Special Government Drafting Committee.

It is estimated that approximately two years' work will be entailed in reconciling different administrative



procedures employed by the several military service agencies in their treatment of drawings to be submitted by contractors.

#### **Service Publications**

The technical publications chiefs of member companies are organized in three groups representing airframe, propulsion and electronic and accessory manufacturers. Within the airframe panel, a guided-missile group has also been active. The objective of the groups is to cooperate with Government agencies in improving the effectiveness of technical manuals published for operation and the maintenance support of equipment and to effect economies wherever possible.

During the past year these panels have held a number of meetings to consolidate recommendations to the Government. These included such subjects as improved requirements for the technical content of service publications and their delivery. They have obtained agreement with the Navy on call-type contracts for out-of-production airplane data and supported contractor printing. They are studying the effect of complexity on support equipment and service personnel requirements and the cost of subcontracted data and have also reviewed and recommended improvements to several Government specifications at the request of the various services.

Although presently handled within the organizational framework of the AIA Technical Service, this publications activity is being considered for possible transfer to a more integrated activity within AIA on maintenance support and field service problems.

#### **AIRCRAFT TECHNICAL COMMITTEE (ATC)**

The Aircraft Technical Committee devoted primary attention during the past year to broader areas of Government activity in the engineering field and to the monitoring of the ATC's subcommittee programs.

The ATC also considered requests from the Air Force and the General Accounting Office regarding ways and means of accomplishing increased standardization of contractor-furnished equipment. Questions presented by the Air Force were referred to the NASC steering committee for study.

Another area of general interest and concern to the ATC has been that of air-transportation development and use of airspace. The Curtis Report on Aviation Facilities and its consequences will be under continuous study by the ATC in the coming year.

#### **Airworthiness Requirements Committee (ARC)**

For reasons of economy and efficiency, the ARC has operated in three divisions: ARC Transport Committee, ARC Personal Aircraft Committee and ARC Helicopter Committee. Culminating the CAB, CAA, ATA, ALPA and AIA efforts to improve the Civil

Air Regulations, the ARC groups represented their companies' interests in the CAB Annual Airworthiness Review on CAR Parts 4b and 7 held in September in Washington, D. C.

#### **ARC Transport Committee**

In addition to the handling of routine aircraft type-certification problems, this committee reviewed and submitted recommendations to the CAA and CAB on the following important regulatory problems:

- Turbine Transport Climb Performance Gradients
- Emergency Evacuation Exits and Provisions
- High-Speed Flight Testing for Jet Transports
- Flight Recorders
- Aircraft Converted to Turbo-prop Power Plants
- Instrument Installations for Transport Aircraft
- Oxygen Requirements for High-Altitude Transport Aircraft
- Trial Use of Transport Airplanes in Cargo Service
- Fatigue Strength and Evaluation

The committee also established a project to revise the ARC Design Manual on Aircraft Electrical Installations. Leading electrical specialists in the U. S. aviation industry have contributed their knowledge and experience to further improve a document which has already received world-wide recognition.

The ARC Power Plant Installations Subcommittee has continued to review the major problems in this area of concern to the aircraft companies, devoting attention to such items as:

- Turbine Power Plant Ice Protection Problems
- Presentation of Engine Performance Data by Machine Methods
- Spontaneous Ignition Temperature Data
- Flight and Ground Testing Power Plant Installations in Military Aircraft
- Fire and Explosion Design Problems
- Jet Engine Reverse Thrust Substantiation for Civil Use

#### **ARC Helicopter Committee**

This committee has been dealing with proposed manual material issued by the CAA as policies and interpretations of the CAB's Parts 6 and 7 type-certification requirements. Committee representatives attended the CAB's Annual Airworthiness Review in Washington, D. C. in September, where proposed revisions to the new transport helicopter rules, Part 7, were discussed.

A review was also made by individual committee members of the currently effective military MIL helicopter design specifications but preparation of an industry position was deferred. There is need for a top-level Government policy decision on what is meant by "off-the-shelf-helicopters" and the feasibility of

military procurement of helicopters through civil type-certification.

**ARC Personal Aircraft Committee**

The committee has become increasingly concerned over the trend in CAA's administration to withdraw a significant portion of the responsibility for type-certification compliance (with CAR Part 3 rules) previously granted the companies by CAA under the Delegation Option for Airplane Certification. This Delegation Option has now been proved by experience to be a more efficient and satisfactory method of certifying new airplane designs under 12,500 pounds gross weight. The recent increase in CAA detailed engineering check and analyses of all manufacturers' technical data and flight testing has resulted in an increase in Government personnel and an increase in time and cost for development of new aircraft.

During the year the committee reviewed and commented on a number of CAA policies and interpretations of CAR Part 3. One meeting was held during the year (Kansas City on May 27-28) and agreement was reached with the CAA on establishment of the following four airworthiness projects:

- Stay-Up Ability of Multi-Engine Airplanes
- Carburetor Icing
- Trim Requirements
- Accident Reporting and Use of Data

**Aircraft Research and Testing Committee (ARTC)**

The search for materials, resistant to the extremes of temperature and strength required by the aircraft and missiles of the near future, dominated the activities of the ARTC. In cooperative industry-Government projects the program encompassed titanium, aircraft alloy steels, all-metal sandwich structures, plastics and sealing compounds, as well as the test methods for these materials.

By continuous review of the fields of metallics, non-metallics, methods and processes and testing, small groups have served in an advisory capacity to the full committee. This resulted in more productive meetings, permitting the individual members to concentrate more intensively on their assigned subject areas.

Two primary missions of ARTC were accomplished in the year's activities. These were: (1) forecasting of industry's future requirements for research and development in the materials, processes and testing fields, and (2) the elimination of duplication within the industry through standardization of methods and processes and the exchange of information. Typical examples of the former are the survey of requirements for high-temperature strain gages and the estimate of the aircraft needs for titanium and alloy steel forgings, extrusions, sheet and plate during the next 10 years. Illustrative of the second program is the current series of projects to standardize test methods for high-temperature metallic materials.

Publications issued under the auspices of ARTC during the past year included a three-volume AIA Handbook on Aircraft Structural Fatigue, already in world-wide demand and considered a standard reference by Government and industry, and the following technical reports in the AIA/ATC series:

- (1) Basic Properties for Comparative Evaluation of Structural Metallic Materials.
- (2) Standard Elevated Temperature Testing Procedures for Metallic Materials.
- (3) Target Specification—Steel, Chromium—Nickel—Molybdenum—4340, Special Quality.
- (4) Target Specification — High-Temperature (350°F) Resistant Sealing Compound (for Integral Fuel Tanks and Fuel Cell Cavities).

Increased use is being made of the National Aircraft Standards series for the issuance of airframe process specifications and test procedures.

Specialized technical problems in the fields of materials, processes, structural testing, flutter and vibration and flight test instrumentation were handled by the ARTC through establishment or continuation of temporary regional panels and projects.

**Engineering Contract Requirements Committee (ECRC)**

This committee's activity encompassed the engineering data requirements of military contracts for aircraft and missiles.

In keeping with the aims of the Robertson Committee Report to improve DOD-industry relationships and to cut costs by reducing unnecessarily detailed specifications, the ECRC has proposed new contract language to the Air Force which, in effect, delegates the responsibility for approval of non-standard contractor-furnished-equipment to the prime contractor. This action represents a significant change in the previous burdensome, time-consuming and costly paperwork procedures for obtaining CFE approvals, many of which were received after delivery of the aircraft or missile.

ECRC has submitted a proposal to the military services for standardization of format for requirements for aircraft design data. For many years contractors have been obligated to produce data without knowing this would be required when the contract was first signed. Some procurement specifications have failed to mention the requirements and others overlap or conflict. Consolidation of all contractual engineering procurement requirements into a single military specification is the objective.

The committee is also currently studying a proposed revision to the general specification for aircraft which would make it apply to major modification programs.

Panel activities of the committee have been carrying on their own programs in the areas of drafting, service publications and product improvement. A

microfilm panel has been requested but no action taken pending an AIA Board of Governors' decision on committee structure and organization.

#### ***National Aircraft Standards Committee (NASC)***

For 17 years this committee has worked intensively in the field of standardization for the aircraft industry. The NASC program encompasses the development of National Aircraft Standards (NAS), cooperation with the military services in their standardization programs, and related work in specification problems of aircraft and missile parts, systems, installations, materials and processes.

Committee membership, currently 24 companies, is limited to those manufacturers engaged in the design and production of complete airplanes, helicopters and missiles. Typical of the committee's efforts and achievements during the past year are:

#### ***High-Temperature Symposium***

To stimulate a wider interest in the thermal-mach spectra and associated material thresholds as related to aircraft hardware, NASC sponsored a meeting attended by several hundred engineers representing materials producers, parts fabricators, aircraft manufacturers and Government agencies.

#### ***Contractor Furnished Equipment Standardization***

The complexity of weapon systems and the tremendous increase in the number of items to be stocked has prompted GAO and Air Force concern over apparent lack of use of standards, particularly in the area of contractor furnished equipment (CFE). The Assistant Secretary of the Air Force has requested AIA assistance in answering questions as to what degree of standardization is feasible, where should responsibility be placed and what estimate of improvement can be expected. Industry's reply to the Air Force has been prepared within NASC and is being reviewed by engineering management prior to submittal.

#### ***Coordination of Government Standards***

This is a continuing effort in which Government proposed standards and specifications are reviewed by industry through NASC for recommendations on design and manufacturing feasibility. During the past year the volume of work has increased to more than the total for the three previous years.

#### ***New NAS Standards***

During the past year 88 new industry (NAS) standards were issued and 38 revised. Included in the new standards are 12-point external wrenching bolts of 180,000 pounds per square inch tensile strength; recommended shank and hole limits for fasteners; ground-support equipment hardware; self-locking nuts; turnbuckle assemblies; terminal block assemblies; blind fasteners; rod end bearings and toggle switches.

## **ACCESSORY & EQUIPMENT TECHNICAL COMMITTEE (AETC)**

AETC has been principally concerned with the future outlook of the equipment industry under the weapon system of procurement. Assurances given by the military and issuance of Air Force Regulation 70-9 have clarified the intended role of the equipment manufacturer, but continued wide variations in the type of administration of weapon system contracts have left doubt on the ultimate separation between GFE and CFE procurement. It is significant to note that many weapon systems have been delayed because of failure to establish the required parameters of operating environment and performance of all equipment systems (e.g., bombing and navigation, fire control, flight instrumentation) early enough to permit completion of necessary development and test work.

#### ***Military Field Use of Equipment***

The AETC has devoted a portion of each of its meetings to visiting military bases and discussing with base technicians problems of equipment maintenance, reliability and operational problems. These exchanges have proved valuable in better acquainting industry with the services' need for design and operating simplicity, ruggedness, ease of maintenance and interchangeability while the services have gained a better appreciation of the need for increased training of personnel.

#### ***Research and Realistic Lead Time***

The committee has concluded that there is inadequate basic R&D being done on flight equipment. Individual companies simply do not have the financial resources to sponsor them in the short time-cycle involved. The AETC, therefore, has recommended that a Government agency undertake or sponsor a well-coordinated basic R&D program on flight equipment for future needs. This should be of great enough scope and magnitude to insure that flight equipment will not be a costly bottleneck in future weapon system developments.

#### ***Proprietary Rights***

The AETC Proprietary Rights Panel has undertaken an analysis of all military specifications and engineering-type documents to evaluate the degree of protection or lack-of-protection afforded industry members in their proprietary design rights.

#### ***Power Plant Controls***

AETC Power Plant Controls Subcommittee continued its previous effort to achieve Government sponsorship of R&D projects to develop basic information that will be useful to control manufacturers in designing superior power plant control components. Other areas of activity included early procurement

engineering decontrol, fuel contamination tests and reliability analysis for controls.

**Engineering Contract Requirements**

The AETC Administrative Engineering Committee's activity has been concerned with the adverse effect of revised engineering change procedures, equipment approval procedures, drafting practices and technical data requirements. To accomplish its objectives, coordination has been maintained with the military services and other industry groups.

**Future Environmental Requirements**

The AETC has accumulated and exchanged information with the services on future environmental requirements and has recommended that the military sponsor periodic meetings to discuss future aircraft and missile environmental criteria, test and evaluation.

**ELECTRONIC EQUIPMENT COMMITTEE (EEC)**

The organizational structure of the Electronic Equipment Committee was consolidated and responsibilities reassigned to improve the efficiency of operation and to keep pace with the great increase in use of electronic equipment. Participation in the EEC program has now increased with 39 member companies on the roster.

**Electron Tube Subcommittee**

The ETS continues to represent tube users in working with the Armed Services Electron Tube Committee, the individual military service tube groups and the Joint Electron Tube Engineering Council. JETEC's chairman is now serving as an advisory member of ETS. Considerable progress has been made in revising MIL-STD-200, Military Standard for Tubes, and MIL-STD-105, Sampling Procedures for Inspection, to improve reliability. Other ETS projects have recommended improvements in qualification approval procedures, preferred tube lists, assurance of life test points and vibration test and altitude ratings.

**Semi-Conductor Devices Subcommittee**

This new subcommittee was formed by combining the Semi-Conductor Diode and Transistor Panels, thereby achieving a single coordinated activity on all problems of semi-conductor devices. The subcommittee is organized to handle the rapidly increasing problems in this field and to give the users adequate representation. A new specification, NAS717 on Semi-Conductor Diodes, has been released.

**Parts**

During the year there has been activity on capacitors, connectors, coaxial cable and connectors, relays and gyros. The committee has called the military's attention to the overall unreliable parts problem and

the urgency for development of adequate and timely parts specifications and standards. If this goal can be achieved, the reduction in qualification testing costs will benefit both industry and Government.

**Specifications**

A panel was formed to work with the military services on general design specifications for electronic equipment for aircraft and guided missiles. Significant progress has been made in stressing performance requirements and manufacturing capabilities; nine specifications are now under consideration.

**Reliability**

The Reliability subcommittee, through its panels and project activities, has made a major contribution toward reducing generalized requirements for increased reliability to tangible measurable parameters. Cooperation with the military services and the AGREE task groups of the DOD has resulted in mutual agreement as to the goals to be achieved. The subcommittee sponsored a technical session at the Third National Reliability Symposium in Washington, D. C.

**ENGINE TECHNICAL COMMITTEE (ETC)**

The Engine Technical Committee, while pursuing its normal activities of submitting recommendations to both military and civil agencies on engine and related requirements embodied in Military Specifications and Civil Air Regulations, has also been increasingly concerned with the expansion of Department of Defense standardization programs and with the more effective utilization of AIA committees.

The rejection by the Air Force and Navy of the proposed Council for Military Aircraft Propulsion Standards, after several years of negotiation, was reportedly based on the premise that any joint effort aimed at standardization should not be so limited in scope as to preclude participation by other Government agencies. In this, as in other broad attempts at standardization by the Department of Defense, the ETC foresees the possibility that parts painstakingly designed and qualified for use in engines might be superseded by parts of questionable origin or quality. The committee, therefore, will continue to foster educational discussions at the proper DOD level to maintain the integrity of standard utility parts for engines and propellers.

The ETC has cooperated with the Propeller and Rocket Technical Committees in submitting recommendations to the Government on documents of common interest. It has also cooperated with the Airframe Power Plant Installation Committee on engine-performance presentation and civil approval for use of jet engine thrust reversers.

Present subcommittees and panels of ETC have developed recommendations on drafting, radio inter-

ference, jet fuels, standard airframe-engine mounting pads, age controls for synthetic rubber parts, methods of engine performance presentation on electric accounting machine cards, mock-ups and service manuals for civil use prior to type-certification.

#### GUIDED MISSILE COMMITTEE (GMC)

Membership in the Guided Missile Committee increased during the year as a result of one additional AIA member company holding a prime missile contract with the Army and two with the Navy.

##### *Missile Test Ranges*

Supplementing its activities of past years on this subject, the committee presented its views to the DOD on the adequacy of present and planned ranges for testing, evaluating and operational training for missiles, as well as iterating its previous recommendations for more effective utilization of existing ranges. It is expected that this subject will require the continuing attention of the GMC.

##### *Atmospheric Data*

The committee met with senior members of the NACA to continue discussion of industry's views on the important need for authentic as well as additional basic atmospheric and gust data applicable to the design of guided missiles.

##### *NACA Programs*

The committee met with National Advisory Committee executives for briefings and discussion of NACA programs of potential value to the guided missile industry.

##### *Specifications*

Industry views on several general specifications of primary interest to the Guided Missile Committee were developed and presented to the military departments.

Initial steps have been taken by the DOD to solicit GMC views on possible progressive steps to be taken in the prediction and the evaluation of the reliability of any guided missile.

#### MANUFACTURING COMMITTEE (MC)

This main committee, comprising 36 member companies, is concerned with broad policy problems related to manufacturing research and development, machine tools, tooling, production processes and materials and conservation. Close surveillance has been maintained over the five subordinate committees to insure the most effective working program.

Attention has also been devoted to problems associated with the services' stockpiling of long lead-time machine tools and evaluation of current tools.

An important area of industry-wide interest has been the cooperative effort with the Air Force's AMC

Manufacturing Methods Branch. Air Force sponsorship of programs aimed at improved industrial preparedness has been of great value to our national defense effort and both the Manufacturing Committee and AMC are refining their policies to better select those projects that promise greatest returns. In response to an inquiry from the General Accounting Office, the MC indicated support for the Air Force Manufacturing Methods Branch activity, listing a number of typical beneficial projects that have been sponsored: Ultrasonic Inspection Equipment Program, Formability and Weldability of Titanium Sheet Alloy, Adhesive Metal Bonding Processes, Numerically Controlled Milling Machine, Cutting Tools, Cold Extrusion of Titanium, Forged Waffle Skin, Development of Steel Sandwich Components and Production Study of Wire Preparation Machine.

##### *Airframe Manufacturing Equipment Committee (AMEC)*

The AMEC has been successful in its program to reach common agreement among the aircraft manufacturers on the type and characteristics of the costly machine tools needed in industry. Procurement specifications so developed have been issued in the AIA/NAS series after correlation with the National Machine Tool Builders Association.

The military services' machine tool reserve program has utilized these NAS specifications to insure up-to-date procurement in line with industry's needs. Individuals from the AMEC have served in an advisory capacity to the Air Force, at its request, in the evaluation testing of new NAS machines, including bed and knee type milling machines, airframe skin and spar milling machines and tracer and numerically controlled profiling and contouring machines.

The most extensive activity under the AMEC is that of the Numerical Controls Subcommittee. The initially assigned project (list, describe and evaluate the various types of numerical controls or programming available) was subsequently expanded to include training and data processing. The most significant determinations of the subcommittee were issued in a 114-page Numerical Controls Manual, which has been distributed and widely accepted by the military services and by machine tool industry and systems builders. This manual's description of axes nomenclature, classification of various types of numerical control systems, list of terms and definitions and list of contents for the manuscript which must precede all numerical control activity are now accepted as standard.

The AMEC is also continuing project investigations on impact, forming, thin wall tubing, wire processing equipment, automatic riveting equipment, roll forming equipment and furnaces and ovens.

##### *Airframe Manufacturing Tooling Committee (AMTC)*

Substantial effort has been expended by the AMTC on broad tooling problems dealing with high-strength.



thermal-resistant materials. Significant accomplishments have stemmed from project activities on non-ferrous drilling; skin and spar mill cutters, arbors and spacers; optical devices and techniques; and hole producing methods for high-strength materials. Six study groups, by coordinated interchange of information on tooling problem areas, have maintained a continuous activity in the fields of material removal, forming, chemical processing, plastics and bonding, welding and brazing, mechanical fasteners and assembly tooling and standard tooling and gages.

In addition to preparing NAS tooling standards, the committee worked closely with AMC's Manufacturing Methods Branch on the development of a proposed program for machining of high-strength materials. The objectives of this program are designed to accomplish a solution to technological barriers in the overall field of tooling that are common throughout the airframe industry.

#### ***Manufacturing Conservation Committee (MCC)***

The MCC has concerned itself primarily with most effective and economic utilization of the material elements of production and production support. An extensive interchange of tried and proved cost-reduction practices has continued to be of noteworthy benefit to participating member companies. Novel and ingenious cost-reduction practices developed within individual member companies have triggered a chain reaction throughout the entire industry where one successful application brings further improvement by each new user.

Conservation measures are being studied with respect to problems of spooling and handling of electrical wire, alodine treatment of tubing, color stamping of aluminum alloys and titanium identification. If feasible, certain of these projects will result in NASC issuance of suitable standards.

The MCC has objected to the Air Force-required mandatory reporting of companies' scrap and rework costs to make comparative analyses. The need for an extensive Government program and Government organization on conservation matters is questionable. The primary purpose is defeated if the program and organization become expensive, complex or unwieldy. The services must guard against demanding complicated records and reports, since the time and expense involved are contrary to cost reduction objectives.

The MCC recommended to the Manufacturing Committee that the following definition of conservation be accepted as the proper scope of the AIA's Conservation Committee: Conservation is a function of management which assists in attaining the most effective and economical use of material.

The MCC hopes to achieve positive results in economy through continued conservation efforts on production material, and a more critical effort on indirect material costs.

#### ***Manufacturing Test Equipment Committee (MTEC)***

Committee efforts have been concentrated on devising ways and means to reduce the cost and seek, wherever possible, standardization of in-plant test equipment. The multiplicity of problems in this area, stemming from today's system concept, has resulted in the committee's cooperative effort toward a better understanding of individual and industry-wide test equipment problems in terms of a complete system rather than a single component, whether it be power plant, airframe, fire control equipment, ground control equipment or ground handling equipment. Coordinated efforts are being made to reduce the dollars going for testing and in-plant test equipment which, in some instances, account for an estimated 15 to 30 per cent of the total dollars expended on a given program. Accordingly, specific emphasis has been placed on potential standardization of such items as power supplies, hydraulic test equipment and a wide variety of electronic test gear. Included in 15 project subjects handled to date, of which approximately 25 per cent have been completed, have been substantial efforts in the areas of cataloging, multi-use circuits used in test equipment, specifications for hydraulic test equipment, testing procedures for specialized vacuum tubes, and electrical and electronic standard symbols. Of paramount importance is the exchange of non-proprietary information in an area where comparatively little experience has existed up to now.

The continuing long-range objective of this committee is to develop a philosophy of producing in-plant test equipment which will insure optimum product reliability at the lowest possible cost.

#### ***Power Plant Manufacturing Committee (PMC)***

In general, the Power Plant Manufacturing Committee has served as a counterpart, for the engine industry, to the airframe activities on machine tools and tooling under AMEC and AMTC. Principal project activities were:

(1) *Roll Forming Proposal*—The PMC has urged the Air Force to sponsor a roll forming development project for engine component manufacturing that would increase precision, expand geometrics, widen the range of materials and increase the cost-reduction potential. In addition to this investigation of the mechanics of sheer spinning and roll-force process limits, a second 60 x 60 roll form machine should be placed into operation.

(2) *Broaching*—There is a need to raise the level of confidence in broaching so this process can be improved and extended to satisfactorily overcome the complexities of current and new aircraft engine design requirements and new materials.

(3) *Turret Lathe Standardization*—The PMC has urged the National Machine Tool Builders Association to initiate a cooperative effort among builders of ram

and saddle-type turret lathes to standardize on the slides and turrets in addition to spindles, thus permitting tooling interchangeability among machines of the same size and capacity.

(4) *Fusion Welding Machine Specifications*—With the great increase in the use of structural welding, the PMC has provided a valuable service to industry in completing development of three NAS specifications for circumferential, longitudinal and combination type fusion welding machines.

(5) *Numerical Controls*—An extensive program has been initiated to determine what application and standardization of numerical control equipment is practicable for the type of machine tools used in the engine industry, namely, Class I, Tape Templates; Class II, Machine Cycle Programmers; Class III, Point-to-Point Locators.

Other projects pertain to resistance welding, machinability of high-strength metals, titanium grinding, machine tool reserve program and color coding of bare filler wire.

#### PROPELLER TECHNICAL COMMITTEE (PTC)

Because of a similarity of general interest areas, work of the PTC has closely paralleled that of the Engine Technical Committee. The propeller companies have also, to a large extent, expanded their activities into the equipment field. Thus, they have found it desirable to be represented also in AETC.

In the past year, PTC has acted in conjunction with ETC on drafting practices, engineering change procedures and review of ANA Bulletin 343. It has also assisted in a survey of usage of SAE Committee E-25 standard utility parts and has protested a CAA proposal that service and maintenance manuals be prepared for civil use prior to type-certification of propellers.

The PTC participated in the CAB's Annual Airworthiness Review, calling attention of the CAB and CAA to the fact that propjet powered transports are basically similar to piston powered transports and that extensive changes to the Civil Air Regulations (for turbine propellers) are not necessary.

Through the efforts of PTC, and with the cooperation of the CAA Power Plant Branch, manual material relating to propeller centrifugal-load tests has been modified to be more realistic, and comparable changes to CAR 14 have been forwarded to the CAB.

#### ROCKET TECHNICAL COMMITTEE (RTC)

Both the Liquid and Solid Propellant Divisions of the Rocket Technical Committee have increased in activity and both have been instrumental in valuable exchange of information through specialist meetings of interested groups.

The RTC Liquid Propellant Division has cooperated with the Engine and Propeller Technical Com-

mittees in the review of such documents of common interest as ANA Bulletins 343 (Specifications and Standards for Aircraft Engines and Propellers), 391 (Engineering Change Procedures), 406 (Mock ups), 438 (Age Controls for Synthetic Rubber Parts) and proposed revisions to jet fuel specifications.

During the course of the year, two new panels were formed by RTC/LP. Of these, interest generated by formation of the RTC Auxiliary Power System Panel was such that several manufacturers of end products other than rockets requested membership. Ultimate sponsorship by the AETC is being considered. A series of USAF specifications covering liquid propellant auxiliary power systems have been reviewed and a request submitted to the Air Force, proposing that discussions be held with regard to philosophies underlying these specifications. Navy interest in this subject may prompt a military-industry meeting.

The second new panel established by RTC/LP has been concerned with safety aspects of rockets used in conjunction with inhabited aircraft. This panel expects to define rocket safety and will formulate recommendations on the applicable specifications to assure that flight safety is achieved.

The activity on rocket-accessory components has continued its function of preparing component specifications for industry use and of meeting with manufacturers of the component under consideration. Thus far, specifications for components have been developed and issued on solenoid valves, pressure switches, pressure regulators and gas pressure relief valves.

The Propellants Panel continues to meet on a semi-annual basis. Recommendations for "use limits" on various propellants and comments on other existing procurement documents have been submitted to the Government.

The RTC Solid Propellant Division has reviewed a series of USAF specifications covering solid propellant rockets, subsequently naming a small group of rocket and missile-system contractors to meet with the Air Force for discussions of basic principles of specification requirements. As a result, specific recommendations were made to change the general specifications and to add an additional "performance requirement" specification for use by the missile-system contractors. Inasmuch as a fully coordinated Government document on solid-propellant rockets is considered highly desirable, a suggestion is being made to the Air Force that other Government agencies participate in this effort.

Aside from the work done on the general specifications, a specialist panel of RTC/SP will review the "explosive classification" requirements of solid propellant rockets and will formulate a proposed new specification.



## TRAFFIC SERVICE



**I**NCREASED operating costs have induced common carriers to propose, in their associations, numerous increases in rates. Those which would impose unjustified burdens on the aircraft industry, the Traffic Service has opposed. In this category, changes in classification ratings which are nation-wide in their application have been successfully resisted. Success has also attended efforts of this service to secure appropriate classifications on new articles produced by the industry and recently entering trade channels.

The Traffic Service functions primarily through its two standing committees, namely the Eastern Regional Traffic Committee and the Western Regional Traffic Committee. Following normal procedure, two meetings of each of these committees were convened separately the past year and the annual joint meeting was held in September at Denver.

Members are informed of the latest developments in matters which pertain to the operation of their traffic departments by means of traffic bulletins. The number of bulletins issued each month averages 10. Some bulletins are issued to secure information and views of members on various subjects that arise. Thus the Traffic Service is continuously apprised of the latest views and ideas of the membership. In this manner complete coordination of effort is accomplished.

### *Released Rate Cases*

The Traffic Service during the year won the first round of a battle before the Interstate Commerce Commission on the liability of rail and truck carriers for loss or damage to aircraft parts entrusted to their care. An ICC examiner's proposed report recommends that the regulatory body reject completely the proposals of the common carriers.

In these "released valuation" cases, railroads and motor truck lines had sought ICC authority to limit their liability for loss or damage to \$3 per pound, with additional charges for freight valued higher than that amount. It was apparent that the surface carriers, notably the railroads, had as their primary objective

the rates and charges on parts and material used for aircraft and guided missile construction.

The Traffic Service, which has participated in one prehearing and seven regular hearings on the proposals, is persuaded that unless the aircraft industry is willing to assume responsibility for carriers' negligence in loss or damage in amounts over \$3 per pound, the additional cost to the industry will total \$500,000 per year.

Unfortunately, a favorable report by the ICC examiner is not necessarily an indication that the Interstate Commerce Commission will rule the same way. While a favorable proposed report is virtually a must for a shipper victory, many similar favorable recommendations have ultimately been reversed by ICC.

This is due primarily to the revolutionary changes in the Interstate Commerce Act, culminating in the National Transportation Policy under which the public good is determined by what the ICC decides is good for the carriers.

The first skirmish has been won, but diligent follow-throughs will be necessary to acquire ICC approval of the examiner's recommendations.

### *Contract Motor Carriers*

Contract motor carriers—companies which tailor their operations to fit customer's needs—have proved highly advantageous to airframe companies in moving aircraft components from the subcontractors to the assembly line of the prime manufacturer. Their ability to hold to precise schedules has made them superior to both highway and rail common carriers.

But this same superiority has made contract motor carriers the target of common carriers, who have lined up ICC backing in urging Congress to pass legislation which impedes the contract carriers' freedom of action. One such bill, H.R. 3774, called for the filing of precise rates by contract carriers instead of the minimum rates previously required.

Under the old law, aircraft companies and contract carriers could enter into agreements and start operations immediately. After H.R. 3774 was passed, the result was that where carriage involves a new rate, it can only be applied 30 days after the tariff is filed. Moreover, when filed, it is subject to suspension and the resulting ills by means of which common carriers hope and expect to discourage the operations of contract carriers. The ICC's annual report for 1956 indicates that common carriers were the only beneficiaries of this piece of legislation.

Another bill affecting contract carriers, H.R. 8825, urged upon Congress by the Commission, substan-

tially curtails contract operation by limiting the number of customers a contract carrier can develop and by restricting their operations to situations where the common carrier could not or would not serve a shipper in the desired way. Fortunately this bill was a substantially watered-down version of the rather drastic measure that was advocated by the ICC. The revised bill contained a novel provision, incorporated at the request of shippers, that would require the Commission to consider the effect upon the shipper involved where operating permits sought by contract carriers are denied.

The Traffic Service opposed these bills.

#### *Shipper Consolidations*

Prime contractors, especially those on the Pacific Coast, have found it advantageous to consolidate their small shipments into carloads for the savings accomplished in transportation charges. For example, a recent investigation revealed a saving of approximately \$353,000 in 12 months by two prime contractors on the Pacific Coast. Total savings by these consolidations in that area should well exceed half a million dollars annually. When forwarders for hire, by diligently urging Congress to act, brought themselves under regulation, shippers who were consolidating their own shipments insisted upon an exemption of their operations. This was accomplished by Section 402 (c) of the Interstate Commerce Act.

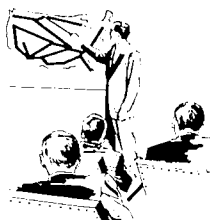
For-hire forwarders operating under rights granted by the ICC have viewed with no enthusiasm the operation of these shipper associations because the money these associations save shippers would otherwise go to the pockets of the forwarders in the shape of profits. With each new Congress, the forwarders, with unflinching diligence, have caused to be introduced bills which would give the Commission power to abolish shipper associations. In these efforts, the forwarders have received substantial support from the ICC and from the Department of Commerce. Three bills were introduced into the House to accomplish these ends, H.R. 4392, 5521, and 5522. Substantial and detailed representations in opposition to these bills were sub-

mitted by the Traffic Service both to the ICC and to the Department of Commerce. In addition to this, specific showings were made to the General Accounting Office disclosing the actual savings accomplished for the Government, resulting from these shipper associations. Apparently these efforts have borne fruit because Chairman Oren Harris of the House Interstate and Foreign Commerce Committee assured the House after repeated questions that these bills would not be reported by the Committee.

#### *Government Bills of Lading*

No single condition has presented so many problems or has been so persistently before the AIA members as that which requires the use of Government bills of lading on shipments of Government-owned property. The problem presented itself at the inception of World War II and has been present ever since. The General Accounting Office has consistently insisted on the use of Government bills of lading because it establishes that the Government is the owner of the property, that the property has been transported and that the Government is obliged to pay the transportation charges. However, the safeguards which must be established to assure the existence of these conditions frequently have contributed to delay in issuing such bills with corresponding delay in shipment and increased costs. Inordinate delays in securing bills of lading induced the use of commercial bills with conversion to Government bills at destination. This, of course, involved increased costs. Much of the delay with the resulting costs was occasioned by the insistence that Air Force traffic officers route shipments of all Government-owned property. With the establishment of the Military Traffic Management Agency, under which all domestic transportation of property of the Air Force, Navy and Army is placed under the control of the latter, a new and more simplified plan of using Government bills of lading is being evolved. Investigations are now being conducted to determine in what manner these plans may be further modified to effect the economy in aircraft production urged by the Air Materiel Command.

## HELICOPTER COUNCIL



THE AIA Helicopter Council is made up of representatives of 12 companies engaged in the manufacture of rotary-wing aircraft for civil and military use. The Council makes extensive use of the specialized services provided by AIA and also takes action, through special Council committees and through its director, on matters of interest to all its members.

### **Presidential Helicopters**

The biggest single stimulant to public awareness and confidence in the helicopter came during the year just ended when the White House announced that two such vehicles were being procured for personal use of President Eisenhower. The Presidential decision to rely on single-engine helicopter service is a forceful indication of the safety and reliability of these rotary-wing craft. With the south lawn of the White House in use as a heliport, the impact on the public consciousness of the helicopter's utility and convenience cannot be overemphasized.

### **Expanded Usage**

Helicopters are already in service for literally hundreds of uses but each passing year provides new evidence of the versatility of the rotary-wing aircraft. On the market now are civil, commercial and military models. Currently in production (and without reflecting models which may be nearing the production stage) are helicopters which range up to 26 passengers in capacity. Particularly promising at this stage is the growing use of helicopters by private corporations for short-range transportation of executives and cargo.

### **Public Education**

Because of the continually expanding market and growing helicopter usage, the Helicopter Council is anxious to enlist public support to overcome existing problems. As part of its public education program, the Council is working to:

- (1) Make the public understand and desire the benefits which wider helicopter usage would bring.
- (2) Clear away all legal obstacles to the location of heliports at sites where they can be of greatest use to the public.
- (3) Correct local laws and regulations which tend to inhibit helicopter operations.

To carry out these programs, the Council during the year worked with many private, governmental and semi-governmental individuals and organizations at federal, state and municipal levels.

Included among these projects were a special study on the impact of helicopters on the future national air traffic system, submitted to President Eisenhower's former Special Assistant for Aviation Facilities Planning, Mr. Edward P. Curtis, and several meetings during the year with Mr. Curtis and members of his staff. The Helicopter Council Staff also submitted to a Consultant for the Pennsylvania Aeronautics Commission, Mr. Frederick P. Kimball, a detailed Memorandum of Suggested Modifications of the Aeronautical Statutes of the Commonwealth of Pennsylvania as they apply to helicopters.

In addition, the Council staff held numerous conferences and maintained close liaison with the National Association of State Aviation Officials, espe-

cially in NASAO's efforts to advance the advent of the helicopter.

Numerous meetings were attended during the year, including the annual convention of the American Society of Planning Officials, which the Council's director has joined. A similar organization, the American Institute of Planners, and the Helicopter Council have worked together in distributing literature on helicopters to AIP's membership. City planners obviously play an important role in accelerating the use of helicopters within corporate limits, and it is felt that this relationship can serve to make officials of that type aware of the present and near-future status of helicopter operations.

Other groups the Helicopter Council worked with during the year included the Aviation Writers Association, American Helicopter Society, Helicopter Association of America, the various branches of the armed forces, American Association of Airport Executives, Institute of Municipal Law Officers, Urban Land Institute, Institute of the Aeronautical Sciences, National Aeronautic Association, Air Transport Association, Aeronautical Training Society, Aircraft Owners & Pilots Association, National Business Aircraft Association, Chamber of Commerce of the U. S., National Aviation Trades Association, Civil Aeronautics Administration, Civil Aeronautics Board, International Civil Aviation Organization, International Air Transport Association and many others.

The objectives of the Helicopter Council have also been furthered by the creation of a Council staff-organized association of international women helicopter pilots known as the "Whirly-Girls." Numbering 22 women, the "Whirly-Girls" group has received extensive attention in newspapers, magazines and radio and television.

Members of the Helicopter Council have addressed important groups. Included were Harvey Gaylord's talk, "The Helicopter is in Business" before the AAAE and Don R. Berlin's discussion of "The Availability of Helicopters" before the first Latin American Aviation Conference.

Other informational pieces emanating from the Helicopter Council during the year included more than 40 special articles and a listing of commercial helicopter operators and their equipment, compiled by the staff and carried in AIA's "Letter to Aviation Writers."

### **Heliport Committee**

During the summer, Council chairman B. L. Whelan appointed a special heliport committee to study the problem and make recommendations. Five of the 12 companies in the Helicopter Council are represented on the special committee. When the findings are completed and approved by Council membership, the committee's report will be made public.

### **Grover E. Bell Award**

The will of the late Lawrence D. Bell, founding member and first chairman of the Council, provides for the establishment of the annual Grover E. Bell award in memory of his brother. The award will be given "to the person or persons making an outstanding contribution to helicopter development during the preceding calendar year in the United States." First presentation will be made at the Institute of the Aeronautical Sciences' Honors Night Dinner in January 1958. Nominations will be made by the presidents of the IAS and the American Helicopter Society and the Chairman of the AIA Helicopter Council.

### **Expansion of Helicopter Service**

One of the most significant developments during the year was a report prepared by a group representing more than 27 Chambers of Commerce and business groups in the San Francisco Bay area. The report, pointing to existing helicopter services in New York, Chicago and Los Angeles, contended "that the (San Francisco) Bay Area and other metropolitan areas, so desiring, should be permitted scheduled passenger and freight helicopter service." Obviously, one of the Helicopter Council's major objectives will be the fulfillment of requests of that type in all sections of the nation.

## UTILITY AIRPLANE COUNCIL



**T**HE AIA's Utility Airplane Council is made up of 10 companies engaged in the manufacture of utility and executive-type aircraft and the engines to power those plane types. Although these firms have the same basic interests as other AIA members and participate in the various AIA activities, they are primarily interested in the constantly expanding field of general aviation.

General aviation—all civil flying except that performed by the airlines—now has an active fleet of more than 65,000 aircraft and will account for about 10 million flying hours in calendar 1957. About half of these flying hours will be recorded by the more than 20,000 general aviation aircraft used for business.

### **Sales Growth**

In 1952, approximately 3058 general aviation aircraft with a retail value of \$35 million were sold. In 1957, about 6500 units worth \$135 million will be delivered. During the same five-year period, general aviation operators took delivery of about 3300 small multi-engine aircraft, nearly twice the number of multi-engine planes (about 1750) operated by the nation's airlines.

### **Billion Dollar Business**

Several years ago, a survey indicated that operation of the business aircraft fleet (including the cost of new equipment, spare parts and operating supplies, gasoline and oil, hangaring costs and wages for pilots and mechanics) was running at the level of \$500 million a year. Since that time, the business fleet has expanded both in number of planes and in annual hours flown. Moreover, business usage accounts for only a third of the planes and half of the hours flown in general aviation. As a result it is a logical assumption that general aviation is now at least a billion-dollar-a-year business.

### **Industry-Wide Studies**

The growth of general aviation foreshadows the time when the nation's aviation facilities, already overloaded with air traffic, will become almost totally inadequate. In an effort to anticipate the problems and propose possible solutions, President Eisenhower in 1956 named Edward P. Curtis as his Special Assistant for Aviation Facilities Planning.

Mr. Curtis had been charged by the President with gathering the facts and related requirements for facilities for all aviation—military, airline and general—to design a system which would accommodate these requirements today and 10 to 20 years from now.

To facilitate Mr. Curtis' task and provide all possible data on the present and future of general aviation, AIA's Utility Airplane Council and 10 other organizations with similar interests banded together in the fall of 1956 to form the General Aviation Facilities Planning Group. The Utility Airplane Council's most important activities during the AIA fiscal year were concerned with GAFPG projects, including an

11-month study of the current significance of general aviation and its potential growth through 1976.

Completed in March, this GAFPG study was turned over to Mr. Curtis to aid in his long-range planning. It was supported entirely by the voluntary contributions of the 11 member organizations and many other groups interested in general aviation.

Although virtually every facet of business, industrial and agricultural aviation was studied in making the GAFPG survey, the largest single undertaking was a comprehensive inquiry into general aviation operations over a 48-hour period. More than 2000 volunteers completed questionnaires recording all the pertinent facts of about 100,000 individual general aircraft landings and take-offs at 600 airports across the country. The documented findings, because they were typical of two days of normal and highly abnormal operations, were of a type never before recorded and analyzed.

Augmented by 72 charts and graphs, the GAFPG report covered three major areas:

1. Present composition of the general aviation fleet.
2. Operating pattern of the general aviation fleet today.
3. Forecast of the characteristics of general aviation, its planes and operations in 1976.

GAFPG's study has been completed and described by Mr. Curtis as "a real contribution to my over-all project" but the 11-member GAFPG has not gone out of existence. At the request of Mr. Curtis, and his successor, Elwood R. Quesada, GAFPG will continue to function as the authoritative voice of general aviation and work with Mr. Quesada.

The UAC will remain a member of GAFPG and the UAC's manager will continue to serve as the group's information chairman and informal secretary. A member of the UAC also has been reappointed to the GAFPG executive committee.

#### ***Shortage of Airports***

The introductory paragraph to Mr. Curtis' "Plan for Modernization of the National System of Aviation Facilities" declares that, "Of all elements in our national system of aviation facilities, airports have been the most neglected." This report also points out that in 20 years, "The major portion of the overall demand for air traffic control will stem from the expected 400 per cent increase in general aviation."

During the last year, as for several years before, the Utility Airplane Council has attempted to point up the fact that the national airport shortage creates two major problems:

1. Increasing congestion on the airport and in the air around these fields available for use by the public.
2. Lack of convenience to many localities which are being denied the benefits of the air age.

One of UAC's principal projects during the past 12 months has been to indicate the many advantages if small flight strips were to be located alongside major highways. If these strips were built in conjunction with road-building projects near towns and other urban areas, substantial sums could be saved. Since the multi-billion dollar Federal Highway Program is just getting started in almost every state, the UAC has been attempting to show that this would be an ideal time to start the flight strip program.

In addition, UAC during the year worked to promote the idea of utilizing short runways parallel to main runways at terminal airports for general aviation aircraft. This would serve to increase the capacity of major airports (by restricting the longer runways to heavy transport planes) and make them more useful to general aviation without any reduction in operations or safety.

#### ***Liaison with other Groups***

The UAC's members and staff are constantly working with other aviation organizations, government agencies and other groups to promote mutual objectives. During the past year, the UAC manager has served on committees of the GAFPG, the Air Coordinating Committee, the Airport Use Panel and others, as well as in many special activities where UAC's views were sought and considered useful.

As in years past, the manager of the Utility Airplane Council was a frequent speaker at meetings of aviation organizations and often lectured college students on modern transportation and the effects of the air age. He also served as secretary and director of the National Aviation Education Council and as a member of the board and the executive committee of the National Aeronautic Association.

In dealings with members of the business and general press, the UAC manager was called on to provide general aviation's viewpoint on many occasions during the past year.



# AIA MEMBERS



## DIVISION A

**Manufacturers of aircraft (including but not limited to pilotless aircraft, guided missiles and rockets); power plants for aircraft; and accessories, parts or material used in the construction or operation thereof.**

Aero Design & Engineering Co.  
Aero Supply Mfg. Company, Inc.  
Aerodex, Inc.  
Aerojet-General Corp.  
Aeronca Manufacturing Corp.  
Aircooled Motors, Inc.  
Aircraft Gas Turbine Div., General Electric Co.  
Allison Division, General Motors Corp.  
Aluminum Company of America  
American Airmotive Corp.  
Arcturus Mfg. Corp.  
Avco Manufacturing Corp.  
The B. G. Corporation  
Franklin Balmar Corp.  
Beech Aircraft Corp.  
Bell Aircraft Corp.  
Bendix Aviation Corp.  
Boeing Airplane Company  
Cessna Aircraft Company  
Champion Spark Plug Co.  
Chance Vought Aircraft, Inc.  
Chandler-Evans Div., Pratt & Whitney Co., Inc.  
The Cleveland Pneumatic Tool Co.  
The Connecticut Hard Rubber Co.  
Continental Motors Corp.  
Cook Electric Company  
Convair, a division of General Dynamics Corp.  
Curtiss-Wright Corporation  
Dallas Airmotive, Inc.  
Doman Helicopters, Inc.  
Douglas Aircraft Co., Inc.  
Dow Chemical Co.  
Dumont Aircraft Fitting Co.  
Fairchild Engine & Airplane Corp.  
Fletcher Aviation Corp.  
Flexonics Corporation  
Flight Refueling, Inc.  
G-V Controls, Inc.  
The Garrett Corporation, AiResearch Divisions  
General Laboratory Associates, Inc.  
The B. F. Goodrich Co.  
Goodyear Aircraft Corp.  
Grumman Aircraft Engineering Corp.  
Gyrodyne Co. of America, Inc.  
Harvey Machine Co., Inc.  
Hiller Helicopters  
Hoffman Laboratories, Inc.  
Hughes Aircraft Company  
Hydro-Aire, Inc.  
Ingersoll Kalamazoo Div., Borg-Warner Corp.  
Jack & Heintz, Inc.  
Kaiser Aircraft & Electronics, Division of Kaiser Industries Corp.  
Kaiser Aluminum & Chemical Corp.  
The Kaman Aircraft Corp.  
Kellett Aircraft Corporation  
Kollsman Instrument Corp.  
Land-Air, Inc.  
Lear, Inc.  
Lockheed Aircraft Corp.  
Longren Aircraft Co.  
Luria Engineering Co.  
The MB Manufacturing Co., Inc.  
Marquardt Aircraft Co.  
The Martin Co.  
McDonnell Aircraft Corp.  
Minneapolis-Honeywell Regulator Co.  
Motorola, Inc.  
National Tapered Wings, Inc.  
New York Air Brake Co.  
North American Aviation, Inc.  
Northrop Aircraft, Inc.  
Pacific Airmotive Corp.  
Parker Aircraft Company  
Piper Aircraft Corporation  
Radio Corporation of America,  
    Defense Electronic Products  
Ramo-Wooldridge Corp.  
Reaction Motors, Inc.  
Republic Aviation Corp.  
Reynolds Metals Co.  
Rheem Manufacturing Co.  
Robertshaw-Fulton Controls Co.  
Rohr Aircraft Corp.  
The Ryan Aeronautical Co.  
Simmonds Aerocessories, Inc.  
Solar Aircraft Company

Sperry Gyroscope Co., Div. of Sperry Rand Corp.  
Stroukoff Aircraft Corp.  
Sundstrand Aviation, Div. of Sundstrand Machine Tool Co.  
Taylorcraft, Inc.  
Temco Aircraft Corp.  
Thiokol Chemical Corp.  
Thompson Products, Inc.

Tranco Products, Inc.  
United Aircraft Corp.  
Universal Moulded Products Corp.  
Vertol Aircraft Corp.  
Westinghouse Electric Corp.  
Zenith Plastics Company  
Tinnerman Products, Inc.

## DIVISION B

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Manufacturers Aircraft Assn.  
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Brinckerhoff, Wm. W.  
Brukner, Clayton J.  
Bush, Charles T.  
Chambers, Reed M.  
Condon, Cyril Hyde  
deSeversky, A. P.  
Eggert, H. F.  
Fales, Herbert G.  
Hanks, Col. Stedman Shumway

Hotchkiss, Henry G.  
Kahn, Roger Wolfe  
Kettering, C. F.  
Litchfield, P. W.  
Loening, Albert P.  
Loening, Grover  
McCarthy, J. F.  
MacCracken, Wm. P., Jr.  
Rodey, Pearce G.  
Scholle, Howard A.  
Sikorsky, I. I.  
Sullivan, John Dwight

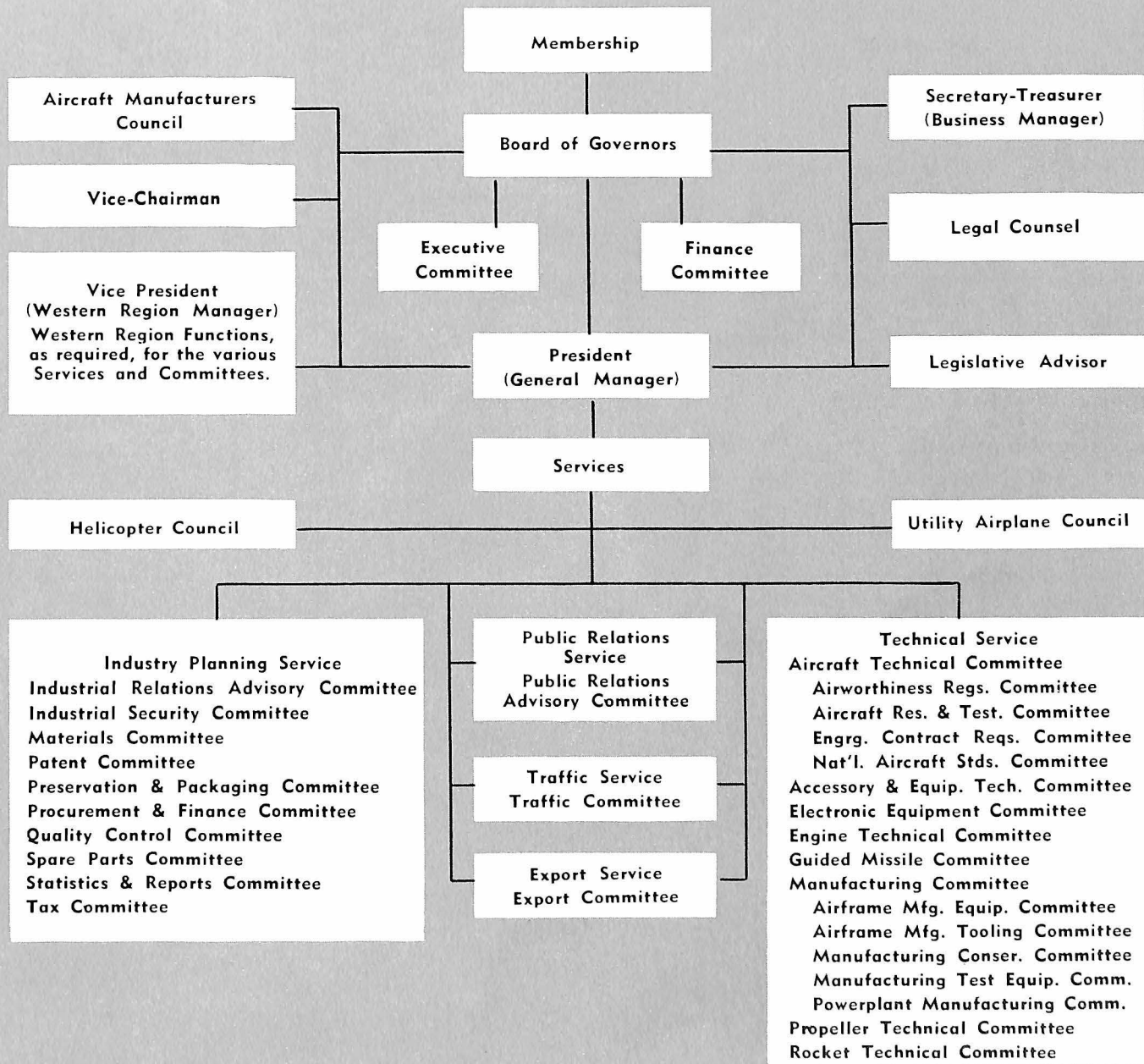
## DIVISION OF AFFILIATE MEMBERS

Aviation Age  
Aviation Week  
The Babb Company, Inc.  
Booz, Allen & Hamilton  
Butler Overseas Corp.  
Grand Central Aircraft Co.  
Robert W. Johnson  
Loomis, Suffern & Fernald  
Lund Aviation, Inc.  
Lybrand, Ross Bros. & Montgomery  
National Aviation Corp.

National Credit Office, Inc.  
Robert Schasseur, Inc.  
Shell Oil Company  
Smith, Kirkpatrick & Co., Inc.  
Standard Oil Co. of Calif.  
The Texas Company  
Tubesales  
U. S. Aviation Underwriters, Inc.  
Van Gestel, Col. T. J.  
Vickers-Armstrong, Inc.



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