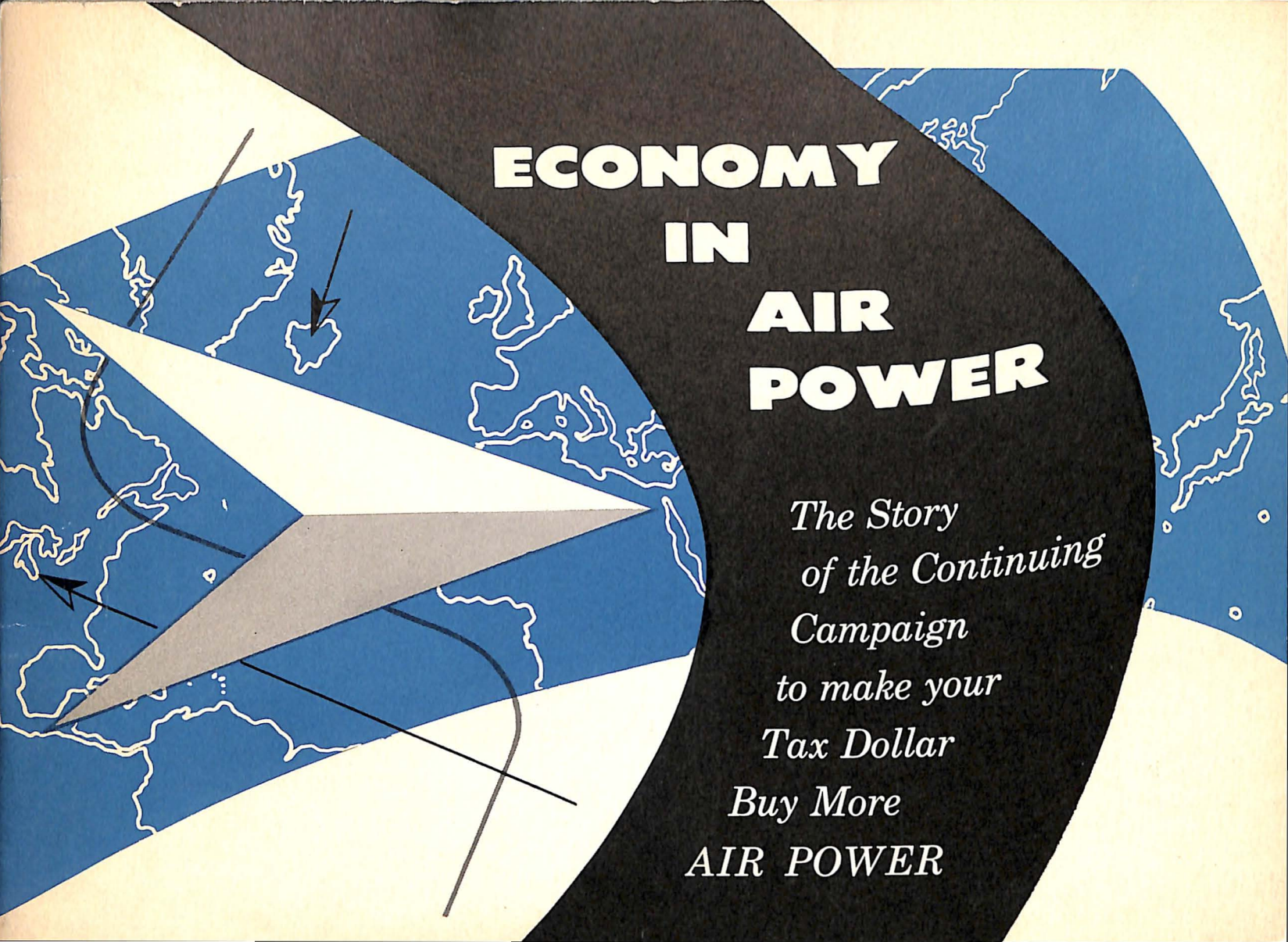


ECONOMY IN AIR POWER

The Story of the Continuing Campaign to make your Tax Dollar Buy More AIR POWER

PUBLISHED BY AIRCRAFT INDUSTRIES ASSOCIATION OF AMERICA
610 SHOREHAM BUILDING • WASHINGTON 5, D. C.

The creation of superior U. S. air power, capable of protecting our aerial frontiers and enhancing our national security, is a cooperative venture in which every American taxpayer plays a part.

The new and complex aircraft required to defend the free world must fly farther, faster and higher, with ever-increasing bombloads and far greater firepower.

They are an expensive necessity in an atomic age.

As performance and resultant costs have increased, the military services and the aircraft industry have intensified their continuing cost-reduction campaigns. It is not only essential to our national economy to keep our air power costs at a minimum, but in the industry's view it is also good business practice based on the American free enterprise and free competitive system.

This booklet tells, in part, the story of the aircraft industry's effort to make every air procurement dollar produce the maximum possible dividends. It shows how the application of sound business and technical practices have provided America with "more air power per dollar."

D. C. Ramsey

DeWitt C. Ramsey (Adm., USN, Ret.)
President, Aircraft Industries Association

NATIONAL SECURITY DE

and the key to

PENDS ON AIR SUPERIORITY...

air superiority is aircraft of the highest performance

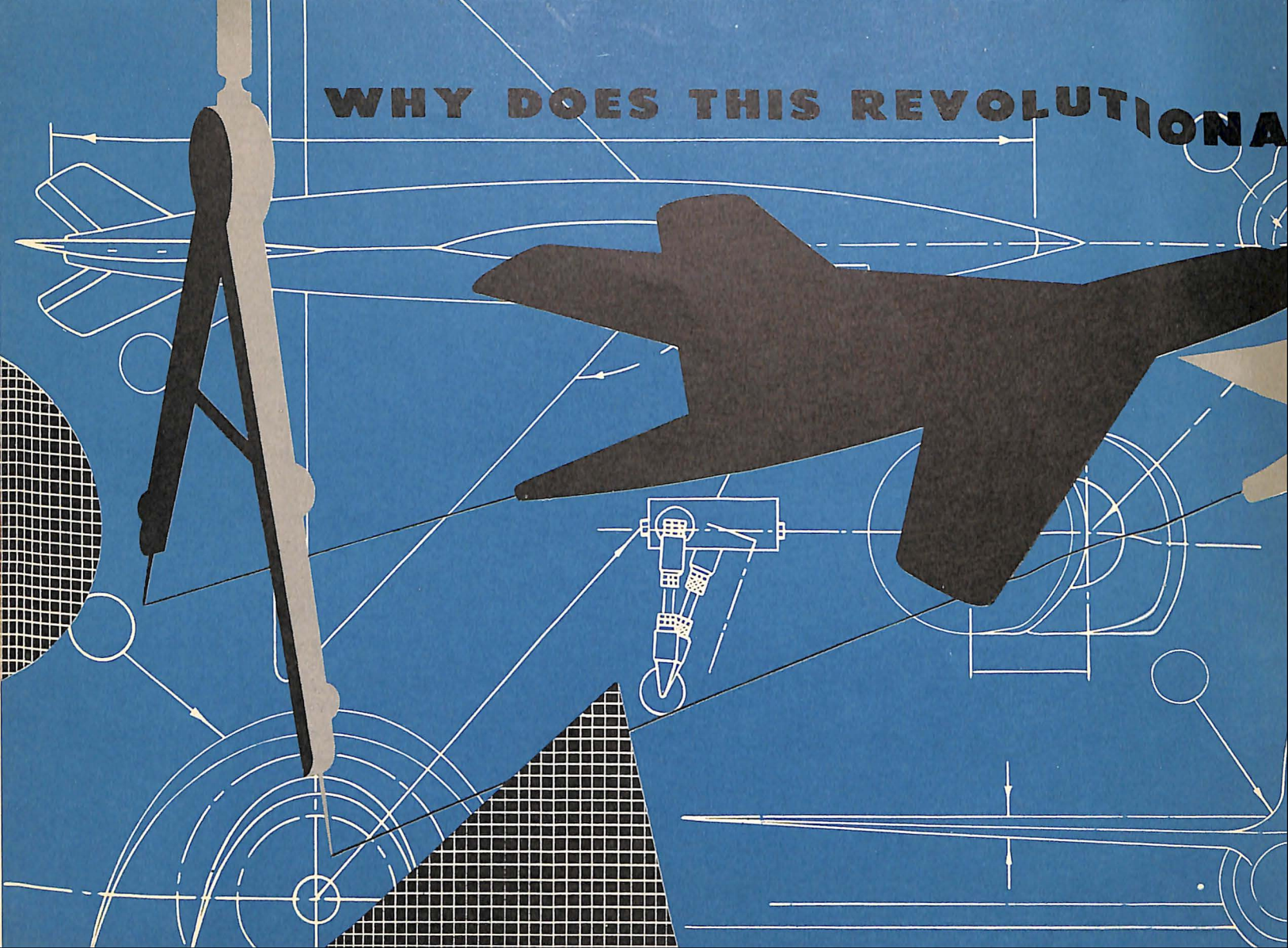
In recent years, the atomic bomb and the jet powerplant have revolutionized aircraft capabilities.

Today's bombers fly more than twice as fast . . . and carry more than twice the tonnage of vastly more destructive bombs . . . as did their World War II counterparts.

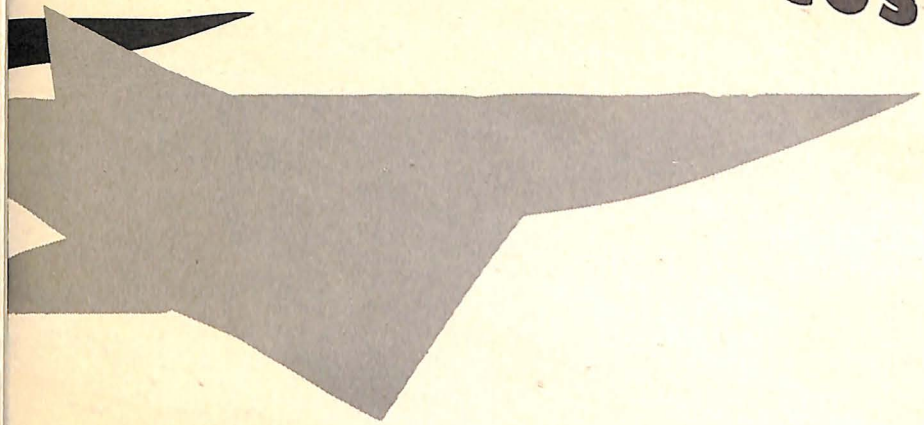
And they are capable of hitting enemy targets . . . in zero visibility . . . from as high as ten miles above the earth.

Today's fighters have to be able to meet enemy craft at combined speeds of more than 1,200 miles per hour . . . at altitudes above 50,000 feet.

To destroy attacking enemy aircraft and to save American cities and lives, these fighters are equipped with automatic devices capable of controlling flight at split-second speeds . . . working faster than the human brain.

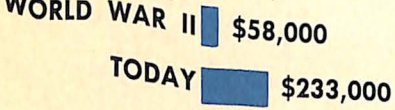

WHY DOES THIS REVOLUTIONA

RY PERFORMANCE COST SO MUCH?

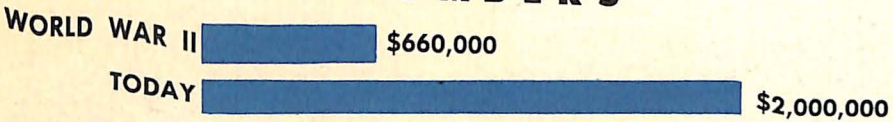


Today's military planes cost many times more than their World War II counterparts . . .

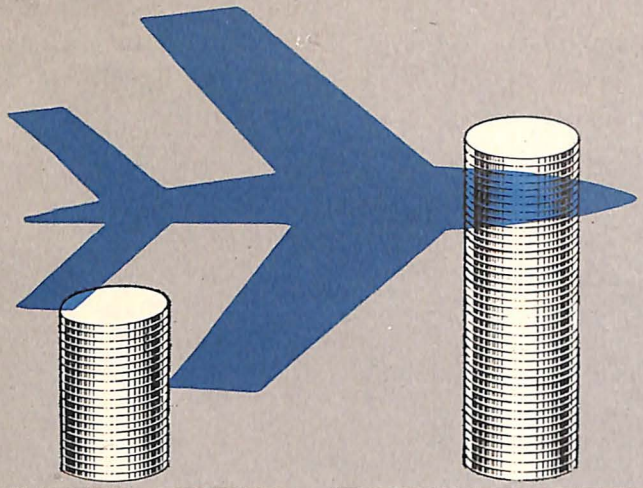
FIGHTERS



BOMBERS



FOUR MAJOR FACTORS CONTRIBUTE TO HIGHER COSTS



MILITARY PLANE OUTPUT

1940 - 1945

300,000

1947 - 1952

23,000

FOUR REASONS F

1. INFLATION

Your dollar today buys only half as much as a 1941 dollar. Even a 1941-model aircraft would cost twice as much today as it did then.

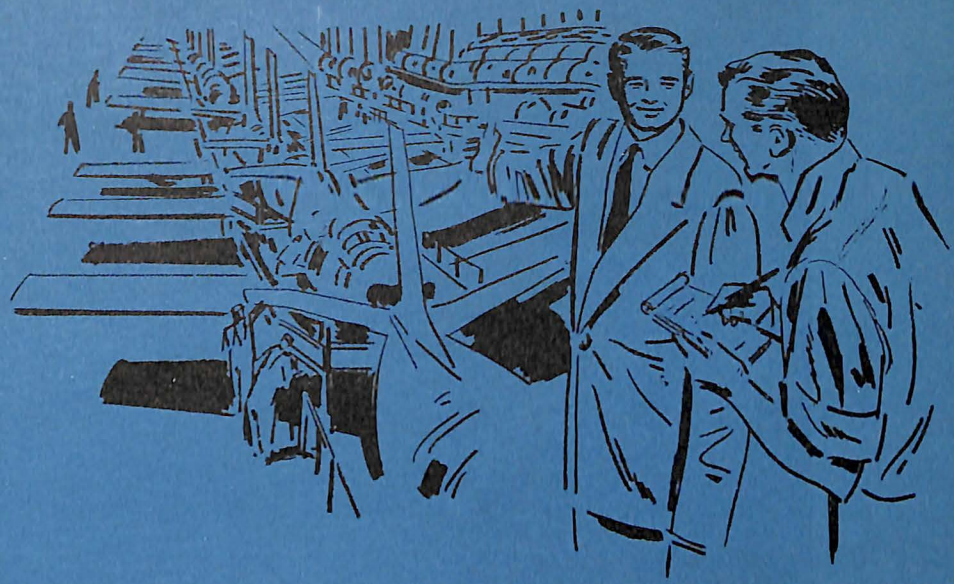
2. SMALLER ORDERS

World War II orders were for thousands of planes of one type. Today's orders are for hundreds — or less. This means each plane costs more.

OR HIGHER COSTS

3. CHANGES

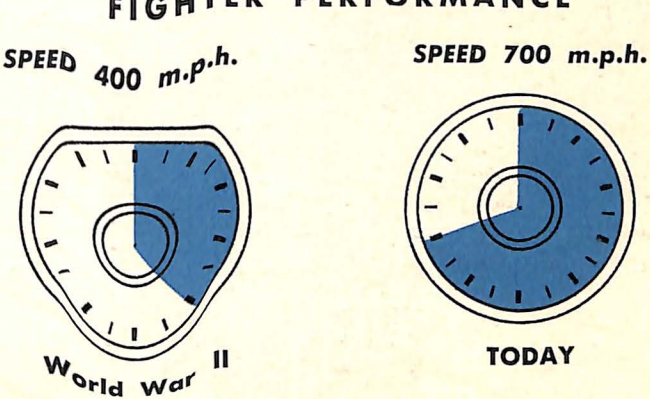
On one aircraft, technological advances required a design change at the average rate of six every working day while the plane was in production. Such changes — though necessary to keep pace with constant scientific and engineering advances — mean re-work, delay, and are costly.



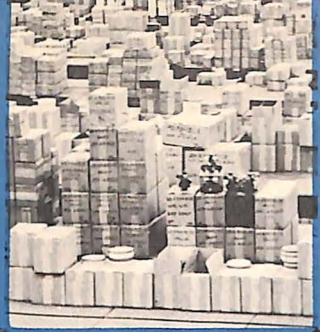
4. SUPERIOR AIRPLANES

Today's planes fly higher, faster, farther, and are more reliable than those of World War II. Costly instruments do much of the work formerly handled by the crew — or impossible for humans to accomplish at all. Greater performance calls for spending more dollars — but saving more lives.

FIGHTER PERFORMANCE

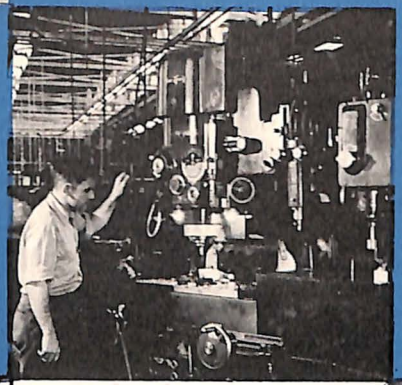


WHERE DOES



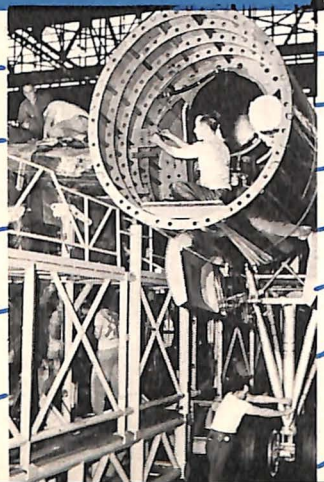
MATERIALS

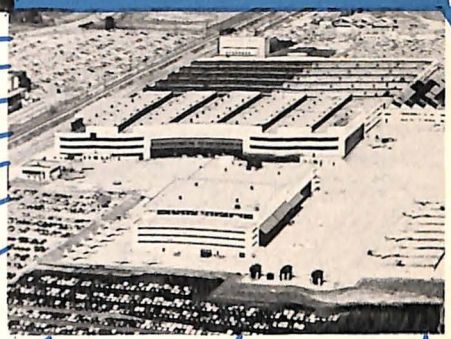
ENGINEERING



TOOLING

LABOR





FACTORY BURDEN*

THE AIRCRAFT DOLLAR GO?

FOR THE FIRST FEW PLANES (Prototypes)

Engineering	36 cents
Factory burden*	31 cents
Labor	17 cents
Tooling	13 cents
Materials	3 cents

FOR THE FIRST PRODUCTION RUN

Engineering	3 cents
Factory burden*	37 cents
Labor	23 cents
Tooling	9 cents
Materials	28 cents

* Includes such items as rent, utilities, maintenance, property taxes, and administrative overhead.

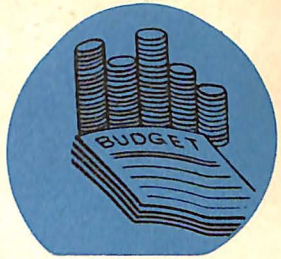
ENGINEERING
TOOLING
MATERIALS
LABOR
FACTORY BURDEN

make up the major elements of aircraft costs

INDUSTRY EFFORTS ARE CONCENTRATED ON CUTTING THE COST OF THESE FIVE ITEMS

WHAT THE AIRCRAFT INDUSTRY IS DOING TO CUT COSTS

MANAGEMENT IS REDUCING COSTS BY . . .



Strict budgetary controls

Exchange of production, technical and manufacturing information within the industry

Close cooperation between design, tooling and manufacturing

Emphasis on cost-consciousness on the part of every employee—from production line to executives

MANAGEMENT

FOR EXAMPLE

One plant reports savings of

$22,000,000

resulting from its

Employee Suggestion Program

Another company reports a

12% *increase* in labor efficiency

and a 21% decrease in overhead

rates since 1941 —

resulting from a vigorous

Budgetary Controls System

ENGINEERING COSTS ARE BEING REDUCED BY . . .

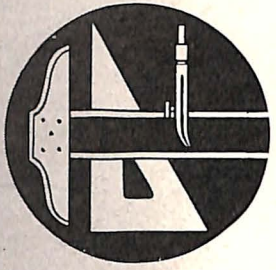
Design for minimum weight, easier production, product simplicity, and economical operation

Standardization and interchangeability of parts

Strict cost control

Careful scheduling of work load

Rapid dissemination of technical data to company personnel, and emphasis on employee training programs



ENGINEERING

FOR EXAMPLE

Simplifying the design
of a single bomb hoisting
assembly saved 84%
of its production cost

Standardization of a terminal
panel for all fighter planes
built by one manufacturer saves
approximately $190,000 a year

Use of an electronic computer
reduced engineering time
on a typical landing gear
design by 85%

TOOLING COSTS ARE BEING REDUCED BY . . .

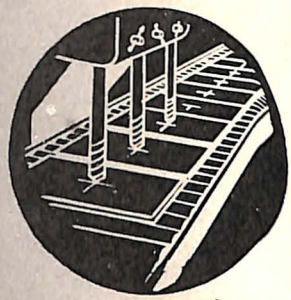
Centralized tooling management

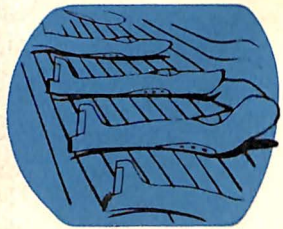
Designing tools for multiple use and maximum number of operations

Adoption of production-line methods where possible

Use of most economical materials

Strict budgetary controls





TOOLING

FOR EXAMPLE

Development and use of curved jaws in a stretch forming press enabled savings of

$100,000

on a 200-airframe contract

By putting construction of hydraulic stretch press dies on a production line basis, and having each phase handled by specialists, one company increased die output per worker by 72.7%

MANUFACTURING COSTS ARE BEING REDUCED BY . . .

Tighter scheduling

Placing greater cost responsibility on foremen

Breakdown of major assemblies

Better use of factory space

Use of statistical quality control methods

Use of most efficient equipment and techniques

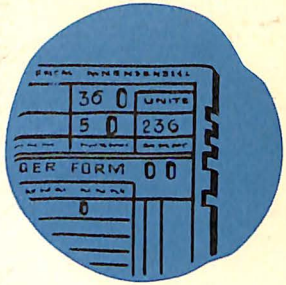
FOR EXAMPLE

A new multiple drill press
used in aircraft manufacturing
does work in three minutes
that previously took ten hours,
saving 99.5% of machine time

Statistical quality control
in sheet metal inspection
saved one company
10,000 man-hours per year

ANUFACTURING

FACTORY BURDEN COSTS ARE BEING REDUCED BY...

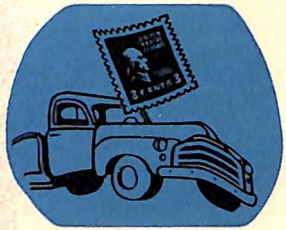


Tight budgetary controls

FAC

Simplification of paperwork

Better preventive maintenance



Control of shipping, utility and postage costs

TORY BURDEN*

* Includes such items as rent, utilities, maintenance, property taxes, and administrative overhead.

FOR EXAMPLE

One company

saves $100,000 a year

by use of simplified

standardized forms

By pooling shipments

and careful follow-up

on possible claims

one company

saved $230,000 in one year

on inbound shipping charges

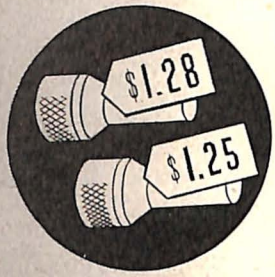
MATERIALS COSTS ARE BEING REDUCED BY . . .

Coordinating company purchases

for most economical quantities

Stimulating competition

among suppliers



Helping suppliers to reduce costs

Preventing waste

Reclamation

MATERIALS

FOR EXAMPLE

One manufacturer reports savings of $1,500,000 in one year through materials conservation and reclamation programs

By developing detailed specifications and testing competitive types, one company was able to procure superior wire products that saved an estimated $900,000 over a two-year period

How the AIRCRAFT INDUSTRIES ASSOCIATION SAVES TAX DOLLARS

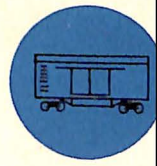
ON SOME FRONTS, COORDINATED INDUSTRY EFFORTS MAKE POSSIBLE ECONOMIES NOT ATTAINABLE BY INDIVIDUAL COMPANY ACTION.

It is here that the AIRCRAFT INDUSTRIES ASSOCIATION contributes to cost reduction.

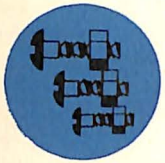
For example:

Air Force-Navy-Industry teamwork in standardizing a single engine bolt-and-nut saved over $1,000,000 last year

Evidence submitted by AIA in a single rail traffic rate case resulted in an ICC Examiner's Report recommending charges that will save $3,000,000 annually in shipping costs.



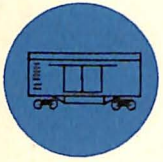
CONSTANT COOPERATIVE EFFORT IS REQUIRED TO KEEP AIR POWER COSTS AT A MINIMUM. TYPICAL OF ECONOMY OBJECTIVES OF THE AIRCRAFT INDUSTRIES ASSOCIATION ARE THOSE AIMED AT . . .



Standardizing aircraft parts

Assisting the Government in eliminating unnecessary regulations and reports, and simplifying those in existence

Encouraging awareness of the need for cost reduction, and the methods whereby public and industry action can contribute to lower costs



Obtaining lower freight rates, commensurate with those charged non-defense products, for aircraft materials and parts

Developing spares and materials requirements, in cooperation with the military services

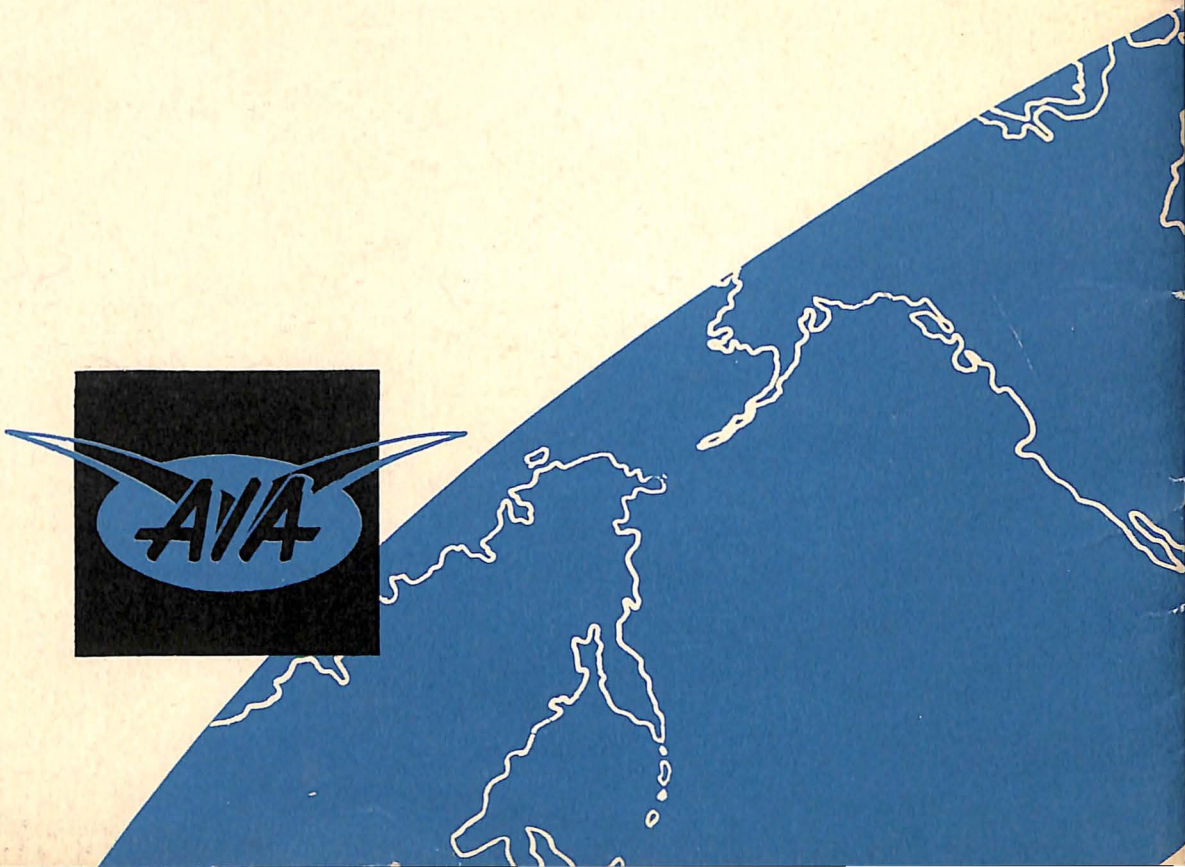
This has been the story of the aircraft industry's continuing campaign to make each air power dollar buy the world's biggest air power bargain. All savings have not been spectacular, but the aggregate of innumerable gains in efficiency and techniques is measured in millions of dollars.

No single factor can contribute more to defense economy, however, than can the elimination of the wasteful peaks and valleys of production effort which have been experienced by defense industries in the past. The President's Air Policy Commission determined in peacetime deliberations that a long-range aircraft procurement program would reduce the cost of air power by some 20 to 25 per cent.

No more fruitful ground for economy exists than that to be gained by adoption of such a long-range program for the procurement of military aircraft.

"Our strength, which is already very real, must now be made stronger, not by inefficient and expensive starts and stops, but by steady and continuous improvement."

DWIGHT D. EISENHOWER


AVA