New Draft Law May Exempt Engineers

Written Especially for PLANES
By The Honorable Carl Hinchin
Member of Congress from California

If this nation and the freedom of the world are to survive in this age of peril, then the alarming shortage of scientific manpower in the ranks of United States industry must be eliminated.

The creation of modern weapons for defense, in particular, is a gigantic and complex operation that once having gained momentum, cannot be aborted without incalculable waste of irretrievable time.

Yet today, we are falling behind Russia in the production of scientists and engineers. Our schools and universities have not met the need, so it is imperative that we preserve to the utmost our present supply.

But, tragically, interpretation of our present Selective Service system forces those charged with its administration to threaten the very security of our homeland. In their interpretation of the Universal Military Training and Service Act, they must implacably demand the induction of young scientific manpower, knowing full well they may be already engaged in research and development critical to our defense of the nation.

Who Leads in Air Progress

Much speculation has appeared in the national press as to whether the Communists are overtaking us in the race for new and improved airborne weapons. Unfortunately, even if we just hold our lead, we may be slipping towards defeat, because if we should lose the cold war in which we are now engaged, we would have no choice but to depend first and most heavily upon aerial superiority.

Our existing air power must always be the product of research and development action taken years past. Currently, the Defense Department – Army, Navy and Air Force – spends just for the development and production of weapons and equipment approximately $140,000,000 every working minute during the year.

Despite this great expenditure, the most serious limitation on progress in our overall defensive position, according to Assistant Secretary of Defense Frank Newport, is the scarcity of qualified research and development personnel.
Operation Hush

Heartening reports indicate that communities throughout the entire United States have benefited from the sound abatement program that has been carried on for the past three years by the aircraft industry and its many partners in aviation.

It has always been the desire of the aircraft manufacturers, the aircraft operators and the military to be good neighbors wherever they have made their homes.

But severe problems were created after World War II as big, powerful transports entered air service in increasing numbers and as fast, sleek jet planes were seen in the sky in quantities for the first time.

The problem of noise is as old as time, but probably the greatest difficulty caused by this sudden surge into the air age was that of new noises. Most of these noises were created by engines that generate greater horsepower than ever used before, by the increase in the numbers of engines of many modern transports and by the introduction of turbojets.

It was not necessarily that these noises were so much greater, although this was often the case, but they were new, unfamiliar noises heard in greater frequency. And the newness of these sounds introduced problems of sound control that were new to all concerned.

In isolated cases the problem of aviation-community relationship reached the straining point. The welcome mat was pulled in by several localities. There was never a lack of concern by those in the industry, but the mushroom growth of the airplane's popularity was greater than industry's limited knowledge of noises and sounds.

In 1952 an all-inclusive campaign was launched to reduce the disturbing aspects of aircraft in communities adjacent to manufacturing centers and airports.

The program, which now is the broadest of any such project in American history, is sponsored by every segment of the industry, including manufacturers, airlines, airport operators, pilots, government agencies and the military.

That the efforts of these varied interests have proved fruitful is evidenced by the fact that in the past 12 months, complaints received on the West Coast—a major source of concern—have been reduced a reported 40 per cent. In the East, around such great traffic hubs as New York and Washington, equally encouraging results have been obtained. In the New York area, there was a drop of 30 per cent in 1954. And at Washington, reports fell off to only six to seven a month.

This measure of success can be traced almost directly to the efforts and sincerity of those who have participated in the sound abatement campaign.

In civil aviation, traffic patterns have been altered to lessen the number of flights over congested areas, approach and take-off procedures have been changed, preferential runway systems have been inaugurated and ground run-up times are held to a minimum and training has been moved away from communities insofar as possible.

Both the military and the aircraft industry, besides conforming to the general flight agreements, invoke strict reprimands for infractions of their sound reduction regulations. The aircraft manufacturers have spent enormous sums on specially constructed test chambers for checking both piston and jet engines. In addition, certain areas have been designated for test flying and the run-up of experimental and new engines is limited to certain hours of the day.

These are just a few of the many steps that are being taken to lessen the annoyance of aircraft. All hands recognize that a very real problem still exists, that no Panacea has yet been found, but the efforts continue and the future looks bright.

Industry Uses Radio To Speed Production

““This is base to unit nine.”

“This is unit nine—go ahead, base.”

“Unit 333 needs a set of air bottles.”

“Roger and out.”

Radio eavesdroppers, if they could pick up this conversation and others like it, might believe that they were overhearing some highly strategic military orders. In a manner of speaking they would be.

The conversation is typical of more than 50 such exchanges that take place hourly via two-way radio between intra-plant transportation dispatchers and delivery vehicles of one of the larger manufacturers of military aircraft.

The manufacture of today’s fighters and bombers, despite their precision manufacture and great complexity, is often based on exact production line timing. And in the huge sprawling aircraft plants building American air power this is more than difficult when considering the fact that these great facilities often cover hundreds of acres.

The system, estimates are, will save more than $50,000 per year in time and non-productive travel time of personnel for the manufacturer.

PLANE FACTS

- The electrical circuits of a typical production guided missile are so complex that they must be checked out before delivery by an electronic brain. This device itself contains six miles of wiring, 423 panel lights and 641 switch positions, thus enabling an engineer to check 90 different points in the missile's mechanism at one time.

- The "oldest passenger" carried recently by an airline was a human skull estimated to be nearly 7,000 years old. Features of the skull, a woman's, had been restored in plaster. It was unearthed at Jericho last year, along with six other skulls. Investigation has produced evidence of a massacre around 5,000 B.C., from which the skulls were probably derived.

- A Pacific telephone company literally took to the air recently when it was faced with the task of stringing two miles of telephone wire across rugged hilly country. After spotting the poles on hill tops, the company was faced with weeks of laborious work stringing wire through the treacherous country by hand. Instead, they hired a helicopter, which did the job in one hour.

Weight Saver

A NEW TUBELESS AIRPLANE TIRE IS CAPABLE OF WITHSTANDING THE SHOCK OF LANDINGS AT 300 MILES PER HOUR WITH AN IMPACT LOAD OF ABOUT 10,000 POUND S. THESE TIRES SAVE UP TO 40% OF TUBE WEIGHT...
**Automatic Landing System Gives Navy Air All-Weather Capability**

America's aircraft industry has succeeded in giving U. S. Naval aviation an all-weather punch in the successful development of an electronic device which can land a fighter pilot's plane on the deck of a carrier, no matter how adverse the weather might be in battle at sea. The most difficult single maneuver performed by naval aviators is the final approach and landing of modern high-speed aircraft aboard a carrier. It is a complicated maneuver requiring the coordinated judgment, decision and action of both pilot and landing signal officer. During periods of poor visibility—rain, snow, fog—the physical and psychological demands upon both make the task of "setting down" impossible.

To eliminate this problem, one of this nation's aircraft companies, after several years work, developed an airborne automatic carrier landing system combining both radio and radar. It will also prove to be a "life saver" to wounded pilots unable to bring down their planes in any weather. The first step in the system involves the use of radar, a very precise unit which locates the aircraft to be landed. It then determines the airplane's altitude and position in relation to the carrier deck. Speed and direction are computed automatically.

All these figures are then fed into an electronic computer which compares the airplane's position with what it should be, instantaneously determines the necessary course corrections and then sends them to a device which actually directs the airplane into the desired flight pattern by radio signals.

The speed of the aircraft carrier also is electronically computed and its exact position, its pitch and roll, at the instant the plane is to touch the deck, is calculated and transmitted to the plane's automatic pilot.

**U. S. Plane Quality Best In The World**

Complex jet fighters, capable of carrying atomic bombs or flashing down to tree-top level for photo reconnaissance at very high speeds, must be top quality to withstand the stress of modern military flight operations.

America's fighter and bomber planes are renowned the world over for being rugged—the best that money can buy. The ability of American aircraft to "take it" reflects the high quality and standards of the U. S. aircraft industry.

A typical fighter manufacturer employs more than 1,800 men and women in Quality Control departments who work closely with engineering and production teams to maintain standards of quality—and more important to improve the quality of manufacture.

These teams of quality control personnel are inspectors spread throughout the entire aircraft company, who's production area. It is their business to inspect every part and sub-assembly for perfect workmanship. If they find a defect, they mark it and order it put aside for correction.

To further check the company inspectors, the military services provide an inspection team who operate on a surveillance basis. These inspectors double check the company inspectors for conformity to military specifications. In addition, the aircraft manufacturers and the military also operate "surveillance" inspection systems at subcontractor plants.

**Invisible Airplanes**

Glass airplanes may soon be plying the airlines. One light plane manufacturer already is building seats, doors, gas tanks, wheel pants, cowl and instrument panels of fiberglass reinforced plastic. Use of the strong lightweight plastic, the manufacturer says, increases speed by about 12 miles per hour.

**Air Cargo Delivery Has Become A Vital Factor In World Economy**

Air Cargo Delivery has amazed the whole world, and the Post Office Department has been quick to take advantage of air transportation to "repackage" some of its world market. Typical of the assistance to German business is the manufacture and delivery by air of airmail packages to air mail which it was cheaper to have them manufactured in Germany and shipped to the U. S. by air than it was to manufacture them in the United States.

The importance of commercial air transportation to the military services can be vital in peace as well as in war. During the Korean war, for example, civil air lift moved the entire 31st Fighter Escort Wing, including its spare engines, ground personnel, tools, and even its records, by air from Albany, Georgia, 9,000 miles across the United States and the Pacific to the Korean theater. Deployment to battle of the 31st was a matter of a few days instead of costly months.

**Fighter Planes May Become Refuelers**

In addition fighter interceptors would be able to pack more firepower in the air and could stay in battle up to seven times longer, with the knowledge that more fuel was awaiting the fighter's call. Carrier commanders would have more latitude in defending their ships by sending up a carrier based tanker-jet to meet squadrons of returning fighters giving each enough fuel to hold off until the carrier was in position to take it aboard.
NEW DRAFT LAW MAY EXEMPT ENGINEERS

(Continued from page 1)

such a suspension would remain
liable for induction up to age 35.

It is the conviction of the
Congress that every American
man would benefit from military
training and that it is his privilege
to serve in the Armed Forces for the
duration of his enlistment, but this
would not and should not be carried to
the point of impairing the national
security by depriving it of the services
of the irreplaceable men who have
served from four to seven years re-
quiring training and experience that
can and must be utilized as efficiently
as possible in the national wel-
fare.

Not long ago I brought to the attend-
tion of the Assistant Secretary of
the Air Force an enlisted man who
in his own words had worked nearly
four years at the National Ad-
visory Committee on Aeronautics
at Langley AFB, Virginia.

This young man, holding a
master's degree in nautical
engineering, figured the com-
putations on the skin friction of
the Air Force's X-1A, the highest
speed research plane known to be
in existence. When his draft board
classified him 1A and notified him
that he was to be inducted, he en-
listed and was unable to get a com-
mission.

He tried for a year to be assigned
to Wright-Patterson Air Force Base
where his education and experience
would, in his opinion, be valuable. He
had been unable to effect a trans-
fer until I found him. He had, in-
credible as it seems, been assigned
to blowing a bugle in the Air Force
Band, because he could blow a bugle
too.

Engineers Vital to Security

Every year, the government spends
in the neighborhood of $4 billion
in research and development, most
of which is farmed out to industries
and colleges. When we look at these
industries and institutions and the
brilliant men and women in them,
a great surge of pride in their ac-
complishment rises within us.

If we approach them stating "let's
share some more money into this
effort and get more and better re-
sults," we learn the blunt truth that
pouring any more money into a proj-
ect won't bring any more results
because there are not enough brains
available for the project. In a recent
edition of the New York Times
there were more than five pages of display advertisements
by scientists and engineers. In a recent edi-
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