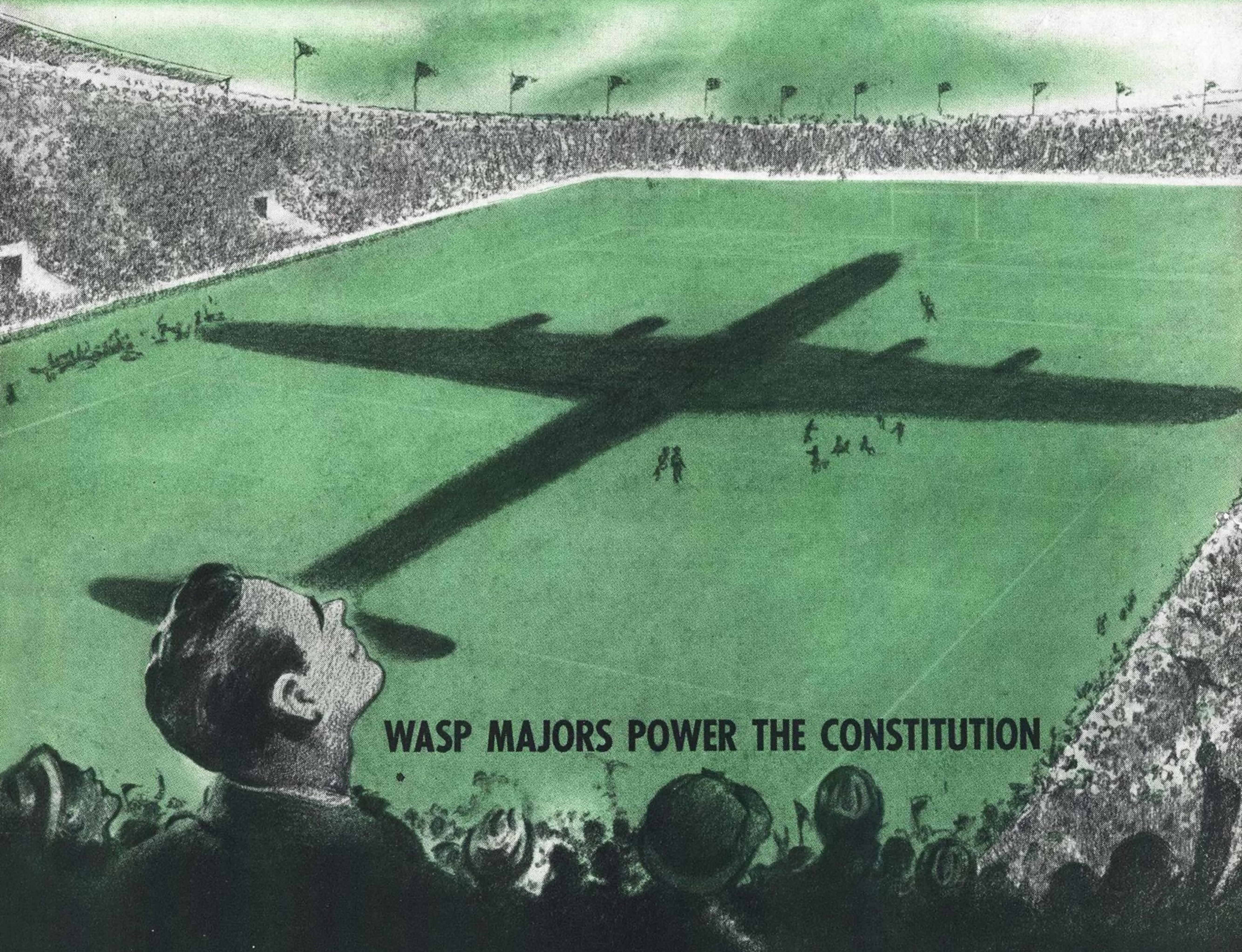


AVIATION WEEK

SEPT. 13, 1948

A MCGRAW-HILL PUBLICATION



WASP MAJORS POWER THE CONSTITUTION

Lockheed Aircraft's huge Constitution, one of the largest transports ever to take to the air, is now being readied to serve the U.S. Navy. Powered by four dependable Pratt & Whitney Wasp Major engines, capable of developing 14,000 horsepower, this 92-ton giant is able to carry nearly 200 people and thousands of pounds of cargo aloft—safely and swiftly.

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PHANTOMS SCORE IN MAJOR SEA TEST

Again, Westinghouse Yankee Turbojets Prove Their Dependability

To prove the operability of jet aircraft with the fleet under tactical conditions, the Navy put sixteen McDonnell Phantom through their paces off the carrier USS Saipan. Sixteen Phantoms catapulted off the carrier deck, dive-attacked targets, maneuvered in formation, and landed on a rolling, pitching deck. Sixteen Phantoms did everything that could be asked of carrier fighters . . . and did it flawlessly.

One reason for the success of the test was the faultless performance of the Yankee

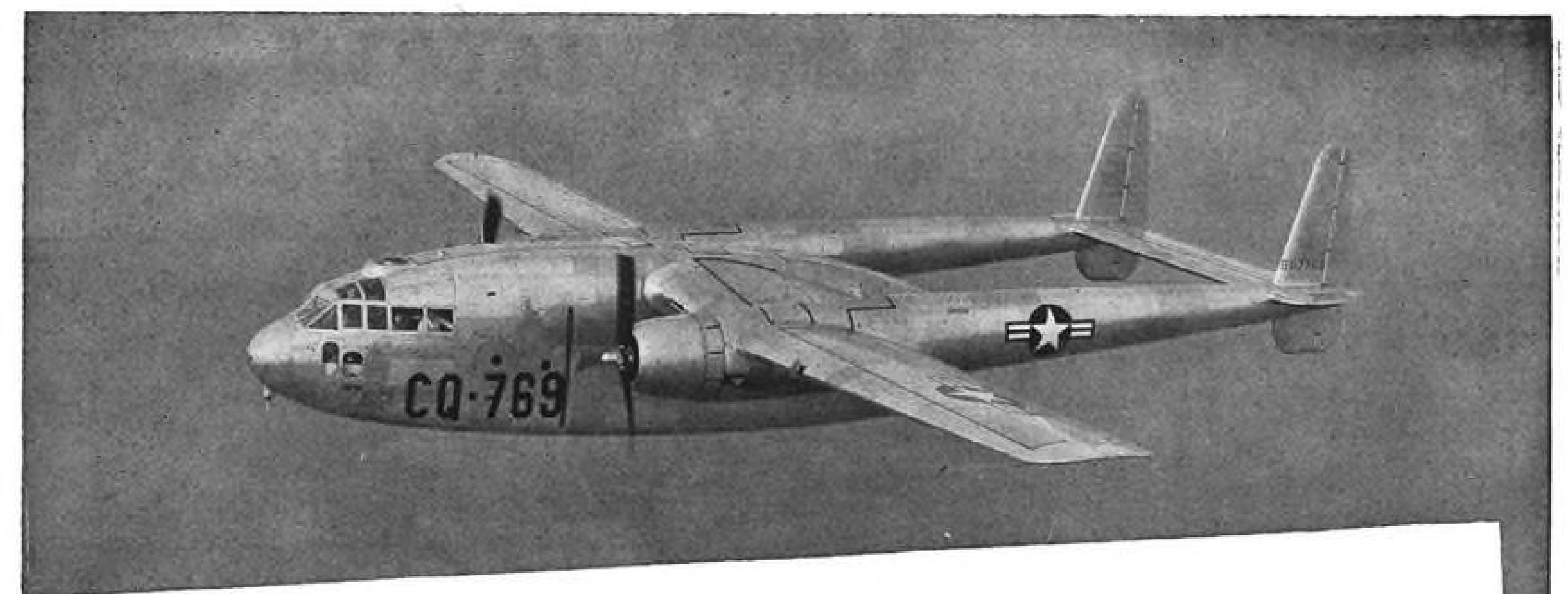
(J-30WE) Turbojets—power plants of the Phantoms. Engine starts were unfailing. Performance was excellent—with no engine trouble throughout the four-day test. What's more, the ship's crew liked the jets—liked their much lower noise level . . . the accessibility of the engines—the convenience of handling.

Thus, in the first full-scale, tactical jet operation, the Navy gave an enthusiastic "Thumbs Up". Again, the Yankee Turbojet engines have proved their practicability in operation with the fleet. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-50493

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more equipment and more supplies than its worthy predecessor. As an ambulance plane it is equipped to carry 36 litter patients and attendants.

This new Flying Boxcar incorporates improvements and modifications proved in thousands of hours of actual service. All in all, it is flying evidence of an air-transportable Army . . . and of Fairchild engineering and research skill.

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AVIATION WEEK

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September 13, 1948

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Aircraft ball bearing development in step with aviation progress

SPECIFICATION

Ball bearing to act as track roller in gun turrets and on canopy tracks

- MUST be designed so that outer ring can serve as roller member.
- MUST handle combined load of turret and gunner.
- MUST withstand shock loads of gunfire.
- MUST be fully protected against moisture and all contaminants.
- MUST function smoothly at wide range of temperatures.
- MUST be friction-free to permit sensitively directed turret operation.

SPECIALIZATION

Fafnir Track Roller Ball Bearings

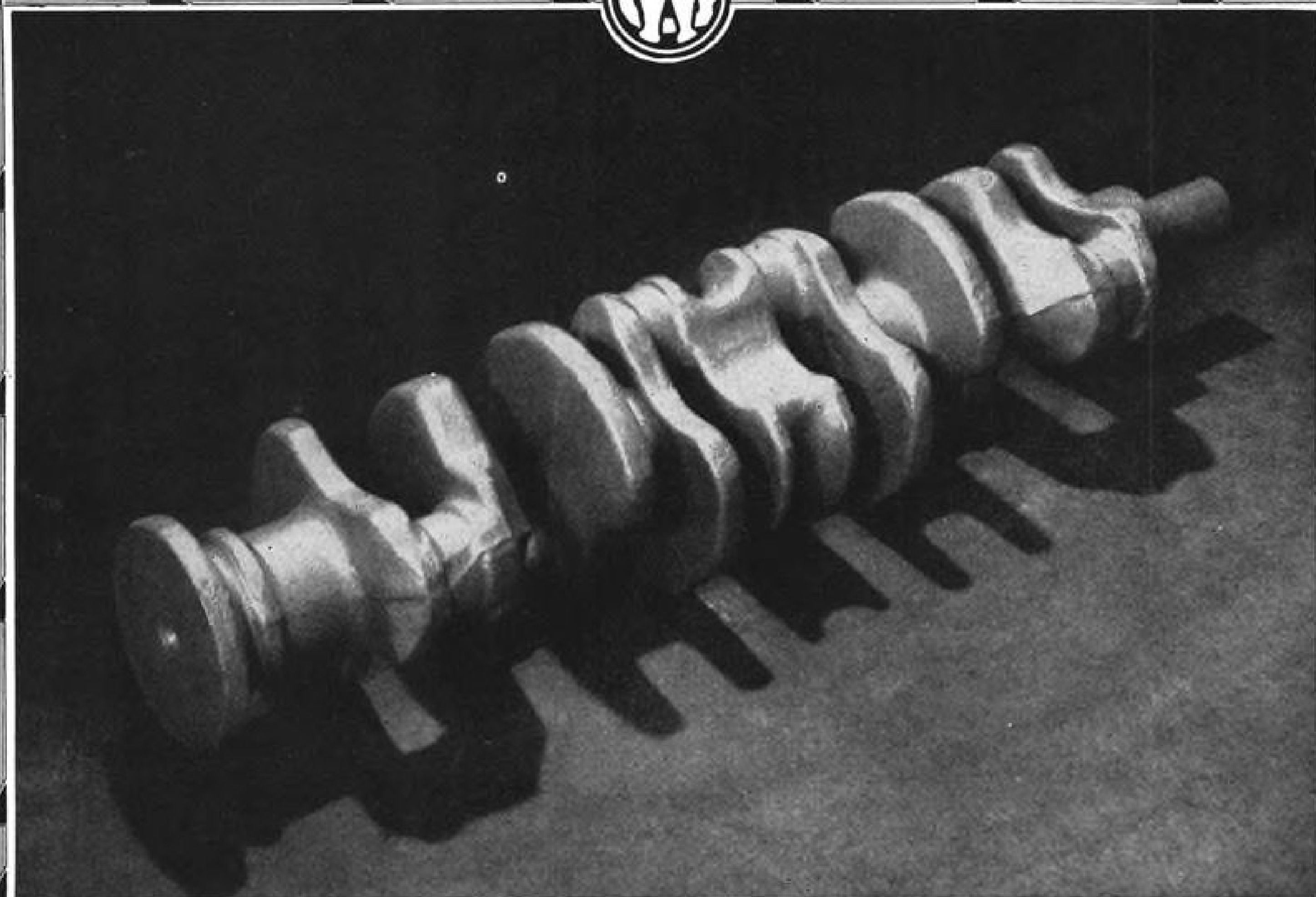
- ★ Heavy section outer ring with convex exterior contour.
- ★ Radii of this contour designed to produce minimum track wear and compensate for errors in component parts. No single point contact to dig into track.
- ★ Strong inner ring which with heavy outer ring and full ball complement insures rigidity and friction-free operation of turret.
- ★ Full ball complement provides high capacity and is highly efficient in absorbing shock loads from gunfire and structural deflections.
- ★ Plya-Seals prevent escape of lubricant and entrance of contaminants.
- ★ All exposed surfaces cadmium-plated for rust prevention and corrosion resistance.

Fafnir Track Roller Ball Bearing. Note thickened cross section of the outer ring and contour of external surface. More than 40 such bearings are used in gun turrets.

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NEWS DIGEST

DOMESTIC

Boeing Airplane Co. has received a CAA Type Certificate for its 80-passenger Stratocruiser after a 14-month test program with three of the 340-mph. airliners, seven months of it formal testing for CAA.

Air Force has ended, after two years, its experimental all-weather shuttle between Wilmington, Ohio, and Andrews Field, Md. Facilities will be used for other research. Shuttle operated five days a week with 100 percent safety record.

Deaths—Perley H. Boone, 61, who retired two years ago as director of information for Air Transport Association, died at New York. Long a newspaper man, Boone was first public relations chief for the New York World's Fair from 1936 to 1939 . . . Capt. William A. Winston, 52, Pan American Airways pilot with more than 3 million miles at the controls or as crew member, died at Coral Gables, Fla. . . . Frank Goodale, 61, who thrilled New Yorkers with airship exhibitions at an amusement park 1909-1916, died at St. Petersburg, Fla. Goodale's "firsts" included the first official parachute jump in the U. S. Army at Fort Omaha, Neb., in 1917.

FINANCIAL

Lockheed Aircraft Corp. reports net profit of \$5,310,151 (\$4.93 per share) for the first half of 1948, compared with net loss of \$4,890,694 for the corresponding period in 1947. Gross sales for the first half of this year: \$65,981,050.

Bell Aircraft Corp. reported net loss of \$205,696 for the first six months of 1948. Loss in the corresponding period last year was \$210,934. Gain of \$689,779 from sale of the company's Burlington, Vt., plant partly offset operating loss of \$895,475 on sales totaling \$8,304,247 in the first half of this year.

FOREIGN

Britain's air and naval forces will participate in three-day exercises in the English Channel starting Sept. 23. British-based USAF B-29s took part in a four-day RAF exercise ended last week.

Philippine Air Lines has contracted with United to provide aircraft overhaul, food service, and ground facilities at UAL's maintenance base at San Francisco's International terminal. Similar agreement between the two airlines is now in effect at Honolulu. Services at PAL's two mid-Pacific stops.

INDUSTRY OBSERVER

► Watch for the Air Force to make another world speed record attempt soon. Nettled by timing failures in the hastily erected Cleveland speed course that prevented official certification of the 669.75 mph. performance by the North American F-86A, the Air Force now intends to make its next attempt at Muroc, Calif., where both the P-80R and the D-558-1, made their world record runs. Maj. Dick Johnson, F-86A pilot during the Cleveland runs, told Aviation Week that he definitely held the plane back during its 669 mph. performance, partly because of increasing turbulence. With high temperatures on the Muroc desert and no reluctance on the throttle the F-86A should hit 700 mph. without difficulty.

► Present version of the Thompson Trophy Race may be on its way out. The large crop of mechanical failures in the 1948 Thompson plus the increasing expense of outfitting war surplus fighter planes as racers has set air race planners to thinking about re-building the Thompson race around a 450 hp. engine and new designs that could be built for about \$5000.

► Cook Cleland spent \$20,000 equipping his two Goodyear F2G Corsairs for the 1948 Thompson and their withdrawal early in the race just about wiped out any profits from his 1947 Thompson victory. Success of the Goodyear lightplane race both with racing pilots and the public is turning air race management to more thoughts along that line.

► Increasing military use of GCA, radar precision landing system, is seen in the sale of 10 USAF GCA sets to the Royal Canadian Air Force and two more to Turkey under the U. S. foreign military aid program. These wartime five-man sets are being modified for two-man operations by Gilfillan Bros. of Los Angeles, largest manufacturer of GCA. USAF is now getting delivery on new, air transportable GCA equipment that can be operated by a single controller.

► Don't expect the Bell X-2, sweptback stainless steel, supersonic research plane to be ready for flight very soon. One of the big troubles is the Wright Aeronautical Corp. rocket engine, scheduled for use in the X-2. Some observers believe this rocket engine will not be ready for another 18 months.

► Experiments with remote control equipment on jet planes has indicated that the Lockheed F-80 can be flown electronically up to 40,000 ft. with everything including landing and take-off controlled by a pilot not in the F-80.

► Evidence that the General Electric J-47 engine will not entirely replace the Allison J-35 nor that development work on the latter has ended is seen in the J-35-17 engine now in production, which develops 4900 lb. thrust dry and approaches 6000 lb. thrust with water injection. The new engine is being installed in the Republic P-84D and P-84E fighters.

► Third prototype Grumman XF9F-2 Panther Navy jet fighter has been completed and flight tests are under way. The No. 3 airplane is powered by an Allison J-33 engine, instead of the imported Rolls-Royce Nene turbojet engines powering the first two aircraft. Flight tests indicate almost identical performance of the new plane with the other two tested, indicating success for the interchangeability feature between the two engines at no expense of performance.

► Robert Edison Fulton expects to go into small scale production on his Airphibian as soon as he gets CAA approval for the experimental model which he exhibited at the National Air Races. CAA is expected to give him the nod within 90 days.

► Engineering and Research Corp. of Riverdale, Md., has been getting considerable interest from the field in possible production of a twin Ercoupe featuring two fuselages and two engines along the lines exhibited by Grady Thrasher at the National Air Races. Dealer and customers reaction is based on a selling price of \$5000 in contrast to \$3495 for the single Ercoupe and a speed of about 145 mph., approximately 30 mph. faster than a conventional model.

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AVIATION CALENDAR

- Sept. 13-17—National Instrument Conference, Instrument Society of America, Convention Hall, Philadelphia.
- Sept. 14-15—AIA Airworthiness Requirements Technical Committee, Joint Division Meeting, Chicago.
- Sept. 14-18—ICAO aerodrome lighting meeting, London.
- Sept. 14-18—IATA fourth annual general meeting, Brussels.
- Sept. 17-19—First annual convention, Fourteenth Air Force Association, Biltmore Hotel, Dayton, Ohio.
- Sept. 18—Air Force Day, all major U. S. cities.
- Sept. 19-21—Twelfth International Convention, Northwest Aviation Planning Council, Vancouver, B. C.
- Sept. 20—IATA executive committee, Brussels.
- Sept. 20-21—American Society of Mechanical Engineers, Aviation Division, Dayton-Biltmore Hotel, Dayton, Ohio.
- Sept. 20-21—American Society for Testing Materials, board of directors, Philadelphia.
- Sept. 24—ICAO legal committee insurance meeting, Lisbon.
- Sept. 24-26—Air Force Association National Convention, Hotel Commodore, New York.
- Oct. 6-8—National Association of State Aviation Officials, Copley Plaza, Boston.
- Oct. 6-9—Society of Automotive Engineers aeronautic meeting, Biltmore Hotel, Los Angeles.
- Oct. 14—Annual Air Line Dispatchers Association convention, Edgewater Beach Hotel, Chicago, Ill.
- Oct. 15-24—International aircraft exhibit, Royal Danish Aeronautical Society, Copenhagen.
- Oct. 17-21—National Aviation Clinic, Detroit.
- Oct. 18—AIA personal aircraft council, Detroit.
- Oct. 18-23—American Society of Travel Agents, Savannah, Ga.
- Oct. 20-21—National Safety Council, Air Transport Section, Hotel Stevens, Chicago.
- Oct. 21-22—Society of Automotive Engineers production meeting, Statler Hotel, Cleveland.
- Oct. 22-23—4th Annual Arizona Aviation Conference, sponsored by Chamber of Commerce, Prescott.
- Oct. 25-26—Third Annual Indiana Aviation Conference, Purdue University, Lafayette, Ind.
- Nov. 4-5—Society of Automotive Engineers, fuels and lubricants meeting, Mayo Hotel, Tulsa, Okla.
- Nov. 9—ICAO operations division, Montreal.
- Nov. 13-16—American Society for Testing Materials, petroleum products and lubricants, Drake Hotel, Chicago.
- Nov. 15-17—Aviation Distributors and Manufacturers Assn., sixth annual meeting, Hotel Statler, Cleveland.
- Nov. 15-17—National Aviation Trades Assn., annual meeting, Allerton Hotel, Cleveland.
- Nov. 16—ICAO airworthiness division, Montreal.
- Nov. 16-17—American Society for Testing Materials, plastics, Atlantic City, N. J.
- Nov. 16-18—National Association of Travel Officials, Miami Beach.
- Nov. 17-19—American Society for Testing Materials, electrical insulating materials, New York.
- Nov. 18-19—American Society for Testing Materials, structural sandwich materials, Philadelphia.
- Nov. 23—ICAO southeast Asia regional air navigation meeting, New Delhi.
- Dec. 2-5—Fourth annual international aviation celebration, El Paso.
- Dec. 17—Annual Wright Brothers Lecture, Institute of the Aeronautical Sciences, U. S. Chamber of Commerce Bldg., Washington, D. C.

Pioneer Parachute Co. Salutes The U. S. Air Force

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Test pilot, wearing Pioneer P3-B Parachute, entering cockpit of Lockheed F-80 Shooting Star Jet Fighter.



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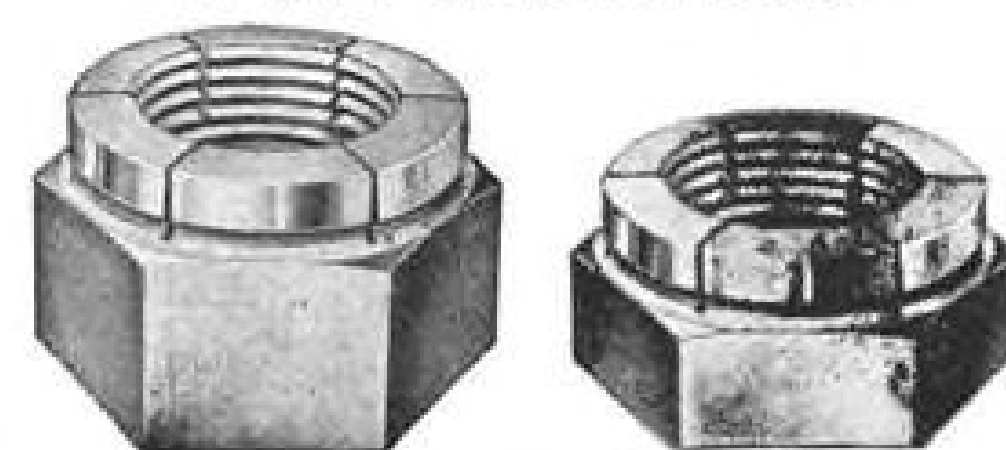
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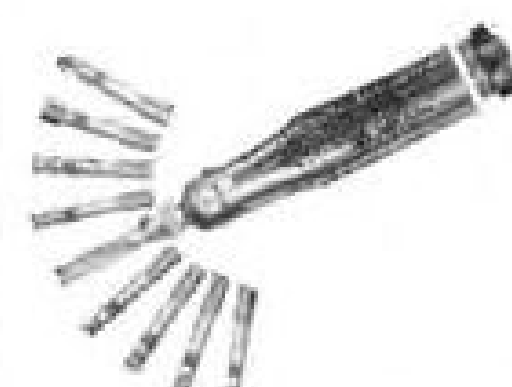
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AVIATION WEEK, September 13, 1948

One Waves; One Wins; One Loses



Navy Commander E. P. Aurand waves from the cockpit of his camel-like FJ-1 upon landing at the strip before the grandstand at the National Air Races. Fish Salmon (second right) poses beside his No. 4 racer which won the Goodyear event. Salmon lead the field all the way and was never seriously challenged throughout the course. Below, Charles E. Brown, hard-luck loser of the Thompson Race, is shown with some Air Race officials after he qualified for the Thompson event with the highest time, 418.300 mph. Malfunction forced him out in the 19th lap after he had been well out in front of the pack. Bob Eucher's P-63 which won the Sohio event, is shown top right. The craft originally belonged to Howard C. Lilly, NACA test pilot who was killed early in the year when the record-holding Douglas Skystreak crashed in take-off. It was purchased by Russell A. Hosler, Eucher's sponsor.



AVIATION WEEK, September 13, 1948

HEADLINE NEWS

11



F-86A Hits Record; Cameras Miss

North American sweptwing fighter tops D-558-1 mark before 80,000.

By Robert Hotz

Cleveland—North American's sweptwing F-86A fighter set an unofficial world speed record of 669.480 mph. here last week before packed grandstands at the National Air Races. The USAF fighter was piloted over a specially calibrated course by Major Richard L. Johnson, 30, of the Air Materiel Command.

The old and still official record is 650.6 mph. set by Marine Major Marion E. Carl in a Douglas Skystreak (D-558-1) research plane.

► **Timing Trouble**—The Air Force's effort to wrest the world speed mark from the Marines was marred by a series of mishaps ranging from weather and landing gear trouble to failure of the automatic cameras to catch the F-86A on three of its six record-seeking runs. Maj. Johnson made six passes over the measured three kilometer (1.86 miles) speed course at an average altitude of 285 ft. The first pass made upwind was not timed due to the simultaneous arrival of the first Navy North American Fury (FJ-1) jet fighter streak-

ing in from Indianapolis across the finish line of the Allison jet race. Both automatic cameras and timers clocked the FJ-1 instead of the F-86A.

► **Hit 689 Mph.**—On the second pass downwind Johnson hit 685 mph. Coming back upwind he was clocked at 660; then hit 689; 658 and 675. Electronic timing devices clocked the F-86A on five of the six passes but the automatic cameras required for official confirmation failed to register three of the runs. This left Johnson one short of the four recorded runs necessary for official homologation by the Federation Aeronautique Internationale.

The record-breaking attempt was made by a standard production model F-86A, the 10th plane to roll off the North American line at Inglewood, Calif. It was powered by a General Electric TG-190 (J-47) jet engine delivering 5000 lb. static thrust dry and 6000 lb. with water injection.

The F-86A used carried full armament and ammunition load in contrast to the D-558-1 which was high speed research plane and carried no military load.

► **Can Do 700 Mph.**—Air Force officials left little doubt that even the 689 mph. run of the F-86A was far short of the plane's potential performance. Indicated air speeds up to 700 mph. have been clocked during test operations at Muroc, Calif. and performances of 690 mph. are classed as routine. AVIATION WEEK reported exclusively on June 14 that the XF-86 had reached supersonic speed during dive tests. This fact was confirmed by the USAF. Since then the F-86A has flown at supersonic speeds in level flight at altitude. Total of 647 F-86 models A, B and C are now on order with North American.

Maj. Johnson reported slight turbulence on several of his record-seeking runs. On one pass a patch of turbulence set the F-86A wing tips to flexing so strongly that the flutter was clearly visible to spectators in the grandstand. Like its predecessors, the TG-180, the TG-190 smoked heavily, making it easy for spectators to follow the F-86A course as Maj. Johnson maneuvered over a 15-mile stretch to position for his runs. Johnson also reported streaking within 10 ft. of an Aeronca light-plane during his maneuvers.

► **Supersonic Spectators**—The F-86A consumed 350 gal. of fuel during its 26 minutes of maneuvering. Because of the low altitude required for official timing,

Johnson did not use the cockpit refrigeration system with which the F-86A is equipped.

Ironically, watching the F-86A runs were Capt. Charles Yeager and James Fitz-gerald, both of whom have flown faster than the speed of sound in the X-1 research plane. The X-1 has now hit 1100 mph. and Mach 1.4. USAF will make no claim for either speed or altitude records for the X-1 because to do so would reveal its exact performance range—facts which the Air Force is still trying to keep to itself. Yeager and Fitz-gerald spent most of their time at the Air Races flying press personnel in the two-seater Lockheed TF-80C jet trainer.

► **New Course**—The Cleveland speed course is one of three in the United States. Others are at Eglin Field, Fla. and Muroc, Calif. The Cleveland course was hastily erected late in August after the USAF decided to try for a new speed record with the F-86A during the National Air Races. The speed record runs were planned as part of a program to regain USAF prestige lost in competition with the Navy during the International Air Exposition at New York early in August.

General Electric built the Cleveland course with technical assistance of the U. S. Coast and Geodetic Survey and the National Aeronautic Association. The course was measured to an accuracy of within three inches and equipped with electronic timers and automatic recording cameras. It will remain as a permanent fixture at Cleveland. Two USAF C-45 transports patrolled the course during the record seeking runs carrying NAA observers and sealed barographs to determine whether the F-86A stayed within the altitude limit of 1640 ft. required for record performances. Smoke flares were also fired to aid Johnson in lining up for his runs.

► **Gear Trouble**—Initial assault on the record was delayed first by a sheared pin in the F-86A landing gear that made it impossible to retract one of the main wheels of the tricycle landing gear. The gear trouble was eliminated too late for a record run on Saturday as originally planned.

Hazy weather again delayed the attempt on Sunday morning offering too restricted visibility for the pilot and not enough light for accurate recording by the automatic cameras. The F-86A finally took to the air in mid-afternoon Sunday and made its runs with nearly perfect weather of a high broken overcast and only a slight wind. Bad weather on Monday, final day of the races, thwarted a last attempt to make the record official. Maj. Albert F. Boyd flew an F-80C over the speed course at 610 mph. and reported turbulence too severe for Johnson and the plane to make more record runs.



Maj. Johnson—He'll try again.

USAF-Navy Rivalry Makes Top Air Show

More than 165,000 taxpayers were treated to a tremendous demonstration of military air power as Air Force-Navy rivalry reached a new peak during the National Air races at Cleveland last week.

Although there is a National Military Establishment regulation against formal inter-service competition both the Air Force and Navy paid it only lip service during their air race shows.

► **Allison Switch**—First break came just before the races when the USAF withdrew the nine Lockheed F-80s it had entered in the Allison jet dash from Indianapolis to Cleveland. The Allison dash rules called for a climb to 30,000 ft. and a dive to 500 ft. altitude at the finish line in Cleveland. Some second level Air Force generals decided the dive might encourage pilots to exceed the critical Mach number of their plane and cause structural damage. Hardly had the USAF withdrawn when the Navy entered a quartet of North American FJ-1 jet fighters in the Allison race.

The USAF declined to compete in the jet division of the Bendix cross country race on the grounds that the Navy had entered a quartet of FJ-1s and inter-service competition was against regulations. However the USAF authorized a Lockheed TF-80C jet trainer piloted by Capt. James Fitz-Gerald, (one of the men who flew the X-1 at supersonic speeds) to duplicate the Bendix course on the same day the race was to be flown. Fitz-Gerald was forced down at Denver due to fuel tank trouble and arrived in Cleveland the day after the Bendix. On the same day Maj. Robert De Haven flew a Lockheed

F-80C over the Bendix course from Long Beach Calif. to Cleveland in 4 hr. and 9 minutes—more than a minute faster than the winning jet Bendix time of the Navy's F-J1. De Haven is an operations officer in the California Air National Guard.

► **Mass Demonstration**—Another indication that surface manifestations of inter-service harmony are fairly thin came in the flight of the Navy's Martin JRM-2 flying boat across the field at Cleveland. It had brought a 68,283 lb. payload on a flight from Patuxent that was a little longer than the Berlin airlift distance.

Earlier the Air Force and Navy had issued a joint announcement that VR-2, the Navy's Mars Squadron, was contributing to the Berlin airlift by relieving USAF C-54s to be diverted from the Pacific to Berlin.

The announcement overlooked a point which observers have noted: That the Mars squadron could make an important primary contribution to the Berlin air lift by delivering larger loads per ship and by relieving Berlin airport landing facilities now strained close to the breaking point. The Mars can fly-in its own portable floating dock, and could use the Berlin lakes, thus relieving airport congestion and land facilities. Navy has already offered the Mars squadron for Berlin service, but the offer has been turned down by MATS which is directing the Berlin airlift.

► **USAF Has Edge**—For the first time in recent air show history the USAF demonstration definitely topped the Navy. Just two weeks before the races all USAF aircraft assigned to Cleveland came under operational control of the project officers assigned to the races. Previously the USAF had run its demonstrations like a field maneuver on the basis of written orders issued well in advance. Resultant timing errors slowed the show and extracted its punch.

At Cleveland the USAF threw in almost everything they had from Lockheed F-80s dive-bombing with live bombs to the giant B-36 and the unofficial world speed record runs of the F-86A. As a result of the USAF fine showing at Cleveland a special air show division will be set up divorcing this operation from public relations and placing it directly under USAF top brass.

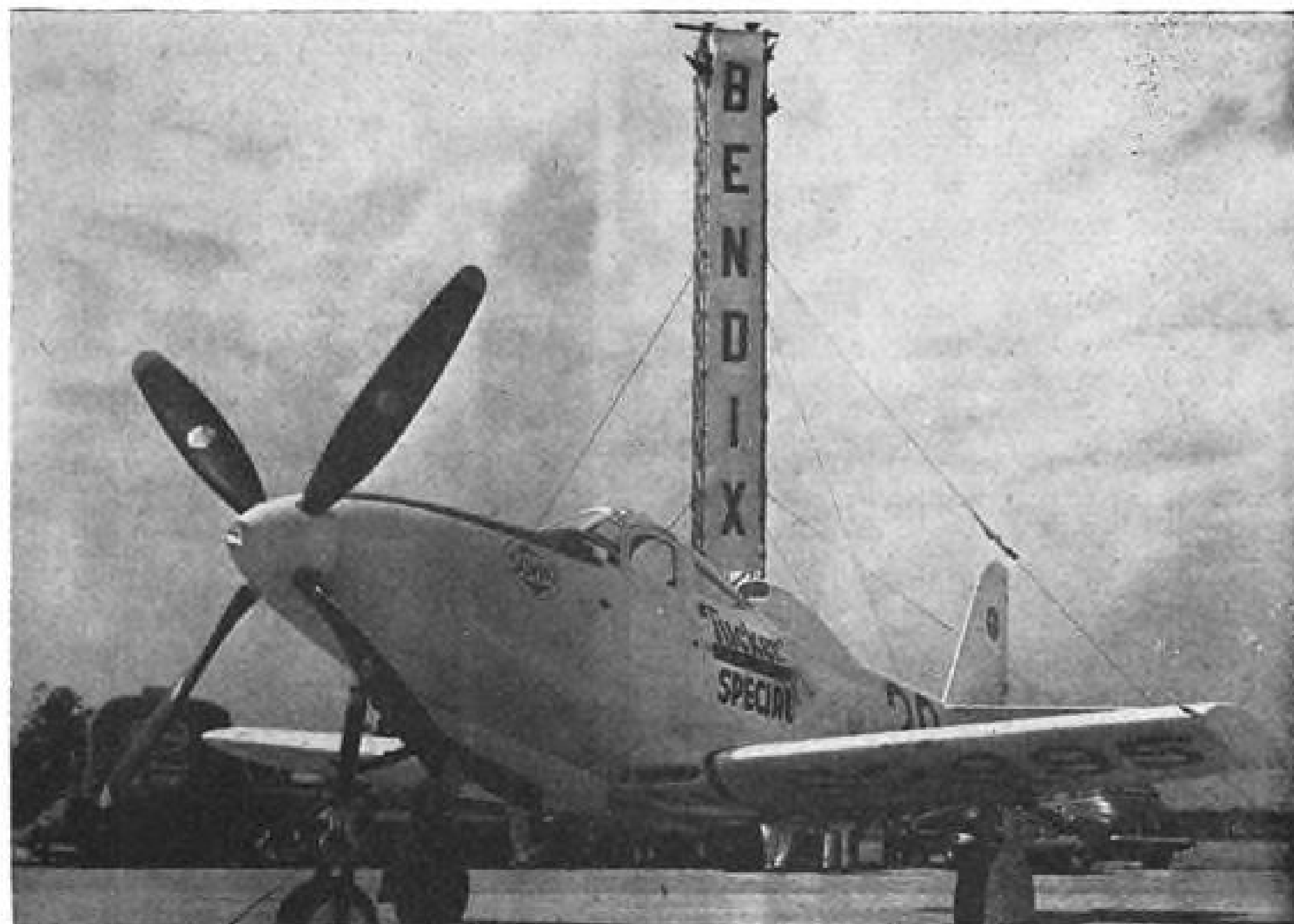
Air Force Honored

Top military officials and leaders from the aviation industry are expected to attend the Washington Air Force Day dinner at the Statler Hotel Friday, Sept. 17, at which Defense Secretary James Forrestal will be the principal speaker.



At The National Air Races

Thompson Race Winner Anson Johnson, ex-ATC pilot, is shown receiving his trophy from Roscoe Turner (right), the only pilot to have won the event more than once. Turner took first honors in 1934, 1938 and 1939. Jacqueline Cochran, third place winner in the Bendix event (lower right), almost didn't get off to compete at all. For more about this see Strictly Personal, page 48. Below, Paul Mantz (right) is shown with William Mara and Malcomb Ferguson, Bendix company officials, on the winner's stand after winning the 2000-mile event for the third consecutive time. Bendix trophies for the winners are shown in the foreground. Mantz was sponsored by Glenn McCarthy, Houston, Tex., businessman, who also had two other entries in the Bendix event, both of whom finished in the money. Mantz has his flying service in Hollywood, Calif., and owns one of the largest private air forces in the world. He looked unruffled, as usual, when he landed at Cleveland after his more than four hour flight in McCarthy's P-51.



The Air Races

Thompson Trophy goes to Johnson; Paul Mantz repeats in Bendix race.

By Stanley L. Colbert

Cleveland—It was 'every one a winner' in the 15th running of the Thompson Trophy Race when all but three of the 10 contestants dropped out, and Anson Lynn Johnson, ex-Air Force pilot who was seeded fourth in earlier qualifying runs, flew his converted P-51 at a mild 383.767 mph. to win the \$16,000 first prize money.

The Labor Day crowd of almost 80,000 thought the race almost decided after the second lap, when Charles E. Brown, flying a P-39Q Airacobra, made Thompson race history by taking the course at 413.234 mph. Brown continued his pace for 18 grueling laps and was far in front of the field when he developed trouble on the 19th lap, gained altitude, and glided down to make a dead stick landing.

► **Cleland Out Early**—Cook Cleland, winner of last year's Thompson, together with his stable-mate Dick Becker were early withdrawals in the National Air Races speed classic. Becker was the first to drop out, in the third lap, and Cleland followed in the fifth.

Johnson, the 28-year old Miami Springs, Fla., winner, took over second position on the fifth lap and held it until Brown pulled out on the 19th lap.

► **Raymond Takes Second**—Bruce E. Raymond, Hammond, Indiana, took second place, averaging 365.234 mph. for the 20 laps of the 15-mile quadrangular course.

Wilson V. Newhall, competing in his 19th National Air Race, finished in third position, after previously being lapped twice by Brown. Newhall averaged 313.567 mph. to win the \$4500 third place prize.

Johnson's speed was below the 396.131 mph. recorded last year by Cook Cleland in his Pratt and Whitney powered 3000 hp. Vought Corsair.

► **Brown Early Favorite**—Most of the crowd had picked Brown to win the Thompson classic on the basis of his qualifying time—418.300 mph.—which placed him in the No. 1 position, and the fact that his same aircraft was piloted to first place in 1946 Thompson event, and third place, by Jay Demming, in last year's race.

► **Other Races**—Paul Mantz, 45-year old two-time winner of the Bendix Trophy Race, repeated his performance this year by completing the 2000-odd mile course in little more than 4½ hr. His speed of 447.980 mph. was less than last year

Bendix Trophy Race "R"-Division*				
Place	Pilot	Elapsed Time	Mph. speed	
1.	Paul Mantz.....	4:33:48.7	447.980	
2.	Linton Carney.....	4:34:57.5	446.112	
3.	Jacqueline Cochran.....	4:35:07.3	445.847	
4.	E. T. Lunken.....	4:37:46.3	441.594	
5.	J. F. Stallings.....	5:59:35.2	341.120	
* All pilots flying P-51s. Joe DeBona, other entrant, did not arrive before 7:30 pm. timelimit.				
Tinnerman Trophy Race				
Place	Pilot	Plane	Elapsed Time	Mph. speed
1.	Bruce Raymond.....	P-51	17:23.49	362.245
2.	R. I. Eucker.....	P-63	17:23.93	362.093
3.	W. V. Newhall.....	P-63	20:03.35	314.129
Sohio Handicap				
Place	Pilot	Type Plane	Mph. speed	
1.	R. I. Eucker.....	P-63	320.220	
2.	J. E. Saum.....	P-38	318.198	
3.	H. S. Gidovlenko.....	P-38	317.952	
4.	C. C. Walling, Jr.....	P-51	316.877	
5.	B. E. Raymond.....	P-51	315.623	

when he finished the Van Nuys, Calif.-Cleveland, Ohio run at 460.423 mph. Mantz who previously took the 1946 and 1947 Bendix event, flew a North American P-51 Mustang sponsored by Glenn McCarthy, the Houston aviator enthusiast.

Glenn McCarthy's stable did itself proud. Linton Carney, Houston, Tex., McCarthy's chief pilot in January, 1946, finished second, little more than one minute behind Mantz. It was his first Bendix race. Ed Lunken, Cincinnati, Ohio, the other McCarthy entry, finished fourth, four minutes behind Mantz. He averaged 441.594 mph.

Third place in the reciprocal engine division of the Bendix race went to the only woman entry, Jacqueline Cochran, who won the event in 1938. Miss Cochran had intended to continue to New York and attempt to break the transcontinental non-stop record but changed her mind and landed at Cleveland.

► **Irish Sweep**—Mantz' first place prize of \$10,000, together with Carney's \$5500 prize and Lunken's \$2500, totaled an \$18,000 sweep for the McCarthy entries. Miss Cochran's third place prize was \$4000. This year the course was moved from Van Nuys Airport to Long Beach, Calif.

Navy's record in the jet division of the Bendix was less impressive than last year's mark by the Air Force in Lockheed F-80s.

Flying a North American FJ-1, Ensign R. E. Brown averaged 489.526 mph., completing the course in 4 hr. 10 min. In 1947, Col. Leon W. Gray piloted an F-80 507.255 mph. finishing in 4 hr. 2 min.

Commander E. P. Aurand, in another Allison TG-180 powered FJ-1, took second honors, three minutes behind Ensign Brown. Aurand was followed two minutes later by Lt. E. R. Hanks.

Two Navy pilots did not finish the race. Lt. Cdr. R. M. Elder, with a forced landing at Cleveland, did not cross the finish line in flight. Lt. A. T. Capriotti was forced down in Chicago.

Mechanical Failures During Race Analyzed

Evidence of truth in the much-debated twenty-year-old argument that the "races improve the breed" was seen in the mechanical failures that forced seven out of ten starters out of the 1948 Thompson Trophy Race.

Both of the Goodyear F2G-1 Corsair races were forced out in the early laps due to failure of the carburetor air intake duct atop the cowl. The loose cowls, neither of which flew loose, destroyed ram pressure and constituted a hazard to the pilot had he elected to remain in the race.

► **Impeller Failure**—Other participants came down due to an impeller failure, an oil cooler failure and ruptured oil lines. Oddest mechanical difficulty was experienced by Chuck Brown, who led 18 laps of the race in his Bell P-39Q Airacobra racer. The engine suddenly started to lose power, which continued until virtually all power was lost and Brown made an emergency landing on the field. Subsequent inspection revealed that the fuselage was cracked aft of the exhaust stacks permitting exhaust heat to enter and impinge on a fuel line.

► **Fuel Evaporation**—Brown and his crew developed the theory that the heat had quickly vaporized the fuel in the line thereby shutting off the flow to the carburetor. This theory was supported by the fact that none of Brown's gauges indicated anything abnormal at the time of the power loss.



Technical Interest Seen in Racers

Some planes appear original and sturdy; others show lack of finesse.

By Robert McLarren

Cleveland—With the open events again confined to surplus combat aircraft, the Goodyear Trophy Race drew the greatest technical interest at the 1948 National Air Races. Majority of new aircraft this year were those uncompleted in time for qualification last year. Several new entries bore distinct evidence of mild technical theft of features displayed in the 1947 winners.

► **Metal Dominates**—All-metal construction was featured in a greater proportion of the Goodyear contestants. War-developed metal-working skills, accessibility of competent stress information, rigid strength requirements for qualification and greater simplicity of compound curve forming in metal over wood-and-fabric provided impetus to the growing trend towards metal. Still much in evidence was a surprising lack of aerodynamic finesse in design that stamped many entrants as competent mechanics but engineering novices.

Bulging canopies, diamond-shaped fuselages, rough and irregular wing panels and drag-producing air "leaks" cost most of the pilots badly-needed speed and prize money.

► **Standard Engine**—With all entrants powered by an 85 hp. Continental engine it should have been obvious that the plane with the lowest drag would be the heat winner. This observer, as well as many others, picked five races in advance on this basis. Of similar importance was propeller selection. This showed as wide a variation as rudder shapes, the classic subject for individual

artistry. The fixed-pitch requirement necessitated slow takeoffs in return for good efficiency at top speed. Some designers reversed this process to the detriment of their entries.

Cooling problems were handled erratically. The horizontally-opposed layout of the engine produced laterally disposed air intakes and formed cowls. This convention was opposed by the two Art Chester entrants, which took cooling air aboard through a hollow propeller spinner containing fan blading. While the technically able craftsmen provided cooling air outlets, essential to ample cooling flow, many builders ignored this feature entirely thereby creating back pressure which prevented flow and overheated engines. Carburetor air and oil cooling created the worst examples of inlet design with shapes varying from simple cowlings flush cut-outs to curved pipe segments.

► **Layout Design**—One layout feature which the majority of race designers handled well was the obvious combination of engine cowling and wing location along a common axis. This avoided duplication of external form junctures and produced a "shoulder" wing location eliminating necessity for fairing panels on the flat-sided fuselages.

On the apparent theory that capable piloting is a substitute for airplane instability, most entrants used empennage sizes and forms incapable of producing sufficient damping or control at low speeds and low angles of control deflection. It was this probability that caused the Professional Race Pilots Association to require a qualifying takeoff at full

throttle without veering more than 30 ft. from a straight line down the runway.

Although this requirement could be met by pilot familiarity with his airplane and a wide-angle rudder it did not cover the stick-fixed stability requirements common to certificated aircraft. Pitching and yawing were very much in evidence on the straight portions of the two-mile closed course.

► **Outstanding Racers**—Despite these inadequacies, several of the racers exhibited an excellence on all points and could be offered commercially as sport planes on a production basis. The all-metal "Cosmic Wind" types, the "V" tailed twins of Art Chester and the sleek entrants of Steve Wittman were the finest examples of engineering and workmanship. They showed a fine regard for aerodynamics. The trio announced eagerness to build duplicates to any interested bidder.

The high-horsepower aircraft exhibited the opposite approach to high speed: more and more power. With the single exception of the three clipped wing Lockheed P-38 entrants and a P-63 none of these aircraft were structurally modified and the external form of the airplane was left in its original production form. All of the effort put into these airplanes was concentrated on the power plants, where considerable individuality was displayed.

► **Power Problem**—Power, cooling and control, in that order, were the three major objectives of the entrants in the Tinnerman, Sohio and Thompson closed-course events. Supercharging, water injection and special fuel blends were used in extracting the maximum power from the engines. They were all liquid-cooled Allison V-1710 or Packard (Rolls-Royce) V-1650 Merlin models,

with the exception of the huge Pratt & Whitney R-4360 Wasp Major engines of the Goodyear F2G Corsair fighters.

Pilots of these aircraft drew heavily on their wartime experience to display a healthy respect for the structural capabilities of their engines. As a result there was only judicious use of supercharging and water injection to permit high manifold pressures. Turbosuperchargers were removed from those aircraft equipped with them with the exception of a P-38 entrant who did not use them at the near sea-level altitude of the race. Engine-driven superchargers were used on all the aircraft in conjunction with water injection.

The use of water was considerably more astute this year than last due to increased experience. Rather than use it either continually or as required on straight course legs many pilots used it only on alternate or selected laps interspersed with lowered manifold pressure laps to reduce engine bmeep temporarily.

► **New Fuel**—The Thompson event featured the use of Shell Methyl Triptane-1 fuel in five of the entrants, a special blend developed by Shell Oil Co. as a test engine fuel. Shell has made only a few thousand gallons of the blend for test purposes and engine instrumentation was required of the entrants to provide performance data during the 300-mile event. Entrants in the Thompson and other events used their own mixtures made up of Standard Oil Co. of Ohio aviation gasoline plus other hydrocarbons added by the individual. These were in very low proportions and may have had a questionable effect on engine bmeep.

Engine cooling remained a major problem due to the higher temperatures generated and the fixed cooling provisions of the wartime combat aircraft used. Despite its drag production, all entrants were forced to fly with air outlet doors wide open. One entrant, Charles Brown's Bell P-39Q Airacobra, featured an additional cooler mounted below the fuselage.

► **Plumbing Important**—Despite the high pressures and temperatures common to the high horsepower racers, "plumbing" continued its classic role as the bugaboo of the power plant. Broken lines with resultant oil sprays over windshields and fuselages were as much in evidence in 1948 as in 1928, the first National Air Race so-named. The greatly increased engine speeds without accompanying gearing down of accessory drives produced high oil, fuel, hydraulic and vacuum pump speeds and pressures producing the ruptured lines.

The 1948 Races continued their enticing appeal to mechanics, both service and civilian and no racing plane went untended but rather enjoyed pos-

Copies Available

Extra copies of AVIATION WEEK Sept. 6 special issue on Procurement for U. S. Air Power, a guide to government aviation buying, are available in limited supply. Orders should be addressed to AVIATION WEEK, McGraw-Hill Publishing Co., 330 West 42nd St., New York 18, N. Y. Copies are 50 cents apiece.

sibly the most expensive mechanical care in the world. Air Force and Navy mechanics labored long and hard and brought to bear their wartime service on the combat types that were entered in the races.

Howard Demonstrates Strength of Bonanza

Smooth acrobatic flying of a stock model Beech four-place Bonanza under sensitive guidance of Beverly Howard, top flight acrobatic flyer, attracted probably more attention than any other stunt flying in the three day National Air Races at Cleveland.

There were other performers who flew more difficult and sensational maneuvers, including Howard's other daily performance in his swept-back wing German Buecker Jungmeister bi-plane; Woody Edmondson, national acrobatic champion; Betty Skelton, woman's acrobatic champion; two French champions, and others. But they were flying specially stressed acrobatic aircraft.

► **Flew Stock Model**—Howard was flying Beech Bonanza stock model 1601, which had about 100 hr. on it as a company executive transport, before he took it for his flights. It's only modifications, he told AVIATION WEEK, were a rubber fuel line in the fuel tank arranged to make possible continuous

flow of gasoline during inverted flight, and a back parachute built into the pilot's seat.

His flight maneuvers were principally a series of slow rolls, inverted flying, and inside loops. In working out his acrobatic routine at the Beech plant in Wichita, he put the same plane into two half outside loops. In one of these he flew the plane in an inverted dive with an indicated airspeed of 205 mph. Corrected for altitude and temperature, the true airspeed was 240 mph. The Bonanza is placarded for a never exceed speed of 202 mph. for normal or utility category flight. It carried an experimental license since the Bonanza's commercial license does not carry approval for any acrobatics when the plane is loaded as a normal category plane, and only limited acrobatics when it is loaded as a utility category plane.

► **Effects Varied**—Effect of the demonstration on present and potential owners of the airplane is problematical. From a standpoint of establishing the sturdiness of the stock model airplane as it is presently constructed, the demonstration should have a beneficial effect. If, however, the effortless ease with which Howard performed his acrobatics will inspire less skilled Bonanza pilots to attempt similar maneuvers, the show demonstration could backfire, in accidents. The Charleston, S. C. fixed base operator, himself a Beech distributor, used a G-meter in working out his act, and was careful to fly within the airplane's structural limitations. The same maneuvers which Howard used, flown less precisely and with more violent stresses imposed, could get a less expert flyer into severe trouble, engineering observers pointed out.

KLM Gets Convair-Liner

KLM has taken delivery on the first of twelve Convair-Liners. Equipped with auxiliary cabin tanks to extend its range for the trans-Atlantic hop, the plane was flown from Santa Monica, Calif., to Amsterdam early this month.



COOK CLELAND's plane: It watched the Thompson from the ground.

LETTERS

Skycoach Service Defended

To the Editor:

Your editorial Aug. 9 ("An Industry Loses Its Vision") has stirred applause and gratification from the numerous small airlines. My appreciation for the clearest insight and most forthright statement of the plight of the passenger air transport industry I have read.

Your editorial expresses accurately and precisely what the air coach airlines have said (much less articulately) between themselves hundreds of times during the past two years and what we have been trying to tell the CAB. Your . . . able statement of the truth reassures your thousands of readers of the integrity of your editorials. The knowledge that a few honest editors exist heartens us in our struggle. . . .

There are very few in the industry whose imagination is sufficiently lucid to see the effect, from what we have been trying to do, upon aviation in the next five years. Of 145 million people in the U. S. today only about 10 percent can afford the luxury of the added cost of air travel. The average wage earner, and they make up 90 percent of the people in the country, cannot afford \$330 to go across country and back or \$362 on an extra fare plane. With the proposed new rate, the fare will be \$181 and \$206 each way. We have found that these wage earners will spend about \$20 more than rail coach fare and figure they will save that amount in the long run in going by air, but just cannot afford or will not pay the difference up to the rate of the certificated lines to go by air.

With a coach rate and the other 130 million turning unhesitatingly to air for travel, aviation could get the impetus it deserves during the next ten years. If the certificated lines have their way, ten years hence air travel will still be a luxury to the masses. . . .

I am taking the liberty of enclosing a summary of 885 questionnaires from our passengers which sheds some light on the matter of diversion which you so ably discussed in your editorial. These were tabulated by International Business Machine Services, Washington, D. C.

The letter which accompanied the ballots follows:

"Dear Passenger: Standard Airlines believes in low-cost air transportation without some of the frills that increase airline costs without contributing anything to air transportation itself. We believe that air transportation should continue to be made available to the average citizen who wants to reach his destination quickly but at a cost not out of his reach. We believe that this low cost air transportation should be offered on a regularly scheduled basis just as higher cost service is now offered by the scheduled airlines.

"To enable us to furnish regularly scheduled low-cost service, we need your help. We would like to convince our government, through its aviation agency, the Civil Aeronautics Board, that there are

many people in the country who have flown Standard and who wish to continue to use this low-cost service. We want to make this low-cost service a scheduled service so that you will have the added advantage of regularly scheduled trips.

"We have attached a questionnaire which we would like you to fill out. Naturally, we should prefer it if you signed your name and indicated your address. However, if you do not care to do so, simply omit your name and address.

"As a basis of comparison, we set out below the different transcontinental transportation fares. They are listed exclusive of time involved in travel and of the additional expenses which accumulate, such as meals on trains, tips, limousine service to and from the airport, etc.

Between L.A. and New York
Rail-coach \$ 79.27
Standard low-cost Airlines . . 113.85
Rail-Pullman 150.56
Scheduled airline 164.62*
Extra-fare scheduled airline . . 181.70**
*(This was increased by the airlines Sept. 1 to \$181.53.—Editor's Note)

** (This was increased Sept. 1 to \$198.61 by TWA and UAL, while American removed its extra fares entirely, making its rate \$181.53 for all aircraft.—Editor's Note)

"Thank you for helping us to prove that there are many people who appreciate the need for scheduled low-cost air service; air transportation within the reach of the average man's pocketbook."

QUESTIONNAIRE RETURNS

1. If Standard Airlines low-cost air service had not been available, how would you have traveled: Auto 45; bus 69; railroad 488; scheduled airline 184; would not have gone 82.

2. How did you travel to the airport where you boarded the plane. Not tabulated.

3. How do you plan on traveling from the airport to your eventual destination. Not tabulated.

4. Is this your first flight on a commercial airplane? Yes 424; no 429; no response 2.

5. How many times during the past year have you traveled on scheduled commercial airlines? None 223; once 65; twice 61; three times, 19; four times, 14; five times, 6; six times, 4; seven times, 1; eight times, 3; nine times, 1; ten times, 4; twelve times, 1; 20 times, 1; no response, 452.

6. What means of transportation have you used generally in traveling long distances in the past: auto 229; bus 79; railroad 543; airline 146; no response 21.

7. If you desire, please state your or your husband's occupation. Not tabulated.

8. Do you have any suggestions which would make air travel by Standard Airlines more satisfactory? Not tabulated.

JAMES FISCHGRUND, Executive V. P.
Standard Air Lines
Long Beach, Calif.

To the Editor:

It was a pleasure to read your editorial Aug. 9. It reflects the views of the Air

Coach Association precisely. We know, you know and the Civil Aeronautics Board should know that no transportation industry, aviation or otherwise, can exist economically unless it has volume.

You should be highly complimented on the intestinal fortitude you have displayed in publishing your editorial, as no one knows better than I the terrific pressures, political and otherwise, that can be brought to bear by the . . . interests controlling the certificated airlines.

I read with interest an article in the Aug. 17 Los Angeles Examiner discussing the financial plight of the certificated airlines and particularly that of United. The article quotes Mr. W. A. Patterson as saying that an increase in rates will cause little if any effect on passenger volume and that the certificated lines should not attempt to obtain mass air transportation, but continue to offer luxury air transportation and only to those who can afford it.

Also, he proposes increasing mail pay from a present 0.67 per ton mile to from \$1.32 to \$2.15 per ton mile so as to allow a 10 percent profit on invested capital—in other words, put them on a cost-plus basis.

This can't be the American way of free enterprise. . . . Why should everyone be taxed to pay subsidies to a service that only a relatively few members of the public can afford. . . .

We sincerely hope the CAB will yet mend the errors in its ways and develop its vision to encompass an aviation industry catering to the mass of the American traveling public.

STANLEY D. WEISS, President
Air Coach Association
c/o Standard Airlines, Inc.
Long Beach, Calif.

To the Editor:

We have with pleasure and interest read your editorial. . . . We would like to have permission to reprint it. . . .

JACK F. SCAVENIUS
Mt. McKinley Airways, Inc.
Anchorage, Alaska

Reversible Russians

To the Editor:

While perusing your splendid magazine, June 7 issue, my attention was drawn by the photo on page 42 showing partial view of the pilot cockpit of the Russian IL-18.

It appears all flight instruments are on the right side, and all engine instruments on the left side.

It may be that your negative was inadvertently reversed. If not, does the pilot sit in the right-hand seat?

WARREN J. MORGAN
Alexandria, Va.

(Eagle-eye Morgan is right. The New York office of Sovfoto says the print sold to AVIATION WEEK was made from a movie film and somewhere in the process a negative or positive was reversed.—Ed. Note).

A GREAT NEW AVIATION SPARK PLUG

With Rugged, One-Piece Aluminum Oxide Insulator

Currently Approved by Pratt and Whitney and Civil Aeronautics Authority for the following Engines:

—	Hornet E-3	(R-1690)
—	Twin Wasp C	(R-1830)
—	Twin Wasp D	(R-2000)
—	Double Wasp	(R-2800)
—	Wasp Major	(R-4360)

Better performance at higher ceilings—positive firing with leaner fuel mixtures—preignition rating for high output engines—longer life, with less gap wear—improved flash-over characteristics—easier cleaning and servicing—these are among the many advantages provided by this latest engineering triumph, the AC-181 Aviation Spark Plug.

Electrodes are of heavy platinum alloy. The built-in resistor insures maximum spark plug life. The rugged, one-piece aluminum oxide insulator gives positive insulation between the core pin and the shielding barrel, and prevents downward flash-over. It also eliminates the dirt trap between the core insulator and the shielding barrel insulator which is found in conventional designs. Pure silver, centrifugally cast directly into the insulator, conducts heat away from the firing end.

Increased clearance around the insulator results in better scavenging. One-piece plug assembly prevents loosening from vibration. AC heat seal ensures gastight assembly. Shell and threads are zinc-plated.

Neither expense nor ingenuity has been spared to give this new AC *utmost reliability*. It's the biggest news in aviation spark plugs—and it's available now.



AC
SPARK PLUG
DIVISION,
GENERAL MOTORS
CORPORATION,
FLINT, MICHIGAN

Willard

SAFETY-FILL, MANIFOLD-VENT

AIRCRAFT BATTERIES



IMPORTANT NEW FEATURES

Exclusive Willard design eliminates need for enclosed battery box or compartment and provides maximum battery interchangeability. High capacity-to-weight ratio. Extra cold starting performance. Rugged Willard Quality throughout. Sold and serviced by a nationwide organization of distributors and dealers. For Quick Starts . . . for Long Life . . . buy Willard Aircraft Batteries.

WILLARD STORAGE BATTERY COMPANY

Cleveland • Los Angeles • Dallas • Memphis • Portland • Toronto

ENGINEERING & PRODUCTION

West Coast Earnings Pick Up

Aircraft industry shows signs of newly regained prosperity following lean postwar period.

After bumping along on rock bottom for a good many postwar months, West Coast aircrafters are beginning to show evidence of having experienced considerable financial gain.

Coincident with an announcement that 14,000 employes (members of United Auto Workers-CIO) had accepted a 10 cent wage boost offer, North American has notified stockholders that they'll receive a 50 cent dividend Sept. 29—first paid since issuance of a \$1 dividend Sept. 19, 1946.

► **Sales Up**—Ryan Aeronautical reports sales valued at \$1,860,252 for the quarter ended July 31. The same quarter a year ago ran up a sales total of \$1,367,593.

In Los Angeles Superior Court a stockholder's profits recovery suit of a type seldom seen except when the companies are showing good earnings involves J. C. Garrett Corp. and Douglas Aircraft Co.

► **Demands Accounting**—Kenneth H. Findley, identified as a Douglas stockholder for four months owning two shares, demands an accounting of Garrett earnings as an accessories firm and restoration to Douglas of all profits made on sales to Douglas. Basis for the suit is Findley's claim that when Garrett created his company he was a Douglas employe and that the Douglas company thus is parent to the Garrett organization and entitled to share in Garrett profits.

But the strongest display of regained prosperity comes from Lockheed in a financial report backed up by a showing that since June 30 last year the company has reduced bank obligations from \$40,000,000 to slightly more than \$6,000,000.

Also, during the half-year ended June 30, Lockheed turned a neat net profit of \$5,310,000 on gross sales of \$65,981,000.

► **"Best Customers"**—Lockheed's backlog now is just under \$200,000,000. Of this, 5 percent is involved in commercial orders; the balance is composed of contracts with the Navy and the Air Force.

Probably no company in the country has established a better balance between its orders from the Navy and Air Force, the two "best customer" agen-

cies. Backlog figures show Lockheed holding future delivery Navy contracts amounting to \$98,618,000 as compared with an Air Force backlog of \$88,544,000.

Company Executive Changes Announced

The return to Republic Aviation Corp. of D. K. Tasker, organizer and director of F-47 field service for the company during World War II, was announced recently. Tasker will serve as assistant to President Mundy I. Peale, contacting facilities where Republic equipment is being used or developed. He had been away from the Farmingdale, L. I., company since May, 1946, when he left after four and a half years of service to manage his farm in New Hampshire.



Tasker



Stone

Also of industry interest was the election of Rear Adm. Ellery W. Stone (USNR) as president of Federal Telephone and Radio Corp., New York, known for its work in aviation electronics. Stone was elected president and Gen. William H. Harrison chairman of the board of the corporation and its sales subsidiary, International Standard Electric Corp. Fred T. Caldwell, former president of the two firms, becomes vice chairman of the boards of both.

► In other personnel actions:

Ansul Chemical Co., Marinette, Wis., has elected F. J. Hood president, succeeding Harvey V. Higley, now chairman of the board. Other officers: R. C. Hood, vice president; H. C. Higley, secretary; J. F. Asell, treasurer; and S. R. Holmquist, comptroller and assistant treasurer.

Lundy Manufacturing Corp., New York, appointed George W. Ledbetter district engineer for the West Coast territory for engineering coordination on Lundy Products and Aeromotors. His office will be at 15328 Wyandotte St., Van Nuys, Calif.

Aircraft Engine and Parts Corp., New York City, named Harvey H. Dwight and Wm. Paul Youngs as president and vice president respectively. The former president, Ernest Snider, has retired from active service.

Piasecki Helicopter Corp. appointed Conrad O. Curell director of inspection. He was previously associated with Chase Aircraft Co. and Budd Co. Harold F. A. Sessions has been named personnel director.

Curtiss-Wright Corp., New York City, appointed C. B. Rex assistant secretary. He will continue as chief accountant.

Westinghouse Electric Corp. named A. C. Monteith vice president in charge of engineering and research, succeeding Marvin W. Smith. He has been with the company for 25 years.

B. F. Goodrich Co., Akron, Ohio, appointed William G. Zink manager of the Seattle district of the automotive, aviation, and government division. Delmar F. Homer (New York district) and Gerald A. Friederici (Dayton district) were appointed sales representatives.

General Electric Co., Schenectady, N. Y., named Kenneth F. Housman, Claude U. Auger and Paul Nichols as plant manager, engineer and production manager respectively for the aircraft jet engine assembly test plant at Lockland, Ohio.

Aerojet Engineering Corp., Azusa, Calif., promoted W. E. Zisch to general manager, replacing A. H. Rude, who remains vice president. K. F. Mundt was made manager of engineering and manufacturing.

United Reports Net Income Rise

United Aircraft Corp. has reported net income of \$5,743,731, after federal income taxes, for the six months ended June 30, 1948. This is the equivalent of \$1.91 per share on common stock, and compares with \$3,416,873, or \$1.04 per share of common, for the corresponding period last year.

First-quarter earnings this year were \$3,248,230. In the second quarter, increased costs were incurred, mainly in tooling for new models, and earnings for that period were \$2,495,501. Sales for the first quarter were \$54,920,863, for the second \$54,528,781.

The corporation reported contracts, orders and government letters of intent amounting to about \$265,000,000 as of June 30. The comparable figure Mar. 31 was \$240,000,000.

► **Predictions**—Chairman Frederick B. Rentschler and President H. Mansfield Horner predicted that operations in the last six months of the year will be "more or less" affected by costs incident to getting new models into production and a reduced level of shipments in accordance with customers' schedules. Annual plant shut-down for inventory and vacation will affect third-quarter operations.

They said operations for the year as a whole are expected to be "on a reasonably satisfactory basis."

Before June 30, 1948, the last \$10,000,000 of \$15,000,000 borrowed under a three-year line of credit arranged in June, 1947, with five banks had been paid, and the entire \$25,000,000 original credit remains available.

Aircraft Industry: Mid-year, 1948

Production Progress Report

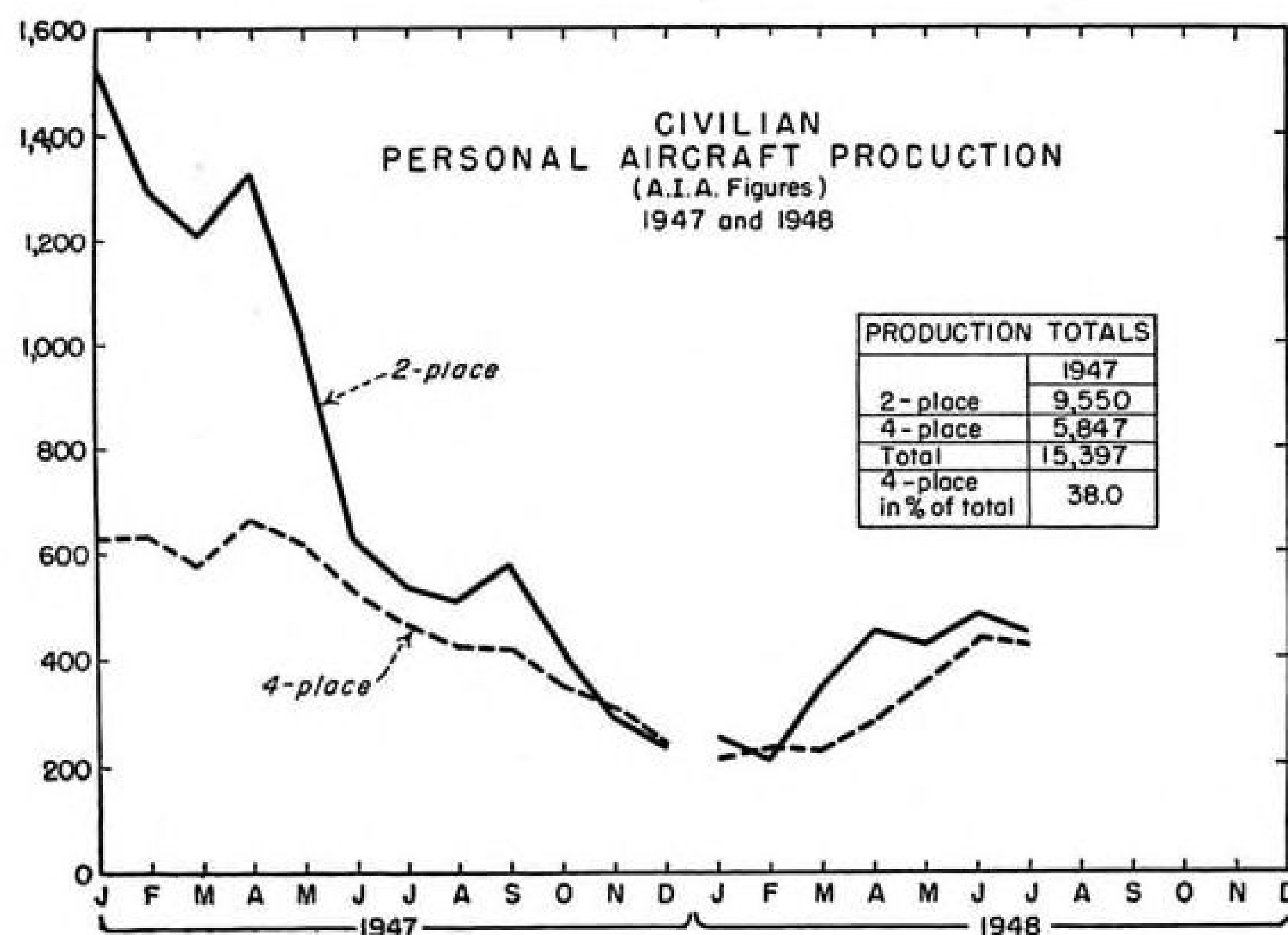
AIRCRAFT Month	Personal Type		Transport Type		Military		Total	
	No.	Value	No.	Value	No.	Value	No.	Value*
January.....	449	\$2,018,069	13	\$2,498,533	140		602	\$9,288,991
February.....	447	2,125,996	14	3,994,084	155		616	11,329,335
March.....	564	2,491,739	14	5,198,991	278		856	12,459,451
April.....	750	3,028,139	16	5,401,869	165		931	13,016,444
May.....	778	3,164,874	34	15,819,336	141		953	23,310,207
June.....	926	3,783,096	33	13,065,634	227		1186	21,813,029
Total.....	3914	\$16,611,913	124	\$45,978,447	1106		5144	\$91,217,457
ENGINES								
		Civil			Military			Total
Month	No.	Value	No.	Value	No.	Value**	No.	Value**
January.....	779	\$4,721,385	287	\$18,885,879	1066		1066	\$23,675,922
February.....	1007	5,380,545	355	20,504,714	1362		1362	25,938,747
March.....	1093	5,174,775	379	24,893,251	1472		1472	30,157,553
April.....	975	5,234,761	416	25,601,422	1391		1391	31,121,882
May.....	1293	4,801,522	491	25,500,263	1784		1784	30,570,757
June.....	1458	8,891,736	313	n.a.	1771		1771	**\$9,191,898
Total.....	6605	\$34,204,724	2241	\$115,385,529	8846		8846	\$150,656,759

* Does not include value of military shipments but includes aircraft parts and conversions.
** Includes parts and other products.
*** Does not include value of shipments for engines and parts for military customers.
Figures based on "Facts for Industry," Bureau of the Census

PERSONAL AIRCRAFT

Company	July		Jan.-July	
	No.	Value	No.	Value
Aerona.....	42	\$123,000	358	\$989,000
Beech.....	83	663,000	486	3,791,000
Bellanca.....	5	25,000	24	120,000
Cessna.....	248	995,000	1017	3,784,000
Engineering & Research.....	21	58,000	102	273,000
Fairechild.....	12	51,000	51	212,000
Luscombe.....	74	257,000	445	1,278,000
Piper.....	272	556,000	1138	2,207,000
Republic.....	n.a.	n.a.	16	66,000
Ryan.....	19	128,000	298	1,964,000
Stinson.....	64	324,000	621	3,077,000
Taylorcraft.....	16	31,000	52	96,000
Texas Engineering.....	24	74,000	168	539,000
Total.....	880	\$3,285,000	4776	\$18,366,000

Figures as reported to Aircraft Industries Association.



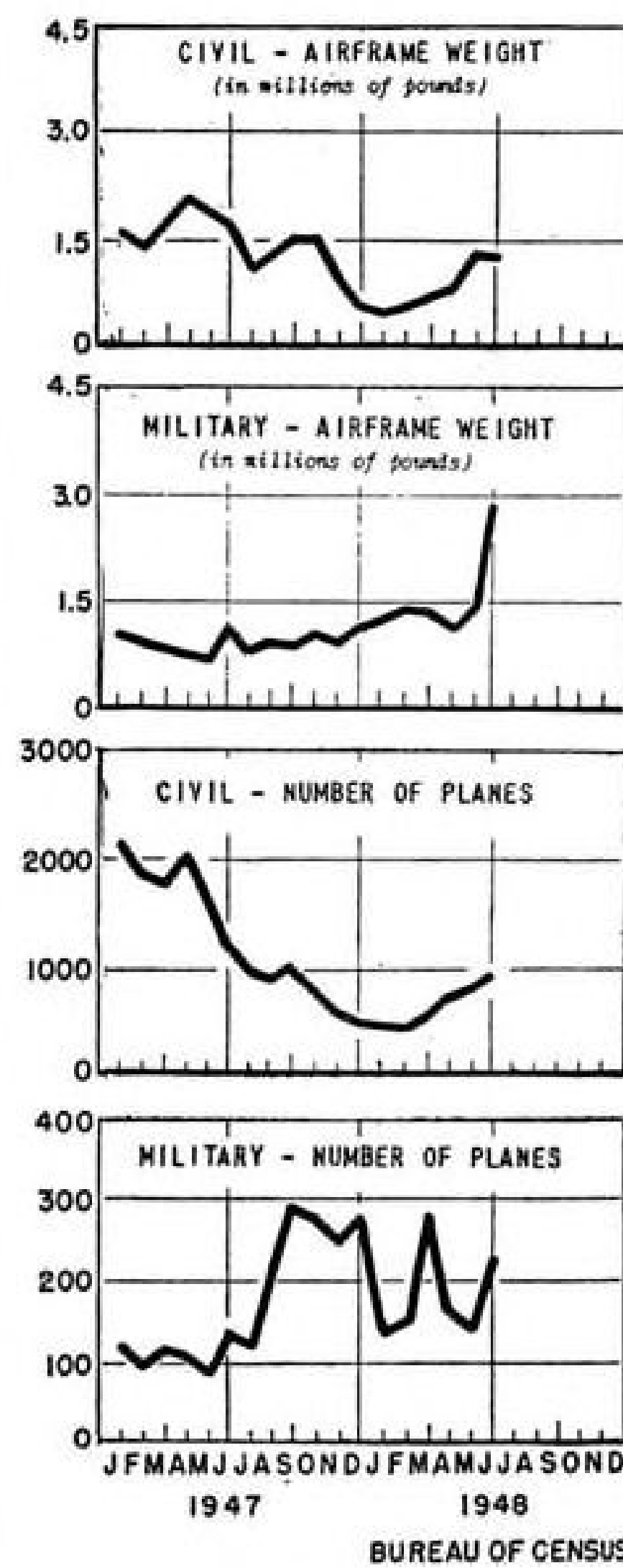
Military Business Boosting Production

Increased military procurement already had begun to produce its effect on the aviation manufacturing industry in June, according to the tables and

figures of the Census Bureau.

Most significant feature of the charts above is the sharp upturn in airframe weight of military shipments, despite

SHIPMENTS OF COMPLETE AIRCRAFT



the fact that in June orders under the enlarged military appropriations could not have influenced deliveries. One indication that might be seen in this up-curve is a rising rate of heavy bomber shipments, although the "Production Progress Report" also indicates a considerable increase in the numbers of military planes.

The charts pretty well call the turn on the type of business that will be done this year. Transport deliveries slipped in June, as indicated on the civil airframe weight chart above, although number of civil planes delivered rose. The increase was due to personal aircraft shipments.

This, however, was a temporary condition, as shown in the personal aircraft production chart at left. This chart, based on later figures (for July) of the Aircraft Industries Association, shows the curve once again starting downward, although the gap between the higher-priced four-place planes and two-place planes is narrowing.



Here, teacher demonstrates a compressor wheel at General Electric's Aircraft Gas Turbine Training school. Dubbed "Fort Knox" by visiting RAF personnel—when they saw the test pit's 14-inch concrete walls and steel doors—this school has, to date, "graduated" more than 250 CAA and Wright Field personnel. It will probably run for two more years to teach the function, operation, and servicing of jet engines to military personnel and others.

Five courses are conducted—running from three weeks to three days—on all phases of jet-engine operation. Pupils attend lectures and demonstrations, tour the factory, run engines, tear them apart, and rebuild them. As new developments come along, these are incorporated in the courses. Pupils are assured of receiving the most practical training for their phase of gas-turbine operation available anywhere in the country today.

You, too, can be assured of experienced help whenever you contact a G-E aircraft equipment specialist. We are constantly developing and manufacturing all types of electrical equipment for planes—from motors and control to instruments, lamps, and specialized lightweight systems. The nearest G-E office will gladly put you in touch with our application engineers. Aviation Divisions, Apparatus Dept., General Electric Company, Schenectady 5, N. Y.



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AND
ENGINEERED SYSTEMS
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Snow loses its menace

at airports protected by

**WALTER
SNOW FIGHTERS**



● Airports equipped with Walter Snow Fighters face the coming winter with confidence. And well they might, for they have the fastest, most powerful, versatile, equipment to handle ANY snow conditions—from a few inches to roaring blizzards.

● Two 185 hp. Walter Snow Fighters in echelon—a fast, effective team.

WALTER SNOW FIGHTERS have the tremendous power, traction and speed to keep ahead of any storm, assuring clean, usable runways while the snow is falling. The exclusive Walter 4-Point Positive Drive provides four powerful driving wheels, with positive traction in each, to furnish non-slip pushing power and speed behind specially designed plows and wing equipment.

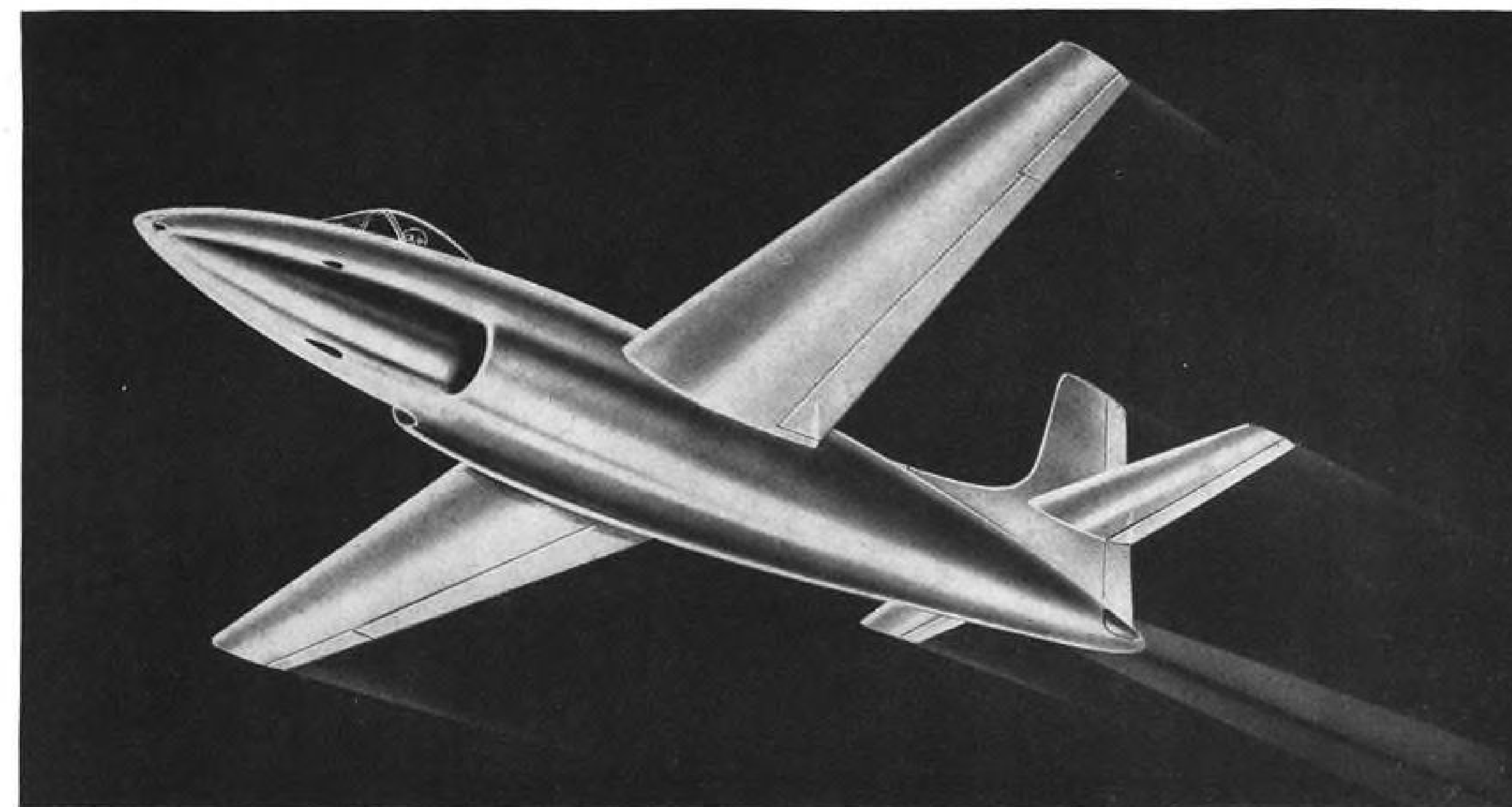
You clear more miles per hour, remove greater

volume of snow with Walter Snow Fighters. Runways are safe for landings, because the surface is clean and the snow is dispersed far to the side, avoiding high snow banks.

If you need new equipment, ACT NOW! Have our representative call for detailed discussion. Or write for literature. Time is short, don't delay.

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● 250 hp. Walter Snow Fighter with giant V-plow and right and left wings, opens 28 ft. width in one pass, at 20-30 mph. Has power to disperse deepest windrows.



USAF 'Unveils' Speed Designs

Celebrating its first anniversary, U. S. Air Force is releasing today engineering sketches which generally will be assumed to portray "planes of the future." But informed engineers regard the sketches in a different light.

They know that the designs, in the main, already have been discarded, although certain features have been adopted for existing planes or for planes that shortly will be flying.

The designs shown on this and the following two pages were conceived beginning in 1945. Advances in aeronautical research have outmoded some features. That is why the Air Force now has declassified these sketches and released them for publication.

Even though the sketches are of planes "that will never be," they show exceedingly interesting and important design features. Some of these are analyzed below by AVIATION WEEK's engineering staff.

► **Refinement For F-80**—Conception proposed for an improved Lockheed F-80 (shown at top of this page) replaces bulbous wing root air intakes with sleek, low-drag NACA-developed flush inlets. Another feature was dual tailpipe installation designed to reduce losses at tail.

Sharpened wing and tail tips plus improved fuselage lines were intended to raise maximum speed to near sonic velocity.

► **Early "Blackhawk"**—An early design of a four-jet all-weather fighter (page 26) culminated in the Curtiss XF-87

Blackhawk. The configuration featured remote-control, four-gun turret under nose, replaced by fixed cannon installation in fuselage nose. Design also reflects Air Force wartime enthusiasm for spoiler aileron control.

Lengthened root chord between nacelles and fuselage gave low aspect ratio effect with improved compressibility features. Flat sided nacelles provided important end-plate effect to inboard wing panel.

► **Ramjet Fighter**—Early promise of the subsonic ramjet engine led to a proposal for a single-seat fighter with units mounted at the extreme tips (page 27). Very low weight of the ramjet engine, which consists simply of a properly shaped duct through which air passes and into which fuel is metered, permits wing-tip installation without substantial increase in moment of inertia that accompanies wing tip fuel tanks or turbojets at the tips.

This design utilizes spoiler aileron control with full span flaps to keep landing speed within reasonable limits. Armament is carried in long-chord wing roots.

There were two difficulties with this design. One is the comparatively low thrust of ramjet at subsonic speed, in distinct contrast to its phenomenal output at supersonic speed. In addition, there is the necessity to launch the aircraft up to about 350 mph. before firing commences. Flight tests on North American P-51 Mustang and Bell fighter equipped with wing-tip ramjet proved

inefficiency of this type of design.

► **JATO Used**—Another redesign of the basic Lockheed F-80 configuration was a layout with fixed rocket JATO units mounted in wing roots (page 26). Another proposed solution to air inlet problem was this flush inlet location on either side of cockpit.

Wing planform incorporates reduced aspect ratio but is poorly drawn in this rendition. While combination rocket-jet power is feature of most new supersonic Air Force fighters, the later models utilize liquid fuel to provide greatly increased duration over the 2.8 sec. time of the powder rockets envisioned in this design.

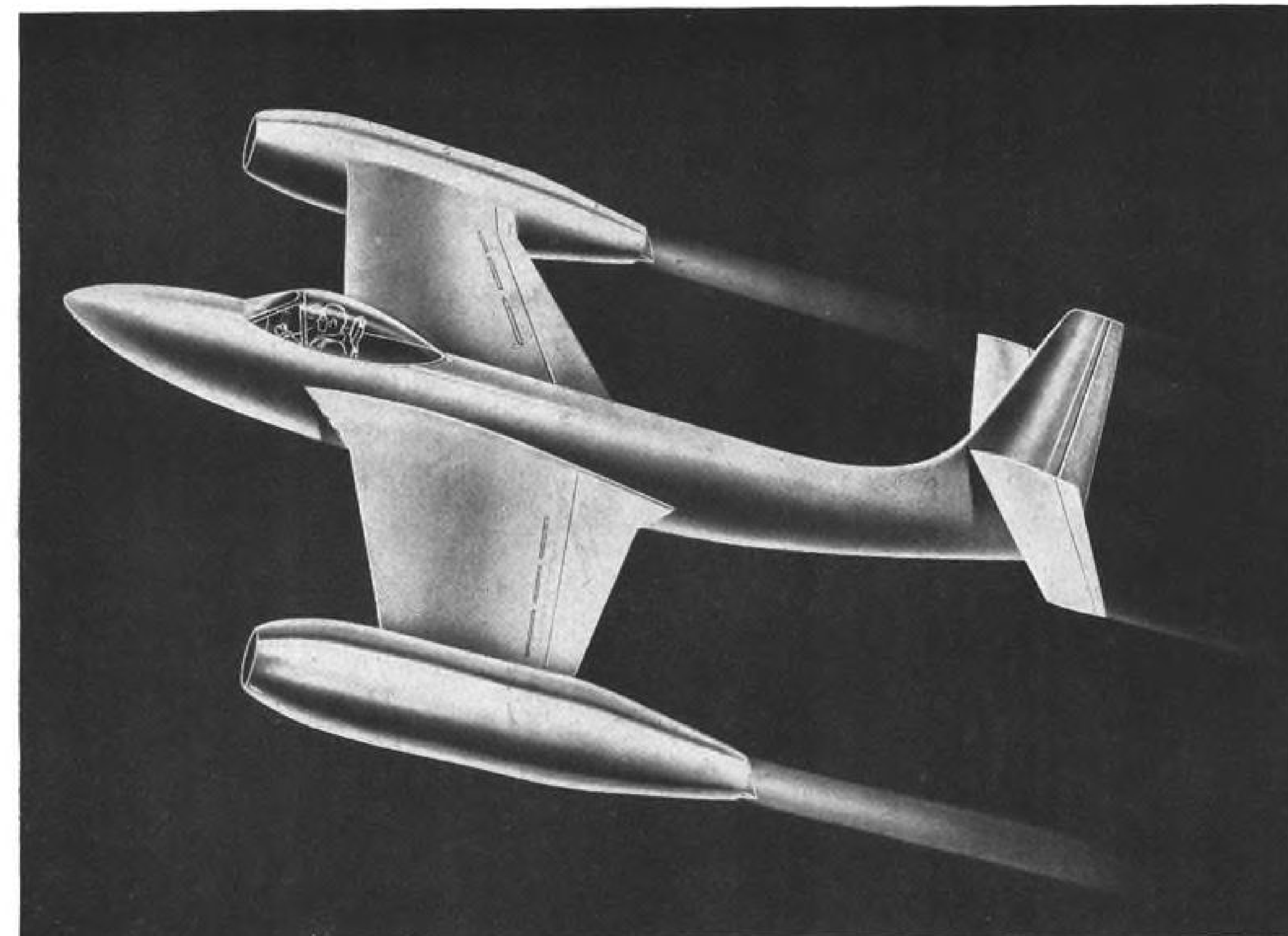
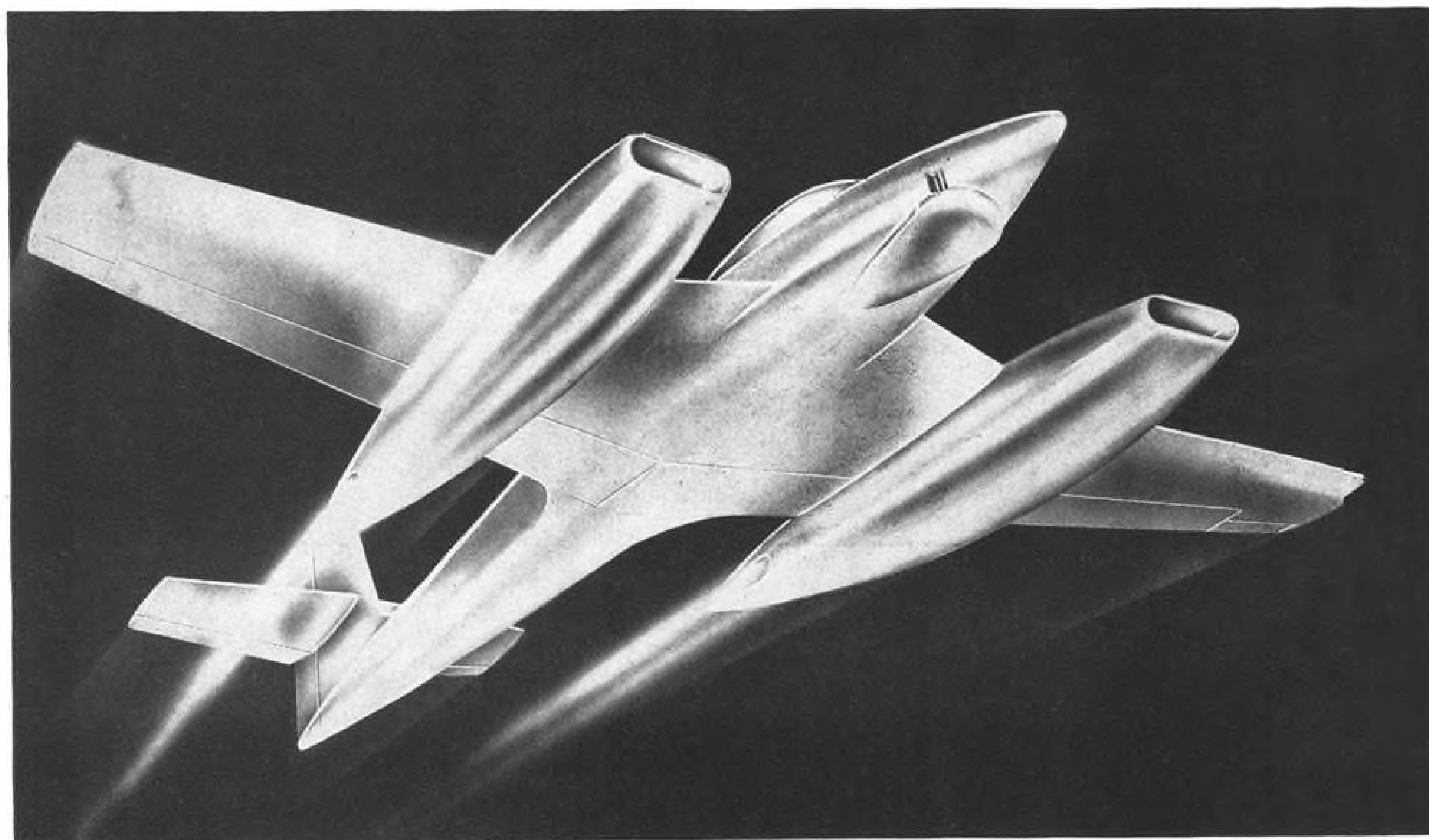
► **Jet Bomber**—An early product of joint Air Force-NACA high-speed bomber project was the complex configuration (page 27) representing 1945 aerodynamic and tactical thinking—since vastly improved. (Compare this layout with Convair XB-46, Martin XB-48.)

Dual turbojet engine nacelle installation has been preserved closely in later designs but awkward fuselage nose and tail configuration has been outmoded.

Tremendously thick wing, popular during war, provided great lifting power but would have hindered speed of the craft.

"V"-tail vogue was increasing at this time but its advantages were largely lost in inclusion of ventral fin below fuselage. Armament location in nose would have prevented radar installation and necessitated drag-producing dome elsewhere on body.

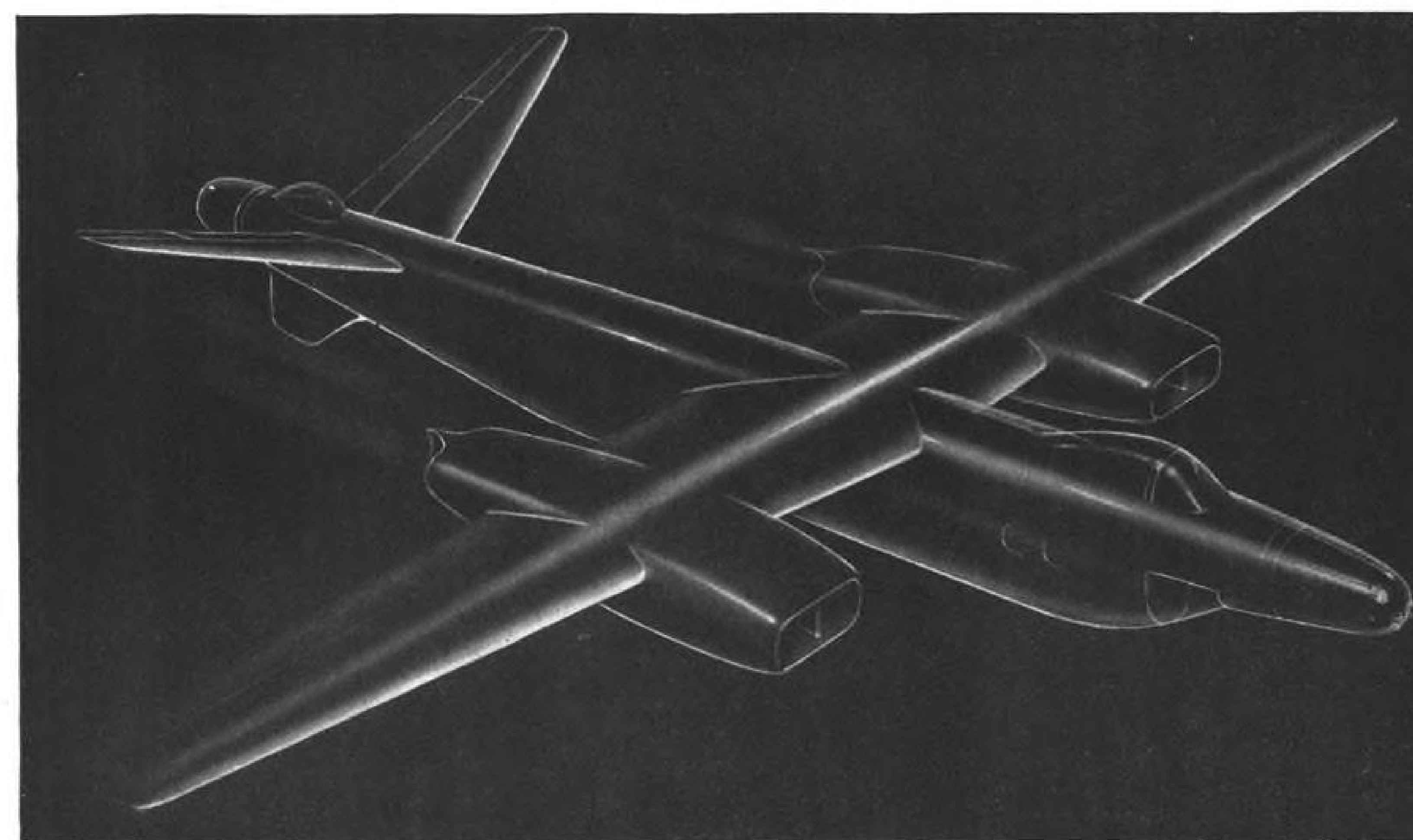
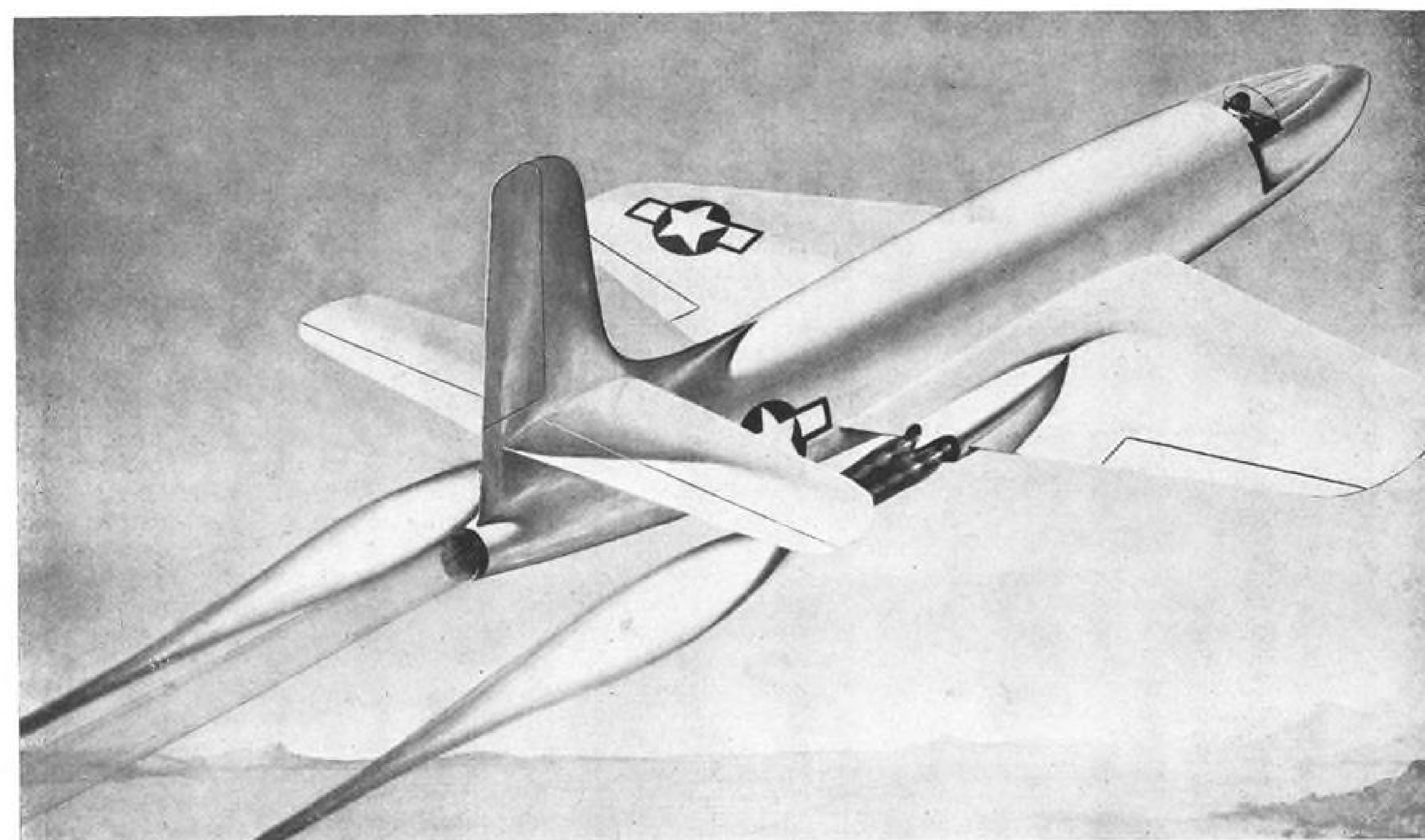
From These Designs Came Today's Planes

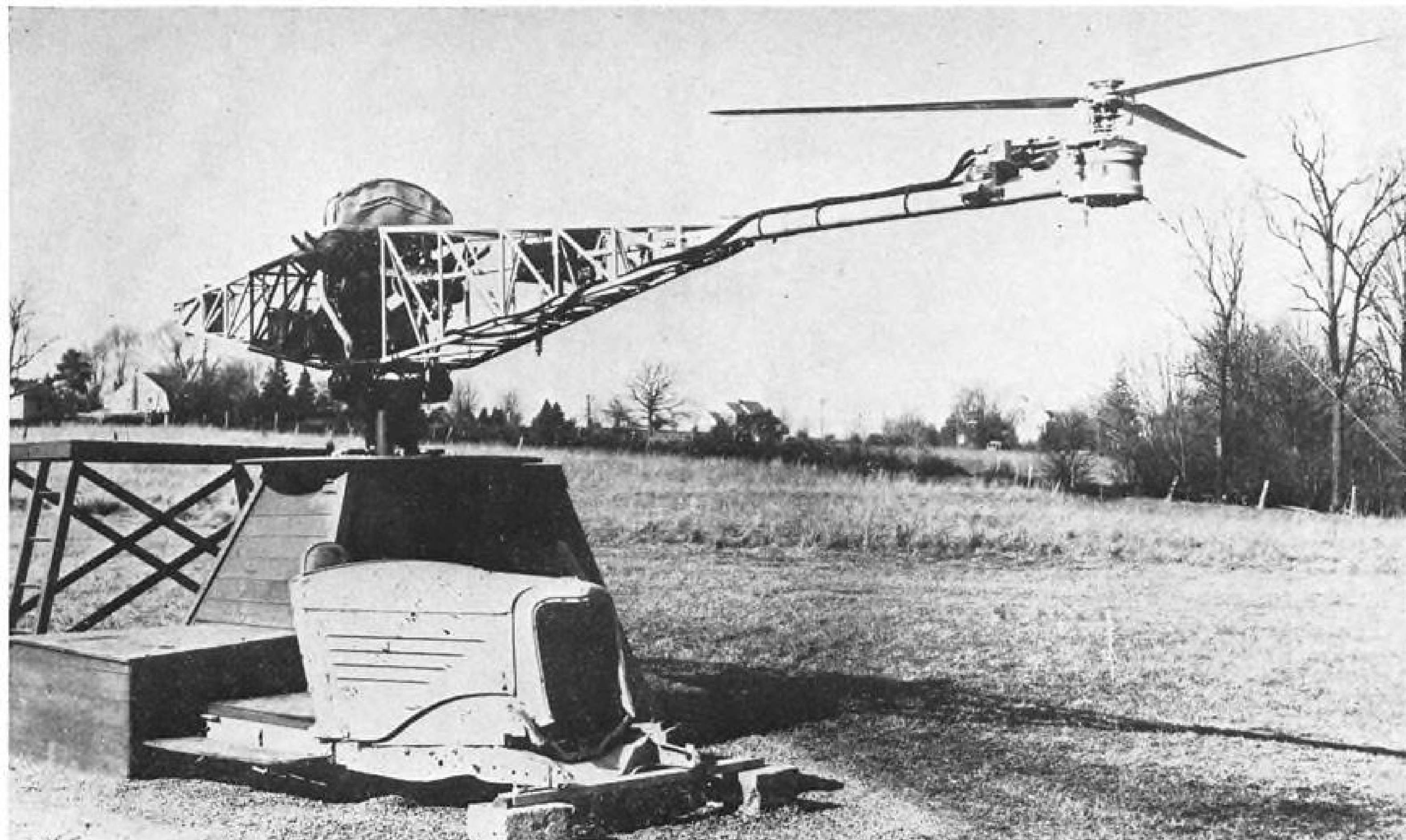


What Air Force Once Proposed:

Early "Blackhawk," upper left; ramjet fighter, above; use of JATO, lower left; and jet bomber, below, are four of the distinctive

designs that figured in USAF planning when these sketches were first conceived at the conclusion of the war.





Test rig at Glenn L. Martin's Rotawings Division utilizes old Dodge engine (foreground) to drive whirling arm, outboard end of which can attain speeds of over 100 mph., for rotor studies. Tip-mounted model rotor is powered by Continental engine.

Whirling Test Stand Aids Rotor Studies

Powered arm, capable of speeds exceeding 100 mph., carries model blade system to simulate actual flight.

A novel whirling arm test rig for rotary wing investigation is being developed by Glenn L. Martin Co.'s Rotawings Division at North Wales, Pa.

In addition to equipment of original design, salvaged material utilized in construction of the rig and control house included a discarded 1934 Dodge automobile engine and chassis, dive-bomber window glass, and some old 8 x 8 timbers.

Though budget requirements have been a primary consideration, these secondhand materials were chosen because they facilitated the design plans of Division Manager Agnew E. Larsen, a pioneer of rotary wing development and well-known authority in the helicopter field.

► **Facility's Potential**—The new test rig promises to do for the copter manufacturer what the wind tunnel does for makers of conventional craft. It permits testing of scale model rotor apparatus under very nearly actual flight conditions.

It should be a big step in speeding up vital research on helicopter development whose current emphasis aims at

improvement in design and construction of hub and blade.

Heretofore, copter testing has been done with full-sized craft or from stationary bases, both of which methods have many disadvantages.

► **General Layout**—The test stand has a stationary base on which is mounted a carriage supporting an arm free to rock in a see-saw fashion as it whirls. The arm is capable of 80 or more rpm., and at only 78 rpm. the outboard end of the arm has a speed of 100 mph. On this outer end is a mounting plate for attaching any of several rotor systems for testing.

Fifty feet from the test stand is the control house, a 20 x 20-ft. frame building. The front wall embodies the 8 x 8-in. oak timbers, reinforced with steel lath. Four 8 x 14-in. windows with 1-in.-thick bulletproof glass are located for observation at three levels, one of which is in the tip path plane of the model rotor on the rig.

Within the house is a board with controls for cyclic and collective pitch, ignition and throttling for the test rig engines, and clutch and brake on the whirling arm. On the instrument panel

are tachometer indicators for the rotor power source, the rotor, and the whirling arm.

There is a position indicator for each of the cyclic and collective pitch control actuators. Calibration is in degrees of range of incidence from the static position. A voltmeter, now included for strain gage indication for measuring thrust of the rotor, will be calibrated for direct thrust reading.

The control house is also used as a shop, and has several small machines for general maintenance and light work such as fabrication of fittings and fixtures needed in setting up tests.

All instrumentation and remote controls are electrically operated, except for the Dodge arm-driving engine, clutch, throttle, and arm brake, which are remotely controlled hydraulically.

Wires and hydraulic lines are carried underground in terra cotta pipe to the base of the test rig.

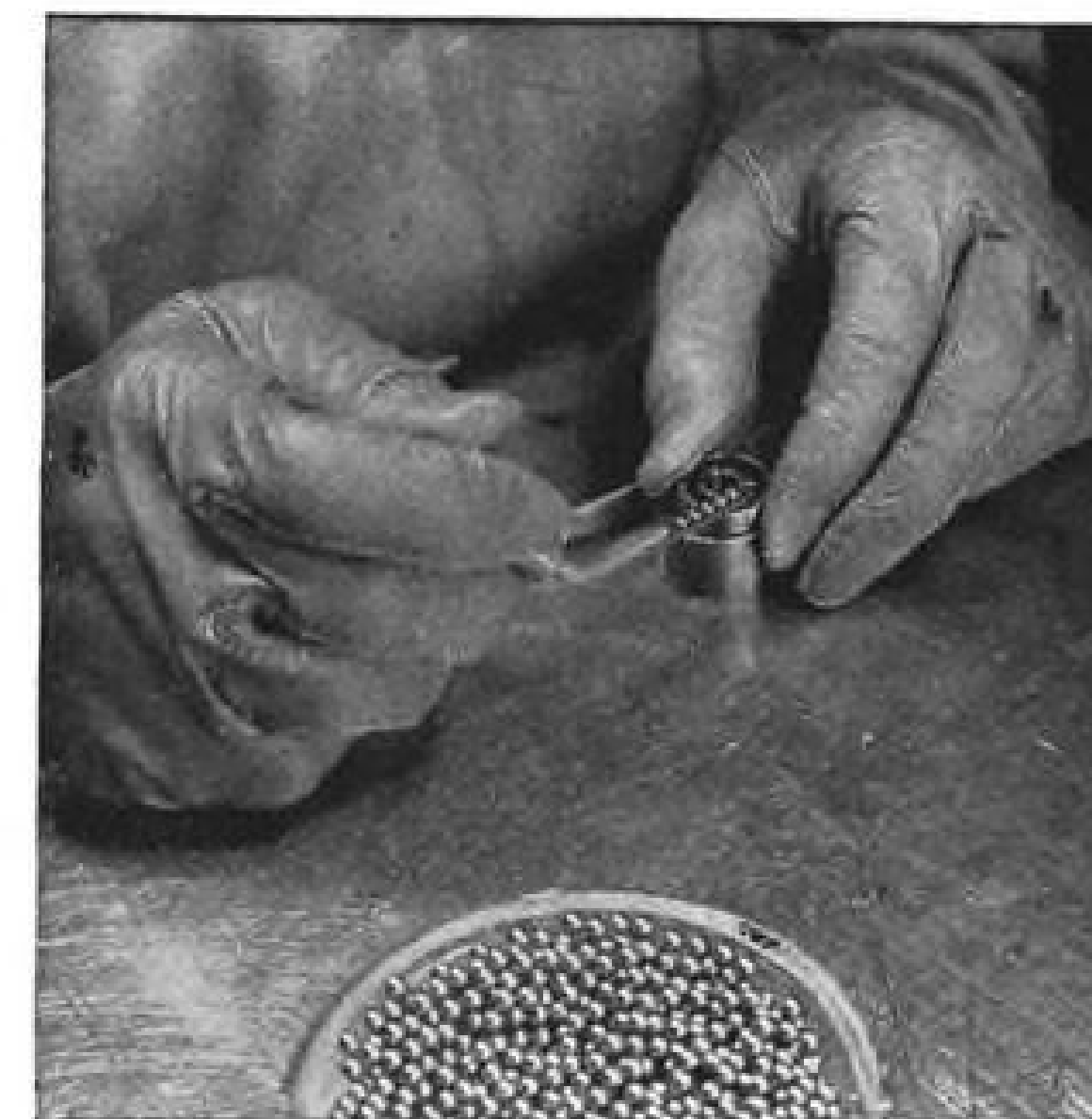
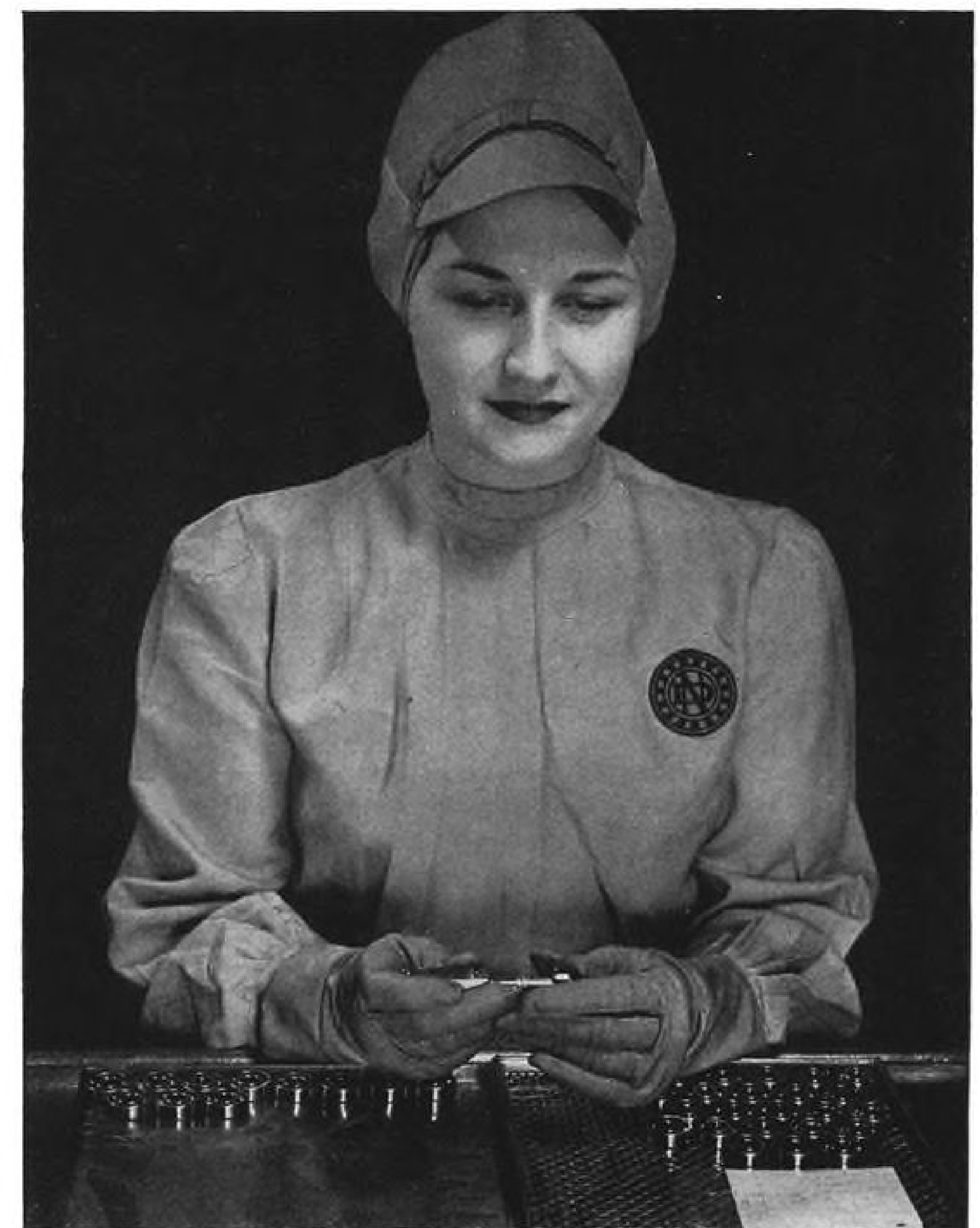
Electric power for the entire unit comes from a war surplus gas and electric generating plant, which Larsen bought when he found it would cost between \$600 and \$700 to bring in a regular power line.

► **Rig Details**—The test rig proper consists of four 6-in. I-beam legs with a 6-ft.-dia., ¾-in. steel plate bolted on top. The legs are fastened in concrete piles

Handled with Kid Gloves

Because correct instrument readings depend upon sensitive New Departure micro-instrument ball bearings, free from rust, lint, and surgically clean, bare hands are never permitted to touch them.

From the time a bearing is assembled until final packaging, it is handled only by kid-gloved hands. This precaution, plus filtered air, constant temperature, operators clothed in rayon caps and smocks, protects the quality of New Departure instrument bearings—your assurance of the ultimate in friction-free movement.



To insure that each New Departure bearing assembly has exactly the specified radial play, a trial assembly is made with a dummy brass separator known to be correct in form and size. Note gloved hands.



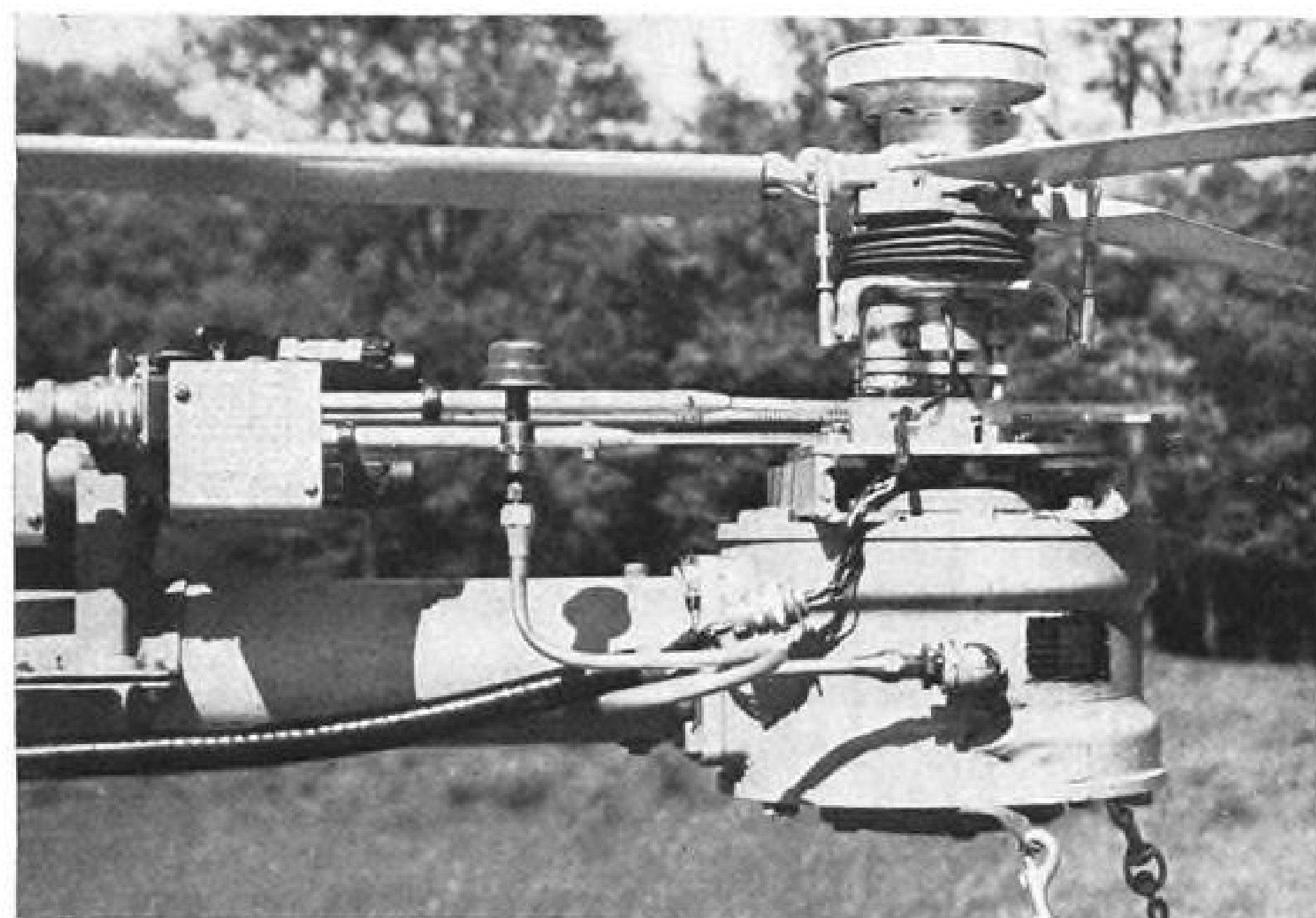
Torque Test to make sure that New Departure ball bearings revolve freely. The slightest frictional drag causes the pointer to move. If it moves beyond the precise low limit allowed, the bearing is discarded. Note no hand touches bearings.

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NEW DEPARTURE
MICRO-INSTRUMENT BALL BEARINGS

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT

AVIATION WEEK, September 13, 1948

29



Closeup of arm end, showing model rotor, hub and controls. From bracket-mounted Lear actuators (left) extend three linear traveling racks (for one collective and two cyclic

pitch controls). Right-angle gear drive housing at tip carries model adapter plate. Coiled tube with elevated breather cap is for venting without loss of oil from centrifugal force.

which are sunk 3 ft. into the ground.

A bearing housing, which supports the main vertical shaft of the whirling arm, is bolted to the $\frac{3}{4}$ -in. steel base-plate. A stack of 30 sliprings is assembled around the bearing housing between arm carriage and base plate.

As a means of stabilizing the whirling arm against free, unrestrained motion on the see-saw rocker shaft, a heavy cantilever steel spring is clamped rigidly in the carriage. Thus, its only motions are rotation with this carriage and deflection which is affected by connection to the whirling arm itself through the medium of a link.

This connecting link is attached to the outer end of the cantilever leaf spring. The other end of the connecting link is attached to the whirling arm structure.

The thrust of the miniature rotor causes the arm to rock up, which deflects the leaf spring by virtue of the connecting link, and the deflection is read as thrust in the control house.

The Dodge rear end and axle assembly is connected by a More-Flex (rubber) flexible connection to a 1935 Plymouth rear axle assembly, which is mounted vertically and connected to the main vertical drive shaft of the whirling arm by a Morse flexible chain link coupling.

► **Rotor Installation**—Power source for the model rotor is a Continental A-50 (50 hp.) engine located on the whirling arm near its axis of rotation.

The model rotor drive transmits power from the Continental engine through drive shafts in three sections.

One shaft section runs to a combination clutch and free wheeling unit, an-

other from this mechanism to the third section which is, in turn, buried within a large outer tube portion of the arm.

This latter section connects directly with right-angle gears in a box at the outer end of the arm.

Provisions have been made to reverse the direction of rotation of the powered arm, as well as the model, which will enable testing over a very wide range of tip speed ratios. This should simulate a considerable speed range of helicopter flight conditions.

► **Stand's Versatility**—The test stand is designed to accommodate any standard proportional rotor hub with 10-ft.-dia. blades.

It is intended that any type of rotor, hinged, see-saw or rigid and with two, three or four blades, including contra-rotating arrangements, can be tested for comparative results.

Primary interest is in the mechanical stability or vibration characteristics of the rotor, its hub, blades or controls.

Manager Larsen says: "This type of test stand simulates all flight conditions, even to the extent of gusts. The only discrepancy is the differential between the blades caused by the circular motion. It is expected to demonstrate the practicability of testing full-size rotors by this means.

"To obtain test results concerning durability and vibration characteristics, this method of testing is very satisfactory because conditions are so similar to those in actual flight.

"Because of the flexibility of this type of test stand, stability and performance data can be recorded easily and safely, with correction factors for the smaller models."

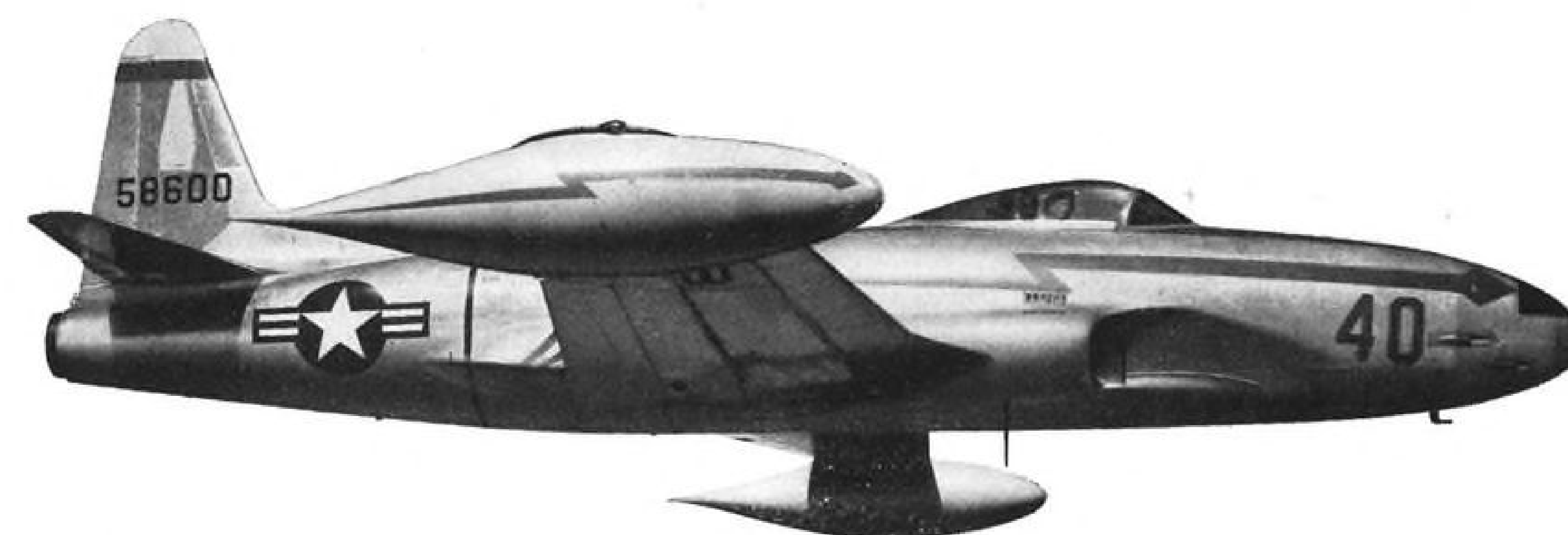
Air power is peace power

On Air Force Day, Sept. 18, Lockheed Aircraft Corporation salutes the men who fly to keep America strong.

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The Air Force F-80 Lockheed Shooting Star.

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AUTOMATIC PRESSURE, TEMPERATURE AND FLOW CONTROLS

 <p>AV-16</p> <p>Electric motor valve, suitable for fuel, hydraulic fluid and lubricating oil shut-off. High flows at low pressure drop, explosion-proof motor and switch cover.</p>	 <p>AV-11</p> <p>3-way Electro-Magnetic valve used for distribution of fluid flow or for "feed in" and "exhausting" fluid from a cylinder, piston or vessel.</p>	 <p>AV-2</p> <p>Same as AV-1 except is normally open type. For control of various fluids, oil, water, gasoline, air, etc.</p>
 <p>AV-7</p> <p>Four-way selector type control—operating pressure up to 3000 P.S.I. for control of fluid pressure operated cylinders.</p>	 <p>AV-9</p> <p>Electro-Magnetic valve for medium and high pressure applications. Controls hydraulic oils, fuels, lubricating oils, water, etc. 50 P.S.I. to 3000 P.S.I. operating pressure.</p>	 <p>TM-11</p> <p>Temperature modulating control—providing fully automatic electro-hydraulic operation for control of engine coolant and lubricating oil.</p>
 <p>AV-1</p> <p>Normally closed type Electro-Magnetic valve—for control of all types of fluid, gasoline, air, water, hydraulic fluids or oils, anti-icing fluids, etc.</p>	 <p>AV-7</p> <p>Electro-Magnetic Double-Four Way selector type valve for control of fluid pressure operated cylinders.</p>	 <p>AV-1</p> <p>Electro-Magnetic type valves with various magnet sizes, full ported or restricted ports, for all types of fluid, gasoline, air, water, oils, etc.</p>

For complete specifications and engineering data, request new Catalog.

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Fiberglas Plus Resin Lightens Chute Pack

A high-strength, lightweight parachute pack constructed of glass fibers and plastic resin is being fabricated for the Navy's Bureau of Ordnance by General Textile Mills, Inc.

This development, represented as embodying the latest techniques in molding reinforced, laminated plastic material, is based on extensive research by the Naval Ordnance Laboratory at Silver Springs, Md.; Owens-Corning Fiberglas Corp.; and the manufacturer.

Made in two pieces—20-in.-dia., 8-in.-deep dish-like section and cover—the pack serves as container for the "base-ball-type" chute used in dropping ordnance materials.

The combination of Fiberglas mat and resin is designed to provide a molded material not affected by moisture or distorted by extreme heat or cold, and possessing impact strength greater than that of metals or phenol-formaldehyde-resin-impregnated materials used previously. Weight of the pack is approximately 7 lb. without chute and mechanical devices.

Two-piece, matched aluminum molds are used with low-pressure molding techniques.

Fiberglas mats—of either 6 to 7 plies of 1-oz. per sq. ft. material or 3 plies of 2-oz. material—are placed in the mold and impregnated with polyester-type resin, and sections are cured under 50 to 60 psi. pressure at 265 F. for 5 to 6 minutes.

Titanium's Potential Reported Encouraging

Researchers at Remington Arms Co., Inc.—an affiliate of E. I. du Pont de Nemours & Co., Inc.—report promising possibilities for titanium in aircraft structures and engines.

The metal is claimed to possess a unique combination of strength and light weight and to offer superior resistance to sea water corrosion.

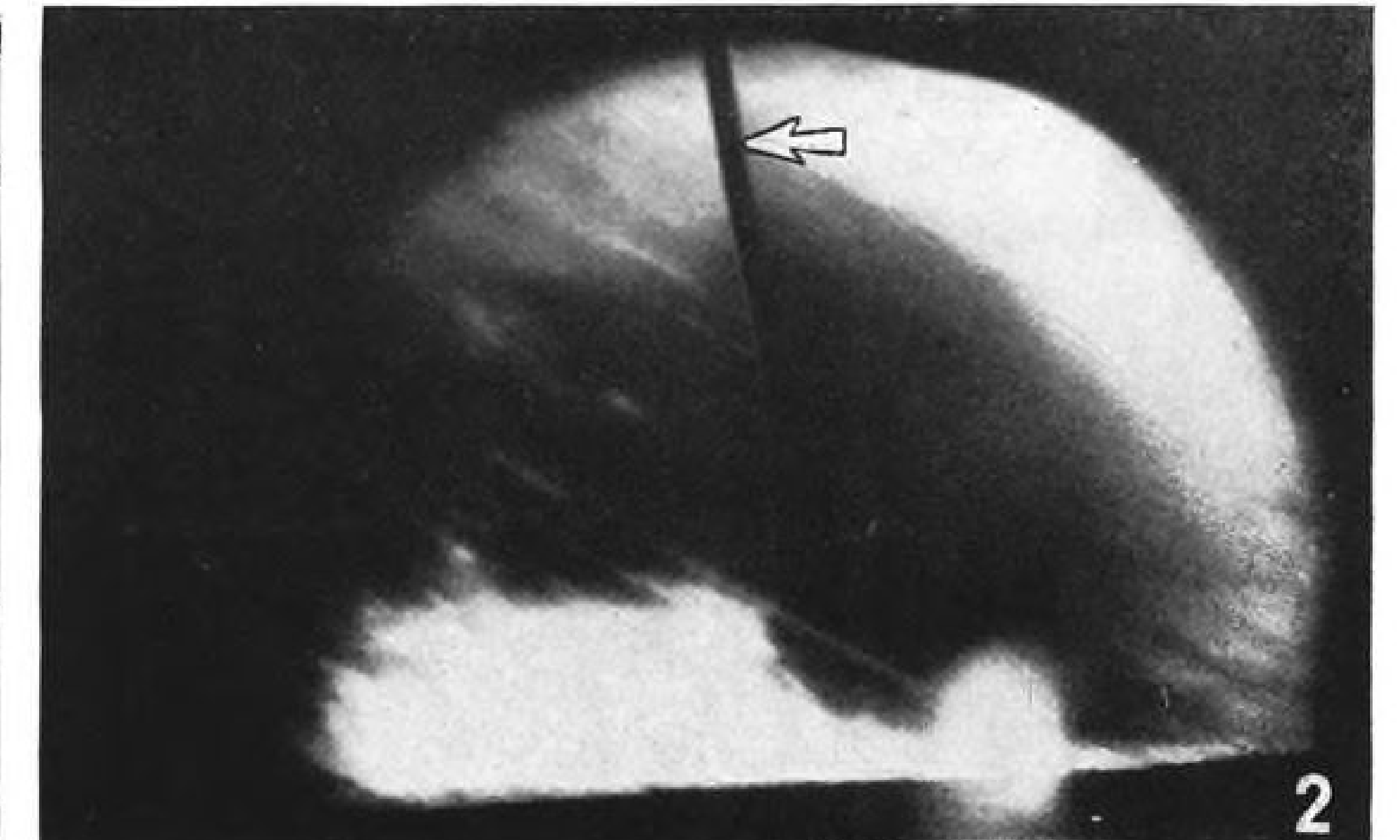
Considered equivalent to stainless steel in many respects, weight is reported to be 40 percent less.

Melting at a temperature substantially above that for steel, and 1900 F. above aluminum, titanium's strength in the range from 400 to 1000 F. is stated to be higher than aluminum or magnesium alloys.

Remington's research is directed towards methods of fabricating the metal and development of its alloying potentialities with other elements.

Samples of unalloyed metal in narrow sheets and small rods are being produced and distributed for field evaluation as an engineering material.

Camera Catches Shock Waves In Flight



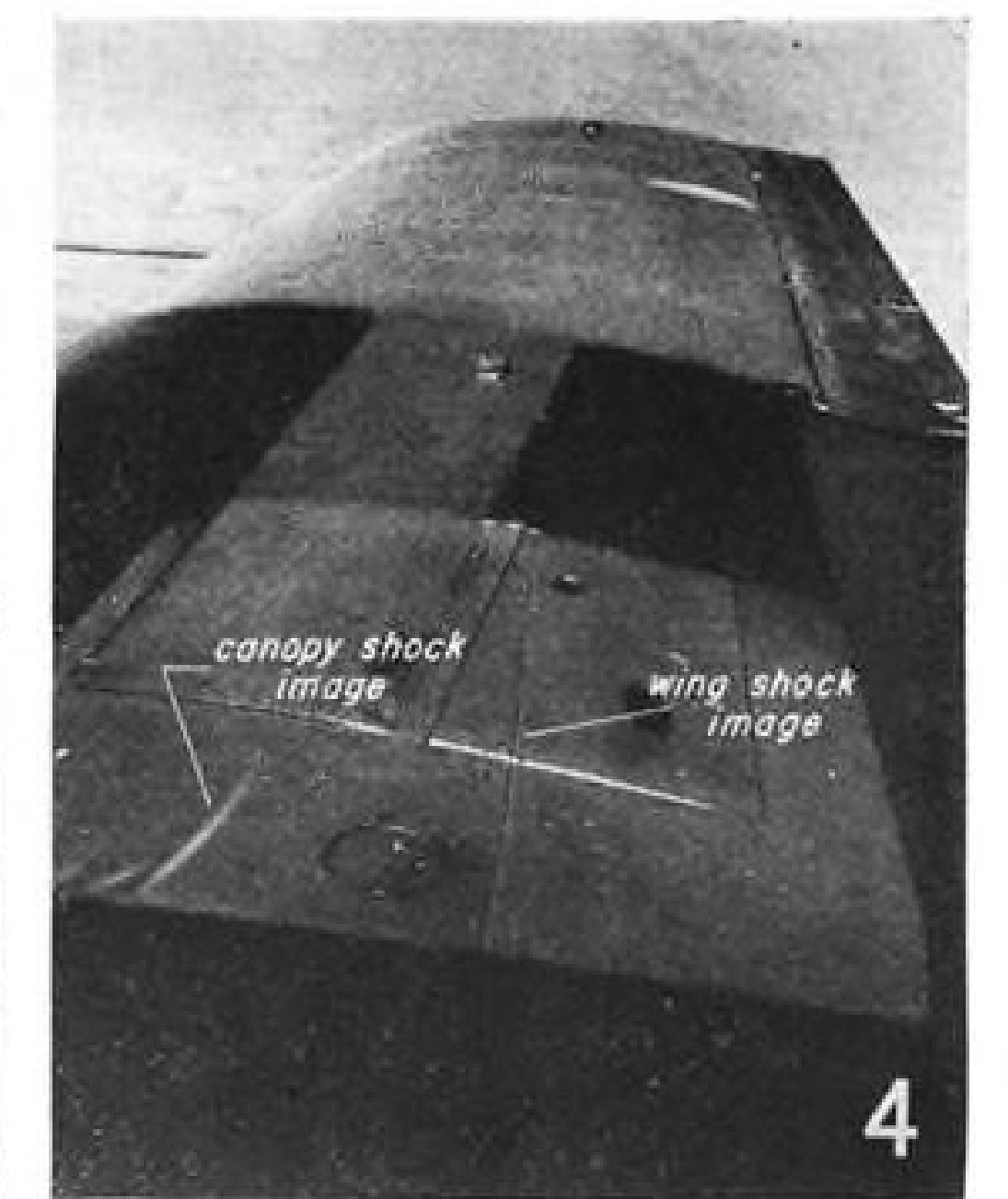
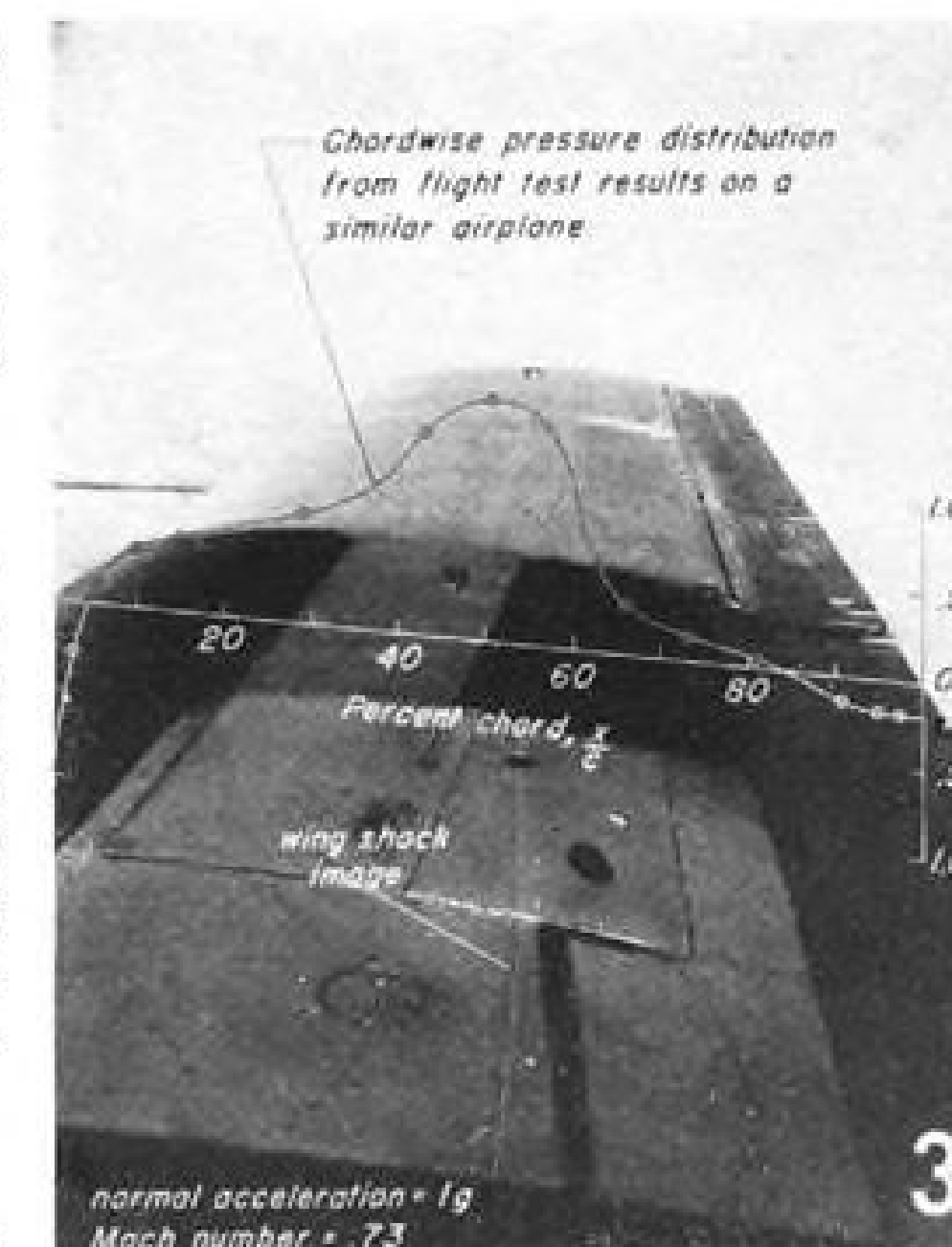
1 In its high-speed flight studies, NACA uses this wing-schlieren apparatus on P-51 for photographing shock waves. Camera is mounted in side of trough, which channels airflow. Difficult flight job for Ames Lab test pilot G. E. Cooper is to keep wave centered in the trough.

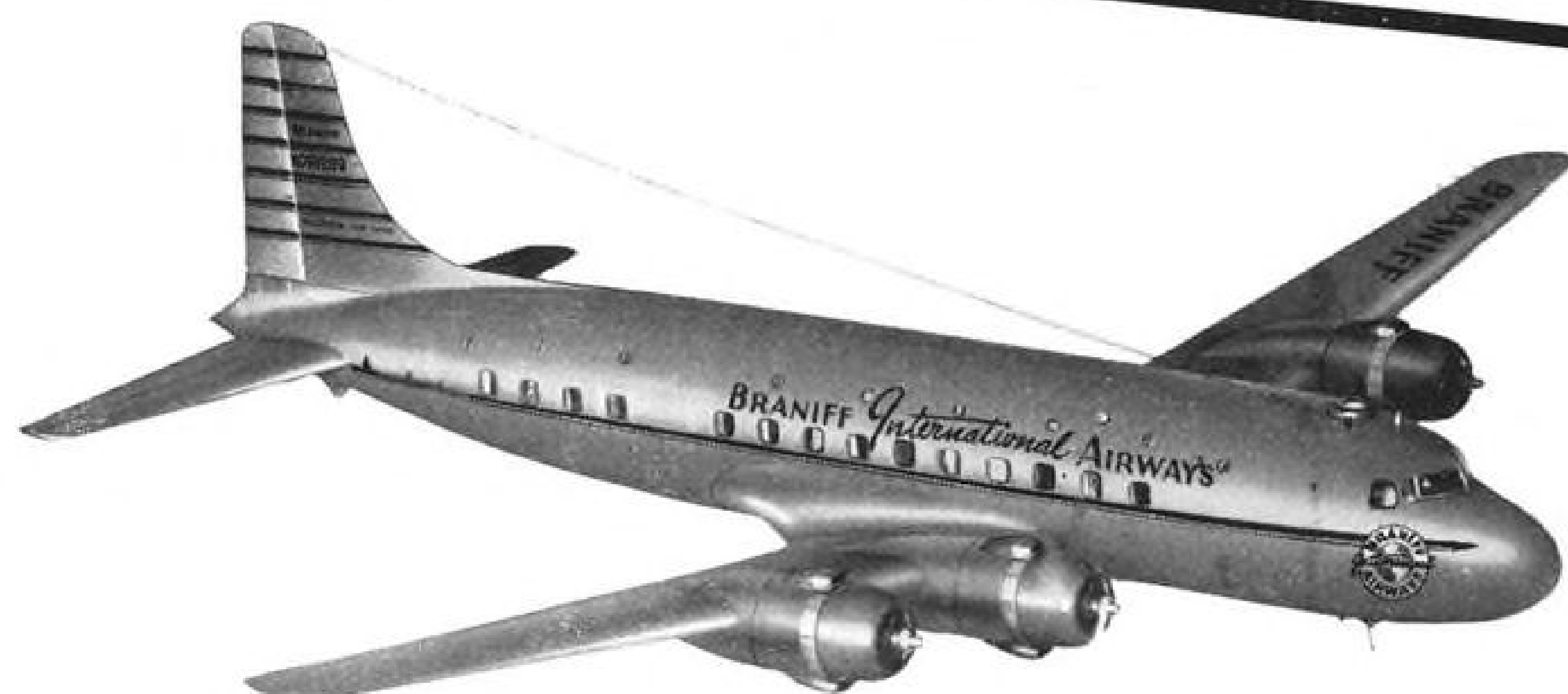
2 Photo of shock wave (arrow) made by wing-schlieren installation on P-51 in free flight at Mach 0.8. Light at bottom resulted from leakage and apparatus will be improved to remedy this. Big advantage of free-flight schlieren photos over wind tunnel work is that they permit study of shock wave fluctuations and correlation with pressure distribution and control behavior encountered above Mach 0.8.

3 This is shadowgraph photo of shock wave, made with cockpit camera in P-51 flight. Change of air density in wave is caught in sunlight and shows up darker than surrounding air. Wave is actually perpendicular to wing and picture reveals shadow it casts. Superimposed graph shows loss of pressure (lift) resulting from the shock wave. Normal pressure curve would go as high as 2, have even rise and fall.

4 This shadowgraph shows image of both canopy and wing shock wave formations.

5 In another test phase, solid model of P-80 is mounted on bump on P-51 wing to attain supersonic speed there while craft is flown at subsonic speed. Model is on movable panel connected to recorders for lift, drag, pitch, and yaw measurements which are automatically photographed in flight to provide permanent data.





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FIRST CHOICE OF BRANIFF *International* AIRWAYS

BRANIFF EQUIPS GROUND STATIONS WITH WILCOX TYPE 364A TRANSMITTER

DESIGN SIMPLIFIES SERVICE

Conventional circuit design, fewer numbers and types of tubes, plus open mechanical construction simplify tube stocking problems and speed maintenance. The entire transmitter portion of the Type 364A is built on a drawer-type chassis, instantly withdrawable from the front of the panel.

RELAY RACK MOUNTING SAVES SPACE

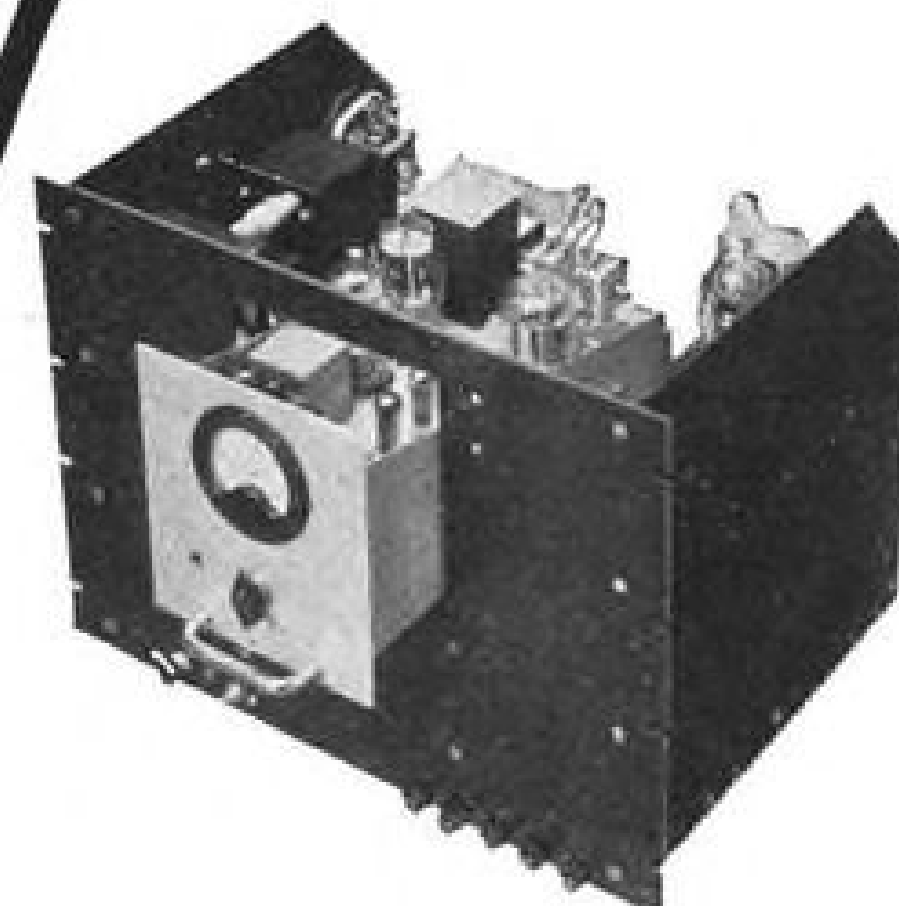
Compact design requires only 15 inches of rack space for installation, frequently utilizing space already available.

.005% FREQUENCY STABILITY WITHOUT TEMPERATURE CONTROL

Through the use of a newly developed crystal, troublesome thermostatic temperature controls and crystal ovens are no longer necessary to provide adequate frequency stability.

SIMPLIFIED CONTROL FOR REMOTE LOCATION

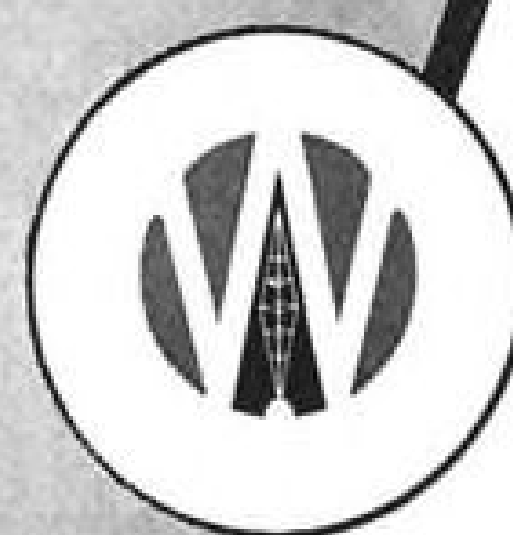
Modulation over a single telephone pair and carrier control by means of a simplex circuit allow the transmitter to be readily located at a remote point.



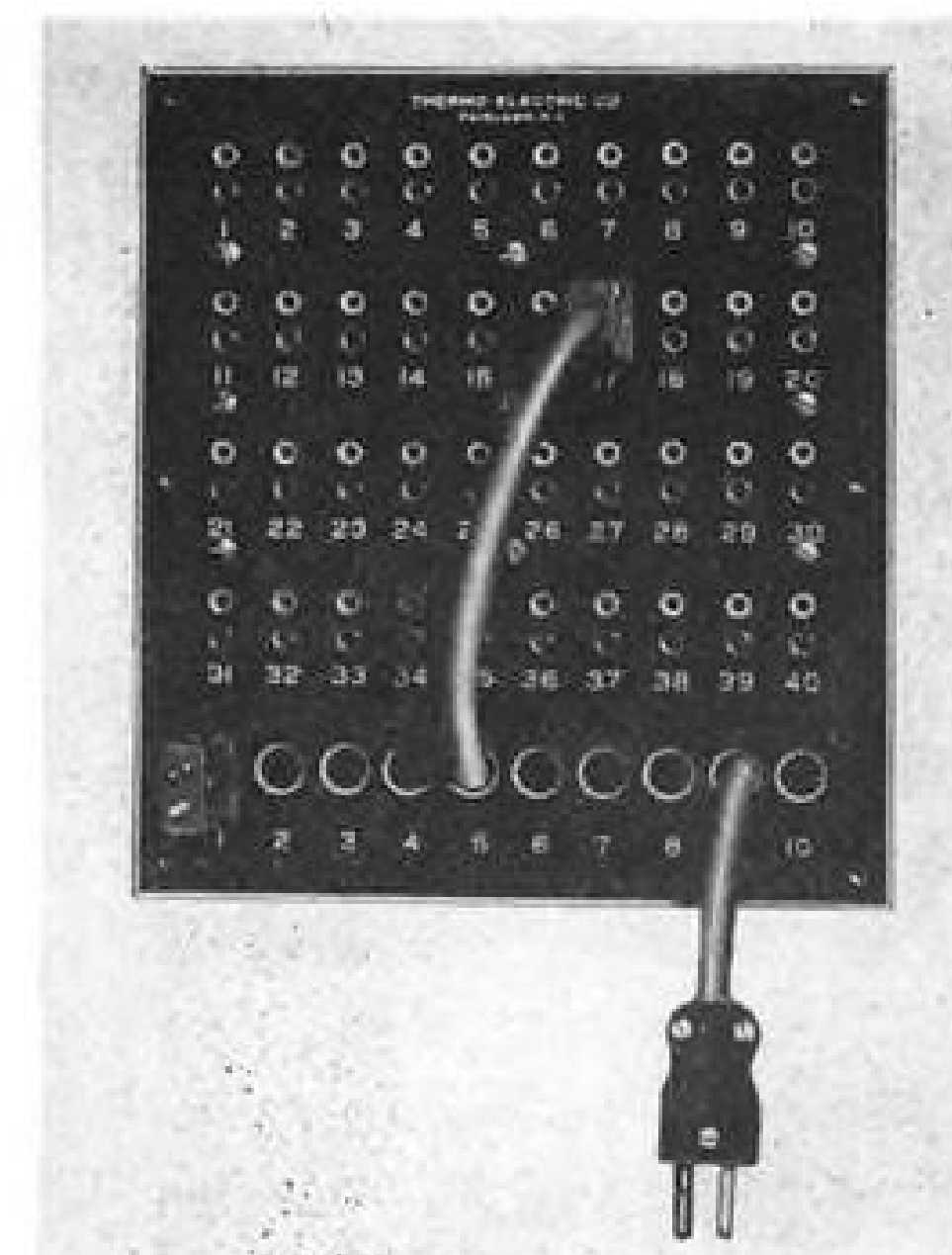
WILCOX
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118-136 MC. Band

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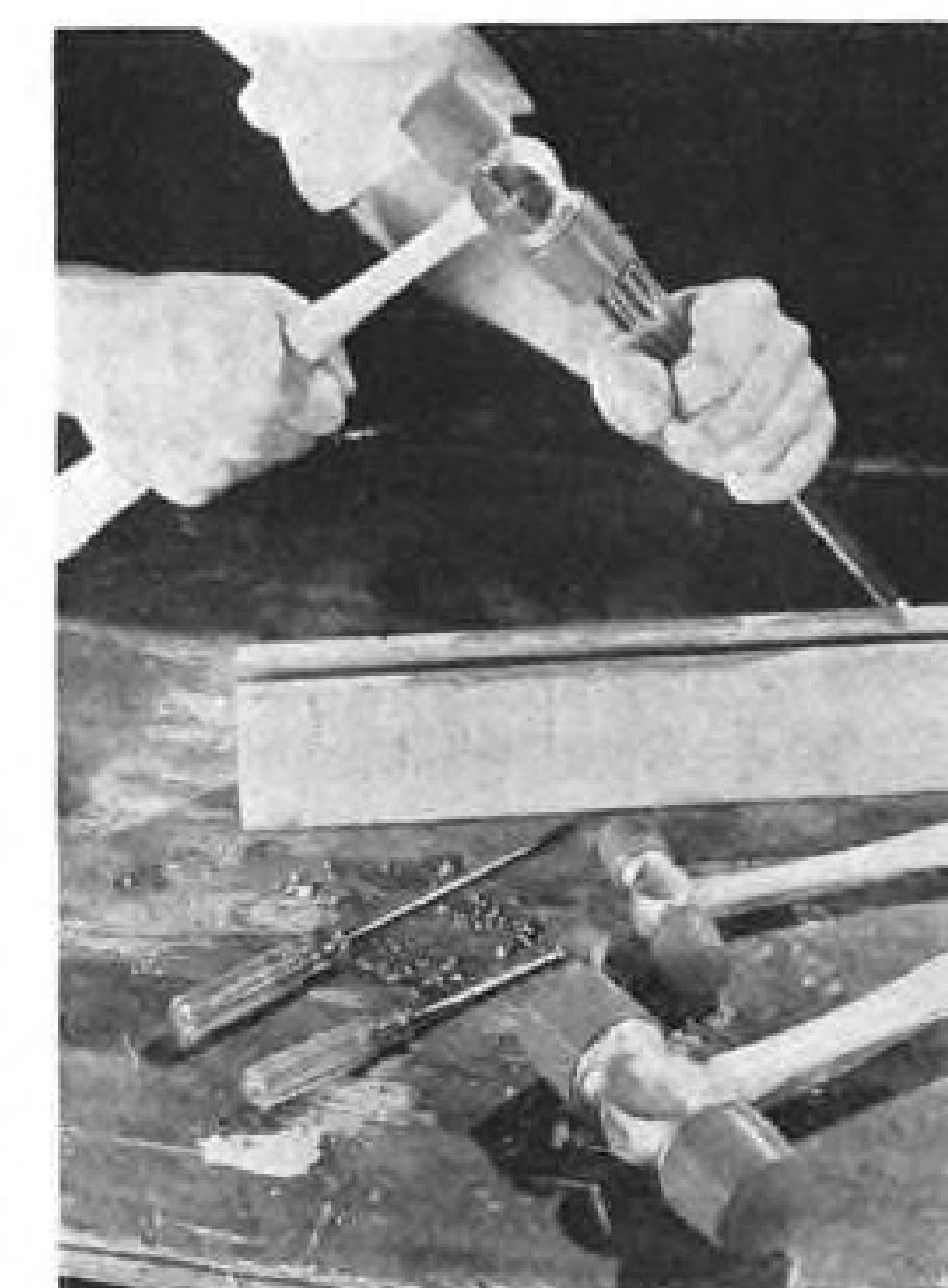
NEW AVIATION PRODUCTS



For Heat Hook-ups

Thermocouple connector panel seen as suitable for aircraft test stands has been developed by Thermo Electric Co., Fair Lawn, N. J. Designed for flush mounting, panel is stated to provide quick and flexible method for connecting thermocouples of group to any position on multiple recorders or indicating and controlling pyrometers. Polarized plugs and jacks are made of thermocouple materials for standard calibrations. Jacks, flush with panel, are held in place by sub-panel and spacer bolts. Screw-fastened-type connections facilitate wiring. Positions are numbered on both front and back panels; polarity is indicated on back.

acceleration on scheduled flights with loads exceeding 10,000 lb. Claimed is that Teledeltos type chart paper used requires no after-processing, is unaffected by light or time, will withstand 36-hr. submersion in sea water, and under temperature and humidity extremes will change 0.3% or less in linear dimension. Present pilot model is geared for speeds of 0.2, 1, and 5 in./sec., giving recording time of 3½ hr., ¾ hr., and 8 min. respectively, with 200-ft. roll. Single drive of about 8 in./hr. can be provided, allowing for 300 hr. continuous recording. Weight of unit is 15 lb.



Bench Welder

For joining small metal parts, new fully automatic 7½-kva. bench-type spotwelder is offered by Weldex, Inc., Dept. K, 7352 McDonald Ave., Detroit 10, Mich. Unit, Model 752-PB, handles light non-ferrous metals of same or dissimilar alloy and thickness, as well as ferrous metals up to two thicknesses of 14-gage CRS or equivalent. In addition to air strainer, regulator, gage and lubricator, standard equipment includes built-in, four-step transformer tap changing switch, single-acting air cylinder, magnetic contactor, and electronic timer. Regularly furnished for 220v., 60c., single-phase a.c. operation, model is also available in 380 or 440v. Standard throat depth is 4½ in. Unit occupies less than 2 sq. ft.

For No-Mar Hammering

Featuring specially compounded Vinylite elastomeric plastic striking faces on polished and plated drop-forged heads, hammer made by Vlehek Tool Co., 3001 E. 87th St., Cleveland 4, Ohio, has driving power of standard machinist hammer of equal weight. Unit is recommended for wide variety of work on aluminum and other soft metals.



Records Flight Data

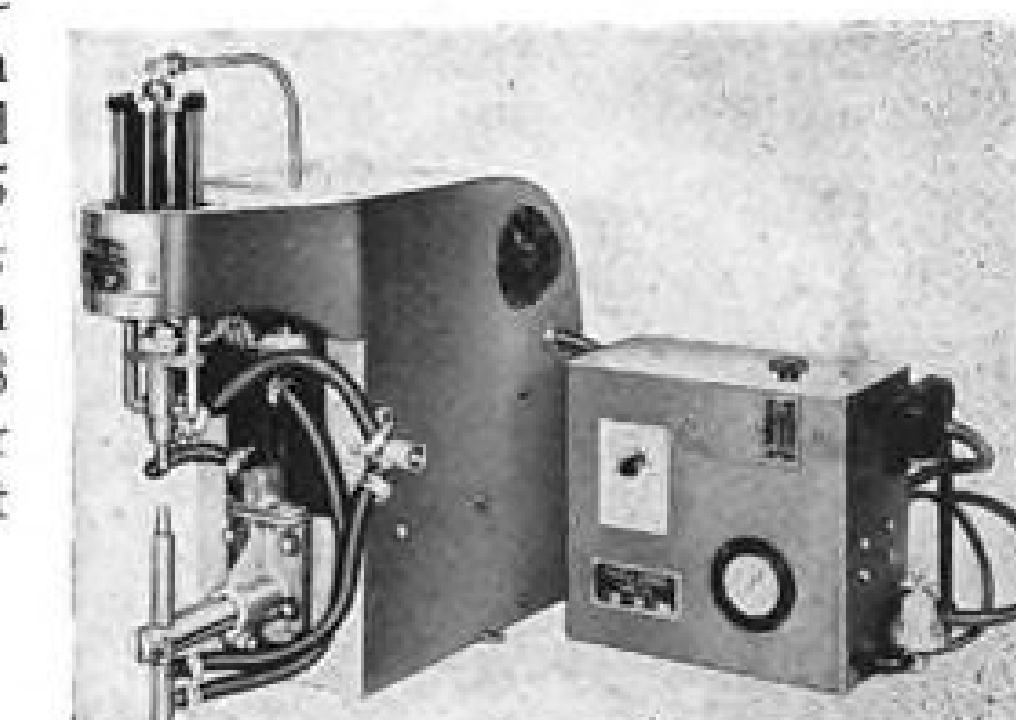
Continuous-strip flight recorder, incorporating one to four moving-coil galvanometer writing elements, is offered by G. M. Giannini & Co., Pasadena, Calif. to meet CAA requirements for reading pressure altitude and velocity

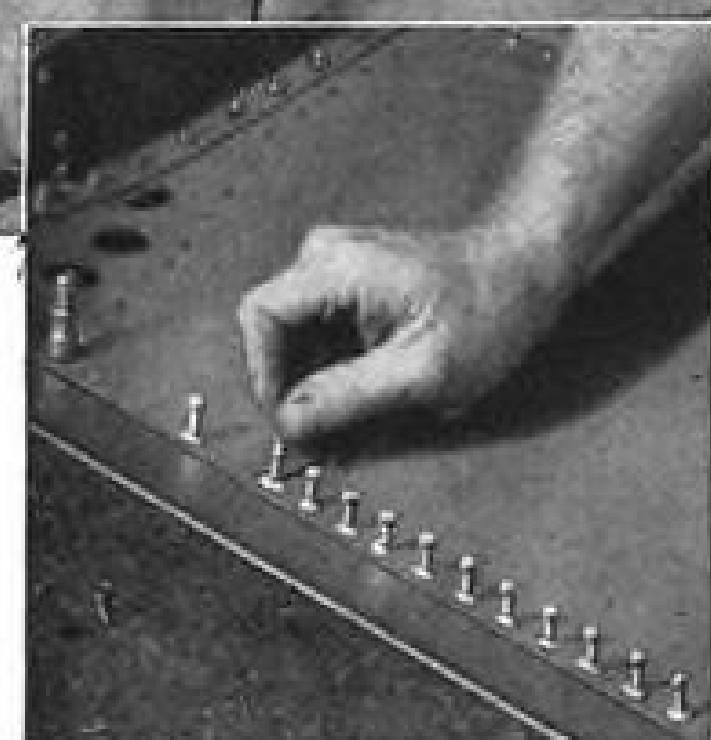
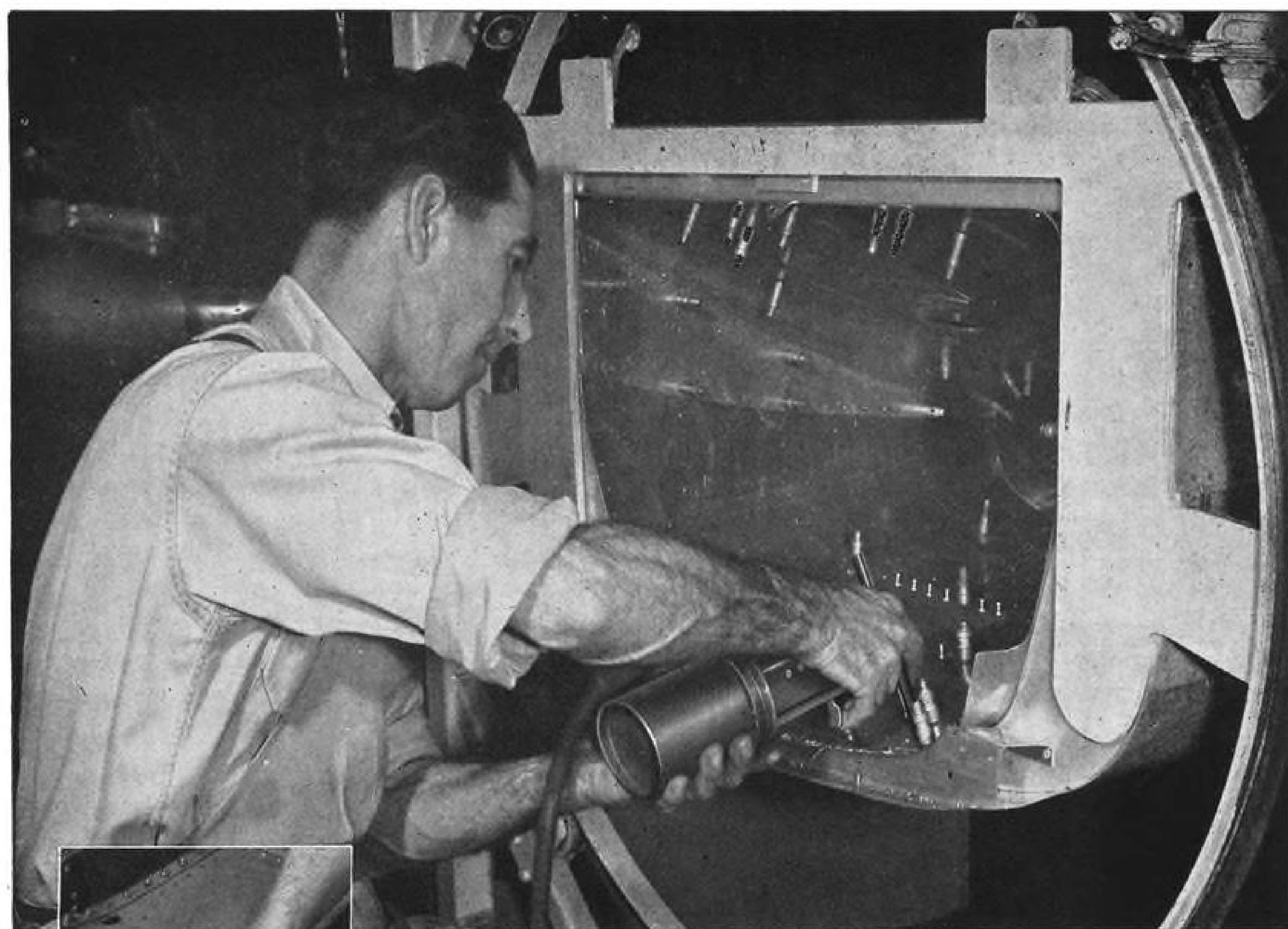
Clean-up Magnet

For separating ferrous from non-ferrous materials and picking up light steel parts from floors, etc., roller magnet with quick release is announced by Multifinish Mfg. Co., 2114 Monroe Ave., Detroit 7, Mich. Permanent magnets are sealed in metal tube mounted between Neoprene wheels in frame pushed by handle.

Soldering Unit

Electric soldering iron, intended for use on production lines where speed is required from iron with small tip diameter, is offered by Hexacon Electric Co., 127 W. Clay Ave., Roselle Park, N. J. Unit is plug tip type, rated at 200w. with ½ in. dia. tip. Iron has replaceable elements and tips, and works off regular 110 or 220v. line circuit, a.c. or d.c., any cycle.





Insert the rivet in the drilled hole. With the gun, pull through the rivet stem and expand the rivet in the materials to be fastened.



Here a Cherry riveter pulls aluminum rivets in a typical hard-to-reach, airplane assembly job.

Cherry Blind Rivets MAKE THE HARD JOBS EASY

FREES PRODUCTION PLANNING Fuselage, wing, tail group, and other aircraft assemblies are finished faster with Cherry Rivets. There's no bucking... Only one man is needed. Riveting from one side of the work does away with those "blind spot" production problems.

COMPARABLE TO SOLID RIVETS Cherry Rivets have shear values comparable to solid rivets... But they are much easier to use any time, anywhere. They combine the strength of solid rivets

with a very simple fastening technique.

VIBRATION-RESISTANT Cherry Rivets have excellent hole-filling qualities and high clinching action between the shank of the rivets and the materials fastened. This gives Cherry riveted joints exceptional resistance to vibrational stresses.

UNEQUALED FOR MAINTENANCE WORK In maintenance work, they stand alone... unequaled. Easy to install, easy to remove. Easy to replace. They enhance the appearance of any job. Try Cherry Rivets today and gain years of less expensive assembly work.



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Cherry Rivets are made from aluminum, steel, or Monel. Standard rivets are available in five diameters and two head styles. There is a wide range of grip lengths. Special heads, diameters, grip lengths, and alloys can be made to order. Write us today for further information. Address Department 1-110, Cherry Rivet Company, 231 Winston Street, Los Angeles 13, California.

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SALES & SERVICE



Bob Downey took seventh place in this LeVier plane.

Cosmic Wind Takes The Goodyear

Salmon pilots LeVier Associates plane to new record for lightplane event.

By Alexander McSurely

Cleveland—A slim bronze-colored all-metal midget racer piloted by Herman (Fish) Salmon, Van Nuys, Calif., sprang into the lead of the Second Goodyear Trophy race final from the pole position at the race horse start and held the lead in a closely contested 24 mile race against the best efforts of veteran race-pilots Steve Wittman, Oshkosh, Wis., and Art Chester, Lomita, Calif. They finished in that order.

The airplane was the same Cosmic Wind type racer in which Salmon had finished third in last year's Trophy final, but it had been subjected to considerable modifications.

► **Close Race**—Closeness of the race was elapsed times of the first three contestants: Salmon, 8 min. 29.41 sec., 169.608 mph.; Wittman, 8 min. 31.66 sec., 168.862 mph.; Chester, 8 min. 33.67 sec., 168.201 mph.

Bill Brennand, Oshkosh, winner of last year's Goodyear race and the Continental Trophy midget race at Miami, started second and held this position until Wittman passed him in the fourth lap. Chester in third position at take-off was off to a slow start and found himself in fifth position before he picked up speed.

► **Wittman Threatened**—At one point in the eighth lap Wittman threatened to catch Salmon, when the front-running Californian pulled wide on a turn

to pass a slower plane which he was lapping. Wittman went inside on the same turn. Salmon retained his speed however and stretched his lead again as Wittman lost position on the turn.

The race was seen as a tribute to the sturdy little four-cylinder Continental engines of 188 cu. in. displacement, rated normally at 85 hp. with which all the Goodyear midgets were powered. Salmon said he had his throttle wide open and "kept pushing it."

► **Speeds Listed**—Other speeds of the finalist racers were: Billie Robinson, Pacoima, Calif., 165.106 mph.; Phil Quigley, Gainesville, Fla., 164.892 mph.; Bob Downey, Whittier, Calif., 161.453 mph. and W. L. Lefevers, Reidsville, N. C., 156.584 mph. David Long, Lock Haven, Pa., the ninth finalist pulled out in the ninth lap.

First three finishers in the consolation race for Goodyear contestants

eliminated in earlier heats, were: Randy Townsend, Tulsa, 142.447 mph.; William Falck, Warwick, N. Y., in the most radically designed plane among the 1948 entries, 141.499 mph., and Al Bennyworth, Nashville, Tenn., 139.529 mph.

► **Race Analysis**—Analysis of the second Goodyear competition as compared with the 1947 midget races at Cleveland, showed an appreciable increase in speeds, and a lessening of the margin between the principal contestants in the so-called professional race pilot class, and planes built by the small fixed base operators. Notable exception was fixed base operator Steve Wittman.

Two midget planes which finished out of the big money, but were interesting as possible designs for adaptation to commercial lightplane use were an all-metal full-cantilever low-wing plane built and flown by David Long, Lock Haven, and a trim red composite construction plane with plywood wing and tube-fabric and metal covering fuselage, built by the University of Wichita engineering class.



Paul Penrose's Art Chester racer.

Some of the Lightplane Entries

Pictured below is B. E. Raymond, Hammond, Ind., who took first place in the Tinnerman, second place in the Thompson and fourth place in the Sohio events. Pictures of Goodyear entries here include Steve Wittman (right) who took second place in the Goodyear event, and the radical craft of Bill Falck (bottom). Art Chester's Sweet' Pea is second right.



Three place winner B. E. Raymond and his Tinnerman Trophy



AIR TRANSPORT

CAB Cautious on Feeder Future

Board refuses Florida Airways certificate renewal but sees place for such operations in airline network.

By Charles Adams

The nation's smallest feederline lost its bid for a larger network and an extended lease on life this month as the Civil Aeronautics Board laid the groundwork for decisions on whether to clip the wings of other short-haul carriers whose certificates expire next year.

First casualty as the Board took stock of its feeder experiment was Florida Airways, which was certificated in March, 1946, and began service in January, 1947. CAB decided that results achieved by Florida through May 31 of this year did not justify the mail pay subsidies required to support the carrier.

► **Faith Reaffirmed**—In reaching its conclusion, the Board reaffirmed its belief that feeders serve a useful purpose "in areas characterized by geographical conditions which impede surface transportation between communities of substantial size." CAB said it had been willing to test the efficacy of local air service in Florida with full recognition of the limited possibilities of success.

"As we approach the expiration date of our commitment (Mar. 28, 1949) we are obliged to face the realities," the Board continued. "In our judgment, sound development of air transportation militates against continued experimentation with public funds in the Florida area without more positive assurance that the service will be responsive to a vigorous public need and that it can eventually be operated at a reasonable cost to the government."

► **Other Carriers Concerned**—CAB's latest opinion focused attention on the entire feederline picture, since six other active short-haul certificates are due to expire next year. Franchises of Monarch Air Lines and Challenger Airlines, which operate in the Rocky Mountain area, run out Mar. 31, 1949, only three days after Florida's. A Board investigation is now pending to determine whether the Monarch and Challenger certificates should be extended another year.

Empire Air Lines, Boise, Idaho, has operating rights until next September, while Pioneer Air Lines, Dallas; Southwest Airways, San Francisco; and West Coast Airlines, Seattle, have certificates

which are good until November, 1949.

A number of other local carriers either certificated or designated for certificates as long as two years ago have not yet started operations although their franchises are running out. Wiggins Airways, Norwood, Mass., certificated in the New England area in June, 1946, is still inactive although its authority expires in December, 1949.

► **Ten Lines Active**—When CAB virtually completed its feeder network last February, 19 carriers had been authorized to carry persons, property and mail over more than 27,000 miles of short-haul routes. As of Sept. 1, only ten companies were active. Besides Florida, Monarch, Challenger, Empire, Pioneer, Southwest and West Coast, they include Piedmont Aviation, Winston-Salem, N. C.; Wisconsin Central Airlines, Madison, Wis.; and Trans-Texas Airways, Houston, Tex.

Robinson Airlines, Ithaca, N. Y., is slated to begin certificated operations this month, with DC-3 service from Tetersboro, N. J., air terminal—its metropolitan New York stop—to Buffalo and Niagara Falls, N. Y., via Middletown, Binghamton, Ithaca and Rochester. Service between Binghamton and Albany is scheduled for November.

Arizona Airways, Phoenix, also has made preparations to inaugurate regular service, although there have been

several postponements. Besides Wiggins, other feeders still inactive are Parks Air Lines, East St. Louis, Ill.; Southern Airways, Birmingham, Ala.; All American Aviation, Wilmington, Del.; Central Airlines, Oklahoma City, Okla.; Iowa Airplane Co., Des Moines; and Roscoe Turner Aeronautical Corp., Indianapolis.

► **Non-Mail Services**—Three of the other short-haul carriers whose temporary certificates do not authorize carriage of mail are still inactive. They are Yellow Cab Co., which has a helicopter franchise in Cleveland, and Air Commuting and Island Air Ferries, which are authorized to operate in the New York metropolitan area.

Some of the inactive feederlines face a seemingly insurmountable task in raising sufficient capital to start service, and the Florida decision may prove to be the last straw. In these cases, CAB faces the problem of canceling short-haul franchises by default.

To date, most of the feeders are still operating far in the red, although there are notable exceptions where CAB has made upward mail pay adjustments. Overall net loss during the first six months of 1948 for the nine feeders reporting financial results was \$489,273. Monarch had the largest loss, \$179,004, followed by Florida \$168,854 and West Coast \$118,592. Trans-Texas and Pioneer reported the only net profits, \$162,576 and \$5824, respectively.

► **Profits Still Possible**—But the feederlines have a silver lining in their generally poor financial picture. Even Florida, which has lost heavily to date, will probably receive a 7 percent profit on its recognized investment for its entire period of operation when a final mail rate is set.

Only last month, CAB came to the rescue of Empire Air Lines with a substantial boost in mail rates for both past and future periods. For the period from Sept. 28, 1946, to Feb. 29, 1948, Empire was offered \$1,126,715, or 88.16 cents a plane mile, as a final mail rate.

This is around \$400,000 more than the carrier received under its temporary rate and will turn the company's losses for its first 17 months into a 7 percent profit on its recognized investment. Beginning Mar. 1, 1948, Empire has been offered a sliding scale mail rate which varies inversely with the carrier's passenger load factor.

► **Highest Feeder Rates**—Maximum rate of 65 cents a plane mile is applicable when Empire's monthly passenger load factor is below 31 percent. For each one percent increase in passenger load factor above 31 percent, the mail rate will decrease six-tenths of a cent.

Empire's new rates are the highest yet offered a feeder and reflect the Board's determination to provide ade-

Feeder Operations

(First Half 1948)

Carrier	Net Profit	Pass. Carried
Challenger	8,682
Empire	\$(49,296)	9,204
Florida	(168,854)	6,443
Monarch	(179,004)	11,666
Piedmont	(66,055)	9,418
Pioneer	5,824	39,715
Southwest	(11,856)	38,364
Trans-Texas	162,576	6,361
West Coast	(118,592)	29,683
Wis. Central	(64,016)	2,967

Totals ... \$(489,273) 162,513

Parentheses indicate deficit.

quate support for short-haul carriers during the life of their temporary certificates. For the period beginning Mar. 1, 1948, CAB believes the new mail rate will enable Empire to break even at little more than a 26 percent load factor.

The sliding scale formula is similar to those applied to Pioneer and Southwest. Under these rates, Pioneer has been showing a profit, and Southwest has been very close to being on the black side of the ledger.

► **Traffic Low**—While CAB raised Empire's mail rate to prevent complete dissipation of its capital, the Board noted with disappointment that non-mail traffic on the system has been very slow in developing. During Empire's first 17 months of service, non-mail revenues covered only about 15 percent of total operating costs. Such figures will have a direct bearing on whether CAB renews Empire's certificate before it expires next September.

The Board's Bureau of Economic Regulation is now gathering traffic and cost data on all feeders whose certificates run out next year. Based on the results of these studies, the Board plans to institute proceedings through show cause orders to determine whether public convenience and necessity require renewal, extension, modification or elimination of the temporary route structures.

► **Post Office Position**—Looming importantly in the background as CAB undertakes these studies will be the economy-minded Congress and deficit-ridden Post Office Department. The Post Office during the past few months has taken a vigorous stand against extension of the feeder network. Congressional committees have also attacked the high cost of subsidizing short-haul operations.

Meanwhile, realizing that its latest decision placed Florida Airways in an "unenviable position," CAB emphasized that it did not mean to imply that management was responsible for the apparent failure of the experiment. The Board conceded that Florida had made some progress in reducing costs and increasing revenues.

Florida's present 470-mile network is anchored at Orlando and terminates at Tallahassee and Jacksonville. Admitting that its route structure is currently uneconomical, the carrier had asked CAB to expand its system to 1733 miles through extensions to Miami, Pensacola, Tampa, Ft. Myers and other points. It also requested a five-year extension of its temporary three-year certificate.

► **Expansion Urged**—Last spring a CAB examiner recommended enlargement of Florida's system through addition of about 320 miles of new links extending from Orlando to Miami and other

points (AVIATION WEEK, May 17). He noted that the present system during 1947 yielded Florida passenger revenues equal to less than 10 percent of its operating expenses.

In stamping the Florida operation a failure, CAB said that the government would be forced to grant the carrier mail pay aggregating around \$707,000, or 69 cents a plane mile, between Jan. 10, 1947, and May 31, 1948, if the company is to show a reasonable profit. During this period, Florida flew 12,031 passengers, each of whom paid an average \$7.10 fare for a 133-mile flight. By contrast, the government will pay at least \$58.81 per passenger carried in the form of subsidy.

Eastern Air Lines, which had asked CAB to suspend the feeder's certificate, noted that Florida's break-even mail pay need last year was equal to more than \$111 for each mail ton mile of service rendered and \$66.69 for each passenger carried. EAL emphasized that its own mail pay during the same period was 44.7 cents for each mail ton mile of service and 89 cents for each passenger carried.

► **New Equipment Eyed**—Using eight-passenger Beech D-18C equipment, Florida generated a maximum of 3.1 passengers per plane mile during its first 17 months of service. With its system expanded to 1733 miles and with acquisition of new 20-passenger Beech Model 34 feederliners, the company said it would carry 11.6 passengers per mile.

CAB challenged the estimated potential over the expanded route. It added that with the present system, prospects of generating more than five passengers per mile appeared unfavorable, and a continuing mail pay obligation in excess of 55 cents a plane mile appeared inevitable.

New Organization For Irregular Lines

Irregular airlines operating large-type transport planes have set up a new organization in Washington to promote and protect their interests in and around the capital city.

President of the group—named the Independent Air Carrier Association—is R. R. Hart, president of Viking Airlines, nonscheduled transcontinental operator based at Burbank, Calif. Hart said IACA will ask Congress to revise the Civil Aeronautics Act so as to limit the Civil Aeronautics Board's powers over nonscheduled services.

► **Threat Seen**—CAB's recently instituted investigation of non-scheduled air carriers involves possible consequences that will cripple or destroy many if not all of us, Hart declared. He added that

such threats must be met by unified action.

On Aug. 6, CAB froze at 109 the number of companies authorized to use large type transports—approximately Lockheed Lodestar size or larger—in nonscheduled air transportation. At the same time, the Board instituted a probe to determine how to proceed against irregular operators found in violation of the Civil Aeronautics Act (AVIATION WEEK, Aug. 16).

► **Aims Listed**—The Independent Air Carrier Association plans to help its members in their dealings with CAB, in filing tariffs, obtaining better insurance terms, and in fostering good public relations. Approximately 20 irregular operators had joined IACA early this month, and inquiries have been received from a number of other interested carriers.

Besides Hart, officers of IACA are Orvis Nelson, president of Transocean Air Lines, Oakland, Calif., vice president of the western division; R. Paul Weesner, president of Nationwide Air Transport Service, Miami Springs, Fla., vice president of the Eastern Division; Herbert Sussman, Quaker City Airways, Philadelphia, secretary; and Richard Oliver, New England Air Express, Port Chester, N. Y., treasurer. Headquarters of the Association are in the Dupont Circle Building, 1346 Connecticut Ave., N.W., Washington.

Ground Finally Broken For L.A. FIDO System

After extended delays in letting contracts and obtaining special equipment, installation of Los Angeles Airport's FIDO system is now underway at the California airport.

Hopes still are strong on the part of airport officials that it will be completed in time for use this winter. The system will provide a "burn" on both sides of the main runway for a distance of 4000 ft., and 2000 ft. of the approach zone.

More Analyzers for PAA From Sperry Gyroscope

Pan American Airways has ordered 18 more engine analyzers from the Sperry Gyroscope Co. for installation on its trans-Atlantic fleet of Lockheed Constellations.

The latest purchase, totaling \$63,000, brings Pan American's investment in the new trouble-shooting device to \$133,000. First airline to acquire the analyzer (AVIATION WEEK, July 19), PAA previously ordered 20 from Sperry to equip its Boeing Stratocruisers, which are scheduled to be delivered late this year.

Airlines' 1948 Prospects Dim

Disappointing summer blasts carriers' hopes of cutting losses. Higher mail pay may be only way out.

Although scattered bright spots are still discernible, the air transport industry's 1948 earnings outlook has grown steadily darker during the past few months.

Early last spring, hopes were high that the normal summer traffic upturn would enable the carriers to hack away a substantial part of their heavy first-quarter losses. Instead, a number of lines barely held their own or actually lost money during the usually lush period between Memorial Day and Labor Day.

Institution of higher fares on the major domestic trunklines and inauguration of domestic air parcel post service this month may bolster revenues during the remainder of 1948. But there is a growing belief that only sharp increases in mail pay will save much of the industry from unmanageable deficits at year-end.

► **First-Half Losses**—The 16 domestic trunklines finished the first half of 1948 with net losses aggregating well over \$15,000,000, compared with a \$14,709,932 net deficit in the same period last year.

Operating losses declined from \$15,989,000 in first-half 1947 to \$11,866,000 in first-half 1948.

American Airlines shouldered the largest net loss during the first six months of this year—\$4,865,145 against \$2,032,509 in the same 1947 period. Eastern Air Lines and Chicago & Southern Air Lines had the only first-half profits among the 16 domestic trunk carriers, reporting nets of \$1,986,368 and \$268,421, respectively. EAL's earnings were up slightly over the first six months of 1947, while Chicago & Southern's profit contrasted with a heavy deficit last year.

Among the carriers showing losses sharply higher in 1948 than in 1947 are Delta, National, Northwest and Western.

Reporting considerably reduced losses were Braniff, Capital, Colonial, Continental and TWA.

► **Deficit Trimmed**—Colonial's net deficit was chopped from \$679,112 in first-half 1947 to \$182,858 this year. The carrier was \$49,000 in the black during July, and President Sigmund Janas predicts good profits also will be shown for August. Janas said that Colonial's operating losses for 1946, 1947 and 1948 should be "substantially liquidated" when CAB establishes permanent mail rates for these years.

Other carriers reporting systemwide

net profits during July were Chicago & Southern, \$55,625; Capital, \$12,167 (on a load factor of only 48.72 percent); and Mid-Continent, \$7536. But the large domestic trunklines did not fare so well on anticipated midsummer business.

American's load factor dropped from 61.3 percent in June to less than 55 percent in July. Break-even point for AA during July was about 56.3 percent. United's domestic load factor fell from 73.7 percent in June to 65.4 in July, and Northwest's from 66.9 to 56.8 in the same period.

► **International Results**—Meanwhile, most U. S. carriers are also operating in the red on their overseas and international routes. During the first half of 1948, these net deficits were reported: American \$202,533 on its Mexico City link; Colonial \$39,691 on its Bermuda operations; Chicago & Southern \$739 on its Caribbean routes; Eastern \$1268 on its Puerto Rican run; and United Airlines \$80,506 on its Hawaiian Islands service.

TWA reported the largest net loss

First-Half Earnings (Domestic Operations Only)

Carrier	Net Profit 1st Half '48	Net Profit 1st Half '47
American ...	\$(4,865,145)	\$(2,032,509)
Braniff ...	(522,235)	(728,948)
Capital ...	(1,420,700)	(2,529,617)
C & S ...	268,421	(633,041)
Colonial ...	(182,858)	(679,112)
Continental ...	(3,092)	(302,914)
Delta* ...	(705,680)	(136,475)
Eastern ...	1,986,368	1,912,188
Inland ...	(5,528)	16,943
MCA ...	(32,312)	(65,661)
National* ...	(673,705)	74,554
NEA ...	(853,951)	(815,185)
NWA ...	(2,311,782)	(1,572,811)
TWA ...	(1,682,572)	(3,786,638)
United ...	(3,159,345)	(3,086,125)
Western ...	(1,010,134)	(344,581)

Totals ... \$(15,174,250) \$(14,709,932)

(Parentheses indicate loss).
*1948 figure shows operating loss for first five months.

among U. S. trans-Atlantic carriers during the first half of this year—\$2,697,967. American Overseas Airlines had a \$976,902 net deficit in the same period, while Pan American Airways showed an operating loss of around \$1,889,000 on its Atlantic division. PAA also had deficits on its Latin American and Alaskan operations.



BILLION-MILE SAFETY AWARD

American Airlines was racking up more commercial airline safety records when C. R. Smith, board chairman, accepted the National Safety Council's billion-mile award for 1947 at a recent ceremony in New York. The Safety Council's plaque honored American's achievement in flying 1,502,499,000 scheduled passenger miles between Dec. 28, 1946, and the end of last year without fatality to passengers or

crew. By the end of July, AA had flown 3,310,679,720 passenger miles and 6,502,503 passengers since its last passenger fatality, shattering all previous airline safety marks. Shown at the presentation ceremony are, left to right, American Airlines President Ralph S. Damon, Smith, American Airlines Vice President-Operations L. G. Fritz and John S. Cuthbert of the National Safety Council.

Pan American Sets Fare Precedent

Carrier challenges nonskeds with tourist class service to Puerto Rico; domestic lines watch results.

Pan American Airways, which recently led the way in establishing low-cost roundtrip excursion fares over the north-Atlantic during the coming winter season, has become the first certificated operator to offer special "tourist class" service in conjunction with regularly provided first-class transportation.

The new sharply slashed rates, to be effective on the New York-Puerto Rico run this month if CAB approves, are a direct challenge to the many nonscheduled carriers which have captured much of the business on the route. An Air Transport Association study shows that the irregular lines handled almost 40 percent of the passengers between New York and Miami and San Juan early this year.

► **Heavy Diversion**—Actually, the uncertificated carriers' share of total traffic may have been higher than 40 percent, since no complete figures on irregular operations are available. At any rate, heavy diversions from PAA's direct New York-San Juan route and from Eastern Air Lines' New York-Miami-San Juan link have been apparent for the past two years.

Pan American's new low-cost flights to Puerto Rico will be made daily with special DC-4s seating 63 passengers instead of the conventional 52. Meals and other "extras" will be eliminated from the flight.

Fare will be \$75 one way, or about 4.6 cents a mile, compared with the current \$133 tariff. PAA said its tourist-class rates for the 1612-mile New York to San Juan run are the lowest long-distance fares on any scheduled domestic or international airline in the world. Present first-class services conducted by Pan American will continue to remain unchanged.

► **Other Carriers Interested**—Willis G. Lipscomb, PAA vice president for traffic and sales, emphasized that there is no connection between the tourist class operation and recent CAB-industry discussions in Washington relative to elimination of free meals on domestic flights. But there is no doubt that domestic transcontinental carriers, beset by second-class "sky coach" competition from nonscheduled operators, will be watching the experiment closely.

Should PAA's DC-4 tourist flights to Puerto Rico be successful, the carrier might place extra-seat Constellations on the run. There is also some speculation that Pan American might consider institution of cut-rate flights on its Seattle-Alaska link, where irregular operators

have been extremely active.

► **Nonsked Fares**—Nonscheduled carriers flying between New York, Miami and San Juan will still have the lowest rates on the run after PAA's new tariffs become effective. World Airways, which operates 80-passenger Boeing 314 flying boats, and Great Lakes Airlines offer \$65 one-way tickets.

Peninsular Air Transport and American Air Transport quote \$60 for southbound "luxury class" flights (reclining seats) and \$72.50 for northbound luxury class transportation. They both have tariffs of \$50 southbound and \$60 northbound for bucket-seat accommodations.

Modern Air Transport has filed even lower one-way rates with CAB—\$40 luxury class southbound and \$72.50 northbound; \$30 bucket class southbound and \$60 northbound. Trans Caribbean Air Cargo Lines quotes \$75 one way on its DC-4s and \$150 roundtrip, the same as Pan American intends to charge for its new tourist service. On twin-engine craft, Trans Caribbean offers \$55 rates one way and \$110 roundtrip.

► **Faster Service**—Pan American's non-stop DC-4 tourist service to San Juan



LEFT BEHIND

United Air Lines' lost and found department at Denver still does a rushing business despite the carrier's belief that absentmindedness is decreasing. About one-tenth of one percent of UAL's passengers now leave some of their possessions behind, compared to nearly one-half of one percent a few years ago. About 500 articles were returned to their owners last year, but there are still 1200 items similar to those shown in the photo on the lost and found department's shelves.

will be considerably faster than that offered by most of its nonscheduled competitors, which usually fly DC-3s from New York to Puerto Rico via Miami. Trans Caribbean apparently will be most seriously affected by PAA's move.

Reason that a number of the nonskeds offer lower southbound than northbound fares on the Puerto Rico run is that the traffic flow is unbalanced. Last year, 101,000 persons were northbound and only 64,000 passengers southbound (AVIATION WEEK, Aug. 16).

Bulk of the northbound traffic last year consisted of Puerto Ricans emigrating to their fast-growing colony in New York City, while the southbound flow included many Puerto Ricans returning to their over-populated West Indian island either permanently or to visit friends and relatives. Comparatively few Puerto Ricans can afford regular first-class air transportation as provided by other carriers.

► **Frauds Alleged**—Puerto Rican authorities and CAB have been disturbed by the alleged sharp practices of some of the New York-San Juan nonskeds during the past two years. Cases have been cited wherein the irregular operators fail to observe their published tariffs, charge different rates for essentially the same type accommodations on the same plane, and maintain their equipment improperly.

But there can be no doubt about the irregular carriers' energy. The Puerto Rican government is now considering establishment of a license system to control the great number of ticket agencies, many of whom cooperate with the nonskeds. Agents would be prohibited from such illegal practices as offering employment, clothes or other gifts to young Puerto Ricans in order to promote travel to New York or other places in the U. S. Uniformity in ticket prices would also be enforced.

CAB is slated to hold a hearing in December on the establishment of new service between the U. S. and Puerto Rico. At least six nonsked passenger carriers are applicants in the case, while Pan American and Eastern are determined to protect or expand their existing franchises.

C & S Pay Raise

Chicago & Southern Air Lines and the Air Carrier Communication Operators Association (affiliated with the Air Line Pilots Association) have agreed on a new contract giving \$25 per month wage increases to teletype, radiotelephone, radiotelegraph and lead radio operators. New top bracket for radio operators is \$290 monthly. Average increase for all C&S communication employees was 12.75 percent.

Press Chilly to Fare Increase

A range of reaction from skepticism to outright disapproval of the scheduled airlines' increase in fares which was effective Sept. 1 is reflected by newspaper editorials and columnists.

Gill Robb Wilson, veteran aviation observer, ex-pilot and former main-spring of the National Aeronautic Association, was most emphatic.

"While Mr. Truman cudgels Congress for promoting inflation, his agency, the CAB, holds a hearing from which come reports of a likely 10% increase in airline fares," he wrote in his column, distributed nationally by the New York Herald Tribune.

"If the new rates are granted [they were], that will mean 6.6 cents a mile for travel on DC-6s and Constellations and 6 cents a mile on all other scheduled aircraft. When the 15 percent tax is added, the one way fare on a DC-6 or a Constellation between New York and Los Angeles will not leave enough out of two \$100 bills to buy one of those un-free lunches the CAB is talking about.

"At \$200 a trip for a transcontinental jump, the reservations departments of the airlines will be able to curtail staff and thus cut down expenses.

"In fact, it would not be surprising if the new proposed rates would give the airlines fully retractable passenger departments, in which case the seats could be removed and placed in shady spots around former airports where retired airline executives could gather to reminisce.

"All the evidence available to the writer is that corporations already are discriminating against travel on the higher-fare planes in favor of the lower. Moreover, in a number of instances, potential travelers whose expense account is synonymous with current cash or savings simply are canceling their travel projects.

"That the law of diminishing returns, even at present fares, is partially responsible for the thousands of empty seats which are zooming back and forth across the country scarcely can be refuted.

"It can be argued that airline fares are yet within comparable range of first-class rail plus Pullman fares. This is a silly argument in face of diminishing Pullman travel graphs, unless there is virtue in the fact that misery loves company.

"It is not the intention of the writer to say that fare increases in the future may not be necessary. It is my intention to bring out that such increases precipitously arrived at, and in face of definite disagreement among the airlines, and with most units

against increases, might be a mistake which could be disastrous.

"Truly the airlines need more revenue. But also truly the traveler must discriminate more. Will he eat or fly? Will he telephone or travel? Will he buy suits or speed? One way to find out would be to raise airline fares. There may also be other ways.

"Would it not be something by which to remember these dizzy days if the CAB raised passenger fares and some brash airline executive got out an injunction to stop enforcement of the increased rates? It could happen."

Washington Post said in an editorial that "there is at least a good possibility that in opening the door to another airline fare increase the CAB will compound rather than cure the airlines financial difficulties.

"Superficially, there are many arguments in favor of hiking passenger fares. . . . The difficulty in such a facile answer to the problem is that it may serve to deplete even further the diminishing airline traffic. For it tends to confirm air transportation as a strictly luxury affair.

"The airlines already have had two 10 percent boosts since 1946. Railroad fares, to be sure, also have increased, though not in the same proportion. But is it not plausible that the spiraling airline rates have had something to do with the failure of the postwar traffic expansion to materialize as anticipated?

"Something has to be done for the airlines; a regulated industry cannot be expected to absorb losses indefinitely. But a move that will tend to restrict rather than broaden patronage seems pointed in the wrong direction. . . .

"In short, what is at stake is whether air transportation is to remain a high-priced commodity available only to a few, or whether the airlines will attempt to recoup their finances by broadening the base of air travel in the hope of attracting more people at lower rates.

"It seems to us that the air-coach idea often broached deserves some appropriate nudges from the CAB. . . . The national defense demands a healthy airline industry, and the government, because of the outright subsidies now awkwardly disguised as 'mail pay,' has a vested interest in insuring that the airlines develop along the most efficient lines."

Minneapolis Tribune said editorially that "there are reasons for raising doubts . . . to wonder whether such an increase will not do more harm than good to airline finances.

"People usually travel by air rather than by rail or bus for one of two reasons:

"1—They prefer the speed of the airlines. . . .

"2—They want the special services. . . .

"Airlines generally have made no distinction between the two types of demand for their services. Everyone has had to take the de luxe accommodations. There are no day coaches on the airlines.

"If the airlines continue to raise fares to give all the services to those who want only speedy transportation, they will lose the goodwill and probably some of the patronage of these people. . . ."

Wall St. Journal in its lead editorial Aug. 27 discussed the financial plight of the airlines. In referring to "luxury" vs. air coach philosophies, it says:

"There are airline leaders, such as W. A. Patterson of United Air Lines, who insist that air transportation is fundamentally different from any other because of its speed. His sort of air service includes free meals, attentive hostesses, people to carry your baggage and other special attractions.

"But the levelling off of air travel growth and the disappointing 1948 summer business lend support to the contention of other airline executives that the industry is beginning to price itself out of the market.

"That there is a substantial public for which cost as well as speed is a prime factor has been demonstrated this year by the success of the cut-rate, irregular carriers the past several months. These carriers dispense with all the frills."

The Journal lists other vital problems: (1) Are airlines mature enough to be considered a genuine business enterprise or is it still a "growth" industry to be fostered at public expense (subsidies) for the public good? (2) Is there too much competition? The airlines say there is, "but most of it was brought on them by their own vehement pleas for expansion." (3) It might be determined whether airline management is really "economic and efficient," as required for those carriers which receive airmail support. "The example of Eastern . . . which has been able to earn reasonable net profits during the past two years when the great majority was losing millions suggests that further tightening of costs is possible. . . . American and several others have also demonstrated improved cost control. But the whole industry has not yet done so. . . ."

New York Times editorial did not take sides but said the increase is "very modest" when it is recalled that the eastern railroads have raised fares about 40 percent since 1940 and the western roads about 20 percent.

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NWA Grounds 2-0-2s Pending Crash Probe

Northwest Airlines was passing through one of the most severe crises in its history early this month as its 24 Martin 2-0-2s remained grounded pending investigations into the cause of the crash which killed 37 persons near Winona, Minn., on Aug. 29.

CAA, CAB and company officials were reluctant to comment while the probes were under way. Witnesses said the plane, which fell enroute from Chicago to Minneapolis, seemed to "fly apart" while traversing a storm area.

►Broken Spar Found—Checks made by NWA after it had voluntarily grounded its entire Martin fleet disclosed that another 2-0-2 had suffered a broken main spar in the right wing. It is understood that this plane passed through the severe turbulence. A Northwest DC-4 in the same area was badly shaken but sustained no important structural damage.

Tests on the damaged spar in the second 2-0-2 were being made last week by the Bureau of Standards, Aluminum Co. of America and Glenn L. Martin Co.

NWA President Croil Hunter declared that because of the highly technical nature of the inspections it would be pure guesswork to release any preliminary conclusions.

"As soon as the exact facts are known, they will be made public," he declared. "In the meantime, the 2-0-2s will not be returned to operation until Northwest is absolutely certain the ships are completely safe."

►Cause of Grounding—Discovery of damage to the second 2-0-2 led to NWA's grounding of all 24 Martin planes. At first the carrier had issued a statement indicating it was grounding only those ships which had been through the storm.

External damage to the wing of the second 2-0-2 was very slight. No rivets had been pulled through on the skin, but on the trailing edge of the wing a piece of skin no larger than a thumb-

nail bulged slightly. This led to inspections inside the wing and discovery of a broken spar.

NWA pilots and other observers believe the 2-0-2 which crashed was caught in a tornado that was just forming. Shortly after the accident, several roofs blew off a few miles away, but the storm was very local.

►DC-3s Utilized—To make up for the temporary loss of its 2-0-2s, Northwest last week was using its DC-4s to fuller extent and had pressed a number of DC-3s back in service. The carrier had planned to retire its last DC-3 from passenger runs in favor of 2-0-2s on Sept. 1.

The 2-0-2 grounding resulted in cancellation of about 10 percent of NWA's scheduled flights. About one-third of the carrier's business was being handled by the Martin transports prior to the mishap. Only domestic carrier operating 2-0-2s, Northwest has had the craft in service since last fall.

NWA recently received a commendation from the National Safety Council for operating 1,228,604,000 passenger miles since 1942 without a fatality on a scheduled flight. Among the casualties in the Winona accident was Richard L. Sullivan, chief engineer of Mid-Continent Airlines.

►Retrenchment Underway—The 2-0-2 accident and grounding took place while Northwest was making intensive efforts to boost traffic and cut costs following a heavy system-wide net loss totaling more than \$2,000,000 during the first half of 1948. Even before the mishap, traffic had fallen off severely since June.

About 110 of NWA's 300 stewaresses were on temporary furlough by the end of last month. Individual departments were being surveyed carefully by top executives with a view to eliminating all but the most essential personnel and duties.

Northwest is also moving the headquarters of its Orient operation from Tokyo to Minneapolis. This will bring it into closer touch with top management.

►Higher Mail Pay Sought—Meanwhile, President Hunter again cited the need and justification for higher mail pay. He said current mail rates cannot be considered "subsidies" or even a fair payment for services rendered.

In June, Hunter noted, Northwest had gross revenues of \$2,361,910, of which only \$113,676, or 5 percent, was from mail. This compares with prewar figures of 40 percent. Hunter was a vigorous advocate of the higher passenger fare level which the domestic trunklines adopted this month.

SHORTLINES

►Air France—Has increased its trans-Atlantic all-sleeper Constellation service from one to two roundtrips weekly. . . . Announcement of special, low-cost, 30-day excursion fares on the trans-Atlantic run between Oct. 1 and Apr. 1 already has increased fall and winter bookings.

►American—Recently flew \$6,000,000 worth of gold bars from Mexico City to New York.

►BOAC—Doubled its freight volume into and out of the United Kingdom in the first half of 1948 compared to the same period last year.

►Capital—Last month completed the first two of ten contemplated charter flights from Newark to Aruba, Netherlands West Indies. Company planned to make 64 charter trips of all types between Aug. 23 and the end of October. ►Colonial—Sigmund Janas, Jr., who was elected a vice president a year ago, has taken over the duties of general traffic manager.

►Mid-Continent—Flew 8,614,917 revenue passenger miles with a 58.32 percent load factor in July against 7,560,821 revenue passenger miles and a 56.7 percent load factor in the same month last year. Operating revenues gained 16.5 percent but operating expenses were up 21.5 percent, resulting in a smaller profit.

►National—Has inaugurated all-cargo service with two C-46s leased from the Air Force. Initial schedules provide daily flights between New York and Miami with scheduled stops at Washington, Jacksonville and Tampa. Un-scheduled stops will be made at other NAL points for loading or unloading 1000 lb. or more. The cargo planes are available for charter operations on or off NAL's system.

►Nats Air Transportation Service—Has started direct freight service between New York and Guatemala City, Guatemala.

►Pan American—Capt. William A. Winston, one of the carrier's best-known pilots who was credited with having taught Charles A. Lindbergh to fly,

died recently in Florida at 52. . . PAA has asked CAB for permission to serve Stuttgart in the American zone of Germany.

CAB SCHEDULE

Sept. 13—Oral argument in airfreight case. (Docket 810, et al.)

Sept. 17—Prehearing conference on additional service in New England area and on Northeast-Wiggins route transfer case. (Dockets 2196, et al, and 3337.)

Sept. 21—Hearing on CAB's investigation of Challenger Airlines' certificate termination date. (Docket 3369.)

Sept. 27—Hearing on CAB's investigation of free and reduced rate transportation. (Docket 2737, et al.)

Sept. 27—Hearing on Challenger Airlines' application to serve Vernal, Utah, and Casper, Wyo. (Dockets 3183 and 3198.)

Sept. 29—Oral argument in TACA, S. A., foreign air carrier permit renewal and amendment case. (Docket 3016.)

Oct. 4—Hearing in Capital Airlines mail rate case. (Docket 484.)

Oct. 4—Hearing on route consolidation applications of American, Eastern and TWA. (Docket 2581, et al.)

Oct. 18—Hearing on Board's enforcement action against Standard Air Lines. (Docket 3357.)

Oct. 25—Hearing in U. S.-Alaska service case, postponed from Oct. 11. (Docket 3286, et al.)

Nov. 1—Hearing in reopened Mississippi Valley and southeastern states cases. (Dockets 548 and 501.)

PICTURE CREDITS

Bachrach—21 (right); Johnson—16 (top); INP—12, 14; NACA—33; USAF—25, 26 (top left), 27 (top right).

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Warning to Busy Executives: Please do not start reading this column. No significant business news or trends. No vital statistics. No alarms. No sober pointing with alarm here. Anything you learn from this department will be coincidental.

This trial flight may be the end. It will be, unless readers come to the rescue with contributions. We like whimsy. Funny things happen in this business. Tell us about them. Absolutely no prizes or remuneration will be offered, however. We want personal items about well-knowns in aviation, especially news of whereabouts of old timers or those no longer in aviation.

Sometimes we'll write the column; sometimes it will be up to others on the staff. We like nothing better—despite your suspicions to the contrary—than to give a pat on the back to someone for a good job, even if it's our competitors in the aviation publishing struggle. This is all we can forecast about what you will see here in coming weeks—if there are any.

• • •

FIRESTONE PRESS ROOM, CLEVELAND, O.

Did you know Jacqueline Cochran was nearly disqualified at the Bendix pre-race pilots meeting in L. A.? Scholer Bangs, our West Coast news hound, reveals that Jackie was unable to prove she held a pilot's license. She had left it at home. But her sporting male competitors voted unanimously their agreement that she probably had a ticket.

We've had our share of little errors in AVIATION WEEK, including the famous printer's typo some weeks ago about a "fixed wench" installation in a helicopter. So we read with proper sympathetic interest in the press handbook on the National Air Races that "Jackie Cochran is the husband of Floyd Odlum . . ."

Has General Motors abandoned Aeroproducts Division at Dayton? Not so you could notice it. W. J. (Pete) Blanchard, Aeroproducts general manager, lets us know. Our financial commentator reported recently that GM's sale of North American divested it of all aviation manufacturing interests.

• • •

RACE SQUIBS—Poor Dick Darrow, emissary of the Glenn L. Martin Co., reverberated in the press stand when the show announcer gave Douglas credit for building the Martin B-45 . . . A scribbled bulletin from Newhawk Colbert (one of AVIATION WEEK's five men at the Races) reports that, at the start of a brief shower, it took longer to put the top up on one of the flashy Willys Jeepsters in front of the crowds than it did for Robert Edison Fulton to shed the airplane parts of his Airphibian and drive away.

Everyone at the Races was asking what has happened to genial Fowler (Sam) Barker, the popular editor of Air Transport Magazine. The Old Air Carrier has been sojourning in a village in France, where has been climbing the Pyrenees, going down to sea with the local fishermen, and writing. His latest postcards say he may be back in the states as early as mid-September.

John Guenther (pronounced Gunther), Lockheed's able New York public relations representative, had a ready answer for the stock question put by everyone introduced to him for the first time: "No, I am the outside Guenther."

We missed seeing Lowell Swenson at the Races. The former executive vice president of NAA is now general sales manager of the Wagner Manufacturing Co., at Cedar Falls, Ia. The firm makes overhead garage doors, hardware and elevator equipment. This year NAA was represented by Bob Phelps, Lowell's successor . . . Ed Boughton, of TWA public relations in N. Y., says Bill Pluchel, TWA's director of airmail and air express, is recuperating nicely after an emergency appendicitis operation in K. C.

Airline people at the Races agreed that the industry will miss Buell Patterson, a genial and adept old-timer, who has resigned as director of public relations for American to take a top promotion post with David Lawrence's U. S. News in New York. Just before leaving New York for the Races we attended a farewell press party for Buell at the Admiral's Club at LaGuardia. It was only incidental that American's first sleeper was leaving for the West Coast simultaneously. We chatted with C. R. Smith (author of the 3-cent airline piece in the Post) and wondered—Why does C. R. look like the cat about ready to swallow canaries when you ask him if AAL will start air-coach service???

And Hy Sheridan, American's literary DC-6 throttler who is a columnist in Flying and crashed the Saturday Evening Post the other day, writes: "Yours for Sadie the Stewardess, who says that I have done pretty well for an amateur but a girl knows by instinct how to increase circulation."

BOB WOOD

WHAT'S NEW

New Services

"Air Traffic Digest," published Monday through Friday except holidays, has been established by Fay Traffic Service Corp., 1703 K St., N.W., Washington, D. C. Subscription rate is \$175 a year; \$52.50 for 13 weeks. Shown are all tariff filings with CAB plus day-to-day airline financial and traffic trends.

The corporation, in addition to its daily publication, is prepared to render services as management counsel and in preparing surveys, studies and reports, market research, sales and advertising analysis.

"To enable complete economic studies of comparative rates and services, the company has established the most complete airline and related tariffs in existence," Edward A. J. Fay, company president, announced.

This file, plus the experience of the staff in freight, express and mail rate research and analysis, will enable the company to prepare reports on each carrier's particular position in the local, national or world-wide pattern of air or surface transportation, it was announced.

Fay organized the Tariffs and Service Division of the Civil Aeronautics Board in 1938 and served as chief of that division for the first seven years of the Board's existence. He became Cargo Traffic Manager of Chicago Southern Air Lines in 1945, and established that company's initial domestic and international airfreight services. In 1947 he became U. S. Traffic & Sales Manager of Linea Aeropostal Venezolana, resigning to head his own firm.

"Air Tariff Reports," issued three days a week from tariff and fare data filed by the carriers with the CAB. Separate reports for cargo and passenger data are issued. Full information has not been sent to AVIATION WEEK, but is available from the publishers, American Aviation Publications, 1025 Vermont Ave., N.W., Washington, D. C.

New Name

Effective with the September issue, the name of American Aviation Air Traffic Guide is changed to Official Airline Guide.

New Reference Books

"Comparative Costs of Air Carrier Capital," revised through Dec. 31, 1947. Prepared by F. H. Crozier, chief, Analysis Division of the Economic Bureau of Civil Aeronautics Board, Washington, D. C. 80-pages, multi-lithed, paper cover.

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EDITORIAL

Trippe and Smith Show The Way

Two airline top executives have just given dramatic new evidence to show why they are generally considered the leaders in their industry. Although C. R. Smith has gone along with the other domestic airlines in raising fares on his DC-3s, DC-4s, and Constellations to the old DC-6 level, he has given polite notice that he has no intention at this time of upping DC-6 tariffs unless compelled to do so by CAB. He thus disagrees with every other domestic carrier using Sixes and Constellations, all having jumped these fares another 10 percent.

Juan Trippe, president of Pan American Airways, has struck out boldly at higher fares twice. First, PAA announced new trans-Atlantic excursion fares effective Oct. 1 cutting costs to one and a third times the present rate. American Overseas, TWA, and most of the foreign lines quickly followed.

Pan American then startled the industry, announcing it would start a new daily reduced fare tourist service between New York and Puerto Rico in converted tourist-class DC-4s of 64 seats instead of 52, at 4.6 cents a mile, without sacrificing speed or safety. These schedules will be operated in addition to the line's regular de luxe Clipper service between the two points.

Moves by both executives hearten us. They reflect some of the vision this industry once had before most of its bigger companies settled down to complacency. De luxe transportation is commendable if you can fill the seats. But to neglect the possibility of enticing thousands of new travelers, or thousands of present-day customers from the railroads, over to coach type aircraft—even if only experimental services are launched—is to us unfathomable blindness on the part of those major carriers which are losing hundreds of thousands of dollars during what should be the peak of the air travel season. What can winter bring?

"Air fares can and will, by constant increase, reach an area of diminishing return," Smith warned CAB in his letter which gave notice that American would not request any higher fares for its Sixes. The company's board chairman said, "Each succeeding price increase brings us closer to that area. Any increase in price at this time will be the third within a year. This increase, therefore, has greater probability than any preceding it to bring us surely into the area of diminishing return."

"If we raise fares substantially, and if customer resistance is sufficient to diminish business volume and income, our judgment is proved at fault . . . look at the graph which depicts the total purchase of first class transportation; its decline has been steady and continuing; the impact of the family budget is permitting fewer people to travel. The urge is still there but a large part of the budget ability is gone."

"Some years ago, in determining the level at which air transportation could be sold without undue customer resistance, the carriers could feel reasonably safe as long as the price of their product would compare favorably with that charged for first class rail transportation."

"There is no safe area there today, for rail transportation, through successive price increases, has itself reached an area which provides discouragement to the potential traveler, and the price of first class rail transportation today is diminishing the total of first class travel. . . . The Wall Street Journal last week ran nearly two columns, devoted to an analysis of the travel market, ending with the conclusion that the present high fares on the rail and air lines are operating to require people to travel by other and less expensive methods of transportation. All of our recent experience sustains this viewpoint. We do not require further fare

increases to price ourselves out of the purchase range of a substantial group of people; already at present prices we have priced our product beyond their ability to purchase."

"Some would gain comfort for the present level of fares, and even seek to justify a further price increase, by favorable comparison of the cost of our product today with the price of that product 10 years ago. Certainly that comparison has logical place in any analysis of the situation, but historical price comparison is not the governing factor, perhaps not even the principal factor."

"No one should undertake a sales and pricing program until he has at least endeavored to find the depth and worth of his potential market. Certainly he should know where he will seek potential customers. Ten years ago air transportation was in the business of selling a product, expensive to produce, at a high price, to a limited, high income group. Today we are in the business of selling air transportation to a much broader market, composed principally of people in the middle and lower income brackets. That is not supposition. . . .

"It would be foolish to reach any other than the conclusion that we have already entered the area of diminishing return for certain income classifications; the load factors show that generally, and individual cases show it specifically. . . . I doubt that any sensible person could conclude that there should be no additional fare changes, now or later. A position so dogmatic would reveal nothing except ignorance. . . . If inflation continues, prices will go up—all prices, including air transportation . . . but it seems to me that our problem is to evaluate the present and reasonably foreseeable force of inflation in the U. S. and to price our product, based on that judgment, in such terms as will presently bring us greatest income and provide best opportunity for profitable operation. . . .

"Therefore, we are opposed at this time to any increase in the 6-cent fare. We believe that in the present delicate state of the travel market it would only result in a decrease in income, a result exactly opposite to that desired by the Board. . . .

"On round trip discount it is and has been the view of American that round-trip discounts represent an outmoded system of selling, one originally sponsored by the rail lines and adopted by the airlines foolishly without mature consideration of the problem."

"If we sell a one-way ticket for \$100 and permit a discount of 10 percent for round trip, the cost of the journey is \$180. If we are willing to sell two tickets to the same person for \$180, we are in favor of selling one to the same person for \$90, for that permits us to advertise a lower fare level. We would prefer advertising that we will sell a ticket for \$90 than to advertise that we will sell it for \$100, with small type underneath explaining that a discount is available. We are in favor of the railroads maintaining their present practice, for it gives us sales and advertising advantage."

Aug. 9 on this page we deplored the air transport industry's lack of vision on higher fares, its lack of initiative in experimenting with second class air coach service, its failure to cut costs as substantially as necessary, and its dangerous philosophy of forever going to the government for more mail pay to continue its inefficiency. Messrs. Trippe and Smith by their courageous action have now given encouraging evidence of a return of bold leadership. The dike is cracked. An inevitable movement to mass air transportation is starting. There is some vision in the business after all!

ROBERT H. WOOD



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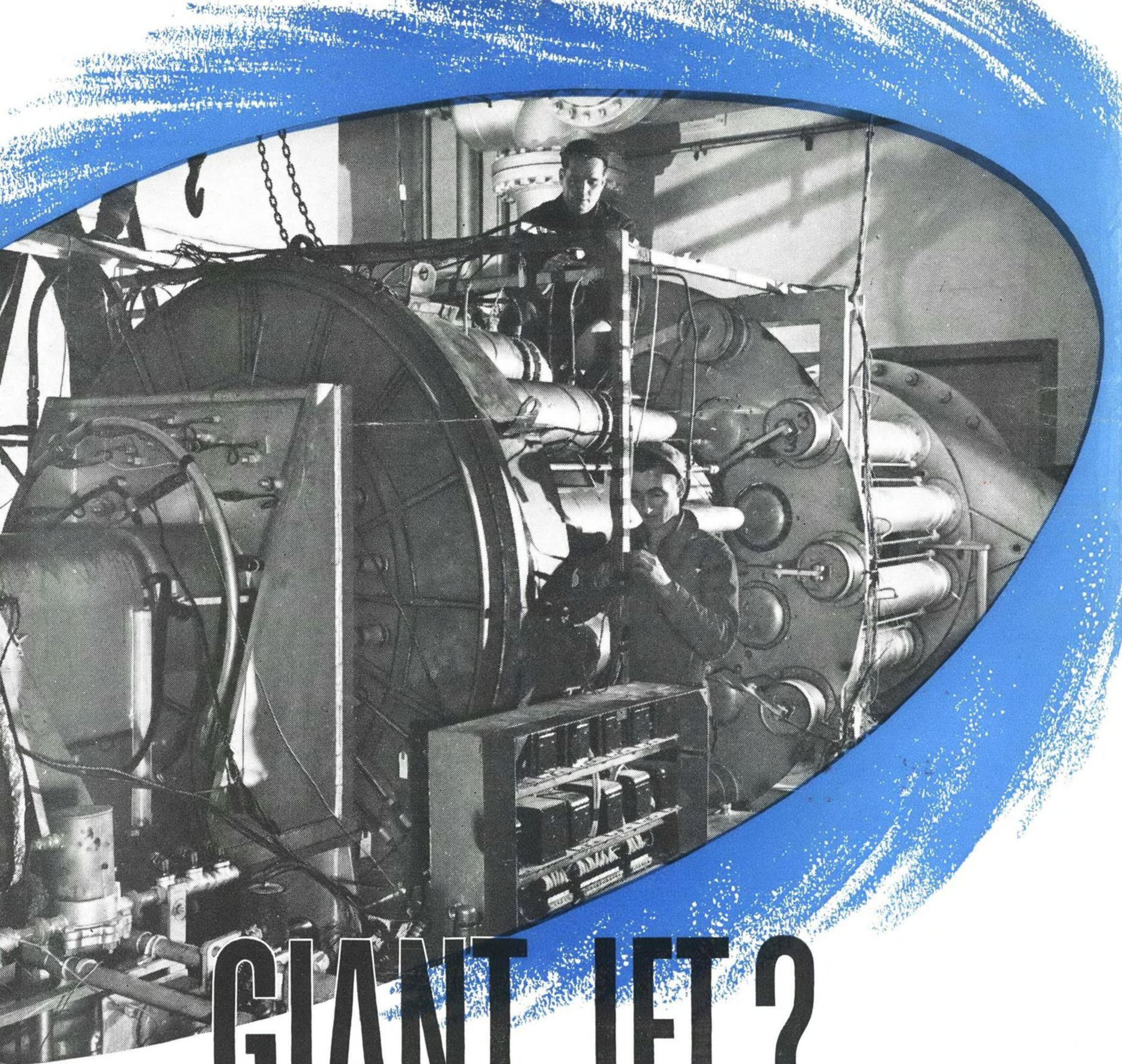
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