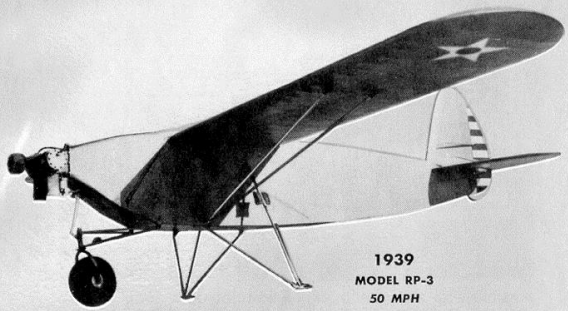

Ten Years of
RADIOPLANE
DEVELOPMENT
★ ★ RESTRICTED ★ ★
FOR AUTHORIZED PERSONNEL ONLY

★ DESIGN EVOLUTION ★

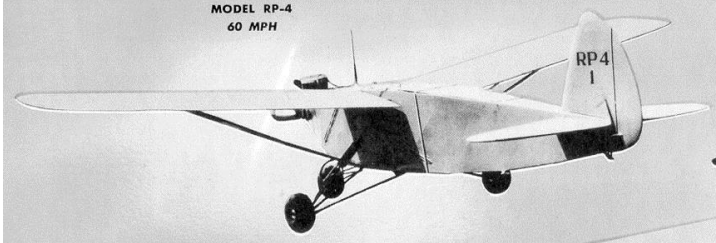
Development of the RADIOPLANE target is interesting from the standpoint of improvements realized through a succession of models perfected for use by both the Army and Navy. From the time of the completion of the first demonstration model bearing the manufacturer's designation "RP-1", the target has shown the result of aggressive work in the perfection of design, control, durability and ease of maintenance–all representing advancement in the target's military utility. Throughout the course of development RADIOPLANE COMPANY engineers had the benefit of close collaboration from the Special Weapons Branch of Wright Field's Equipment Laboratory and more recently from the Special Designs Section of the Navy Bureau of Aeronautics. Without the cooperation of those military engineering agencies, the design advancements would not have been possible.

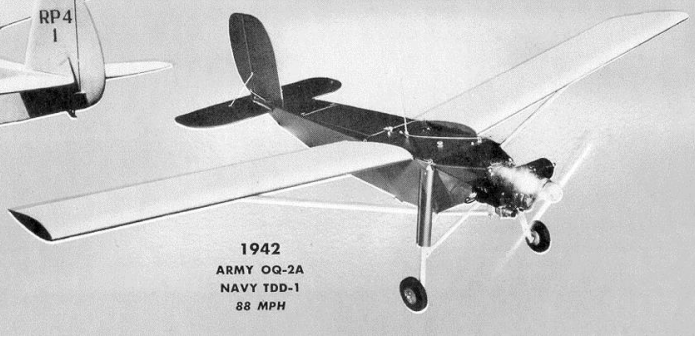
A speed of approximately 50 mph was maximum for the prototype RP-1, a high-wing monoplane with a nine-foot wing span and conventional landing gear.



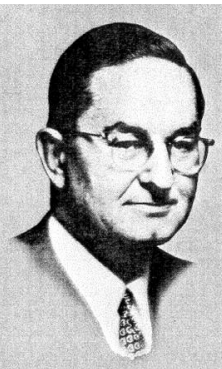
1939
MODEL RP-3
50 MPH

1940
MODEL RP-4
60 MPH





1942
ARMY OQ-2A
NAVY TDD-1
88 MPH



WHITLEY C. COLLINS
President

HAROLD H. POWELL
Executive Vice President

WILLIAM LARRABEE
General Manager-Treasurer

FERRIS M. SMITH
Vice President-Engineering

RADIOPLANE ADMINISTRATION

REGINALD DENNY
Secretary

WHITLEY C. COLLINS — Bachelor of Science degree in economics, University of Pennsylvania. Wharton School of Banking and Finance. Eight years with Continental Illinois National Bank and Trust Company, Chicago. General manager, treasurer and director of the original Lockheed Airplane Company. Vice-president and director of Elastic Stop Nut Corporation of America. Director of Menasco Manufacturing Company.

HAROLD H. POWELL—Degree in engineering from Sheffield Scientific School of Yale University. Engineer for General Electric Company and H. M. Byllesby Engineering and Management Corporation. One of the organizers of National Air Transport Company. Partner, Collins-Powell Company.

WILLIAM LARRABEE — Bachelor of Arts and Doctor of Jurisprudence degrees, University of Iowa. Fifteen years practice of law, Los Angeles, engaging primarily in corporate and banking fields.

FERRIS M. SMITH—Graduate aeronautical engineer, University of Michigan. Influential in the design and development of Douglas Aircraft Company's DC-1 DC-2 and DC-3 transport aircraft. Project engineer for the production of Lockheed Aircraft Corporation's XC-35 sub-stratosphere airplane and XP-38 "Lightning" interceptor pursuit.

REGINALD DENNY—With the R. A. F. during World War I. Sportsman pilot. Model manufacturer. President of Reginald Denny Industries, Inc.

120 MPH OPEN AIR WIND TUNNEL

Persistant ingenuity in RADIOPLANE COMPANY'S engineering research was evidenced when the company was confronted with its first, and rigid, Army specifications.

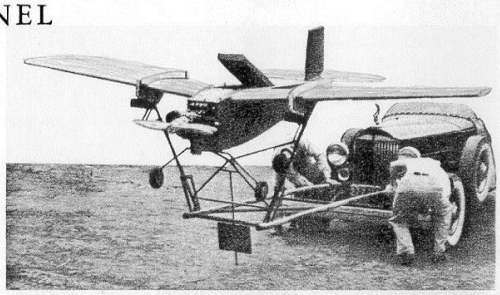
Solution of the problem of longitudinal balance was necessary to assure the stability of production models to come, but at the time when one was most needed, no wind tunnel was available for the controlled testing of an engineering model under simulated flight conditions.

RADIOPLANE engineers met the situation in a manner typical of American industry.

To the stripped-down chassis of a Packard V-12 limousine was attached a steel tube framework extending ahead of the automobile and terminating in supporting brackets for the mounting of the test model plane.

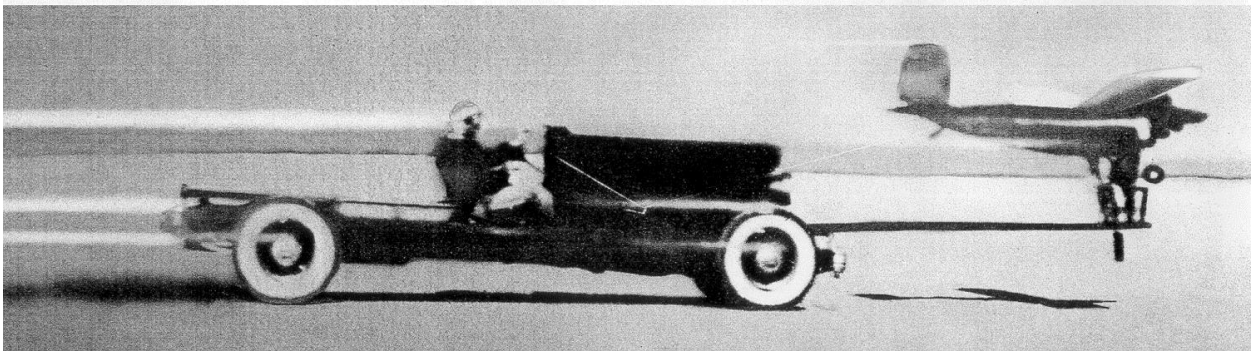
Racing over the table-smooth surface of Muroc Dry Lake, this "blue sky wind tunnel" subjected the model to true flying speeds up to 120 miles per hour, showing quickly the airplane's characteristics of balance.

Design changes to eliminate the balance "bug" were made



possible with a minimum expenditure of time. This was accomplished without trial-and-error crash losses of costly engineering models each of which represented a heavy investment in design and production manhours.

RADIOPLANE'S high standard of engineering resourcefulness was indicated by the creation of this apparatus. So successful was it in determining the sensitivity required in target controls that after testing the first three models, no further use of it was necessary.

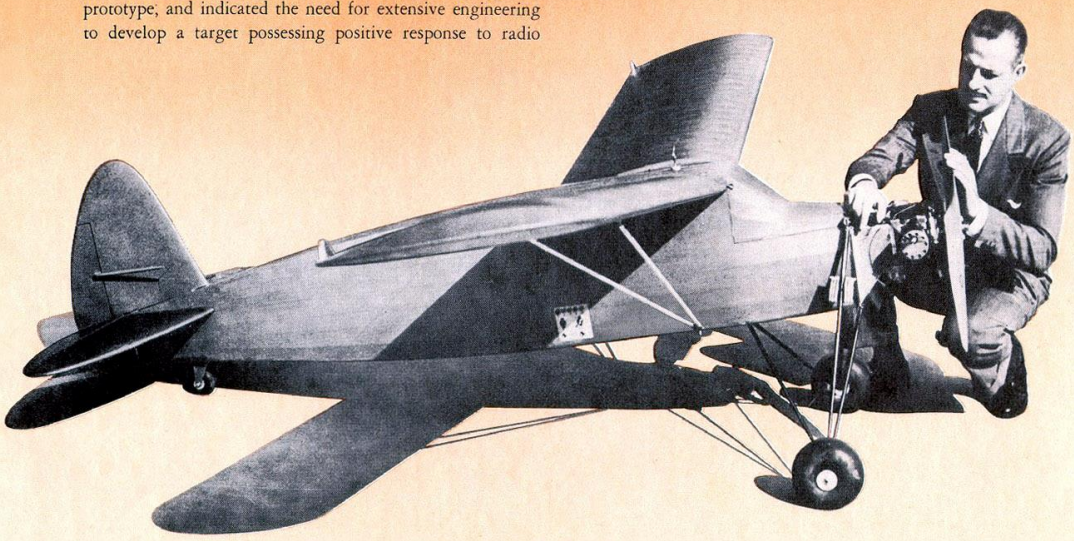


EARLY DEVELOPMENT ★ ★ ★

In 1935, after nearly five years of preliminary experiments Reginald Denny, in collaboration with N. Paul Whittier, designed and constructed a gas-driven model airplane that incorporated a semblance of radio control.

Their belief that it might be adapted to use as a military target stimulated Army interest. A test flight at Fort MacArthur before Army observers was of brief duration, but sufficient to result in the award of an experimental contract for three units. These were to become the first non man-carrying, radio-controlled aerial gunnery targets ever built. Specifications exceeded by far the accomplishments of the prototype, and indicated the need for extensive engineering to develop a target possessing positive response to radio control under all conditions, a catapult launching mechanism, and a parachute release permitting recovery of the target with a minimum of damage.

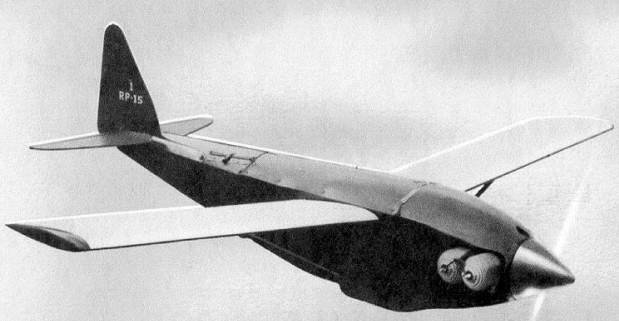
The association of Whitley C. Collins and Harold H. Powell was sought in creating the nucleus of a manufacturing organization which was expanded, after Army tests of the three experimental models, into the RADIOPLANE COMPANY, now located at Metropolitan Airport, Van Nuys, California.



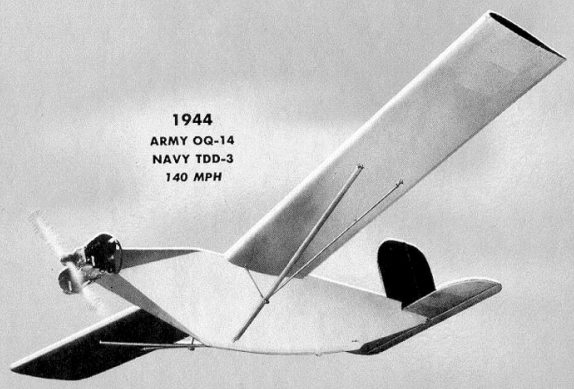
The RP-15 with a twelve foot wing span and powered by a four-cylinder engine, which was completed January 1, 1945 attained a test speed of 200 mph.

Radio control range of the RP-1 was limited to 400 feet. Today's production models are limited in control only by the range of vision and perform any maneuvers common to standard aircraft. They have been piloted from ground control at altitudes up to 12,000 feet and are operable, by maintaining visual contact by means of binoculars, at distances well beyond the range of normal vision. They are flown with equally good results from control planes.

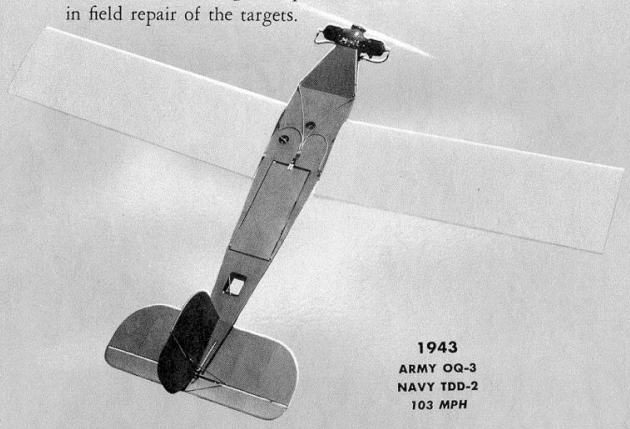
Welded tubular steel construction has replaced early plywood construction and increased to a marked degree the percentage of units repaired and flown again and again after gunfire "hits". Present construction has reduced to a near-absolute minimum damage resulting from parachute descent. With each change careful attention has been given to improvements in maintenance features to offer a maximum number of interchangeable parts and minimize time losses in field repair of the targets.



1945
MODEL RP-15
200 MPH



1944
ARMY OQ-14
NAVY TDD-3
140 MPH



1943
ARMY OQ-3
NAVY TDD-2
103 MPH


PARACHUTE RELEASED!

The fact that the RADIOPLANE target had been developed and was in use by the Army Air Forces before Dunkirk, established the wartime importance that was to be attached to RADIOPLANE COMPANY.

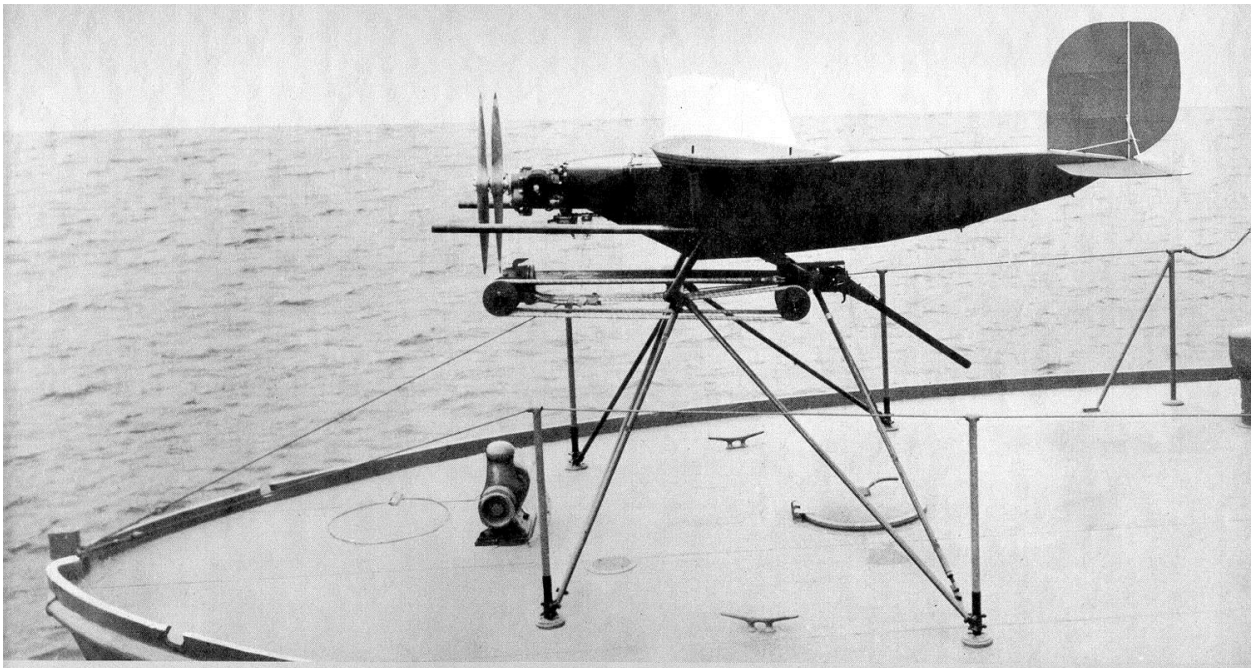
When the United States was forced into the war, operational tests of early production models had proved their tactical usefulness. All that was necessary to obtain production, geared to the demands of extended combat training, was the physical expansion of the company's plant facilities. The bulk of engineering research already had been accomplished. Air warfare had gained such headway by the time Japan attacked Pearl Harbor that the benefits of training both surface and flying gun crews with "live" and lively targets were obvious to military authorities.

RADIOPLANES proved ideal in simulating every conceivable type of air attack, and the improvement of the morale of gunners as well as their accuracy was notable wherever they were used as training equipment.

It is probable that familiarization of gun crews with such actual conditions of air attack has resulted in the saving of thousands of lives.

RADIOPLANES have been used successfully in the training of gunners manning weapons ranging from the Garand rifle to 90mm. anti-aircraft guns employing unseen firing technique.

In operation and manufacture alike, the RADIOPLANE target is similar to a man-carrying airplane.
Only in launching and landing are the two aircraft dissimilar. The target is always launched by catapult, which in the Army version is moveable to take advantage of wind direction and in the Navy version is deck mounted. The target's recovery is effected by the radio release of a parachute. Its rugged construction enables it to survive repeated descents, even upon hard surfaces, at a parachute speed of 20 feet per second. Unless the power unit or controls are damaged by gunfire, the recovered target usually re-

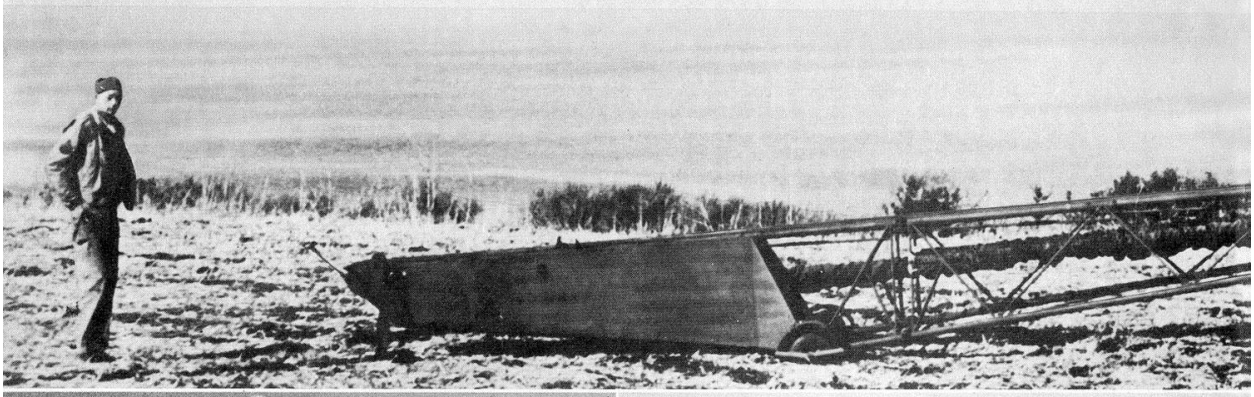


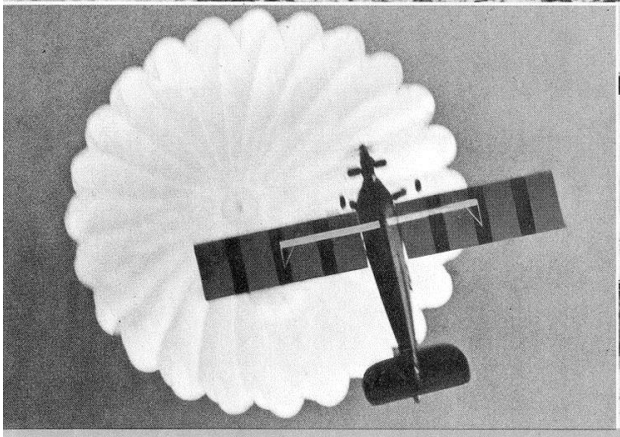
quires only refueling and the installation of a freshly packed parachute to prepare it for another flight.

As is the case in the manufacture of combat aircraft, target plane assembly has advanced from unit to mass production. At the Metropolitan Airport plant of RADIOPLANE COMPANY, production line methods are employed and full use is made of jigs and fixtures to insure both uniformity of the product and a minimum expenditure of manhours per unit.

Noteable too, in the RADIOPLANE target, is the attention given to easy replacement of the parts and accessibility of engine, radio and servo control installations.

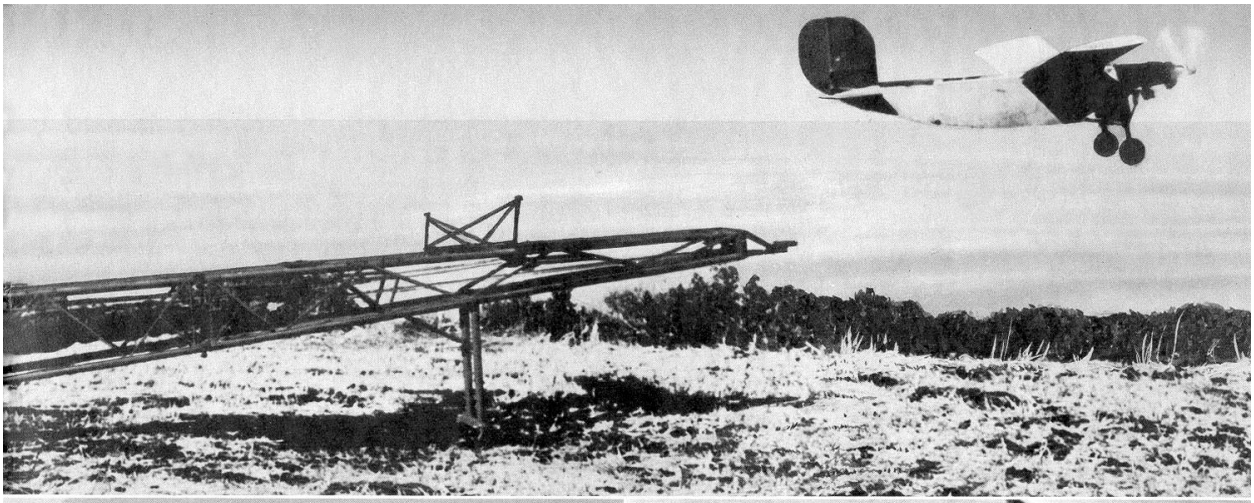
OFF ON ANOTHER MISSION

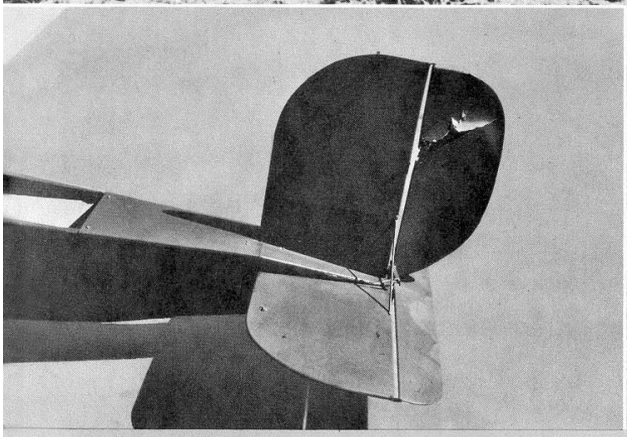




MISSION OVER—FLOATING TO EARTH

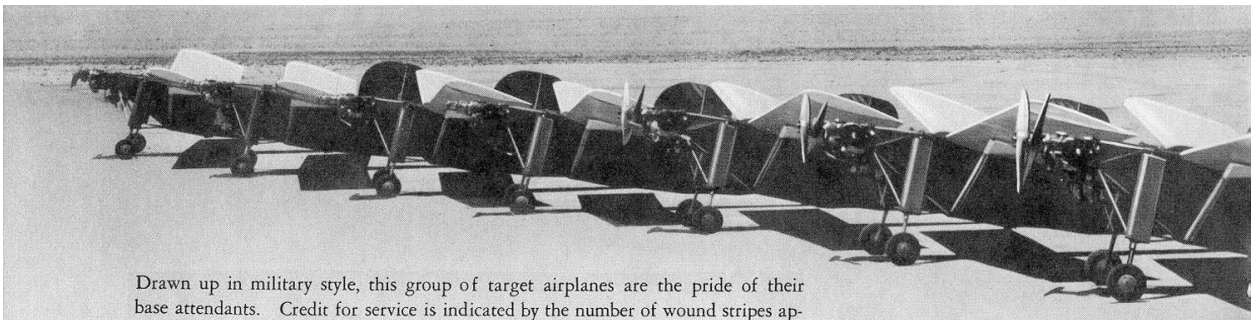
JEEP CREW RETRIEVING TARGET PLANE



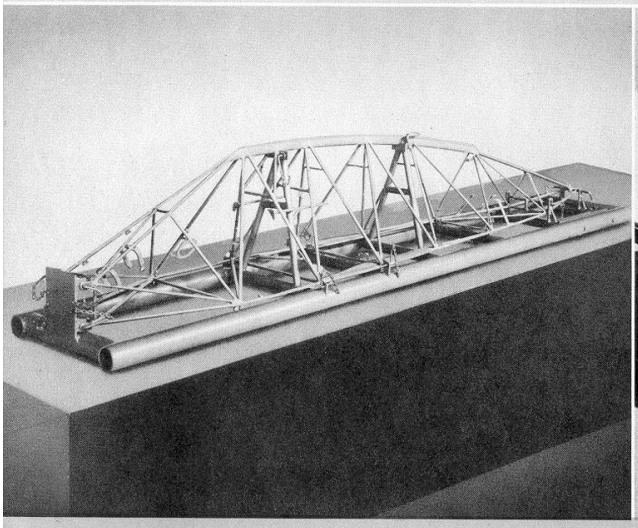


LIKE BIG BROTHERS — BULLET DAMAGED TAIL

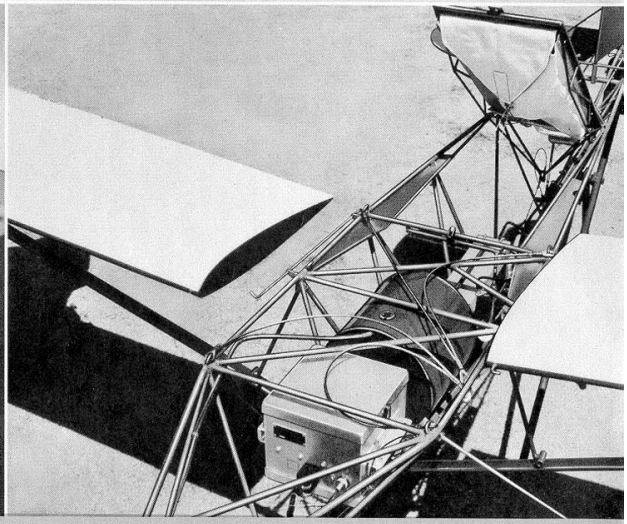
DIRECT HIT THRU ENGINE—PLANE UNDAMAGED



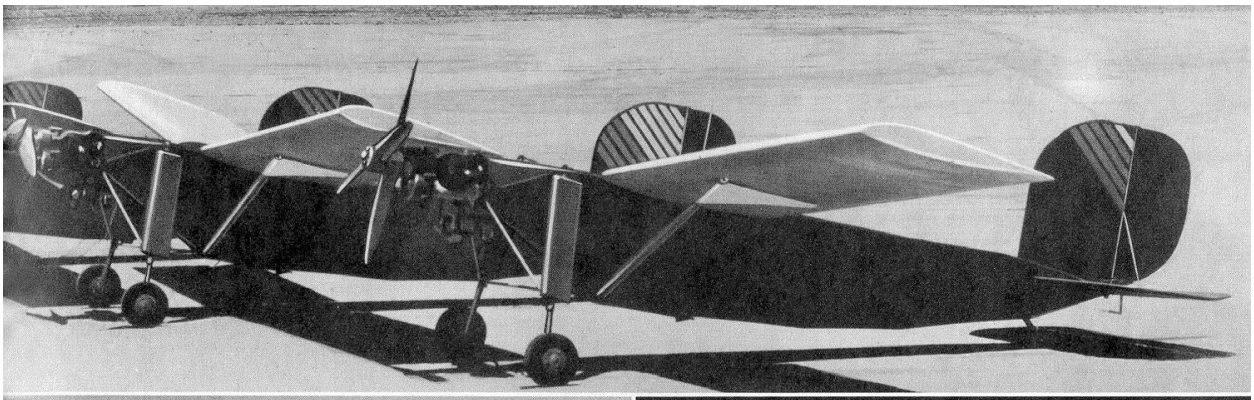
Drawn up in military style, this group of target airplanes are the pride of their base attendants. Credit for service is indicated by the number of wound stripes appearing on the plane's vertical stabilizer. Each stripe represents that the target has been shot down. Some of the doughty little planes wear as many as thirty stripes.

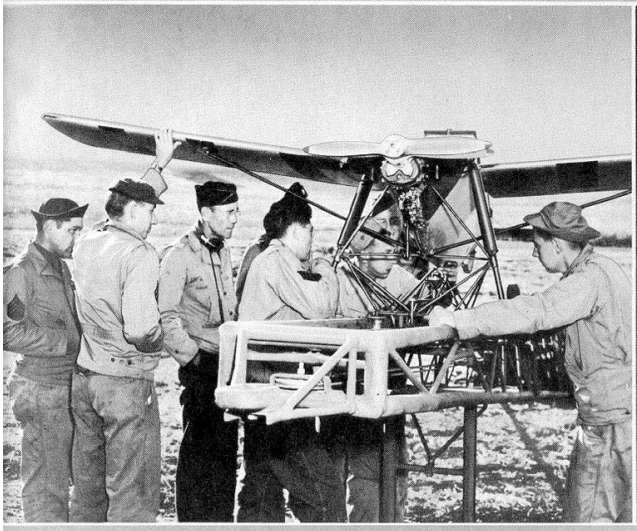


FIELD JIG—FOR ALIGNING DAMAGED FUSELAGE

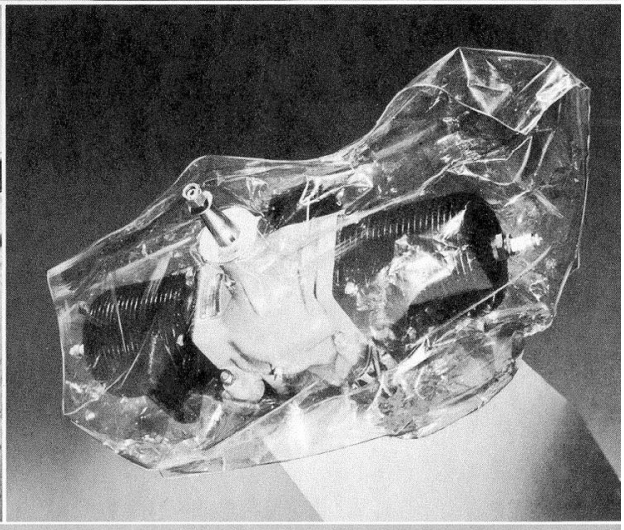


RADIO, FUEL AND PARACHUTE INSTALLATION



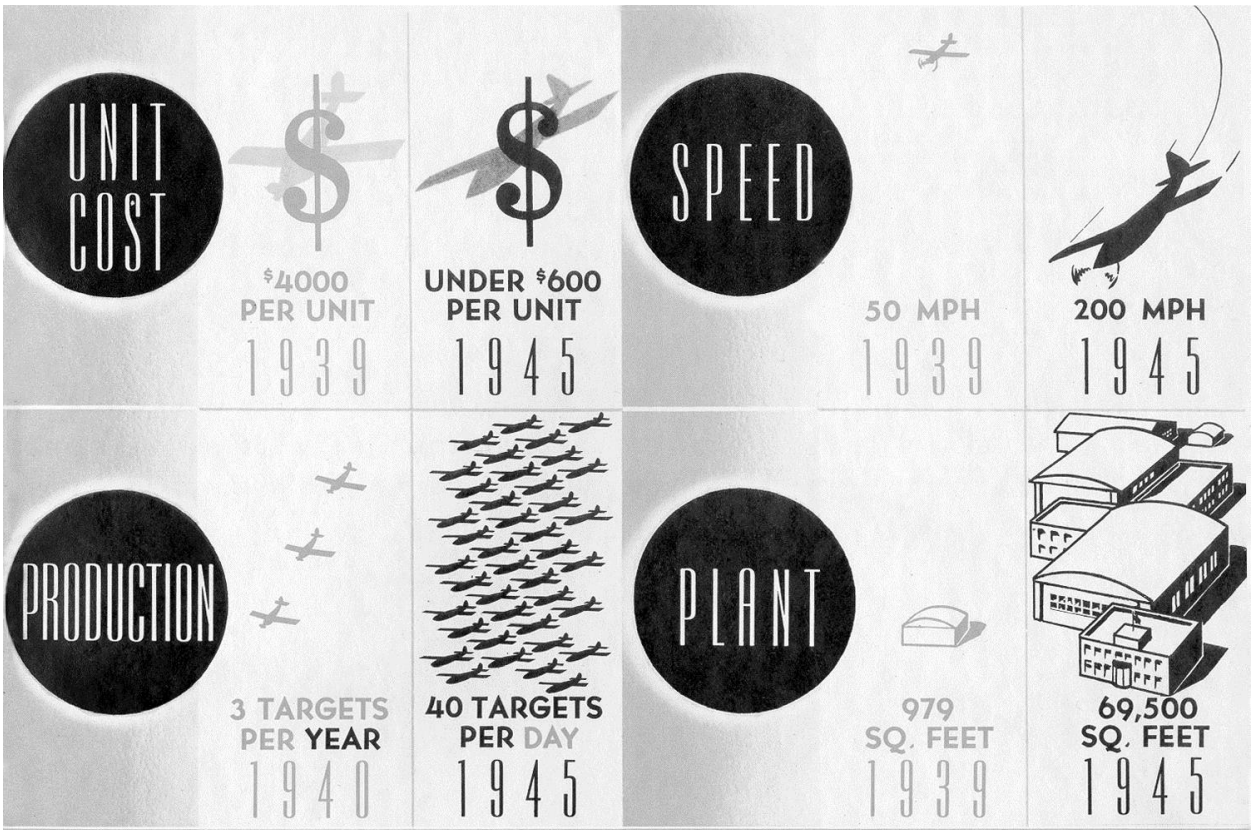


CREW INSTALLING TARGET ON CATAPULT



ENGINE'S MOISTURE-PROOF SHIPPING BARRIER

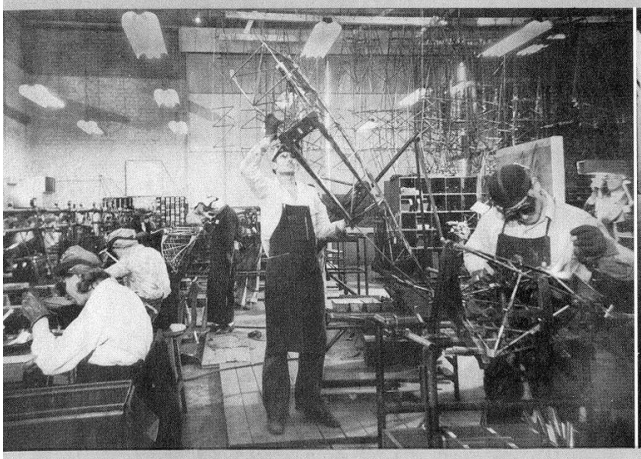
RADIOPLANE COMPANY is the owner of patent No. 2257277, covering radio-controlled parachute release mechanisms that give a distinctive measure of utility to the target. The 24-foot canopy is packed in the hatch in the upper portion of the fuselage between the wing and empennage. Its release mechanism is held in place by the radio transmitter carrier. If this carrier wave is interrupted intentionally by the "pilot" or by gunfire, the parachute is released instantly.



Mass production methods and improved production design have enabled the RADIOPLANE COMPANY to reduce steadily the cost to the Government of radio-controlled targets. While the first few units were sold for nearly $4000 each, the present unit price has been lowered to less than $600. From an original factory area of 979 square feet RADIOPLANE COMPANY has expanded until now it occupies 69,500 square feet of plant area, not including that of sub-contractors.

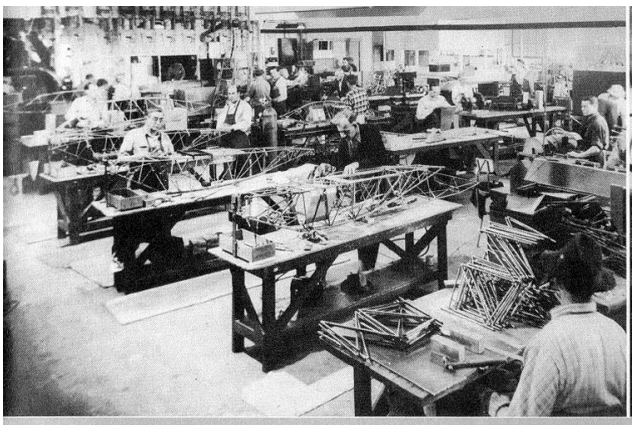
FABRIC CUTTING AND SEWING GROUP

PRODUCTION LINE WELDING METHODS



LARGE AIRPLANE TECHNIQUES IN MINIATURE

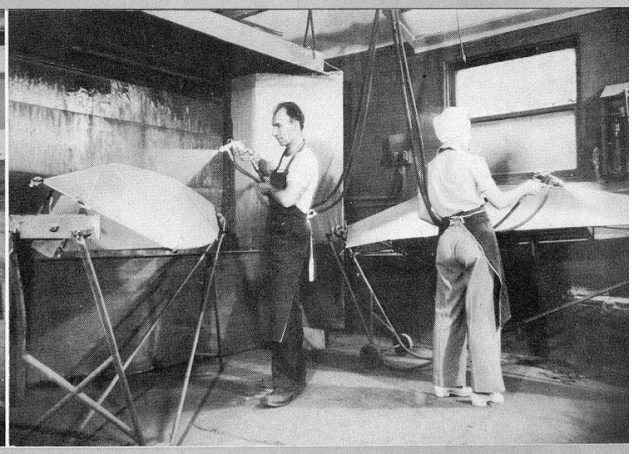
DEFT HANDS COVER FUSELAGE FRAMES



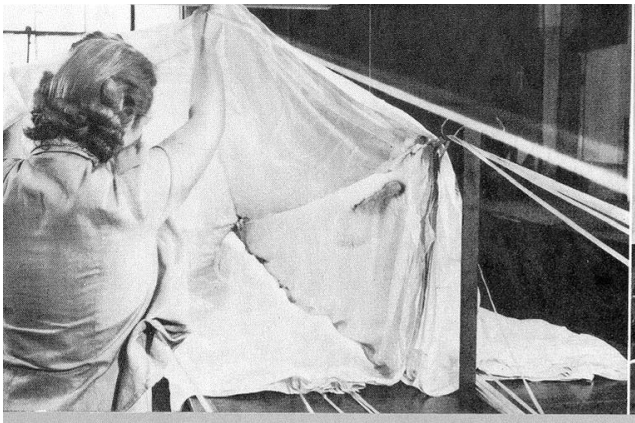
FUSELAGE SUB-ASSEMBLY LINE

PRECISION FIT FOR SHEET METAL PARTS

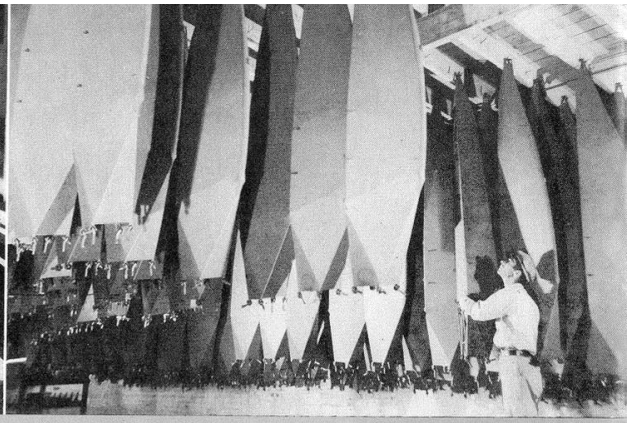
DOPING FABRIC FOR DRUM-TIGHT SKIN



SPRAY PAINTING IN CASCADE ROOM



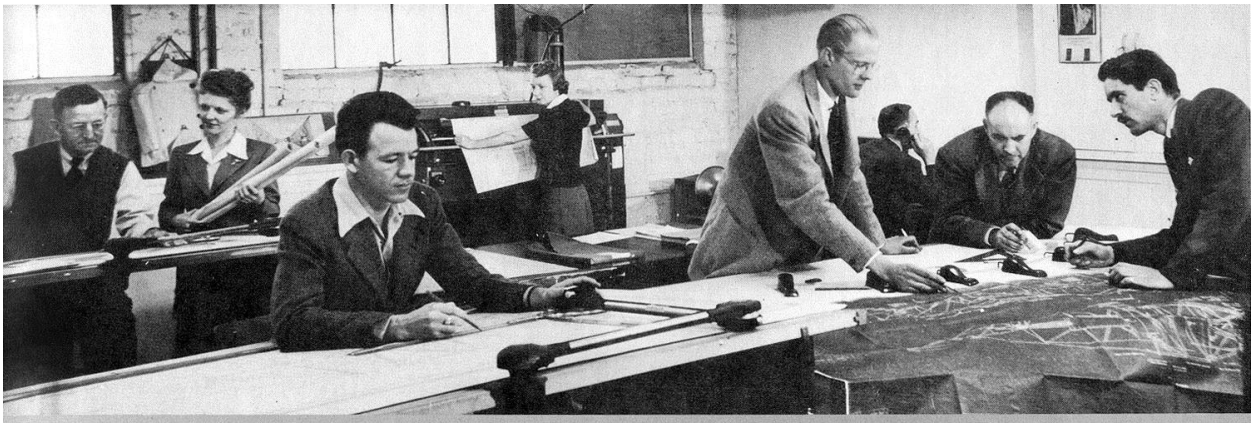
PARACHUTE-LIFE PRESERVER OF THE TARGET



FUSELAGE STORAGE PREPARATORY TO DELIVERY

CAREFUL INSPECTION — PERFECT PARTS ASSURED

"KEEP 'EM FLYING"–"SPARES" IS THE ANSWER



ENGINEERS WORKING TOWARD GREATER SPEEDS AND MANEUVERABILITY

COMPLETE FACILITIES FOR DEVELOPMENT IN FIELD OF RADIO CONTROL

Thousands of radio-controlled airplane targets built by RADIOPLANE COMPANY are being used for training purposes by the Army and Navy throughout the Unitel States and in all theaters of war.

RADIOPLANE'S present production at the rate of 40 units per day gives only a small indication of the extensive use of the target. A single target plane may be good for hundreds of runs over firing range during the period of its useful life.

Utilization of the device has gone well beyond the training of gunnery crews for defense against common attack maneuvers. Control of the target plane has proved so positive that it is being used to simulate every new maneuver observed in combat, with the result that gunners trained in repelling target planes are seldom at loss when under attack by an actual enemy.

RADIOPLANE COMPANY has aimed its ten years of engineering experience at producing a radio-controlled target that will match, in ratio to size, the performance of the most modern fighters. Its engineers are keeping abreast with these developments and are working today upon new experimental models offering greater speed and maneuverability.

There is ample indication, too, that experiments now being conducted by the armed services will require the production of specially designed RADIOPLANE equipment.

Today the expanding utility of the radio-controlled target is such that the Radioplane Company feels amply justified in its possession of manufacturing facilities which will permit an increase of at least 50 percent over current production.

★ ★ ★

RADIOPLANE COMPANY

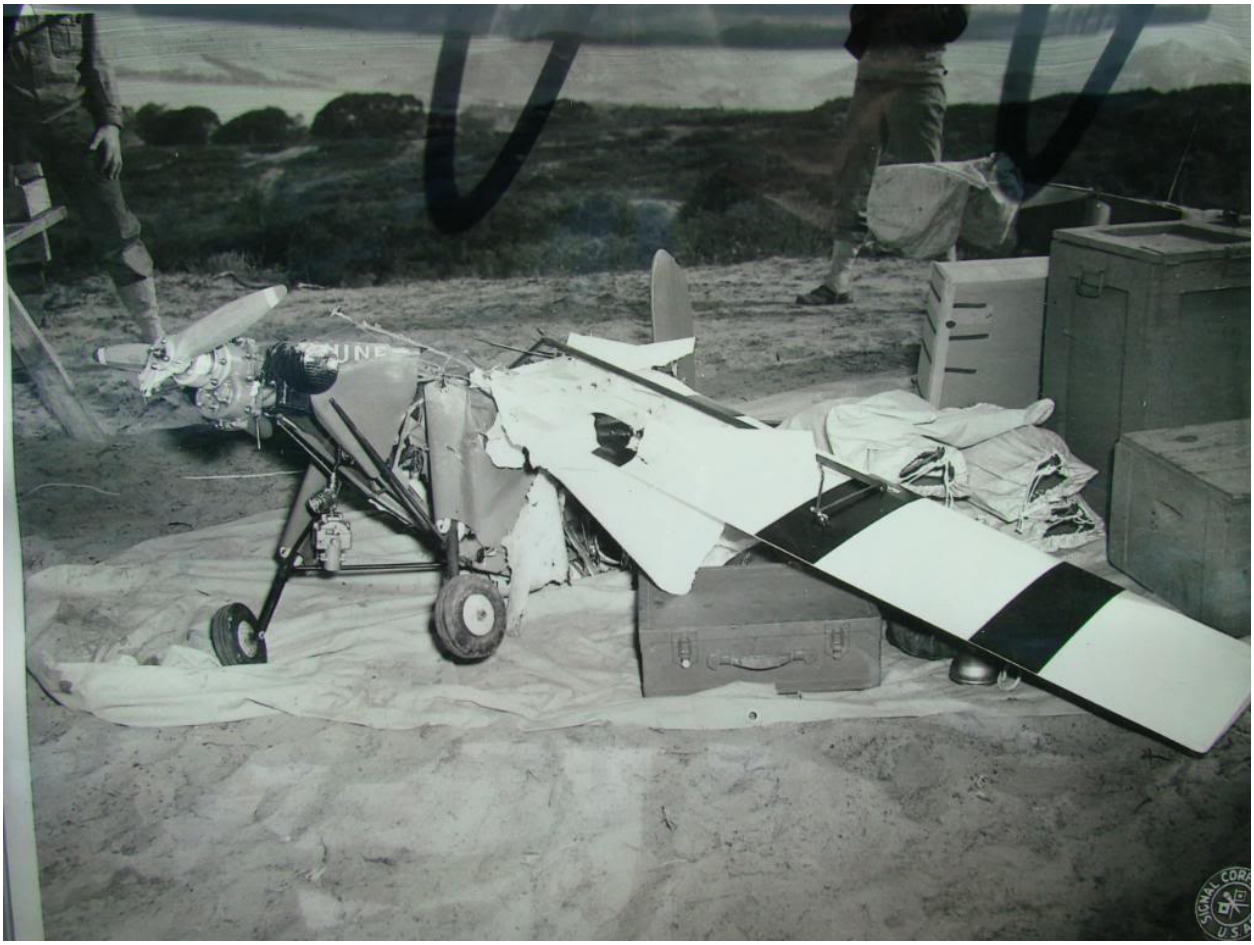
METROPOLITAN AIRPORT

Van Nuys, California

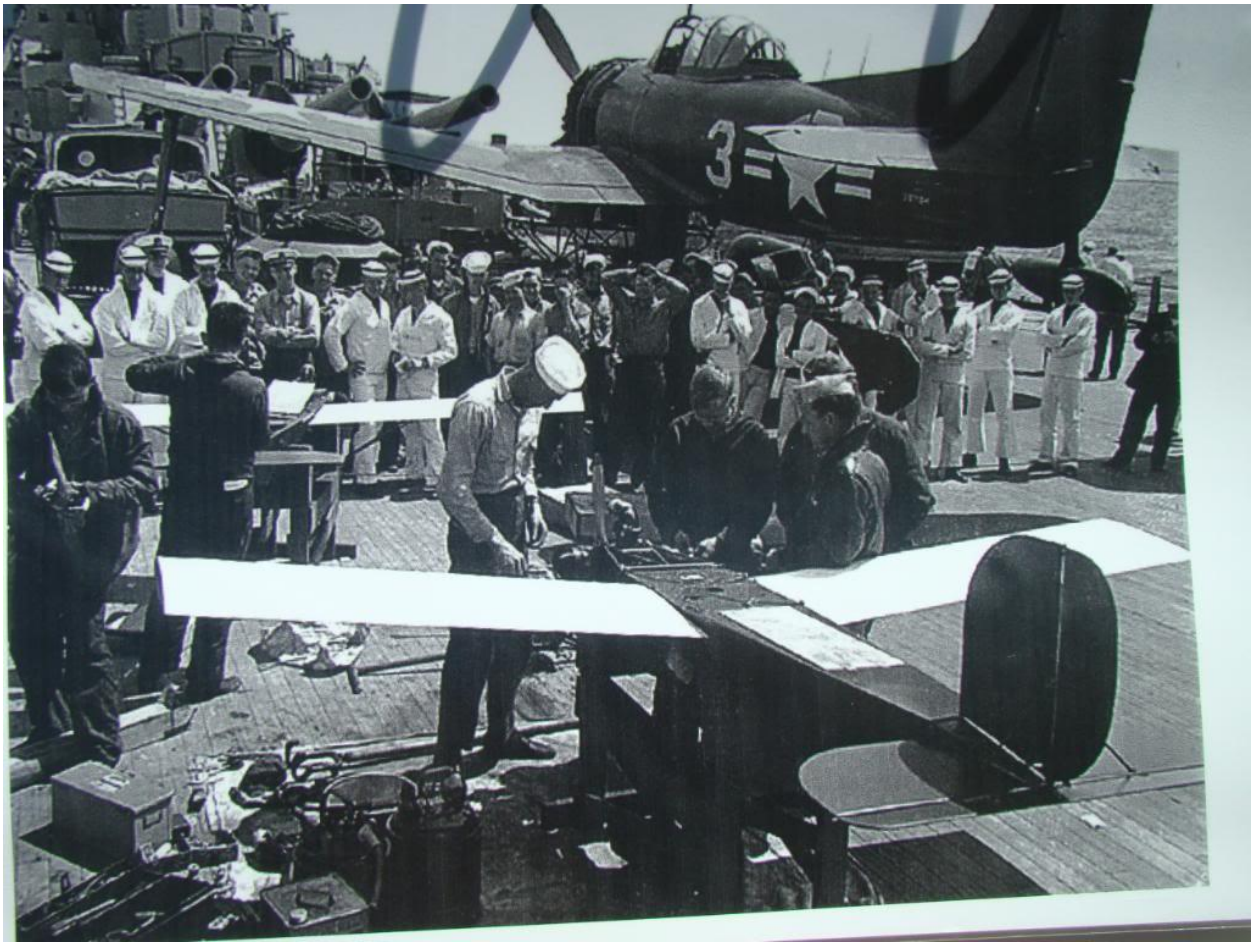
KEMMERRER, INC. - LITHO ART - U. S. A.


USA
D644521
285 CARTRIDGES CAL .50
T11GD
SIGNAL CORPS
U.S. ARMY

782
U.S. ARMY SIGNAL CORPS




SIGNAL CORPS
U.S. ARMY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