

HANDBOOK OF
INSTRUCTIONS
FOR THE

FAIRCHILD

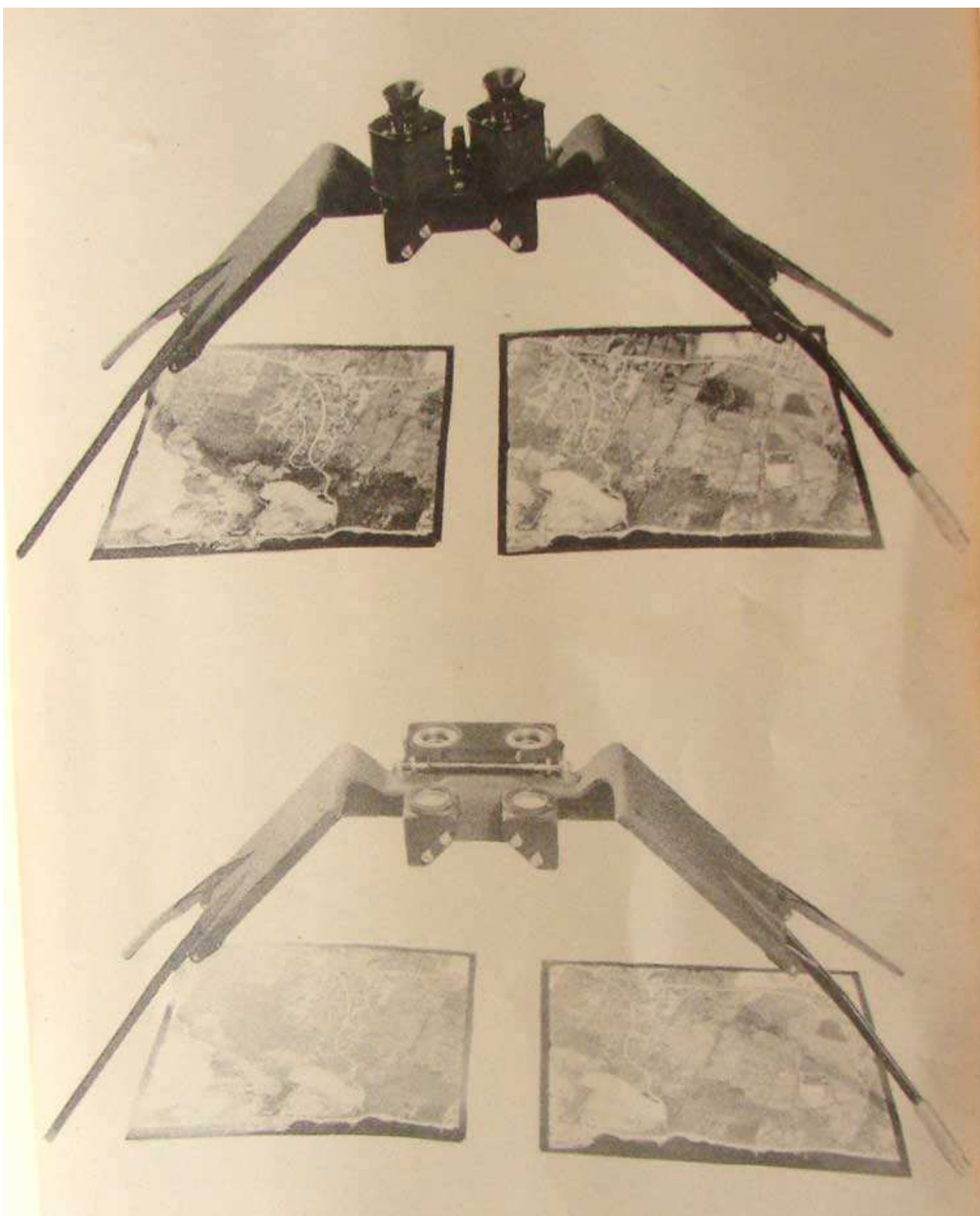
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MAGNIFYING
STEREOSCOPE



FAIRCHILD AVIATION CORPORATION

FAIRCHILD AERIAL CAMERAS • RADIO COMPASSES • INSTRUMENTS • RECORDERS
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FOREWORD

Fairchild Stereoscopes are carefully designed and sturdily built to stand up under all ordinary conditions of service. It should be remembered, however, that they are precision instruments and deserving of the most careful attention and handling.

We recommend that this manual be carefully read before using the stereoscope or giving it more than a casual external inspection.

Every stereoscope is thoroughly checked. It is in perfect condition when it leaves the factory and should be received in the same condition.

GENERAL DESCRIPTION

This instrument is designed for the stereoscopic viewing of overlapping stereoscopic pairs of aerial photographs.

A four power magnifying binocular unit is attachable for viewing particular areas in greater detail. When so attached, this unit conveniently swings into and out of position as required. The binocular supporting plate provides a convenient forehead rest while viewing without the use of magnification.

A special carrying case is provided to contain the complete instrument.

CAUTION: IT IS VERY IMPORTANT IN REMOVING THE STEREOSCOPE AND REPLACING IT IN ITS CARRYING CASE, THAT IT BE GRASPED ONLY AT THE BRIDGE BETWEEN THE EYEPIECES. THIS IS TO SAFEGUARD THE OPTICS AND MIRRORS FROM ACCIDENTAL SMUDGING AND RESULTANT UNNECESSARY CLEANING.

DETAILED DESCRIPTION

FRAME

The frame is a permanent-mold aluminum casting, light in weight, designed to have sufficient strength and rigidity to maintain alignment of all parts, particularly of the optical systems. It is attractively finished in black crystal for durability and corrosion resistance.

LEGS

The Stereoscope is equipped with four hinged aluminum legs, which fold under when not in use. One of the legs is adjustable to different lengths by turning the knurled end. This is to set up the instrument rigidly on slightly uneven surfaces.

MIRRORS

The mirrors are of high quality selected plate glass, first surface evaporated rhodium coated.

PRISMS

The prisms are high grade right angle 45° type, free from color, and are silvered and lacquered on the hypotenuse surface. They are removable and interchangeable and are held in place by cadmium plated steel springs.

LENSES

The collecting lenses are mounted in rings and held firmly in place. They are sealed to prevent the ingress of dirt or other foreign matter between the lens and prism.

AREA OF VIEW

A common area of view without magnification 5 inches high and 7 inches wide can be seen by the observer without moving his head or the instrument.

MAGNIFYING SYSTEM

The magnifying system consists of a demountable four power magnifying binocular set in a plate which hinges in such a manner that it can readily be swung into or out of position for viewing, and is adjustable to accommodate interpupillary distances from 52 mm. to 75 mm. The eyepiece elements are individually focussing and have a diopter scale accommodating a minimum of plus or minus five diopters. The field of view is approximately 1-5/8 inches in diameter.

ADJUSTMENT

The alignment in parallel of the mechanical and optical axes of the optical and magnification systems is controlled by collimation for proper correction and sealed at the time of manufacture.

CARRYING CASE

A special carrying case is provided which has been designed for the storing of the complete instrument.

CLEANING

If it is desired to clean the mirrors, a dry soft lintless cloth should be used. This will not injure them. The prisms and lenses should be cleaned in the same manner as any optical glass, preferably with a camel's hair brush to remove grit and dust, and then with lens tissue.

OPERATION

To use the Stereoscope it is only necessary to unfold the legs and set it up on a surface so that it is perfectly rigid. No other adjustments are necessary. The adjustable leg may have to be corrected.

Photographs are usually numbered, the sequence of the numbers being the order in which they were taken, in the line of flight. The low number of any pair of overlapping photographs is generally placed at the left and the succeeding one at the right. If this order is inadvertently transposed, mountains would appear as valleys, and vice versa.

In orienting pictures for viewing, the simplest method is to place the index finger of each hand on a same common point on each photograph and align them to a position where the fingers merge into a single image.

DELIBERATE METHOD OF ORIENTING PICTURES. (When using Binoculars)

Locate the center point of each photograph by means of the collimating marks registered on the prints. Pin prick these center points and mark them with a fine black circle approximately 1/8" diameter.

Scan the two photos, and locate the center point of each photo in the overlapping area of the other, pin prick both of these points and mark them with a circle. Each photo should now have two points pricked on its surface.

Fasten the left hand photo to the table with thumb tacks or tape, and lay the edge of a scale along the two marked points on the photo with the 0 mark of the scale on the center point of the photo.

Holding the scale in this position with one hand, adjust the other photo so that its two marked points also fall along the edge of the scale and the distance between the center point of the left hand photo and the corresponding image point in the overlap of the right hand photo is 9-3/4 inches.

Fasten the right hand photo to the table in this position and place the stereoscope over the two photos so that it is parallel to a line joining the centers of the photos. Focus the binoculars by rotating each eyepiece separately until the sharpest image is obtained for each eye.

The photographs should now be properly oriented for viewing and should fuse for stereoscopic vision. Should two distinct images appear separated horizontally, it will be necessary to bring the eyes to the required focus by looking through the eyepiece as if gazing off into space, until the images fuse.

If the stereoscope is not exactly parallel with the line of centers of the photographs, one image will appear higher than the other. Should the right image appear to be higher, turn the stereoscope slightly in a counter-clockwise direction until the images merge. If the left image is higher turn the stereoscope clockwise.

