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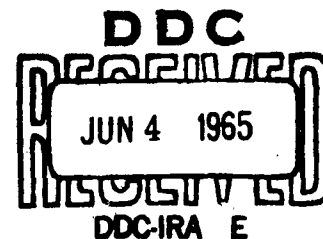
TAC-TR-65-03A

TEST AND EVALUATION
OF
GROUND VISUAL SIGHTING OF
RECONNAISSANCE/CAMOUFLAGED AIRCRAFT



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TAC-TR-65-03A
May 1965

1 MAY 1965

Test and Evaluation of Ground
Visual Sighting of Reconnaissance/
Camouflaged Aircraft

Publication Review

This report has been reviewed and is approved



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HEADQUARTERS
TACTICAL AIR COMMAND
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FOREWORD

This test was conducted under the authority contained in AFR 23-24, TAC Test Orders 65-3 and 65-3A.

This report is based on tests and evaluations conducted by USAF Tactical Air Reconnaissance Center, Shaw AFB, South Carolina.

The following individuals were responsible for the conduct of the test and preparation of the final report:

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ABSTRACT

The use of camouflaged paint on low-flying aircraft provides a marked reduction in their detectability when observed from the air. (Reference TAC Test 63-8, Operational Test and Evaluation and Corrosion Control (RF-101), dated October 1963). However, when the major threat to survival is from ground defenses, the visual acquisition environment changes. Test results indicate that when observed from the ground, the camouflaged paint application is the least desirable of the three paint applications currently in use on tactical reconnaissance aircraft. A non-reflective lusterless paint of the same general shade as the RF-101 acrylic jetskin is recommended. This grey color is identified as shade Nr 36622, Federal Standard Nr 25.

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ANNEX A - COLORED PHOTOGRAPHS

(Included in limited copies. Qualified requesters can obtain prints from USAF TARC, Shaw AFB, SC).

ANNEX Z - DISTRIBUTION LIST

1. INTRODUCTION. The use of camouflage paint on aircraft has always been a controversial subject. Properly applied, the use of camouflage paint on low-flying aircraft provides a marked reduction in their detectability when observed from the air. However, when the major threat to survival is from the ground, the visual acquisition environment changes.

2. BACKGROUND. In February 1965, Headquarters TAC directed USAF TARC to conduct a series of tests to determine the detectability of reconnaissance aircraft by ground observers. The three types of paint application available are the RF-4C with normal paint, the RF-101 with jetskin (grey) paint and the RF-101 with the camouflage paint. These aircraft were photographed with a 35mm camera using Kodak Ektachrome negative film. Four missions were flown and 24 passes photographed. The lead aircraft, RF-4C, normal paint. The right wing position is a RF-101 painted, utilizing camouflage paint. The left wing position is a RF-101 with acrylic jetskin (grey) paint.

3. PURPOSE OF THE TEST. To determine the relative visual detectability of the various paint applications when viewed from the ground.

4. SCOPE OF THE TEST. The test was directed toward the following determination: Does one type of paint application render the reconnaissance aircraft more susceptible to visual pickup and identification by ground observers.

5. CONCLUSION. The camouflage paint application as tested renders the aircraft more susceptible to ground visual pickup.

6. RECOMMENDATION. That a dull, lusterless paint of the same general color as the RF-4C or RF-101 acrylic jetskin be investigated for use in situations where the major threat is from ground defenses.

7. METHOD OF CONDUCTING THE TEST. A total of four missions were flown using an RF-4C with normal delivery paint, an RF-101 with jetskin paint and an RF-101 with camouflage paint. The aircraft were flown in formation using the RF-4C as lead and an RF-101 on each wing. The camouflaged RF-101 was purposely put on the outside wing and flown high for study. A 35mm movie camera was used to record the data. The formation was flown in a race track type pattern around the camera simulating a fighter/bomber

pattern, in order to photograph the airplanes from all possible sun angles. Several passes were also flown directly over the camera. Twenty-four passes were photographed for comparison. Ground observers were used to verify photography results. One pass was deliberately photographed out of focus, attempting to simulate haze and poor visibility, as encountered in first/last light missions.

8. TEST RESULTS: It was apparent from the beginning of the test that the camouflage airplane was distinctly more detectable. The observers used to verify the photography were qualified reconnaissance pilots and the test results have been confirmed by all of them. At all angles and distances the camouflaged airplane appears larger and is so much more detectable that in some cases the photographer would lose the other aircraft and had to rely on the camouflage airplane to track the formation. It must be noted that film results cannot duplicate views as seen by visual observers. Five fifteen-minute 16mm color movies of this TAC test have been produced and are available for viewing by qualified requesters. These films have been distributed to USAF TARC, Hq TAC (DORQ), PACAF (DORQ), USAFE (OTO), and USAF (AFORQ). Colored prints, Annex A, are included in limited copies. Qualified requesters can obtain prints from USAF TARC, Shaw AFB, SC.

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