# THE AGREEMENT BETWEEN INSPECTORS' OBSERVATIONS AS RECORDED ON THE OHIO STATE FLIGHT INVENTORY AND INSTRUMENT READINGS OBTAINED FROM PHOTOGRAPHIC RECORDS

by

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A report on research conducted at the Institute of Aviation Psychology, University of Tennessee, Knoxville, Tennessee, in cooperation with the University of Rochester, Rochester, New York, and the University of Pennsylvania, Philadelphia, Pennsylvania, under the auspices of the National Research Council Committee on Selection and Training of Aircraft Pilots, from funds provided by the Civil Aeronautics Administration and the Tennessee State Bureau of Aeronautics.

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Executive Subcommittee

M. S. Viteles, Chairman

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LETTER OF TRANSMITTAL

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2101 Constitution Avenue, Washington, D. C.
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August 22, 1946

Dr. Dean R. Brimhall
Director of Research
Civil Aeronautics Administration
Room 3895, Commerce Building
Washington 25, D. C.

Dear Dr. Brimhall:

Attached is a report entitled The Agreement Between Inspectors' Observations as Recorded on the Ohio State Flight Inventory and Instrument Readings Obtained from Photographic Records, by R. Y. Walker, Seymour Wapner, David Bakan, and E. S. Ewart, submitted by the Committee on Selection and Training of Aircraft Pilots with the recommendation that it be included in the series of Technical Reports of the Division of Research, Civil Aeronautics Administration.

The report is another in the series growing out of research conducted at the Institute of Aviation Psychology through the cooperation of the University of Tennessee, the State Bureau of Aeronautics, the Committee on Selection and Training of Aircraft Pilots, and the Civil Aeronautics Administration. The study is of particular interest in that it attacks a problem which is of great practical significance, namely, that of improving the consistency of ratings of flight proficiency made by inspectors. The results of the study do not solve this problem, but they lay the ground-work for further investigations in this most important area.

Sincerely yours,

Morris S. Viteles, Chairman
Committee on Selection and
Training of Aircraft Pilots
National Research Council

MSV:rm

# EDITORIAL FOREWORD

One of the principal interests of the National Research Council Committee on Selection and Training of Aircraft Pilots has been the development and evaluation of criterion measures of flight proficiency.[1] The present study represents another investigation in this area, involving a comparison between inspectors' observations of certain critical elements of flight performance, as recorded on the Ohio State Flight Inventory, and photographic records of flight instruments by means of which the accuracy of the inspectors' observations can be determined.

The study is limited by the fact that only two inspectors were employed, and because insufficient data for certain variables were available to warrant as rigorous statistical treatment as would have been desirable. However, despite the limitations of this exploratory study, valuable information has been obtained which points the way towards improving the Ohio State Flight Inventory as a practical field instrument for increasing the consistency of inspectors' assessments of flight proficiency.

The data for this study were collected in the course of research at the Institute of Aviation Psychology, University of Tennessee, Knoxville, Tennessee, under the supervision of Dr. R. Y. Walker, Director. Methods of photographic analysis are largely the outgrowth of work done by M. S. Viteles, A. S. Thompson, and E. S. Ewart at the University of Pennsylvania, Philadelphia, Pennsylvania. The statistical analysis was conducted and a

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[1] Other studies are described in the following reports:

Kelly, E. L. The development of "A Scale for Rating Pilot Competency." Washington, D. C.: CAA Division of Research, Report No. 18, July 1943.

Johnson, H. M., and Boots, M. L. Analysis of ratings in the preliminary phase of the C.A.A. training program. Washington, D. C.: CAA Division of Research, Report No. 21, October 1943.

Viteles, M. S., and Thompson, A. S. An analysis of photographic records of aircraft pilot performance. Washington, D. C.: CAA Division of Research, Report No. 31, July 1944.

Edgerton, H. A., and Walker, R. Y. History and development of the Ohio State Flight Inventory, Part I: Early versions and basic research. Washington, D. C.: CAA Division of Research, Report No. 47, July 1945.

NRC Committee on Selection and Training of Aircraft Pilots. History and development of the Ohio State Flight Inventory, Part II: Recent versions and current applications. Washington, D. C.: CAA Division of Research, Report No. 51, November 1945.

Festinger, Leon, Kogan, L. S., Odbert, H. S., and Wapner, Seymour. An analysis of inspectors' ratings of check flights as recorded on Form ACA 342Z. Washington, D. C.: CAA Division of Research, Report No. 58, March 1946.

Wapner, Seymour, Festinger, Leon, and Odbert, H. S. Comparison of student pilot performance in successive check flights as measured by photographic records. Washington, D. C. CAA Division of Research, Report No. 59, March 1946.

preliminary report prepared by Seymour Wapner and David Bakan at the Statistical Office of the Committee, University of Rochester, Rochester, New York. The final report was largely written by the Editorial Staff of the Committee on Selection and Training of Aircraft Pilots, in particular, by E. S. Ewart.

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## SUMMARY

Because of the fact that employment of the Ohio State Flight Inventory placed a premium on accurate observation it appeared desirable to determine the accuracy of the information recorded by check pilots on the inventory by means of an experimental test. Opportunity for such an investigation was afforded by the fact that motion-photographic records were available in terms of which pertinent information as to the performance of the plane could be obtained for the same flights during which the Ohio State Flight Inventory was filled out. Through comparison of the performance as recorded by the check pilot on the Ohio State Flight Inventory (OSFI) with the performance as indicated by the photographic records, a measure of the accuracy of the observation of the check pilot could be obtained. It was considered that the reliability of the reading of the photographic data was sufficiently high to warrant the employment of these records as a test of the accuracy of the observations recorded on the inventory by the check pilot.

The data available for this analysis were obtained during the second and third flight classes at the Institute of Aviation Psychology. Each flight class consisted of 28 student pilots, although due to inadequacies in the data information on both OSFI and the photographic records are not available for all subjects for all comparisons. The check flights were administered by two inspectors, Inspector A serving with the second flight class and Inspector B with the third. It was recognized that analysis of data from only two check pilots would not permit broad generalizations to be made. However, in as much as one of the men had a reputation for being extremely competent it was felt that valuable insights into the matter of accuracy of observation might be obtained. Check flights were administered to each student at the 10th, 20th, 34th, and 35th hour of flight training. Data from each check flight were treated individually. The analysis was principally concerned with the accuracy of recording of information on five variables in the OSFI in terms of which the most direct comparisons with the photographic records could be made, viz: average airspeed, airspeed variation, altitude variation, slip, and skid.

In general, it was evident that of the five principal variables, observations on average airspeed were the most accurately made by both inspectors, the correlations between OSFI and camera records being generally high, and the percentage of discrepancies greater than the units in which the airspeed instrument was calibrated being generally low for both inspectors. Altitude variation and airspeed variation were somewhat less accurately observed. Rigorous statistical investigation of the accuracy of observations on slipping and skidding could not be made due to the paucity of data and the nature of the distributions in terms of which these variables were presented. Although general trends of agreement were evident for both of these variables it is noteworthy that a number of marked slips and skids were indicated by the photographic records which were not recorded by inspectors. In comparing the accuracy of the two inspectors it may be concluded that although they differ in the accuracy of recording specific types of items, there appears no marked superiority of one inspector as compared with the other.

It was concluded that whereas the lack of accuracy in the inspectors' observations might not be considered necessarily to render unreliable the over-all score derived from the aggregate of OSFI items, the use of the OSFI, routinely administered, in collecting precise information on specific elements of performance might be unwise unless specific information were available regarding the accuracy of observation of the inspectors or check pilots administering the check flights and filling out the inventory.

# THE AGREEMENT BETWEEN INSPECTORS' OBSERVATIONS AS RECORDED ON THE OHIO STATE FLIGHT INVENTORY AND INSTRUMENT READINGS OBTAINED FROM PHOTOGRAPHIC RECORDS

## INTRODUCTION

It has been recognized that one of the primary problems in the area of aviation psychology is the adequate assessment of flight competence and flight proficiency. The value of many criteria of flight performance has been decreased due to the fact that various assessments, presumed to be comparable, have not been made on the basis of comparable flight situations. In correcting this situation, the concept of the "standard flight," in which all pilots who are to be compared are tested on the same series of maneuvers, flown in a prescribed sequence, and following explicitly stated procedures, has been developed.[1] The "standard flight" has been used extensively in research investigations, and the principle has found application in military and civilian flight testing.

Adequate assessment of flight performance demands, however, not only standardization of the work sample on which the assessment is based, but also standardization of the procedures by which the elements of the subject's performance on this standard work sample are observed and evaluated. It was to insure complete and standardized observation of the critical aspects of flight performance during the administration of check flights or flight tests that the Ohio State Flight Inventory[2] was developed.

The Ohio State Flight Inventory consists of a series of check sheets, each page of the inventory, i.e., each check sheet, being devoted to a single maneuver. On each "maneuver sheet" the critical elements of the maneuver in question are indicated, and spaces are provided whereby the check pilot, who administers the flight test, records the subject's performance on each critical element. The check pilot either checks certain descriptive terms indicative of the performance, or enters figures indicating performance in terms of the element in question, e.g., average airspeed, amount of altitude variation, etc. A page from the Ohio State Flight Inventory is presented in Exhibit 1. The inventory is filled out by the

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[1] Viteles, M. S., and Thompson, A. S. The use of standard flight and motion photography in the analysis of aircraft pilot performance. Washington, D. C.: CAA Division of Research, Report No. 15, May 1943.

[2] For a full description of this inventory and its development, see: Edgerton, H. A., and Walker, R. Y. History and development of the Ohio State Flight Inventory, Part I: Early versions and basic research. Washington, D. C.: CAA Division of Research, Report No. 47, July 1945. Also: NRC Committee on Selection and Training of Aircraft Pilots. History and development of the Ohio State Flight Inventory, Part II: Recent versions and current applications. Washington, D. C.: CAA Division of Research, Report No. 51, November 1945.

## S T E E P  T U R N S

| CONTROL USE | RIGHT Entry | RIGHT Turn | RIGHT Recovery | LEFT Entry | LEFT Turn | LEFT Recovery |
|---|---|---|---|---|---|---|
| Simultaneous..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Successive..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Slips..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Skids..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Neither..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Rudder Pressure:** | | | | | | |
| Correct..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Incorrect..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

| PRECISION | | RIGHT | LEFT |
|---|---|---|---|
| Bank..... | Constant | ☐ | ☐ |
| | Varies | ___° | ___° |
| Degree of Bank..... | | ___° | ___° |
| Speed..... | | ___MPH | ___MPH |
| Speed is..... | Constant | ☐ | ☐ |
| | Varies | ___MPH | ___MPH |
| Altitude is..... | Constant | ☐ | ☐ |
| | Varies | ___ft. | ___ft. |
| Recovers... | On heading | ☐ | ☐ |
| | Off heading | ___° | ___° |

**EXHIBIT 1**

**SAMPLE PAGE FROM OHIO STATE FLIGHT INVENTORY**

check pilot, while in flight, during the actual execution of the maneuvers in question. The various items in the inventory can then be assigned weights, and a total score for individual maneuvers and for the flight as a whole computed. Scores computed in this manner are dependent primarily upon the accuracy of the check pilot's observation and are not influenced as markedly by the evaluative standards which particular check pilots use in assessing "over-all" performance as are over-all grades.[3] Such differences in evaluative standards were considered important factors in accounting for the marked lack of agreement between the flight grades given by different check pilots, instructors, and inspectors.

Because the employment of the Ohio State Flight Inventory placed a premium on accurate observation it appeared desirable to determine the accuracy of the information recorded on the inventory by the check pilots by means of an experimental test. Opportunity for such an investigation was afforded by the fact that motion photographic records were available, by means of which pertinent information as to the performance of the plane could be obtained for the same flights during which the Ohio State Flight Inventory was filled out.[4] Through comparison of the performance as recorded by the check pilot on the Ohio State Flight Inventory (OSFI) with the performance as indicated by the photographic records, a measure of the accuracy of the observation of the check pilot could be obtained.

It should be recalled, of course, that in the comparison of the OSFI entries with the photographic records the photographic record data, based on readings of the record by clerks, may contain errors. However, the nature of the photographic records allows for re-reading in case the readers are uncertain of their entries. Regular checks were made on the accuracy of these photographic record readings. It will be noted, however, that certain elements in the photographic records were undoubtedly more accurate than

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[3] In actual practice both the over-all score in terms of the Ohio State Flight Inventory, and a separate over-all evaluation of the performance, (i.e., an "over-all grade") by the check pilot or flight examiner is usually obtained. The general evaluation by the check pilot is valuable inasmuch as on occasional check flights it is desirable to take into account certain qualitative aspects of performance which are not provided for on the inventory. On the other hand, the inventory score represents an index of proficiency based on performance on the critical elements of various maneuvers in terms of which the proficiency of different subjects on these elements can be directly compared.

[4] In the specially constructed "criterion plane" used in this investigation motion photographs were taken of the instruments in a concealed instrument panel. The instruments included in the panel were as follows: airspeed indicator, altimeter, artificial horizon, inclinometer (ball-bank) and rate of turn, tachometer, and a "control indicator" by means of which the positions of the elevators, ailerons, rudder and throttle could be observed. For a more complete description and discussion of the photographic installation, see: Viteles, M. S., and Thompson, A. S. An analysis of photographic records of aircraft pilot performance. Washington, D. C.: CAA Division of Research, Report No. 31, July 1944.

others.[5] It seemed legitimate, nevertheless, to employ the photographic records as a check on the accuracy of the observations as recorded on the OSFI.

One previous study should be noted in which the agreement between observations of check pilots and the photographic records was investigated. The data for this study were obtained from the Midwest-Navy project, conducted under the auspices of the Committee on Selection and Training of Aircraft Pilots in 1943. The observations of check pilots (CAA Flight Inspectors) as recorded on Form ACA 342Z[6] were compared with the data obtained from the photographic records. The analysis[7] was, however, of a preliminary nature because of the small number of cases involved, and only trends of agreement could be obtained. It was found that there was little agreement between inspectors' observations and photographic records for the errors: poor altitude control, speed (too fast and too slow), slips (on straight maneuvers), and skids (on both straight and turn maneuvers). Somewhat more agreement was found for the errors: nose high, nose low, degree of bank varies, poor directional control, and slips (on turn maneuvers). The results on other items were too ambiguous to indicate a trend. This study suffered not only from inadequacies in the data, but also because most of the items on Form ACA 342Z used by the inspectors were not comparable to the data taken from the films. Direct comparisons were therefore not possible in most instances. However, much of the data available from the OSFI are comparable to data taken from the films, and in these cases direct comparisons can be made.

## PURPOSE OF THE RESEARCH

The purpose of this research was to determine the accuracy with which two check pilots observed (and recorded on the Ohio State Flight Inventory) performance on specific critical elements of flight performance during the

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[5]For a discussion of the sources of error in motion photographs, see: Wapner, Seymour, Bakan, David, and Walker, R. N. Evaluation and integration of criteria of flight performance: II. Motion photographs. (Progress report in the files of the Committee on Selection and Training of Aircraft Pilots.)

[6]Form ACA 342Z provides space for an over-all grade, grades on specific maneuvers, and ratings on specific aspects of flight performance. An analysis of ratings on this form made by flight inspectors is described in: Festinger, Leon, Kogan, L. S., Odbert, H. S., and Wapner, Seymour. An analysis of inspectors' ratings on check flights as recorded on Form ACA 342Z. Washington, D. C.: CAA Division of Research, Report No. 58, March 1946.

[7]Odbert, H. S., Festinger, Leon, Wapner, Seymour, and Thompson, A. S. The agreement between ratings by inspectors as recorded on Form ACA 342Z and instrument readings obtained from photographic records. (Progress report in the files of the Committee on Selection and Training of Aircraft Pilots.)

execution of given maneuvers. The agreement between these observations as recorded on the OSFI and data obtained from photographic records of the flight performance was investigated.

It was recognized that analysis of data from only two check pilots or flight examiners would not permit broad generalizations to be made. However, inasmuch as one of the men[8] had a reputation for being extremely competent, it was felt that valuable insights into the matter of accuracy of observation might be obtained.

## SOURCES OF DATA

The data available for this analysis were obtained during the second and third flight classes at the Institute of Aviation Psychology. For each flight class, check flights were administered at the 10th, 20th, 34th, and 35th hour of flight training for each student.[9] During these check flights the check pilot, or "inspector,"[10] recorded his observations of performance on the OSFI. Photographic records of selected maneuvers were taken simultaneously.

The photographic records obtained during these check flights were run off in slow motion on a projector, and readings of the various instruments were recorded by clerks[11] on special check sheets. It was from these check sheets that the photographic data for analysis were taken.

## SPECIFIC VARIABLES INVESTIGATED

As noted previously, determination of the agreement between photographic records and the Ohio State Flight Inventory was not possible for all items on the inventory. The data from the OSFI were somewhat more inclusive of all aspects of flight performance than were the photographic data. For example, observations regarding the ability of the subject to follow ground patterns were recorded on the inventory, but were not available from the photographic records. Furthermore, certain other items on the OSFI were not comparable to photographic items. The list of corresponding items used in this analysis and the maneuvers in which they occur are presented in Table 1.

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[8]The inspector of the second class, referred to in the text as Inspector A.

[9]There were a total of eight check flights. Photographic records were taken only during the second check flight (at the tenth hour of training), during the fourth check flight (at the twentieth hour of training), during the seventh check flight (at the thirty-fourth hour), and during the eighth check flight (at the thirty-fifth hour).

[10]The check pilot for the second flight class was a CAA inspector, for the third flight class a "flight examiner." However, both of these men will be referred to hereafter as "inspectors."

[11]A description of the record-reading procedures employed are in the files of the Committee on Selection and Training of Aircraft Pilots.

TABLE 1

LIST OF CORRESPONDING ITEMS AND MANEUVERS ON WHICH THEY OCCUR

| | Item | Code No. | Maneuver |
|---|---|---|---|
| CC* | 1. Altitude Variation | 3. | Straight and Level |
| | | 14. | L. 180° Turn, 45° Bank |
| | | 15. | R. 180° Turn, 45° Bank |
| | | 18. | L. 360° Steep Turn |
| | | 19. | R. 360° Steep Turn |
| CC | 2. Airspeed Variation | 7. | Straight Climb |
| | | 8. | Climbing Turn |
| | | 18. | L. 360° Steep Turn |
| | | 19. | R. 360° Steep Turn |
| | | 28. | Straight Glide |
| | | 29. | Gliding Turn |
| CC | 3. Average Airspeed | 3. | Straight and Level |
| | | 7. | Straight Climb |
| | | 8. | Climbing Turn |
| | | 28. | Straight Glide |
| | | 29. | Left Gliding Turn |
| CD | 4. Slip (OSFI)<br>Ball-Bank Excursion (Photographic records) | 8. | Climbing Turn |
| | | 14. | L. 180° Turn, 45° Bank |
| | | 15. | R. 180° Turn, 45° Bank |
| | | 18. | L. 360° Steep Turn |
| | | 19. | R. 360° Steep Turn |
| | | 29. | Gliding Turn |
| CD | 5. Skids (OSFI)<br>Ball-Bank Excursion (Photographic records) | 8. | Climbing Turn |
| | | 14. | L. 180° Turn, 45° Bank |
| | | 15. | R. 180° Turn, 45° Bank |
| | | 18. | L. 360° Steep Turn |
| | | 19. | R. 360° Steep Turn |
| | | 29. | Gliding Turn |
| DD | 6. Flown off or stalled off | 2. | Take-off |
| DD | 7. Full Elevator (OSFI)<br>Stick Full Back (Photographic record) | 20. | Normal Power-off Stall |
| DD | 8. Aileron used or not used (OSFI)<br>Low wing raised or not raised by aileron (Photographic record) | 20. | Normal Power-off Stall |
| DD | 9. Simultaneous or successive control use (OSFI)<br>Coordinated or not coordinated control use (Photographic records) | 18. | L. 360° Steep Turn |
| | | 19. | R. 360° Steep Turn |

*C = continuous; D = discrete. The first symbol refers to photographic records, and the second symbol refers to the OSFI.

It should be noted that the most meaningful comparisons of the Ohio State Flight Inventory with the photographic records can be made in terms of the first five variables listed in Table 1. The comparisons between OSFI and photographic records for Variables 6 to 9 are less meaningful because definitions of unsatisfactory performance in terms of these variables, used by the inspector, might well differ somewhat from the definitions employed by the record readers. For this reason the question of inaccuracies in observation on the part of the inspector might well not be involved.

## METHODS OF ANALYSIS

Certain of the OSFI variables and certain of the variables from the photographic records were continuous in nature, and others were discrete (i.e., dichotomous). With reference to Table 1, data on the first three variables were continuous for both OSFI and photographic records. For Variables 4 and 5 data on the OSFI were discrete, and data on the photographic records were continuous. For Variables 6 to 9 data from both the OSFI and the photographic records were dichotomous. Depending on the nature of the data the following types of analyses were made.

Continuous Variates. Three types of analyses were made on items which were continuous on both criteria: (1) correlations between OSFI observations and photographic data, (2) frequency distribution of absolute differences between OSFI and photographic records, and (3) frequency distributions of algebraic differences between criteria. In addition, cumulative percentages were computed for the frequency distributions of absolute differences; and the means and standard deviations of the distributions of algebraic differences were determined.

Discrete Variates. Fourfold tables were set up for each item in which the variate was discrete on both criteria. Each axis represented one of the variables. Frequencies were entered in the appropriate cells. Since sufficient cases were not available for rigorous statistical treatment, the trend of agreement or disagreement was determined by inspection. A sample of such a fourfold table is given in Figure 1.

| | | Photographic Records | |
|---|---|---|---|
| | | Flown off | Stalled off |
| OSFI | Flown off | | |
| OSFI | Stalled off | | |

FIGURE 1

Discrete and Continuous Variates. For the variables "slip" and "skid" the data on the OSFI were discrete, and the data on the photographic records were continuous. In recording their observations on the OSFI the inspectors

merely indicated "slip" or "no slip" ("skid" or "no skid") and did not record the exact degree of slip (or of skid). However, from the photographic data the exact degree of slip or skid, in terms of the excursion of the ball in the inclinometer or ball-bank indicator, could be determined. In the directions for filling out the Ohio State Flight Inventory the inspector was directed to record any slip or skid of sufficient magnitude to result in an excursion of the ball in the ball-bank indicator more than one-half ball width outside the central or "lubber" lines of that instrument as a "slip" or "skid." A slip or skid of this magnitude was recorded as "Degree 2" on the photographic records.

In turn maneuvers, observations of slips and skids were made by the inspector during the "entry," "turn," and "recovery" parts of the maneuver, and comparable data were available from the photographic records. For each "slip" or "skid" item in each part of the turn maneuvers, a 2 x 5 table was constructed as indicated in Figure 2. The appropriate frequencies were entered in the cells. Inasmuch as the data did not warrant more rigorous statistical treatment, the trend of agreement or disagreement was determined by inspection with particular reference to Degree 2 as a point of dichotomy in terms of the photographic records.

| | | Photographic Records Degree of Slip | | | | |
|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 |
| OSFI | No Slip | | | | | |
| | Slip | | | | | |

FIGURE 2

## INSPECTORS

The data from two inspectors are treated in this investigation. The check flights for the second flight class were administered by Inspector A. The check flights for the third flight class were administered by Inspector B.

## RESULTS

Altitude Variation. The records of altitude variation, in terms of both OSFI entries and the photographic records, referred to altitude changes between the beginning and the end of level maneuvers in which no altitude should have been gained or lost. The correlations between the observations of the inspectors as recorded on the Ohio State Flight Inventory, and the photographic records for altitude variation are presented in Table 2, separately for class (inspector), check flight, and maneuver.

TABLE 2

ALTITUDE VARIATION: CORRELATIONS BETWEEN OSFI AND PHOTOGRAPHIC RECORDS

| Maneuver | 2nd Class (Inspector A) Check Flight | OSFI M | OSFI σ | Photographic records M | Photographic records σ | N | r | 3rd Class (Inspector B) Check Flight | OSFI M | OSFI σ | Photographic records M | Photographic records σ | N | r |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Straight and Level | 2 | 123.5 | 139.0 | 64.0 | 107.0 | 10 | .90* | 2 | 13.9 | 31.4 | 36.7 | 20.6 | 9 | .24 |
| | 4 | 76.2 | 55.0 | 35.0 | 30.6 | 20 | .64* | 4 | 20.5 | 30.7 | 29.0 | 21.2 | 19 | .55* |
| | 7 | 50.9 | 64.0 | 39.1 | 45.8 | 23 | .76* | 7 | 17.3 | 23.3 | 26.7 | 26.2 | 24 | .67* |
| | 8 | 56.6 | 57.0 | 33.6 | 46.2 | 22 | .78* | 8 | 5.2 | 7.1 | 23.3 | 14.0 | 24 | .62* |
| 180° Left Turn | 2 | 50.0 | 33.1 | 42.5 | 38.6 | 8 | .76* | 2 | 11.0 | 19.7 | 25.0 | 14.8 | 10 | .09 |
| | 4 | 56.0 | 44.9 | 26.2 | 32.0 | 21 | .32 | 4 | 34.0 | 35.8 | 30.8 | 38.9 | 19 | .37 |
| | 7 | 41.0 | 34.5 | 28.1 | 25.2 | 21 | .33 | 7 | 20.4 | 21.8 | 22.7 | 22.0 | 22 | -.07 |
| | 8 | 42.5 | 38.0 | 28.5 | 36.9 | 20 | .19 | 8 | 19.2 | 24.2 | 32.9 | 26.7 | 24 | .77* |
| 180° Right Turn | 2 | 34.4 | 27.8 | 16.2 | 12.2 | 8 | .29 | 2 | 36.1 | 51.5 | 35.0 | 28.1 | 9 | .39 |
| | 4 | 48.6 | 41.9 | 20.9 | 19.0 | 22 | -.05 | 4 | 14.2 | 24.8 | 29.2 | 23.8 | 19 | .14 |
| | 7 | 17.6 | 28.9 | 25.8 | 28.0 | 19 | .65* | 7 | 20.2 | 22.2 | 33.0 | 34.8 | 23 | .52* |
| | 8 | 23.8 | 29.2 | 22.5 | 18.1 | 20 | -.09 | 8 | 19.4 | 22.3 | 22.1 | 19.1 | 24 | .47* |
| 360° Left Steep Turn | 2 | - | - | - | - | - | - | 2 | - | - | - | - | - | - |
| | 4 | 96.6 | 70.0 | 53.6 | 64.6 | 22 | .67* | 4 | 31.8 | 51.9 | 39.7 | 30.7 | 19 | -.01 |
| | 7 | 54.7 | 40.8 | 32.1 | 32.5 | 19 | .82* | 7 | 18.7 | 25.8 | 46.5 | 35.0 | 23 | .46* |
| | 8 | 38.5 | 31.3 | 32.5 | 35.9 | 20 | .29 | 8 | 25.4 | 35.0 | 60.4 | 65.2 | 24 | .67* |
| 360° Right Steep Turn | 2 | - | - | - | - | - | - | 2 | - | - | - | - | - | - |
| | 4 | 77.3 | 48.8 | 45.5 | 38.2 | 22 | .07 | 4 | 33.9 | 36.1 | 45.8 | 28.6 | 18 | .36 |
| | 7 | 38.7 | 46.3 | 32.6 | 22.4 | 19 | .39 | 7 | 27.0 | 34.0 | 36.1 | 32.5 | 23 | .68* |
| | 8 | 51.8 | 52.8 | 35.5 | 33.4 | 20 | .36 | 8 | 30.8 | 45.8 | 36.3 | 32.0 | 24 | .77* |
| Median | | | | | | | .375 | | | | | | | .465 |

*Significant at or below the 5% level.

Examination of Table 2 indicates that the correlations for the second class (Inspector A) range from -.09 to .90, with 8 of the 18 coefficients being significantly greater than zero, and 16 of the 18 coefficients being positive. The median correlation for the second class is .375. For the third class (Inspector B) the coefficients range from -.07 to .77, 10 of the 18 coefficients being significantly greater than zero, and 16 of the 18 being positive. The median correlation is .465.

On observations of altitude variation there appears to be a tendency for the coefficients of correlation for the third flight class (Inspector B) to be somewhat higher than the coefficients of correlation for the second flight class (Inspector A) as evidenced by the higher median correlation, and the somewhat greater number of significant coefficients. However, when the coefficients of correlation are compared for the same maneuver and check flight, half of the coefficients are higher for the second class and half are higher for the third class.

Perhaps a better indication of the agreement between OSFI entries and the photographic records is obtained by an examination of the mean discrepancies between the inspectors' observations as recorded on the OSFI and the photographic records. These mean discrepancies are presented in Table 3 separately for class, check flight, and maneuver. When the mean discrepancy is positive it indicates that the OSFI mean score was higher than the mean score on the photographic records.

It will be noted that the discrepancies of Inspector B (third class) are, in general, somewhat smaller than those for Inspector A (second class), being smaller in 12 of the 18 comparisons. The mean discrepancy for Inspector B (third class) was -10.5 feet and for Inspector A (second class) it was 17.5 feet. Inspector B tended to underestimate the altitude variation as compared with the photographic records taken as the standard, whereas Inspector A tended to overestimate the altitude variation. However, as is evident from the size of the standard deviations, the spread of the discrepancies was quite large. In the majority of cases the dispersion of discrepancies for Inspector B (third class) was less than for Inspector A (second class). In Maneuver 3 (Straight and Level) the range of all discrepancies (when data from all check flights were pooled) for Inspector A ranged from 205 feet to -60 feet, for Inspector B from 65 feet to -70 feet.[12]

A further comparison in terms of magnitude of discrepancies is given in Table 4 in which is presented the percentage of cases where the absolute value of the discrepancy (i.e., disregarding sign) is 20 feet or less. Twenty feet was chosen as the critical value inasmuch as the altimeter available to the inspector was calibrated in units of twenty feet. It is evident again that for the majority of comparisons (actually 15 of the 18) Inspector B showed a

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[12]Complete distributions of discrepancies on all variables are in the files of the Committee on Selection and Training of Aircraft Pilots.

TABLE 3

SUMMARY OF DISCREPANCIES (SIGN TAKEN INTO ACCOUNT BETWEEN OSFI (INSPECTOR) AND PHOTOGRAPHIC RECORDS ON ALTITUDE VARIATION

| | Maneuver | | Check Flight 2 | | 4 | | 7 | | 8 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. |
| 3. | Straight & Level | M | 39.5 | -22.8 | 41.2 | - 8.4 | 11.7 | - 9.0 | 23.0 | -18.5 |
| | | σ | 67.3 | 11.1 | 43.9 | 26.8 | 42.6 | 20.9 | 36.6 | 10.8 |
| 14. | L. 180° Turn 45° Bank | M | 7.5 | -14.0 | 29.8 | 3.2 | 12.9 | - 2.3 | 14.0 | -13.8 |
| | | σ | 27.3 | 24.9 | 47.2 | 43.1 | 36.2 | 32.8 | 49.0 | 17.6 |
| 15. | R. 180° Turn 45° Bank | M | 18.1 | 1.1 | 27.7 | -15.0 | - 8.2 | -12.8 | 1.2 | - 2.7 |
| | | σ | 28.8 | 50.9 | 48.0 | 32.6 | 24.3 | 30.7 | 36.6 | 22.1 |
| 18. | L. 360° Steep Turn | M | - | - | 43.0 | - 7.9 | 22.6 | -27.8 | 6.0 | -35.0 |
| | | σ | - | - | 55.8 | 62.1 | 23.8 | 33.1 | 41.4 | 50.2 |
| 19. | R. 360° Steep Turn | M | - | - | 31.8 | -11.9 | 6.1 | - 9.1 | 16.2 | - 5.4 |
| | | σ | - | - | 61.4 | 38.3 | 44.0 | 27.1 | 52.5 | 29.9 |

Median M for 2nd Class (Inspector A) = 17.2
Median M for 3rd Class (Inspector B) = -10.5

TABLE 4

PERCENTAGE OF CASES WITH ABSOLUTE DISCREPANCIES BETWEEN OSFI (INSPECTOR) AND PHOTOGRAPHIC RECORDS OF 20 FEET OR LESS ON ALTITUDE VARIATION

| | Maneuver | Check Flight 2 | | 4 | | 7 | | 8 | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. |
| 3. | Straight and Level | 20 | 11 | 35 | 53 | 39 | 83 | 50 | 83 |
| 14. | L. 180° Turn 45° Bank | 62 | 60 | 29 | 63 | 43 | 64 | 40 | 75 |
| 15. | R. 180° Turn 45° Bank | 38 | 44 | 32 | 63 | 74 | 44 | 55 | 83 |
| 18. | L. 360° Steep Turn | - | - | 14 | 42 | 47 | 56 | 35 | 38 |
| 19. | R. 360° Steep Turn | - | - | 14 | 56 | 47 | 70 | 25 | 67 |

Median Percentage for 2nd Class (Inspector A) = 38.5
Median Percentage for 3rd Class (Inspector B) = 61.5

greater percentage of discrepancies of less than 20 feet. The median percentage for Inspector A was 38.5%, for Inspector B, 61.5%.

From these comparisons there seems to be a tendency for the inspector of the third class (Inspector B) to be more accurate in recording altitude variation than Inspector A of the second flight class. As will be noted later, the practical significance of these discrepancies between the OSFI and the photographic records, even those of the magnitude indicated for Inspector B, depends upon the type of evaluation made from the Ohio State Flight Inventory and the specific uses to which the data are put.

Average Airspeed. The correlations between average airspeed as recorded by the inspectors on the OSFI and as recorded on the photographic records are presented in Table 5. Inspection of this table indicates that the correlations for the second class (Inspector A) range from .06 to .81, with twelve of the twenty coefficients being significant, and all of them positive. The median correlation for the second class is .61.

For the third class the range of coefficients is .21 to .93, 17 of the 20 coefficients being significant, and again all are positive. The median coefficient is .725. When the correlation coefficients are compared for the same maneuver and check flight, in 16 of the 20 comparisons the correlation coefficients of the third class are higher. There is evidently a tendency for closer agreement between OSFI entries and photographic records in the case of Inspector B (third class) than in the case of Inspector A (second class).

The mean discrepancies between the Ohio State Flight Inventory entries and the photographic records on average airspeed are presented in Table 6. For the second flight class (Inspector A) the range of the mean discrepancies is from -3.9 to 2.7 mph. In 14 of the 20 instances these means are negative, indicating a tendency toward underestimation of average airspeed for Inspector A of the second class.

The range of mean discrepancies for the third class is from -2.7 to 2.1 mph. In 12 out of the 20 instances the mean discrepancies are negative, indicating again a slight tendency toward underestimation on the part of Inspector B of the third class. In general, the magnitude of these mean discrepancies is not large. It is evident from Table 6, however, that the standard deviations of the discrepancies are, in general, somewhat larger than the mean discrepancies. The actual ranges of discrepancies were from 9 to -6 mph and 8 to -12 mph for Inspectors A and B, respectively, on the maneuver Straight and Level. On the Straight Glide, the ranges of discrepancies were from 5 to -9 mph, and 5 to -8 mph for Inspectors A and B, respectively.

The incidence of marked discrepancy is perhaps best presented in Table 7 in which the percentage of cases in which the absolute value of the discrepancy between Ohio State Flight Inventory and photographic records was 5 mph or less is indicated. (The airspeed indicator was cali-

TABLE 5

AVERAGE AIRSPEED: CORRELATIONS BETWEEN OSFI AND PHOTOGRAPHIC RECORDS

| | | 2nd Class (Inspector A) | | | | | | | 3rd Class (Inspector B) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | OSFI | | Photographic records | | | | | OSFI | | Photographic records | | | |
| | Maneuver | Check Flight | M | σ | M | σ | N | r | Check Flight | M | σ | M | σ | N | r |
| 3. | Straight and Level | 2 | 71.2 | 2.4 | 71.8 | 3.3 | 10 | .17 | 2 | 68.1 | 3.6 | 66.3 | 4.2 | 9 | .92* |
| | | 4 | 71.3 | 4.2 | 69.6 | 3.4 | 21 | .71* | 4 | 69.3 | 3.6 | 67.5 | 4.0 | 19 | .77* |
| | | 7 | 73.5 | 3.1 | 70.8 | 3.2 | 23 | .58* | 7 | 68.5 | 3.2 | 67.6 | 3.1 | 24 | .21 |
| | | 8 | 73.3 | 2.3 | 71.1 | 3.6 | 22 | .41 | 8 | 68.0 | 2.4 | 65.9 | 2.5 | 24 | .51* |
| 7. | Straight Climb | 2 | 58.0 | 3.6 | 61.0 | 3.2 | 9 | .81* | 2 | 58.4 | 2.9 | 61.1 | 5.0 | 10 | .35 |
| | | 4 | 57.3 | 4.6 | 61.1 | 3.4 | 21 | .69* | 4 | 59.2 | 3.0 | 59.7 | 3.0 | 19 | .37 |
| | | 7 | 57.8 | 3.2 | 60.3 | 3.3 | 23 | .32 | 7 | 58.5 | 2.5 | 60.4 | 4.0 | 24 | .72* |
| | | 8 | 56.5 | 3.9 | 60.1 | 3.7 | 20 | .06 | 8 | 58.2 | 3.1 | 58.8 | 3.7 | 24 | .82* |
| 6. | Climbing Turn | 2 | 59.4 | 4.6 | 60.0 | 5.2 | 8 | .66 | 2 | 57.0 | 2.8 | 57.5 | 1.7 | 10 | .72* |
| | | 4 | 57.0 | 4.6 | 58.6 | 3.2 | 21 | .62* | 4 | 59.1 | 3.6 | 59.9 | 3.4 | 18 | .68* |
| | | 7 | 56.8 | 3.2 | 57.0 | 3.1 | 20 | .73* | 7 | 58.4 | 1.9 | 58.9 | 2.1 | 22 | .76* |
| | | 8 | 55.7 | 3.6 | 57.1 | 2.7 | 20 | .22 | 8 | 58.9 | 2.4 | 59.8 | 3.2 | 24 | .49* |
| 23. | Straight Glide | 2 | 64.4 | 4.6 | 64.6 | 4.2 | 8 | .50 | 2 | 60.0 | 5.8 | 60.4 | 5.6 | 8 | .93* |
| | | 4 | 61.9 | 4.3 | 62.1 | 3.4 | 21 | .65* | 4 | 60.9 | 2.5 | 61.9 | 3.7 | 17 | .78* |
| | | 7 | 62.1 | 5.0 | 63.5 | 4.0 | 19 | .71* | 7 | 60.0 | 3.4 | 60.0 | 3.3 | 23 | .73* |
| | | 8 | 63.6 | 4.8 | 64.0 | 4.0 | 20 | .72* | 8 | 60.5 | 2.3 | 61.9 | 3.8 | 23 | .83* |
| 29. | Left Gliding Turn | 2 | 63.6 | 3.8 | 62.7 | 3.8 | 7 | .78* | 2 | 59.4 | 5.0 | 59.9 | 4.8 | 8 | .75* |
| | | 4 | 60.2 | 3.3 | 60.2 | 2.9 | 20 | .33 | 4 | 61.7 | 2.8 | 60.5 | 2.6 | 16 | .55* |
| | | 7 | 60.0 | 4.0 | 60.5 | 3.5 | 19 | .60* | 7 | 59.0 | 2.6 | 58.4 | 3.5 | 23 | .61* |
| | | 8 | 62.1 | 4.9 | 60.4 | 3.4 | 17 | .56* | 8 | 60.0 | 1.7 | 59.6 | 3.4 | 24 | .88* |
| | Median | | | | | | | .61 | | | | | | | .725 |

*Significant at or below the 5% level.

TABLE 6

SUMMARY OF DISCREPANCIES (SIGN TAKEN INTO ACCOUNT) BETWEEN OSFI (INSPECTOR) AND PHOTOGRAPHIC RECORDS ON AVERAGE AIRSPEED

| | Maneuver | | Check Flight 2 | | 4 | | 7 | | 8 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. |
| 3. | Straight and Level | M | - .6 | 1.8 | 1.7 | 1.8 | 2.7 | .9 | 2.2 | 2.1 |
| | | σ | 3.9 | .6 | 3.2 | 2.5 | 2.8 | 4.1 | 3.4 | 2.3 |
| 7. | Straight Climb | M | -2.8 | -2.7 | -3.9 | - .5 | -2.4 | -1.9 | -3.6 | - .6 |
| | | σ | 2.2 | 5.1 | 3.1 | 3.5 | 3.9 | 2.8 | 5.3 | 2.1 |
| 8. | Left Climbing Turn | M | - .6 | - .5 | -1.5 | - .8 | - .3 | - .4 | -1.4 | - .8 |
| | | σ | 4.6 | 2.1 | 3.6 | 3.0 | 2.4 | 1.8 | 4.1 | 2.9 |
| 28. | Straight Glide | M | - .6 | - .4 | - .1 | -1.0 | -1.4 | 0.0 | - .3 | -1.4 |
| | | σ | 5.1 | 2.1 | 3.2 | 2.5 | 3.8 | 2.6 | 3.5 | 2.5 |
| 29. | Left Gliding Turn | M | 1.0 | - .5 | 0.0 | 1.2 | - .5 | .6 | 1.7 | .4 |
| | | σ | 3.1 | 3.5 | 3.6 | 2.6 | 3.3 | 2.8 | 4.3 | 2.3 |

Median M for 2nd Class (Inspector A) = -.45
Median M for 3rd Class (Inspector B) = -.55

TABLE 7

PERCENTAGE OF CASES WITH ABSOLUTE DISCREPANCIES BETWEEN OSFI (INSPECTOR) AND PHOTOGRAPHIC RECORDS OF 5 MPH OR LESS ON AVERAGE AIRSPEED

| | Maneuver | Check Flight 2 | | 4 | | 7 | | 8 | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. |
| 3. | Straight and Level | 90 | 100 | 90 | 95 | 91 | SC | 91 | 96 |
| 7. | Straight Climb | 100 | 90 | 91 | 90 | 91 | 92 | 75 | 96 |
| 8. | Left Climbing Turn | 71 | 100 | 91 | 94 | 100 | 100 | 80 | 96 |
| 28. | Straight Glide | 86 | 100 | 100 | 100 | 89 | 100 | 90 | 96 |
| 29. | Left Gliding Turn | 100 | 88 | 90 | 100 | 95 | 91 | 88 | 100 |

Median Percentage 2nd Class (Inspector A) = 90.5
Median Percentage 3rd Class (Inspector B) = 96

brated in units of 5 mph.) The percentages for the second class range from 71 to 100, and for the third class range from 88 to 100. The medians for the second and third classes are 90.5 and 96, respectively.

Although the percentages for the third class are slightly higher than for the second class the differences are not marked. It seems evident that while the entries of both inspectors on the OSFI were in general agreement with the data taken from the photographic records, whatever small advantage is present is in the favor of Inspector B of the third flight class. In general, however, it should be noted that for the most part the agreement between OSFI and photographic records, in terms of average airspeed, was relatively high.

Airspeed Variation. The correlations between the Ohio State Flight Inventory entries and the photographic record data for airspeed variation are presented in Table 8. It is evident that, in general, the correlation coefficients are not as high as those obtained for altitude variation and average airspeed. For the second class there are 4 significant coefficients out of 22, and for the third class 3 out of 22 are significant. The median correlation for the second class is higher than for the third class, although in both cases the median coefficient is below the level of statistical significance.

In Table 9 the mean discrepancies are summarized. The mean discrepancies for airspeed variation for the second class range from -7.7 to 3.6 mph, a tendency for underestimation of airspeed variation being indicated by the fact that the majority of the mean discrepancies are negative. The median of the mean discrepancies for the second class is -2.5 mph.

For the third class, all of the mean discrepancies are negative, the means ranging from -11.0 to -4.4 mph. The median mean discrepancy for the third class was -7.7. Inspector B, for the third class, evidently tends to underestimate airspeed variation to a greater extent than does Inspector A of the second flight class. The ranges of algebraic discrepancies, however, were from 23 to -22 mph and 5 to -33 mph for Inspectors A and B, respectively, on the maneuver 360° Steep Turn Left. On the maneuver Straight Glide, however, the ranges of the discrepancies were from 6 to -14, and 5 to -20 mph, respectively, for Inspectors A and B.

The percentages of cases in which the absolute value of the discrepancy in terms of airspeed variation was 5 mph or less are presented in Table 10. The median percentage for the second class is 68%, for the third class 33%. It is evident that Inspector A of the second flight class was somewhat more accurate in recording airspeed variation than was Inspector B of the third flight class.

Slips and Skids. It will be recalled from the previous discussion that the Ohio State Flight Inventory provided space for the inspector to record either slip or no slip (or skid or no skid). On the photographic records the degree of exursion of the ball was recorded. During the "turn" section

TABLE 8

AIRSPEED VARIATION: CORRELATIONS BETWEEN OSFI AND PHOTOGRAPHIC RECORDS

| Maneuver | 2nd Class (Inspector A) | | | | | | | 3rd Class (Inspector B) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Check Flight | OSFI | | Photographic records | | | r | Check Flight | OSFI | | Photographic records | | | r |
| | | M | σ | M | σ | N | | | M | σ | M | σ | N | |
| 7. Straight Climb | 2 | 6.6 | 1.4 | 7.0 | 3.0 | 8 | -.23 | 2 | 1.0 | 2.0 | 7.7 | 4.4 | 10 | .15 |
| | 4 | 5.5 | 3.5 | 10.0 | 5.0 | 22 | .24 | 4 | 1.3 | 3.2 | 10.6 | 4.0 | 19 | .28 |
| | 7 | 2.0 | 3.1 | 10.7 | 4.2 | 23 | .28 | 7 | 1.6 | 2.7 | 11.0 | 3.1 | 24 | .59* |
| | 8 | 2.0 | 3.2 | 10.2 | 4.4 | 20 | .43 | 8 | 2.0 | 2.7 | 12.0 | 3.0 | 24 | .14 |
| 8. Left Climbing Turn | 2 | 7.7 | 1.9 | 5.9 | 2.8 | 7 | .58 | 2 | 2.4 | 3.3 | 10.0 | 5.7 | 10 | .19 |
| | 4 | 5.4 | 3.6 | 7.5 | 3.1 | 22 | .15 | 4 | 1.6 | 2.3 | 9.6 | 3.7 | 18 | -.11 |
| | 7 | 2.2 | 3.1 | 5.6 | 2.1 | 21 | .58* | 7 | 3.0 | 2.9 | 10.0 | 2.8 | 22 | .03 |
| | 8 | 2.2 | 3.1 | 5.0 | 2.5 | 20 | -.22 | 8 | 2.7 | 2.9 | 9.6 | 4.4 | 24 | .37 |
| 18. Left 360° Steep Turn | 2 | - | - | - | - | - | - | 2 | - | - | - | - | - | - |
| | 4 | 15.2 | 13.1 | 12.1 | 9.6 | 22 | .70* | 4 | 1.4 | 3.6 | 11.5 | 3.8 | 18 | .19 |
| | 7 | 5.3 | 3.8 | 8.2 | 4.2 | 19 | .39 | 7 | 2.5 | 3.5 | 13.5 | 6.7 | 23 | .29 |
| | 8 | 4.4 | 3.3 | 9.5 | 5.9 | 20 | .16 | 8 | 3.4 | 4.0 | 13.0 | 5.6 | 24 | -.05 |
| 19. Right 360° Steep Turn | 2 | - | - | - | - | - | - | 2 | - | - | - | - | - | - |
| | 4 | 14.4 | 9.3 | 10.8 | 5.8 | 22 | .32 | 4 | 1.6 | 2.9 | 11.8 | 4.5 | 16 | -.38 |
| | 7 | 7.5 | 5.2 | 9.8 | 4.8 | 19 | .42 | 7 | 3.8 | 4.6 | 13.3 | 5.7 | 23 | .18 |
| | 8 | 5.0 | 4.1 | 8.2 | 4.3 | 20 | .47* | 8 | 3.9 | 3.5 | 11.7 | 4.3 | 24 | .52* |
| 28. Straight Glide | 2 | 6.1 | 1.7 | 9.6 | 4.8 | 7 | -.32 | 2 | 0 | 0 | 32.1 | 2.2 | 9 | .00 |
| | 4 | 5.6 | 3.6 | 7.0 | 2.7 | 22 | .50* | 4 | .6 | 1.6 | 6.1 | 3.0 | 17 | .53* |
| | 7 | 2.2 | 3.3 | 7.1 | 3.1 | 19 | -.33 | 7 | 1.9 | 2.6 | 9.9 | 5.0 | 23 | .25 |
| | 8 | 1.7 | 3.0 | 5.8 | 2.4 | 20 | -.10 | 8 | 2.7 | 2.9 | 9.6 | 3.1 | 23 | .59* |
| 29. Left Gliding Turn | 2 | 8.8 | 3.4 | 5.3 | 3.2 | 6 | .84* | 2 | 3.1 | 4.3 | 7.8 | 3.2 | 8 | .56 |
| | 4 | 6.2 | 3.1 | 5.1 | 2.8 | 21 | -.02 | 4 | 2.1 | 3.7 | 6.9 | 3.7 | 16 | .25 |
| | 7 | 4.5 | 3.6 | 4.9 | 4.0 | 19 | -.18 | 7 | 3.8 | 2.6 | 8.2 | 3.9 | 23 | -.08 |
| | 8 | 2.7 | 3.3 | 3.9 | 2.2 | 17 | .43 | 8 | 3.3 | 3.1 | 8.8 | 4.0 | 24 | .11 |
| Median | | | | | | | .30 | | | | | | | .19 |

*Significant at or below the 5% level.

TABLE 9

SUMMARY OF DISCREPANCIES (SIGN TAKEN INTO ACCOUNT) BETWEEN OSFI (INSPECTOR) AND PHOTOGRAPHIC RECORDS ON AIRSPEED VARIATION

| | Maneuver | | 2 | | 4 | | 7 | | 8 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. |
| 7. | Straight Climb | M | - .4 | -6.7 | -4.5 | -9.3 | -7.7 | -9.4 | -8.4 | -8.9 |
| | | σ | 3.9 | 4.8 | 5.5 | 4.5 | 4.0 | 2.8 | 4.2 | 3.3 |
| 8. | L. Climbing Turn | M | 1.9 | -7.6 | -2.1 | -7.9 | -3.4 | -6.9 | -2.7 | -7.0 |
| | | σ | 2.4 | 6.4 | 4.5 | 4.8 | 2.7 | 4.1 | 4.5 | 4.3 |
| 18. | L. 360° Steep Turn | M | - | - | 3.0 | -10.1 | -2.9 | -11.0 | -5.1 | -9.7 |
| | | σ | - | - | 9.6 | 4.9 | 4.5 | 6.8 | 6.4 | 7.1 |
| 19. | R. 360° Steep Turn | M | - | - | 3.6 | -10.2 | -2.3 | -9.5 | -3.2 | -7.8 |
| | | σ | - | - | 9.5 | 8.0 | 5.6 | 6.8 | 4.4 | 4.0 |
| 28. | Straight Glide | M | -3.4 | -5.2 | -1.4 | -5.5 | -4.8 | -8.0 | -4.0 | -7.0 |
| | | σ | 6.1 | 2.4 | 3.3 | 2.7 | 5.4 | 5.2 | 4.2 | 2.7 |
| 29. | L. Gliding Turn | M | 3.5 | -4.6 | 1.0 | -4.9 | - .4 | -4.4 | -1.2 | -5.5 |
| | | σ | 2.1 | 4.0 | 4.3 | 4.7 | 6.0 | 5.0 | 3.2 | 4.9 |

Median M for 2nd Class (Inspector A) = -2.5
Median M for 3rd Class (Inspector B) = -7.7

TABLE 10

PERCENTAGE OF CASES WITH ABSOLUTE DISCREPANCIES BETWEEN OSFI AND PHOTOGRAPHIC RECORDS OF 5 MPH OR LESS ON AIRSPEED VARIATION

| | Maneuver | Check Flight 2 | | 4 | | 7 | | 8 | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. | 2nd Cl. | 3rd Cl. |
| 7. | Straight Climb | 100 | 40 | 50 | 16 | 17 | 4 | 20 | 12 |
| 8. | Left Climbing Turn | 100 | 40 | 82 | 17 | 86 | 36 | 85 | 42 |
| 18. | Left 360° Steep Turn | - | - | 41 | 17 | 58 | 17 | 55 | 29 |
| 19. | Right 360° Steep Turn | 43 | 56 | 64 | 25 | 58 | 30 | 75 | 25 |
| 28. | Straight Glide | 43 | 56 | 86 | 65 | 53 | 22 | 65 | 52 |
| 29. | Left Gliding Turn | 83 | 62 | 71 | 62 | 84 | 56 | 94 | 58 |

Median Percentage for 2nd Class (Inspector A) = 68
Median Percentage for 3rd Class (Inspector B) = 33

of the turn maneuvers both degree and duration of slip and skid were recorded from the photographic records. However, for the purposes of this analysis only the degree of excursion of the ball will be considered.

Frequency distributions were made on 2 x 5 tables separately for each aspect (entry, turn, recovery) of each turn maneuver for each check flight. The vertical axis indicated whether "no slip" or "slip" (or "no skid" or "skid") was recorded by the inspector on the Ohio State Flight Inventory. The horizontal axis indicated the degree of excursion of the ball as read from the photographic records (see Figure 2). The direction of the excursion of the ball indicated whether the plane slipped or skidded.

Tables A-1 to A-6 in Appendix A contain these distributions for slips, and Tables A-7 to A-12 in Appendix A contain these distributions for skids for Inspector A on the second flight class. The corresponding distributions for Inspector B on the third flight class are presented in Tables B-13 to B-24 in Appendix B. Since the total number of subjects included in these distributions was small, and inasmuch as combining or pooling data from the four check flights appeared inadvisable, it was not feasible to evaluate the agreement between the inspector's observations and the photographic records by statistical tests. Rather, it was deemed advisable merely to determine trends of agreement or disagreement.

The inspectors recorded a slip or skid when the slip was of sufficient magnitude to cause an excursion of the ball more than $\frac{1}{4}$ width beyond the lubber line. This criterion is the same as "Degree 2" on the photographic check sheets. Since in terms of the photographic records, a slip (or skid) could be said to occur when the excursion of the ball was of Degree 2 or greater, comparisons were made between the inspector's observations on slip and skid and the incidence of comparable ball excursions indicated in the photographic records.

In deciding whether there was a tendency toward agreement, the per cent of correct classifications out of the total number of cases was calculated. If more than 50 per cent of the cases in a distribution were correctly classified, the distribution was marked "+," indicating a tendency toward agreement. If less than 50 per cent of the cases were classified correctly, the distribution was marked "-," indicating a tendency toward disagreement. If the number of cases classified correctly was equal to the number of cases classified incorrectly, the distribution was marked "?." Using this criterion of tendency toward agreement, there was evidence of a tendency toward agreement between Inspector A's observations and the photographic records for slips in 61 out of 66 instances. In the case of skids, there was a tendency for agreement in 63 of 66 instances. For Inspector B, in the third flight class, there was evidence of a tendency toward agreement on 63 of 64 instances for slips, and 63 of 64 instances for skids.

It should be stressed, of course, that the data do not make possible definitive generalizations, and that no more is intended by this analysis than to indicate the general trend of the results. However, on the basis of this cursory analysis, the general trend appears to be one of agreement between the inspector's observations and the photographic records for both

slips and skids. However, the standards in terms of which "agreement" and "disagreement" were defined above are not stringent, and further inspection of the contingency tables by means of which the photographic records and OSFI entries are compared indicates that a number of marked slips and skids apparently were undetected.

Data in summary form from Tables A-4, A-5, A-10, and A-11, and from Tables B-16, B-17, B-22, and B-23 in the appendices are presented in Tables 11 and 12. In Tables 11 and 12 data from all four check flights have been pooled, and while rigorous analysis is not warranted due to the fact that in many cases the marginal totals from the contingency tables for individual check flights which were pooled are not comparable, nevertheless, consideration in this summary form of the data for two maneuvers (360° Steep Turns Right and Left) appears of interest.

Inspection of these tables indicates (as noted previously) that in these two maneuvers, in which the incidence of slipping and skidding was greatest, there is a general trend toward agreement. However, a number of cases of marked slip and skid were indicated by the photographic records but were not recorded by the inspector on the Ohio State Flight Inventory. For example, with reference to Table 11, "No slip during recovery" was indicated in cases where the photographic record indicated a slip of Degree 4 occurred. (In a Degree 4 slip the photographic records showed a maximum excursion of the ball in the ball-bank indicator.) In this connection, it is noteworthy that reference to Tables A-1 to A-12, and B-13 to B-24 in the appendices indicates that for Inspector A, of 90 instances of slip or skid to Degree 3 or 4,[13] as indicated by the photographic records, 18 or 20% were not recorded as slip or skid by this inspector. For Inspector B, of 45 cases of slip or skid to Degree 3 or 4, 26 or 58% were not recorded as slip or skid by the inspector. In terms of this observation, Inspector A was much more accurate than Inspector B. It seems evident then that although some general agreement between OSFI observations and photographic records was evident, a number of apparent and marked slips and skids were not recorded as such by the Inspectors on the OSFI. This fact is of some significance even though the incidence of slips and skids to Degree 3 or 4 was small, representing less than 4% of the total opportunities for slipping and skidding during the turn maneuvers under consideration.

Other Variables. As noted previously, comparisons were also made in terms of the variables "Plane flown off or stalled off," "Stick full back at moment of landing," "Low wing raised by aileron in stall," and "Coordination of controls during turns." As was mentioned earlier the comparisons between the OSFI observations and the photographic variables are not as

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[13] In terms of the photographic records, a slip of Degree 3 was indicated when the excursion of the ball in the ball-bank instrument was such that the ball was entirely outside the center "lubber" lines. It would not be surprising if a number of Degree 2 slips or skids were recorded on the OSFI as "no slip" or "no skid" inasmuch as the excursion of the ball past the Degree 2 lower limit might have been extremely small in a number of cases. The failure to observe and record slips and skids of Degree 3 or greater cannot be explained in this manner.

## TABLE 11

### COMPARISON BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
### MANEUVER 18 (360° Steep Turn Left)

ENTRY PHOTOGRAPH — TURN PHOTOGRAPH — RECOVERY PHOTOGRAPH

**Inspector A**

Degree of Slip

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Slip | 6 | 24 | 9 | | |
| F | Slip | 2 | 8 | 7 | 2 | |

Degree of Slip

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Slip | 17 | 20 | 5 | | |
| F | Slip | 4 | 7 | 8 | | |

Degree of Slip

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Slip | 4 | 15 | 8 | 2 | 1 |
| F | Slip | 7 | 9 | 9 | 4 | 2 |

Degree of Skid

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Skid | 13 | 37 | 6 | | |
| F | Skid | | | 2 | | |

Degree of Skid

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Skid | 9 | 42 | 4 | 1 | |
| F | Skid | 1 | 3 | 1 | | |

Degree of Skid

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Skid | 3 | 15 | 6 | | |
| F | Skid | 1 | 11 | 15 | 8 | 2 |

**Inspector B**

Degree of Slip

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Slip | 15 | 27 | 12 | 4 | |
| F | Slip | | 5 | 2 | 0 | |

Degree of Slip

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Slip | 30 | 24 | 4 | 2 | 1 |
| F | Slip | | 1 | 1 | 1 | |

Degree of Skid

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Skid | 34 | 27 | 2 | 2 | |
| F | Skid | | 1 | | | |

Degree of Skid

| OSFI | | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| O | No Skid | 16 | 22 | 10 | 1 | |
| F | Skid | 3 | 2 | 5 | 5 | |

TABLE 12

COMPARISON BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
MANEUVER 19 (360° Steep Turn Right)

ENTRY PHOTOGRAPH

<u>Inspector A</u>

OSFI: No Slip

| | Degree of Slip 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| No Slip | | 24 | 14 | 2 | |
| Slip | | 5 | 12 | 3 | |

OSFI: No Skid

| | Degree of Skid 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| No Skid | 44 | 14 | 1 | | |
| Skid | 1 | | | | |

<u>Inspector B</u>

OSFI: No Slip

| | Degree of Slip 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| No Slip | 4 | 37 | 7 | 4 | |
| Slip | | 7 | 5 | 1 | |

OSFI: No Skid

| | Degree of Skid 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| No Skid | 52 | 8 | 3 | | |
| Skid | 2 | | | | |

TURN PHOTOGRAPH

<u>Inspector A</u>

| Degree of Slip 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 | 12 | 10 | | |
| 2 | 20 | 14 | 2 | |

| Degree of Skid 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 41 | 11 | 1 | | |
| 3 | 3 | 1 | | |

<u>Inspector B</u>

| Degree of Slip 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 12 | 31 | 11 | 3 | |
| | 1 | 3 | 3 | |

| Degree of Skid 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 36 | 17 | 2 | | |
| 4 | 2 | 3 | | |

RECOVERY PHOTOGRAPH

<u>Inspector A</u>

| Degree of Slip 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 | 9 | 9 | 3 | |
| | 11 | 18 | 7 | 3 |

| Degree of Skid 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 16 | 13 | 5 | | |
| 5 | 11 | 8 | 3 | |

meaningful for these variables as for the variables discussed above. The photographic record observations were made in qualitative rather than quantitative terms, and there is no assurance that the definition of the "unsatisfactory" alternative used by the inspectors was directly comparable to the definitions in terms of which the photographic records were read. However, these comparisons were made and will be discussed briefly.

Contingency tables for the item plane "Flown off" or "Stalled off" during take-off are presented in Tables 13 and 14. During the take-off the inspectors recorded whether the plane had been "Stalled off" or "Flown off" and information in terms of this variable also was obtained from the photographic records. Inspection of the tables indicates that for the second class (Inspector A) in all cases the percentage of correct classification is greater than 50%. In the third class for one of the four check flights the percentage of correct classification is less than 50%. In general, there seems to be some tendency toward agreement in terms of this item in both flight classes. However, it should be recognized that the observation of plane "Flown off" or "Stalled off," made in terms of the photographic records, was based primarily on the airspeed reading at point of take-off, i.e., if the speed at moment of take-off was below a certain figure the plane was considered to have been "Stalled off." Inasmuch as in regard to this question the inspector undoubtedly may have based his judgment on other elements in addition to airspeed, the two OSFI and photographic items are not completely comparable.

Comparisons for the two flight classes (Inspectors A and B) between the OSFI item "Full elevator" at stall and the photographic item "Stick full back" at stall are presented in Tables 15 and 16. It is evident that there is a tendency toward agreement in both classes, as indicated by correct classifications of greater than 50%. However, the bulk of the OSFI observations were to the effect that "Full elevator" was used, whereas considerably more observations of "Stick not full back" were made on the basis of the photographic records. It seems probable that the definition in terms of the photographic records was somewhat more stringent than was the definitions used by the inspectors. Moreover, it seems possible that due to the fact that in some flights the plane was loaded to its maximum, a stall might have occurred before the stick was brought full back, in which case satisfactory performance would have been indicated by the inspector. It seems that this item cannot be satisfactorily observed in the photographic records.

Also presented in Tables 15 and 16 are comparisons for the two flight classes between the OSFI item "Aileron used" in stall and the photographic item "Low wing raised by aileron." It is evident that the percentage of correct classifications is less than 50% in three of the four check flights on the second class (Inspector A) and in two of the four check flights on the third class (Inspector B). There is no trend of agreement between inspectors' observations and the photographic records on this item. Of particular interest is the fact that Inspector A recorded "Aileron used" in numerous cases where observation of the photographic records indicated that aileron was not used. Data for Inspector B are less complete than for Inspector A, and it appears that in terms of the photographic records there is a greater incidence of "Aileron used" for the third flight class than for the second flight class with which Inspector A was associated. Again, however, this comparison between OSFI and photographic records is not meaningful inasmuch as the definitions of excessive aileron use, on the basis of the photographic

TABLE 13

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
ON PLANE STALLED OFF OR FLOWN OFF
MANEUVER 2 (Take-off)
Inspector A, 2nd Class

Check Flight 2

| OSFI | Photographic: Flown off | Photographic: Stalled off |
|---|---|---|
| Flown off | 6 | |
| Stalled off | 2 | |

Check Flight 4

| OSFI | Photographic: Flown off | Photographic: Stalled off |
|---|---|---|
| Flown off | 16 | |
| Stalled off | 3 | |

Check Flight 7

| OSFI | Photographic: Flown off | Photographic: Stalled off |
|---|---|---|
| Flown off | 14 | |
| Stalled off | 3 | |

Check Flight 8

| OSFI | Photographic: Flown off | Photographic: Stalled off |
|---|---|---|
| Flown off | 17 | |
| Stalled off | 3 | |

TABLE 1/4

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
ON PLANE STALLED OFF OR FLOWN OFF
MANEUVER 2 (Take-off)
Inspector B, 3rd Class

Check Flight 2

| OSFI | Photographic: Flown off | Photographic: Stalled off |
|---|---|---|
| Flown off | 2 | 5 |
| Stalled off | | 1 |

Check Flight 4

| OSFI | Photographic: Flown off | Photographic: Stalled off |
|---|---|---|
| Flown off | 6 | 8 |
| Stalled off | | 4 |

Check Flight 7

| OSFI | Photographic: Flown off | Photographic: Stalled off |
|---|---|---|
| Flown off | 16 | 5 |
| Stalled off | 2 | 1 |

Check Flight 8

| OSFI | Photographic: Flown off | Photographic: Stalled off |
|---|---|---|
| Flown off | 21 | 3 |
| Stalled off | | |

TABLE 15

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
ON POSITION OF STICK AND USE OF AILERON
MANEUVER 20 (Normal Power-off Stall)
Inspector A, 2nd Class

PHOTOGRAPHIC

Check Flight 2

| OSFI: Full Elevator | Stick Full Back: Yes | Stick Full Back: No |
|---|---|---|
| Yes | 5 | 1 |
| No | | 1 |

| OSFI: Aileron Used | Low Wing Raised by Aileron: No | Low Wing Raised by Aileron: Yes |
|---|---|---|
| No | | |
| Yes | 1 | 1 |

Check Flight 4

| OSFI: Full Elevator | Stick Full Back: Yes | Stick Full Back: No |
|---|---|---|
| Yes | 16 | 6 |
| No | | |

| OSFI: Aileron Used | Low Wing Raised by Aileron: No | Low Wing Raised by Aileron: Yes |
|---|---|---|
| No | 1 | |
| Yes | 17 | 4 |

Check Flight 7

| OSFI: Full Elevator | Stick Full Back: Yes | Stick Full Back: No |
|---|---|---|
| Yes | 16 | 2 |
| No | | |

| OSFI: Aileron Used | Low Wing Raised by Aileron: No | Low Wing Raised by Aileron: Yes |
|---|---|---|
| No | 3 | 5 |
| Yes | 8 | 2 |

Check Flight 8

| OSFI: Full Elevator | Stick Full Back: Yes | Stick Full Back: No |
|---|---|---|
| Yes | 16 | 4 |
| No | | |

| OSFI: Aileron Used | Low Wing Raised by Aileron: No | Low Wing Raised by Aileron: Yes |
|---|---|---|
| No | 3 | 4 |
| Yes | 9 | 3 |

TABLE 16

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
ON POSITION OF STICK AND USE OF AILERON
MANEUVER 20 (Normal Power-off Stall)
Inspector B, 3rd Class

PHOTOGRAPHIC

PHOTOGRAPHIC

Check Flight 2

| OSFI | Stick Full Back: Yes | Stick Full Back: No |
|---|---|---|
| Full Elevator: Yes | 6 | |
| Full Elevator: No | 2 | |

+

| OSFI | Low Wing Raised by Aileron: No | Low Wing Raised by Aileron: Yes |
|---|---|---|
| Aileron Used: No | 1 | 3 |
| Aileron Used: Yes | | 4 |

Check Flight 4

| OSFI | Stick Full Back: Yes | Stick Full Back: No |
|---|---|---|
| Full Elevator: Yes | 16 | 1 |
| Full Elevator: No | | |

+

| OSFI | Low Wing Raised by Aileron: No | Low Wing Raised by Aileron: Yes |
|---|---|---|
| Aileron Used: No | | 7 |
| Aileron Used: Yes | | 4 |

Check Flight 7

| OSFI | Stick Full Back: Yes | Stick Full Back: No |
|---|---|---|
| Full Elevator: Yes | 22 | |
| Full Elevator: No | | |

+

| OSFI | Low Wing Raised by Aileron: No | Low Wing Raised by Aileron: Yes |
|---|---|---|
| Aileron Used: No | | 1 |
| Aileron Used: Yes | | |

Check Flight 8

| OSFI | Stick Full Back: Yes | Stick Full Back: No |
|---|---|---|
| Full Elevator: Yes | 22 | 1 |
| Full Elevator: No | | |

+

| OSFI | Low Wing Raised by Aileron: No | Low Wing Raised by Aileron: Yes |
|---|---|---|
| Aileron Used: No | 1 | |
| Aileron Used: Yes | | |

records, was perhaps not as functional as was the definition used by the inspector, made in terms of the performance of the plane.

Comparisons between the OSFI observations as to "simultaneous" or "successive" use of the controls during entry to and recovery from the turn, and the photographic record entries as to whether use of controls was "coordinated" or "not coordinated" are presented in Tables 17, 18, 19, and 20. Comparisons were made for the left and right steep turns, data from the second flight class being presented in Tables 17 and 18, and in Tables 19 and 20 for the third flight class. It is evident that except for the steep turn to the left, in the second flight class, there is no marked tendency toward agreement between OSFI and photographic records, although it should be emphasized that data from the third flight class are sparse. On these items, again, the observations on both the OSFI and the photographic records were made in qualitative terms, and rigorous and quantitative observations in terms of the photographic records were not possible. Therefore, meaningful conclusions cannot be drawn.

## DISCUSSION

In general, it is evident that of the five principal variables under investigation, observations on average airspeed were probably most accurately made by both inspectors, as indicated by the agreement between the OSFI entries and the photographic records. Altitude variation and airspeed variation were somewhat less accurately observed, and although the accuracy of observations on slipping and skidding could not be checked as adequately as could observations in terms of the above variables, it is noteworthy that a number of marked slips and skids were indicated by the photographic records which were not recorded by the inspectors. It is difficult to state which of the two inspectors' observations on the whole were the most accurate. Inspector B's observations on altitude variation were markedly more accurate in regard to average airspeed. Inspector A on the other hand was considerably more accurate in recording airspeed variation and apparently correctly classified more slips and skids of Degrees 3 and 4 than did Inspector B.

In regard to the general implication of the study, although the comparisons between OSFI entries and photographic records were made for five of the most important variables employed in assessing flight performance, nevertheless a complete picture of the accuracy of observation of all items in the Ohio State Flight Inventory cannot be obtained, and since only two inspectors were employed generalizations regarding the accuracy of observations of inspectors as a group similarly are not warranted. However, the striking feature of the study is the marked individual differences among inspectors in the accuracy of their observations, i.e., the marked individual differences in the agreement between photographic records and OSFI entries. For example, in terms of altitude variation it will be recalled that 61.5% of the observations made by Inspector B differed from the photographic records by less than 20 feet, whereas only 38.5% of the observations of Inspector A were this closely in agreement with the photographic records. In terms of airspeed var-

TABLE 17

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
ON COORDINATION OF CONTROLS
MANEUVER 18 (Left 360° Steep Turn)
Inspector A, 2nd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | 4 | 6 |
| Successive | | 7 |

Check Flight 7

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | 4 | 7 |
| Successive | | 5 |

Check Flight 8

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | [illegible] | 6 |
| Successive | 1 | 5 |

RECOVERY PHOTOGRAPH

Check Flight 4

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | | 3 |
| Successive | | 19 |

Check Flight 7

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | 1 | 1 |
| Successive | 5 | 11 |

Check Flight 8

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | | [illegible] |
| Successive | 1 | [illegible] |

TABLE 18

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
ON COORDINATION OF CONTROLS
MANEUVER 19 (Right 360° Steep Turn)
Inspector A, 2nd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Coordinated | Not Coordinated | - |
|---|---|---|---|
| Simultaneous | 1 | 10 | |
| Successive | 1 | 7 | |

Check Flight 7

| OSFI | Coordinated | Not Coordinated | - |
|---|---|---|---|
| Simultaneous | 1 | 8 | |
| Successive | | 4 | |

Check Flight 8

| OSFI | Coordinated | Not Coordinated | + |
|---|---|---|---|
| Simultaneous | 4 | 7 | |
| Successive | | 7 | |

RECOVERY PHOTOGRAPH

Check Flight 4

| OSFI | Coordinated | Not Coordinated | ? |
|---|---|---|---|
| Simultaneous | 1 | 3 | |
| Successive | 8 | 10 | |

Check Flight 7

| OSFI | Coordinated | Not Coordinated | + |
|---|---|---|---|
| Simultaneous | 3 | 1 | |
| Successive | 4 | 10 | |

Check Flight 8

| OSFI | Coordinated | Not Coordinated | + |
|---|---|---|---|
| Simultaneous | 2 | 1 | |
| Successive | 6 | 11 | |

TABLE 19

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
ON COORDINATION OF CONTROLS
MANEUVER 18 (Left 360° Steep Turn)
Inspector B, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | | 6 |
| Successive | | 1 |

RECOVERY PHOTOGRAPH

Check Flight 4

| | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | | 10 |
| Successive | | |

TABLE 20

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS
ON COORDINATION OF CONTROLS
MANEUVER 19 (Right 360° Steep Turn)
Inspector B, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | | 6 |
| Successive | 1 | |

RECOVERY PHOTOGRAPH

Check Flight 4

| | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | 2 | 9 |
| Successive | | |

Check Flight 8

| OSFI | Coordinated | Not Coordinated |
|---|---|---|
| Simultaneous | | 1 |
| Successive | | |

iation, 68% of the observations of Inspector A were within 5 mph of the variation indicated by the photographic records, whereas only 33% of the observations of Inspector B were this accurate.

If the differences in agreement had all been in favor of Inspector A an explanation might be considered to lie in the fact that this individual who was highly esteemed, and who was considered generally an extremely competent inspector, was markedly superior to Inspector B. However, the fact that Inspector B appears more accurate than Inspector A in certain elements suggests that the cause of such individual differences is somewhat more fundamental, and indicates the possibility that such individual differences in accuracy of observation are considerably more widespread than would have been the case had all of the differences been in favor of Inspector A. These findings would seem to suggest the desirability of employing more explicit directions as to observational procedures in connection with the instructions for administration of the Ohio State Flight Inventory.

A question might well be raised as to whether or not the degree of accuracy with which the OSFI observations were made should be considered "satisfactory" or "unsatisfactory." A categorical answer to this question cannot be given since so much is dependent upon the use to which the Ohio State Flight Inventory is put. In spite of the fact that certain observations on specific elements of flight performance may not be accurate, and that individual items on the inventory may have relatively low reliability, nevertheless the reliability of the total score, based on the aggregate of the large number of items in the inventory, might well meet acceptable standards.[14] In this connection it might be noted that in cases where meaningful comparisons could be made there was a general trend of agreement between the OSFI and the photographic records.

However, if the separate items on the OSFI are to be analyzed individually, the marked lack of agreement on certain items between inspectors' observations and the photographic records found in this study might well be a cause for concern. For example, if for some reason altitude variation and airspeed variation were to be studied individually, and if precise information in terms of these variables were desired, it would perhaps be unwise to obtain these measures from the Ohio State Flight Inventory routinely adminis-

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[14]Definitive studies of the reliability of an over-all score based on the Ohio State Flight Inventory have not been made, although evidence is at hand that there is a "greater homogeneity of ratings when trained observers are used." See Edgerton, H. A., and Walker, R. Y. Op. cit. (See Footnote 20 of this report.) Determination of the reliability of the instrument has been impeded by the difficulty of obtaining pairs of measurements on the OSFI uninfluenced by extraneous factors. For example, even if two check pilots administer the OSFI to the same subjects on successive flights, variations in performance from flight to flight would seriously attenuate the correlation between the OSFI scores assigned by the two inspectors. To date no investigation has been carried out in which two check pilots, riding together with subjects in a three-place plane, recorded their observations during the same flight on the inventory.

tered, unless there were reasonable assurance that the accuracy of observation were not as poor as that exhibited by the poorest inspector in the present study,[15] or preferably, considerably better than the accuracy shown by the most accurate inspector in the present study. In this connection it is of considerable interest that in estimating altitude variation Inspector A tended to err by overestimation whereas Inspector B tended to err by underestimation. For airspeed variation, while both men underestimated in terms of this variable, Inspector B underestimated less than Inspector A.

It might also be noted that one of the important functions of the Ohio State Flight Inventory, over and above the detailed information it provides, is the fact that use of this instrument forces the inspector or check pilot to organize his observation of flight performance in an orderly manner, and calls his attention to aspects of the performance that might otherwise be overlooked. Its value in this regard is of significance, despite the evidence of errors of observation on specific items. In addition, as mentioned previously, more explicit instructions regarding observational procedures might not only increase the accuracy of individual observations, but also should increase the value of the inventory in directing observation of performance.

Finally, it should be emphasized that while the five principal variables with which this analysis is concerned are undoubtedly of considerable importance in assessing flight proficiency, nevertheless, there are a number of other important aspects of flight performance in regard to which comparisons with the photographic records could not be made. It might be, for example, that observations in regard to other important but less detailed items on the inventory, such as those dealing with planning, judgment, and safety, are more accurately made, although on the other hand, the difficulty of defining satisfactory performance in terms of variables of this type might attenuate the reliability of such observations.

In any event, determination of the accuracy of observation of elements of performance pertaining to judgment, planning, and observation of safety precautions, and possibly expansion of the Ohio State Flight Inventory to include more of these elements, might be suggested. Although beyond the limits of the data in this study, consideration of this latter point would seem to be indicated by the fact that many of the advances in the light, or private, plane field render somewhat less important certain of the attributes of flight performance primarily related to skill, for example, minor slipping or skidding, and maintenance of constant airspeed within rigid limits. At the same time other aspects of performance such as planning, use of judgment, and recognition of safety precautions will become more important as the number of light planes in the air increases.

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[15] This is not to say, of course, that increased accuracy might not be obtained if the check pilot observed nothing but airspeed variation and altitude variation. In this case, however, routine administration of the Ohio State Flight Inventory would not be possible.

## SUMMARY

In this analysis the agreement between the observations of two inspectors as recorded on the Ohio State Flight Inventory, and data on the plane's performance obtained from motion photographic records of a concealed instrument panel, was studied. The data studied were collected at the Institute of Aviation Psychology, University of Tennessee, during the second and third flight classes. Inspector A administered the check flights for the second class, and Inspector B administered the check flights to members of the third flight class.

Depending upon the nature of the variables in terms of the OSFI and as taken from the photographic records, one or more of the following types of analyses were made: correlations between OSFI observations and photographic records, frequency distributions of absolute differences between OSFI entries and photographic data, frequency distributions of algebraic differences together with means and standard deviations of the distributions, frequency distributions of absolute differences together with cumulative percentages, and frequency distributions in which trends of agreement were determined by inspection.

In general, it is evident that of the five principal variables under investigation, observations on average airspeed were the most accurately made by both inspectors, the correlations between OSFI and camera records being generally high, and the percentage of discrepancies greater than the units in which the airspeed instrument was calibrated being generally low for both inspectors. Altitude variation and airspeed variation were somewhat less accurately observed. Rigorous statistical investigation of the accuracy of observations on "slipping" and "skidding" could not be accomplished, due to the paucity of data and the nature of the distributions in terms of which these variables were presented. Although general trends of agreement were evident for both of these variables it is noteworthy that a number of marked slips and skids were indicated by the photographic records which were not recorded by the inspectors.

In comparing the accuracy of the two observers it may be concluded that although they differ in the accuracy of recording specific types of items, there appears no marked superiority of one inspector as compared with the other. Inspector B's observations on altitude variation were markedly more accurate than Inspector A's, and he was somewhat more accurate in observing average airspeed. Inspector A, on the other hand, was considerably more accurate in recording airspeed variation and apparently correctly classified more slips and skids of Degrees 3 and 4 than did Inspector B.

It was concluded that whereas the lack of accuracy in the inspectors' observations might not be considered necessarily to render unreliable the over-all score derived from the aggregate of OSFI items, the use of the OSFI routinely administered, in collecting precise information on specific elements of performance might be unwise unless specific information regarding the accuracy of observation of the inspectors or check pilots administering the check flights and filling out the inventory were available.

# APPENDIX A

## AGREEMENT BETWEEN THE OHIO STATE FLIGHT INVENTORY AND PHOTOGRAPHIC RECORDS IN TERMS OF SLIPS AND SKIDS DURING TURNS (INSPECTOR A)

TABLE A-1

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 8 (Left Climbing Turn)
Inspector, 2nd Class

Check Flight 2

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 3 | 2 | | | | 4 | 1 | 2 | | | 1 | 4 | | | |
| Slip | 2 | | | | | | | | | | 2 | 1 | | | |

Check Flight 4

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 8 | 5 | 2 | | | 12 | 6 | | | | 9 | 7 | 1 | | |
| Slip | 4 | 2 | 1 | | | 1 | 1 | 2 | | | 3 | 1 | | | |

Check Flight 7

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 9 | 8 | 1 | | | 11 | 5 | | | | 13 | 5 | 1 | | |
| Slip | 3 | | | | | 1 | 3 | 1 | | | 1 | 1 | | | |

Check Flight 8

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 15 | 3 | | | | 11 | 3 | | | | 14 | 3 | | | |
| Slip | 2 | | | | | 4 | 2 | | | | 3 | | | | |

TABLE A-2

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 14 (180° Turn Left)
Inspector, 2nd Class

## Check Flight 2

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 1 | 2 | 1 | | | | 2 | 2 | 1 | | | | 1 | 2 | 1 | | | |
| Slip | | 2 | 1 | | | | | 1 | 1 | | | | 2 | 2 | | | | |

## Check Flight 4

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 5 | 5 | 4 | | | | 11 | 7 | 1 | | | | 2 | 7 | 6 | | | |
| Slip | | 1 | 3 | 1 | | | 1 | 2 | | | | | | 5 | 1 | 1 | | |

## Check Flight 7

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 5 | 8 | 1 | | | | 8 | 10 | | | | | 5 | 8 | 2 | 1 | | |
| Slip | 1 | 3 | 1 | 1 | | | 1 | 1 | 1 | | | | 1 | 3 | 1 | | | |

## Check Flight 8

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 3 | 8 | 3 | | | | 8 | 7 | 2 | | | | 9 | 5 | 2 | 1 | | |
| Slip | | 2 | 4 | | | | | 3 | | | | | | 2 | 1 | | | |

## TABLE A-3

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 15 (180° Turn Right)
Inspector, 2nd Class

### Check Flight 2

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | | 2 | 1 | | | | 4 | 2 | 1 | | | 2 | | 1 | |
| Slip | | 2 | 2 | 1 | | | | 1 | | | | 2 | 1 | 1 | |

### Check Flight 4

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | | 11 | 3 | | | | 15 | 1 | | | | 5 | 6 | | |
| Slip | | 2 | 4 | 2 | | | 1 | 3 | 2 | | | 1 | 7 | 3 | |

### Check Flight 7

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 1 | 11 | 2 | | | | 7 | 1 | | | | 7 | 2 | | |
| Slip | | 5 | 2 | | | | 7 | 4 | | | | 4 | 3 | 3 | |

### Check Flight 8

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | | 15 | 2 | | | | 9 | | | | | 9 | 2 | | |
| Slip | | 3 | | | | | 8 | 3 | | | | 4 | 4 | 1 | |

TABLE A-4

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 18 (Left 360° Steep Turn)
Inspector, 2nd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 2 | 7 | 4 | | | |
| Slip | | 2 | 3 | 1 | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 2 | 10 | 2 | | | |
| Slip | 1 | 3 | 2 | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 2 | 7 | 3 | | | |
| Slip | 1 | 3 | 2 | 1 | | |

TURN PHOTOGRAPH

Check Flight 4

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 4 | 8 | 3 | | | |
| 1 | 3 | 3 | | | |

Check Flight 7

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 7 | 6 | 1 | | | |
| | 2 | 3 | | | |

Check Flight 8

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 6 | 6 | 1 | | | |
| 3 | 2 | 2 | | | |

RECOVERY PHOTOGRAPH

Check Flight 4

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| | 5 | 3 | 1 | 1 | |
| 1 | 3 | 4 | 3 | 1 | |

Check Flight 7

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 1 | 5 | 2 | 1 | | |
| 4 | 4 | 2 | | | |

Check Flight 8

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 3 | 5 | 3 | | | |
| 2 | 2 | 3 | 1 | 1 | |

TABLE A-5

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 19 (Right 360° Steep Turn)
Inspector, 2nd Class

Check Flight 4

| | | ENTRY PHOTOGRAPH | | | | | | TURN PHOTOGRAPH | | | | | | RECOVERY PHOTOGRAPH | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Degree of Slip | | | | | | Degree of Slip | | | | | | Degree of Slip | | | | | |
| | | 0 | 1 | 2 | 3 | 4 | + | 0 | 1 | 2 | 3 | 4 | + | 0 | 1 | 2 | 3 | 4 | + |
| O | No | | | | | | | | | | | | | | | | | | |
| S | Slip | | 6 | 4 | 1 | | | | 4 | 6 | | | | | 4 | 5 | 2 | | |
| F | | | | | | | | | | | | | | | | | | | |
| I | Slip | | | 8 | 2 | | | | 8 | 2 | 2 | | | | 1 | 5 | 2 | 3 | |

Check Flight 7

| | | ENTRY PHOTOGRAPH | | | | | | TURN PHOTOGRAPH | | | | | | RECOVERY PHOTOGRAPH | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Degree of Slip | | | | | | Degree of Slip | | | | | | Degree of Slip | | | | | |
| | | 0 | 1 | 2 | 3 | 4 | + | 0 | 1 | 2 | 3 | 4 | + | 0 | 1 | 2 | 3 | 4 | + |
| O | No | | | | | | | | | | | | | | | | | | |
| S | Slip | | 8 | 7 | | | | | 4 | 2 | | | | 1 | 2 | 3 | | | |
| F | | | | | | | | | | | | | | | | | | | |
| I | Slip | | 1 | 2 | 1 | | | 2 | 5 | 6 | | | | | 4 | 7 | 2 | | |

Check Flight 8

| | | ENTRY PHOTOGRAPH | | | | | | TURN PHOTOGRAPH | | | | | | RECOVERY PHOTOGRAPH | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Degree of Slip | | | | | | Degree of Slip | | | | | | Degree of Slip | | | | | |
| | | 0 | 1 | 2 | 3 | 4 | + | 0 | 1 | 2 | 3 | 4 | + | 0 | 1 | 2 | 3 | 4 | + |
| O | No | | | | | | | | | | | | | | | | | | |
| S | Slip | | 10 | 3 | 1 | | | 1 | 4 | 2 | | | | | 3 | 1 | 1 | | |
| F | | | | | | | | | | | | | | | | | | | |
| I | Slip | | 4 | 2 | | | | | 7 | 6 | | | | | 6 | 6 | 3 | | |

TABLE A-6

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 29 (Left Gliding Turn)
Inspector, 2nd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 1 | 3 | 1 | | |
| Slip | | | 1 | | |

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 2 | 6 | 7 | | |
| Slip | 1 | 2 | 2 | 2 | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 6 | 11 | 1 | | |
| Slip | | 1 | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 5 | 6 | 1 | | |
| Slip | 2 | 2 | 1 | | |

TURN PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | | 4 | 1 | | |
| Slip | | 1 | | | |

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 7 | 8 | 3 | | |
| Slip | | 2 | | 1 | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 9 | 6 | 1 | | |
| Slip | | 3 | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 7 | 7 | 1 | | |
| Slip | 1 | 1 | | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | | | 2 | | |
| Slip | | 2 | 2 | | |

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 2 | 9 | 3 | | |
| Slip | | 3 | 4 | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 5 | 10 | 1 | | |
| Slip | 3 | | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 8 | 4 | 2 | | |
| Slip | 2 | 1 | 1 | | |

## TABLE A-7

### AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
### MANEUVER 8 (Left Climbing Turn)
### Inspector, 2nd Class

| | ENTRY PHOTOGRAPH | | | | | TURN PHOTOGRAPH | | | | | RECOVERY PHOTOGRAPH | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Check Flight 2** | | | | | | | | | | | | | | | |
| | Degree of Skid | | | | | Degree of Skid | | | | | Degree of Skid | | | | |
| | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |
| OSFI No Skid | | 6 | 2 | | | 1 | 2 | 4 | | | | 1 | | | |
| OSFI Skid | | | | | | | | | | | | 1 | 4 | 2 | |
| **Check Flight 4** | | | | | | | | | | | | | | | |
| | Degree of Skid | | | | | Degree of Skid | | | | | Degree of Skid | | | | |
| | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |
| OSFI No Skid | | 19 | 3 | | | | 12 | 3 | 1 | | | 10 | 7 | | |
| OSFI Skid | | | | | | | 2 | 3 | 1 | | | 2 | 2 | | |
| **Check Flight 7** | | | | | | | | | | | | | | | |
| | Degree of Skid | | | | | Degree of Skid | | | | | Degree of Skid | | | | |
| | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |
| OSFI No Skid | | 15 | 5 | | | | 6 | 4 | | | | 12 | 2 | | |
| OSFI Skid | | 1 | | | | | 5 | 5 | 1 | | | 4 | 3 | | |
| **Check Flight 8** | | | | | | | | | | | | | | | |
| | Degree of Skid | | | | | Degree of Skid | | | | | Degree of Skid | | | | |
| | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |
| OSFI No Skid | 1 | 17 | 1 | | | | 16 | 3 | | | | 10 | 1 | | |
| OSFI Skid | | | 1 | | | | | 1 | | | | 5 | 3 | 1 | |

TABLE A-8

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 14 (180° Turn Left)
Inspector, 2nd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 2 | 4 | 1 | | |
| Skid | | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 4 | 12 | 1 | 1 | |
| Skid | | | 1 | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 3 | 15 | 1 | | |
| Skid | | | | 1 | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 5 | 11 | 4 | | |
| Skid | | | | | |

TURN PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | | 6 | 1 | 1 | |
| Skid | | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 2 | 17 | 2 | | |
| Skid | | 1 | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 2 | 13 | 1 | | |
| Skid | | 2 | 3 | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 2 | 13 | 3 | | |
| Skid | 1 | | 1 | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | | | 2 | | |
| Skid | | 1 | 4 | 1 | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 1 | 5 | 2 | | |
| Skid | | 7 | 5 | 2 | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 1 | 5 | 5 | | |
| Skid | | 4 | 5 | 1 | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | | 6 | 1 | | |
| Skid | | 10 | 3 | | |

TABLE A-9

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 15 (180° Turn Right)
Inspector, 2nd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 5 | 2 | 1 | | | |
| Skid | | | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 13 | 7 | 1 | | | |
| Skid | 1 | | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 13 | 6 | | | | |
| Skid | 1 | | | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 15 | 4 | 1 | | | |
| Skid | | | | | | |

TURN PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 5 | 2 | 1 | | | |
| Skid | | | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 18 | 2 | 2 | | | |
| Skid | | | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 15 | 2 | 2 | | | |
| Skid | | | | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 14 | 3 | 1 | | | |
| Skid | 2 | | | | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 1 | | | | | |
| Skid | | 3 | 3 | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 4 | 2 | | | | |
| Skid | 5 | 5 | 5 | 1 | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 7 | 6 | | 1 | | |
| Skid | 2 | 1 | 1 | 1 | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 8 | 7 | 1 | | | |
| Skid | 2 | 2 | | | | |

TABLE A-10

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 18 (Left 360° Steep Turn)
Inspector, 2nd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 5 | 13 | 1 | | | |
| Skid | | | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 4 | 11 | 4 | | | |
| Skid | | | 1 | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No. Skid | 4 | 13 | 1 | | | |
| Skid | | | 1 | | | |

TURN PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 3 | 16 | 1 | 1 | | |
| Skid | | 1 | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 2 | 14 | 1 | | | |
| Skid | | 1 | 1 | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No. Skid | 4 | 12 | 2 | | | |
| Skid | 1 | 1 | | | | |

RECOVERY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | | 3 | 3 | | | |
| Skid | 1 | 4 | 6 | 4 | 1 | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | | 5 | 3 | | | |
| Skid | | 4 | 6 | 1 | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No. Skid | 3 | 7 | | | | |
| Skid | | 3 | 3 | 3 | 1 | |

## TABLE A-11

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 19 (Right 360° Steep Turn)
Inspector, 2nd Class

### Check Flight 4

| OSFI | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Skid | 15 | 5 | 1 | | | 14 | 5 | 1 | | | 4 | 3 | 3 | | |
| Skid | | | | | | 1 | | 1 | | | 2 | 5 | 3 | 2 | |

### Check Flight 7

| OSFI | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Skid | 13 | 5 | | | | 12 | 5 | | | | 4 | 6 | 1 | | |
| Skid | 1 | | | | | 1 | | | | | | 3 | 4 | 1 | |

### Check Flight 8

| OSFI | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Skid | 16 | 4 | | | | 15 | 1 | | | | 8 | 4 | 1 | | |
| Skid | | | | | | 1 | 3 | | | | 3 | 3 | 1 | | |

TABLE A-12

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 29 (Left Gliding Turn)
Inspector, 2nd Class

### Check Flight 2

| OSFI | | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O | No | | | | | | | | | | | | | | | |
| S | Skid | 1 | 4 | 1 | | | 1 | 5 | | | | | | 2 | | |
| F | | | | | | | | | | | | | | | | |
| I | Skid | | | | | | | | | | | | 2 | 1 | 1 | |

### Check Flight 4

| OSFI | | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O | No | | | | | | | | | | | | | | | |
| S | Skid | 8 | 10 | 4 | | | 6 | 13 | 1 | | | | 8 | 2 | | |
| F | | | | | | | | | | | | | | | | |
| I | Skid | | | | | | | 1 | | | | | 6 | 4 | 2 | |

### Check Flight 7

| OSFI | | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O | No | | | | | | | | | | | | | | | |
| S | Skid | 5 | 11 | 1 | | | 5 | 11 | 1 | | | 1 | 7 | 4 | | |
| F | | | | | | | | | | | | | | | | |
| I | Skid | | 1 | 1 | | | | 2 | | | | | 5 | 2 | | |

### Check Flight 8

| OSFI | | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O | No | | | | | | | | | | | | | | | |
| S | Skid | 4 | 13 | | | | 6 | 9 | 1 | | | 2 | 7 | 3 | 1 | |
| F | | | | | | | | | | | | | | | | |
| I | Skid | | | | | | | 1 | | | | | 3 | 1 | 1 | |

# APPENDIX B

## AGREEMENT BETWEEN THE OHIO STATE FLIGHT INVENTORY AND PHOTOGRAPHIC RECORDS IN TERMS OF SLIPS AND SKIDS DURING TURNS (INSPECTOR B)

TABLE 9-13

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 8 (Left Climbing Turn)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 8 | 2 | | | | |
| Slip | | | | | | |

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 13 | 3 | | | | |
| Slip | | | | | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 15 | 2 | 1 | | | |
| Slip | | | | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 12 | 4 | | | | |
| Slip | | | | | | |

TURN PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 7 | 2 | 1 | | | |
| Slip | | | | | | |

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 13 | 5 | | 1 | | |
| Slip | | | | | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 17 | 6 | | | | |
| Slip | 1 | | | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 17 | 6 | 1 | | | |
| Slip | | | | | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 8 | 1 | | | | |
| Slip | | | | | | |

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 16 | 3 | | | | |
| Slip | | | | | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 19 | 3 | | | | |
| Slip | | | | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 17 | 7 | | | | |
| Slip | | | | | | |

TABLE B-14

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 14 (180° Turn Left)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 4 | 3 | 2 | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | 1 | | | | |

Check Flight 4

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 9 | 3 | | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | | | | |

Check Flight 7

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 ? |
|---|---|---|---|---|---|---|
| O | No Slip | 1 | | | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | 1 | | | |

Check Flight 8

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 1 | | | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | | | | |

TURN PHOTOGRAPH

Check Flight 2

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 7 | 2 | 1 | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | | | | |

Check Flight 4

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 9 | 7 | 2 | 1 | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | | | | |

Check Flight 7

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 11 | 9 | 2 | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | 1 | | | | |

Check Flight 8

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 6 | 10 | 5 | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | 1 | | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 7 | | 1 | 1 | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | 1 | | | | |

Check Flight 4

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 11 | 7 | | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | | | | |

Check Flight 7

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 9 | 11 | | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | 1 | | 1 | |

Check Flight 8

| OSFI | | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Slip | 13 | 9 | 2 | | |
| S | | | | | | |
| F | | | | | | |
| I | Slip | | | | | |

## TABLE B-15

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 15 (180° Turn Right)
Inspector, 3rd Class

### Check Flight 2

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 3 | 3 | | | | 2 | 3 | 2 | | | 4 | 4 | 1 | | |
| Slip | | 2 | | | | | 1 | | 1 | | | | | | |

### Check Flight 4

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 9 | 2 | | | | 2 | 15 | 1 | 1 | | 3 | 13 | | | |
| Slip | 2 | | | | | | | | | | | | 1 | | |

### Check Flight 7

| OSFI | ENTRY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | | 2 | | | | 5 | 8 | 9 | | | 9 | 6 | 2 | | 1 |
| Slip | | | | | | | 1 | | | | 1 | 2 | | 1 | |

### Check Flight 8

| OSFI | TURN PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|
| No Slip | 3 | 16 | 3 | 1 | | 9 | 11 | 2 | 1 | |
| Slip | | 1 | | | | | | | | |

TABLE E-16

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 18 (Left 360° Steep Turn)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 5 | 4 | | | | |
| Slip | | | | | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 1 | | | | | |
| Slip | | | | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 2 | 13 | 6 | 2 | | |
| Slip | | | 1 | | | |

TURN PHOTOGRAPH

Check Flight 4

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 6 | 5 | 5 | 1 | | |
| | 2 | | | | |

Check Flight 7

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 7 | 9 | 1 | 1 | | |
| | 3 | 1 | 1 | | |

Check Flight 8

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 2 | 13 | 6 | 2 | | |
| | | 1 | | | |

RECOVERY PHOTOGRAPH

Check Flight 4

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 8 | 6 | 3 | 1 | | |
| | | | | | |

Check Flight 7

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 9 | 13 | | | | |
| | | 1 | | | |

Check Flight 8

| Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|
| 13 | 5 | 1 | 1 | 1 | |
| | 1 | | 1 | | |

TABLE B-17

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 19 (Right 360° Steep Turn)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 4 | 4 | | | | |
| Slip | 1 | | | | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 1 | 1 | | | | |
| Slip | | | | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | | 1 | | | | |
| Slip | | | | | | |

TURN PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 2 | 9 | 2 | 1 | | |
| Slip | | 3 | 1 | | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 1 | 14 | 2 | 2 | | |
| Slip | | 1 | 2 | 1 | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 1 | 14 | 3 | 1 | | |
| Slip | | 3 | 2 | | | |

RECOVERY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 2 | 13 | 2 | | | |
| Slip | | | | 1 | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 5 | 8 | 5 | 1 | | |
| Slip | | | 1 | 2 | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Slip | 5 | 10 | 4 | 2 | | |
| Slip | | 1 | 2 | | | |

TABLE B-18

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SLIPS
MANEUVER 29 (Left Gliding Turn)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 5 | 1 | | | |
| Slip | 1 | | | 1 | |

Check Flight 4

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 8 | 6 | | | |
| Slip | | | | | |

Check Flight 7

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 17 | 5 | | | |
| Slip | | | | | |

Check Flight 8

| OSFI | Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Slip | 10 | 11 | 1 | | |
| Slip | 1 | | | | |

TURN PHOTOGRAPH

Check Flight 2

| Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|
| 2 | 3 | 1 | 1 | |
| | | 1 | | |

Check Flight 4

| Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|
| 3 | 10 | 3 | | |
| | | 1 | | |

Check Flight 7

| Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|
| 4 | 16 | 1 | | |
| 1 | | 1 | | |

Check Flight 8

| Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|
| 2 | 12 | 5 | | |
| | 2 | 3 | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|
| 4 | 3 | | 1 | |
| | | | | |

Check Flight 4

| Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|
| 6 | 8 | 2 | | |
| | | | | |

Check Flight 7

| Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|
| 13 | 5 | 2 | | |
| 1 | | | | |

Check Flight 8

| Degree of Slip 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|
| 14 | 7 | 2 | | |
| | 1 | | | |

TABLE B-19

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 8 (Left Climbing Turn)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 3 | 6 | | | | |
| Skid | | 1 | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 9 | 6 | 1 | | | |
| Skid | | | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 12 | 5 | | | | |
| Skid | | 1 | | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 12 | 3 | 1 | | | |
| Skid | | | | | | |

TURN PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | ? |
|---|---|---|---|---|---|---|
| No Skid | 2 | 3 | | | | |
| Skid | 2 | 3 | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 5 | 7 | | | | |
| Skid | | 4 | 3 | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 4 | 13 | 2 | | | |
| Skid | | 4 | 1 | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 5 | 10 | 3 | | | |
| Skid | 1 | 4 | 1 | | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 1 | 5 | | | | |
| Skid | 1 | 2 | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 6 | 7 | 2 | 1 | | |
| Skid | | 3 | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 6 | 9 | 2 | | | |
| Skid | 1 | 3 | 1 | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 6 | 14 | 1 | | | |
| Skid | 1 | 1 | 1 | | | |

TABLE B-20

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 14 (180° Turn Left)
Inspector, 3rd Class

Check Flight 2

| OSFI | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Skid | 7 | 2 | | | | 4 | 5 | 1 | | | 1 | 4 | 1 | | |
| Skid | | 1 | | | | | | | | | 1 | 2 | 1 | | |

Check Flight 4

| OSFI | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Skid | 10 | 1 | | | | 9 | 7 | 1 | | | 5 | 8 | | | |
| Skid | 1 | | | | | | 1 | 1 | | | | 2 | 1 | 2 | |

Check Flight 7

| OSFI | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Skid | 1 | 1 | | | | 10 | 10 | 2 | | | 7 | 9 | | | |
| Skid | | | | | | | 1 | | | | 2 | 1 | 3 | | |

Check Flight 8

| OSFI | ENTRY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | TURN PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + | RECOVERY PHOTOGRAPH Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Skid | 1 | | | | | 11 | 10 | 3 | | | 5 | 13 | | | |
| Skid | | | | | | | | | | | 1 | 3 | 1 | 1 | |

TABLE B-21

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 15 (180° Turn Right)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 6 | 1 | | | |
| Skid | | 1 | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 8 | 3 | 1 | | |
| Skid | | 1 | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 2 | | | | |
| Skid | | | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| No Skid | | | | | |
| Skid | | | | | |

TURN PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 5 | 4 | | | |
| Skid | | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 12 | 6 | | | |
| Skid | | 1 | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 14 | 6 | 1 | | |
| Skid | | 1 | 1 | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 17 | 6 | 1 | | |
| Skid | | | | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 3 | 3 | 1 | | |
| Skid | 2 | | | | |

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 9 | 7 | | | |
| Skid | | | 1 | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 9 | 7 | 1 | | |
| Skid | 2 | 2 | | 1 | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 15 | 7 | | | |
| Skid | 1 | | | | |

TABLE 8-22

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 18 (Left 360° Steep Turn)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 7 | 1 | | | | |
| Skid | 1 | | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | | 1 | | | | |
| Skid | | | | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 10 | 12 | 1 | | | |
| Skid | | 1 | | | | |

TURN PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 10 | 8 | 1 | | | |
| Skid | | | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 14 | 7 | | 2 | | |
| Skid | | | | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 10 | 12 | 1 | | | |
| Skid | | 1 | | | | |

RECOVERY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 4 | 9 | 2 | | | |
| Skid | 1 | | 1 | 1 | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 6 | 8 | 3 | | | |
| Skid | 2 | 1 | 2 | 1 | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 | + |
|---|---|---|---|---|---|---|
| No Skid | 6 | 5 | 5 | 1 | | |
| Skid | | 1 | 2 | 3 | | |

TABLE B-23

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 19 (Right 360° Steep Turn)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 9 | | | | |
| Skid | | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 2 | | | | |
| Skid | | | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 1 | | | | |
| Skid | | | | | |

TURN PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 17 | 1 | | | |
| Skid | | | | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 18 | 3 | 1 | | |
| Skid | 1 | | | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 17 | 4 | 2 | | |
| Skid | 1 | | | | |

RECOVERY PHOTOGRAPH

Check Flight 4

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 12 | 5 | | | |
| Skid | | | 1 | | |

Check Flight 7

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 10 | 8 | 1 | | |
| Skid | 2 | | 1 | | |

Check Flight 8

| OSFI | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|
| No Skid | 14 | 4 | 1 | | |
| Skid | 2 | 2 | 1 | | |

TABLE B-24

AGREEMENT BETWEEN OSFI AND PHOTOGRAPHIC RECORDS ON SKIDS
MANEUVER 29 (Left Gliding Turn)
Inspector, 3rd Class

ENTRY PHOTOGRAPH

Check Flight 2

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 4 | 3 | | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | 1 | | | |

Check Flight 4

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 9 | 4 | 1 | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | | | | |

Check Flight 7

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 17 | 4 | 1 | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | | | | |

Check Flight 8

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 17 | 6 | | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | | | | |

TURN PHOTOGRAPH

Check Flight 2

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 5 | 2 | | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | 1 | | | |

Check Flight 4

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 11 | 5 | | 1 | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | | | | |

Check Flight 7

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 10 | 12 | 1 | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | | | | |

Check Flight 8

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 14 | 10 | | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | | | | |

RECOVERY PHOTOGRAPH

Check Flight 2

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 7 | | | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | 1 | | | |

Check Flight 4

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 5 | 8 | 1 | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | 1 | | | |

Check Flight 7

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 8 | 11 | 2 | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | | | | |

Check Flight 8

| OSFI | | Degree of Skid 0 | 1 | 2 | 3 | 4 + |
|---|---|---|---|---|---|---|
| O | No Skid | 9 | 13 | | | |
| S | | | | | | |
| F | | | | | | |
| I | Skid | | 2 | | | |