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F-16 AIRCREW TRAINING DEVELOPMENT PROJECT

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F-16 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

DEVELOPMENT REPORT No. 13

MARCH 1981

Prepared in fulfillment of CDRL nos. B017 and B018

by

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PREFACE

This report was created for the F-16 Aircrew Training Development Project contract no. F02604-79-C0875 for the Tactical Air Command to comply with the requirements of CDRL nos. B017 & B018. The project entailed the design and development of an instructional system for the F-16 RTU and instructor pilots. During the course of the project, a series of development reports was issued describing processes and products. A list of those reports follows this page. The user is referred to Report No. 34, A Users Guide to the F-16 Training Development Reports, for an overview and explanation of the series, and Report No. 35, F-16 Final Report, for an overview of the Instructional System Development Project.

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F-16 AIRCREW TRAINING
DEVELOPMENT PROJECT REPORTS

Copies of these reports may be obtained by writing the Defense Technical Information Center, Cameron Station, Alexandria, Virginia 22314. All reports were reviewed and updated in March 81.

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EXECUTIVE SUMMARY

A target population study provides a detailed description of incoming student characteristics and focuses on prior training and entry-level skills relevant to the training program being designed. The F-16 target population study involved the following major activities.

1. A review of existing student population studies.

2. Interviews with training personnel and graduates.

3. An incoming student inventory using the F-16 pilot task listing.

The data obtained from F-4 and F-15 IP profiles indicates that the initial F-16 IPs will be considerably more experienced than IPs later in the program. This suggests that the initial IP syllabus will need to be changed to reflect this characteristic. Data obtained from the F-4 and F-15 conversion course population suggests a similar difference between initial and subsequent students, particularly in the area of tactical knowledge.

Student pilots for the B (basic) F-16 course will normally have graduated from the USAF Undergraduates Pilot Training (UPT) program and the Fighter Lead-in Training (FLIT) program. The selection of students; their educational background, physical characteristics, psychological background, and flight experience; and the training syllabi of UPT/FLIT are examined. This data was used to develop a skill profile of the incoming B students to be used in other F-16 instructional design/development activities.

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F-16 PILOT AND INSTRUCTOR PILOT
TARGET POPULATION STUDY

1.0 INTRODUCTION

The instructional systems development (ISD) process calls for the study of the expected entry behavior of students. When the capabilities and characteristics of incoming students are known, sequences can be designed which will lead the students from their initial entry-level behavior to a capability for mastery behavior. Target population studies are studies which profile students for this purpose by examining the personal, psychological, and performance characteristics of a body of students, focusing especially on prior training which is relevant to the training being designed.

A target population study should provide a complete description of incoming student characteristics relevant to the design of instructional courses. Target population studies are standard procedure in most instructional development, though studies vary widely in their extent and method. The development of effective instruction requires a consideration of the learner's prior knowledge in some detail. The present project has attempted to improve the standard practice of target population studies by devloping a method for collecting data on student capabilities based on job task inventories, as well as reporting a summary of available documentation on general student preparation and educational experience.

1.1 Use of the Target Population Study Data

The data resulting from the F-16 target population study will be used to insure that the F-16 training courses meet the needs of all categories of students who enter. Students will come from a variety of backgrounds and experience. Study data will provide primary inputs to syllabus design. Sequences to be followed by each category of student will be designed to include only the instruction they need and will exclude instruction on already-mastered skills. The study data will be also used to define the characteristics of instructional presentations by indicating those content areas which require extended treatment and those which need only "refresher" coverage.

1.2 Methods and Procedures

The method of the target population study included the following main activities:

a. Review of existing student population studies, reports, and training syllabi,

b. Interviews with appropriate training personnel and graduates, and

c. Incoming student skill inventorying using the F-16 pilot task listing as a base.

1.2.1 Document and Syllabus Review

The aim of the documentation and syllabus review was to gather already-existing report data on the characteristics of the target population. These contained useful demographic, student selection, projected training, and expected graduate experience information. Reports examined which yielded data for the F-16 study were:

"Future Undergraduate Pilot Training: 1975 through 1990" Vols. I and II. Mission Analysis Study Group, Randolph Air Force Base, Texas, January, 1972.

"Fighter Lead-in Training", Air University Review, Fall 1974.

In addition, the syllabi of the schools prerequisite to the F-16 pilot training were examined for details of graduating student skills and experience:

"Syllabus of Instruction for Undergraduate Pilot Training (T-37/T-38)", ATC Syllabus P-V4A-A, July 1974.

"'B' Course, At38OABOAA (Syllabus of Instruction)", June 1977 Fighter Lead-in Training.

The data gathered are presented in later sections of this report. The information was found to be generally descriptive but did not provide all of the detail required for the development of instruction using well-defined performance objectives. Further data were sought through personal interviews.

1.2.2 Interviews

Questioning during interviews covered both specific skills and general characteristics of prospective F-16 students. The interviewed persons came from a range of aircraft programs and experiences spanning the students' progression from basic

aining to fully capable pilot. Representatives from the llowing organizations were interviewed:

1. 96th Flying Training Squadron (T-37s), Williams AFB, Undergraduate Pilot Training.

2. 97th Flying Training Squadron (T-38s), Williams AFB, Undergraduate Pilot Training.

3. 479th Tactical Fighter Training Wing (TFTW), Fighter Lead-in Training, Holloman AFB.

4. 465th Academics Training Squadron, 479th TFTW, Holloman AFB.

5. 4444th Ops Squadron, F-4 ISD, Luke AFB.

6. 4444th Ops Squadron, F-15 ISD, Luke AFB.

7. 461st Tactical Fighter Training Squadron (TFTS), F-4 ISD, Luke AFB.

8. 555th TFTS, F-15 ISD, Luke AFB.

9. 58th TFTW, Luke AFB.

10. 310th TFTS, Luke AFB.

11. 433rd Fighter Weapons Squadron, Nellis AFB.

These interviews were invaluable in providing information and direction to the inquiry. The information obtained, however, was still at a general level and not fully adequate to support the development of a training program.

1.2.3 Incoming Student Skill Inventory

The detailed data of greatest interest to the developers were generated in the third phase of the study using the F-16 pilot task listing and several respondents. Because the task listing names and represents the relation between the skills necessary to competent job performance, knowledge of incoming students' abilities with respect to those skills provides a comprehensive and highly specific profile of the target population entry behavior. This information was collected and used to supplement already-gathered data. This was accomplished by presenting the task listing to selected respondents along with a response sheet upon which each task was rated on a four point scale indicating the level of mastery attained by students on that task. Data collection was conducted by (a) students rating their own abilities and (b) instructor pilots (IPs) rating their own graduate students. IPs provided responses to the task listing for basic and Fighter Lead-in Training (FLIT), and students

who were recent Expanded Fighter Lead-in Training (EFIT) graduates also responded, giving an inventory of their own skills. The results of this inventory of skills are presented later in this report.

1.3 Scope of the Study

Three intended training courses furnish the subject of this target population study: The F-16 pilot course, the F-16 pilot conversion course, and the F-16 IP course. The F-16 pilot and pilot conversion courses are related in that the conversion course is a subset of the pilot course given to students who arrive for training already in possession of a significant amount of other fighter aircraft pilot experience. The IP course is itself a conversion course, since during the majority of its use it will be used to convert IPs from other aircraft or other USAF training commands to F-16 IPs.

Figure 1 illustrates the point that the experience and training of students input to both pilot and IP training will vary during the lifetime of the aircraft. A common policy in the past in the selection of students for newly implemented weapons systems has been to assign only the most highly qualified and experienced personnel in early stages of system use and gradually phase toward the less experienced student as time progresses. This holds true for both pilot and IP training. The fact of this change in student characteristics has been accounted for in the F-16 target Population study, and sources of information have been selected to provide data on the experience and skills of the full range of expected F-16 students.

In defining the scope of this study, the provisions for future update should also be described. Incoming student skills are a product of both training and experience. The syllabi of the schools supplying F-16 students will have a profound effect upon the F-16 syllabi. Effects will also be felt from changes in student assignment policies and policies dealing with selections of IPs. As changes are made in any of these, updates will be made to this study which incorporate the new information.

Especially liable to changes will be that portion of the target population study which is an inventory of incoming student skills. The skill inventory is based upon a job task listing for the F-16 pilot, a document which will be under continual revision as the F-16 weapons system and its concept of operation evolves. Periodic readministration of the skill inventory will be accomplished to detect the effects of changes to the task listing, syllabi, and experience patterns of incoming students. In addition, future project efforts are scheduled to produce a task listing for the IP job. When that is complete, an inventory of those skills will be acquired from the appropriate group of respondents.

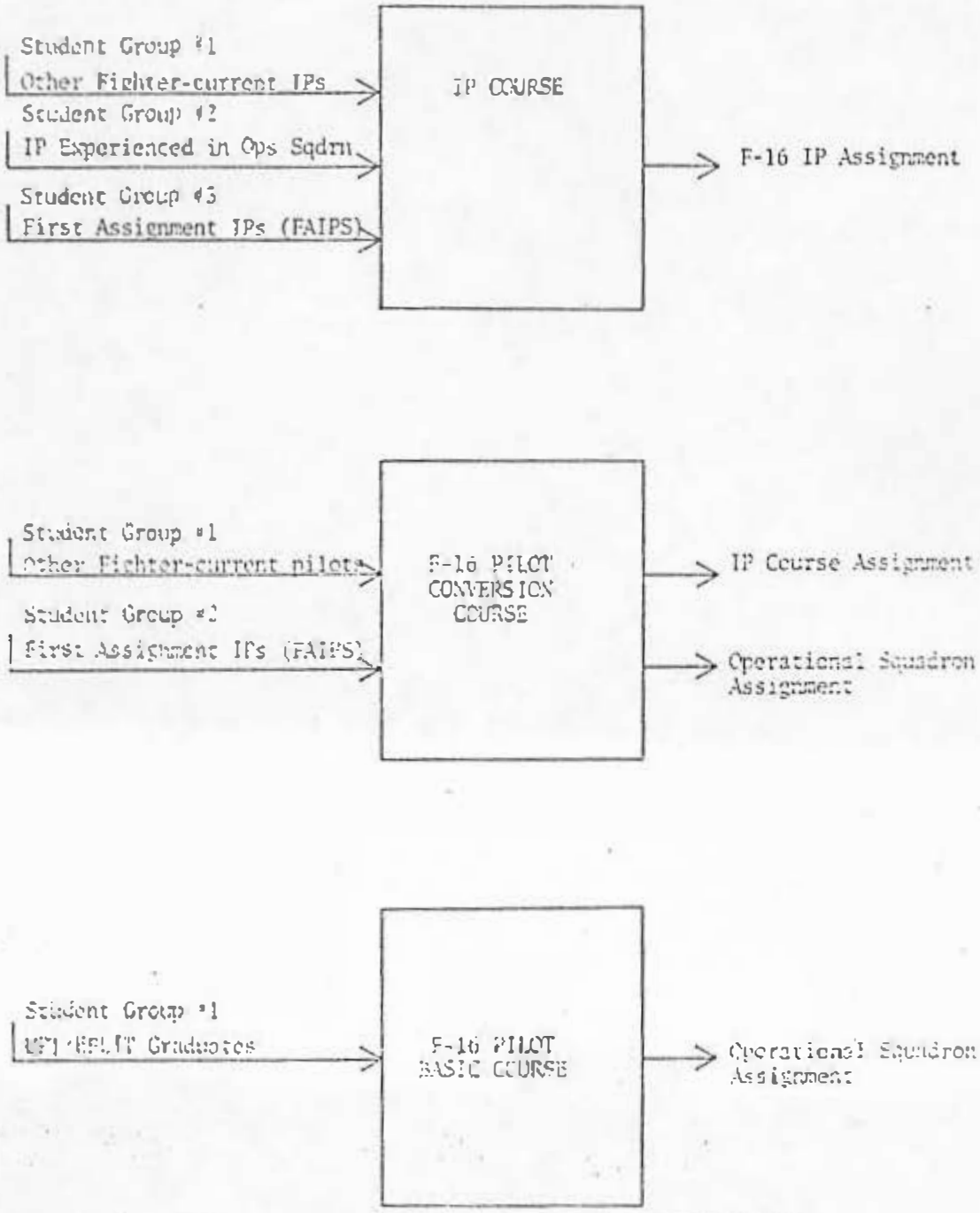

Figure 1.

Changing student input to the F-16 Pilot and Instructor Pilot Courses over time.

2.0 IP COURSE POPULATION STUDY

The study of the anticipated F-16 IP target population was conducted through interviews of F-15 and F-4 personnel in the combat crew training (CCT) community at Luke AFB, and interviews with graduated, or transferred, previous F-15 personnel currently stationed at the Fighter Weapons School at Nellis AFB, Nevada.

Current experience in the F-15 and F-4 communities with regard to IP student incoming profiles is considered highly relevant to the projection of expected F-16 IP student incoming profiles. At present the F-15 is the most advanced fighter weapons system within TAC, and IP students entering F-15 training are amoung the best qualified and experienced AF pilots available. These students represent the same type of student the F-16 program can expect as an initial input. Data was gathered from F-15 personnel through interviews on the characterisitcs of IP incoming students.

The F-4 is a weapons system which has existed for several years and receives comparable incoming students.

2.1 F-15 IP Upgrade Students

Table 1 presents a summary of the data gathered relating to the initial cadre of students in the F-15 IP upgrade training course. All were senior and experienced F-4 pilots with a total flight time ranging from 1,000 to 3,700 hours. Sixty three percent had previous RTU/CCT experience as an IP. In addition, as shown in the table data, the total flight time for this initial cadre group averaged 1,930 total flight hours. The table also includes total hours for fighter aircraft front seat time.

These IP students represent a highly experienced group of pilots, many of whom have had experience as instructors also. Though they were learning to fly the F-15 as a new aircraft, it can be expected that due to their high level of experience (high number of flight hours) transitions were easier and those who were experienced as IPs found it also easier to adapt to the instructor's role (if any adaptation was required) in the new aircraft.

2.2 F-4 IP Upgrade Students

The data presented in this section pertain to the current student population of the Central Instructors School (CIS) of the 310th TFTS, Luke AFB, which is responsible for the majority of the training of F-4 IP upgrade students.

TABLE 1

F-15 IP UPGRADE COURSE SUMMARIZED DATA FOR INITIAL INPUT STUDENTS

Category	low hours	high hours	average hours
Total Flight Time	1,000	3,700	1,930
Total Fighter Front Seat Time	775	3,000	1,610

Table 2 presents a summary of the experience of this group in flying the F-4. Only thirty percent of this group have had experience as an IP, and this experience was gained totally in an operational squadron environment working with experienced and qualified pilots.

Though the upper-end flight hour figures for this group are very close to the F-15 IP student figures presented in Table 1, the lower-end figures show that some IP students have extremely low amounts of front seat flying time--approximately thirty-four percent of the low F-15 time--and that the average hours of front seat flying time is only fifty-seven percent of the average for F-15 IP students.

This indicates that the low-end IP student is flying with considerably less experience in the aircraft and that a certain amount of his attention is likely to be taken up with increasing his store of knowledge of how the aircraft operates under different conditions of flight. The confidence of this IP is not likely to be as high in flying skills as is the confidence of the more experienced pilot. Even the average IP student in this group will be flying with a forty-three percent comparative deficit of experience.

Coupled with this lack of flying experience in the IP students is the lack of experience as an IP. The thirty percent of the students who have had IP experience gained it in an operational squadron environment much different from the training squadron environment in which they will be teaching new students.

2.3 Implications

If the progression of figures obtained from the F-15 and F-4 student profiles is that which can be expected for the F-16 as well, then there are some strong implications for the design of sequences and materials for the F-16 instructional system. The IP students early in the F-16's use would be expected to be more experienced in several ways, and the students later in the system's life cycle would be under the requirement to learn more and draw more heavily on their lesser experience. The same sequence of training would not be likely to suit the needs of both groups. The pace of the materials and exercises would either be too slow for one group or too fast for the other. An average pace would only reduce the pressure somewhat for the slow group and alleviate the boredom somewhat for the fast one. The implications for the design of the F-16 instructional system are that a mechanism must be devised to vary the IP course syllabus appropriately with the characteristics of the incoming students and anticipate also the variations in the instructional materials themselves which will be required to deal with IP student differences adequately.

TABLE 2

F-4 IP UPGRADE COURSE DATA FOR
PRESENT INPUT STUDENTS

Category	low hours	high hours	average hours
Total Flight Time	715	3,900	1,594
Total Fighter Front Seat Time	277	2,681	918

3.0 CONVERSION PILOT POPULATION STUDY

Data relating to F-15 and F-4 conversion (C) course incoming students was obtained primarily through interviews with F-15 and F-4 ISD personnel of the 4444th Ops Squadron at Luke AFB.

As was the case with the IP student data in the previous section, the current F-15 situation with respect to C course students is considered most comparable with the anticipated initial F-16 student input. The F-4 data are considered comparable to what can be expected as the complexion of the student cadre changes with time.

3.1 F-15 Conversion Student Data

Originally, the F-15 C course was designed for students with at least 750 hours of current fighter aircraft experience. The first C course for F-15, initiated in June 1975, consisted of 18 to 21 sorties. The course design was necessarily "flexible" due to the varying background and experience levels of the students. Students entering the present F-15 C course vary in that some students are fighter aircraft current and some students are not. The total flight experience of the present conversion student ranges from 200 to 1,000 plus flight hours, with the average being approximately 350 hours.

The F-15 C course is now beginning to receive first assignment instructor pilot (FAIP) students from the Air Training Command (ATC). These students, upon completion of undergraduate pilot training (UPT), receive their first assignment as ATC instructors for UPT, and they enter F-15 C course training with approximately 1,000 hours of flying experience. These initial FAIP student inputs come directly from their UPT IP assignments. Future FAIP student inputs to F-15 CCT C course training will first attend a FLIT course prior to entering F-15 training.

3.2 F-4 Conversion Student Data

At the present time, incoming students for the F-4 CCT C course consist primarily of FAIPs from ATC. These students have no tactical experience and possess an average of 1,000 flight hours experience upon entering the F-4 CCT conversion course.

It is anticipated that in the future all FAIP students entering F-4 C course training will, also, first attend a course of FLIT at Holloman AFB, for training the areas of basic fighter manuevers (BFM) and air combat manuevers (ACM) in order to better prepare them for F-4 C course training.

3.3 Implications

Should the data hold true for F-16 C course students as represented in the F-4 and F-15 data, C course students can be expected to vary in qualities of amount and type and recency experience. The first F-15 conversion students were from other TAC fighter aircraft . . . and brought with them knowledge and experience in tactics. FAIP conversion students which are beginning to enter the F-15 conversion training differ from this. Relatively high amounts of flying time are common among them, but none of the experience includes work in tactics, which will have to be covered more extensively during training as a result. Finally, students are being received by F-15 who are not fighter aircraft current, which will require special refresher training.

The implication for the instructional designer is that the variance in C course incoming students is relative to knowledge of subject matter areas more than total flying experience. In the design of the C course, attention must be given to the special "catch-up" training requirements of students lacking in preparation in specific areas--e.g., tactics training for FAIP students and refresher training for nonfighter-current students. It will be best to look at the C course as a series of independent (non-prerequisite to each other) modules of instruction covering general content areas which can be prescribed on the basis of incoming student skills and knowledge. These modules may be put together to form the course necessary for each student individually.

J BASIC COURSE POPULATION STUDY

The progression of students through basic and FLIT to CCT ining is simple to discuss because it is a set path. Data are sented in this section related to both F-4 and F-15 basic rse incoming students. It will be seen that they are (or will shortly) virtually identical in training d experience.

Because the majority of incoming F-16 s udents will even- lly be UPT/EFLIT graduates, the UPT and EFLIT programs are ered in this section in much depth. After the data on F-4 and 15 basic course students, this section presents extensive formation on UPT and EFLIT training individually.

1 Basic Course Students

The majority of the F-15 and F-4 input student population a was obtained through interviews with F-4/F-15 ISD personnel the 4444th Ops Squadron at Luke AFB. In addition, data from F-16 Air Crew Training Development Project, "Review of Pre- us ISD Programs" report have also been included.

4.1.1 F-15 Basic Course Student Data

All students entering F-15 basic (B) course training prior August 1977 attended the 19 sortie FLIT course at the 479th W, Holloman AFB. Totaling both their UPT and FLIT training rs, these students accumulated approximately 260 flight hours.

In August, the first seven graduates from the (49 sortie) IT course at the 479th TFTW entered F-15 B course training. se students have a total of approximately 285.9 flight hours, itional hours consisting mainly of BFM and ACM training. A e detailed discussion of EFLIT student training is contained a later section of this report.

4.1.2 F-4 B Course Student Data

All students presently in the F-4 CCT B course training gram are graduate UPT students who have attended the 19 sortie T at Holloman AFB. After October 1977, all students entering F-4 CCT B course will be UPT graduates who have attended the IT course consisting of 49 training sorties.

2 UPT, Student Input and Syllabus Data

The extended summary of UPT presented in this section is the ult of the review of a number of documents and reports and erviews with USAF ATC personnel of the UPT T-37 and T-38 ght Training Squadrons at Williams AFB.

4.2.1 General Discussion

Presently, the UPT program is conducted under the philosphy that all graduates should be "universally assignable" and all students receive the same training in the same training aircraft. The training aircraft used follow a progression of flight training as shown in Figure 2.

The first phase of training conducted by the Primary Training Division used civilian contractor pilots. The Cessna T-41 aircraft is used as a screening device and also to provide some introductory flight training. During the second phase of training the Cessna T-37, medium-performance jet trainer, is used for the training of fundamentals in which all phases of flight are introduced. In Phase III, the Northrop T-38 twin-engine turbojet high-performance trainer is used. This phase is intended to elevate the students' fundamental skills. The T-37 and T-38 training is conducted by qualified USAF pilots.

Ground training, in support of flight training, consists of lecture-oriented classroom subjects, time-phased to provide lead-in knowledge for flight application. Academic instruction is provided by qualified IPs who have been accredited for classroom teaching. These instructors also fly instructional flights regularly. Non-rated, but classroom accredited weather officers also serve as academic instructors. In support of academic/ground training, innovations in methodology such as programmed texts, learning centers and student responder systems are used.

The current ground-based simulation in UPT consists of the T-4 and T-7/T-26 non-motion, non-visual flight instrument trainers. These will be replaced in the near future with the T-37 and T-38 instrument flight simulators (IFS) presently being installed in a new facility at Williams AFB. This facility will house eight T-37 and eight T-38 IFS units.

The UPT-IFS will employ the latest state-of-the-art equipment. A six degree motion base will be used to provide motion cues, while a TV probe/terrain model board will provide visual cues. A computer will interface the two systems to provide flight simulation and air craft malfunctions. Plans were for the IFS to be introduced into UPT beginning in early 1977, but delays are being experienced.

At the present time, practice of aircraft emergency procedures, development of student judgement and decision making abilities, and actual instrument training to include the approach and landing are critical tasks which do not receive in-depth training due to numerous safety constraints. The UPT-IFS will provide the capability of simulating each of these tasks in a "safe" environment. Students will be allowed to deviate from specified parameters, enabling them to gain valuable experience.

FIGURE 2

UPT TRAINING AIRCRAFT PROGRESSION

Phase I	Phase II	Phase III
T-41 Low Performance	T-37 Medium Performance	T-38 High Performance
Introductory/ Screening	Fundamentals All Phases Introduced	Elevate Fundamentals

The current duration of UPT is 47 weeks for academic, simulator, and in-flight requirements, plus one week of processing at the beginning of the training tour of duty.

All students in the UPT program are officers and college graduates with the exception of a small number of students who are previously rated navigators, maintenance officers, etc. who may or may not be college graduates. The attrition rate that is used for planning is approximately twenty-seven percent. Attrition rates are based upon actual student performance which is measured throughout the program by a combination of daily performance assessments and periodic check flights. The syllabus specifies required skill levels based upon the number of flying hours and the phase of training.

4.2.2 Selection Students

Selection criteria used in determining UPT entrance requirements can be divided into three broad classifications: education, physical and psychological. Ideally the selection process in the UPT system identifies those candidates who have the capability to complete pilot training, and who after their training period is completed, will be able to apply their skills effectively in terms of the overall mission of the AF. The goal for employment of selection criteria is the identification of those attributes which most generally will lead to success in flying as well as those characteristics which will hinder or prevent attainment of a career as an AF pilot.

4.2.2.1 Education Criteria

The first criterion used for the selection of possible pilot candidates is educational background. There are several routes leading to an AF commission: Through Air Force Reserve Officers Training Corps (AFROTC), Officer Training School, and the Air Force Academy. All of these routes require a four-year academic degree from a recognized college or university before acquiring the commission.

4.2.2.2 Physical Criteria

The second selection criterion used for potential UPT students is age. The candidate must be between the ages of 20.5 and 26.5 years. He/she must have a standing maximum height of 76 inches and a maximum sitting height of 39 inches. The visual requirements are very stringent and hearing tests utilize only pure tone perception (rather than mixed tone perception as is found in normal life). Other conventional diagnostic techniques are employed in the areas of respiration (which includes vital capacity), cardiovascular (necessary for g-force tolerances), vestibular-proprioceptive (for proneness to vertigo), neurological, and musculoskeletal.

4.2.2.3 Psychological Criteria

The criteria for psychological standards for pilot candidates have been the source of much research and speculation for quite some time. Aptitudes, motives, and interests have been explored and discussed many times over and over again. It appears, however, that all observations and conclusions represent conditional probabilities, at least for the present. The USAF utilizes these probabilities in the first test the UPT candidate encounters. This test (the Air Force Officers Qualifing Test (AFOQT)) attempts to measure some aptitude for the intellectual aspects of the candidate student. Current regulations require that this test be given and scored prior to the scheduling of the medical examination. The AFOQT is administered to applicants by the recruiting sergent or a designated representative of the nearest AF medical detachment with recognized authority. The college student who applies for advanced AFROTC program takes the AFOQT sometime between his sophomore and junior years, and his selection for flying training is based, in part, on his AFOQT scores.

In addition to the AFOQT, the sensitivity of the examining flight surgeon and his ability to detect abnormal behavior from the candidate's medical history statement, the candidate's responses during the physical examination, and his responses to the interview, are all used as a method of determining psychiatric handicap or stability, motivation, and attitude. The more comprehensive this selection process, the more successful are the candidates selected.

4.2.3 Training Aircraft

The aircraft currently in use in UPT training include the T-41, T-37, and T-38. The Cessna T-41 aircraft is used by ATC as a screening device to identify those students lacking the necessary aptitude for further participation in the UPT program (screening) as well as for the application of fundamental flight training. The UPT student receives approximately 30 hours of instruction in the T-41 before advancing to the T-37 aircraft and his second phase of flight training.

The Cessna T-37 is designed to train UPT students in the basic techniques required to pilot military aircraft, including takeoff and landing, instruments, navigation, night flying, and aerobatics. The T-37 aircraft is intended as a transition vehicle to higher performance aircraft such as the T-38.

The Northrop T-38 used in Phase III of UPT provides advanced flight instruction in instruments, navigation, formation, night flying, and aerobatics, takeoff and landing, supersonic indoctrination, and multijet engine operation. The primary goal during this phase of training is to elevate the UPT student's skills in a high performance aircraft.

4.2.4 Detailed Syllabus Summary

Table 3 is a summary of the UPT T-37 syllabus by number of sorties and flight hours. Table 4 summarizes the same for T-38 training.

The student accumulates 90 flight hours in the T-37 and 120 hours in the T-38. If one adds the approximately 30 hours of T-41 experience, this means that the UPT student enters FLIT with approximately 240 flight hours of experience.

The UPT student's ground training is summarized in Table 5.

4.3 EFLIT Training Student and Syllabus Data

Figures such as these are normally reported as the substance of student experience profiles. They are a general list of the general experience acquired and topics concerned during instruction, but they do not indicate in any detail (1) the actual drills of behaviors taught the student, (2) the level of proficiency reached by the student in those skills, or (3) the amount of repetitive practice engaged in by the student in acquiring those skills. A target population study could not be called complete without the information just presented. At the same time, additional detailed information on specific student capabilities is required by the instructional developer that cannot be obtained from these summary figures. Section 5.0 of this report presents the more detailed data required.

4.3.1 General Discussion

Implementation of the FLIT program was initiated at Holloman AFB, in the fall of 1973. The original goals of the FLIT program were a reduction in CCT/RTU sorties, more efficient transition, lower operating costs and introduction to BFM and ACM in a more familiar aircraft.

In May 1977 the 49 sortie EFLIT course was begun. This expanded course was the result of a syllabus conference held in 1976. The conference was attended by representatives from the A-7, F-15, -4, and F-5 CCT communities. Each representative presented t. needs and wishes of his CCT unit for preparatory pilot training. The syllabus resulting from this meeting represents a combination of those requirements to meet the largest number of the most important ones. The 49 sortie course was the result of the requests for additional CCT related sorties, additional reduction in fuel and operating costs, and additional BFM/ACM exposure for FLIT students preparing to enter CCT training.

The syllabi for the original FLIT (19 sortie) course and the 49 sortie expanded course are summarized later in this section.

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course are summarized later in this section.

TABLE 3

SUMMARY OF T-37 TRAINING SYLLABUS:
AIRCRAFT AND SIMULATOR EXPERIENCE

	Lessons	Hours
Synthetic Trainer (T-4)		
Procedures	7	6.4
Basic/Instruments/NAV	30	23.2
	Total	35.2

Aircraft	Dual Sorties/Hrs	Solo Sorties/Hrs	Total
Basic	10/13.0	---	10/13.0
Contact	22/28.5	8/9.8	30/38.1
Instruments	11/14.3	---	11/14.3
Navigation	6/09.0	---	6/09.0
Formation	10/13.0	2/2.6	12/15.6
Total	59/77.6	10/12.4	69/90.0

TABLE 4

SUMMARY OF T-38 TRAINING SYLLABUS:
AIRCRAFT AND SIMULATOR EXPERIENCE

	Lessons	Hours
Synthetic Trainer (T-7/26)		
Procedures	9	7.2
Instruments/Navigation	27	28.8
Totals	36	36.0

Aircraft	Dual Sorties/Hrs	Solo Sorties/Hrs	Total
Contact	19/22.8	11.15.2	30/36.0
Instruments	17/22.1	---	17/22.1
Navigation	11/14.6	2/02.6	13/17.2
Formation	23/30.2	11/14.5	34/44.7
Total	70/89.7	24/30.3	94/120.0

TABLE 5

UPT GROUND TRAINING SUMMARY

Ground Training:	Approx. Hours
(1) Academic Training:	
Ground Training Policies and Procedures (GT)	1
T-37 Aerospace Physiology (AS)	37
T-37 Basic (AB)	34
T-37 Instruments (AI)	24
T-37 Contact (AC)	2
T-37 Navigation (AN)	65
Aircraft Accident Prevention (AAP)	6
T-38 Physiology (AS)	7
T-38 Weather (WX)	5
T-38 Systems Operation (SO)	17
T-38 Instrument Procedures (IP)	18
Applied Aerodynamics (AA)	22
T-38 Flight Planning (FP)	21
Annual Instrument Examination (IE)	6
Personal and Professional Affairs (CP)	8
Moral Leadership (ML)	2
Physical Training (PT)	125
(2) Individual Ground Training Units (T-37 Phase)	22.1
(3) Individual Ground Training Units (T-38 Phase)	49.0
(4) Student Administration (OP)	22.0
Orientation and Processing (OP)	22.0
Traffic Safety Education I (SOTC entries only)	(12.0)
Traffic Safety Education II	2.0
Course Total Approximate Hours	798.3

4.3.2 Selection of Students

At the present time, before UPT graduates arrive for FLIT, the type of aircraft/weapon system they will be assigned to has been chosen. Within the next year and one-half to two years, it is expected that assignments to CCT aircraft types will be made by the EFLIT course training staff personnel. The decision will be based upon the student's performance in the EFLIT course. Changes in F-16 student entry behavior resulting from this modification of the selection process will be carefully noted and reported and incorporated in training course design.

4.3.3 Syllabus Summary

A summary of the origianl 19 sorties FLIT is presented in Table 6. Table 7 presents a summary of the EFLIT course syllabus resulting from the 1976 syllabus conference.

It should be stressed that these are preliminary syllabus data and should not be considered TAC Headquarters official. When the official TAC Headquaters EFLIT syllabus is approved and officially, this report will be updated and modified as required.

TABLE 6

FIGHTER LEAD-IN TRAINING SYLLABUS
(19 Sortie Course)

	Pilot Hours	WSO Hours	Pilot Hours	WSO Hours
ing Phases				
nsition	1.5		1	
ation	8.4	2.4	7	2
ic Fighter Maneuvers	7.2	3.6	8	4
-Level Navigation	1.2	1.2	1	1
and Attack Orientation	2.0	1.0	2	1
Total	20.1	8.2	19	8
ulation Training				
Simulator		6.0		
SS Simulator	3.0	3.0		
ress Trainer	2.0	2.0		
Total	5.0	12.0		
ademic Training				
ecialized Training	7	6		
fe Support	3	3		
rcraft Systems	4	4		
ight Characteristics		4		
mation	4	4		
sic Instruments		10		
sic Fighter Maneuvers	17	17		
ssion Planning	3	3		
apons Delivery	4	4		
dar		10		
ertial Navigation		6		
r Attack		4		
ademic Preparation (.5 hour per hour of instruction)	21	27		
Total	65	102		

TABLE 7

EXTENDED FIGHTER LEAD-IN TRAINING
(49 Sortie Course)

Flying Phases	Hours	Sorties
Transition	2.2	2
Formation	8.3	8
Basic Fighter Maneuvers	14.4	16
Air Combat Maneuvers	3.6	4
Ground Attack	11.7	13
Navigation	3.0	3
Ground Attack Tactical	2.7	3
Total	49	45.9
Simulation Training		
T-38 Simulator	3.0	
F-4 Simulator	3.0	
Total	6.0	
Academic Training		
Life Support (LS)	5.0	
Specialized Training (ST)	2.0	
Aircraft Systems (AS)	5.0	
Formation (F)	5.0	
Radar (RA)	7.0	
Basic Fighter Maneuvers (BFM)	14.0	
Air Combat Maneuvers (ACM)	5.0	
Combat Mission Planning (CMP)	4.0	
Conventional Weapon Delivery (CWD)	12.0	
Ground Attack Tactical (GAT)	6.0	
Air Combat Fundamentals (ACF)	19.0	
Air-To-Ground Weapons (AGW)	2.0	
Intelligence (INT)	8.0	
Academic Preparation	47.0	

0 INCOMING STUDENT SKILL PROFILE

This section of the population study report presents the udent entry skill profile using the initial version of the F-16 sk listing data. It is expected that these data will be the st beneficial to the F-16 training course/system design person- l gathered for this report because (1) UPT/EFLIT graduates will rm a major source of students for the F-16 B course and (2) the ofile provides the instructional developers enough detailed formation to help them tailor the B course to the skill levels students as they enter. Subsequent efforts on this project ll subject later versions of both the pilot and IP (not yet itten) task listing to responses of all appropriate groups to date and complete the project log of data on incoming student ill characteristics.

No absolute interpretation has been placed upon the data thered, and no statistical manipulations have been attempted. ere is no attempt to cloak the figures with an aura of "truth" "officialness". The data are only generally interpretable and not represent scientific research data. The figures do, how- er, represent the present state of student skills in two ways:) They indicate the skills which incoming students are likely possess as they enter the F-16 instructional system. (2) They dicate the length of time, in very general units, that the udent has been exposed to the skills he possesses.

Changes in syllabi at both UPT and EFLIT will change incom- g student profiles, as will changes in the selection process by ich students are selected for assignments to the various air mmunities. Because of this a periodic update of the skills ta will be required. The data collection and summary process simple and straightforward and should present no difficulty to ose responsible for it.

1 Method

The data reported reflects responses to the F-16 task sting by nine USAF pilot personnel from three separate sources:) Four IPs from the ATC UPT course at Williams AFB, two IPs om the 96th Flying Training Squadron (T-37s), and two IPs from e 97th Flying Training Squadron (T-38s); (2) two IPs from FLIT, 9th TFTW, Holloman AFB; (3) three UPT/EFLIT graduate students w undergoing training in the 555th TFTS (F-15), Luke AFB.

Each of the pilots independently reviewed and evaluated\ ted each of the tasks of the F-16 task listing. The IPs made eir ratings based upon how well they felt their graduate udents could perform the tasks presented. The three UPT/EFLIT udents made their ratings based upon how well they felt they uld, based upon their training and experience, perform each of e tasks presented.

The rating scale used by each of the pilots reviewing the -16 task listing was as follows:

1. Has (have) never attempted task.

2. Has (have) had practice, requires supervision.

3. Has (have) had practice, can perform safely without supervision.

4. Very good, qualified in performance.

The rating results have been compiled into a master table hich presents each task of the F-16 task listing and the ratings iven by each of the nine pilots for each of the tasks listed.

.2 Incoming Student Skill Profile Table

Appendix A presents the results of the task analysis rating ffort. The table presents each of the tasks resulting from the -16 task analysis. Immediately following each task are the atings given to that task by each of the nine pilots involved in he rating effort. The first two rating digits are those of the y UPT T-37 IPs. Their ratings are followed to two digits repre- enting the ratings of the UPT T-38 IPs. The next two digits are he ratings of the EFLIT/IP ratings. Finally, the ratings are resented obtained from the three UPT/EFLIT graduate students, ow in the F-15 CCT.

With the master table data base stored in a word processing ystem the data can be readily accessed, sorted and printed out n a variety of ways depending upon the questions formulated by he user. Subtleties of the data can be examined including for xample, information pertinent to how long the entering B course tudent has been exposed to and practiced a particular ask/behavior set forth in the F-16 task listing.

As an example, Appendix B presents a printout of all of hose tasks which were given a "1" rating (the student "has never ttempted") by all nine of the pilots who evaluated and rated the -16 task listing. This listing, then, presents all F-16 tasks hich will be totally new to the UPT/EFLIT student.

Appendix C presents tasks from the other end of the spec- rum. All of these tasks were rated "4" by all raters, indicat- ng students will require little or no instructions.

Finally, Appendix D demonstrates that interesting differ- nces may be forced in the data through sorting, which has impli- ations for the developers. This table contains tasks which at east one EFLIT graduate rated "4" but which all IPs rated "2" or ess. Such differences indicate a variance in perceived abili- ies between graduating students and their instructors. The

reason for the variance may be attributable to several causes, such as actual incapability on the student's part (solution: Train the capability more thoroughly) or actual capability (solution: Do not train to the same degree). The cause will be determined and the appropriate solution will be applied.

6.0 CONCLUSIONS

The target population study and review of FLIT results provide relevant, valuable data for use in design of the F-16 training system.

The data obtained from the F-15 and F-4 CCT communities provide sufficient information for projections to be made as to the proficiency (skill) levels that can be expected) for those students who will enter F-16 IP upgrade training and for those students who will be entering the C course.

UPT, EFLIT, and the UPT/EFLIT F-16 task evaluation/rating data provide a large, highly detailed, data base describing the UPT/EFLIT student that will enter the F-16 B course.

The task listing data base will be constantly updated and revised as the F-16 ISD program progresses and more current information becomes available.

APPENDIX A

INCOMING STUDENT SKILL PROFILE

F-16 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

Key: 1 = has never attempted
2 = has had practice, requires supervision
3 = has had practice, can perform safely without supervision
4 = very good, qualified in performance

Task No. and Behavior	T37/T38/EFLIT/EPLIT Grads
1.0 (not rated) Perform duties of F-16 pilot	
1.1 Perform basic duties of F-16 pilot	11/11/31/133
1.1.1 Perform premission planning	22/44/34/432
1.1.1.1 Gather mission data	12/11/31/243
1.1.1.1.1 Gather data from agencies	12/11/21/32
1.1.1.1.1.1 Gather intelligence data	11/11/21/111
1.1.1.1.1.2 Gather weather data	22/11/33/333
1.1.1.1.1.3 Gather operations data	11/11/11/111
1.1.1.1.2 Gather data from publications	22/11/22/433
1.1.1.2 Determine mission data	11/11/21/243
1.1.1.2.1 Determine pretakeoff data	34/44/43/443
1.1.1.2.1.1 Determine personal support equipment	23/44/14/444
1.1.1.2.1.2 Determine station time	34/41/44/444
1.1.1.2.1.3 Determine start engine time	44/44/44/444
1.1.1.2.2 Determine takeoff data	44/44/43/443

F-16 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

Key: 1 = has never attempted
2 = has had practice, requires supervision
3 = has had practice, can perform safely without supervision
4 = very good, qualified in performance

Task No. and Behavior	T37/T38/EFLIT/EFLIT Grade
1.1.1.2.2.1 Compute gross weight	11/31/34/444
1.1.1.2.2.2 Compute drag index	11/14/21/241
1.1.1.2.2.3 Compute takeoff factor	31/44/34/444
1.1.1.2.2.4 Compute crosswind limits	44/41/44/444
1.1.1.2.2.5 Compute rotation speed	14/11/24/441
1.1.1.2.2.6 Compute takeoff speed	24/14/42/444
1.1.1.2.2.7 Compute takeoff roll	44/44/44/444
1.1.1.2.2.8 Compute acceleration check speed	13/44/42/444
1.1.1.2.2.9 Compute maximum abort speed	13/11/33/444
1.1.1.2.2.10 Compute maximum brake speed	11/41/11/441
1.1.1.2.2.11 Compute takeoff and acceleration fuel	14/14/44/434
1.1.1.2.2.12 Compute takeoff and acceleration time	14/14/44/434
1.1.1.2.2.13 Compute takeoff and acceleration distance	24/44/44/434
1.1.1.2.3 Determine departure data	23/44/43/443
1.1.1.2.3.1 Determine climb-out fuel requirement	33/44/33/444

F-16 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

Key: 1 = has never attempted
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3 = has had practice, can perform safely without supervision
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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.1.2.3.2 Determine climb-out time requirement	13/44/33/444
1.1.1.2.3.3 Determine climb-out distance	43/44/33/444
1.1.1.2.4 Determine enroute data	23/44/33/443
1.1.1.2.4.1 Calculate fuel flow and consumption	31/44/23/444
1.1.1.2.4.2 Determine navigation speed and time	21/44/23/444
1.1.1.2.4.3 Determine navigation altitude profile	21/44/33/223
1.1.1.2.4.4 Select navigation route	31/44/23/322
1.1.1.2.4.5 Calculate offset aim points	11/11/11/322
1.1.1.2.4.6 Prepare enroute map	31/44/23/433
1.1.1.2.4.7 Select navigation mode to be used	21/11/22/422
1.1.1.2.4.8 Prepare radar predictions	11/11/11/111
1.1.1.2.5 Determine combat data	11/11/21/131
1.1.1.2.5.1 Determine air-to-surface combat data	11/11/12/121
1.1.1.2.5.1.1 Determine delivery profile	11/11/22/221
1.1.1.2.5.1.1.1 Select approach tactics	11/11/21/211

F-16 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

Key: 1 = has never attempted
2 = has had practice, requires supervision
3 = has had practice, can perform safely without supervision
4 = very good, qualified in performance

Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.1.2.5.1.1.1.1 Select dive angle	11/11/21/211
1.1.1.2.5.1.1.1.2 Select course and heading	11/11/21/321
1.1.1.2.5.1.1.1.3 Select air speed	11/11/21/321
1.1.1.2.5.1.1.1.4 Select altitude profile	11/11/21/221
1.1.1.2.5.1.1.2 Select number of passes	11/11/21/321
1.1.1.2.5.1.1.3 Calculate exposure time	11/11/21/321
1.1.1.2.5.1.1.4 Select recovery "g"	11/11/21/221
1.1.1.2.5.1.1.5 Select type of roll in	11/11/11/111
1.1.1.2.5.1.1.6 Select type of pattern	11/11/11/111
1.1.1.2.5.1.1.7 Select type of recovery	11/11/11/111
1.1.1.2.5.1.2 Determine primary and alternate delivery modes	11/11/12/221
1.1.1.2.5.1.3 Determine visual delivery data	11/11/22/322
1.1.1.2.5.1.3.1 Determine CCIP delivery data	11/11/11/111
1.1.1.2.5.1.3.2 Determine dive-toss delivery data	11/11/11/111
1.1.1.2.5.1.3.3 Determine manual delivery data	11/11/21/311

F-16 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

Key: 1 = has never attempted
2 = has had practice, requires supervision
3 = has had practice, can perform safely without supervision
4 = very good, qualified in performance

Task No. and Behavior	T37/T38/EFLIT/EFLIT Grade
1.1.1.2.5.1.3.4.2.2.1.1 Determine ground designator LGB target characteristics data	11/11/11/111
1.1.1.2.5.1.3.4.2.2.1.2 Determine ground designator LGB weapons envelope data	11/11/11/111
1.1.1.2.5.1.3.4.2.2.2 Determine ground designator strafe data	11/11/12/111
1.1.1.2.5.1.3.4.2.2.2.1 Determine ground designator strafe target characteristics data	11/11/12/111
1.1.1.2.5.1.3.4.2.2.2.2 Determin ground designator strafe weapons envelope data	11/11/12/212
1.1.1.2.5.1.3.4.2.3 Determine other aircraft designator data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.1 Determine other aircraft designator LGB data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.1.1 Determine other aircraft designator LGB target characteristics data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.1.2 Determine other aircraft designator LGB weapons envelope data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.2 Determine other aircraft designator strafe data	11/11/12/212
1.1.1.2.5.1.3.4.2.3.2.1 Determine other aircraft designator strafe target characteristics data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.2.2 Determine other aircraft designator strafe weapons envelope data	11/11/12/211
1.1.1.2.5.1.3.4.3 Determine IR seeker data	11/11/11/111
1.1.1.2.5.1.3.4.3.1 Determine IR seeker target characteristics data	11/11/11/111

F-16 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.1.2.5.1.3.3.13 Calculate RAP	11/11/11/111
1.1.1.2.5.1.3.4 Determine REO delivery data	11/11/11/111
1.1.1.2.5.1.3.4.1 Determine EO data	11/11/12/111
1.1.1.2.5.1.3.4.1.1 Determine EO target characteristics data	11/11/12/111
1.1.1.2.5.1.3.4.1.2 Determine EO weapons envelope data	11/11/12/111
1.1.1.2.5.1.3.4.2 Determine TISL data	11/11/12/111
1.1.1.2.5.1.3.4.2.1 Determine self designator data	11/11/11/111
1.1.1.2.5.1.3.4.2.1.1 Determine self designator LGB data	11/11/11/111
1.1.1.2.5.1.3.4.2.1.1.1 Determine self designator LGB target characteristics data	11/11/12/211
1.1.1.2.5.1.3.4.2.1.1.2 Determine self designator LGB weapons envelope data	11/11/11/111
1.1.1.2.5.1.3.4.2.1.2 Determine self designator strafe data	11/11/11/111
1.1.1.2.5.1.3.4.2.1.2.1 Determine self designator strafe target characteristics data	11/11/11/111
1.1.1.2.5.1.3.4.2.1.2.2 Determine self designator strafe weapons envelope data	11/11/11/212
1.1.1.2.5.1.3.4.2.2 Determine ground designator data	11/11/12/311
1.1.1.2.5.1.3.4.2.2.1 Determine ground designator LGB data	11/11/12/111

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.1.2.5.1.3.3.1 Compute density altitude	11/11/32/421
1.1.1.2.5.1.3.3.2 Calculate release air speed	11/11/21/321
1.1.1.2.5.1.3.3.3 Compute release altitude	11/11/22/321
1.1.1.2.5.1.3.3.4 Compute release range	11/11/21/321
1.1.1.2.5.1.3.3.5 Compute stick length	11/11/11/111
1.1.1.2.5.1.3.3.6 Calculate safe separation parameters	11/11/21/121
1.1.1.2.5.1.3.3.6.1 Calculate fusing times	11/11/11/111
1.1.1.2.5.1.3.3.6.2 Calculate arming times	11/11/11/111
1.1.1.2.5.1.3.3.6.3 Determine frag patterns	11/11/12/111
1.1.1.2.5.1.3.3.7 Calculate altitude loss recovery parameters	11/11/22/221
1.1.1.2.5.1.3.3.8 Calculate MIL setting	11/11/22/422
1.1.1.2.5.1.3.3.9 Calculate aim off distance	11/11/21/421
1.1.1.2.5.1.3.3.10 Calculate crosswind correction	11/11/22/422
1.1.1.2.5.1.3.3.11 Calculate MIL wind correction	11/11/22/422
1.1.1.2.5.1.3.3.12 Calculate IFP	22/11/22/221

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.1.2.5.1.3.4.2.2.1.1 Determine ground designator LGS target characteristics data	11/11/11/111
1.1.1.2.5.1.3.4.2.2.1.2 Determine ground designator LGB weapons envelope data	11/11/11/111
1.1.1.2.5.1.3.4.2.2.2 Determine ground designator strafe data	11/11/12/111
1.1.1.2.5.1.3.4.2.2.2.1 Determine ground designator strafe target characteristics data	11/11/12/111
1.1.1.2.5.1.3.4.2.2.2.2 Determin ground designator strafe weapons envelope data	11/11/12/212
1.1.1.2.5.1.3.4.2.3 Determine other aircraft designator data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.1 Determine other aircraft designator LGB data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.1.1 Determine other aircraft designator LGB target characteristics data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.1.2 Determine other aircraft designator LGB weapons envelope data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.2 Determine other aircraft designator strafe data	11/11/12/212
1.1.1.2.5.1.3.4.2.3.2.1 Determine other aircraft designator strafe target characteristics data	11/11/11/111
1.1.1.2.5.1.3.4.2.3.2.2 Determine other aircraft designator strafe weapons envelope data	11/11/12/211
1.1.1.2.5.1.3.4.3 Determine IR seeker data	11/11/11/111
1.1.1.2.5.1.3.4.3.1 Determine IR seeker target characteristics data	11/11/11/111

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.1.2.5.1.3.4.3.2 Determine IR seeker weapons envelope data	11/11/12/212
1.1.1.2.5.1.3.5 Determine VLD delivery data	11/11/11/111
1.1.1.2.5.1.3.6 Determine VLADD delivery data	11/11/11/111
1.1.1.2.5.1.3.7 Determine EMR delivery data	11/11/11/111
1.1.1.2.5.1.4 Determine radar delivery data	11/11/11/111
1.1.1.2.5.1.4.1 Determine LADD delivery data	11/11/11/111
1.1.1.2.5.1.4.2 Determine BCN delivery data	11/11/11/111
1.1.1.2.5.1.4.3 Determine CCRP delivery data	11/11/11/111
1.1.1.2.5.2 Determine air-to-air combat data	11/11/12/122
1.1.1.2.6 Determine approach data	23/44/44/443
1.1.1.2.6.1 Determine type of approach	22/14/23/243
1.1.1.2.6.2 Determine minimum fuel distance point	12/13/22/243
1.1.1.2.6.3 Calculate descent fuel requirement	12/14/33/143
1.1.1.2.6.4 Calculate descent time	12/13/33/243
1.1.1.2.7 Determine landing data	43/44/43/443

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ask No. and Behavior	T37/T38/EFLIT/EFLIT Grads
.1.1.2.7.1 Compute crosswind limit	44/44/43/444
.1.1.2.7.2 Compute landing roll	44/44/33/444
.1.1.3 Record data on mission data card	11/11/31/243

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.2 Attend mission briefing	33/44/43/434
1.1.3 Perform pretakeoff procedures	34/44/44/434
1.1.3.1 Perform normal pretakeoff procedures	44/44/43/443
1.1.3.1.1 Prepare/check personal equipment	44/44/44/444
1.1.3.1.2 Confirm aircraft assignment	44/41/43/444
1.1.3.1.3 Perform before-exterior-inspection checks	44/44/43/443
1.1.3.1.3.1 Check AFTO Form 781	44/44/34/443
1.1.3.1.3.2 Perform before-cockpit-entry check	44/44/44/443
1.1.3.1.3.3 Check flight publications	44/44/43/443
1.1.3.1.4 Perform exterior inspection	44/44/33/443
1.1.3.1.5 Perform external stores inspection	11/11/21/243
1.1.3.1.6 Perform cockpit ingress	44/44/43/443
1.1.3.1.6.1 Open canopy with external controls	44/44/34/443
1.1.3.1.6.2 Enter cockpit	44/44/43/443
1.1.3.1.6.3 Close canopy with internal controls	44/44/44/443

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Task No. and Behavior	T37/T38/EFLIT/SFLIT Grads
1.1.3.1.6.4 Steep in	44/44/44/443
1.1.3.1.7 Perform power-off check	44/41/43/443
1.1.3.1.7.1 Stow personal equipment	44/44/43/443
1.1.3.1.7.2 Perform oxygen-system checks	44/44/44/444
1.1.3.1.7.3 Check critical switches off	44/44/44/443
1.1.3.1.7.4 Set switches	44/44/44/434
1.1.3.1.8 Perform before-engine-start procedures	44/44/44/443
1.1.3.1.9 Perform engine start	44/44/44/443
1.1.3.1.10 Perform after-engine-start checks	44/44/44/443
1.1.3.1.11 Perform before-taxi checks	44/44/44/444
1.1.3.1.12 Perform aircraft-to-ground-control communications	34/44/34/444
1.1.3.1.13 Perform taxi	44/44/44/444
1.1.3.1.13.1 Perform taxi checks	44/44/44/443
1.1.3.1.13.2 Perform single ship taxi	44/44/44/443
1.1.3.1.13.3 Perform formation taxi	43/44/33/443

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.3.1.14 Accomplish weapons-arming procedures/maintenance checks	44/11/23/244
1.1.3.1.15 Perform before-takeoff checks	11/44/43/443
1.1.3.1.16 Perform aircraft-to-control-tower communications	44/44/34/443
1.1.3.1.17 Take active runway	34/44/43/444
1.1.3.1.17.1 Take active runway in single ship	44/44/43/444
1.1.3.1.17.2 Take active runway in formation	43/44/43/413
1.1.3.2 Perform scramble pretakeoff procedures	11/11/11/111
1.1.3.3 Perform pretakeoff procedures under emergency/degraded conditions	11/11/11/111
1.1.4 Perform the takeoff	44/44/43/434
1.1.4.1 Perform line up checks	44/44/44/443
1.1.4.2 Perform MIL power takeoff	44/11/14/143
1.1.4.3 Perform max power takeoff	11/44/34/443
1.1.4.4 (not rated) Perform formation takeoff	///
1.1.4.5 Perform takeoff under emergency/degraded conditions	11/11/32/111
1.1.5 Perform the departure	44/44/43/433

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ask No. and Behavior	T37/T38/EFLIT/EFLIT Grads
.1.5.1 Perform normal departure	44/44/33/443
.1.5.1.1 Establish MIL power tech order climb air speed	11/44/33/443
..1.5.1.2 Establish max power tech order climb air speed	34/21/23/443
..1.5.1.3 Intercept correct track/heading	11/44/33/443
1.1.5.1.4 Perform trail departure	12/11/11/111
1.1.5.1.4.1 Perform trail departure with radar	11/11/11/113
1.1.5.1.4.2 Perform trail departure without radar	11/11/11/113
1.1.5.1.5 Perform level off	44/41/34/443
1.1.5.2 Perform departure with emergencies/systems degradation	31/11/22/313
1.1.6 Perform enroute procedures	33/44/34/433
1.1.6.1 Perform navigation procedures	23/44/33/443
1.1.6.1.1 Navigate using self contained NAV procedures	23/11/11/413
1.1.6.1.1.1 Navigate by dead reckoning	11/11/12/331
1.1.6.1.1.1.1 Configure system for dead reckoning navigation	11/11/12/331
1.1.6.1.1.1.2 Maintain planned flight profile	23/14/22/232

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
.1.6.1.1.1.2.1 Maintain planned heading	44/44/32/433
.1.6.1.1.1.2.2 Maintain planned altitude	44/44/32/443
.1.6.1.1.1 2.3 Maintain planned airspeed	44/44/32/443
.1.6.1.1.1.2.4 Monitor time	34/44/32/443
.1.6.1.1.1.3 Verify position	33/12/32/332
.1.6.1.1.1.3.1 Verify position using visual	24/34/22/433
.1.6.1.1.1.3.2 Verify position using INS	11/11/11/111
.1.6.1.1.1.3.3 Verify position using aircraft radar in ground mapping mode	11/11/11/111
.1.6.1.1.1.3.4 Verify position using enroute map	24/34/32/443
.1.6.1.1.1.4 Apply heading/altitude/airspeed corrections as necessary	24/12/32/432
1.6.1.1.2 Navigate using the INS	11/11/11/111
.1.6.1.1.2.1 Configure system for INS navigation	11/11/11/111
.1.6.1.1.2.1.1 Configure HUD	11/11/11/111
1.6.1.1.2.1.2 Configure navigation control panel	31/11/11/111
1.6.1.1.2.2 Maintain planned flight profile	21/14/11/131

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.6.1.1.2.3 Interpret INS data from HUD and/or ADI/BSI	11/11/11/111
1.1.6.1.1.2.4 Verify position	21/14/11/141
1.1.6.1.1.2.4.1 Verify position using visual methods	34/34/32/433
1.1.6.1.1.2.4.2 Verify position using aircraft radar in ground mapping mode	11/11/11/111
1.1.6.1.1.2.4.3 Verify position using enroute map	24/34/22/143
1.1.6.1.1.2.5 Update INS	11/11/11/111
1.1.6.1.1.2.5.1 Update INS with radar fix taking	11/11/11/111
1.1.6.1.1.2.5.2 Update INS with TACAN position fix taking	11/11/11/111
1.1.6.1.1.2.5.3 Update INS with HUD/visual fix taking	11/11/11/111
1.1.6.1.1.2.5.4 Update INS with visual overfly fix taking	11/11/11/111
1.1.6.1.1.2.6 Apply heading/altitude/airspeed corrections as necessary	21/14/11/131
1.1.6.1.1.3 Navigate using the aircraft radar in ground mapping mode	11/11/11/111
1.1.6.1.1.3.1 Configure radar switches for navigation	11/11/11/111
1.1.6.1.1.3.2 Maintain planned flight profile	11/14/11/111
1.1.6.1.1.3.3 Interpret radar display for enroute navigation	11/11/11/111

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Task No. and Behavior	T37/T38/SFLIT/EFLIT Grads
1.1.6.1.1.3.4 Verify position	11/14/11/111
1.1.6.1.1.3.4.1 Verify position using visual methods	34/34/22/433
1.1.6.3.1.3.4.2 Verify position using time	23/24/22/333
1.1.6.1.1.3.4.3 Verify position using INS	11/11/11/111
1.1.6.1.1.3.4.4 Verify position using enroute map	24/34/23/443
1.1.6.1.1.3.5 Apply heading/altitude/airspeed corrections as necessary	11/14/11/111
1.1.6.1.2 Navigate using external navigation aids	23/41/33/243
1.1.6.1.2.1 Navigate using TACAN	41/44/33/443
1.1.6.1.2.1.1 Configure switches	44/41/44/443
1.1.6.1.2.1.2 Verify station	44/44/44/443
1.1.6.1.2.1.3 Determine position	44/44/44/443
1.1.6.1.2.1.4 Fly planned route	34/44/34/443
1.1.6.1.2.1.5 Apply corrections as necessary using TACAN information	34/44/33/443
1.1.6.1.2.2 Navigate using ATC/GCI/AWACS	32/44/32/443
1.1.6.1.2.2.1 Configure radio switches	41/44/34/444

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grade
1.1.6.1.2.2.1.1 Configure radio switches for UHF	44/44/44/444
1.1.6.1.2.2.1.2 Configure radio switches for VHF	14/11/11/411
1.1.6.1.2.2.2 Establish communications with controller	31/34/34/343
1.1.6.1.2.2.2.1 Establish communications with ATC controller	34/34/34/443
1.1.6.1.2.2.2.2 Establish communications with GCI/AWACS controller	34/11/31/313
1.1.6.1.2.2.3 Maintain flight profile as directed	31/44/34/443
1.1.6.2 Perform formation flying	33/44/33/443
1.1.6.2.1 Perform close formation	22/34/43/443
1.1.6.2.1.1 Interpret signals to initiate formation	12/44/33/443
1.1.6.2.1.1.1 Interpret verbal signals	23/44/43/443
1.1.6.2.1.1.2 Interpret nonverbal signals	23/44/33/443
1.1.6.2.1.2 Initiate formation	12/44/33/443
1.1.6.2.1.3 Maintain position within formation	33/34/33/443
1.1.6.2.1.3.1 Maintain position during straight and level flight	43/44/43/443
1.1.6.2.1.3.2 Maintain position while turning	33/34/33/443

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.6.2.1.4 Change position within formation	33/44/33/443
1.1.6.2.1.4.1 Interpret signals to change positions	33/44/33/443
1.1.6.2.1.4.1.1 Interpret verbal signals	44/44/43/443
1.1.6.2.1.4.1.2 Interpret nonverbal signals	44/44/33/443
1.1.6.2.1.4.2 Execute position change	33/44/33/443
1.1.6.2.2 Perform echelon formation	22/34/33/443
1.1.6.2.2.1 Interpret signals to initiate formation	33/44/33/443
1.1.6.2.2.1.1 Interpret verbal signals	43/44/44/443
1.1.6.2.2.1.2 Interpret nonverbal signals	32/44/33/443
1.1.6.2.2.2 Initiate formation	23/44/33/443
1.1.6.2.2.3 Maintain position within formation	33/34/23/443
1.1.6.2.2.3.1 Maintain position during straight and level flight	33/44/44/443
1.1.6.2.2.3.2 Maintain position while turning	33/34/33/443
1.1.6.2.2.3.2.1 Maintain position while turning into wingman	43/34/43/443
1.1.6.2.2.3.2.2 Maintain position while turning away from wingman	33/34/33/443

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.6.2.2.4 Change position within formation	33/44/23/443
1.1.6.2.2.4.1 Interpret signals to change position	33/44/33/443
1.1.6.2.2.4.1.1 Interpret verbal signals	33/44/43/443
1.1.6.2.2.4.1.2 Interpret nonverbal signals	33/44/33/443
1.1.6.2.2.4.2 Execute position change	33/44/33/443
1.1.6.2.3 Perform route formation	33/44/43/443
1.1.6.2.3.1 Interpret signals to initiate formation	33/44/44/443
1.1.6.2.3.1.1 Interpret verbal signals	43/44/44/443
1.1.6.2.3.1.2 Interpret nonverbal signals	33/44/33/443
1.1.6.2.3.2 Initiate formation	33/44/43/443
1.1.6.2.3.3 Maintain position within formation	33/44/33/443
1.1.6.2.3.3.1 Maintain position during straight and level flight	33/44/44/443
1.1.6.2.3.3.2 Maintain position while turning	33/44/33/443
1.1.6.2.3.3.2.1 Maintain position while turning into wingman	33/34/44/443
1.1.6.2.3.3.2.2 Maintain position while turning away from wingman	33/44/34/443

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.6.2.3.4 Change position within formation	33/44/33/443
1.1.6.2.3.4.1 Interpret signals to change position	43/44/33/443
1.1.6.2.3.4.1.1 Interpret verbal signals	43/44/44/443
1.1.6.2.3.4.1.2 Interpret nonverbal signals	33/44/33/443
1.1.6.2.3.4.2 Execute position change	33/44/33/443
1.1.6.2.4 Perform trail formation	22/44/32/443
1.1.6.2.4.1 Interpret signals to initiate formation	42/44/34/443
1.1.6.2.4.1.1 Interpret verbal signals	32/44/44/443
1.1.6.2.4.1.2 Interpret nonverbal signals	32/44/33/443
1.1.6.2.4.2 Initiate formation	43/44/33/443
1.1.6.2.4.3 Maintain position within formation	33/34/33/443
1.1.6.2.4.3.1 Maintain position during straight and level flight	44/44/44/443
1.1.6.2.4.3.2 Maintain position while turning	33/34/33/443
1.1.6.2.4.3.2.1 Maintain position while turning into wingman	33/44/43/443
1.1.6.2.4.3.2.2 Maintain position while turning away from wingman	33/44/33/443

F-16 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.6.2.4.4 Change position within formation	12/44/13/443
1.1.6.2.4.4.1 Interpret signals to change position	43/44/34/443
1.1.6.2.4.4.1.1 Interpret verbal signals	43/44/44/443
1.1.6.2.4.4.1.2 Interpret nonverbal signals	43/44/33/443
1.1.6.2.4.4.2 Execute position change	43/44/33/443
1.1.6.2.5 Perform tactical formations	11/11/33/443
1.1.6.2.6 Change formations	23/44/33/443
1.1.6.3 Perform enroute procedures under degraded or emergency conditions	11/11/32/113

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Task No. and Behavior	T37/T38/SPLIT/RPLIT Grade
1.1.7 Perform air-to-air refueling	11/11/11/111
1.1.7.1 Perform day/night air-to-air refueling	11/11/11/111
1.1.7.1.1 Perform rendezvous	11/11/11/111
1.1.7.1.1.1 Perform point parallel rendezvous	11/11/11/111
1.1.7.1.1.2 Perform fighter turn on rendezvous	11/11/11/111
1.1.7.1.2 Perform precontact checks	11/11/11/111
1.1.7.1.2.1 Perform weapons/safe check	11/11/11/111
1.1.7.1.2.2 Perform aircraft systems check	11/11/11/111
1.1.7.1.3 Accomplish tanker/receiver radio transmissions	11/11/11/111
1.1.7.1.4 Establish observation position	11/11/11/111
1.1.7.1.5 Establish precontact position	11/11/11/111
1.1.7.1.6 Establish contact position	11/11/11/111
1.1.7.1.7 Respond to tanker director lights/boomer directions	11/11/11/111
1.1.7.1.8 Maintain contact position during transfer	11/11/11/111
1.1.7.1.9 Perform disconnect procedures	11/11/11/111

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.7.1.10 Perform post refueling procedures	11/11/11/111
1.1.7.2 Perform refueling operations under emergency/degraded conditions	11/11/11/111
1.1.7.2.1 Perform radio silent refueling	11/11/11/111
1.1.7.2.2 Perform break away	11/11/11/111
1.1.7.2.3 Perform tension disconnect	11/11/11/111
1.1.7.2.4 Perform lost wingman procedures	11/11/11/111
1.1.8 Conduct combat	11/11/11/111
1.1.8.1 Conduct air-to-surface combat	11/11/11/232
1.1.8.1.1 Perform target ingress	11/11/11/231
1.1.8.1.1.1 Perform target ingress during CAS mission	11/11/11/211
1.1.8.1.1.2 Perform target ingress during interdiction mission	11/11/11/211
1.1.8.1.1.3 Perform target ingress during armed reconnaissance mission	11/11/11/112
1.1.8.1.2 Acquire target	11/11/21/232
1.1.8.1.2.1 Locate intitial point (IP)	11/11/22/232
1.1.8.1.2.1.1 Locate IP visually	11/11/22/232

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.8.1.2.1.2 Locate IP using radar	11/11/21/111
1.1.8.1.2.2 Locate pop up point	11/11/22/232
1.1.8.1.2.3 Locate target	11/11/22/232
1.1.8.1.2.3.1 Locate target visually	11/11/22/232
1.1.8.1.2.3.2 Locate target using radar	11/11/11/111
1.1.8.1.3 Deliver ordnance	11/11/21/232
1.1.8.1.3.1 Deliver ordnance visually	11/11/32/232
1.1.8.1.3.1.1 Deliver conventional ordnance	11/11/32/232
1.1.8.1.3.1.1.1 Deliver conventional ordnance in CCIP mode	11/11/11/111
1.1.8.1.3.1.1.1.1 Deliver conventional ordnance in CCIP mode during day	11/11/11/111
1.1.8.1.3.1.1.1.2 Deliver conventional ordnance in CCIP mode at night	11/11/11/111
1.1.8.1.3.1.1.1.3 Deliver conventional ordnance in CCIP mode from high dive angle	11/11/11/111
1.1.8.1.3.1.1.1.4 Deliver conventional ordnance in CCIP mode from low dive angle	11/11/11/111
1.1.8.1.3.1.1.2 Deliver conventional ordnance using dive toss	11/11/11/111
1.1.8.1.3.1.1.2.1 Deliver conventional ordnance using dive toss during day	11/11/11/111

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.8.1.3.1.1.2.2 Deliver conventional ordnance using dive toss at night	11/11/11/111
1.1.8.1.3.1.1.2.3 Deliver conventional ordnance using dive toss from high dive angle	11/11/11/111
1.1.8.1.3.1.1.2.4 Deliver conventional ordnance using dive toss from low dive angle	11/11/11/111
1.1.8.1.3.1.1.3 Deliver conventional ordnance manually	11/11/32/232
1.1.8.1.3.1.1.3.1 Deliver conventional ordnance manually during day	11/11/32/232
1.1.8.1.3.1.1.3.2 Deliver conventional ordnance manually at night	11/11/11/111
1.1.8.1.3.1.1.3.3 Deliver conventional ordnance manually from high dive angle	11/11/32/231
1.1.8.1.3.1.1.3.4 Deliver conventional ordnance manually from low dive angle	11/11/32/232
1.1.8.1.3.1.1.4 Deliver conventional ordnance in strafe mode	11/11/32/232
1.1.8.1.3.1.1.4.1 Deliver conventional ordnance in strafe mode during day	11/11/32/232
1.1.8.1.3.1.1.4.2 Deliver conventional ordnance in strafe mode at night	11/11/11/111
1.1.8.1.3.1.1.4.3 Deliver conventional ordnance in strafe mode from high dive angle	11/11/11/111
1.1.8.1.3.1.1.4.4 Deliver conventional ordnance in strafe mode from low dive angle	11/11/32/232
1.1.8.1.3.1.1.5 Deliver conventional ordnance in EO mode	11/11/11/111
1.1.8.1.3.1.1.5.1 Deliver conventional ordnance in EO mode from high dive angle	11/11/11/111

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grade
1.1.8.1.3.1.1.5.2 Deliver conventional ordnance in EO mode from low dive angle	11/11/11/111
1.1.8.1.3.1.1.6 Deliver conventional ordnance in TISL mode	11/11/11/111
1.1.8.1.3.1.1.6.1 Deliver conventional ordnance in TISL mode during day	11/11/11/111
1.1.8.1.3.1.1.6.2 Deliver conventional ordnance in TISL mode at night	11/11/11/111
1.1.8.1.3.1.1.6.3 Deliver conventional ordnance in TISL mode from high dive angle	11/11/11/111
1.1.8.1.3.1.1.6.4 Deliver conventional ordnance in TISL mode from low dive angle	11/11/11/111
1.1.8.1.3.1.1.7 Deliver conventional ordnance in IR seeker mode	11/11/11/111
1.1.8.1.3.1.1.7.1 Deliver conventional ordnance in IR seeker mode during day	11/11/11/111
1.1.8.1.3.1.1.7.2 Deliver conventional ordnance in IR seeker mode at night	11/11/11/111
1.1.8.1.3.1.1.7.3 Deliver conventional ordnance in IR seeker mode from high dive angle	11/11/11/111
1.1.8.1.3.1.1.7.4 Deliver conventional ordnance in IR seeker mode from low dive angle	11/11/11/111
1.1.8.1.3.1.2 Deliver nuclear ordnance	11/11/11/111
1.1.8.1.3.1.2.1 Deliver nuclear ordnance in VLD mode	11/11/11/111
1.1.8.1.3.1.2.2 Deliver nuclear ordnance in VLADD mode	11/11/11/111

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Task No. and Behavior	T37/T38/EPLIT/EPLIT Grads
1.1.8.1.3.1.2.3 Deliver nuclear ordnance in EMR mode	11/11/11/111
1.1.8.1.3.1.2.4 Perform nuclear reattack	11/11/11/111
1.1.8.1.3.2 Deliver ordnance using radar	11/11/11/111
1.1.8.1.3.2.1 Deliver ordnance using radar in CCRP mode	11/11/11/111
1.1.8.1.3.2.2 Deliver ordnance using radar in LADD mode	11/11/11/111
1.1.8.1.3.2.3 Perform radar reattack	11/11/11/111
1.1.8.1.4 Perform target egress	11/11/21/232
1.1.8.1.5 Respond to threat	11/11/21/112
1.1.8.1.5.1 Recognize threat	11/11/21/112
1.1.8.1.5.2 Counter threat	11/11/21/122
1.1.8.1.6 Perform communications	11/11/21/342
1.1.8.2 Conduct air-to-air combat	11/11/11/232
1.1.8.2.1 Perform fence checks	11/11/11/211
1.1.8.2.1.1 Secure voice	11/11/33/111
1.1.8.2.1.2 Perform fuel/oxygen checks	11/11/34/442

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.8.2.1.3 Perform engine instruments checks	11/11/22/442
1.1.8.2.1.4 Set up stores control panel/armament	11/11/11/412
1.1.8.2.1.5 Determine fire control navigation status	11/11/11/111
1.1.8.2.1.6 Set up HUD	11/11/11/311
1.1.8.2.1.7 Set up REO	11/11/11/111
1.1.8.2.1.8 Set up radar	11/11/11/111
1.1.8.2.1.9 Set up VTR	11/11/11/111
1.1.8.2.1.10 Set up RWR	11/11/11/111
1.1.8.2.1.11 Set up ECM	11/11/11/111
1.1.8.2.1.12 Set up chaff/flare dispensers	11/11/11/111
1.1.8.2.2 Obtain/manage threat/target data	11/11/21/212
1.1.8.2.2.1 Manage communications	11/11/22/232
1.1.8.2.2.2 Perform visual search (WVR)	11/11/11/312
1.1.8.2.2.3 Perform radar search (BVR)	11/11/12/112
1.1.8.2.2.4 Manage data from other planes	11/11/12/332

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ask No. and Behavior	T37/T38/EFLIT/EFLIT Grads
.1.8.2.2.5 Manage visual data	11/11/21/332
.1.8.2.2.6 Manage GCI/AWACS data	11/11/11/112
.1.8.2.2.7 Manage RWR data	11/11/11/112
.1.8.2.2.8 Manage radar data	11/11/11/111
.1.8.2.2.9 Determine target type	11/11/11/211
.1.8.2.2.10 Manage data link data	11/11/11/111
.1.8.2.2.11 Manage JTIDS data	11/11/12/111
.1.8.2.2.12 Determine environmental conditions (visibility, sun position, clouds, etc.)	11/11/31/212
.1.8.2.2.13 Manage data on enemy chaff/ECM	11/11/11/111
.1.8.2.3 Engage target	11/11/32/232
.1.8.2.3.1 Engage target beyond visual range	11/11/12/112
.1.8.2.3.1.1 Perform tactical intercept	11/11/11/112
.1.8.2.3.1.1.1 Perform tactical intercept with radar lock on	11/11/11/112
.1.8.2.3.1.1.1.1 Perform radar acquisition	11/11/11/112
.1.8.2.3.1.1.1.2 Transition to TD box	11/11/11/111

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.8.2.3.1.1.1.3 Analyze attack geometry	11/11/11/112
1.1.8.2.3.1.1.1.4 Maneuver to intercept	11/11/11/111
1.1.8.2.3.1.1.2 Perform tactical intercept without radar lock on	11/11/11/122
1.1.8.2.3.1.1.2.1 Perform stern conversion	11/11/21/112
1.1.8.2.3.1.1.2.1.1 Perform radar acquisition	11/11/21/112
1.1.8.2.3.1.1.2.1.2 Analyze attack geometry	11/11/21/112
1.1.8.2.3.1.1.2.1.3 Maneuver to intercept	11/11/21/112
1.1.8.2.3.1.1.2.2 Perform single turn conversion	11/11/21/112
1.1.8.2.3.1.1.2.2.1 Perform radar acquisition	11/11/21/112
1.1.8.2.3.1.1.2.2.2 Analyze attack geometry	11/11/21/112
1.1.8.2.3.1.1.2.2.3 Establish collision course	11/11/21/112
1.1.8.2.3.1.2 Perform missile attack with radar lock on	11/11/11/112
1.1.8.2.3.1.3 Disengage	11/11/31/112
1.1.8.2.3.2 Engage target within visual range	11/11/32/342
1.1.8.2.3.2.1 Perform basic fighter maneuvers	11/11/33/333

F-15 PILOT AND INSTRUCTOR PILOT TARGET POPULATION STUDY

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grade
1.1.8.2.3.2.1.1 Perform defensive turn	11/11/32/343
1.1.8.2.3.2.1.2 Perform break turn	11/11/32/343
1.1.8.2.3.2.1.3 Perform overshoots and reversals	11/11/32/343
1.1.8.2.3.2.1.4 Perform scissors	11/11/33/343
1.1.8.2.3.2.1.5 Perform acceleration maneuver	11/11/33/443
1.1.8.2.3.2.1.6 Perform high yo-yo	11/11/32/343
1.1.8.2.3.2.1.7 Perform low yo-yo	11/11/32/443
1.1.8.2.3.2.1.8 Perform lead pursuit	11/11/33/443
1.1.8.2.3.2.1.9 Perform lag pursuit	11/11/32/443
1.1.8.2.3.2.1.10 Perform pure pursuit	11/11/32/443
1.1.8.2.3.2.1.11 Perform lag roll	11/11/33/443
1.1.8.2.3.2.1.12 Perform quarter roll and zoom	11/11/33/343
1.1.8.2.3.2.1.13 Perform barrel roll attack	11/11/32/343
1.1.8.2.3.2.1.14 Perform pitchback/slideback	11/11/32/342
1.1.8.2.3.2.1.15 Perform high "g" rolls underneath	11/11/33/343

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Task No. and Behavior	T37/T38/EPLIT/EFLIT Grade
1.1.8.2.3.2.1.16 Perform high "g" rolls over the top	11/11/32/342
1.1.8.2.3.2.1.17 Perform jinkout	11/11/32/342
1.1.8.2.3.2.1.18 Perform Immelmann turns	11/11/32/343
1.1.8.2.3.2.1.19 Perform high defection gunshot maneuvers	11/11/32/342
1.1.8.2.3.2.1.20 Perform separation	11/11/32/343
1.1.8.2.3.2.1.21 Perform counters	11/11/33/343
1.1.8.2.3.2.1.22 Perform gun tracking/ranging	11/11/33/343
1.1.8.2.3.2.2 Perform weapons employment	11/11/21/313
1.1.8.2.3.2.2.1 Perform missile attack	11/11/32/313
1.1.8.2.3.2.2.1.1 Perform missile attack with radar lock on	11/11/11/113
1.1.8.2.3.2.2.1.1.1 Perform missile attack in dogfight mode	11/11/11/113
1.1.8.2.3.2.2.1.1.2 Perform missile attack in air-to-air missile (AAM) mode	11/11/32/312
1.1.8.2.3.2.2.1.2 Perform missile attack without radar lock-on	11/11/32/312
1.1.8.2.3.2.2.2 Perform gun attack	11/11/32/313
1.1.8.2.3.2.2.2.1 Perform gun attack with radar lock on	11/11/11/111

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.8.2.3.2.2.2.2 Perform snap shoot gun attack	11/11/32/111
1.1.8.2.3.2.2.2.3 Perform manual reticle gun attack	11/11/22/111
1.1.8.2.3.2.3 Disengage	11/11/32/332
1.1.9 Perform the approach	23/44/33/443
1.1.9.1 Perform holding	33/44/33/443
1.1.9.2 Perform descent checks	44/44/43/443
1.1.9.3 Perform radar enroute descent	33/32/43/443
1.1.9.4 Perform VFR descent	23/24/23/443
1.1.9.5 Perform TACAN penetration	33/42/33/443
1.1.9.6 Perform min fuel/emergency fuel descent	13/24/22/343
1.1.9.7 Perform before landing checks	44/44/44/443
1.1.9.8 Perform overhead traffic pattern	44/44/44/443
1.1.9.9 Perform VFR straight in approach	44/34/33/443
1.1.9.10 Perform VFR go around	44/34/33/443
1.1.9.11 Perform TACAN approach	33/44/33/443

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Task No. and Behavior	T37/T38/EPLIT/EPLIT Grads
1.1.9.12 Perform PAR approach	33/44/33/443
1.1.9.13 Perform ASR approach	33/34/33/443
1.1.9.14 Perform localizer approach	22/44/23/443
1.1.9.15 Perform ILS approach	11/44/33/443
1.1.9.16 Perform formation procedures	22/32/33/443
1.1.9.16.1 Perform formation lead procedures	22/44/21/443
1.1.9.16.2 Perform formation wing procedures	22/44/32/443
1.1.9.17 Perform circling approach	22/44/22/343
1.1.9.18 Perform missed approach	33/44/33/443
1.1.9.18.1 Perform missed approach procedures for lead/single ship	12/44/32/443
1.1.9.18.2 Perform missed approach procedures for wing	12/34/32/443
1.1.9.19 Perform closed pattern	44/11/33/443
1.1.9.20 Perform standby instrument approach	12/11/21/312
1.1.9.21 Perform airborn radar approach	11/11/11/111
1.1.9.22 Perform min fuel/emergency fuel approach	12/21/22/343

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.9.23 Perform overhead precautionary approach	32/11/21/311
1.1.9.24 Perform degraded aircraft systems approach	12/11/21/113
1.1.9.24.1 Perform gyro out radar controlled approach	22/32/22/342
1.1.10 Perform landing	43/44/33/443
1.1.10.1 Perform normal landing	44/44/33/443
1.1.10.2 Perform formation landing	12/32/32/343
1.1.10.2.1 Lead formation landing	12/11/21/313
1.1.10.2.2 Perform formation landing in wing position	12/32/32/342
1.1.10.3 Perform touch and go	44/44/13/443
1.1.10.4 Perform short field landing	12/11/11/311
1.1.10.5 Perform night landing	43/34/12/333
1.1.10.6 Perform crosswind landing	12/34/23/433
1.1.10.7 Perform low RCR landing	11/11/12/313
1.1.10.8 Perform landing under emergency/degraded conditions	11/11/12/312
1.1.11 Perform post flight procedures	34/44/43/443

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Task No. and Behavior	T37/T38/EFLIT/EFLIT Grads
1.1.11.1 Perform normal post flight procedures	44/44/33/443
1.1.11.1.1 Perform after clearing runway checks	44/44/44/443
1.1.11.1.2 Accomplish dearming procedures	11/11/33/343
1.1.11.1.3 Accomplish before engine shut down checks	44/44/44/443
1.1.11.1.4 Accomplish engine shut down	44/44/44/443
1.1.11.1.5 Accomplish before leaving cockpit checks/procedures	44/44/44/443
1.1.11.1.6 Accomplish post flight aircraft inspection	44/44/34/443
1.1.11.2 Perform quick turnaround procedures	42/11/11/111
1.1.11.2.1 Accomplish hot refueling	11/11/11/111
1.1.11.3 Perform operating procedures under emergency/degraded conditions	11/11/11/111
1.1.12 Perform mission debriefing	13/34/32/333
1.1.12.1 Perform maintenance debriefing	13/11/33/433
1.1.12.1.1 Inform crew chief/line chief of aircraft status	33/34/34/443
1.1.12.1.2 Accomplish AFCO Form 781	34/34/33/443
1.1.12.1.3 Accomplish maintenance facility/job control debriefing	13/11/33/433

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2 = has had practice, requires supervision
3 = has had practice, can perform safely without supervision
4 = very good, qualified in performance

Task No. and Behavior	T37/T38/EFLIT/EFLIT Grade
1.1.12.2 Accomplish intelligence debriefing	11/11/11/211
1.1.12.3 Accomplish flight debriefing	12/34/23/433
1.1.12.4 Accomplish mission debriefing	12/34/23/433

APPENDIX B

TASKS RATED "1" BY ALL RATERS

TASKS RATED "1" ("HAS NEVER ATTEMPTED") BY ALL REVIEWERS

1.1.1.1.1.3 Gather operations data

1.1.1.2.4.8 Prepare radar predictions

1.1.1.2.5.1.1.5 Select type of roll in

1.1.1.2.5.1.1.6 Select type of pattern

1.1.1.2.5.1.1.7 Select type of recovery

1.1.1.2.5.1.3.1 Determine CCIP delivery data

1.1.1.2.5.1.3.2 Determine dive-toss delivery data

1.1.1.2.5.1.3.3.5 Compute stick length

1.1.1.2.5.1.3.3.6.1 Calculate fusing times

1.1.1.2.5.1.3.3.6.2 Calculate arming times

1.1.1.2.5.1.3.3.13 Calculate RAP

1.1.1.2.5.1.3.4 Determine REO delivery data

1.1.1.2.5.1.3.4.2.1 Determine self designator data

1.1.1.2.5.1.3.4.2.1.1 Determine self designator LGB data

1.1.1.2.5.1.3.4.2.1.1.2 Determine self designator LGB weapons envelope data

1.1.1.2.5.1.3.4.2.1.2 Determine self designator strafe data

1.1.1.2.5.1.3.4.2.1.2.1 Determine self designator strafe target characteristics data

1.1.1.2.5.1.3.4.2.2.1.1 Determine ground designator LGB target characteristics data

1.1.1.2.5.1.3.4.2.2.1.2 Determine ground designator LGB weapons envelope data

1.1.1.2.5.1.3.4.2.3 Determine other aircraft designator data

1.1.1.2.5.1.3.4.2.3.1 Determine other aircraft designator LGB data

1.1.1.2.5.1.3.4.2.3.1.1 Determine other aircraft designator LGB target characteristics data

1.1.1.2.5.1.3.4.2.3.1.2 Determine other aircraft designator LGB weapons envelope data

1.1.1.2.5.1.3.4.2.3.2.1 Determine other aircraft designator strafe target characteristic data

1.1.1.2.5.1.3.4.3 Determine IR seeker data

1.1.1.2.5.1.3.4.3.1 Determine IR seeker target characteristics data

1.1.1.2.5.1.3.5 Determine VLD delivery data

1.1.1.2.5.1.3.6 Determine VLADD delivery data

1.1.1.2.5.1.3.7 Determine EMR delivery data

1.1.1.2.5.1.4 Determine radar delivery data

1.1.1.2.5.1.4.1 Determine LADD delivery data

1.1.1.2.5.1.4.2 Determine BCN delivery data

1.1.1.2.5.1.4.3 Determine CCRP delivery data

1.1.3.2 Perform scramble pretakeoff procedures

1.1.3.3 Perform pretakeoff procedures under emergency/degraded conditions

1.1.6.1.1.1.3.2 Verify position using INS

1.1.6.1.1.1.3.3 Verify position using A/C radar in ground mapping mode

1.1.6.1.1.2 Navigate using the INS

1.1.6.1.1.2.1 Configure system for INS navigation

1.1.6.1.1.2.1.1 Configure HUD

1.1.6.1.1.2.3 Interpret INS data from HUD and/or ADI/HSI

1.1.6.1.1.2.4.2 Verify position using A/C radar in ground mapping mode

1.1.6.1.1.2.5 Update INS

1.1.6.1.1.2.5.1 Upgrade INS with radar fix taking

1.1.6.1.1.2.5.2 Update INS with TACAN position fix taking

1.1.6.1.1.2.5.3 Update INS with HUD/visual fix taking
1.1.6.1.1.2.5.4 Update INS with visual overfly fix taking

1.1.6.1.1.3 Navigate using the A/C radar in ground mapping mode

1.1.6.1.1.3.1 Verify position using visual

1.1.6.1.1.3.3 Intergret radar display for enroute navigation

1.1.6.1.1.3.4.3 Verify position using INS

1.1.7 Perform air-to-air refueling

1.1.7.1 Perform day/night air-to-air refueling

1.1.7.1.1 Perform rendezvous

1.1.7.1.1.1 Perform point parallel rendezvous

1.1.7.1.1.2 Perform fighter turn on rendezvous

1.1.7.1.2 Perform precontact checks

1.1.7.1.2.1 Perform weapons/safe check

1.1.7.1.2.2 Perform aircraft systems check

1.1.7.1.3 Accomplish tanker/receiver radio transmissions

1.1.7.1.4 Establish observation position

1.1.7.1.5 Establish precontact position

1.1.7.1.6 Establish contact position

1.1.7.1.7 Respond to tanker director lights/boomer directions

1.1.7.1.8 Maintain contact position during transfer

1.1.7.1.9 Perform disconnect procedures

1.1.7.1.10 Perform post refueling procedures

1.1.7.2 Perform refueling operations under emergency/degraded conditions

1.1.7.2.1 Perform radio silent refueling

1.1.7.2.2 Perform break away

1.1.7.2.3 Perform tension disconnect

1.1.7.2.4 Perform lost wingman procedures

1.1.8 Conduct combat

1.1.8.1.2.3.2 Locate target using radar

1.1.8.1.3.1.1.1 Deliver conventional ordnance in CCIP mode

1.1.8.1.3.1.1.1.1 Deliver conventional ordnance in CCIP mode during day

1.1.8.1.3.1.1.1.2 Deliver conventional ordnance in CCIP mode at night

1.1.8.1.3.1.1.1.3 Deliver conventional ordnance in CCIP mode from high dive angle

1.1.8.1.3.1.1.1.4 Deliver conventional ordnance in CCIP mode from low dive angle

1.1.8.1.3.1.1.2 Deliver conventional ordnance using dive toss

1.1.8.1.3.1.1.2.1 Deliver conventional ordnance using dive toss during day

1.1.8.1.3.1.1.2.2 Deliver conventional ordnance using dive toss at night

1.1.8.1.3.1.1.2.3 Deliver conventional ordnance using dive toss from high dive angle

1.1.8.1.3.1.1.2.4 Deliver conventional ordnance using dive toss from low dive angle

1.1.8.1.3.1.1.3.2 Deliver conventional ordnance manually at night

1.1.8.1.3.1.1.4.2 Deliver conventional ordnance in strafe mode at night

1.1.8.1.3.1.1.4.3 Deliver conventional ordnance in strafe mode

from high dive angle

1.1.8.1.3.1.1.5 Deliver conventional ordnance in EO mode

1.1.8.1.3.1.1.5.1 Deliver conventional ordnance in EO mode from high dive angle

1.1.8.1.3.1.1.5.2 Deliver conventional ordnance in EO mode from low dive angle

1.1.8.1.3.1.1.6 Deliver conventional ordnance in TISL mode

1.1.8.1.3.1.1.6.1 Deliver conventional ordnance in TISL mode during day

1.1.8.1.3.1.1.6.2 Deliver conventional ordnance in TISL mode at night

1.1.8.1.3.1.1.6.3 Deliver conventional ordnance in TISL mode from high dive angle

1.1.8.1.3.1.1.6.4 Deliver conventional ordnance in TISL mode from low dive angle

1.1.8.1.3.1.1.7 Deliver conventional ordnance in IR seeker mode

1.1.8.1.3.1.1.7.1 Deliver conventional ordnance in IR seeker mode during day

1.1.8.1.3.1.1.7.2 Deliver conventional ordnance in IR seeker mode at night

1.1.8.1.3.1.1.7.3 Deliver conventional ordnance in IR seeker mode from high dive angle

1.1.8.1.3.1.1.7.4 Deliver conventional ordnance in IR seeker mode from low dive angle

1.1.8.1.3.1.2 Deliver nuclear ordnance

1.1.8.1.3.1.2.1 Deliver nuclear ordnance in VLD mode

1.1.8.1.3.1.2.2 Deliver nuclear ordnance in VLADD mode

1.1.8.1.3.1.2.3 Deliver nuclear ordnance in EMR mode

1.1.8.1.3.1.2.4 Perform nuclear reattack

1.1.8.1.3.2 Deliver ordnance using radar

1.1.8.1.3.2.1 Deliver ordnance using radar in CCRP mode

1.1.8.1.3.2.2 Deliver ordnance using radar in LADD mode

1.1.8.1.3.2.3 Perform radar reattack

1.1.8.2.1.5 Determine fire control navigation status

1.1.8.2.1.7 Set up RED

1.1.8.2.1.8 Set up radar

1.1.8.2.1.9 Set up VTR

1.1.8.2.1.10 Set up RWR

1.1.8.2.1.11 Set up ECM

1.1.8.2.1.12 Set up chaff/flare dispensers

1.1.8.2.2.8 Manage radar data

1.1.8.2.2.10 Manage data link data

1.1.8.2.2.13 Manage data on enemy chaff/ECM

1.1.8.2.3.1.1.1.2 Transition to TD box

1.1.8.2.3.1.1.1.4 Maneuver to intercept

1.1.8.2.3.2.2.2.1 Perform gun attack with radar lock on

1.1.9.21 Perform airborn radar approach

APPENDIX C

TASKS RATED "4" BY ALL RATERS

TASKS RATED "4" ("QUALIFIED IN PERFORMANCE")
BY ALL EFLIT IP/EFLIT GRAD REVIEWERS

1.1.1.2.1.2 Determine station time

1.1.1.2.1.3 Determine start engine time

1.1.1.2.2.4 Compute crosswind limits

1.1.1.2.2.7 Compute takeoff roll

1.1.3.1.1 Prepare/check personal equipment

1.1.3.1.7.2 Perform oxygen-system checks

1.1.3.1.11 Perform before-taxi checks

1.1.3.1.13 Perform taxi

1.1.6.1.2.2.1.1 Configure radio switches for UHF

APPENDIX D

TASKS RATED DIVERGENTLY BY STUDENTS AND INSTRUCTORS

TASKS RATED "4" ("QUALIFIED IN PERFORMANCE")
BY AT LEAST ONE EFLIT GRAD REVIEWER
BUT NOT RATED ABOVE "2" ("REQUIRES SUPERVISION")
BY ANY EFLIT IP REVIEWER

1.1.1.1.2 Gather data from publications

1.1.1.2 Determine mission data

1.1.1.2.2.2 Compute drag index

1.1.1.2.2.10 Compute maximum brake speed

1.1.1.2.4.7 Select navigation mode to be used

1.1.1.2.5.1.3.3.8 Calculate MIL setting

1.1.1.2.5.1.3.3.9 Calculate aim off distance

1.1.1.2.5.1.3.3.10 Calculate crosswind correction

1.1.1.2.5.1.3.3.11 Calculate MIL wind correction

1.1.1.2.6.2 Determine minimum fuel distance point

1.1.3.1.5 Perform external stores inspection

1.1.6.1.1 Navigate using self contained NAV procedures

1.1.6.1.1.1.3.1 Verify position using visual methods

1.1.6.1.1.2.4 Verify position

1.1.6.1.1.2.4.3 Verify position using enroute map

4.1.1.3.4.1 Verify position using visual methods

1.1.6.[illegible].7.1.2 Configure radio switches for VHF

1.1.8.1.6 Perform communications

1.1.8.2.1.3 Perform engine instruments checks

1.1.8.2.1.4 Set up stores control panel/armament

1.1.9.6 Perform min fuel/emergency fuel descent

1.1.9.16.1 Perform formation lead procedures

1.1.9.17 Perform circling approach

1.1.9.22 Perform min fuel/emergency fuel approach

1.1.9.23.1 Perform gyro out radar controlled approach

END

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