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HUMAN RESOURCES RESEARCH ORGANIZATION ALEXANDRIA VA

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NAVAL FLIGHT OFFICER BASIC TRAINING. APPENDIX B. REVISION OF NA--ETC(U)

APR 76 J CHRISTMAN, S MUGG, W E CORLEY

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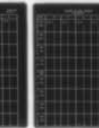
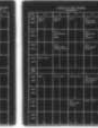
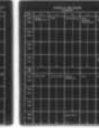
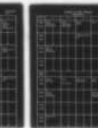
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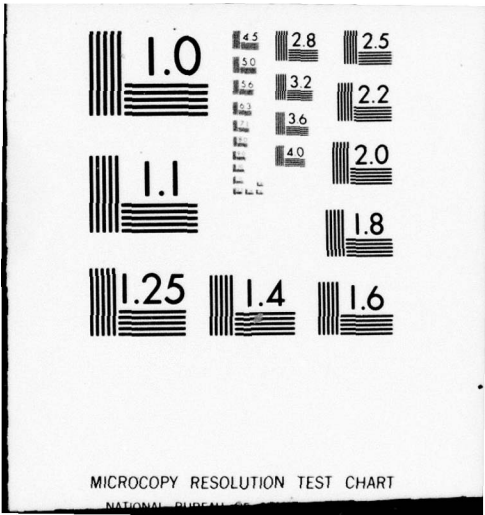
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| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Naval Flight Officer Training(NFO) Performance Evaluation Instructional System Development (ISD) Training Management Training Objectives | | |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report summarizes a project during which the U.S. Navy's Naval Flight Officer Basic Training Course was revised in accordance with instructional system development (ISD) procedures. The principal features of the revision were to increase the emphasis upon the operational relevance of that training, to reorganize the course content, and to apply techniques of training different from those conventionally employed in Naval Flight Officer training. The project included a limited implementation of the revised course and its further revision based upon experiences obtained. | | |

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(Appendix B)

NAVAL FLIGHT OFFICER
BASIC TRAINING MATERIAL

Appendix B

to

Revision of Naval Flight Officer
Basic Training

By

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April 1976

Prepared for:

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INTRODUCTION TO APPENDIX B

This Appendix contains the documents necessary to the conduct of the Revised NFO Basic Training Course. The various documents are described briefly below. For a general overview of the course, the reader is referred to the basic report.

1. Schedule of Core Training.

This document consists of an hour-by-hour, day-by-day schedule of the training subjects which comprise the Core Program. The schedule identifies all training activities and subjects and the sequence in which they are presented to SNFOs. Programmed texts are identified on this schedule by both file number, e.g., VN 1, and topics or text title, e.g., Introduction to Navigation. Time allocations are estimates and will vary according to student learning rates, resource availability, weather, and other factors. The schedule does not include an allowance for holidays and other non-training days which will vary from class to class.

2. Core Program Sequence.

This document consists of a sequential list of Core training events and is largely redundant with the Schedule of Core Training. It should be noted that training material, i.e., programmed textbooks, which can be assigned to SNFOs for self-study are keyed on this sequence.

3. Programmed Text Deletions.

During the revision of NFO Basic Training, a number of training objectives were found to be no longer required and were deleted from the revised course. In some instances, deletion of training objectives resulted in the elimination of programmed texts then in use. In other instances, such deletion resulted in elimination of only portions of programmed texts. The Programmed Text Deletion document identifies this latter group of programmed texts and provides guidance for their further use or revision. The cognitive domain

training objectives and content frames associated with the eliminated training objectives are listed in this document.

4. Training Manager Guides for Use of Device 1D23.

This document provides guidelines for the TM who conducts training in Device 1D23. It includes descriptions of Airways Navigation, Dead Reckoning Navigation, and Radar Navigation training problems; time requirements; briefing outlines; guideline for critiquing SNFO performance; performance standards and cross reference to SNFO handouts and other training documents. These Training Manager Guides include description of Progress Record Form (PRF) and examples of those used during device training.

5. Student Naval Flight Officer Guides for Use of Device 1D23.

This document contains the briefing and planning information needed by SNFOs during Phases I and III training in Device 1D23. Squadron grading criteria for the Airways, Dead Reckoning and Radar Navigation evaluation hops in the device also are included.

6. Training Manager Guide, Voice Communication Laboratory.

This document contains a description of communications training conducted by the TMs prior to initial training in Device 1D23 and includes a student study guide illustrating formats for voice communication. Audio tapes which were developed for use during this communication training are not included in this report but were placed with VT-10 project personnel at the conclusion of the project.

7. Peer Training Guide for Airways and Dead Reckoning Problems.

This document contains instructions for Peer Instructors who will participate in SNFO training in Device 1D23. Communication scenarios for airways navigation problems are included in this Peer Instructor Guide.

8. Training Manager Guide, Description of T-39 Flights A-1, 2, 3, and 4.

This document describes the in-flight airways navigation training conducted during Phase II. The description includes the format of each flight, a summary of relevant training objectives, scheduling information, briefing requirements, and information concerning performance recording and evaluation. A Progress Record Form applicable to these flights and information concerning its use also is included in this Guide.

9. T-39 Flight Handout.

The T-39 Flight Handout, which is knee-board size for easy use during flight, provides a handy reference for SNFOs covering Phase II flight training. It contains selected communication frequencies and navigation information, a description of Phase II flight routes, briefing and flight planning guides and descriptions of T-39 emergency procedures.

10. Flight Instructor Guide, Description of T-2 Flights B-1, 2, 3, 4 and 5.

This document describes the five Phase IV T-2 flights. Its content parallels that of the corresponding document describing the Phase II T-39 flights.

11. T-2 Flight Handout.

The T-2 Flight Handout, like its counterpart T-39 Flight Handout, is knee-board size for easy use during flight. This document provides a handy reference for SNFO use during Phase IV flight training. In addition to flight routes and planning information, it provides needed aircraft performance data, selected communication information, aircraft checklists and T-2 emergency procedures.

12. SNFO Briefing Guide for T-2 Flights.

This document complements the T-2 Flight Handout and provides a more detailed study and briefing guide concerning the role of the SNFO as a member

of the aircraft crew. This Guide includes departure and arrival procedures for VFR flights, description of formation hand signals, and other information required during tactical flights.

13. NFO Basic Training Pipeline Program.

This document describes the pipeline training received by SNFOs who successfully complete the Core Program. A description of each T-2 and T-39 flight, including information concerning flight routes, SNFO tasks, and performance standards, is included.

14. TM Training.

The final document in this Appendix summarizes the training recommended for candidate Training Managers. The document describes prerequisites to such training and the principle activities to be scheduled during a three phase training program.

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 1

| TIME | 1 | 2 | 3 | 4 | 5 |
|--------------|---|--|------------------------------------|-------------------------------------|---|
| 0800 0850 | ADMIN | Phase One Overview | VN 9 Navigation Computer | Mid-Phase Review & Evaluation | AN 5 Weight and Balance & Fuel Management |
| 0900 0950 | | | | AN 9 Radial Tracking | |
| 1000 1050 | | VN 1 Introduction to Navigation | | AN 8 Point to Point Tacan | TP-0 Trainer Brief |
| 1100 1150 | Program Brief | VN 7 Altitudes | VN 10 Position Determination | | |
| 1200 1250 | | | | | |
| 1300 1350 | FO 3 Naval Organization | VN 4 Altimeters | DR 7 VOR Receiver | AN 13 High Altitude Airways | TP-0 Mission Brief |
| 1400 1450 | FO 1/2 Squadron Missions/ Aircraft Missions | VN 8 Headings, Airspeeds Winds | DR 8 Tacan | | DR 16 Enroute Supplement |
| 1500 1550 | | AN 5 Airspeed Indicators | DR 13 ADF | DR 17 Enroute Charts | AN 4 Jet Logs |
| 1600 1650 | | VN 6 Compass Indicators | DR 12 BDHI | | |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 2

| TIME | 6 | 7 | 8 | 9 | 10 |
|--------------|-------------------------------|---|-------------------|--|---|
| 0800 0850 | TP-0 | AN 2 FLIP Planning Document | Phase One Exam | Voice Communication Introduction | AN 11 Terminal Voice Communication |
| 0900 0950 | | AN 18 Approach Plates | | | |
| 1000 1050 | | | Brief TP-1 | DR 18 Departure Voice Communication | Voice Communication Review |
| 1100 1150 | | AN 12 FLIP Publication Application (Airways Problem 1) | | | |
| 1200 1250 | | | | | |
| 1300 1350 | TP-0 Debrief | AN 12 (cont'd) | TP-1 | DR 19 Enroute Voice Communication | Communication Lab |
| 1400 1450 | IGS 1 FLIP Publications | AN 3 DD 175 | | | |
| 1500 1550 | | | | AN 7 Approach Procedures | |
| 1600 1650 | | Phase One Review | | | |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 3

| TIME | 11 | 12 | 13 | 14 | 15 |
|--------------|---------------------------------------|--|-------------------------------|---|--|
| 0800 0850 | IGS 4 Departure Procedures ↓ | IGS 8 Instrument Approaches ↓ | Brief TP-3 ↓ | TP-3 ↓ | TP-4 ↓ |
| 0900 0950 | | | Communications Lab ↓ | | |
| 1000 1050 | IGS 5 Enroute Procedures ↓ | | | | |
| 1100 1150 | | | | | |
| 1200 1250 | | | | | |
| 1300 1350 | IGS 6 Holding ↓ | TP-2 Procedures ↓ | Tower Tour/ ATC Brief ↓ | Brief TP-4 ↓ | IGS 13 Lost Communications ↓ |
| 1400 1450 | IGS 7 Arrival Procedures ↓ | | | Airways Planning Problem # 2 ↓ | |
| 1500 1550 | | | | | Review Airways Planning Problem #2 ↓ |
| 1600 1650 | Brief TP-2 ↓ | | | | Airways Planning Problem #3 ↓ |
| | | | 7 | | |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 4

| TIME | 16 | 17 | 18 | 19 | 20 |
|--------------|---|--|--|------------------|-----------------------|
| 0800 0850 | Review Airways Planning Problem #3 | Airways Planning Problem #4 | TP-5 | Altitude Chamber | AMT-1 Frontal Weather |
| 0900 0950 | BMT-1 Introduction to Meteorology | ↓ | ↓ | ↓ | ↓ |
| 1000 1050 | BMT-2 Atmospheric Pressure | ↓ | ↓ | ↓ | AMT 18 Jet Streams |
| 1100 1150 | ↓ | BMT-7 Occluded Fronts and Stationary Fronts (w/film) | ↓ | ↓ | Review BMT |
| 1200 1250 | | ↓ | | | |
| 1300 1350 | BMT-3 Winds | BMT-7 (cont'd) | BMT 9/11 Fog and Low Ceilings (w/film) | Ejection Seat | BMT Exam |
| 1400 1450 | BMT-5 Cold Fronts | BMT-8 Aircraft Icing (w/film) | BMT-10 Severe Weather (w/ 3 films) | | DD 175-1 |
| 1500 1550 | BMT-4 Frontogenesis and Typical Warm Fronts | ↓ | ↓ | | ↓ |
| 1600 1650 | ↓ | Brief TP-5 | 8 ↓ | ↓ | Brief TP-6 |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 5

| TIME | 21 | 22 | 23 | 24 | 25 |
|--------------|--------------------------|----------------------------------|--|--|--|
| 0800 0850 | TP-6 | Phase Two Exam | FS(T) 1 Student Flow Through T-39 Training | FS(T) 7 T-39 Electrical System (cont'd) | FS(T) 13 Performance Charts T-39 Route Explanation |
| 0900 0950 | | | FS(T) 2 T-39 Introduction and Description | FS(T) 8 T-39 Fuel System | |
| 1000 1050 | | | FS(T) 3 T-39 Preflight | | |
| 1100 1150 | | | FS(T) 4 T-39 Survival Equipment | FS(T) 9 T-39 Comm/Nav Equipment | FS(T) 14 Student Duties |
| 1200 1250 | | | | | |
| 1300 1350 | IGS 10 OPNAVINST 3710 | NS 1 Squadron Safety Program | FS(T) 5 T-39 Engines | FS(T) 9 (cont'd) (Includes CE-1, CE-2) | DFS(T) 15 Exam |
| 1400 1450 | | NS 3 Ground Handling Signals | FS(T) 6 T-39 Hydraulic System | FS(T) 10 Environmental Systems | FS(T) 16 Exam Review |
| 1500 1550 | | NS 4 Inflight Visual Signals | EE-2 Electrical Power Generation and Distribution | FS(T) 11 Flight Instruments Limitations | FS(T) 17 Cockpit Checkout/ Servicing |
| 1600 1650 | Phase Two Review | NS 5 Visual Information Relay | FS(T) 7 T-39 Electrical System | FS(T) 12 T-39 Flight Controls | |

SCHEDULE OF CORE TRAINING TRAINING DAY

APPROXIMATE
WEEK 6

| TIME | 26 | 27 | 28 | 29 | 30 |
|------|--------------|------------------------------|------|------|------|
| 0800 | Sea Survival | Cockpit Check Walk Around | T-39 | T-39 | T-39 |
| 0850 | | | F | F | F |
| | | | L | L | L |
| | | | Y | Y | Y |
| 0900 | | | | | |
| 0950 | | | | | |
| 1000 | | | | | |
| 1050 | | | | | |
| 1100 | | | | | |
| 1150 | | | | | |
| 1200 | | | | | |
| 1250 | | | | | |
| 1300 | | | | | |
| 1350 | | | | | |
| 1400 | | | | | |
| 1450 | | | | | |
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| 1550 | | | | | |
| 1600 | | | | | |
| 1650 | ↓ | ↓ | 10 ↓ | ↓ | ↓ |

SCHEDULE OF CORE TRAINING
TRAINING DAY

APPROXIMATE
WEEK 7

| TIME | 31 | 32 | 33 | 34 | 35 |
|------|------|------|------|------|------|
| 0800 | T-39 | T-39 | T-39 | T-39 | T-39 |
| 0850 | F | F | F | F | F |
| | L | L | L | L | L |
| | Y | Y | Y | Y | Y |
| 0900 | | | | | |
| 0950 | | | | | |
| 1000 | | | | | |
| 1050 | | | | | |
| 1100 | | | | | |
| 1150 | | | | | |
| 1200 | | | | | |
| 1250 | | | | | |
| 1300 | | | | | |
| 1350 | | | | | |
| 1400 | | | | | |
| 1450 | | | | | |
| 1500 | | | | | |
| 1550 | | | | | |
| 1600 | | | | | |
| 1650 | ↓ | ↓ | 11 ↓ | ↓ | ↓ |

SCHEDULE OF CORE TRAINING
TRAINING DAY

APPROXIMATE
WEEK 8

| TIME | 36 | 37 | 38 | 39 | 40 |
|------|------|------|------|------|------|
| 0800 | T-39 | T-39 | T-39 | T-39 | T-39 |
| 0850 | F | F | F | F | F |
| | L | L | L | L | L |
| | Y | Y | Y | Y | Y |
| 0900 | | | | | |
| 0950 | | | | | |
| 1000 | | | | | |
| 1050 | | | | | |
| 1100 | | | | | |
| 1150 | | | | | |
| 1200 | | | | | |
| 1250 | | | | | |
| 1300 | | | | | |
| 1350 | | | | | |
| 1400 | | | | | |
| 1450 | | | | | |
| 1500 | | | | | |
| 1550 | | | | | |
| 1600 | | | | | |
| 1650 | ↓ | ↓ | 12 ↓ | ↓ | ↓ |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 9

| TIME | 41 | 42 | 43 | 44 | 45 |
|--------------|---------------------|---------------------|--|--|---|
| 0800 0850 | T-39 F L Y | T-39 F L Y | FRR 1 Flight Rules and Regulations Part I ↓ | FRR Exam | AS 1 Gyroscopes |
| 0900 0950 | | | | EE 1-6 Sources EE 6 of Elect. Radio Frequencies & Radio Transmitters ↓ | AS 2 Compass Systems |
| 1000 1050 | | | FRR 2 Flight Rules and Regulations Part 2 ↓ | EE 7 Antenna and Wave Propagation | AS 3 Flight Reference Set |
| 1100 1150 | | | | EE 8 Receivers ↓ | AS 3/4 Flight Reference Set Radio Nav. Aids & Indicators |
| 1200 1250 | | | | | |
| 1300 1350 | | | FRR 3 Flight Rules and Regulations Part 3 ↓ | EE 9 Transducers | AS 4 Radio Navigation Aids and Indicators ↓ |
| 1400 1450 | | | | CS 1/4 Introduction to Computer Systems and Programming ↓ | |
| 1500 1550 | | | FRR Review ↓ | | AS 5 Air Data Computer ↓ |
| 1600 1650 | | | | CS 7 Operation of an Airborne Computer System ↓ | |
| | ↓ | ↓ | 13 ↓ | | ↓ |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 10

| TIME | 46 | 47 | 48 | 49 | 50 |
|--------------|---|---|---|--|---|
| 0800 0850 | AS 6 Inertial Systems | Tech Phase Exam (EE, CS, AS) ↓ | AMT 7 Freezing Level Chart | AMT 15 Teletype Aviation Weather Report ↓ | EW 1 Introduction to Electronic Warfare ↓ |
| 0900 0950 | AS 7/8 INS Alignment and Errors Nav Systems | ↓ | AMT 8 Facsimile Winds Aloft Chart | ↓ | ↓ |
| 1000 1050 | AS 8 Navigation Systems | Tech Phase Exam Review | AMT 9/20 Facsimile Constant Pressure Charts | AMT 16/22 Teletype Terminal Forecast | EW 2 Basic Radar Characteris- tics ↓ |
| 1100 1150 | AS 9 (CE 3) Tactical Data Systems | BMT 4/7 Surface Weather Map | AMT 10 Teletype Area Forecast | AMT Review | ↓ |
| 1200 1250 | | | | | |
| 1300 1350 | AS 10 (CE 4) Automatic Carrier Landing System | AMT 2 Surface Analysis Chart | AMT 11 Flight Weather Advisories | AMT Exam ↓ | EW 3 Electronic Warfare Support Measures ↓ |
| 1400 1450 | Review ↓ | AMT 4 High Level Sig WX Prognostic Chart | AMT 12/17 Teletype Aviation Severe Weather Forecast | ↓ | ↓ |
| 1500 1550 | | AMT 5/16 Surface Weather Depiction Charts | AMT 13 Pilot Reports | AMT Exam Review ↓ | EW 4 Electronic Surveillance Measures ↓ |
| 1600 1650 | | AMT 16 Radar Summary Chart | AMT 14/19 Teletype Winds Aloft Forecast | ↓ | ↓ |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 11

| TIME | 51 | 52 | 53 | 54 | 55 |
|--------------|--|---|---|---|-------------------------|
| 0800 0850 | EW 5 Elint Operations and Aircraft | EW 10 Audio Visual Support Presentations | DR Overview | DR Problem #1 (Simultaneous debrief) | Review DR Problem #2 |
| 0900 0950 | ↓ | ↓ | DR 3 Navigation Procedures | ↓ | ↓ |
| 1000 1050 | EW 6 Airborne Electronic Countermeasures | EW Review | ↓ | ↓ | ↓ |
| 1100 1150 | ↓ | ↓ | VN 2 Navigation Charts | ↓ | ↓ |
| 1200 1250 | | | | | |
| 1300 1350 | EW 7 Defensive Electronic Countermeasures | EW Exam | DR 2 Formal Navigation Log Keeping | DR Problem #2 | DR Problem #2 |
| 1400 1450 | EW 8 Electronic Counter- Countermeasures | EW Exam Review | ↓ | ↓ | ↓ |
| 1500 1550 | EW 9 Electronic Order of Battle | FO 6 SERE/SAR | VN 3 Plotting and Measuring | ↓ | ↓ |
| 1600 1650 | EW 11 (CE 5) Communications Security | ↓ | DR 10 Square Search | ↓ | ↓ |
| | | | 15 | | |

SCHEDULE OF CORE TRAINING TRAINING DAY

APPROXIMATE
WEEK 12

| TIME | 56 | 57 | 58 | 59 | 60 |
|------|-------------------------|---------------|-----------------------|-----------------------------------|------------------|
| 0800 | Review DR Problem #3 | TDR 1 | DR Problem #4 | DR 15 DR Final Exam Problem | Debrief TDR 2 |
| 0850 | ↓ | ↓ | ↓ | ↓ | ↓ |
| 0900 | | | | | |
| 0950 | | | | | |
| 1000 | | | | | |
| 1050 | | | | | ↓ |
| 1100 | | | | | ↓ |
| 1150 | ↓ | ↓ | ↓ | ↓ | Brief TDR 3 |
| 1200 | | | | | |
| 1250 | | | | | |
| 1300 | Brief TDR 1 | Debrief TDR 1 | Debrief Problem #4 | TDR 2 | TDR 3 |
| 1350 | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1400 | | | | | |
| 1450 | | | | | |
| 1500 | | | | | |
| 1550 | | | ↓ | | |
| 1600 | | | Brief TDR 2 | | |
| 1650 | ↓ | ↓ | ↓ | ↓ | ↓ |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 13

| TIME | 61 | 62 | 63 | 64 | 65 |
|--------------|------------------|---------------------------------------|-------------------------------|---|---|
| 0800 0850 | Debrief TDR 3 | Debrief TDR 4 | RTP 1 | RS 4 Pulse Radar Transmitter | RTP 2 |
| 0900 0950 | | RS 1 Fundamentals of Radar | | RS 5 Waveguides and Antennas | |
| 1000 1050 | | RS 3 Radar Scope Interpretation | | RS 6 Pulse Radar Receiver | |
| 1100 1150 | Brief TDR 4 | | | | |
| 1200 1250 | | | | | |
| 1300 1350 | TDR 4 | Brief RTP 1 | Debrief RTP 1 | RS 7 CRT Indicators and Related Circuits | Debrief RTP 2 |
| 1400 1450 | | | | | |
| 1500 1550 | | | RS 2 Pulse Radar System | Brief RTP 2 | RS 9 Typical Airborne Radar Characteristics and Installation |
| 1600 1650 | | | | | |
| | | | 17 | | |

SCHEDULE OF CORE TRAINING TRAINING DAY

APPROXIMATE
WEEK 14

| TIME | 66 | 67 | 68 | 69 | 70 |
|--------------|---|--------------------|--------------------|---------------------|---------------------|
| 0800 0850 | RS 11 IFF | RS Exam ↓ | RTP 4 ↓ | DR Peer Training | DR Peer Training |
| 0900 0950 | RS 12 Doppler | ↓ | ↓ | | |
| 1000 1050 | RS 13 Frequency Modulation | RTP 3 ↓ | ↓ | | |
| 1100 1150 | RS 14 Moving Target Indicators | | ↓ | | |
| 1200 1250 | | | | | |
| 1300 1350 | RS 16 Special Systems | ↓ | Debrief RTP 4 ↓ | | |
| 1400 1450 | RS Review | Debrief RTP 3 ↓ | | | |
| 1500 1550 | Brief RTP 3 ↓ | ↓ | | | |
| 1600 1650 | ↓ | Brief RTP 4 | | | |
| | | | 18 ↓ | ↓ | ↓ |

**SCHEDULE OF CORE TRAINING
TRAINING DAY**

APPROXIMATE
WEEK 15

| TIME | 71 | 72 | 73 | 74 | 75 |
|--------------|----------|----------|----------|--|---|
| 0800 0850 | T-2 NAMO | T-2 NAMO | T-2 NAMO | FS 9 Flt. Stage Flow/Explain Emergency Systems T-2 | FS 11 Cont'd |
| 0900 0950 | | | | | FS 12 Low Level Vis Nav Inflight Procedures |
| 1000 1050 | | | | | ↓ |
| 1100 1150 | | | | | FS 13 Practice Problem Low Level Planning |
| 1200 1250 | | | | | |
| 1300 1350 | | | | FS 10 T-2 Preflight Emergency Equipment | |
| 1400 1450 | | | | | |
| 1500 1550 | | | | FS 11 Introduction to Low Level Preflight Planning | |
| 1600 1650 | | | 19 | | DR 19 ID249 Course Indicator |
| | ↓ | ↓ | ↓ | ↓ | ↓ |

SCHEDULE OF CORE TRAINING TRAINING DAY

APPROXIMATE
WEEK 16

| TIME | 76 | 77 | 78 | 79 | 80 |
|--------------|--|---------|---------|---------|---------|
| 0800 0850 | FS 14 T-2 FS Exam | FLY T-2 | FLY T-2 | FLY T-2 | FLY T-2 |
| 0900 0950 | FS 15 T-2 Exam Review | | | | |
| 1000 1050 | FS 16 T-2 Preflight Cockpit Check Brief on Operation Spaces | | | | |
| 1100 1150 | Flight Side | | | | |
| 1200 1250 | | | | | |
| 1300 1350 | AN 1 Course Rules | | | | |
| 1400 1450 | ↓ | | | | |
| 1500 1550 | FS 13 Operation Scenario | | | | |
| 1600 1650 | ↓ | ↓ | 20 ↓ | ↓ | ↓ |

SCHEDULE OF CORE TRAINING
TRAINING DAY

APPROXIMATE
WEEK 17

| TIME | 81 | 82 | 83 | 84 | 85 |
|------|---------|---------|---------|---------|---------|
| 0800 | FLY T-2 | FLY T-2 | FLY T-2 | FLY T-2 | FLY T-2 |
| 0850 | | | | | |
| 0900 | | | | | |
| 0950 | | | | | |
| 1000 | | | | | |
| 1050 | | | | | |
| 1100 | | | | | |
| 1150 | | | | | |
| 1200 | | | | | |
| 1250 | | | | | |
| 1300 | | | | | |
| 1350 | | | | | |
| 1400 | | | | | |
| 1450 | | | | | |
| 1500 | | | | | |
| 1550 | | | | | |
| 1600 | | | | | |
| 1650 | ↓ | ↓ | 21 ↓ | ↓ | ↓ |

SCHEDULE OF CORE TRAINING
TRAINING DAY

APPROXIMATE
WEEK 18

| TIME | 86 | 87 | 88 | 89 | 90 |
|------|---------|---------|---------|---------|---------|
| 0800 | FLY T-2 | FLY T-2 | FLY T-2 | FLY T-2 | FLY T-2 |
| 0850 | | | | | |
| 0900 | | | | | |
| 0950 | | | | | |
| 1000 | | | | | |
| 1050 | | | | | |
| 1100 | | | | | |
| 1150 | | | | | |
| 1200 | | | | | |
| 1250 | | | | | |
| 1300 | | | | | |
| 1350 | | | | | |
| 1400 | | | | | |
| 1450 | | | | | |
| 1500 | | | | | |
| 1550 | | | | | |
| 1600 | | | | | |
| 1650 | ↓ | ↓ | 22 ↓ | ↓ | ↓ |

CORE PROGRAM SEQUENCE

Administration Brief

Program Brief

FO 3 Naval Organization

FO 1/2 Squadron Missions/Aircraft Missions

Phase One Overview

- * VN 1 Introduction to Navigation
- * VN 7 Altitudes
- * VN 4 Altimeters
- * VN 8 Headings, Airspeed, Winds
- * AN 5 Airspeed Indicators
- * VN 6 Compass Indicators
- * VN 9 Navigation Computer
- * VN 10 Position Determination
- * DR 7 VOR Receiver
- * DR 8 TACAN
- * DR 13 ADF
- * DR 12 BDHI

Mid-Phase Review & Evaluation

- * AN 9 Radial Tracking
- AN 8 Point to Point Tacan
- AN 13 High Altitude Airways
- * DR 17 Enroute Charts
- * AN 5 Weight and Balance & Fuel Management

TP-0 Trainer Brief

TP-0 Mission Brief

- * DR 16 Enroute Supplement
- * AN 4 Jet Logs

TP-0

TP-0 Debrief

- IGS 1 FLIP Publications
- * AN 2 FLIP Planning Document
- AN 18 Approach Plates
- AN 12 FLIP Publications Application (Airways Problem 1)

Phase One Review

Phase One Exam

-
- * Individual Study

Brief TP-1
TP-1
Voice Communication Introduction
DR 18 Departure Voice Communication
DR 19 Enroute Voice Communication
AN 7 Approach Procedures
AN 11 Terminal Voice Communication
Voice Communication Review
Communication Lab
IGS 4 Departure Procedures
IGS 5 Enroute Procedures
IGS 6 Holding Procedures
IGS 7 Arrival Procedures
Brief TP-2
IGS 8 Instrument Approaches
TP-2
Brief TP-3
Communications Lab
Tower Tour/ATC Brief
TP-3
Brief TP-4
Airways Planning #2
TP-4
IGS 13 Lost Communications
Review Airways Planning Problem #2
Airways Planning Problem #3
Review Airways Planning Problem #3
* BMT 1 Introduction to Meteorology
* BMT 2 Atmospheric Pressure
* BMT 3 Winds
* BMT 5 Cold Fronts
* BMT 4 Frontogenesis and Typical Warm Fronts
Airways Planning Problem #4
BMT 7 Occluded Fronts and Stationary Fronts (w/film)
BMT 8 Aircraft Icing (w/film)
Brief TP-5

TP-5
BMT 9/11 Fog and Low Ceilings (w/film)
BMT 10 Severe Weather (w/3 films)
Altitude Chamber
Ejection Seat
* AMT 1 Frontal Weather
* AMT 18 Jet Streams
Review BMT
BMT Exam
DD 175-1
Brief TP-6
TP-6
IGS 10 OPNAVINST 3710
Phase Two Review
Phase Two Exam
NS 1 Squadron Safety Program
NS 3 Ground Handling Signals
NS 4 Inflight Visual Signals
NS 5 Visual Information Relay
FS(T) 1 Student Flow through T-39 Training
FS(T) 2 T-39 Introduction and Description
FS(T) 3 T-39 Preflight
FS(T) 4 T-39 Survival Equipment
FS(T) 5 T-39 Engines
FS(T) 6 T-39 Hydraulic System
EE-2 Electrical Power Generation & Distribution
FS(T) 7 T-39 Electrical System
FS(T) 8 T-39 Fuel System
FS(T) 9 T-39 Comm/Nav Equipment (includes CE 1 & CE 2)
FS(T) 10 Environmental Systems
FS(T) 11 Flight Instruments/Limitations
FS(T) 12 T-39 Flight Controls
FS(T) 13 Performance Charts/T-39 Route Explanation
FS(T) 14 Student Duties
FS(T) 15 Exam
FS(T) 16 Exam Review

- FS(T) 17 Cockpit Checkout/Serviceing
- Sea Survival
- Cockpit Check Walk Around
- Extra Instruction TP-7, TP-8 or TP-9
- Fly T-39
- * FRR 1 Flight Rules and Regulations Part 1
- * FRR 2 Flight Rules and Regulations Part 2
- * FRR 3 Flight Rules and Regulations Part 3
- FRR Review
- FRR Exam
- * EE 1 Six Sources of Electricity
- * EE 6 Radio Frequencies and Radio Transmitters
- * EE 7 Antenna and Wave Propagation
- * EE 8 Receivers
- * EE 9 Transducers
- * CS 1/4 Introduction to Computer Systems and Programming
- * CS 7 Operation of an Airborne Computer System
- * AS 1 Gyroscopes
- * AS 2 Compass Systems
- * AS 3 Flight Reference Set
- * AS 3/4 Flight Reference Set/Radio Navigation Aids & Indicators
- * AS 4 Radio Navigation Aids and Indicators
- * AS 5 Air Data Computer
- * AS 6 Inertial Systems
- * AS 7/8 INS Alignment and Errors/Nav Systems
- * AS 8 Navigation System
- * AS 9 (CE 3) Tactical Data Systems
- * AS 10 (CE 4) Automatic Carrier Landing System
- Review
- Tech Phase Exam (EE, CS, AS)
- Tech Phase Exam Review
- * BMT 4/7 Surface Weather Map
- * AMT 2 Surface Analysis Chart
- * AMT 4 High Level Significant Weather Prognostic Chart
- * AMT 5/16 Surface Weather Depiction Charts
- * AMT 16 Radar Summary Chart

- AMT 7 Freezing Level Chart
- * AMT 8 Facsimile Winds Aloft Chart
- * AMT 9/20 Facsimile Constant Pressure Charts
- * AMT 10 Teletype Area Forecast
- * AMT 11 Flight Weather Advisories
- * AMT 12/17 Teletype Aviation Severe Weather Forecast
- * AMT 13 Pilot Reports
- * AMT 14/19 Teletype Winds Aloft Forecast
- * AMT 15 Teletype Aviation Weather Report
- * AMT 16/22 Teletype Terminal Forecast

AMT Review

AMT Exam

AMT Exam Review

- EW 1 Introduction to Electronic Warfare
- EW 2 Basic Radar Characteristics
- EW 3 Electronic Warfare Support Measures
- EW 4 Electronic Surveillance Measures
- EW 5 Elint Operations and Aircraft
- EW 6 Airborne Electronic Countermeasures
- EW 7 Defensive Electronic Countermeasures
- EW 8 Electronic Counter-Countermeasures
- EW 9 Electronic Order of Battle
- EW 11 Communications Security (CE 5)
- EW 10 Audio Visual Support Presentations

EW Review

Ew Exam

EW Exam Review

FO 6 SERE/SAR

DR Overview

- * DR 3 Navigation Procedures
- * VN 2 Navigation Charts
- * DR 2 Formal Navigation Log Keeping
- * VN 3 Plotting and Measuring
- * DR 10 Square Search

DR Problem #1 (Simultaneous debrief)

DR Problem #2

Review DR Problem #2
DR Problem #3
Review DR Problem #3
Brief TDR 1
TDR 1
Debrief TDR 1
DR Problem #4
Debrief Problem #4
Brief TDR 2
DR 15 DR Final Exam Problem
TDR 2
Debrief TDR 2
Brief TDR 3
TDR 3
Debrief TDR 3
Brief TDR 4
TDR 4
Debrief TDR 4
* RS 1 Fundamentals of Radar
* RS 3 Radar Scope Interpretation
Brief RTP 1
RTP 1
Debrief RTP 1
* RS 2 Pulse Radar System
* RS 4 Pulse Radar Transmitter
* RS 5 Waveguides and Antennas
* RS 6 Pulse Radar Receiver
* RS 7 CRT Indicators and Related Circuits
Brief RTP 2
RTP 2
Debrief RTP 2
* RS 9 Typical Airborne Radar System Characteristics and Installation
* RS 11 IFF
* RS 12 Doppler
* RS 13 Frequency Modulation
* RS 14 Moving Target Indicators

* RS 16 Special Systems

RS Review

Brief RTP 3

RS Exam

RTP 3

Debrief RTP 3

Brief RTP 4

RTP 4

Debrief RTP 4

DR Peer Training

T-2 NAMO

FS-9 Flight Stage Flow Explain Emergency Systems T-2

FS 10 T-2 Preflight Emergency Equipment

FS 11 Introduction to Low Level Preflight Planning

FS 12 Low Level Vis Nav Inflight Procedures

FS 13 Practice Problem Low Level Planning

DR 19 1D249 Course Indicator

FS 14 T-2 FS Exam

FS 15 T-2 Exam Review

FS 16 T-2 Preflight Cockpit Check/Brief on Operations Spaces Flight Side

AN 1 Course Rules

FS 13 Operation Scenario

Fly T-2

PROGRAMMED TEXT DELETIONS

1. VN 6 Compass Indicators
 - a. Cognitive domain no. 3
 - b. Frame 5 content
2. DR 7 VOR Receivers
 - a. Cognitive domain no. 3
 - b. Frame 6 content
3. DR 8 Introduction to Tacan
 - a. Cognitive domain no. 10
 - b. Frame 7 content
4. DR 13 ADF
 - a. Cognitive domain nos. 1 and 4
 - b. Frames 2 and 3
5. BMT 1 Introduction to Meteorology
 - a. Cognitive domain nos. 3 and 4
 - b. Frame 9 paragraph 4, and Frame 12 starting at the first paragraph's last sentence and including Frames 13-17
6. BMT 7 Occluded Fronts and Stationary Fronts
 - a. Cognitive domain nos. 3 and 4
 - b. Frames 3 and 4
7. BMT 10 Severe Weather
 - a. Cognitive domain no. 17
 - b. No content, it is in film
8. EE 2 Electrical Power Generation and Distribution
 - a. Cognitive domain nos. 1-6
 - b. Frames 1-29, 38, 39, 46-48
9. EE 1 Six Sources of Electricity
 - a. Cognitive domain nos. 1-3, 7, 8, 10-19
 - b. Frames 1-19, 26-31, 33, 37-39, 41-74
10. EE 6 Radio Frequencies and Radio Transmitters
 - a. Cognitive domain nos. 1-5, 8-10, 15
 - b. Frames 1-3, 6, 7, 10, 12, 13
11. EE 7 Antenna and Wave Propagation
 - a. Cognitive domain nos. 3-6, 13
 - b. Frames 3-6

12. EE 8 Receivers
 - a. Cognitive domain nos. 4-8
 - b. Frames 3, 4 (R.F. amplifier stage paragraph pages 7 & 8), 5-7, 9, 12-17
13. EE 9 Transducers
 - a. Cognitive domain nos. 1 and 5
 - b. Frames 1-4, 10-12, 16-18, 23, 25-28
14. CS 4 Computer Programming
 - a. Cognitive domain nos. 2-5
 - b. Frames 1-5, 8-32
15. CS 7 Operation of an Airborne Computer System
 - a. Cognitive domain no. 5
 - b. Frames 6-13
16. AS 1 Gyroscopes
 - a. Cognitive domain nos. 2-5, 8
 - b. Frames 5,6
17. AS 2 Compass Systems
 - a. Cognitive domain no. 2
 - b. Frame 4
18. AS 3 Flight Reference Set
 - a. Cognitive domain no. 1
 - b. No deletions
19. AS 6 Inertial Navigation System (INS) (Part I)
 - a. Cognitive domain nos. 3-12
 - b. Frames 7, 11-24
20. AS 7 Inertial Navigation System (Part II) System Alignment and Errors
 - a. Cognitive domain nos. 4, 6, 8
 - b. No deletions
21. AS 9 (CE 3) Tactical Data Systems
 - a. Cognitive domain nos. 2, 3, 5, 6, 8, 9
 - b. Frames 4-13, 15-24
22. AS 10 (CE 4) Automatic Carrier Landing System
 - a. Cognitive domain nos. 1-3
 - b. Frames 2, 4-14
23. AMT 2 Surface Analysis Chart
 - a. Cognitive domain no. 5
 - b. No deletions
24. AMT 4 High Level Significant Weather Prognostic Chart
 - a. Cognitive domain nos. 1 and 3
 - b. Frame 1 (first sentence and last part of final sentence). Basically all the PTs concerning charts have the method of transmission and schedule deleted.

25. AMT 5 The Surface Weather Depiction Chart
 - a. Cognitive domain nos. 1 and 3
 - b. Page 3, first paragraph, first sentence, delete reference to facsimile presentation and transmission schedule
26. AMT 16 The Radar Summary Chart
 - a. Cognitive domain nos. 1 and 3
 - b. Frame 1, delete reference to facsimile presentation and transmission schedule.
27. AMT 7 The Freezing Level Chart
 - a. Cognitive domain nos. 1 and 3
 - b. Frame 1, delete reference to facsimile presentation and transmission schedule
28. AMT 8 Facsimile Winds Aloft Chart
 - a. Cognitive domain nos. 1 and 3
 - b. Page 2, paragraph 1, delete reference to facsimile presentation and transmission schedule
29. AMT 9/20 Facsimile Constant Pressure Chart
 - a. Cognitive domain nos. 1 and 3
 - b. Frames 1 and 2, delete reference to facsimile presentation and transmission schedule
30. AMT 10 Teletype Area Forecast
 - a. Cognitive domain nos. 1 and 3
 - b. Page 1, paragraph 1, delete reference to teletype presentation and transmission schedule
31. AMT 11 Flight Weather Advisories
 - a. Cognitive domain nos. 1 and 3
 - b. Frame 1, delete reference to teletype presentation and transmission schedule
32. AMT 12/17 Teletype Aviation Severe Weather Forecast
 - a. Cognitive domain nos. 1 and 3
 - b. Page 1, paragraph 1, page 2, paragraph 2, delete reference to teletype presentation and transmission schedule
33. AMT 13 Pilot Reports
 - a. Cognitive domain nos. 1 and 3
 - b. Page 1, paragraph 1 and page 5, paragraph 4, delete reference to teletype presentation and transmission schedule
34. AMT 14/19 Teletype Winds Aloft Forecast
 - a. Cognitive domain no. 3
 - b. Page 1, paragraph 1, delete reference to transmission schedule
35. AMT 15 Teletype Aviation Weather Report
 - a. Cognitive domain nos. 1 and 3
 - b. Page 1, paragraph 1 and page 2, paragraph 2, delete reference to transmission presentation and transmission schedule

36. AMT 16 Teletype Terminal Forecasts
 - a. Cognitive domains 1 and 3
 - b. Frames 1 and 2, delete references to teletype presentation and transmission schedule
37. EW 1 Introduction to Electronic Warfare
 - a. Cognitive domain no. 2 e and f
 - b. Page 4, delete boxes ANTI-ESM and ANTI-ECM
38. EW 3 Electronic Warfare Support Measures (ESM)
Confidential; VT-10 EW officer has copy with deletion of all confidential programmed texts.
39. EW 5 Elint Operations and Aircraft
Confidential
40. EW 6 Airborne Electronic Countermeasures
Confidential
41. EW 9 Electronic Order of Battle (EOB)
 - a. Cognitive domain no. 5
 - b. Frames 12, 13
42. EW 11 (CE 5) Communications Security
 - a. Cognitive domain nos. 3, 4
 - b. Frames 11-16
43. RS 4 Pulse Radar Transmitter
 - a. Cognitive domain nos. 2-4
 - b. Frames 4-8
44. RS 6 Pulse Radar Receiver
 - a. Cognitive domain no. 2
 - b. Frame 7
45. RS 7 Cathode Ray Tube Indicators and Related Special Circuits
 - a. Cognitive domain nos. 1-6
 - b. Frames 2-15
46. RS 9 Typical Airborne Radar Systems Characteristics and Installation Considerations
 - a. Cognitive domain no. 6
 - b. Frame 19
47. RS 13 Frequency-Modulated Radar
 - a. Cognitive domain no. 2
 - b. Frames 4, 8-17
48. RS 14 Moving Target Indicators
 - a. Cognitive domain nos. 3, 6, 7
 - b. Page 6, first paragraph, page 7, first sentence; Frames 7, 10
49. RS 16 Special Systems
 - a. Cognitive domain nos. 7, 10
 - b. Frames 8-14, 23-25

VT-10

Training Manager Guides

For Use of

Device 1D23

April 1976

DESCRIPTION OF TRAINING PROBLEM Ø
Introduction to Airways Navigation

Trainer Set-Up

The Device 1D23 set-up program developed for TP-9 in the existing VT-10 syllabus will be used for TP-Ø.

Description of Training Problem

The objective of TP-Ø is to introduce the SNFO to Device 1D23 and to the overall task of airways instrument navigation. A Peer Instructor will demonstrate to each SNFO how the device works (mechanically) and how to perform basic navigation tasks in it (e.g., inserting radio frequencies, tracking radials, communicating) and he will assist the SNFO in operating the device and in accomplishing basic navigation tasks. In accomplishing this, the Peer will both demonstrate device functions and provide feedback to the SNFO concerning his use of the device. The Peer Instructor will be supervised by the Training Manager, and he will alert the TM should his assigned SNFO have difficulty in performing. At the conclusion of TP-Ø, the SNFO will be capable of operation of Device 1D23 and will be familiar with all tasks required for the conduct of simulated airways navigation flight.

At the conclusion of TP-Ø, the SNFO with assistance from his Peer Instructor, will be able to perform the following tasks:

a. Obtain and insert appropriate UHF communication frequencies from IFR Supplement, e.g., clearance delivery, ground control, tower, departure control (departing from NAS Pensacola).

b. Obtain and insert appropriate frequencies for TACAN and VOR stations along flight route from Enroute Low Altitude Chart L-18, e.g., NAS Pensacola, Saufley, Mobile, etc.

c. Select TACAN as well as VOR heading information to be displayed on BDHI.

d. Use BDHI needle information to intercept a radial and track inbound, cross over stations, and track outbound. SNFO will determine when he is left or right of desired radial and how to insert a mag. heading correction.

e. Track outbound and inbound between TACAN stations and estimate time to station passage; navigation point-to-point TACAN.

f. Monitor and interpret all cockpit control and display functions.

g. Record fuel remaining at each checkpoint.

h. Identify quadrant wind direction.

i. Perform the one-minute-prior and mark-on-top intercom reports. The Peer will coach the SNFO in the performance of these tasks as required.

Scheduled Time

A period of four hours has been scheduled for TP-Ø, including the pre-mission briefing associated with it. The TM will conduct the briefing expeditiously so that as much time as possible may be devoted to training in the device.

Pre-Mission Briefing Outline

TP-Ø will be preceded by a mission briefing conducted by the TM. During the briefing, the TM will accomplish the tasks indicated below. The Peer Instructor will be present during the briefing and will assist the TM in those tasks as he may desire.

1. Point out on a 1D23 cockpit photograph each of the device's components and provide a brief explanation of its functions.

2. Explain the function of the 1D23 checklist and "talk through" it using the device photograph.

3. Coach the SNFOs in the completion of a Jet Log for a flight from Pensacola NAS to Saufley to Mobile to Pensacola.

4. Call attention to the relevant Enroute Low Altitude Chart and IFR Supplement required for the conduct of TP-Ø.

5. Review the objectives of TP-Ø with the SNFO and explain the role of the Peer Instructors.

Mission Critique and Debriefing

The purposes of mission debriefing are to provide information to the SNFO concerning his performance and to provide information to the TM concerning both SNFO progress and deficiencies. Information exchanges designed to accomplish these purposes will take place during the mission between the SNFO, the Peer Instructor and the TM; therefore, time for a formal post-mission critique and debriefing will not be scheduled. The mission will be concluded for each SNFO when the Peer advises that he has achieved the mission objective and the TM has reviewed his Progress Record Form and is satisfied with the student's progress.

SNFO Progress Record Form (PRF)

During the course of TP-Ø, the TM will observe the activities of each SNFO. The Peer will observe his SNFO perform the tasks indicated on the SNFO Progress Record Form for TP-Ø and record his observations in the manner prescribed. The Peer will critique the SNFO as appropriate during these activities. The TM has overall responsibility to insure that Peers complete the PRFs correctly.

Additional References

Additional information relevant to this trainer period is contained in the Peer Instructor Guide for Trainer Problem Ø and in the Communication Scenario for TP Ø, 1 and 2.

Grading Information

TP-Ø is a non-graded training activity. The completed Progress Record Form will provide the necessary records of student performance.

INSTRUCTOR GUIDE FOR USE OF
PROGRESS RECORD FORMS AND AVIATION TRAINING FORMS

The Progress Record Form (PRF) is a form upon which student performance is to be recorded. It is not an evaluation or grade sheet; it is a form to be used only to record student performance. When completed, the PRF will provide a permanent record of whether a particular SNFO performed specified tasks to a required standard during a particular training or evaluation hop in Device 1D23, in the T-39 or in the T-2. In addition, the Aviation Training Form (ATF) will also be completed for each evaluation flight, e.g., TP-6, A-4, TDR-4, RTP-4, etc., utilizing information recorded on the PRF.

The PRF consists of two parts: the Identification and the Performance Record. The Identification part of the PRF is to be completed prior to or after the hop and provides information, primarily of an administrative nature, which identifies the SNFO and the hop and notes excessive turbulence, if appropriate. The Performance Record part of the PRF lists individual tasks which must be performed in the successful execution of the particular hop. This part of the PRF is to be completed during the hop as each item is performed or immediately after the Peer Instructor, Training Manager or Instructor NFO has observed its performance. The Peer Instructor will record when his SNFO performs the various tasks for TPs 0-3 under the supervision of the Training Manager.

The Performance Record is to be marked as follows: a check (✓) is to be placed in the block preceding each item which is performed by the SNFO on that hop at the required level of proficiency. When a check is placed in a block to indicate that a particular task has been performed, a plus (+) may be placed beside it if, in the opinion of the examiner, the SNFO's performance of that item was of exceptional quality. Correspondingly, a minus (-) may be placed beside the check to indicate the examiner's opinion that the performance

was well below average or minimally satisfactory. Normally, only a check will be used, since exceptional and minimally satisfactory performance will occur infrequently. An "X" is to be placed in the block for each item which is performed but at a level below that required.

In order to receive a check on a given PRF item, an SNFO must perform the task in question at a terminal level of proficiency. On PRFs for TP-1 through 9 and for A-1 through 4, for example, he must perform relevant airways navigation flight tasks at the level of proficiency on those tasks required for graduation from VT-10 (i.e., the proficiency standards specified for the C-8 Evaluation Flight in the existing course). It must be noted that this standard is fixed for all trainer and T-39 hops related to airways navigation training and performance evaluation. Thus, there is only one standard, and that standard applies to all training and evaluation hops.

Since the standard is fixed, the number of checks received can be expected to vary with SNFO proficiency. Initially, he will receive few checks, since he will perform few of the required tasks at the proficiency level required for graduation. As his training progresses from TP-1 to TP-6 and from A-1 to A-4, he will receive increasingly more checks on each hop, because, as he progresses through training, he will be mastering more of the tasks specified on the PRF. On TP-6, he should receive checks on all--or nearly all--tasks, indicating his mastery of the tasks for which Device 1D23 can provide suitable training. Likewise, on A-4, he should receive checks on all--or nearly all--tasks, indicating that he has attained a level of skill at the performance of airways navigation tasks appropriate to his graduation from NFO Basic Training (i.e., at the level of skill previously required for a passing grade--BA, A or AA--on the C-8 Evaluation Flight).

It should be noted that standards are specified in the PRF for some of the tasks. For example, AFL is to be recorded to the standard (tolerance) of

+100 lbs. For most items, however, the standards to be applied are more flexible, and the judgments of the Instructor NFO as to whether the task performance was acceptable must be employed. Thus, the PRF is not a wholly objective performance record. Rather, it provides a means of standardizing training and evaluation activities by directing attention to specific tasks which have been identified as training objectives for SNFOs. An SNFO who receives a check on each PRF A-Phase task, thus, will have demonstrated his attainment of the SNFO Basic Training objectives for airways navigation, and his training on those tasks can be terminated.

SNFO Progress Record Form
TP-Ø (Airways Nav in 1D23)

| | | |
|------------------------|--------------|-------------|
| Student Name _____ | SS No. _____ | Class _____ |
| Training Manager _____ | Date _____ | Time _____ |

- Accomplish Airways Nav Checklist
- Obtain, insert UHF COMM frequencies
- Obtain, insert TACAN and VOR frequencies
- Select TACAN and VOR BDHI indications
- Clearance Delivery/clearance readback
- Taxi clearance
- Take-off clearance
- Departure control comm
- ARTCC Comm
- Track in and outbound on TACAN and VOR radials
- Make one-minute-prior ICS report
- Cross over and recognize station passage
- Accomplish mark-on-top ICS report
- Record fuel remaining at each turnpoint
- Identify quadrant winds
- Perform point-to-point TACAN

DESCRIPTION OF TRAINER PROBLEMS 1-3
Low Altitude Airways Navigation

Trainer Set-up

The Device 1D23 set-up program developed for TP-9 in the existing VT-10 syllabus will be used for TP-1 and 2; the program developed for TP-10 will be used for TP-3.

Description of Trainer Problem

Trainer Problem 1 (TP-1) is designed to introduce the SNFO to low altitude airways navigation procedures and IFR non-radar environment voice communication procedures.

The trainer will simulate the flight characteristics of the E-2A aircraft. Airspeed, altitude and magnetic heading will be controlled by the SNFO.

The SNFO will be required to calculate and enter ETAs to each turnpoint; to record fuel remaining and fuel flow on his jet log at each turnpoint; and to make IFR position reports at all mandatory reporting points along the route of flight. He will be coached through these tasks by a Peer Instructor to the extent required for their accomplishment.

At the conclusion of TP-3, the SNFO, with assistance from his Peer Instructor, will be able to perform the tasks indicated below. No specific SNFO performance standards are required:

- a) Use jet log navigation data to fly preplanned mission; make appropriate log entries during the flight.
- b) Operate all appropriate Device 1D23 cockpit controls and switches; interpret the device's indicators and displays during the flight.
- c) Perform all ICS tasks.
- d) Employ relevant DoD IFR Enroute publications to retrieve IFR procedures, radials, frequencies, etc.

e) Identify and use appropriate TACAN and VOR navigation aids frequencies along flight route.

f) Select TACAN or VOR on BDHI needle as appropriate; perform point-to-point TACAN navigation and radial tracking tasks for VOR and TACAN.

g) Identify and use appropriate UHF enroute IFR communications frequencies.

h) Complete "one minute prior" and "mark on top" reports.

i) Perform fuel management tasks; record fuel aboard and estimated fuel required for next leg.

j) Compute TAS (CAS).

k) Determine GS and Mach.

l) Compute ETA using CR-2.

m) Identify quadrant winds along radial track.

n) Perform ATC communications tasks appropriate to the flight (the Peer will use flight scenarios and will coach the SNFO as necessary).

*o) Complete DD 175.

Scheduled Time

Separate periods of four hours each have been scheduled for TP-1, TP-2, and TP-3. Additional two-hours periods have been scheduled for SNFO briefing by the TM prior to each TP.

Pre-Mission Briefing Outline

Each TP will be preceded by a mission briefing conducted by the TM. During the briefing, the TM will accomplish the tasks indicated below. The Peer Instructor will be present during the briefing and will assist the TM in those tasks when he desires.

*TP 2 and 3 only.

a) Review the jet log for this TP previously completed by the SNFO and verify that all entries are correct.

b) Review the objectives of the TP and the role of the Peer Instructor.

c) "Talk through" the planned mission (with SNFO participation where appropriate) as a rehearsal for the mission.

d) Respond to all SNFO questions concerning the mission.

Mission Critique, Debriefing and Record Forms

The instructions contained in TP-Ø are applicable.

Additional References

Additional information relevant to these trainer periods is contained in the Peer Instructor Guide for Trainer Problems 1-3, the SNFO Guide for Trainer Problems 1-3, and the Communication Scenarios for TPs Ø, 1, 2 and 3.

SNFO Progress Record Form
TPs 1-9 (Airways Nav in 1D23)

| | | |
|------------------------|--------------|-----------------------|
| Student Name _____ | SS No. _____ | Class _____ |
| Training Manager _____ | TP No. _____ | Date _____ Time _____ |

- Complete Jet Log data
- Complete DD-175 Flight Plan
- Accomplish airways nav checklists
- Enter COMM/NAV radio frequencies
- Obtain, record and read back IFR clearance
- Obtain Ground Control taxi clearance
- Obtain takeoff and departure clearances
- Record takeoff time
- Accomplish IFR Departure Control COMMS
- Enter departure and enroute heading, altitudes, airspeed
- Configure NAV equipment for enroute
- Perform enroute IFF/SIF responses
- Perform TACAN/VOR radial tracking (+5°)
- Recognize quadrant winds
- Accomplish "one min prior" reports
- Cross over and recognize station passage
- Accomplish "mark on top" report
- Record ATA

TPs 1-9

- Compute GS (+30 kts)
- Compute, record ETA (+3 mins)
- Record AFL; compute fuel remaining next checkpoint and IAF (+100 lbs)
- Obtain enroute descent or penetration clearance
- Accomplish TACAN point-to-point
- Accomplish Approach Control COMMs
- Enter approach heading, airspeed and altitude changes
- Accomplish approach pattern procedures
- Accomplish Tower and Ground Control COMMs
- Recognize any A/C NAV system malfunction

DESCRIPTION OF TRAINER PROBLEMS 4 AND 5
High Altitude Airways Navigation

Trainer Set-up

The Device 1D23 set-up program developed for TP-11 in the existing VT-10 syllabus will be used for TP-4 and 5.

Description of Trainer Problems

Trainer problems 4 and 5 (TP-4 and TP-5) are designed to exercise the SNFO in high altitude airways navigation procedures and IFR radar environment voice communication procedures.

The mission program for TP-4 and 5 will simulate the flight characteristics of the F-4J aircraft. Airspeed, altitude and magnetic heading will be controlled by the SNFO.

The SNFO will be required to calculate and enter ETAs to each turnpoint; to record fuel remaining and fuel flow on his jet log at each turnpoint; and to communicate with controlling agencies in accordance with IFR procedures, or as directed by ARTCCs enroute. The SNFO will also be required to change his route of flight and file a change of flight plan with an ARTCC.

At the conclusion of TP-5, the SNFO will be able to perform all tasks practiced during earlier trainer problems and to follow IFR procedures for operation in the high altitude structure, and he will be able to communicate with controlling agencies using prescribed report formats and prowords. No specific performance standards are required; however, each SNFO's performance should show improvement over preceding TPs. TP-5 normally is the last trainer period prior to a graded period in the device.

Scheduled Time

Separate periods of four hours each have been scheduled for TP-4 and TP-5. Additional one-hour periods have been scheduled for SNFO briefing by the TM prior to each TP.

Pre-Mission Briefing Outline

Each TP will be preceded by a mission briefing conducted by the TM. During the briefing, the TM will accomplish the tasks indicated below. Peer Instructors will not participate in these TPs.

- a) Review the jet log and DD 175 for this TP previously completed by the SNFO and verify that all entries are correct.
- b) Review the objectives of the TP.
- c) "Talk through" the planned mission (with SNFO participation where appropriate) as a rehearsal for the mission.
- d) Respond to all SNFO questions concerning the mission.

Mission Critique, Debriefing and Record Forms

The instructions contained in TP-0 are applicable.

Additional References

Additional information relevant to this trainer problem is contained in the SNFO Guide for Trainer Problems 4 and 5.

Grading Information

TP-4 and 5 are ungraded training activities. The TM will complete the PRFs which will provide the necessary records of student performance. The TM may use the device printouts to assist in his determination of student progress.

DESCRIPTION OF TRAINER PROBLEM 6
High Altitude Airways Navigation

Trainer Set-up

The Device 1D23 set-up program developed for TP-12 in the existing VT-10 syllabus will be used for TP-6.

Description of Trainer Problem

Trainer problem 6 (TP-6) is a graded problem designed to evaluate the performance of the SNFO in high altitude airways navigation procedures and IFR radar environment voice communication procedures.

The mission program for TP-6 will simulate the flight characteristics of the E-2A aircraft. Airspeed, altitude and magnetic heading will be controlled by the SNFO.

The SNFO will be required to calculate and enter ETAs to each turnpoint; to record fuel remaining and fuel flow on his jet log at each turnpoint; and to communicate with controlling agencies in accordance with IFR procedures, or as directed by ARTCCs enroute.

Scheduled Time

A period of four hours has been scheduled for TP-6. An additional two-hour period has been scheduled for SNFO briefing by the TM prior to TP-6.

Pre-Mission Briefing

During the time set aside for the TP-6 mission briefing, the TM will review each SNFO's jet log and DD 175 in order to determine the adequacy of his preparation for an evaluation flight. If deficiencies are detected, the TM will provide instruction as may be appropriate in order to improve the SNFO's performance during the flight. The current VT-10 airways navigation criteria will be reviewed during this briefing.

Mission Critique and Debriefing

Since this is an evaluation flight, the TM will not provide information to the SNFO during the problem. SNFO performance will be reviewed following completion of TP-6. The purpose of the review will be to reinforce those performances which were done well and to provide the SNFO specific direction concerning improving his performance during subsequent training activities in the aircraft. On the basis of an SNFO's performance in TP-6, the TM may elect to provide additional (unscheduled) training opportunities.

SNFO Progress Record Form

The instructions contained in TP-Ø are applicable. Since this is the evaluation problem, the Progress Record Form will be utilized to complete the Aviation Training Form (ATF).

Additional References

Additional information relevant to this trainer problem is contained in the SNFO Guide for Trainer Problem 6.

Grading Information

TP-6 will be graded in accordance with current VT-10 airways navigation criteria; an NFO instructor other than his TM will evaluate each SNFO's progress by completing an Aviation Training Form. This problem will not receive a "down" in the traditional sense, since it is intended primarily as a diagnostic check to identify problems not previously detected by the TM. The TM will determine if his SNFO requires additional practice prior to proceeding to the T-39 flight phase. At this training point, the TM will recommend any of his students who are marginal to unsatisfactory performers for a formal student evaluation board.

DESCRIPTION OF TRAINER PROBLEMS 7, 8 AND 9
Airways Navigation Practice

Trainer Set-up

The Device 1D23 set-up program developed for TP-13 in the existing VT-10 syllabus will be used for TP-7, 8 and 9.

Description of Trainer Problems

Trainer problems 7, 8 and 9 (TP-7, TP-8 and TP-9) are designed to increase the SNFO's level of proficiency and understanding in airways navigation and IFR voice communication procedures through further practice. The TM will schedule those SNFOs who require additional practice based on their T-39 or previous TP performance.

The mission program will simulate the flight characteristics of the F-4J aircraft. Airspeed, altitude and magnetic heading will be controlled by the SNFO.

The SNFO will be required to perform ETA calculations, fuel management, and voice communications as outlined under earlier TPs. In addition, his ability to identify and respond to various aircraft system and navigation aid malfunctions will be tested.

The purpose of these TPs is to provide additional practice to those SNFOs who may require it in order to perform an airways navigation flight in a fully satisfactory manner in the T-39 aircraft. The TM should excuse SNFOs not requiring such additional practice from any or all of these three TPs. For SNFOs needing other (or different) practice, the TM should schedule other TPs as required. RTP-1, 2, 3 and 4 in the existing VT-10 syllabus are suitable for additional airways navigation practice.

Scheduled Time

Separate periods of four hours can be scheduled for TP-7, TP-8 and TP-9 during after hours training. Additional one-hour periods should be scheduled for SNFO briefing by the TM prior to each TP.

Pre-Mission Briefing

Each TP will be preceded by a briefing conducted by the TM. During the briefing, the TM will review the SNFO's mission plans to determine their adequacy. If deficiencies are detected, the TM will provide instruction as may be appropriate in order to improve the SNFO's subsequent performance in the trainer.

Mission Critique and Debriefing

Comments concerning mission critique and debriefing related to TP-Ø are applicable.

SNFO Progress Record Forms

The Progress Record Forms will continue to be used as with preceding trainer problems.

Additional References

Additional information relevant to these trainer problems is contained in the SNFO Guide for TP-7, 8 and 9.

DESCRIPTION OF TRAINER DEAD RECKONING PROBLEMS 1, 2, 3 AND 4

Dead Reckoning Navigation

Trainer Set-Up

The existing 1D23 trainer syllabus mission for TP-5, TP-6 and TP-7 will be utilized for TDR-1, TDR-2, TDR-3 and TDR-4. While the turnpoints remain the same, reversing the direction of flight will produce six training missions if required.

Description of Training Problem

Trainer Dead Reckoning Problems are designed to exercise the SNFO in DR navigation, instrument interpretation, and voice communication procedures within the constraints of a real time situation. Each mission is identical in terms of content in order to maximize self-paced training. TDR-1 and TDR-2 will utilize Peer Instructors to the maximum extent possible. TDR-4 is designated as the evaluation mission.

The mission programs will simulate the flight characteristics of the E-2A aircraft. Airspeed, altitude, and magnetic heading of the aircraft will be controlled by the SNFO on each mission. Tacan DME will be failed during the missions to force the SNFO to use three LOPs when determining fix positions and the utilization of EPs will be required. In addition, the SNFO will be required to determine at least one fix with advance and retard lines of position, to avoid adverse weather conditions, carry an airplot, compute winds, make proper log entries, solve and execute a controlled time or arrival (CTA) problem, and perform a square search as directed by the TM.

Enroute the SNFO will be responsible for the calculation and input of ETAs to each turnpoint, and for making the appropriate IFR/VFR Voice communications with ARTCC or FSS.

While the number of missions flown will be based on student proficiency, the maximum is set at five and TDR-4 is the designated checkride to be operated and evaluated by instructors other than the group TMs.

All TDR missions will be monitored and evaluated using the PRF. In addition the current VT-10 1D23 Aviation Training Form for DR navigation will be completed by the evaluating instructor on TDR-4 and that form entered on the student's training jacket.

Scheduled Time

Separate periods of four hours each have been scheduled for each TDR problem. A four hour period is scheduled to brief the first TDR problem with additional one hour periods scheduled for SNFO briefing by the TM prior to each successive TDR. A period of three hours has been set aside following each mission for the purpose of debriefing.

Pre-Mission Briefing Outline

Each TDR will be preceded by a briefing conducted by the TM. During the briefing, the TM will review the SNFO's mission plans to determine their adequacy. If deficiencies are detected, the TM will provide instruction as may be appropriate in order to improve the SNFO's subsequent performance in the trainer.

Mission Critique and Debriefing

Comments concerning mission critique and debriefing related to TP-Ø are applicable to TDR problems.

SNFO Progress Record Form (PRF)

The Progress Record Forms will continue to be used as with preceding trainer problems.

Additional References

Additional information relevant to these trainer problems is contained in the SNFO Guide for TDR 1, 2, 3, and 4.

Grading Information

TDR 4 will be graded in accordance with current VT-10 DR navigation criteria.

SNFO Progress Record Form
TDR 1-4 (Dead Reckoning in 1D23)

| | | |
|------------------------|--------------|-----------------------|
| Student Name _____ | SS No. _____ | Class _____ |
| Training Manager _____ | TP No. _____ | Date _____ Time _____ |

- Complete DR log preflight
- Complete navigation chart preflight
- Understand, discuss elements of mission
- Accomplish DR Navigation checklists
- Request and record clearance
- Accomplish mission IFR and VFR COMMS
- Select appropriate nav aids for LOPs
- Determine position (+3 NM)
- Utilize EP for course control and ETA update (+5 NM)
- Utilize no wind plot and DR ahead procedures
- Compute wind ea. leg (+30°/10 kts)
- Respond to off-course positions with heading corrections
- Make enroute log entries
- Use appropriate chart symbols for fix, DR, EP, NW positions (readable)
- Maintain course (+15 NM)
- Compute CTA (+15 NM)
- Start square search (within 15 NM of search coordinates)
- Follow required square search procedures
- Determine courses, distances, wind correction for Square Search

DESCRIPTION OF RADAR TRAINER PROBLEMS 1, 2, 3 AND 4

Radar Navigation

Trainer Set-up

The Device 1D23 set-up program developed for RTP-1, RTP-2, RTP-3, and RTP-4 in the existing VT-10 syllabus will be used for the trainer problems described here.

Description of Trainer Problems

Radar trainer problems 1, 2, 3, and 4 (RTP-1, RTP-2, RTP-3, RTP-4) are designed to exercise the SNFO in basic radar navigation and voice communication procedures.

The radar mission programs simulate the flight characteristics of the F-4J aircraft. Airspeed, altitude and magnetic heading of the aircraft will be controlled by the SNFO.

The SNFO will be required to calculate and enter ETAs to each turnpoint; to record fuel remaining, fuel flow and estimated fuel left at the target at each turnpoint; and to make voice communication and position reports as required along the route of flight. During RTP-3 the Inertial Navigation System (INS) Doppler/Computer Navigation system will be introduced. This is currently the only flight in which the system is utilized.

RTP-4 is a graded problem in which the SNFO performance is evaluated, using existing VT-10 criteria. Students whose performance is unsatisfactory on RTP-4 may be scheduled for an additional RTP.

Upon completion of RTP-4, the SNFO will be able to:

1. Perform basic radar navigation procedures:
 - a) Plan radar navigation missions using appropriate operational navigation chart (ONC), and low level radar planning procedures (T-2 Low Level Planning).

- b) Operate the Device's radar control panel and cursor control stick.
- c) Set up the radarscope for optimum presentation of land-water contrast returns (RTP-1, RTP-2), or topographical features and cultural returns (RTP-3 at medium altitude, RTP-4 at low altitude).
- d) Maintain course control using the Radar Navigation System (RTP-1, RTP-2 and RTP-4) and the INS/Doppler/Computer System (RTP-3).
- e) Calculate ETA to each turnpoint using ground speed determined from radar range information.
- f) Record fuel remaining, fuel flow and estimated fuel left at the target at each turnpoint.

2. Communicate with aircraft controlling agencies using prescribed format and prowords.

Scheduled Time

Separate periods of four hours each have been scheduled for RTP-1, RTP-2, RTP-3 and RTP-4. Additional periods have been scheduled for SNFO briefing by the TM prior to each RTP in accordance with Events Schedule.

Pre-mission Briefing

Each RTP will be preceded by a briefing conducted by the TM. During the briefing, the TM will review the SNFO's mission plans to determine their adequacy. If deficiencies are detected, the TM will provide instruction as may be appropriate in order to improve the SNFO's subsequent performance in the trainer.

The current VT-10 radar navigation criteria will be reviewed during the briefing preceding RTP-4.

Mission Critique and Debriefing

Comments concerning mission critique and debriefing related to TP-Ø are applicable to RTP-1, 2, and 3. Comments related to TP-6 are applicable to RTP-4.

SNFO Progress Record Forms

The Progress Record Forms will continue to be used as with preceding trainer problems.

Additional References

Additional information relevant to these trainer problems is contained in the SNFO Guide for RTP-1, 2, 3, and 4.

Grading Information

RTP-4 will be graded in accordance with current VT-10 radar navigation criteria where an independent NFO instructor will complete the PRF and ATF.

SNFO Progress Record Form
RTP 1-4 (Radar in 1D23)

| | | |
|------------------------|---------------|-----------------------|
| Student Name _____ | SS No. _____ | Class _____ |
| Training Manager _____ | RTP No. _____ | Date _____ Time _____ |

- Complete Jet Log preflight
- Complete navigation chart preflight
- Understand, discuss elements of mission
- Accomplish radar Nav checklist procedures
- Accomplish mission communications
- Operate radar controls
- Set up radarscope for optimum land-water contrast
- Recognize significant radar returns
- Maintain course
- Mark-on-top turnpoint procedures
- Compute ETA
- Record AFL (each turnpoint) and compute EFL (target)
- Utilize INS/Doppler/COMP Nav System (RTP 3)

VT-10

STUDENT NAVAL FLIGHT OFFICER GUIDE

For Use Of

Device 1D23

April 1976

1D23
AIRWAYS NAVIGATION
CHECK LIST

BEFORE STARTING ENGINES

1. ICS - Turn INTERCOM volume control full clockwise (adjust as necessary during ICS check)
2. RADIOS and NAVIGATION AIDS - Check OFF
3. NAV MODE, DOPPLER and INERTIAL PLATFORM - Check OFF
4. RADAR - Check OFF

STARTING ENGINES

1. FUEL QUANTITY - Check
2. ALTIMETER - Set to field elevation
3. START ENGINES - Depress ENG START push button

BEFORE TAXIING

1. GYRO COMPASS - Select SLAVED mode; align RMI with wet compass
2. UHF CMD RADIO - ON; select CMD mode TR & G; turn volume control full clockwise
3. VHF (VOR) - ON
4. TACAN - ON; select TACAN mode T/R
5. #2 NEEDLE - Select NORM
6. Enter appropriate RADIO frequencies, VHF frequency and TACAN channel
7. IFF - STBY
8. ALTIMETER - Check

TAXIING

1. FLIGHT INSTRUMENTS - Check 5 VGI, VSI, AS, ALT, BDHI
2. IFF - Enter MODE 3 code assigned in clearance

BEFORE TAKE-OFF

1. FUEL QUANTITY - Check
2. ALTIMETER - Check
3. HEADING - Check

TAKE-OFF

1. IFF - NORM
2. Log take-off time

LANDING

1. IFF - OFF
2. Log landing time

SNFO GUIDE FOR TRAINER PROBLEMS 1, 2 AND 3
LOW ALTITUDE AIRWAYS NAVIGATION

DESCRIPTION OF TRAINER PROBLEM

Trainer problems 1, 2 and 3 (TP-1 to 3) are designed to exercise the SNFO in low altitude airways navigation procedures and IFR non-radar environment voice communication procedures.

The mission programs will simulate the flight characteristics of the E-2A aircraft. Airspeed, altitude and magnetic heading will be controlled by the SNFO.

The SNFO will be required to calculate and enter ETAs to each turnpoint; to record fuel remaining and fuel flow on his jet log at each turnpoint and to calculate EFL to next point and IAF, and to make IFR position reports at all mandatory reporting points along the route of flight.

TRAINING OBJECTIVES

Upon completion of TP-3, the SNFO will be able to:

1. Perform airways navigation procedures.
 - a. Pre-flight mission using jet log and DD-175 (TP-2 and 3 only)
 - b. Maintain course control using radial tracking and point-to-point procedures
 - c. Calculate ETA to each turnpoint using ground speed check procedure
 - d. Record fuel remaining at each turnpoint, and compare actual fuel consumption with pre-flight estimate
 - e. Use FLIP enroute publications as required
 - f. Follow IFR procedures for operating in the low altitude structure.

2. Communicate with all controlling agencies, using prescribed format words:
 - a. Clearance Delivery
 - b. Ground Control
 - c. Tower
 - d. Departure Control
 - e. ARTCCs enroute: IFR position reports
 - f. Approach Control
 - g. Tower
 - h. Ground Control

PROCEDURES

SNFO will complete the jet log and DD-175 (TP-2 and 3 only) prior to the respective trainer problem briefings.

In addition to practicing all airways navigation tasks during these TPs, the SNFO will practice T-39 level-off procedures; give 1,000' warning, use OAT to compute IMN (but enter IAS in KNOTS), record fuel remaining, start ground speed check; and T-39 turnpoint procedures; 1 minute prior to each turnpoint, give course and ETA to next turnpoint; at each turnpoint state MOT____ (name of turnpoint @ time, record on jet log), give heading to fly course to next turnpoint, request fuel state (record on jet log) and determine fuel remaining at next turnpoint and at IAF. State whether ahead of, even with, or behind pre-flight estimate.

Plan to turn at each turnpoint so as to remain on the airway; for turns of less than 45°, turn at minimum DME; for turns of more than 45°, turn at minimum DME plus 3 or 4NM. Remember to let ETA expire before entering ETA to the next turnpoint.

E-2A FUEL MANAGEMENT DATA

FOR USE IN 1D23 TRAINER ONLY

NORMAL THRUST CLIMB - 2 ENGINES

CRUISE CONTROL DATA

170 KIAS

| ALT X | TIME | FUEL | DIST |
|-------|------|------|------|
| 1,000 | MIN | LBS | NM |
| 10/W | 7.0 | 300 | 18 |
| 15/E | 11.2 | 530 | 40 |
| 20/W | 15.0 | 620 | 54 |
| 25/E | 18.2 | 725 | 65 |

| ALT X | FUEL | IMN | TAS |
|-------|------|-----|-----|
| 1,000 | PPH | | |
| 10 | 2400 | .40 | 250 |
| | 3000 | .48 | 300 |
| 15 | 2600 | .47 | 300 |
| | 3100 | .51 | 330 |
| | 3400 | .56 | 360 |
| 20 | 2600 | .53 | 330 |
| | 2900 | .58 | 360 |
| 25 | 2300 | .53 | 330 |
| | 2500 | .58 | 360 |

1. Fuel includes 100 lbs. for START and TAXI
2. Airplane gross weight at ENG START: 28,000 LBS
3. Fuel for approach: 400 LBS
4. Reserve fuel computed at 200 KIAS/10,000', 2400 PPH 20 minutes = 800 LBS
5. Total fuel: 15,000 LBS

NOTE: Flight above FL300 is not authorized on missions simulating E-2A flight characteristics.

TP-1 AND 2 FLIGHT INFORMATION

1. Chart: Enroute Low Altitude L-17/18
2. Route: TAKEOFF - NAS Pensacola
DEPARTURE - Radar vectors

ENROUTE - MOB, V20N Mouse, V455E HBG, V455W Bay Springs, V455W MEI, V56 SEM,
 Calhoun, V20 MVC, BFM, NPA 210/10
 APPROACH - HI-TACAN RWY 06R
 LAND - NAS PENSACOLA

3. Pre-flight information: TAS 300 KTS
 ALTITUDE 16,000/17,000 FEET
 TEMPERATURE +3°C/+1°C
 FORECAST WIND to Bay Springs: 290/60
 to NPA 210/10 : 250/55

4. Navigation aids:

| | | | |
|--------------------|-----|-------------------------|-----|
| Brookley VORTAC | BFM | Mobile VORTAC | MOB |
| Craig AFB TACAN | SEM | Monroeville VORTAC | MVC |
| Craig VOR | SEM | Montgomery VORTAC | MGM |
| Gulfport VORTAC | GPT | Pensacola NAS TACAN/ADF | NPA |
| Hattiesburg VORTAC | HBG | Saufley NAS VOR | NUN |
| Kewanee VORTAC | EWA | Whiting NAS TACAN | NSE |
| Laurel VOR | LUL | Whiting NAS VOR | NSE |
| Meridian VORTAC | MEI | | |

5. Information for DD-175:
 TYPE AIRCRAFT E-2A
 BUREAU NUMBER 155170
 COMM/NAV EQUIP UHF RADIO, TACAN, VOR, 4,096 code transponder
 PILOT LT R T PELEG 123 45 6789 USN STANDARD INST RATING
 FUEL 15,000 LBS 6+00

6. Navigation tools:
 CR Computer Enroute Low Altitude L-17/18
 Jet log IFR Enroute Supplement
 DD-175 High Altitude Approach Plates SEUS
 Pencil and paper

TP - 3 FLIGHT INFORMATION

1. Chart: Enroute Low Altitude L-17/18, L-19/20

2. Route: TAKEOFF - NAS PENSACOLA
 DEPARTURE - Radar vectors
 ENROUTE - CEW, V198 MAI, V198 TLH, V295 CTY, V7 Homo, V7 LAL, V7 FMY,
 V225 Rivet, V225 EYW, EYW 179/5
 APPROACH - HI-VORTAC RWY 07
 LAND - NAS KEY WEST

3. Pre-flight information: TAS 330 KTS
 ALTITUDE 15,000' to LAL/17,000 to EYW
 TEMPERATURE +5°C/+2°C
 FORECAST WIND to LAL: 090/40
 to EYW: 110/15

4. Information for DD-175

TYPE AIRCRAFT E-2A
BUREAU NUMBER 155171
COMM/NAV EQUIP UHF RADIO, TACAN, VOR, 4,096 code transponder
PILOT CAPT P T BILDAD 234 56 7890 USMC STANDARD INST RATING
FUEL 15,000 LBS 6+00

5. Navigation aids:

| | | | |
|---------------------|-----|-------------------------|-----|
| Alexandria VORTAC | AEX | Marianna VORTAC | MAI |
| Baton Rouge VORTAC | BTR | McComb VORTAC | MCB |
| Birmingham VORTAC | BHM | Meridian VORTAC | MEI |
| Crestview VORTAC | CEW | Mobile VORTAC | MOB |
| Cross City VORTAC | CTY | Montgomery VORTAC | MGM |
| Fort Myers VORTAC | FMY | New Orleans VORTAC | MSY |
| Gainesville VORTAC | GNV | Ocala VORTAC (112.8/75) | OCF |
| Greenwood VORTAC | GRW | Orlando VORTAC | ORL |
| Gulfport VORTAC | GPT | Pensacola NAS TACAN/ADF | NPA |
| Harvey VORTAC | HRV | Picayune VORTAC | PCU |
| Hattiesburg VORTAC | HBG | Sabine Pass VORTAC | SBI |
| Jackson VORTAC | JAN | St. Petersburg VORTAC | PIE |
| Jacksonville VORTAC | JAX | Saufley NAS VOR | NUN |
| Key West VORTAC | EYW | Tallahassee VORTAC | TLH |
| Key West NAS TACAN | NOX | White Lake VORTAC | LLA |
| Lafayette VORTAC | LFT | Whiting NAS TACAN | NSE |
| Lake Charles VORTAC | LCH | Whiting NAS VOR | NSE |
| Lakeland VORTAC | LAL | | |

6. Navigation tools:

| | |
|------------------|---------------------------------------|
| CR Computer | Enroute Low Altitude L-17/18, L-19/20 |
| Jet log | IFR Enroute Supplement |
| DD-175 | High Altitude Approach Plates SEUS |
| Pencil and paper | |

SNFO GUIDE FOR TRAINER PROBLEMS 4 AND 5
HIGH ALTITUDE AIRWAYS NAVIGATION

DESCRIPTION OF TRAINER PROBLEM

Trainer problems 4 and 5 (TP-4 and TP-5) are designed to exercise the SNFO in high altitude airways navigation procedures and IFR radar environment voice communication procedures.

The mission program for TP 4 and 5 will simulate the flight characteristics of the F-4J aircraft. Airspeed, altitude and magnetic heading will be controlled by the SNFO.

The SNFO will be required to calculate and enter ETA's to each turnpoint; to record fuel remaining and fuel flow on his jet log at each turnpoint and calculate EFL to next check point and IAF and to communicate with controlling agencies in accordance with IFR procedures, or as directed by ARTCC's enroute. The SNFO will also be required to change his route of flight and file a change of flight plan with an ARTCC.

TRAINING OBJECTIVES

1. Perform airways navigation procedures:
 - a. As outlined under TP 1-3 a - e.
 - b. Follow IFR procedures for operating in the high altitude structure.
2. Communicate with all controlling agencies, using prescribed format and prowords:
 - a. As outlined under TP 1-3, a - d and f - h.
 - b. ARTCC's enroute: as required, or as directed.

PROCEDURES

As outlined under TP 1-3 except that all turns at turnpoints are to be made at minimum DME.

F-4J: In order to ascent above FL200, an IAS of 280 KNOTS or greater must be entered into the computer. It is recommended that an appropriate IAS be entered when passing 10,000'.

Minimum controllable airspeed is 205 KIAS; holding airspeed is 265 KIAS.

TP-4 change of route: Plan and file a change of flight plan with ARTCC when directed to do so by an annunciator message.

F-4J FUEL MANAGEMENT DATA

FOR USE IN 1D23 TRAINER ONLY

NORMAL THRUST CLIMB - 2 ENGINES

CRUISE CONTROL DATA

300 KIAS OR .72 IMN

| ALT X 1,000 | TIME MIN | FUEL LBS | DIST NM |
|----------------|-------------|-------------|------------|
| 10/W | 3.0 | 800 | 11 |
| 15/E | 4.0 | 900 | 17 |
| 20/W | 5.0 | 1,000 | 23 |
| 25/E | 6.0 | 1,030 | 28 |
| 29/D | 6.5 | 1,080 | 33 |
| 35/W | 10.0 | 1,400 | 43 |

| ALT X 1,000 | FUEL PPH | IMN | TAS |
|----------------|-------------|-----|-----|
| 10 | 5400 | .56 | 360 |
| 15 | 5400 | .61 | 300 |
| 20 | 4900 | .67 | 420 |
| 25 | 5000 | .72 | 450 |
| | 5500 | .80 | 480 |
| 30 | 5200 | .80 | 480 |
| | 5400 | .85 | 510 |
| 35 | 5700 | .82 | 480 |
| | 5500 | .86 | 510 |

1. Fuel includes 300 LBS for START and TAXI
2. Airplane gross weight at ENG START: 46,500 LBS
3. Fuel for approach: 600 LBS
4. Reserve fuel computed at 205 KIAS/10,000' , 3400 PPH. 20 minutes = 1,130 LBS
5. Total fuel: 15,000 LBS

NOTE: Flight above FL400 is not authorized on missions simulating F4-J flight characteristics.

TP-4 & 5 FLIGHT INFORMATION

1. Chart: Enroute High Altitude H - 3/4
2. Route: TAKEOFF - NAS PENSACOLA
DEPARTURE - Radar vectors
ENROUTE - CEW, J50 MCB, JAN, GRW, MEM, J41 BHM, J41 MGM, J39 CEW, NPA 210/10
APPROACH - HI - TACAN RWY 06R
LAND - NAS PENSACOLA
3. Pre-flight information: TAS 510 KTS to GRW/480 KTS to NPA 210/10
ALTITUDE FL350/FL330
TEMPERATURE -25°C/-20°C
FORECAST WIND to MEM: 020/80
to NPA 210/10: 010/70

4. Information for DD-175

TYPE AIRCRAFT F-4J
BUREAU NUMBER 157031
COMM/NAV EQUIP UHF RADIO, TACAN, 64 code transponder
PILOT CAPT L O AHAB 345 67 8901 USMC STANDARD
FUEL 15,000 LBS 3+00

NOTE: SNFO will be expected to have his pre-flight jet log and DD-175 completed before the mission briefing.

5. Navigation aids:

| | | | |
|---------------------|-----|-------------------------|-----|
| Alexandria VORTAC | AEX | Lakeland VORTAC | LAL |
| Baton Rouge VORTAC | BTR | Marianna VORTAC | MAI |
| Birmingham VORTAC | BHM | McComb VORTAC | MCB |
| Brookley VORTAC | BFM | Meridian VORTAC | MEI |
| Cecil NAS TACAN | NZC | Mobile VORTAC | MOB |
| Columbus AFB VORTAC | UBS | Montgomery VORTAC | MGM |
| Crestview VORTAC | CEW | New Orleans VORTAC | MSY |
| Cross City VORTAC | CTY | Ocala VORTAC 9112.8/75) | OCF |
| Fort Myers VORTAC | FMY | Orlando VORTAC | ORL |
| Gainesville VORTAC | GNV | Pensacola NAS TACAN/ADF | NPA |
| Greenwood VORTAC | GRW | Picayune VORTAC | PCA |
| Gulfport VORTAC | GPT | Sabine Pass VORTAC | SBI |
| Harvey VORTAC | HRV | St. Petersburg VORTAC | PIE |
| Hattiesburg VORTAC | HBG | Saufley NAS VOR | NUN |
| Jackson VORTAC | JAN | Tallahassee VORTAC | TLH |
| Jacksonville VORTAC | JAX | Tibby VORTAC | TBD |
| Key West VORTAC | EYW | White Lake VORTAC | LLA |
| Lafayette VORTAC | LFT | Whiting NAS TACAN | NSE |
| Lake Charles VORTAC | LCH | Whiting NAS VOR | NSE |

6. Navigation tools:

CR Computer
Jet log
DD-175
Pencil and paper

Enroute High Altitude H-3/4
IFR Enroute Supplement
High Altitude Approach Plates SEUS

SNFO GUIDE FOR TRAINER PROBLEM 6
HIGH ALTITUDE AIRWAYS NAVIGATION

DESCRIPTION OF TRAINER PROBLEM

Training problem 6 (TP-6) is an evaluation flight designed to measure the performance of the SNFO in high altitude airways navigation procedures and IFR radar environment voice communication procedures.

The mission program for TP-6 will simulate the flight characteristics of the E-2A aircraft. Airspeed, altitude and magnetic heading will be controlled by the SNFO.

The SNFO will be required to calculate and enter ETA's to each turnpoint; to record fuel remaining and fuel flow on his jet log at each turnpoint, and compute estimated fuel left (EFL) at check point and initial approach fix (IAF) and to communicate with controlling agencies in accordance with IFR procedures, or as directed by ARTCC's enroute.

PROCEDURES

As outlined under TP-4 and TP-5.

GRADING PROCEDURES AND CRITERIA

TP-6 will be graded in accordance with current VT-10 airways navigation grading criteria, which will be discussed by the instructor during the pre-mission briefing.

E-2A FUEL MANAGEMENT DATA

FOR USE IN 1D23 TRAINER ONLY

NORMAL THRUST CLIMB - 2 ENGINES
170 KIAS

| ALT X 1,000 | TIME MIN | FUEL LBS | DIST |
|----------------|-------------|-------------|------|
| 10/W | 7.0 | 300 | 18 |
| 15/E | 11.2 | 530 | 40 |
| 20/W | 15.0 | 620 | 54 |
| 25/E | 18.2 | 725 | 65 |

CRUISE CONTROL DATA

| ALT X 1,000 | FUEL PPH | IMN | TAS |
|----------------|-------------|-----|-----|
| 10 | 2400 | .40 | 250 |
| | 3000 | .48 | 300 |
| 15 | 2600 | .47 | 300 |
| | 3100 | .51 | 330 |
| | 3400 | .56 | 360 |
| 20 | 2600 | .53 | 330 |
| | 2900 | .58 | 360 |
| 25 | 2300 | .53 | 330 |
| | 2500 | .58 | 360 |

1. Fuel includes 100 LBS for START and TAXI
2. Airplane gross weight at ENG START: 28,000 LBS
3. Fuel for approach: 400 LBS
4. Reserve fuel computed at 200 KIAS-10,000', 2400 PPH
20 minutes = 800 LBS
Total fuel: 15,000 LBS

NOTE: Flight above FL300 is not authorized on missions simulating E-2A flight characteristics.

TP-6 FLIGHT INFORMATION

1. Chart: Enroute High Altitude H-3/4
2. Route: TAKEOFF - NAS PENSACOLA
DEPARTURE - Radar vectors
ENROUTE - CEW, J39 MGM, J39 BHM, J14 ATL, J4 MGM, J39 CEW,
NPA 210/10
APPROACH - HI - TACAN RWY 36
LAND - NAS Pensacola
3. Pre-flight information
TAS - 330 KNOTS
ALTITUDE - FL 250
TEMPERATURE - -15°C
FORECAST WIND - 180/50
4. Information for DD-175
TYPE AIRCRAFT - E-2A
BUREAU NUMBER - 155170
COMMUNICATION/NAVIGATION EQUIPMENT - UHF radio, TACAN, VOR, 4,096 code transponder

PILOT - LT F M STARBUCK 456 78 9012 USN SPECIAL INST RATING
FUEL - 15,000 LBS 6+00

NOTE: SNFO will be expected to have his pre-flight jet log and DD-175 completed before the mission briefing.

5. Navigation aids:

| | | | |
|---------------------|-----|-------------------------|-----|
| Atlanta VORTAC | ATL | Montgomery VORTAC | MGM |
| Birmingham VORTAC | BHM | Pensacola NAS TACAN/ADF | NPA |
| Columbus AFB VORTAC | UBS | Saufley Field VOR | NUN |
| Craig AFB TACAN | SEM | Tallahassee VORTAC | TLH |
| Crestview VORTAC | CEW | Whiting Field TACAN | NSE |
| Meridian VORTAC | MEI | Whiting Field VOR | NSE |
| Mobile VORTAC | MOB | | |

6. Navigation tools:

| | |
|------------------|------------------------------------|
| CR Computer | Enroute High Altitude H -3/4 |
| Jet log | IFR Enroute Supplement |
| DD-175 | High Altitude Approach Plates SEUS |
| Pencil and paper | |

TP-6 AIRWAYS NAVIGATION GRADING CRITERIA

1. PRE-FLIGHT PLANNING

- AA: DD-175 and JET LOG filled out completely and correctly.
- A: 1) No more than one error on DD-175
2) No more than four errors on JET LOG
- BA: 1) No more than four errors on DD-175
2) Five to ten errors on JET LOG
- UN: 1) More than four errors on DD-175; DD-175 not filled out
2) More than ten errors on JET LOG; JET LOG not filled out

2. COURSE CONTROL

- AA: Maintains aircraft within course limits (4NM on airways, 3 NM on jet routes) without instructor assistance
- A: 1) Occasionally flies aircraft outside course limits, but is never more than 10 NM off course
2) Requires little instructor assistance
- BA: 1) Frequently flies aircraft outside course limits, and is occasionally more than 10 NM off course
2) Requires much instructor assistance
- UN: Unable to keep aircraft within 10 NM of course without instructor assistance

3. COMMUNICATIONS

- AA: 1) Makes all required voice reports utilizing proper format and complete, correct information
2) Makes no more than one error in reading back clearance
- A: 1) Misses a required voice report, utilizes improper format, with incomplete or incorrect information on no more than three occasions
2) Makes no more than three errors in reading back clearance
- BA: 1) Misses a required voice report, utilizes improper format, with incomplete or incorrect information on more than three occasions, but shows improvement during the training problem
2) Makes no more than five errors in reading back clearance; requires more than two complete readings of the clearance
- UN: 1) Consistently misses required voice reports, utilizes improper format, with incomplete or incorrect information, and shows no improvement during the training problem
2) Unable to copy and read back the clearance

4. INSTRUMENT/EQUIPMENT USE

- AA: Not assigned
- A: Correctly operates GYRO COMPASS, ALTIMETER, IFF, UHF, CMD RADIO, TACAN and VOR without instructor assistance
- BA: 1) Leaves or places incorrect setting in ALTIMETER
2) Unable to operate GYRO COMPASS, IFF, UHF CMD RADIO, TACAN and VOR without instructor assistance

UN: Unable to correctly operate aircraft instruments and equipment even with instructor assistance

5. FUEL MANAGEMENT

AA: Not assigned

A: Records fuel quantity in space provided on JET LOG (AFL) at level-off and at all check points

BA: Fails to record fuel quantity on three to five occasions

UN: Fails to record fuel quantity on more than five occasions

6. EQUIPMENT MALFUNCTIONS (TP-13)

AA: Recognizes and responds to equipment malfunctions without instructor assistance

A: Occasionally needs instructor assistance to recognize and respond to equipment malfunctions

BA: Frequently needs instructor assistance to recognize and respond to equipment malfunctions

UN: Fails to respond to equipment malfunctions, even after instructor has brought them to SNFO's attention

7. RESPONSE TO INSTRUCTION

AA: Not assigned

A: Able to overcome errors in navigation and communication procedures after receiving instructor assistance

BA: Not assigned

UN: 1) Unable to overcome errors in navigation and communication procedures, even after receiving instructor assistance

2) Unable to accept instructor assistance

SNFO GUIDE FOR TRAINER PROBLEMS 7, 8 AND 9
AIRWAYS NAVIGATION PROCEDURES PRACTICE

DESCRIPTION OF TRAINER PROBLEM

Based on the evaluation of the Training Manager, Trainer problems 7, 8 and 9 (TP-7, TP-8 and TP-9) are designed to increase the SNFO's level of proficiency and understanding in airways navigation and IFR voice communication procedures through further practice, during after hours instruction, as required.

The mission program will simulate the flight characteristics of the F-4J aircraft. Airspeed, altitude and magnetic heading will be controlled by the SNFO.

The SNFO will be required to perform ETA calculations, fuel management, and voice communications he learned during TP-1 through TP-6. In addition his ability to identify and respond to various aircraft system and navigation aid malfunctions will be tested.

TRAINING OBJECTIVES

Upon completion of these TPs, the SNFO will be able to:

1. Perform airways navigation procedures as outlined under current VT-10 grading criteria.
2. Communicate with all controlling agencies as outlined under current VT-10 grading criteria.
3. Identify and respond to aircraft system and navigation aid malfunctions.

PROCEDURES

As outlined under TP-4 and TP-5.

F-4J FUEL MANAGEMENT DATA

As outlined under TP-4 and TP-5

TP 7, 8 and 9 FLIGHT INFORMATION

1. Chart: Enroute High Altitude H-3/4
2. Route: TAKEOFF - NAS Pensacola
DEPARTURE - Radar vectors

ENROUTE - CEW, J2 CEW 088/80, J2 TLH, J20 TLH 127/84, J20 ORL,
Polaris (COF 090/24)
APPROACH - HI-TACAN 1 RWY 2
LAND - PATRICK AFB

3. Pre-flight information: TAS 480 KTS
ALTITUDE FL 290
TEMPERATURE -5°C
FORECASE WIND 040/50

4. Information for DD-175:
TYPE AIRCRAFT F-4J
BUREAU NUMBER 157031
COMM/NAV EQUIP UHF RADIO, TACAN, 64 code transponder
PILOT LT C P STUBB 567 89 0123 USN SPECIAL INST RATING
FUEL 15,000 LBS 3+00
NOTE: SNFO will be expected to have his pre-flight jet log and DD-175 completed before the mission briefings.

5. Navigation aids:

| | | | |
|--------------------|-----|-------------------------|-----|
| Crestview VORTAC | CEW | Orlando VORTAC | ORL |
| Cross City VORTAC | CTY | Patrick AFB TACAN | COF |
| Gainesville VORTAC | GNV | Pensacola NAS TACAN/ADF | NPA |
| Marianna VORTAC | MAI | Tallahassee VORTAC | TLH |

6. Navigation tools:

| | |
|------------------|------------------------------------|
| CR Computer | Enroute High Altitude H-3/4 |
| Jet log | IFR Enroute Supplement |
| DD-175 | High Altitude Approach Plates SEUS |
| Pencil and paper | |

1D23
DR NAVIGATION
CHECK LIST

BEFORE STARTING ENGINES

1. ICS - Turn INTERCOM volume control full clockwise (adjust as necessary during ICS check with instructor)
2. RADIOS and NAVIGATION AIDS - Check OFF
3. NAV MODE, DOPPLER and INERTIAL PLATFORM - Check OFF
4. RADAR - Check OFF

STARTING ENGINES

1. FURL QUANTITY - Check
2. ALTIMETER - Set to field elevation
3. START ENGINES - Depress ENG START pushbutton

BEFORE TAXIING

1. GYRO COMPASS - Select SLAVED mode; align RMI with wet compass
2. UHF CMD RADIO - ON: select CMD mode TR & G
3. VHF (VOR) - ON
4. TACAN - ON; select TACAN mode T/R
5. #2 NEEDLE - Select NORM
6. Enter appropriate RADIO frequencies, VHF frequency and TACAN channel
7. IFF - STBY
8. NAV MODE - ON; select AIR DATA
9. NAVIGATION DISPLAY PANEL: GS/TAS pushbutton - Select TAS
- * 10. DOPPLER - ON (STBY); initiate Doppler TEST
11. ALTIMETER - Check

TAXIING

After copying and reading back clearance:

1. IFF - Enter appropriate MODE 3 code

BEFORE TAKE-OFF

1. FUEL QUANTITY - Check
2. ALTIMETER - Check
3. HEADING - Check

TAKE-OFF

1. IFF - NORM
- *2. DOPPLER - XMTR (LAND)
3. Log take-off time

* TDR 2 and TDR 3

SNFO GUIDE FOR TRAINER DEAD RECKONING PROBLEMS 1, 2, 3, AND 4
DR NAVIGATION

TRAINER SET-UP

The existing 1D23 trainer syllabus mission for TP-5, TP-6 and TP-7 will be utilized for the TDR-1, TDR-2, TDR-3 and TDR-4. While the turnpoints remain the same, reversing the direction of flight will produce six training missions if required.

DESCRIPTION OF TRAINING PROBLEM

Trainer Dead Reckoning Problems are designed to exercise the SNFO in DR navigation, instrument interpretation, and voice communication procedures within the constraints of a real time situation. Each mission is identical in terms of content in order to maximize self-paced training. TDR-1 and TDR-2 will utilize Peer Instructors to the maximum extent possible. TDR 4 is designated as the evaluation mission.

The mission programs will simulate the flight characteristics of the E-2A aircraft. Airspeed, altitude, and magnetic heading of the aircraft will be computed by the SNFO on each mission. TACAN DME will be failed during the missions to force the SNFO to use three LOPs when determining fix positions and the utilization of EPs will be required. In addition, the SNFO will be required to determine at least one fix with advance and retard lines of position, to avoid adverse weather conditions, carry an airplot, compute winds, make proper log entries, solve and execute a controlled time or arrival (CTA) problem, and perform a square search as directed by the TM.

Enroute the SNFO will be responsible for the calculation and input of ETAs to each turnpoint, and for making the appropriate IFR/VFR Voice communications with ARTCC or FSS.

PROCEDURES

1. Review procedures for determining a fix position utilizing advance and retard LOP techniques. SNFO will be required to determine at least one advance and retard LOP fix position.
2. SNFO will be required to utilize at least one EP.
3. Review DR navigation and voice communication procedures. Utilize DR Navigation Pocket Check List and SID "Boiler 1" (TDR 2, 3, 4).
4. Review inflight log requirements when carrying an airplot only on the navigation chart. Aircraft heading will be altered during this mission whenever necessary to avoid adverse weather conditions.
5. Review procedures for solving a CTA problem. When the last ETA to a designated point entered into the Computer expires, the SNFO will have 30 minutes to reach the next point. For example, if the leg from Point "B" to Point "C" has been designated for the CTA and the last-entered ETA to Pt "B" was 1152, the ETA to Pt "C" would be 1222. This ETA (1222 in the example) should be entered into the Simulation Computer in the normal manner after SNFO has turned his aircraft toward Pt "C" and adjusted the TAS as required by his solution to the CTA problem.
6. Review procedures for operation of the DOPPLER Radar.
7. Review procedures for flying a square search. Coordinates will be given during the mission indicating the square search origin. Visibility is 5NM, altitude is 1,000' AGL, and airspeed is 180 KTAS. Descend to 1,000' AGL prior to arriving at the square search coordinates. (Use the radar altimeter to insure that the square search is flown at an altitude of 1,000' AGL.) Turn on the DOPPLER RADAR and use the Ground Speed and Drift Angle displayed on the Navigation Computer to determine the wind at 1,000' AGL before commencing the square search. Unless otherwise directed by the instructor, stop the square search after five legs, and continue with mission.

TDR-1 FLIGHT INFORMATION

1. Chart: Mississippi River Central

2. TDR-1 Route: TAKEOFF - NAS PENSACOLA

ENROUTE - Leg 1: Brookley VORTAC to Pt "A" (32-34 N/89-42W)
Leg 2: Pt "A" to Pt "B" (31-03 N/91-51W)
Leg 3: Pt "B" to Pt "C" (29-25 N/89/52W)
Leg 4: Pt. "C" to Pt "D" (30-23 N/87/50W)
LAND - NAS PENSACOLA

3. Pre-flight information: TAS 240 KTS
PA 10,500/9,500 FEET
TRUE AIR TEMP -4°C/-2°C
FORECAST WIND @ 10,500': 270/30
@ 9,500': 190/25

NOTE; SNFO will be expected to have his chart and pre-flight log completed before the mission briefing.

4. Navigation aids:

| | | | |
|---------------------|-----|-------------------------|-----|
| Alexandria VORTAC | AEX | Leeville VORTAC | LEV |
| Baton Rouge VORTAC | BTR | McComb VORTAC | MCB |
| Beaumont VORTAC | BPT | Meridian VORTAC | MEI |
| Brookley VORTAC | BFM | Meridian NAS TACAN | NMM |
| Esler VOR (109.8) | ESF | Mobile VORTAC | MOB |
| Greene Co. VOR | GCV | Monroe VORTAC | MLU |
| Gulfport VORTAC | GPT | Natchez VOR | HEZ |
| Harvey VORTAC | HRV | New Orleans VORTAC | MSY |
| Hattiesburg VORTAC | HBG | Pensacola NAS TACAN/ADF | NPA |
| Jackson VORTAC | JAN | Picayune VORTAC | PCU |
| Keesler AFB TACAN | BIX | Polk VOR | POE |
| Lafayette VORTAC | LFT | Sabine Pass VORTAC | SBI |
| Lake Charles VORTAC | LCH | Saufley NAS VOR | NUN |
| Laurel VOR | | Tibby VORTAC | TBD |
| | | White Lake VORTAC | LLA |

5. Navigation tools: Navigation/Communication equipment:

The SNFO will need the following navigation tools:

| | |
|-------------|-------------------|
| Plotter | Pre-flight log |
| Dividers | Inflight log |
| CR Computer | IFR Supplement |
| Chart | Pencils and paper |

TDR-2 FLIGHT INFORMATION

1. Chart: Mississippi River Central
2. TDR-2 Route: TAKEOFF - NAS PENSACOLA
DEPARTURE - BOILER 1
ENROUTE: Leg 1: Saufley VOR to Pt "A" (30-45 N/91-00W)
Leg 2: Pt "A" to Pt "B" (29-50 N/93-10W)
Leg 3: Pt "B" to Pt "C" (29-25 N/90-00W)
Leg 4: Pt "C" to Pt "D" (30-40 N/87-40W)
LAND - NAS PENSACOLA

3. Pre-flight information: TAS 240 KTS
PA 8,500/7,500 FEET
TRUE AIR TEMP -3°C/0°C
FORECAST WIND @ 8,500': 340/20
@ 7,500': 010/20

NOTE: SNFO will be expected to have his chart and pre-flight log completed before the mission briefing.

4. Navigation aids: As listed in TDR-1
5. Navigation tools: Navigation/Communication equipment:
As listed in TDR-1

TDR-3 FLIGHT INFORMATION

1. Chart: Mississippi River Central

2. TDR-3 Route: TAKEOFF - NAS PENSACOLA

DEPARTURE - BOILER 1

ENROUTE: Leg 1: Saufley VOR to Pt "A" (32-05N/88-45W)

Leg 2: Pt "A" to Pt "B" (31-45N/92-10W)

Leg 3: Pt "B" to Pt "C" (29-49N/91-00W)

Leg 4: Pt "C" to Saufley VOR

LAND - NAS PENSACOLA

3. Pre-flight information: TAS 240 KTS
PA 10,500'/9,500 FEET
TRUE AIR TEMP 0°C+2°C
FORECAST WIND @ 10,500': 170/25
@ 9,500': 180/15

NOTE: SNFO will be expected to have his chart and pre-flight log completed before entering the trainer to fly the mission.

4. Navigation aids:

| | | | |
|---------------------|-----|-------------------------|-----|
| Alexandria VORTAC | AEX | Leeville VORTAC | LEV |
| Baton Rouge VORTAC | BTR | McComb VORTAC | MCB |
| Brookley VORTAC | BFM | Meridian VORTAC | MEI |
| Esler VOR (109.8) | ESF | Mobile VORTAC | MOB |
| Greene Co. VOR | GCV | Monroe VORTAC | MLU |
| Greenwood VORTAC | GRW | Natchez VOR | HEZ |
| Gulfport VORTAC | GPT | New Orleans VORTAC | MSY |
| Harvey VORTAC | HRV | Pensacola NAS TACAN/ADF | NPA |
| Hattiesburg VORTAC | HBG | Picayune VORTAC | PCU |
| Jackson VORTAC | JAN | Polk VOR | POE |
| Keesler AFB TACAN | BIX | Saufley NAS VOR | NUN |
| Lafayette VORTAC | LFT | Tibby VORTAC | TBD |
| Lake Charles VORTAC | LCH | White Lake VORTAC | LLA |
| Laurel VOR | LUL | | |

5. Navigation tools: Navigation/Communication equipment:

a. As listed in TDR-1

TDR-4 FLIGHT INFORMATION

1. Chart: Mississippi River Central

2. TDR-4 Route: TAKEOFF - NAS PENSACOLA
DEPARTURE - BOILER 1

ENROUTE - Leg 1: Saufley VOR to Pt "A" (29-49 N/91-00W)
 Leg 2: Pt "A" to Pt "B" (31-45 N/92-10W)
 Leg 3: Pt "B" to Pt "C" (32-05 N/88-45W)
 Leg 4: Pt "C" to Saufley VOR
LAND - NAS PENSACOLA

3. Pre-flight information: As listed in TDR-3

NOTE: SNFO will be expected to have his chart and pre-flight log completed before entering the trainer to fly the mission.

4. Navigation aids: As listed in TDR-3

5. Navigation tools; Navigation/Communication equipment:

a. As listed in TDR-1

NOTE: Should additional training be required prior to TDR-4, TDR 1x and TDR 2x will use TDR-1 route and data and TDR-2 route and data respectively with the direction of flight reversed.

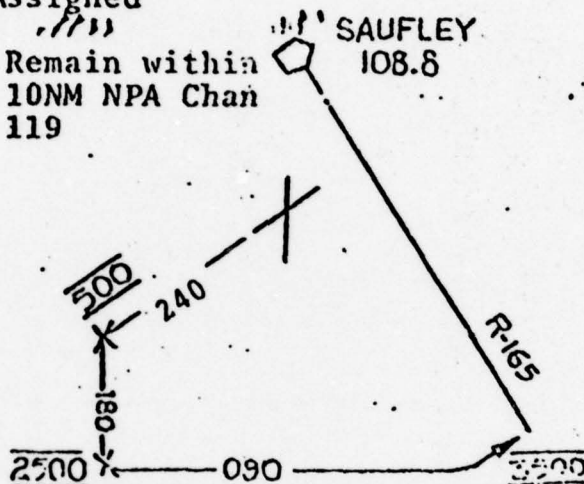
BOILER 1 departure

Navy Pensacola
Pensacola, FA

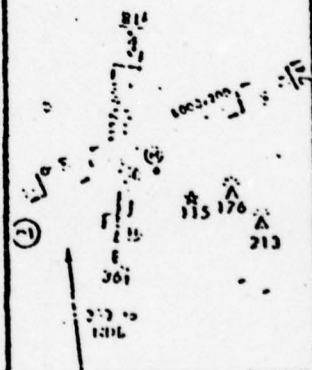
Pensacola Gnd Con
336.4
Pensacola Clnc Del.
268.7
Pensacola Tower
340.2
Departure Cont.
261.8 124.5
Jax Center
Freq As Assigned

Note: For 1D-23
Flights Only

Note: Remain within
10NM NPA Chan
119



Departure route description
Maintain runway heading to 500'
then turn left to 180 until
reaching 2500', then turn left
to 090 until reaching 3500'
then intercept the Saufley VOR
165° radial, and then direct
Saufley.



TDR-4 DR NAVIGATION GRADING CRITERIA

1. PRE-FLIGHT PLANNING

- AA: Not normally assigned
- A: 1) Pre-flights mission using DR log and navigation chart; no errors in applying drift and variation or in calculating CAS, GS and ETE
- 2) Brings all necessary navigation tools
- BA: 1) Pre-flight log and/or chart incomplete; one to four errors in applying drift and variation, or in calculating CAS, GS and ETE
- 2) Fails to bring one or two navigation tools
- UN: 1) Fails to pre-flight mission
- 2) Fails to bring navigation tools
- 3) Unprepared for scheduled training problem

2. DETERMINING POSITION

- AA: 1) All fix positions and EPs in tolerance (3NM)
- 2) Effective use of EPs for course control and/or ETA update
- 3) Good choice of navigation aids for LOPs at each fix position
- A: 1) One fix position out of tolerance
- 2) One error in use of EPs for course control and/or ETA update
- 3) Poor choice of navigation aids for LOPs at one fix position
- BA: 1) Two or three fix positions out of tolerance
- 2) Incorrect use of EPs for course control and/or ETA update, or fails to use an EP
- 3) Poor choice of navigation aids for LOPs at two or three fix positions
- UN: 1) Four or more fix positions out of tolerance
- 2) Poor choice of navigation aids for LOPs at four or more fix positions

3. WIND SOLUTIONS

- AA: 1) All wind solutions in tolerance ($+30^{\circ}/10$ KTS)
- 2) Solves the wind at each opportunity
- 3) Uses correct procedures to solve wind
- A: 1) One wind solution out of tolerance
- 2) Fails to solve the wind on one occasion
- 3) Uses incorrect procedures to solve one wind
- BA: 1) Two or three wind solutions out of tolerance
- 2) Fails to solve the wind on two or three occasions
- 3) Uses incorrect procedures to solve two or three winds
- UN: 1) Four or more wind solutions out of tolerance
- 2) Fails to solve the wind on four or more occasions
- 3) Uses incorrect procedures to solve four or more winds

4. COURSE CONTROL

- AA: 1) All fix positions within 5 NM of pre-flight course
2) Alters heading not later than six minutes after an off-course fix
3) Comprehends and readily applies course control concepts
- A: 1) All fix positions within 10 NM of pre-flight course
2) Alters heading not later than ten minutes after an off-course fix
3) Comprehends and applies course control concepts with occasional instructor assistance
- BA: 1) All fix positions within 15 NM of pre-flight course
2) Alters heading not later than fifteen minutes after an off-course fix
3) Requires frequent instructor assistance to apply course control concepts
- UN: 1) One or more fix positions more than 15 NM from pre-flight course
2) Alters heading later than fifteen minutes after an off-course fix
3) Unable to comprehend and apply course control concepts

5. INFLIGHT LOG/CHART

- AA: 1) Log entries are easily readable; navigation chart work is complete with correct chart symbols
2) All required line entries (fix, EP and DR) are complete and free of computation errors (application of drift, variation; addition, subtraction; calculation of ETA)
- A: 1) Log entries are readable; all required fix, DR, EP and NW positions are on navigation chart with correct chart symbols
2) No more than three required line entries are incomplete
3) Log contains no more than two computation errors
- BA: 1) Log entries are difficult to read; one to three required fix, DR, EP or NW positions are missing from navigation chart, with correct chart symbols
2) No more than six required line entries are incomplete
3) Log contains no more than five computation errors
- UN: 1) Log entries are unreadable; more than three required fix, DR, EP or NW positions are missing from navigation chart; incorrect chart symbols are used
2) More than six required line entries are incomplete
3) Log contains six or more computation errors

6. VOICE PROCEDURES

- AA: Not normally assigned
- A: SNFO performs voice communications with few errors, utilizes correct format, requires little instructor assistance
- BA: SNFO has difficulty performing voice communications, utilizes incorrect format, requires much instructor assistance
- UN: Not normally assigned

7. INSTRUMENT/EQUIPMENT USE

AA: Not normally assigned

A: SNFO correctly uses pushbuttons and data entry keyboards for:
UHF CMD RADIO, VOR, TACAN, IFF, DOPPLER, RMI, ALTIMETER,
MAGNETIC HEADING, AIRSPEED, ALTITUDE, ETA

BA: One to five errors in instrument/equipment use

UN: Six or more errors in instrument/equipment use

8. CTA

AA: Check point deviation 0-5 NM

A: Check point deviation 6-15 NM

BA: Check point deviation 16-20 NM

UN: Check point deviation greater than 20 NM

9. SQUARE SEARCH

AA: 1) Starts square search within 5 NM of search co-ordinates

2) Uses correct wind, distances, course and headings

3) Complete, correct line entries in log

A: 1) Starts square search within 10 NM of search co-ordinates

2) Makes one error in square search procedures/log entries as outlined above

BA: 1) Starts square search within 15 NM of search co-ordinates

2) Makes two errors in square search procedures/log entries as outlined above

UN: 1) Starts square search more than 15 NM from search co-ordinates

2) Makes three or more errors in square search procedures/log entries as outlined above

1D23
RADAR NAVIGATION
CHECK LIST

BEFORE STARTING ENGINES

1. ICS - Turn INTERCOM volume control full clockwise (adjust as necessary during ICS check with instructor)
2. RADAR - Check OFF; turn all controls OFF or OUT (full counter-clockwise)
3. RADIOS and NAVIGATION AIDS - Check OFF
4. NAV MODE, DOPPLER and INERTIAL PLATFORM - Check OFF

STARTING ENGINES

1. FUEL QUANTITY - Check
2. ALTIMETER - Set to field elevation
3. START ENGINES - Depress ENG START pushbutton

BEFORE TAXIING

1. GYRO COMPASS - Select SLAVED mode; align RMI with wet compass
2. UHF CMD RADIO - ON; select CMD mode TR & G
3. NAVIGATION AIDS - ON; select TACAN mode T/R
4. IFF - STBY
5. NAV MODE - AIR DATA or *DOPPLER or + INERTL/DOPPLER
- *6. DOPPLER - ON; initiate Doppler TEST
7. RADAR - STBY
8. HEADING MODE - MA-1
9. GYRO COMPASS - enter LATITUDE (N or S followed by four digits)
10. INERTIAL CONTROL - enter MAGNETIC VARIATION (E or W and two digits)
11. INS - select STBY for 30 sec., then select ALIGN
12. DATA ENTRY - select position and enter present LATITUDE and LONGITUDE (verify by selecting appropriate NAV display)
13. DATA ENTRY - select DEST 1 and enter first check point, and DEST 2 for second check point. Verify.
14. INS - (when READY light illuminates) - select OPERATE
15. HEADING MODE - INS

TAXIING

1. RADAR - ON; select RANGE - 30 NM, RATE - FAST, SECTOR - set BRIGHTNESS, VIDEO GAIN, and RECEIVER GAIN to determine that radar is operational
2. RADAR - STBY

BEFORE TAKE-OFF

1. FUEL QUANTITY - Check
2. ALTIMETER - Check
3. HEADING - Check

TAKE-OFF

1. IFF - NORM
- *2. DOPPLER - XMTR
3. RADAR - ON

LANDING (or at end of Training Problem)

1. IFF - OFF
- *2. DOPPLER - OFF
3. RADAR - OFF; turn all controls OFF or OUT (full counter-clockwise)

+ RTP - 3

* RTP - 4

SNFO GUIDE FOR RADAR TRAINER PROBLEMS 1, 2, 3 AND 4
RADAR NAVIGATION

DESCRIPTION OF TRAINER PROBLEM

Radar Trainer Problems 1, 2, 3, and 4 (RTP-1, RTP-2, RTP-3 RTP-4) are designed to exercise the SNFO in basic radar navigation and voice communication procedures.

The radar mission programs simulate the flight characteristics of the F-4J aircraft. Airspeed, altitude and magnetic heading of the aircraft will be controlled by the SNFO.

The SNFO will be required to calculate and enter ETA's to each turnpoint; to record fuel remaining, fuel flow and estimated fuel left at the target at each turnpoint; and to make voice communication and position reports as required along the route of flight. During RTP-4, SNFO radar navigation performance will be evaluated by an instructor other than his Training Manager.

TRAINING OBJECTIVES

Upon completion of TRP-4 the SNFO will be able to:

1. Perform basic radar navigation procedures:
 - a. Pre-flight mission using appropriate operational navigation chart (ONC).
 - b. Operate the radar control panel and cursor control stick.
 - c. Set up the radarscope for optimum presentation of land-water contrast returns or topographical features and cultural returns at medium and low altitude.
 - d. Maintain course control using the Radar Navigation System or the Radar Navigation System and Doppler Radar System.
 - e. Calculate ETA to each turnpoint using groundspeed determined from radar range information.
 - f. Record fuel remaining, fuel flow and estimated fuel left at the target at each turnpoint.
2. Communicate with aircraft controlling agencies using prescribed format and prowords:
 - a. Ground Control
 - b. Tower
 - c. Base
 - d. Approach Control
 - e. Tower

PROCEDURES

1. Radar Control Panel

- a. With radar in OFF or Standby mode, turn all controls (brightness, video gain, receiver gain, azimuth and range markers, antenna tilt, (STC) OFF or UP (full counter-clockwise).
- b. Place radar in ON mode of operation.
- c. Turn brightness control clockwise until radar scan become visible on radarscope (minimum brightness is desirable).
- d. Turn video gain full clockwise.
- e. Turn receiver gain clockwise until radar picture appears as desired on radarscope. (Adjust video gain as necessary).
- f. Turn range and azimuth marker controls clockwise until markers appear as desired on radarscope.
- g. Adjust antenna tilt as required by aircraft altitude and range to significant radar returns (out - antenna position 5° up; in - antenna position 15° down).
- h. Use STC controls to decrease intensity of radar returns on bottom half of radarscope: turn slope control full clockwise; adjust depth control clockwise until radar returns on radarscope appear as desired.

2. Place Navigation Computer in Air Data Mode (RTP-1, RTP-2) for display of TAS on Navigation Display Panel. RTP-3 will introduce the INS/Doppler/Computer Navigation system. The SNFO will attempt to achieve maximum utilization in order to demonstrate a full systems mission. If it is deemed necessary by the TM, the student could fly some later portion of RTP-3 without full system if preparation is needed for RTP-4.

During RTP-4 the Doppler Mode may be selected for display of ground speed and drift angle.

GRADING CRITERIA

RTP-4 will be a graded training problem. Current VT-10 Radar Navigation criteria will be used. These criteria will be discussed by the instructor during the pre-mission briefing.

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F/G 5/9

NAVAL FLIGHT OFFICER BASIC TRAINING. APPENDIX B. REVISION OF NA--ETC(U)

APR 76 J CHRISTMAN, S MUGG, W E CORLEY

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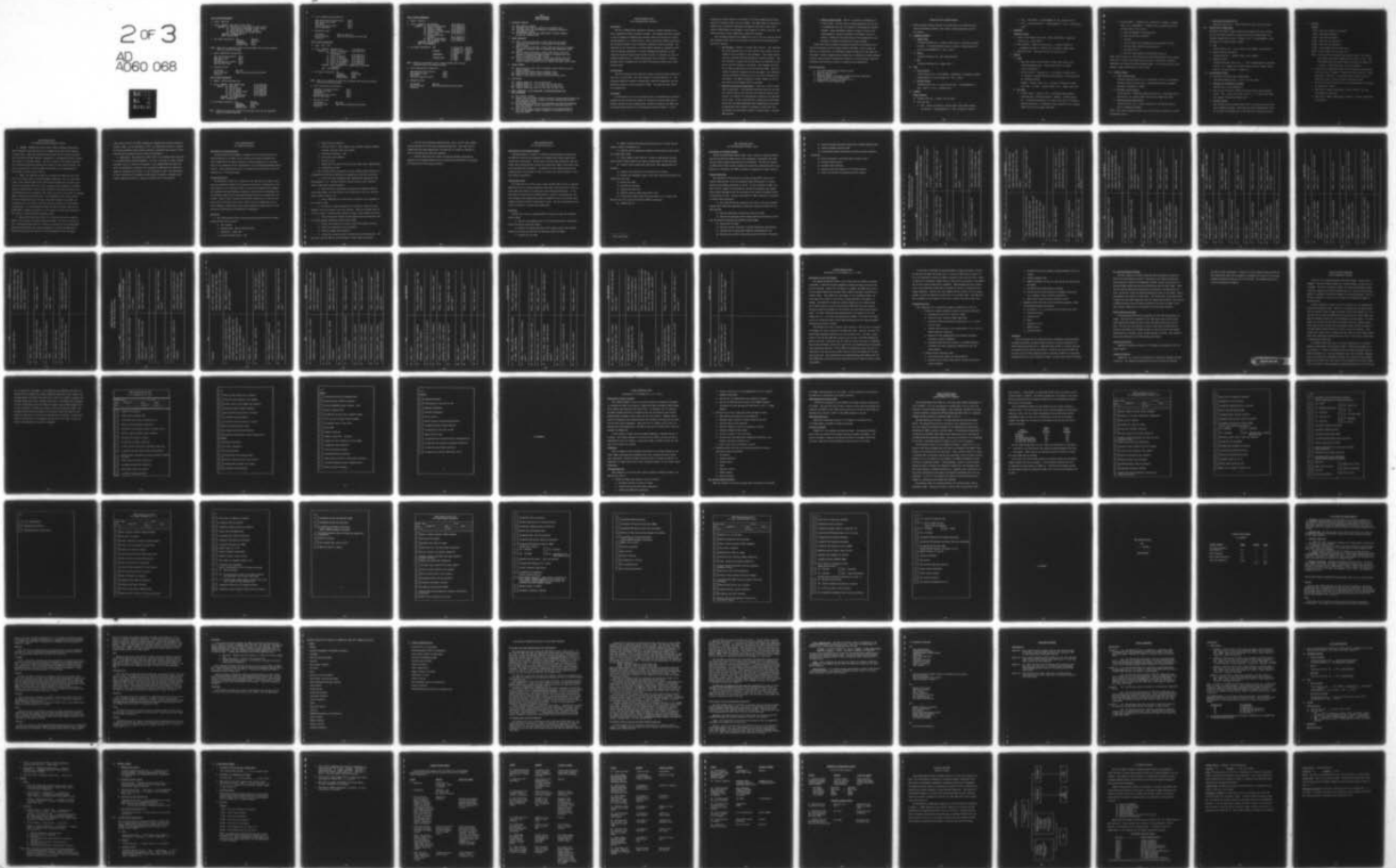
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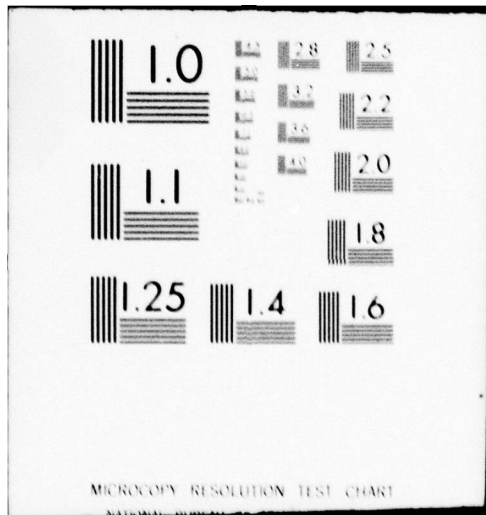
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MICROCOPY RESOLUTION TEST CHART

RTP-1 FLIGHT INFORMATION

1. Chart: ONC H-25
2. Route: TAKEOFF - NAS CECIL 30-12N 8152W
ENROUTE - A) Ship Target in Lake George 29-16N 81-33W
B) Island in Lake Istokpoga 27-22N 81-15W
C) West Palm Beach 26-46-N 80-02W
D) Bridge at Key Largo 25-18N 80-22W
APPROACH - HI-TACAN RWY 07
LAND - NAS KEY WEST
3. Pre-flight information: TAS 300 KTS
ALTITUDE 10,000 FT
TEMPERATURE 10°C
forecast wind 170/25

NOTE: SNFO will be expected to have his pre-flight chart and log completed before the mission briefing.

4. Voice communication frequencies:

| | |
|---------------------------|-------|
| Navy Cecil Ground Control | 384.4 |
| Navy Cecil Tower | 360.2 |
| Base Radio | 355.4 |
| Key West Approach Control | 263.6 |
| Navy Key West Tower | 340.2 |

5. Navigation tools:

| | |
|------------------|------------------------------------|
| CR Computer | ONC H-25 |
| Pencil and paper | High altitude approach plates SEUS |
| Kneeboard | |

RTP-2 FLIGHT INFORMATION

1. Charts: ONC G-21 and ONC H-25
2. Route: TAKEOFF - MCAS CHERRY POINT 34-54 N/76-53W
ENROUTE - A) Cape Fear 33-50 N/77-58W
B) Tip of Island 33-04 N/79-20W
C) Tip of Island 32-24 N/80-27W
D) Tip of Jekyll Island 31-07 N/81-25W
E) St. Augustine 29-52 N/81-16W
F) Tip of Cape Kennedy 28-27 N/80-32W
APPROACH - HI-TACAN RWY 20
LAND - PATRICK AFB
3. Pre-flight information: TAS 300 KTS
ALTITUDE 6,000 FEET
TEMPERATURE +16°C
FORECAST WIND 065/15

NOTE: SNFO will be expected to have his pre-flight chart and log completed before the mission briefing.

4. Voice Communication frequencies:

| | |
|----------------------------------|-------|
| MCAS Cherry Point Ground Control | 380.8 |
| MCAS Cherry Point Tower | 340.2 |
| Base Radio | 355.4 |
| Patrick Approach Control | 358.3 |
| Patrick AFB Tower | 236.6 |

5. Navigation tools:

| | |
|------------------|------------------------------------|
| CR Computer | ONC G-21; ONC H-25 |
| Pencil and paper | High Altitude Approach Plates SEUS |
| Kneeboard | |

RTP-3 FLIGHT INFORMATION

1. Chart: ONC G-20

2. Route: TAKEOFF - BARKSDALE AFB 32-30 N/93-40 W
ENROUTE - A) Center of Texarkana 33-26 N/94-03 W
B) Arkansas River at
Little Rock 34-45 N/92-17 W
C) Center of Memphis 35-08 N/89-58 W
D) Center of Florence 34-47 N/87-40 W
E) Center of Birmingham 33-31 N/86-50 W
F) Center of Montgomery 32-21 N/86-18 W
G) Center of Meridian 32-33 N/88-42 W
APPROACH - HI - TACAN RWY 18 L PENETRATION, CIRCLE AND
LAND RWY 27
LAND - NAS MERIDIAN

3. Pre-flight information: TAS 360 KTS
ALTITUDE 10,000 FEET
TEMPERATURE +10°C
FORECAST WIND 010/15

NOTE: SNFO will be expected to have his pre-flight chart and log completed before the mission briefing.

4. Voice communication frequencies:

| | |
|------------------------------|-------|
| Barksdale AFB Ground Control | 275.8 |
| Barksdale AFB Tower | 295.7 |
| Base Radio | 355.4 |
| Meridian Approach Control | 350.4 |
| NAS Meridian Tower | 340.2 |

5. Navigation tools:

| | |
|------------------|------------------------------------|
| CR Computer | ONC G-20 |
| Pencil and paper | High Altitude Approach Plates SEUS |
| Kneeboard | |

RTP-4 FLIGHT INFORMATION

1. Chart: ONC H-24

2. Route: TAKEOFF - NAS PENSACOLA 30-21 N/87-19 W
ENROUTE - A) Bend in Alabama River 31-22 N/87-46 W
B) Center of Laurel 31-42 N/89-08 W
C) Bridge at Natchez 31-34 N/91-25 W
D) Descent Pt at Baton Rouge 30-30 N/91-16 W
E) Tip of Island 29-20 N/91-21 W
F) Bridge across Lake
Maurepas 30-17 N/90-24 W
G) Bay St. Louis Bridge 30-19 N/89-18 W
H) Tip of Dauphin Island 30-14 N/88-18 W
APPROACH - HI-VOR RWY 18
LAND - NAS PENSACOLA

3. Pre-flight information: TAS to Descent Pt: 300 KTS
to Dauphin Is: 360 KYS
ALTITUDE to Descent Pt: 6,000 FT
to Dauphin Is: 1,000 FT
TEMPERATURE @ 6,000' +16°C
@ 1,000' +23°C
FORECAST WIND @ 6,000' 110/20
@ 1,000" 100/10

NOTE: SNFO will be expected to have his pre-flight chart and log completed before the mission briefing.

4. Voice communication frequencies:

| | |
|------------------------------|-------|
| NAS Pensacola Ground Control | 336.4 |
| NAS Pensacola Tower | 340.2 |
| Base Radio | 355.4 |
| Pensacola Approach Control | 270.8 |

5. Navigation tools:

| | |
|------------------|------------------------------------|
| CR Computer | ONC H-24 |
| Pencil and paper | High Altitude Approach Plates SEUS |
| Kneeboard | |

RTP-4
RADAR NAVIGATION
GRADING CRITERIA

1. PREFLIGHT PLANNING

- AA: Not normally assigned
- A: Preflight chart and log complete and reasonably neat
- BA: Preflight chart and log incomplete, improperly prepared or unnecessarily sloppy
- UN: No Preflight chart and log; SNFO unable to begin training problem at scheduled time

2. RADAR PROCEDURES

- AA: Able to build and maintain a usable radar picture without instructor assistance; able to recognize all significant radar returns
- A: Able to build and maintain a usable radar picture with occasional instructor assistance; able to recognize most significant radar returns
- BA: Able to build and maintain a usable radar picture only with frequent instructor assistance; unable to recognize more than half of the significant radar returns
- UN: Unable to build and maintain a usable radar picture even with instructor assistance; unable to recognize significant radar returns; unable to identify and use controls on radar control panel

3. COURSE CONTROL

- AA: Keeps aircraft within 3 NM of preflight course without excessive heading changes
- A: Keeps aircraft within 6 NM of preflight course
- BA: Keeps aircraft within 10 NM of preflight course
- UN: Unable to keep aircraft within 10 NM of preflight course

4. TURN POINTS

- AA: Computer grade 3.7 - 4.0; no ETA errors
- A: Computer grade 3.0 - 3.6; no more than one ETA error
- BA: Computer grade 2.5 - 2.9; no more than two ETA errors
- UN: Computer grade less than 2.5; more than two ETA errors

5. BASIC AIRMANSHIP (VOICE PROCEDURES, INSTRUMENT/EQUIPMENT USE, FUEL MANAGEMENT)

- AA: Not normally assigned
- A: No more than two errors in Voice Procedures and Instrument/Equipment Use (IFF, cruising altitude, altimeter setting); complete and accurate Fuel Management figures
- BA: No more than four errors in Voice Procedures and Instrument/Equipment Use; Fuel Management figures incomplete or inaccurate at one to three turn points
- UN: Five or more errors in Voice Procedures and Instrument/Equipment Use; Fuel Management figures incomplete or inaccurate at four or more turn points

TRAINING MANAGER GUIDE
Voice Communications Laboratory

Description

The Voice Communications Laboratory consists of ground training in the voice communication skills required in flight. The training involves listening to tape recordings of communications between aircrews and various air traffic control agencies, i.e., ground control, tower, enroute and terminal controller; and learning responses to the information contained in these recordings. The objectives of the training are to develop skills required to recognize and use words and phrases appropriate to aircraft communication problems, to copy clearance and other instructions received via radio, to identify the parts of standard transmission, to formulate appropriate voice responses to incoming messages, and to recognize one's own call from among the various voice transmissions heard.

Training Aids

Four Voice Communications Laboratory cassette tapes have been prepared for this unit of instruction. Each tape consists of similar material, i.e., ATC clearance deliveries, departure transmission, approach transmission, and communication during an airways navigation flight. The tapes have been edited for classroom use.

Procedures

In preparation for use of the prepared tapes, the Communication Scenarios prepared for use during early periods of instruction in Device 1D23 and the handout, Formats for Voice Communication, should be studied by the SNFOs, and he should become familiar with the abbreviated clearance symbols. A brief

explanation of these items by the TM prior to the Voice Communications Laboratory will facilitate their use by the SNFOs. The SNFOs should be instructed to memorize the aeronautical terminology and symbols contained in these items. Pairs of SNFOs should be encouraged to work together to achieve this goal, both before and after initial Communication Laboratory training.

The following procedures are suggested for use of the four tapes by the TM. The TM should remain aware of each student's progress and provide additional help where required.

- a. ATC Clearance. Tape No. 1 contains ATC clearance. The clearances are to be presented one at a time, and the tape recorder is to be stopped at the conclusion of each clearance. Each student should copy each clearance using the appropriate clearance symbols. When the recording is stopped, the TM will select an individual at random to read his clearance to the group. Each readback will then be critiqued as appropriate by the TM and other SNFOs. Open discussion for didactic purposes will be encouraged. The readback of clearances should be conducted as if in an actual communications environment. The SNFO's technique of verbal response as well as the content of his response will be critiqued.
- b. Departure and Approach Communication. Tapes Nos. 2 and 3 contain these transmissions. The procedures described above for use with the clearance tape can be used with each departure control transmission, and likewise for transmissions contained in the approach control tape. On short transmissions, copying may be unnecessary. Verify that each SNFO comprehends each transmission and can make an appropriate voice response by stopping the tape after each transmission and selecting a student to respond orally. Critique SNFO response.

- c. Complete Airways Flight. Tape No. 4 contains a recording of an airways flight. Stop the tape as deemed appropriate (at the end of transmission only) for the purposes of discussing the recorded messages. Query individual students at random to insure their understanding of content and ability to anticipate correct responses. Discuss the form and content of the transmission as appropriate to achieve the objectives of this training.

These tapes may be replayed as necessary during the time available until the TM is satisfied with the progress made by each SNFO. This training can continue, if appropriate, by individual students through use of the tapes for self-study. Further communications training can be achieved by students working in pairs, using prepared communication scenarios, to provide further familiarization with the format and content of required voice communication.

Material Required

1. Four Voice Communication Laboratory tapes
2. Cassette tape recorder
3. Paper and pencils
4. Clearance symbols (contained in NATIP System Unit Publication DR 18 Departure Voice Communication)
5. Communication Scenarios for TP-0, 1, 2 & 3
6. Formats for Voice Communication

FORMATS FOR VOICE COMMUNICATIONS

I. Before calling Clearance Delivery or Ground Control, the SNFO will tune ATIS and determine altimeter, duty runway, runway temperature and Pt-5 for takeoff.

II. CLEARANCE DELIVERY

A. Yankee Tacan

"Clearance Delivery, OF__, request Yankee Tacan." Read back clearance as given. If Clearance Delivery says to switch to Ground Control for taxi the acknowledgment is: "OF__, Wilco."

B. DD-175

"Clearance Delivery, OF__ IFR to(destination)."

C. NPA

"Clearance Delivery, OF__ request NPA__."

III. TAXI

A. Taxi Clearance

"Ground Control, OF__, taxi IFR/VFR__ (destination, information__(ATIS))."
Acknowledgement of taxi clearance is: "OF__, Wilco."

B. Off-Duty Runway

"Ground Control, OF__, to cross the off-duty." Acknowledgement is:
"OF__, Wilco," or "OF__, holding short."

IV. TAKEOFF

Tower Clearance

A. "Sherman Tower OF__, takeoff, IFR (or VFR)."

B. Tower may say:

1. "OF__, switch to departure, monitor guard, wind 130/8, cleared for takeoff." Acknowledgement is: "OF__ cleared for takeoff."

2. "OF___, hold short." Acknowledgement is "OF___ holding short."
3. "OF___, position and hold." Acknowledgement is "OF___, position and hold."

V. DEPARTURE

Departure Control

- A. Prior to roll obtain radio check, traffic permitting. "Departure Control, OF___, radio check."
- B. When airborne: "Departure Control, OF___, airborne climbing to ___(assigned altitude)" or "VFR on Top" if flying a yankee tacan.
- C. When VFR on top: "Departure Control, OF___ VFR on top."

VI. ENROUTE

A. Radar

1. Once radar contact has been made, assume radar contact until controlling agency says: "radar contact lost," or "radar service terminated."
2. Initial Contact: "(Agency), OF___, (Altitude or Flight Level)." If climbing to assigned altitude report passing or leaving altitude for assigned altitude.

Example: "Houston Center, OF___, passing 7 thousand for flight level 230." If level: "Houston Center, OF___, flight level 230."

B. Non-radar

1. Initial Contact: "Agency), OF___, estimating (next mandatory reporting point, (time),(altitude)." Example: "Atlanta Center, OF___, estimating Montgomery, 35, flight level 250," or "Pensacola Approach Control OF___ estimating initial approach fix, 35, passing flight level 210 for flight level 180."

2. Position Report: "(Agency), OF__ (position)," Example: "Atlanta Center, OF__, Montgomery." If agency says, "go ahead," give full position report (P.T.A.P.T.P.).

- a. Position (mandatory reporting point)
- b. Time (Actual time of arrival)
- c. Altitude
- d. Type of flight plan (IFR/VFR when not reporting to center)
- e. Position (next mandatory reporting point)
- f. Time (ETA for D.)
- g. Position (next mandatory reporting point after E)

NOTE: While airborne all instructions from controlling agencies can be acknowledged with: "Wilco" except instructions preceded or followed by "readback." Exceptions are altimeter settings during approach. If in doubt about any transmission, request verification or read it back.

VII. APPROACH CONTROL

A. Radar Initial Contact

"Pensacola Approach Control, OF__, (altitude), or FL" or if descending:
"Pensacola Approach Control, OF__, passing (altitude) for (assigned altitude), information __ (ATIS)."

B. Non-Radar Initial Contact

Initial Contact: "Pensacola Approach Control, OF__, estimating initial approach fix, 35, passing flight level 210 for flight level 180."

C. Reporting Initial Approach Fix

"Approach Control, OF__, initial approach fix, leaving (altitude or FL) for (assigned altitude),"

NOTE: Report above assigned altitude only if an altitude restriction is issued by approach control.

D. Reporting Final Approach Fix

"Approach Control, OF___, final approach fix, gear down and locked."

VIII. SECTION VOICE COMMUNICATION

On section (two plane), flight communication requests for taxi, crossing the off duty runway, takeoff, airborne, VFR-on-top, TACAN approach and frequency changes will include: "Flight of two." Acknowledgements remain the same as for single aircraft flights.

A. Taxi

"Ground Control, OF___, Taxi, Flight of two IFR/VFR___(destination).

B. Takeoff (made by instructor)

"Sherman Tower OF___, Takeoff Flight of two IFR/VFR."

C. Approach Control

"Pensacola Approach Control, OF___," After acknowledgement by Approach Control: OF___ Flight of two (position and altitude) request random radar for two section GCA's. wingman OF___."

IX. MISCELLANEOUS REPORTS

A. Checking in with VT-10 Base (TRIPLE ZERO)

"000 (TRIPLE ZERO) Base OF___, E.A.C. (in Zulu time)."

B. Checking in at Completion of Flight

"000 Base OF___ in and (up/down)."

C. When clear of duty after landing call ground control with following report: "OF___, clear of the duty, taxi to___." If DD-175 was filed also include "close out my flight plan."

D. Altitude Passing

When reading altitude passing always read to the nearest thousand feet unless assigned otherwise. Reporting the nearest thousand feet in the jet aircraft is preferable due to the high rate of climb and descent.

E. Altitude

Example:

- 1,200 - read "one thousand, two hundred."
- 8,000 - read "eight thousand."
- 9,000 - read "niner thousand."
- 10,000 - read "one zero thousand."
- 15,000 - read "one five thousand."
- 18,000 - read "flight level one eight zero."
- 20,000 - read "flight level two zero zero."

NOTE: In general we're concerned with economy of words. All reports have omitted unnecessary language such as "This is," etc. When using abbreviated call signs follow the lead of the agency controlling. If they abbreviate, you may do likewise.

1. After two-way communications have been established, an abbreviated call may be used. Example: "Jacksonville Center Navy OF__, Flight Level 200." "Navy OF__, Jacksonville Center, report Crestview." "Navy OF__ Wilco." Note that agency called was omitted.
2. When told to switch frequencies by a controlling agency, acknowledge by saying "OF__, Wilco."
3. When told to squawk, acknowledge by setting IFF/SIF. No radio transmission is necessary.
4. When told to IDENT, acknowledge by identifying. No radio transmission is necessary.

PEER TRAINING GUIDE
For Airways and Dead Reckoning Problems

1. General. Maximum use will be made of SNFOs undergoing advanced NFO Basic Training as peer instructors for new SNFOs during their early training in Device 1D23. These Peer Instructors will assist the TM, who will supervise their activities and make specific assignments, as circumstances dictate, during the course of a training activity. The Peer Instructor will receive briefings by a TM which specifically describe their duties for each trainer problem. The Peer Instructors will record his SNFO's performance on the Progress Record Forms (PRF) for TP 0-3 and the TDR 1-2.

2. TP-0. The objective of TP-0 is to introduce the SNFO to Device 1D23 and to the overall task of airways instrument navigation. The Peer will demonstrate to his assigned SNFO how the device works (mechanically) and how to perform basic navigation tasks in it (e.g., inserting radio frequencies, tracking radials, communication); he will assist the SNFO in operating the device and in accomplishing the basic navigation task; and he will alert the TM when his assigned SNFO is having particular difficulty. In accomplishing these tasks, the Peer will both demonstrate device functions and provide feedback to the SNFO concerning his use of the device. The Peer will use the device's freeze feature as appropriate. At the conclusion of TP-0, the Peer will assure that his assigned SNFO is capable of operation of all features of Device 1D23 required for the conduct of simulated airways navigation tasks.

3. TPs 1-3. The objective of TPs 1-3 is to develop the skills needed by SNFOs in the execution of airways navigation flights. The role of the Peer in these training activities will be to monitor the progress of his assigned SNFO and alert the TM when he may require assistance; to provide the SNFO any instruction he may need with respect to the accomplishment of his navigation

tasks; and to instruct the SNFO concerning the communication required during instrument flight. At the conclusion of TP-3, the SNFO should be able to perform all airways navigation tasks without assistance, although he may require further practice before reaching criterion levels of performance.

4. TDR 1 and 2. The objective of TDR 1 and 2 is to develop skills necessary to accomplish dead reckoning navigation. The role of the Peer in these training activities will be to monitor the progress of his assigned SNFO and alert the TM if his assistance is required, and to provide the SNFO with any instruction needed to accomplish the DR tasks. At the conclusion of TDR-2, the SNFO should be able to perform all DR navigation tasks without assistance, although he may require additional practice to achieve criterion levels of performance.

PEER INSTRUCTOR GUIDE
For Training Problem Ø

Description of Training Problem

Training Problem Ø is designed to demonstrate 1D23 trainee station operating procedures to the SNFO, and to introduce the airways navigation and voice communication procedures required to perform navigation on a real-time basis in the simulated airborne environment of the 1D23 Navigation/Communication Trainer. These demonstrations will be performed by Peer Instructors under the supervision of a Training Manager.

Training Objectives

The objectives of TP-Ø are to familiarize the SNFO with the cockpit instruments and indicators located in each trainee station and to demonstrate to him the procedures to be followed in order to operate the navigation and communication equipment and enter heading, airspeed, altitude and time information into the Simulator Computer while performing navigation and voice communication procedures. While it may be necessary for the Peer Instructor to occupy the student's seat in the device from time to time in order to demonstrate certain device features, familiarization with device operation through practice of the activities listed below by the SNFO will be emphasized.

Activities

1. The following 1D23 trainee station operating procedures will be demonstrated by the Peer Instructor:
 - a. Gyro compass
 - b. Communication: CMD and AUX UHF radios
 - c. Navigation: TACAN, VOR
 - d. Aircraft identification: IFF

- e. Right hand entry keyboard
- f. Aircraft control: start engines, taxi, takeoff, magnetic heading, airspeed, altitude, land, stop engines
- g. Performance evaluation: ETA
- h. Center data entry keyboard
- i. Instructor call
- j. Headset and foot switch for intercom and radio voice communications
- k. Determination of CAS.

2. The following airways navigation and voice communications tasks will be accomplished on TP-Ø by the SNFO with the assistance of the Peer Instructor:

- a. Obtain and insert appropriate UHF communication frequencies from IFR Supplement, e.g., clearance delivery, ground control, tower, departure control (departing from NAS Pensacola).
- b. Obtain and insert appropriate frequencies for TACAN and VOR stations along flight route from Enroute Low Altitude Chart L-18, e.g., NAS Pensacola, Saufley, Mobile, etc.
- c. Select TACAN as well as VOR heading information to be displayed on No. 2 needle of RMI.
- d. Use RMI No. 2 needle information to intercept a radial and track inbound, cross over stations, and track outbound. SNFO will determine when he is left or right of desired radial and how to insert a mag. heading correction.
- e. Track outbound and inbound between TACAN stations and estimate time to station passage; navigation point-to-point TACAN.
- f. Monitor and interpret all cockpit control and display functions.
- g. Record fuel remaining at each checkpoint.
- h. Identify quadrant wind direction.
- i. Perform the one-minute-prior and mark-on-top intercom reports. The Peer will coach the SNFO in the performance of these tasks as required.

3. The Peer will demonstrate ground control, tower, and ATC voice communications associated with the tasks performed during TP-0. After each type of communication has been demonstrated, the SNFO will be coached as required so that he can perform the tasks when required.

4. The Peer Instructor will inform the Training Manager concerning the progress of his assigned SNFOs and of any difficulties encountered in achieving the objectives of this training activity.

PEER INSTRUCTOR GUIDE
For Training Problems 1-3

Description of the Training Problem

Training Problems 1-3 consist of simulated airways missions during which the SNFO will practice the navigation and communication tasks normally associated with such missions. The Peer will coach the SNFO through all tasks the student must perform and will provide any explanation and/or clarification that will facilitate his performance. In addition, he will simulate ground voice communications to the student in order to relieve the console operator of this task whenever appropriate.

Training Objectives

The objectives of the first three trainer periods (TPs 1-3) are to initiate SNFO practice of all airways navigation tasks and to develop levels of skill at those tasks sufficient for further practice with minimum supervision. At the conclusion of these periods, the SNFO should be capable of performing all relevant navigation and communication tasks, although he will not necessarily have reached acceptable levels of proficiency at each. The Peer will guide his practices as necessary to achieve these objectives.

Activities

The Peer will coach the assigned SNFO as necessary through the following mission tasks:

- a) Use jet log navigation data to fly preplanned mission; make appropriate log entries during the flight.
- b) Operate all appropriate Device 1D23 cockpit control and switches; interpret the device's indicators and displays during the flight.
- c) Perform all ICS tasks.

- d) Employ relevant DoD IFR Enroute publications to retrieve IFR procedures, radials, frequencies, etc.
- e) Identify and use appropriate TACAN and VOR navigation aids frequencies along flight route.
- f) Select TACAN or VOR on RMI No. 2 needle as appropriate; perform point-to-point TACAN navigation and radial tracking tasks for VOR and TACAN.
- g) Identify and use appropriate UHF enroute IFR communications frequencies.
- h) Complete "one minute prior" and "mark-on-top" reports.
- i) Perform fuel management tasks; record fuel aboard and estimated fuel required for next leg.
- j) Compute TAS (CAS).
- k) Determine GS and Mach.
- l) Compute ETA using CR-2.
- m) Identify quadrant winds along radial track.
- n) Perform ATC communications tasks appropriate to the flight (the Peer will use the scenario and coach the SNFO as necessary).
- *o) Complete DD 175.

*TP 2 and 3 only

PEER INSTRUCTOR GUIDE
For Dead Reckoning Problems 1 and 2

Description of Training Problems

Trainer Dead Reckoning problems (TDR) 1 and 2 consist of simulated DR missions during which the SNFO practices the navigation, log keeping, and communication tasks normally associated with such missions. The peer will monitor his SNFO perform these mission elements and provide any explanation and/or clarification to facilitate the SNFO's learning to accomplish the tasks correctly.

Training Objectives

The objectives of these first two trainer periods (TDR 1 and 2) are to initiate SNFO practice of all DR navigation tasks sufficiently for further practice with minimum supervision by his TM. At the conclusion of TDR-2, the SNFO should be capable of performing all relevant DR navigation and communication tasks, although he will not necessarily have reached acceptable levels of proficiency at each. The peer will guide the SNFO's practices as necessary to achieve these objectives:

- a) Use formal DR log and navigation chart data to fly the preplanned mission (both should have appropriate information listed and charted for the TDR briefing).
- b) Make all appropriate log entries during the flight.
- c) Operate all appropriate 1D23 cockpit controls and switches; interpret the device's indicators and displays during flight.
- d) Perform all ICS tasks.
- e) Retrieve relevant information from DoD IFR Enroute publications.
- f) Identify and use appropriate TACAN and VOR navigation aids.
- g) Determine fix position using advance and retard lines of position.

- h) Identify and make appropriate UHF enroute IFR/VFR communications.
- i) Utilize estimated positions (EP).
- j) Avoid adverse weather conditions utilizing accepted navigation procedures.
- k) Solve and execute a controlled time of arrival (CTA).
- l) Perform a square search.
- m) Determine wind solutions.
- n) Maintain course and respond to off course positions.
- o) Utilize the plotter and dividers and CR-2 computer.

COMMUNICATION SCENARIO FOR TPs 0, 1 AND 2
 Non-Radar IFR Low Altitude Airways

SNFO

PEER INSTRUCTOR

1. OBTAIN ATIS INFORMATION IF AVAILABLE PRIOR TO CONTACTING CLEARANCE DELIVERY OR GROUND CONTROL

2. "Clearance Delivery, Sabre __, IFR Navy Pensacola."

"Sabre __, Clearance Delivery, your clearance is on request."

3. "Sherman Ground Control, Sabre __, taxi IFR Navy Pensacola, information __ (ATIS, alpha, bravo, charlie, etc.)"

"Sabre __, Sherman Ground, cleared to taxi runway (duty runway), time __."

4. Sabre __, Wilco."

5.

"Sabre __, Sherman Ground, switch to Clearance Delivery."

6. "Sabre __, Wilco."

7. "Clearance Delivery, Sabre __, standing by for clearance."

"Sabre __, cleared to Navy Pensacola as filed. Climb and maintain 12 thousand, expect 16 thousand 10 minutes after departure, squawk

7. Continued

mode 3 code 1600. After takeoff maintain runway heading and 500 feet until 2 DME, contact Pensacola Departure Control on 280.1, readback."

8. "Sabre__, is cleared to Navy Pensacola as filed, climb and maintain 12 thousand, expect 16 thousand 10 minutes after departure, squawk mode 3 code 1600. After takeoff maintain runway heading and 500 feet until 2 DME, contact Pensacola Departure Control on 280.1."

"Sabre__, readback is correct, contact Tower when ready for takeoff."

9. "Sabre__, Wilco."

10. "Sherman Tower, Sabre, Takeoff IFR."

"Sabre__, Sherman Tower, 'hold short' or 'position and hold' or 'wind 170/10 switch to Departure monitor guard, cleared for takeoff.'"

11. "Sabre__, holding short," or "position and hold;" or "cleared for takeoff."

12. "Pensacola Departure Control, Sabre__, radio check."

"Sabre__, Pensacola Departure Control, loud and clear."

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| <p>13. "Pensacola Departure Control, Sabre__, airborne, climbing to 12 thousand."</p> | <p>"Sabre__, Pensacola Departure Control, radar contact, turn left 340, call passing 10 thousand, when receiving Mobile suitable for navigation, proceed direct."</p> |
| <p>14. "Sabre__, left 340, Wilco."</p> | |
| <p>15. "Pensacola Departure Control, Sabre__ passing 10 thousand."</p> | <p>"Sabre__ Pensacola, radar service is terminated, climb and maintain 16 thousand, contact Houston Center on 264.8."</p> |
| <p>16. "Sabre__, Wilco."</p> | |
| <p>17. "Houston Center, Sabre__ estimating Mobile ____ (time), 16 thousand."</p> | <p>"Sabre__ Houston, roger."</p> |
| <p>18. "Houston Center, Sabre__, Mobile."</p> | <p>"Sabre__, Houston Center, go ahead."</p> |
| <p>19. "Sabre__, Mobile __ (time), 16 thousand, estimating Hattiesburg __ (time), Meridian."</p> | <p>"Sabre__, Houston, roger."</p> |
| <p>20. "Houston Center, Sabre__, Hattiesburg."</p> | <p>"Sabre__, Houston Center go ahead."</p> |

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| 21. "Sabre __, Hattiesburg __ (time), 16 thousand, estimating Meridian __ (time), Cahaba." | "Sabre __, Houston Center, contact Memphis Center on 319.4." |
| 22. "Sabre __, Wilco." | |
| 23. "Memphis Center, Sabre __, estimating Meridian __ (time), 16 thousand." | "Sabre __, Memphis Center, roger. Descend and maintain 15 thousand." |
| 24. "Sabre __, leaving 16 thousand for 15 thousand." | |
| 25. "Memphis Center, Sabre __, Meridian." | "Sabre __, Memphis, roger, contact Atlanta Center on 274.2." |
| 26. "Sabre __, Wilco." | |
| 27. "Atlanta Center, Sabre __, estimating Cahaba __ (time), 15 thousand." | "Sabre __, Atlanta Center, roger." |
| 28. "Atlanta Center, Sabre __, Cahaba." | "Sabre __, Atlanta go ahead." |
| 29. "Sabre __, Cahaba __ (time), 15 thousand, estimating Monroeville __ (time) Brookley." | "Sabre __, Atlanta roger, descent to and maintain 14 thousand." |
| 30. "Sabre __, leaving 15 thousand for 14 thousand." | |

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| 31. "Atlanta Center, Sabre__, Monroeville." | "Sabre__, Atlanta go ahead." |
| 32. "Sabre__, Monroeville __ (time) 14 thousand, estimating Brookley __ (time), Navy Pensacola initial." | "Sabre__, Atlanta roger, contact Houston Center on 264.8." |
| 33. "Sabre__, Wilco." | |
| 34. "Houston Center, Sabre__, estimating Brookley __ (time), 14 thousand." | "Sabre__, Atlanta Center, roger." |
| 35. "Atlanta Center, Sabre__, Brookley." | "Sabre__, Atlanta, go ahead." |
| 36. "Sabre__, Brookley __ (time), 14 thousand, estimating Navy Pensacola initial __ (time)." | "Sabre__, Houston, contact Pensacola Approach Control on 279.6." |
| 37. "Sabre__, Wilco." | |
| 38. "Pensacola Approach Control, Sabre__, estimating initial approach fix __ (time), 14 thousand." | "Sabre__, Pensacola Approach Control, cleared direct to initial approach fix, maintain 14 thousand, altimeter 2995." |

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| 39. "Sabre__, altimeter 2995, Wilco." | "Sabre__, Pensacola present weather 1 thousand overcast, visibility 4 miles light rain. Wind 050/10, cleared Hi-Tacan RW6 penetration and approach. Squawk 0700." |
| 40. "Sabre__, Wilco." | |
| 41. "Pensacola Approach Control, Sabre__, initial approach fix, leaving 14 thousand." | "Sabre__, Pensacola, roger." |
| 42. "Sabre__, final approach fix, gear down and locked." | "Sabre__, wind 050/10, Tower clears you to runway 6 right." |
| 43. "Sabre__, cleared to land 6 right." | |
| 44. "Sherman Ground Control, Sabre__, clear of duty, taxi to VT-10, close out my flight plan." | "Sabre__, Sherman Ground, taxi to the line, flight plan closed out on touchdown." |

COMMUNICATION SCENARIO FOR TP 3

Non-Radar IFR Low Altitude Airways

SNFO

PEER INSTRUCTOR

1. OBTAIN ATIS INFORMATION IF AVAILABLE PRIOR TO CONTACTING CLEARANCE DELIVERY OR GROUND CONTROL.

2. "Clearance Delivery, Sabre__, IFR Navy Pensacola."

"Sabre__, Clearance Delivery, your clearance is on request."

3. "Sherman Ground Control, Sabre__, taxi IFR Navy Pensacola, information__" (ATIS-alpha, bravo, charlie, etc.).

"Sabre__, Sherman Ground, cleared to taxi runway (duty runway), time__."

4. "Sabre__, Wilco."

5. "Sabre__, Sherman Ground, switch to Clearance Delivery."

6. "Sabre__, Wilco."

7. "Clearance Delivery, Sabre__, standing by for clearance."

"Sabre__, cleared to Navy Key West as filed Climb and maintain 14 thousand, expect 16 thousand 10 minutes after departure, squawk

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| 7. Continued | mode 3 code 1600. After takeoff maintain heading, and 500 feet until 2 DME, contact Pensacola Departure Control on 280.1, readback." |
| 8. "Sabre__, is cleared to Navy Key West as filed, climb and maintain 14 thousand, expect 16 thousand 10 minutes after departure, squawk mode 3 code 1600. After takeoff maintain runway heading and 500 feet until 2 DME, contact Pensacola Departure Control on 280.1." | "Sabre__, readback is correct, contact Tower when ready for takeoff." |
| 9. "Sabre__, Wilco." | |
| 10. "Sherman Tower, Sabre__, Takeoff IFR." | "Sabre__, Sherman Tower," "hold short" or "position and hold" or "wind 070/10 switch to Departure, monitor guard, cleared for takeoff." |
| 11. "Sabre__, holding short;" or "position and hold;" or "cleared for takeoff." | |
| 12. "Pensacola Departure Control, Sabre__, radio check." | "Sabre__, Pensacola Departure Control, loud and clear." |

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| 13. "Pensacola Departure Control, Sabre__, airborne, climbing to 14 thousand." | "Sabre__, Pensacola Departure Control, radar contact, turn 045 call passing 10 thousand, cleared direct Crestview." |
| 14. "Sabre__, left 045, Wilco." | |
| 15. "Pensacola Departure Control, Sabre__ passing 10 thousand." | "Sabre__, Pensacola, radar service is terminated, contact Jacksonville Center on 350.2." |
| 16. "Sabre__, Wilco." | |
| 17. "Jacksonville Center, Sabre__, estimating Crestview __ (time), 14 thousand." | "Sabre__, Jacksonville Center, roger." |
| 18. "Jacksonville Center, Sabre__, Crestview." | "Sabre__, Jacksonville, go ahead." |
| 19. "Sabre__, Crestview __ (time), 14 thousand estimating Marianna __ (time), Tallahassee." | "Sabre__, Jacksonville Center, roger." |
| 20. "Jacksonville Center, Sabre__, Marianna." | "Sabre__, Jacksonville Center go ahead." |
| 21. "Sabre__, Marianna __ (time), 14 thousand, estimating Tallahassee __ (time), Cross City." | "Sabre__, Jacksonville, contact Jacksonville Center on 360.8." |

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| 22. "Sabre__, Wilco." | |
| 23. "Jacksonville Center, Sabre__, estimating Tallahassee __ (time), 14 thousand." | "Sabre__, Jacksonville Center, roger. Climb to and maintain 16 thousand." |
| 24. "Sabre__, leaving 14 thousand for 16 thousand." | |
| 25. "Jacksonville Center, Sabre__, Tallahassee." | "Sabre__, Jacksonville Center, go ahead." |
| 26. "Sabre__, Tallahassee __ (time), 16 thousand estimating Cross City __ (time), Lakeland." | "Sabre__, Miami Center, roger." |
| 27. "Jacksonville Center, Sabre__, Cross City." | "Sabre__, Jacksonville, roger, contact Miami Center on 380.3." |
| 28. "Sabre__, Wilco." | |
| 29. "Miami Center, Sabre__, estimating Lakeland __ (time) 16 thousand." | "Sabre__, Miami Center, roger." |
| 30. "Miami Center, Sabre__, Lakeland." | "Sabre__, Miami go ahead." |

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| 31. "Sabre __, Lakeland __ (time) 16 thousand, estimating Ft. Myers __ (time) Key West." | "Sabre __, Miami roger, descend to and maintain 14 thousand. Contact Miami Center 322.5." |
| 32. "Sabre __, leaving 16 thousand for 14 thousand, Wilco." | |
| 33. "Miami Center, Sabre __, estimating Ft. Myers __." | "Sabre __, Miami Center, roger." |
| 34. "Miami Center, Sabre __, Ft. Myers." | "Sabre __, Miami, go ahead." |
| 35. "Sabre __, Ft. Myers __ (time), 14 thousand, estimating Key West __ (time) Navy Key West initial." | "Sabre __, Miami roger, contact Miami Center on 290.5." |
| 36. "Sabre __, Wilco." | |
| 37. "Miami Center, Sabre __, estimating Key West __ (time) 14 thousand." | "Sabre __, Miami Center, roger." |
| 38. "Miami Center, Sabre __, Key West." | "Sabre __, Miami, go ahead." |

SNFO

PEER INSTRUCTOR

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| <p>39. "Sabre __, Key West __ (time), 14 thousand, estimating Navy Key West initial __ (time)."</p> | <p>"Sabre __, Miami, contact Navy Key West Approach Control on 263.6."</p> |
| <p>40. "Sabre __, Wilco."</p> | |
| <p>41. "Navy Key West Approach Control, Sabre __, estimating initial approach fix __ (time), 14 thousand."</p> | <p>"Sabre __, Navy Key West Approach Control, cleared direct to initial approach fix, maintain 14 thousand, altimeter 30.32."</p> |
| <p>42. "Sabre __, altimeter 30.32, Wilco."</p> | <p>"Sabre __, Navy Key West Approach Control present weather 8 hundred overcast, visibility 4 miles light rain. Wind 080/15, cleared VORTAC RW7 penetration and approach. Squawk 0700."</p> |
| <p>43. "Sabre __, Wilco."</p> | |
| <p>44. "Navy Key West Approach Control Sabre __, initial approach fix, leaving 14 thousand."</p> | <p>"Sabre __, Navy Key West roger."</p> |
| <p>45. "Sabre __, final approach fix, gear down and locked."</p> | <p>"Sabre __, wind 080/15, Tower clears you to land runway 7."</p> |

SNFO

PEER INSTRUCTOR

46. "Sabre__, cleared to land."

47. "Key West Ground Control, Sabre__, clear of
duty, taxi to transient line, close out my
flight plan."

"Sabre__, Key West Ground, taxi to the line,
flight plan closed out on touchdown."

TRAINING MANAGER GUIDE

Description of T-39 Flights A-1, 2, 3 and 4

Description of the T-39 Flights

The airways navigation flights in the T-39 provide the SNFOs an airborne environment in which the airways navigation training initiated in Device 1D23 will be continued. During the T-39 phase of training, the SNFOs will practice all the flight planning and airborne tasks normally required of an NFO during airways flight. Three SNFOs will participate in each scheduled flight, and each flight will consist of three entire airways missions, from takeoff to landing. Each SNFO will occupy the co-pilot position in the cockpit during one of these missions, and he will perform all NFO duties for that mission. During the other two missions, he will observe the other SNFOs perform similar tasks. In-flight instruction and evaluation will be conducted by the T-39 flight crew, i.e., the pilot and Instructor NFO (INFO). The final T-39 flight will be an evaluation mission, where SNFO performance will be evaluated against existing VT-10 grading criteria.

The SNFO will not know in advance which mission or "leg" he will be required to navigate; he must be prepared to navigate all three. Therefore, he must complete flight planning, prepare the jet log and DD-175, etc., for each. Designation of the leg each SNFO will navigate will be done by the INFO immediately prior to that leg. During his leg, the SNFO will assist the pilot in completing the aircraft checklists, and he will perform all the communicating and navigating tasks required on that leg. The two SNFOs not navigating a given leg will occupy seats in the rear of the aircraft and will follow the progress of the mission via the ICS. This procedure will be repeated during each flight until all three SNFOs have performed the tasks associated with one complete airways navigation mission.

On the basis of information concerning SNFO in flight performance provided by the pilot and INFO, the TM may elect to excuse the SNFO from A-2 and/or A-3. If in the instructor's opinion the SNFO's progress is such that he will be unable to pass the A-4 evaluation flight criteria, and with the concurrence of the SNFO's TM, an extra airways flight may be scheduled. SNFO planning and route information for the additional flight will be provided by the TM in coordination with flight scheduling. Normally only four flights will be required for the average student to learn and demonstrate acquisition of the flight tasks. The SNFO will have a maximum of five flights in the T-39 to complete the check flight (A-4).

Training Objectives

Upon completion of A-4 (evaluation flight) the SNFO will be able to:

1. Perform the airways navigation related T-39 aircraft functions:
 - a. Determine that the A/C is ready for flight.
 - b. Perform the pre- and post-flight inspections.
 - c. Perform all SNFO seat positions inspections, i.e., co-pilot and rear seats.
 - d. Interact with the pilot in the accomplishment of all the T-39 NATOPS checklist activities.
 - e. Operate all T-39 communication and navigation equipment relating to airways navigation.
 - f. Perform all NFO functions related to the NATOPS emergency procedures for those emergencies identified in the T-39 Flight Handout.
2. Perform airways navigation tasks:
 - a. Plan missions and prepare jet log and DD-175.
 - b. Maintain course control using radial tracking and point-to-point procedures.

- c. Calculate ETA to each turnpoint using groundspeed check procedures.
 - d. Identify quadrant wind.
 - e. Compute in-flight jet log data, ATA and EFL for next leg and IAF (+100).
 - f. Use FLIP enroute publications as required.
 - g. Provide the pilot with appropriate navigation advisories, e.g., heading, course, altitude and position.
 - h. Report other nearby aircraft positions to pilot.
3. Communicate with the pilot and all controlling agencies, using the prescribed format and prowords:
- a. ICS reports, i.e., two minute prior and mark-on-top calls
 - b. Clearance Delivery
 - c. Ground Control
 - d. Tower
 - e. Departure Control
 - f. ARTCCs enroute
 - g. Approach Control

Scheduling

The T-39 flights will be scheduled during a designated three-week period by Flight Scheduling, and these flight activities will have precedence over other training activities (i.e., Individual Study and TP 7, 8 and 9) which may be scheduled during the same time period. Should the TM excuse an SNFO from any one or more of these flights or wish to schedule an SNFO for an additional training prior to A-4 (the evaluation flight), he must advise Flight Scheduling.

Pre- and Post-Mission Briefings

SNFO will complete all mission planning tasks and prepare jet logs and DD-175s for each mission leg prior to reporting to the flight briefing area. Each leg will be treated as an independent mission, except that aircraft pre- and post-flight inspections will be performed only once for each flight. While the pre- and post-mission briefings will be conducted by the INFO and/or the pilot, the TM will review the mission planning activities of each SNFO to assure the adequacy of his skills at these tasks. The TM also will review mission performance with each SNFO (using data from the Progress Record Forms, other records of SNFO performance and oral reports provided by the pilot and INFO) as soon after mission completion as is convenient for the personnel involved.

SNFO Progress Record Forms

A Progress Record Form will be completed for each SNFO during each T-39 flight. The form will be completed by the INFO (with inputs from the pilot where appropriate) during the leg in which each SNFO occupies the co-pilot seat. The form will then provide a record of those tasks successfully performed by each SNFO on each flight and will be used as an aid to post-flight debriefing and to provide a report of SNFO progress to the TM. Each completed form will be delivered to the TM following each flight.

Additional References

Additional information relevant to T-39 flights is contained in the T-39 Flight Handout.

Grading Information

Flights A-1, 2, 3 and the extra mission if required are ungraded training activities. The completed Progress Record Form will provide the necessary

records of student performance. Flight A-4 will be evaluated using the PRF and the standard ATF, which will be graded in accordance with current VT-10 airways navigation grading criteria for the T-39 aircraft. The completed ATF will be used for the purpose of ranking.

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FLIGHT EVALUATION PROCEDURE
Airways Navigation Training

Since A-4 is an airways navigation Evaluation Flight, a grade will be assigned. All other A-Phase flights are training flights, and they will not be graded. For the A-4 Evaluation Flight, the Instructor NFO and/or flight instructor completes an Aviation Training Form (ATF) using the same criteria applied to grading C-8 Evaluation Flights in the existing program. This is to be done in addition to completion of the PRF for the Evaluation Flight as described above.

Airways navigation training in the T-39 aircraft is to be conducted on a proficiency progression basis. While it is estimated that the typical SNFO will be prepared to pass a flight evaluation on his fourth flight (A-4), it is expected that the more apt SNFOs will be ready before the fourth flight, and some will probably require one or two additional training flights. The final grade to be entered into the SNFO record jackets will be a composite grade reflecting the marks received on his evaluation flight ATF and the number of training flights required before he is able to pass the evaluation. Thus, students who complete their training early will tend to receive higher grades, while those completing training later will tend to receive lower grades based on equal marks on their ATF.

It should be noted that there is no fixed requirement for a specified number of flight before the evaluation flight. Therefore any flight can be an evaluation. In those circumstances where the flight crew agrees that an SNFO's performance on a training flights was such that all airways navigation tasks were performed in satisfactory fashion (i.e., equivalent to a passing grade on the present C-8), that flight can be designated an evaluation flight (A-4), and further airways navigation training and evaluation in the T-39 will

not be required for that SNFO. If the SNFO has not progressed sufficiently to satisfactorily accomplish the Airways Navigation tasks after three flights, the Training Manager and Flight Instructors will review that student's progress and normally assign him an extra training flight prior to scheduling his evaluation. In those circumstances where the flight crew agrees that an SNFO probably will be able to perform in satisfactory fashion on his next scheduled flight, that upcoming flight should be designated an evaluation flight and graded as such. Should the SNFO pass, no further T-39 training will be required. If his performance is unsatisfactory, the cognizant TM will assess the student's needs for further training before a re-check is scheduled.

SNFO Progress Record Form
A 1-4 (Airways Nav in T-39)

Student Name _____ S.S. No. _____
Class _____ Flight No. _____ Date _____ Time _____
INFO _____ WX Turb _____ Grade _____

- Complete jet log data.
- Complete DD-175 Flight Plan.
- Brief INFO and/or pilot on mission (A-4).
- Review selected emergency procedures.
- Determine if destination weather is within limits.
- Obtain, inspect personal flight equipment.
- Determine A/C ready for flight.
- Perform A/C preflight inspection.
- Occupy, perform crew station preflight inspection.
- Accomplish Interior Check-Cockpit Area Checklist
- Monitor engine instruments and plane captain's signals on start.
- Obtain and record ATIS information.
- Accomplish Before Taxi Checklists.
- Place IFR clearance on request.
- Accomplish Taxiing Checklist.

A 1-4

- Obtain Ground Control taxi clearance.
- Interpret plane captain's taxi signals.
- Obtain, record, and readback IFR clearance.
- Accomplish Before Takeoff Checklist.
- Obtain takeoff and departure clearance.
- Accomplish Line-up Checklist.
- Accomplish airspeed reports on takeoff.
- Record takeoff/landing times.
- Accomplish After Takeoff Checklist.
- Accomplish IFR Departure Control Communication.

DEPARTURE

- Heading Information.
- Altitude Information.
- Arcing Procedures.
- Intercepting and tracking radials.
- Maintain exterior watch, report any A/C.
- Configure NAV equipment for enroute.
- Accomplish Climb Checklist.

A 1-4

ENROUTE

- Accomplish enroute ATC Communications.
- Perform enroute IFF/SIF procedures.
- Perform TACAN/VOR radial tracking. (+5°)
- Compute quadrant wind.
- Accomplish "one min prior" turnpoint report.
- Pass over and recognize station passage.
- Accomplish "mark on top" report.
- Record ATA.
- Compute GS ±10 kts.
- Compute, record ETE. (+3 mins)
- Compute EFL next checkpoint and IAF (+100).
- Accomplish Cruise Checklist.
- Obtain destination weather.
- Accomplish Descent Checklist.
- Obtain enroute descent or penetration clearance.
- Accomplish Approach Control Communications.
- Point to point procedures.

3

A 1-4

APPROACH

- Holding procedures.
- Instructions to the pilot at IAF.
- Heading information.
- Altitude information.
- Course control.
- Missed approach instructions/procedures.
- Accomplish Before Landing Checklist.
- Instructions to the pilot at FAF.
- Report R/W in sight.
- Accomplish Tower and Ground Control Communications.
- Accomplish After Landing and Shutdown Checklists.
- Perform A/C post-flight inspection.
- Accomplish post-mission debriefing. (A-4).

T-39 HANDOUT

FLIGHT INSTRUCTOR GUIDE

Description of T-2 Flights B-1, 2, 3, 4 and 5

Description of the T-2 Flights

The training flights in the T-2 aircraft during Core Training are designed to introduce the SNFO to the kinds of flights and tasks performed by NFOs assigned to fighter and attack aircraft fleet units. In addition, the T-2 training provides continued practice of navigation and crew coordination tasks learned during earlier training in Device 1D23 and the T-39 aircraft. Emphasis during these five flights is upon familiarization with acrobatic and formation maneuvers and low level visual navigation. While the five T-2 flights consist mostly of maneuver and task demonstration, the SNFO is expected to develop skills which are evaluated on Flight B-5.

A crew concept of flight instructor-SNFO assignment is employed during T-2 training. Each flight instructor is paired with two SNFOs, and this pairing is maintained for all five flights. During each flight, the SNFO occupies the rear seat in the 2-place T-2 aircraft.

Scheduling

The T-2 flights will be scheduled during Phase IV by Flight Scheduling, and these flight activities have precedence over other training activities during that time period. Should the flight instructor wish to schedule an SNFO for an additional T-2 flight prior to B-5, (the evaluation flight), he must advise Flight Scheduling.

Training Objectives

Upon completion of B-5 (low level visual navigation evaluation flight), the SNFO will be able to:

1. Perform all NFO tasks related to the T-2 aircraft:
 - a. Determine aircraft is ready for flight.
 - b. Perform the pre and post-flight inspections.
 - c. Perform all SNFO seat inspections.

- d. Interact with pilot in the accomplishment of all T-2 NATOPS CHECKLIST ACTIVITIES.
 - e. Operate all T-2 communication and navigation equipment.
 - f. Perform all NFO functions related to the NATOPS emergency procedures for those emergencies identified in the T-2 Flight Handout.
2. Perform all low level, high speed visual navigation tasks.
- a. Plan mission and prepare jet log and DD-175.
 - b. Maintain course control by visual references and map.
 - c. Calculate ETA to each turnpoint.
 - d. Control airspeed to arrive at turnpoints \pm 30 secs.
 - e. Identify turnpoints and targets.
 - f. Arrive at target \pm 1 mile \pm 20 secs.
 - g. Provide pilot with appropriate navigation advisories, e.g., heading, altitude, airspeeds, etc.
 - h. Report other aircraft positions to pilot.
3. Communicate with pilot and all controlling agencies using the prescribed format and prowords.
- a. ICS reports
 - b. Clearance Delivery
 - c. Ground control
 - d. Tower
 - e. Departure control
 - f. ARTTCs enroute
 - g. Approach control

Pre- and Post-Mission Briefing

SNFO will complete all mission planning tasks identified in VT-10 SNFO

T-2 Flight Curriculum prior to each flight. At the conclusion of each mission, the SNFO will be debriefed by the flight instructor.

SNFO Progress Record Forms (PRF)

A PRF will be completed for each SNFO by the flight instructor during each T-2 flight. The form will then provide a record of those tasks successfully performed by each SNFO on each flight and will be used as an aid to post-flight debriefing and to provide a report of the SNFOs progress to the TM.

Additional References

Additional information relevant to T-2 flights is contained in the T-2 Flight Handout and SNFO T-2 Flight Curriculum.

Grading Information

Flights B 1-4 are ungraded training activities. The completed Progress Record Form will provide the necessary records of student performance. B-5 will be evaluated, using both the PRF and the ATF, in accordance with VT-10 low level, high speed visual navigation criteria for the T-2 aircraft.

PILOT GUIDE FOR USE OF
PROGRESS RECORD FORMS
DURING B-PHASE (T-2) TRAINING

The Progress Record Form (PRF) is a form upon which student performance is to be recorded. It is not an evaluation or grade sheet; it is a form to be used only to record student performance. When completed, the PRF will provide a record of whether a particular SNFO performed specified tasks to a required standard during a particular training flight in the T-2.

The PRF consists of two parts: the Identification and the Performance Record. The Identification part of the PRF is to be completed prior to or after the flight and provides information of an administrative nature which identifies the SNFO, the pilot, and the flight. The Performance Record part of the PRF lists individual tasks which must be demonstrated to or performed by the SNFO during the particular flight. This part of the PRF is to be completed by the pilot, preferably during the flight, as each item is performed.

The Performance Record is to be marked as follows: a check (✓) is to be placed in the block preceding each item which is performed by the SNFO on that flight at the required level of proficiency. When a check is placed in a block to indicate that a particular task has been performed, a plus (+) may be placed beside it if, in the opinion of the examiner, the SNFO's performance of that item was of exceptional quality. Correspondingly, a minus (-) may be placed beside the check to indicate the examiner's opinion that the performance was well below average or minimally satisfactory. Normally, only a check will be used, since exceptional and minimally satisfactory performance will occur infrequently. An "X" is to be placed in the block for each item which is performed at a proficiency level below that required.

Each B-Phase flight is intended primarily as a training rather than an evaluation flight. Therefore the pilot's role is that of instructor rather

than evaluator. Nevertheless, in completing the PRF items, performance must be checked against a standard. The desired standard for each flight is that represented by existing VT-10 performance standards for the corresponding flight in the current VT-10 syllabus.

The correspondence between the new syllabus and the current syllabus is indicated below. The new syllabus and current syllabus flights are essentially identical, except that the student responsibility for malfunctions has been rearranged in order to cover all T-2 malfunctions within the five B-Phase flights, and Flight B-4 is planned for VFR departure and arrival with IFR optional if required.

| <u>Flight Description</u> | <u>HumRRO Test Syllabus</u> | <u>Current VT-10 Syllabus</u> |
|---------------------------|-----------------------------|-------------------------------|
| Aerobatics | B-1 | B-3 |
| Formation | B-2 | B-4 |
| Air Combat Maneuvering | B-3 | D-2 |
| Low Altitude Visual Nav | B-4 | B-2 |
| Low Altitude Visual Nav | B-5 | D-1 |

On any flight during which the pilot judges the performance of the SNFO to be unsatisfactory, he should advise the cognizant Training Manager before that SNFO flies again. Unless unusual circumstances indicate otherwise, an unsatisfactory flight may be repeated.

Since four of the five B-Phase flights are training rather than evaluation flights, grades will not be assigned. A VT-10 Aviation Training Form is to be completed for each student on Flight B-5. Existing VT-10 grading criteria for performance during the comparable flight (D-1) in the current syllabus will be used.

SNFO Progress Record Form
B-1 (Acrobatics Demonstration in T-2)

| | | | |
|--------------------|------------------|------------|------------|
| Student Name _____ | S.S.No. _____ | | |
| Class _____ | Flight No. _____ | Date _____ | Time _____ |
| Flt Inst _____ | WX Turb. _____ | | |

- Obtain, inspect personal flight equipment
- Describe T-2 aircraft performance & limitations
- Brief pilot on mission
- Determine A/C ready for flight
- Perform A/C Preflight inspection
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Interpret plane captain's taxi signals
- Obtain Ground Control taxi clearance
- Identify airport taxi procedures
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Obtain take-off and departure clearance (as directed by pilot)

B-1

- Brief pilot on departure clearance
- Accomplish Line-up checklist
- Accomplish airspeed reports on take-off
- Record take-off/landing times
- Accomplish After take-off checklist
- Accomplish IFR Departure Control Procedures
- Accomplish IFR Departure Control COMMS
- Advise pilot departure and enroute:
 - (a) headings (c) airspeeds
 - (b) altitudes (d) intercept arcs, radials/
DME and arcing
- Maintain exterior watch, report any aircraft
- Accomplish fuel management
- Configure NAV equipment for mission
- IP demonstrate holding clearance
- Advise pilot holding instructions
- Accomplish Tacan Pt. to Pt.
- Report In/Out acrobatic area
- Keep A/C in assigned acrobatic area

B-1

- Accomplish Stall and Acrobatic checklists
- Receive demonstration of following maneuvers:
- (a) Stalls
- (b) Minimum radius turn
- (c) Sam break
- (d) Aileron roll
- (e) Wing over
- (f) Barrel roll
- (g) Loop
- (h) 1/2 Cuban eight
- (i) Immelmann
- (j) Split-S
- Accomplish Predescent checklist
- Accomplish Landing checklist
- Accomplish IFR approach COMMS
- Accomplish Random Radar arrival procedures
- Receive demonstration of FMLP
- Receive demonstration of touch and go landing (time permitting)
- Perform A/C post-flight inspection
- Accomplish post-mission debriefing
- Explain NATOPS emergency procedures:
- Hung start
- False start/wet start
- Hot start
- Starting limitations
- Engine fire on deck
- Ejection procedures
- Spin recovery

B-1

- Lost communications
- Navigation aid failure
- Emergency/divert fields enroute

SNFO Progress Record Form
B-2 (Basic Formation in T - 2)

Student Name _____ SS No. _____
Class _____ Flight No. _____ Date _____ Time _____
Flt Inst _____ WX Turb. _____

- Obtain, inspect personal flight equipment
- Brief pilot on mission
- Describe formation procedures and hand signals
- Describe tactical maneuvers listed below
- Determine A/C ready for flight
- Perform A/C pre-and post-flight inspections
- Occupy, perform crew station inspection
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Obtain Ground Control taxi clearance
- Obtain IFR departure clearance
- Accomplish Before Take-off checklist
- Accomplish Instrument checklist
- Perform section ground communications
- Obtain take-off clearance (as directed by pilot)

B-2

- Brief pilot on departure clearance
 - Accomplish Line-up checklist
 - Accomplish airspeed reports on take-off
 - Record take-off/landing time
 - Accomplish After take-off checklist
 - Accomplish IFR departure procedures
 - Accomplish IFR departure COMMS
 - Perform Tacan Pt. to Pt.
 - Utilize formation hand signals
 - Maintain lookout, report all A/C
 - Keep flight in assigned acrobatic area
 - Accomplish fuel management
- Receive demonstration of the following procedures:
- (a) Tacan rendezvous
 - (b) Parade formation, turns, cross-under, break-up and rendezvous, free cruise, lead change
 - (c) Tactical wing, combat spread, in-place turn, hard-turn, called turn and uncalled turn.
- Accomplish Predescent and Landing checklists
 - Accomplish section Random or Randy arrival procedures

B-2

- Accomplish section IFR approach COMMS
- Accomplish section GCA procedures
- Accomplish post-mission debriefing
- Explain NATOPS emergency procedures:**
- Alternate ejection handle (D-ring) and oxygen hose precautions
- Mid-air collision
- Fire warning light (one or both)
- Smoke and fumes in cockpit

**SNFO Progress Record Form
B-3 (Basic Fighter Maneuvers)**

Student Name _____ SS No. _____

Class _____ Flight No. _____ Date _____ Time _____

Flt Inst _____ WX Turb _____

- Obtain, inspect personal flight equipment
- Brief pilot on mission
- Determine A/C ready for flight
- Perform A/C pre- and post-flight inspections
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Interpret plane captain's taxi signals
- Obtain Ground Control taxi clearance
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Accomplish section ground COMMS
- Obtain take-off and departure clearance (as directed by pilot)
- Brief pilot on departure clearance

B-3

- Accomplish Line-up checklist
- Receive demonstration of section take-off
- Accomplish airspeed reports on take-off
- Record take-off/landing times
- Accomplish After take-off checklist
- Accomplish VFR section departure procedures
- Accomplish VFR Departure Control COMMS
- Advise pilot enroute:
 - (a) headings
 - (b) altitudes
 - (c) airspeed
 - (d) intercept arcs & radials/DME arcing
- Maintain exterior watch, report any aircraft
- Configure NAV equipment for mission
- Utilize formation hand signals
- Accomplish fuel management
- Receive demonstration of:
 - Basic fighter maneuvers: abeam attack, overshoot, hi yo-yo attack, defenses against hi yo-yo attack, low yo-yo attack, defense against low yo-yo attack, displacement roll and gunsight tracking
- Maintain sight of wingman
- Accomplish Predescent checklist

B-3

- Accomplish Landing checklist
- Accomplish VFR section field entry COMMS
- Accomplish VFR section field entry Procedures
- Observe no-flap touch and go landing (if feasible)
- Accomplish post mission debriefing
- Explain NATOPS emergency procedures:
 - Engine fire on start
 - Ejection procedures
 - Spin recovery
 - Mid-air collision
 - Lox depletion or failure
 - Lost communications
 - Air conditioning failure

SNFO Progress Record Form
B 4 and 5 (LL Visual Nav in T-2)

Student Name _____ SS No. _____

Class _____ Flight No. _____ Date _____ Time _____

Flt Inst. _____ WX Turb _____

- Complete S.E. Jet Log data
- Complete Navigation chart preflight
- Obtain, inspect personal flight equipment
- Brief pilot on mission
- Determine A/C ready for flight
- Perform A/C pre- and post-flight inspections
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Accomplish VFR COMMS (taxi and takeoff; IFR if WX dictates)
- Obtain Ground Control taxi clearance
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Obtain take-off and departure clearance (as directed by pilot)

B 4 & 5

- Brief pilot on departure clearance
 - Accomplish Line-up checklist
 - Accomplish airspeed reports on take-off roll
 - Record take-off/landing times on S.E. Jet Log
 - Accomplish After-takeoff checklist
 - Accomplish VFR departure procedures
 - Accomplish VFR departure control COMMS
 - Maintain exterior watch, report any A/C
 - Configure Nav equipment for enroute
 - Accomplish enroute FSS/ATC COMMS
 - Start timing at beginning of route
- Advise pilot enroute:
- (a) altitude (c) positions
 - (b) headings (d) target description
- Provide visual navigation directions for pilot to:
- (a) Maintain track +1 mile
 - (b) Control airspeed; ETA +30 secs turnpoint
 - (c) Arrive at coast in point +1 mile
 - (d) Accomplish checkpoint identification procedures

B 4 & 5

- (e) Arrive at target +1 mile
- (f) ETA at target +20 secs
Advise pilot destination:
 - (a) headings (c) speeds
 - (b) altitudes
- Accomplish Predescent and Landing checklists
- Accomplish VFR approach procedures (IFR as wx indicates)
- Accomplish VFR approach COMMS
Explain NATOPS emergency procedures for B-4
- Engine flameout on take-off
- Airstart procedures
- Bird strike
- Low altitude high speed ejection
- Single engine performance
- Single engine landing
- Lost plane procedures
- All previous emergencies for B-5

T-2 HANDOUT

SNFO BRIEFING GUIDE

FOR

T - 2 FLIGHTS

(CORE PROGRAM)

B-PHASE FLIGHT SUMMARY

T-2 AIRCRAFT

| <u>FLIGHT ACTIVITY</u> | <u>SYMBOL</u> | <u>FLIGHTS</u> | <u>HOURS</u> |
|--|---------------|----------------|--------------|
| Aircraft Performance and Acrobatics | B-1 | 1 | 1.3 |
| Basic Formation | B-2 | 1 | 1.3 |
| Basic Fighter Maneuvers | B-3 | 1 | 1.3 |
| Low Level Navigation | B-4/5 | 2 | 2.6 |
| | | <u>5</u> | <u>6.5</u> |

T-2 B FLIGHT SYLLABUS/GUIDELINE

1. Objective. The objective of this syllabus is to provide the SNFO with a well-rounded training program by introducing the basic flight experience that the SNFO will encounter in advanced training and subsequently in the fleet. Particular attention is given to reemphasizing basic navigation and voice communication skills and developing section formation and low level navigation procedures.
2. Briefing time. One and one half (1 1/2) and one half (1/2) hour shall be provided for briefing and debriefing respectively unless otherwise specified on the flight schedule.
3. Schedule limitations.
 - a. SNFO's will have successfully completed all flight support courses prior to commencing the flight syllabus.
 - b. Although an attempt will be made to fly the syllabus in proper sequence, the student shall have planned two (2) flights ahead to provide adequate flexibility for weather and schedules.
 - c. Students shall be limited to two (2) flights per ten (10) hour day.
 - d. Warm-up flights shall be awarded in accordance with Squadron policy after prolonged delays in flight training (10` days. If the SNFO's proficiency after the delay in training is consistent with his normal progress and continuation in stage, the flight shall be counted as a syllabus flight.
4. Emergency procedures. Emergency procedures and systems will be covered in such a manner as to build the students' confidence in the aircraft. All procedures will be reviewed in the flight support syllabus. These procedures will be briefed in accordance with the VT-10 SOP prior to all flights. The student will be required to recite from memory the immediate action items of the applicable emergency procedure.

THE FOLLOWING GENERAL PROCEDURES AND INSTRUCTIONS APPLY TO ALL T-2 PHASE FLIGHTS

Prebrief

Prior to each flight briefing, the SNFO will have completed all applicable planning and have it available for instructor review at the brief. At the published brief time, the SNFO will be in the student ready room with complete flight gear and will have HI ALT Charts 3 & 4, LOW ALT Charts 17 & 18, the IFR Supplement and the SEUS approach plate. On all syllabus hops requiring a jet log, a duplicate will be made for the Instructor.

Brief

The instructor will conduct the brief in accordance with the published briefing guide. The student will be responsible for and able to discuss all

items listed under "student responsibility." All emergency procedures preceded by an asterisk are considered immediate action emergencies and will be memorized by the SNFO. The SNFO will be responsible for immediate action emergencies on subsequent flights.

Postbrief

After the brief, the SNFO will check the ODO board for aircraft assignment and sign out. He will then proceed to maintenance control, where he will complete the appropriate yellow sheet and await the instructor.

Preflight

On B-1, the exterior preflight will be introduced by the Instructor and conducted in accordance with the procedures outlined in the T-2 NATOPS Pocket Check list. However, the SNFO will be expected to preflight the ejection seat and rear cockpit area. On all subsequent flights the SNFO will conduct the entire preflight inspection and the instructor will monitor his performance. Flight gloves will not be worn during conduct of the preflight.

Strap-in

Although the SNFO is expected to be familiar with the rear cockpit prior to B-1, the instructor will monitor the SNFO's strap-in procedures to ensure that there are no questionable areas. After strap-in is complete and the plane captain or trouble shooter has pulled the bell crank pin and is clear of the cockpit, the SNFO will pull the remaining two ejection seat pins and emergency canopy release pin and stow the four pins in the map case prior to taxi.

NOTE: If a plane captain or trouble shooter is required after the pins are pulled, ensure that the face curtain, "D" ring, and canopy jettison safety pins are replaced before allowing anyone near the seat.

Prestart

After the prestart checklist is complete, the instructor pilot will turn on the battery and initiate an ICS check prior to start. The proper response by the SNFO will be "loud and clear."

NOTE: The oxygen system will be tested with flight gloves on, and flight gloves will be worn from engine start to secure.

Start

During all starts, the SNFO will monitor the engine instruments, ensuring limitations are not exceeded, and will report any deviation to the instructor pilot. The hot mike position will be selected by both cockpits, for start, take-off, and landing; and the SNFO shall remain on hot mike unless directed to "go cold mike" by the instructor pilot.

Poststart

After the engines are started and both generator lights are out, the SNFO will take control of the UHF radio, TACAN, compass, and ADF, and will tune in Sherman ATIS and copy the information. The plane captain will check the speed brakes,

flaps and tailhook, and request both pilot and SNFO to keep hands out of the cockpit. A positive response is mandatory. Nothing will be held in the hands during these checks, and flight gloves will be on. After ATIS information is noted, the SNFO will switch to clearance delivery and make the appropriate transmission. (NOTE: For VFR departures, clearance delivery is not notified). The SNFO will contact ground control for taxi after the final checker has completed his inspection. (NOTE: Both pilot and SNFO will have their hands out of the cockpit while aircraft is in final check).

Taxi

During the taxi phase, the SNFO will initiate the Before Take-Off checklist. The SNFO will read the items one by one, ensuring a positive response from the pilot. If the SNFO has that particular item in his cockpit, he will give a return response prior to moving on to the next item. After the Before Take-off checklist is complete, the SNFO will continue with the instrument checklist. The SNFO will switch to tower frequency and call for take-off at the appropriate time.

Run-up/Take-off

After the take-off clearance has been received, the instructor pilot will taxi onto the runway. The SNFO will switch to departure control and attempt one radio check, if no other transmissions are heard, and then initiate the Line-up checklist. During engine run-up, both the instructor pilot and the SNFO will monitor engine instruments, and the instructor will read all appropriate engine instrument indications over the ICS. Once the take-off roll is commenced, the SNFO will be required to call, 40 KTS and rotation speed (100 KTS) and continue to monitor engine instruments. After safely airborne with the gear and flaps up, the SNFO will report to the pilot "three gear up, flaps up, check fuel transfer on tips." The SNFO will then make the appropriate transmission to departure control.

Departure

The instructor pilot will transition to climb airspeed and follow the instructions of the SNFO through the departure. The SNFO will call all altitudes, headings, and IFF squawks to the instructor pilot. A 1000' warning will be given when approaching all desired altitudes and the SNFO will inform the pilot when off heading by 5°, ALT by 200' or airspeed by 10 KTS.

Climb

The SNFO will initiate the Climb check when passing 10,000' and the instructor will give a positive response to each item read. When passing 23,500' engine anti-ice must be turned on.

Enroute

The SNFO will plan all routes in accordance with the guidelines set forth in the enroute section of this handout, and is expected to give the instructor pilot heading corrections to maintain course by saying, "come left to _____." or "come right to _____."

Approaches

If the approach includes holding, the SNFO is expected to inform the pilot when to slow the aircraft to holding speed (180 KTS). The SNFO will initiate the Descent checklist, and the instructor will give a positive response. The SNFO should inform the pilot when to begin a reduction to gear speed (165 KTS). At 165 KTS the SNFO will call "165 standing by with Landing checklist" to initiate lowering the gear. Landing gear should be lowered when indicated below.

- a. VFR entry - Downwind leg after break, or 5 miles out on VFR straight-in.
- b. TACAN penetrations - Prior to final approach fix.
- c. Ground controlled approaches - On base leg, or between 10-15 miles from field if straight-in.

After landing is complete and the aircraft is clear of the runway, the SNFO will switch to ground control and make the following transmission "Ground control, ØF ___ clear of the duty, taxi to VT-10." "Close out my flight plan" will be added when on DD-175 flight plan.

After the canopy is raised the SNFO may carefully replace the face curtain pin, alternate ejection handle pin, and emergency canopy jettison pin. He will check to see that these pins are properly installed and seated. The bell-crank pin will be installed after leaving the cockpit. Anytime the canopy is raised or lowered the pilot will ask the SNFO if he is clear. A positive response is mandatory.

Postflight

On all flights the SNFO will conduct a postflight of the aircraft and the instructor will check the security of the rear cockpit after the SNFO exits.

BRIEFING GUIDE FOR T-2 FLIGHTS B-1 THROUGH B-5 AND CA/F-1 THROUGH CF-11/CA 8

I Brief

Weather

Aircraft assignment and checkout procedures

Preflight

Ejection system preflight

Strap-in

Rear cockpit checklist

ICS check

Start

Radio and nav aid transfer

Speed brake, flap and hook check

ATIS information/clearance delivery

Final checker

Ground control

Before T/O checklist

Instrument checklist

Line-up checklist

Tower

Departure Control

Take-off

TRADR-ONE departure or VFR departure

Point to point

Radial tracking

Enroute activity

Arrival procedures

II Student Responsibilities

Filing DD-175 (if applicable)

Receiving Weather Brief (if applicable)

Cross Country Packet (if applicable)

Aircraft preflight/postflight

Ejection seat preflight

Cockpit procedures

Voice communication

Flight clearance procedures

TACAN point to point

Lookout doctrine

Fuel management and jet log completion

Enroute activities

IFR/VFR approach procedures and communications

THE FOLLOWING INFORMATION APPLIES TO THE FLIGHTS INDICATED

B-1 Flight (Aircraft Familiarization and Performance)

The instructor pilot will inform the SNFO when to report "VFR on Top." At this time the SNFO will make the appropriate transmission to departure then contact base to report the expected approach clearance time (EAC). Although VFR on Top may be reported shortly after take-off, the entire TRADR departure will be flown with initial climb to 14,500'. From the NPA 240/20 (point A), the route of flight will be as follows: MOB 140/35 (point B) MOB 125/30 (point C). Prior to reaching point C make the following transmission "ØF___ is entering the acrobatic area south low." If the south low area is occupied, the instructor will give the SNFO a point to point problem to the north low area. At point B or C or any other point the instructor chooses, the SNFO will be given a holding clearance. The SNFO is expected to acknowledge the clearance and give instructions to the pilot in order to maneuver the aircraft in the assigned holding pattern for one turn then continue with the assigned route.

The SNFO will ensure that the stall and acrobatic checklist is completed prior to any stalls or acrobatics by initiating the checklist over the ICS after entering the acrobatic area.

After completion of the stall and acrobatic checklist, the following maneuvers will be demonstrated: steep turn stall, break turn stall, landing attitude stall, minimum radius turn, sam break (oblique split-s), aileron roll, wing over, barrel roll, loop, 1/2 cuban eight, immelmann, split-s.

Although the SNFO is not responsible for the actual performance of these maneuvers, he will be able to describe each one in detail. Instructors are encouraged to allow students to fly a few of the simpler maneuvers to better understand jet flight characteristics. The student will also monitor the fuel, and inform the pilot when the tip tanks and wings are empty. Any aircraft seen in the area will be reported over the ICS by giving a clock code direction and high, low, or level for relative altitude. After work is completed in the acrobatic area, the SNFO will give the instructor directions to egress from the area to the south along the eastern border at an appropriate VFR altitude. A point to point should be planned in the event the ground is obscured.

After crossing the coast, the SNFO will report "ØF___, departing the acrobatic area to the south." ATIS should be tuned in when departing the acrobatic area to avoid being rushed during the approach portion of the flight. Approach control will then be contacted with the following courtesy call: "Pensacola approach control ØF___ with information___." When approach acknowledges the call, the proper transmission requesting a Random Radar arrival will be made by the SNFO.

B-2 Flight (Basic Section Formation)

The flight will start on ATIS then switch to base for flight check-in. The flight lead will then switch the flight to clearance and both aircraft will proceed individually. The instructor pilot will inform the SNFO when to report "VFR on Top." At this time the SNFO will make the appropriate transmission to departure control and then contact base and report the expected approach clearance time (EAC).

Although VFR on Top may be reported shortly after take-off, the entire TRADR departure will be flown with initial climb to 14,500'. The SNFO will then give heading and VFR altitude information to the instructor pilot in order to arrive at the briefed TACAN rendezvous point at the desired altitude and airspeed. The SNFO will give advisory information to the instructor pilot avoiding the VT-4 acrobatic area and R-2908. The first aircraft (normally the flight lead) to enter the acrobatic area will climb to 15,000' and determine in which area to complete the rendezvous. The second aircraft to enter the area will maintain 14,500' until the first aircraft is in sight, at which time the rendezvous will be commenced. If a low acrobatic area is being used, the lead will enter at 12,000' and the wingman will enter at 11,500'. The points for the rendezvous or in the event of lost communications are:

South - NPA 260° radial 25 nm left hand turns

North - NPA 290° radial 25 nm left hand turns

After the TACAN rendezvous, the instructor in the lead aircraft will inform the SNFO what hand signal to give. The SNFO will comply, and the SNFO in the wing aircraft will give the appropriate reply. Both students will be constantly aware of the fuel and inform the instructors when the tip tanks are empty. A fuel check will be given upon completion of all rendezvous, prior to the lead change and prior to recovery.

The SNFO in the lead aircraft is responsible for keeping the flight in the acrobatic area by informing the pilot when approaching a border.

The sequence to the formation maneuvers will be as follows: TACAN rendezvous, parade position (VFR and IFR), turns, cross-unders, 1 break-up and rendezvous, free cruise, tactical wing maneuvering, combat spread, in-place turn, hard turn called turns, uncalled turns, rendezvous, lead change. After the lead change all maneuvers will be repeated. The SNFO will report any other aircraft seen in the area over the ICS and the instructor will initiate the "BOGIE" call to the wingman if there is a threat to the flight.

Upon the instructor's request, the SNFO will report departing the acrobatic area, then switch the flight to ATIS and copy the information. Whenever a radio frequency change is made, either visually or verbally, the wingman will acknowledge by repeating the "signal" or saying "___ 2 WILCO". (NOTE: No flight check-ins will be made verbally on ATIS, ground or tower frequencies).

Frequency changes should be made visually if possible, however, if the wingman is in such a position that visual signals cannot be used, the change may be broadcast on UHF. Regardless of how the frequency change is initiated, a positive radio check will be made after the change is made. The wingman will hesitate several seconds ensuring that the lead has had time to switch and report "___ 2 is up". The lead will acknowledge by a thumbs-up or by a "Roger" if wingman is not within hand signal range. After the flight is clear of the acrobatic area the flight lead will switch the flight to Pensacola approach control (channel 6) and make the appropriate courtesy call utilizing the flight leader's call sign and request a Random Radar to two (2) section GCA's.

B-3 Flight (Section Formation and Basic Fighter Maneuvers)

Section integrity will be maintained from take-off to landing on the B-3 flight. The flight will start engines on ATIS frequency and then switch to base frequency for flight check-in.

The lead SNFO will normally initiate the call "___ flight check"; the wingman SNFO will then reply "___ 2 is up"; the lead will then switch the flight to ground control by saying "___ flight switch ground"; the wingman will acknowledge by saying "___ 2 WILCO". The lead will then initiate his call to ground control for taxi (see voice comm section). Both aircraft will switch to tower when the lead turns onto the cross taxiway at the approach end. The lead instructor will call for take-off for two aircraft. Both aircraft will taxi onto the runway and perform engine checks and take-off in section or use 10 second interval as appropriate. (NOTE: Due to continuous use of ground and tower freqs, visual signals only will be used to inform the lead that the wingman is on the freq.)

The lead SNFO is responsible for conforming to VFR departure procedures and will direct the flight to the acrobatic area avoiding the VT-4 acrobatic area and restricted areas. Prior to entering the acrobatic area, the lead SNFO will switch the flight to base frequency and report "___ flight entering the acrobatic area from the south." If the southern area is occupied, the flight will proceed to the northern area utilizing a VFR west altitude and flying along either the east or west border of the area. Both students will inform the instructor when the tip tanks are empty and initiate a fuel check prior to all lead changes and prior to the recovery. The SNFO in the lead aircraft is responsible for keeping the flight in the acrobatic area. The sequence of formation maneuvers will be as follows: parade, cruise, combat spread, abeam attack, defense against abeam attack (overshoot), high yo yo attack, defense against hi yo yo, low yo yo attack, defense against low yo yo, displacement roll, gunsight tracking, lead change. All maneuvers will then be repeated.

The SNFO will be familiar with all maneuvers presented and be able to intelligently discuss them during the brief. One of the most difficult duties of the SNFO on the B-3 flight is keeping the other aircraft in sight at all times.

After all maneuvers are complete the lead SNFO will initiate a call when departing the area, switch the flight to ATIS then to tower. Although the lead SNFO is responsible for the flight arriving at the VFR initial, the wingman must be able to assume the lead at any time.

B-4/5 Flight (Low-Level High-Speed Navigation)

The above flights will be conducted in accordance with the current low-level visual navigation programmed texts. The success of any medium/low-level high-speed navigation flight depends primarily upon preflight planning; and chart preparation is the most important aspect of the planning. Some additional items to the programmed text which will be of help are the following.

Departure. The type of departure will depend upon the mission and will be planned accordingly utilizing the departure section of the handout.

Climb. The flight will be planned utilizing maximum range at maximum VFR altitude until reaching the descent point.

Descent. Plan for an idle descent at 250 KIAS to arrive at the desired altitude and airspeed for a 3 to 5 nm straight-in to cross the first point on course and airspeed. The SNFO will ensure that both cockpits simultaneously start their clocks upon crossing the first point by initiating "Standby to Mark... 3...2...1...Mark." On the word Mark, both clocks will be started.

Voice communications. The SNFO is required to make a transmission to the appropriate FSS prior to entering the route. After the FSS acknowledges the courtesy call, the following transmission will be made.

ØF (No). Low Level, Entering T.R. No. at (Point) at (Min. after hour),
Departing (Point)." (Note: Call prior to descent if possible.)

The above voice procedures may be written on the prepared chart taking care not to obscure any valuable navigation data. (On the B-1 flight, Mobile approach control will be contacted prior to point A requesting radar following while in the Mobile area.)

Climb. After completion of all low-level flights an immediate climb will be commenced to the highest VFR altitude, and plans will be made for the appropriate approach.

Radar departure. If a military flight plan (DD-175) is filed, climb instructions will be given in your clearance followed by radar vectors to the first point by departure control after airborne.

T-2 EMERGENCY PROCEDURES

B-1

Lost communication
Navigation aid failure
Emergency/divert fields enroute
Hung start
False start/wet start
Hot start
Starting limitations
Engine fire on deck
Ejection procedures
Spin recovery

B-2

Alternate ejection handle (D-ring) and oxygen hose precautions
Mid-air collision
Fire warning light (one or both)
Smoke and fumes in cockpit

B-3

Engine fire on start
Ejection procedures
Spin recovery
Mid-air collision
Lox depletion or failure
Lost communications
Air conditioning failure

B-4

Engine flameout on take-off
Airstart procedures
Bird strike
Low altitude high speed ejection
Single engine performance
Single engine landing
Lost plane procedures

B-5

All previous emergencies

DEPARTURE PROCEDURES

VFR Departure

- Runway 06 - After take-off climb straight ahead to pass over Laws Point at 500 feet, then turn right and climb on a heading of 180° to cross Santa Rosa Island above 800 feet.
- Runway 18 - After take-off maintain runway heading or turn right and when clear of the traffic pattern climb unrestricted. A left turn after take-off is not authorized.
- Runway 24 - (1) After take-off turn left heading 180° and maintain 500 feet until the coast line, or (2) After take-off maintain runway heading and when clear of the traffic pattern climb unrestricted.
- Runway 36 - After take-off turn right, when clear of traffic pattern climb unrestricted so as to pass east of Chevalier Field and over three lakes.

ARRIVAL PROCEDURES

VFR Arrivals

Runway 06 (a) The VFR Entry Point for runway 06 is named Point X-Ray, a building with an eight pointed star shaped roof located at the west end of Big Lagoon, bearing 232° magnetic, 5 nautical miles from Sherman Field.

(b) Jet aircraft will be level at 1700 feet, heading 050 magnetic, 3 miles prior to crossing Point X-Ray. Jet aircraft will depart Point X-Ray heading 050° magnetic, descending to 100 feet proceeding so as to fly over the taxiway serving the duty runway for a level left break.

Runway 18 (a) The VFR Entry Point for runway 18 is named Pickens Gate, the parking lot gate at the entrance to Fort Pickens State Park located on the NPA TACAN (Ch 119), 113 radial, 7 nautical miles.

(b) Jet aircraft will be level at 1700 feet heading 310° magnetic 3 miles prior to crossing Pickens Gate. After crossing Pickens Gate, jet aircraft will continue on heading 310° to pass east of Chevalier Field and west of Point Fair descending so as to pass over Law's Point at 1200 feet, thence to pass down the right side of the runway at 1000 feet for a level left break.

Runway 24 (a) The VFR Entry Point for runway 24 is Pickens Gate (Described above).

(b) Jet aircraft will be level at 1700 feet heading 310° magnetic 3 miles prior to crossing Pickens Gate. After crossing Pickens Gate maintain heading 310° magnetic to pass east of Chevalier Field and west of Point Fair descending so as to cross Law's Point at 1200 feet and thence to fly over the taxiway serving the duty runway at 1000 feet for a level right break.

Runway 36 (a) The VFR Entry Point for runway 36 is named Point Long and is located on the NPA TACAN (Ch 119) 195° radial, 6 nautical miles.

(b) Jet aircraft will be at 1700 feet, heading 015° magnetic, 3 miles prior to crossing Point Long. After crossing Point Long, descent to 1000 feet proceeding so as to fly down the left side of the runway for a level right break.

IFR Arrivals

I. RANDY ARRIVAL

- A. RANDY 06 - Proceed direct to NPA, thence outbound on the 180 radial to the 15-mile arc, arc west until the NPA 240 radial, thence inbound to NPA. Expect radar vectors and descent for a GCA or visual approach to runway 06R. Maintain (altitude).
- B. RANDY 18 - Proceed direct to NPA, thence outbound on the 180 radial to the 15-mile arc, arc west until the NPA 240 radial thence inbound to NPA. Expect radar vectors and descent for a GCA to runway 06R. Circle to land runway 18, or visual approach to runway 24L. Maintain (altitude).
- C. RANDY 24 - Proceed direct to NPA, thence outbound on the 180 radial to the 15-mile arc, arc east until the NPA 100 radial, thence inbound in NPA. Expect radar vectors and descent for a GCA, or visual approach to runway 24L. Maintain (altitude).

RANDY 36 - Proceed direct to NPA, thence outbound on the 180 radial to the 15-mile arc, arc east until the NPA 100 radial, thence inbound to NPA. Expect radar vector and descent for a GCA, or visual approach to runway 36. Maintain (altitude).

NOTE: A request for a RANDY clearance will indicate a desire for a random radar vector to a GCA, or visual approach. Traffic permitting, the most expeditious routing via radar vectors will begin immediately after a RANDY clearance is issued will indicate a traffic situation whereby the RANDY routing will be flown. In either case a RANDY clearance will be issued to indicate type approach, active runway, etc.

LOST COMMUNICATIONS: In the event of radio failure after receiving RANDY CLEARANCE, squawk 7600 turn to 180° and climb to 16,000'. Upon reaching 16,000' proceed direct to the HI-TACAN IAF and execute an immediate penetration as follows:

| <u>DEPARTURE RWY</u> | <u>TYPE APPROACH</u> |
|----------------------|------------------------------|
| 06 | HI TACAN RWY 06 |
| 18 | HI TACAN RWY 06 CIRCLE TO 18 |
| 24 | HI TACAN RWY 36 CIRCLE TO 24 |
| 36 | HI TACAN RWY 36 |

II. HI TACAN AND ADF APPROACHES ARE AVAILABLE AS PUBLISHED IN THE CURRENT SEUS HI ALTITUDE APPROACH PLATES.

VOICE COMMUNICATIONS

I. Before calling Clearance Delivery or Ground Control, the SNFO will tune ATIS and determine altimeter, duty runway, and runway temperature.

II. CLEARANCE DELIVERY

A. Yankee Clearance

"Clearance Delivery, ØF _____, request Yankee Clearance."
The acknowledgement is: "ØF (Read back clearance)."

B. DD-175

"Clearance Delivery, ØF _____ IFR to (destination)."

C. NPA Route

"Clearance Delivery, ØF _____ IFR to (destination)."

III. TAXI

A. Taxi Clearance

"Ground Control, ØF _____, taxi IFR/VFR (destination), information _____ (ATIS)."
Acknowledgement of taxi clearance is "ØF _____, WILCO."

F. Clearing Duty Runway

"Ground Control, ØF _____, clear of the duty runway, Taxi to VT-10."
Acknowledgement is "ØF _____ WILCO."

IV. TAKEOFF

Tower Clearance

A. "Sherman Tower ØF _____, take-off, IFR (or VFR)."

B. Tower may say:

1. "ØF _____, switch to departure, monitor guard, wind 130/8, cleared for takeoff." Acknowledgement is "ØF _____ cleared and switching."
2. "ØF _____, hold short." Acknowledgement is "ØF _____, holding short."
3. "ØF _____, position and hold." Acknowledgement is "ØF _____, position and hold."

V. DEPARTURE

Departure Control

- A. Prior to roll obtain radio check, traffic permitting.
"Departure Control, ØF____, radio check."
- B. When airborne: "Departure Control, ØF____, airborne climbing to ____ (assigned altitude) or "VFR on Top" if flying a Yankee clearance.
- C. When VFR on Top: "Departure Control, ØF____ VFR on Top."

VI. ENROUTE

A. Radar

- 1. Once radar contact has been made, assume radar contact until controlling agency says: "Radar contact lost," or "Radar service terminated."
- 2. Initial Contact: "(Agency), ØF____, (Altitude or Flight Level)." If climbing to assigned altitude report passing or leaving altitude for assigned altitude.

Example: "Houston Center, ØF____, passing 7 thousand for flight level 230." If level: "Houston Center, ØF____ flight level 230."

B. Non-Radar

- 1. Initial Contact: "(Agency), ØF____, estimating next mandatory reporting point", (time), (altitude)."

Example: "Atlanta Center, ØF____, estimating Montgomery, 35, flight level 250," or "Pensacola Approach Control ØF____ estimating initial approach fix, 35, passing flight level 210 for flight level 180."

- 2. Position Report: "(Agency), ØF____ (position)"

Example: "Atlanta Center, ØF____, Montgomery," If agency says: "go ahead," give full position report (P.T.A.P.T.P.)

- a. Position (mandatory reporting point)
- b. Time (Actual time of arrival)
- c. Altitude
- d. Type of flight plan (IFR/VFR when not reporting to center)
- e. Position (next mandatory reporting point)
- f. Time (ETA for E.)
- g. Position (next mandatory reporting point after E)

NOTE: While airborne all instructions from controlling agencies can be acknowledged with: "Wilco" except instructions preceded or followed by "Readback." Exceptions are altimeter settings during approach. If in doubt about any transmission, request verification or read it back.

VII. APPROACH CONTROL

A. Radar Initial Contact

"Pensacola Approach Control, ØF ____, (altitude, or FL" or if descending: "Pensacola Approach Control, ØF ____, passing (altitude) for (assigned altitude), information ____ (ATIS)."

B. Non-Radar Initial Contact

Initial Contact: "Pensacola Approach Control, ØF ____, estimating initial approach fix, 35, passing flight level 210 for flight level 180."

C. "Approach Control ØF ____ with (ATIS)." After acknowledgement: "Approach, ØF ____, altitude, on the radial/DME, Requesting ____."

D. Reporting Initial Approach Fix

"Approach Control, ØF ____, initial approach fix, leaving (altitude or FL) for (assigned altitude)."

NOTE: Report above assigned altitude only if an altitude restriction is issued by approach control.

E. Reporting Final Approach Fix

"Approach Control, ØF ____, final approach fix, gear down and locked."

VIII. SECTION VOICE COMMUNICATION

On section (two planes), flight communication, requests for taxi, crossing the off duty runway, takeoff, airborne, VFR-on-top, TACAN approach and frequency changes will include: "Flight of two" acknowledgements remain the same as for single aircraft flights.

A. Taxi

"Ground Control, ØF ____, Taxi, Flight of two IFR/VFR ____ (Destination), information ____ (ATIS), Wingman ØF ____."

B. Takeoff

"Sherman Tower ØF ____, Takeoff Flight of two IFR/VFR."

C. Approach Control

"Pensacola Approach Control. "ØF ____ information ____." After acknowledgement by Approach Control: " ØF ____ Flight of two (position and altitude) request random radar for two section GCA's. Wingman ØF ____."

IX. MISCELLANEOUS REPORTS

A. Checking in with VT-10 Base (TRIPLE ZERO)

"000 (TRIPLE ZERO) Base ØF____, E.A.C. (in ZULU time)."

B. Checking in at Completion of Flight

"000 Base, ØF _____ in and (up/down), _____ liters (LOX)".

C. When clear of duty after landing call ground control with following report: "ØF____, clear of the duty, taxi to _____." If DD-175 was filed also include "close out my flight plan."

D. Altitude Passing

When reading altitude passing always read to the nearest thousand feet unless assigned otherwise. Reporting the nearest thousand feet in the jet aircraft is preferable due to the high rate of climb and descent.

E. Altitude

Example:

1,200 - read "one thousand, two hundred."

8,000 - read "eight thousand."

9,000 - read "niner thousand."

10,000 - read "one zero thousand."

15,000 - read "one five thousand."

18,000 - read "flight level one eight zero."

20,000 - read "flight level two zero zero."

NOTE: In general we're concerned with economy of words. All reports have omitted unnecessary language such as "This is," etc. When using abbreviated call signs follow the lead of the agency controlling. If they abbreviate, you may do likewise.

1. After two-way communications have been established, an abbreviated call may be used. Example: "Jacksonville Center Navy ØF_____, Flight Level 200." "Navy ØF_____. Jacksonville Center, report Crestview." "Navy ØF_____. Wilco." Note that agency called was omitted.
2. When told to switch frequencies by a controlling agency, acknowledge by saying "ØF _____, Wilco."
3. When told to squawk, acknowledge by setting IFF/SIF. No radio transmission is necessary.
4. When told to IDENT, acknowledge by identifying. No radio transmission is necessary.

FORMATION HAND SIGNALS

The following hand signals cover the majority of the maneuvers encountered in T-2 state and will decrease the need for airborne radio transmissions.

| <u>SIGNAL</u> | <u>MEANING</u> | <u>ACTION OR ANSWER</u> |
|--|--|---|
| 1. Thumbs-up | Affirmative. I understand. Ready to proceed. | |
| 2. Thumbs-down | Negative. I do not understand. Not ready to proceed. | |
| 3. With forearm in vertical position hold up number of fingers to indicate number one through five; with hand in a horizontal position, turn finger horizontal which, when added to five, will give number desired from six to nine. A clenched fist indicates zero. For multiple digit numbers, signal each digit individually. | Numerals as indicated | Execute as indicated. If originator repeats numerals, addressee should repeat numerals until a thumbs-up is received. |
| 4. Raise the clenched fist with the thumb extended in drinking motion. | Check fuel quantity, transfer status, and other systems as in a 10,000' check. | Check instructions and signal "thumbs-up" for full internal indication and good transfer. If fuel is less than full internal, fuel stage will be indicated by proper hand signals for hundreds of pounds of fuel remaining. |
| NOTE: The section leader (number three) in a four-plane balanced formation will signal to the leader the lowest fuel stage of his section (numbers three and four). | | |
| 5. Open and close four fingers and thumb, followed by head nod execution. | Extend or retract speed brakes. | Repeat signal and execute on the originator's nod. |

SIGNAL

MEANING

ACTION OR ANSWER

5.a Bring head slowly forward, then smartly move head aft to headrest.

Forward nod indicates "standby"; aft snap indicates "execute".

Execute when signalled; pass signal simultaneously if in division.

6. Wipe brow with palm hand.

Turn defrost on in preparation for let-down and purge tip tanks if not previously accomplished.

Execute.

7. Tap head set and indicate number of channel or frequency

Shift radio frequency as indicated by finger numerals

Execute; repeat signal if originator repeats.

8. Pat top of head with hand while looking at wingman and point at him with finger.

Wingman or man pointed at has the lead and/or is to assume the lead.

Wingman or man pointed at will pat the top of his head and point to himself. If he does not want to assume the lead for any reason whatsoever, shake head "no."

9. Extend arm vertically with fist clenched.

Wingman to cross under to other side.

Execute.

10. Extend arm vertically with fist clenched, pump arm up and down vertically.

Section to cross under to other side.

Section leader pass to wingman; execute.

11. Extend arm vertically with two fingers extended. Rotate wrist in circular motion.

All aircraft in flight stand by for breakup and rendezvous practice.

All flight members repeat signal and stand by for the breakup signal.

12. Place fingers over front of oxygen mask and then throw a "kiss" to wingman.

Pilot throwing "Kiss" is breaking away from formation.

All wingmen will repeat signal that prior to their breaking away from flight, except in breakup and rendezvous practice where time does not permit each wingman to repeat the signal.

| <u>SIGNAL</u> | <u>MEANING</u> | <u>ACTION OR ANSWER</u> |
|---|--|--------------------------------|
| 13. Lower tail hook | I want to land | Land safely. |
| 14. With fingers extended palm down, motion slowly back and forth with an ascending attitude. | I am going to start a climb to a higher altitude. | Stand by to climb |
| 15. With fingers extended palm down motion slowly back and forth with a descending attitude. | I am going to descend to a lower altitude. | Stand by to descend. |
| 16. With fingers extended, palm down, motion slowly from left to right in a level attitude. | I am going to level-off at an altitude very shortly. | Stand by to level off. |
| 17. Nod head slowly forward two or three times. | I am going to add power. | Stand by to add power. |
| 18. Nod head slowly backwards two or three times. | I am going to reduce power. | Stand by to reduce power. |
| 19. Nod head from the vertical to the right two or three times. | I am going to turn right. | Stand by for a starboard turn. |
| 20. Nod head from the vertical to the left two or three times. | I am going to turn left. | Stand by for a port turn. |
| 21. With fingers extended and hand held vertically, motion slowly fore and aft. | I am going to roll out of turn | Stand by to roll over. |
| 22. Two-finger turn up runway. (Same as breakup and rendezvous signal). | Perform normal engine run-up. | Repeat signal and execute. |

| <u>SIGNAL</u> | <u>MEANING</u> | <u>ACTION OR ANSWER</u> |
|---|--|-------------------------------------|
| 23. Hitch-hiking motion of thumb over each shoulder, to be followed by power addition signal. | I am going to make cruise turns. | Execute |
| 24. Flutter elevators. | Wingman rejoin in parade position following cruise turns. | Wingman join up in parade position. |
| 25. Raised clenched fist with thumb in drinking motion followed by number of fingers. | Fuel remaining (number indicated by fingers shows fuel in hundreds of pounds.) | |
| 26. Cup hand behind ear as if listening. | Say again. | As appropriate. |
| 27. Wave hand in an erasing motion in front of face, palm forward. | Cancel last signal | |
| 28. Rotary movement of fist in cockpit as if cranking. | Lower landing gear. | Repeat signal. |
| 29. Open hand used as pushing. | Take combat spread formation. | Execute. |
| 30. Leader pat shoulder with hand. | Stay on my wing. | Head nod. |

EMERGENCY OR MALFUNCTION SIGNALS

(Use if no radio contact)

| <u>SIGNAL</u> | <u>MEANING</u> | <u>ACTION OR ANSWER</u> |
|--|--|--|
| 1. Arm bent across forehead (weeping), followed by numeral signal (HEFOE): | I am in trouble and will tell you which system is malfunctioning | Pilot receiving signal will repeat to show acknowledgment. |
| One Finger | <u>Hydraulic</u> | <u>Hydraulic</u> |
| Two Fingers | <u>Electrical</u> | <u>Electrical</u> |
| Three Fingers | <u>Fuel</u> or | <u>Fuel</u> |
| Four Fingers | <u>Oxygen</u> | <u>Oxygen</u> |
| Five Fingers | <u>Engine</u> | <u>Power</u> |

EMERGENCY GROUND SIGNALS

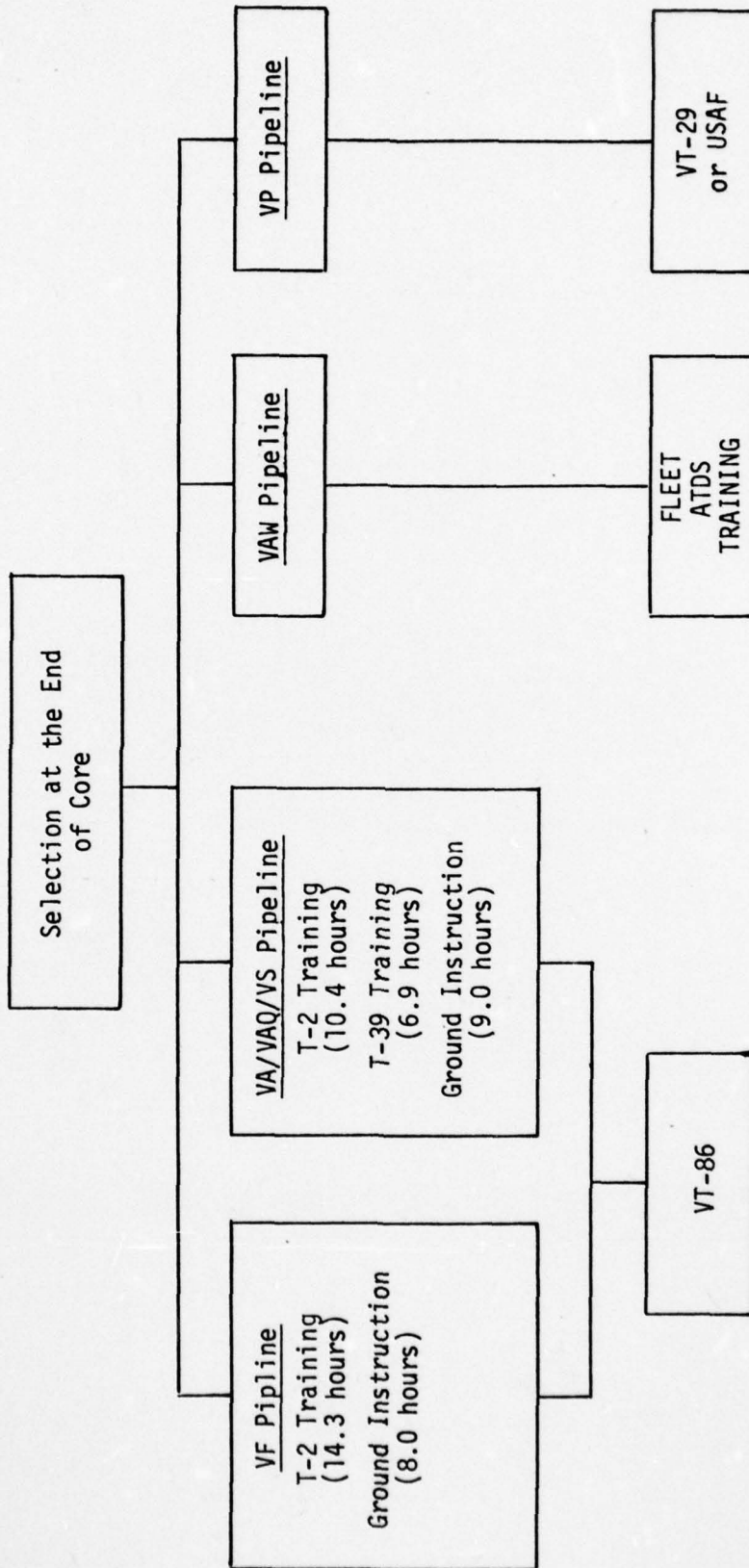
| | | |
|---|----------------------|---------------------------------------|
| 2. Moving arm in a horizontal 8 motion. | Aircraft is on fire. | Follow fire procedures as applicable. |
| 3. Holding nose with one hand and giving the turn signal with the other hand. | Wet start. | Follow wet start procedures. |
| 4. Fanning face with one hand pointing to wheel with the other hand. | Hot brake. | Proceed to the hot brake area. |

NFO BASIC TRAINING
Pipeline Program

Naval Flight Officer Basic Training consists of a Core and a Pipeline Program. The Core program is designed to provide each SNFO a foundation in the basic skill and knowledge requirements underlying all NFO fleet assignments. The Pipeline Program consists of additional training at VT-10 for SNFOs who are selected for ultimate assignment to specified NFO communities. The purpose of the Pipeline Program is to provide specialized knowledge and skill training, within the resource capabilities of VT-10, for those NFOs whose future assignments will require it.

The disposition of SNFOs upon completion of the Core Program is indicated in Figure 1. SNFOs selected for the Patrol community will receive training beyond the Core Program from VT-29 or the U.S. Air Force. VAW selectees proceed to Airborne Tactical Data System Training; no Pipeline Program exists for these students at VT-10. VF, VA, VAQ and VS selectees will undergo the Pipeline Program training before proceeding to VT-86 for RIO and AJN training.

Figure 1
Disposition of SNFOs
Following Core Program Training



VF PIPELINE TRAINING

The VF or Fighter Pipeline training program consists of approximately eight (8) hours of ground instruction and eleven (11) training flights in the T-2 aircraft. The purpose of this training is to familiarize the SNFO with representative fighter mission activities and to initiate specialized training for his projected fleet assignment.

Fighter Pipeline ground instruction consists of lectures, discussions, and films covering the subjects listed below*. Evaluation of SNFO performance with respect to ground instruction is accomplished through a Maneuver Description and Vocabulary Test which is administered at the conclusion of the ground instruction.

- 1) Rules of engagement
- 2) Safety considerations
- 3) Energy maneuverability
- 4) Specific energy
- 5) Energy addition rate
- 6) Turn performance
- 7) Effect of gravity on turns in the vertical
- 8) Departures/stalls/spins

Fighter Pipeline flight training consists of eleven (11) T-2 flights which are described below. These flights, each of which is of approximately 1.3 hours duration, are identified in the following table. It should be noted that flights CF/A 1-7 are identical for the Fighter and Attack Pipelines.

VF Pipeline Training Flights

| <u>Flt. No.</u> | <u>Flight Identification</u> |
|-----------------|----------------------------------|
| CF/A-1 | Airways Navigation |
| CF/A-2 | Airways Navigation |
| CF/A-3 | Airways Navigation |
| CF/A-4 | Airways Navigation Evaluation |
| CF/A-5 | Section Road Reconnaissance |
| CF/A-6 | Section Low Level |
| CF/A-7 | High Angle of Attack Maneuvering |
| CF-8 | Air Combat Maneuvers |
| CF-9 | Air Combat Maneuvers |
| CF-10 | Air Combat Maneuvers |
| CF-11 | Air Combat Maneuvers Evaluation |

* The eight ground lectures are on file at VT-10 Operations (LCDR Coven).

Flights CF/A-1 - CF/A-3: Airways Navigation

Aircraft: T-2 Duration: 1.3 hrs. each flight

Route: IFR Round Robin or out and in. Flights will be conducted to optimize student training and proficiency in IFR procedures. One of the airways navigation flights will be conducted at night to familiarize the SNFO with night operations and navigation procedures.

Student Tasks: The SNFO will perform routine NFO tasks in IFR flight as identified in ID23 and T-39 training.

Performance Standards: No significant errors in performance of routine NFO tasks associated with instrument flight. If weather permits during the night hop, the SNFO should visually acquire and identify cultural and topographical features. If in the instructor's opinion the SNFO's progress is such that he will be unable to pass the CF/A-4 evaluation flight criteria, then after consulting with the SNFO's TM, an extra airways navigation flight may be scheduled.

Flight CF/A-4: Airways Navigation

Aircraft: T-2 Duration: 1.3 hrs.

Route: IFR night or day Round Robin or as a fourth IFR hop on a cross country.

Student Task: This is an evaluation flight. The SNFO will perform all routine tasks associated with instrument flight which was practiced during A stage and CF/A 1 - 3.

Performance Standards: Performance standards specified for flights CF/A 1 - 3 will apply. Instructor coaching will be minimized, and the student will achieve the stated performance standards without significant error.

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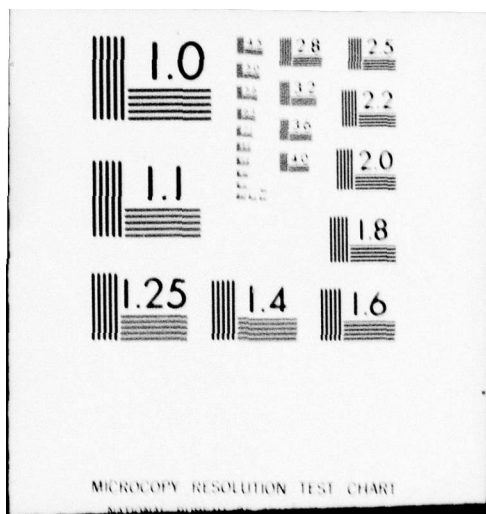
HUMAN RESOURCES RESEARCH ORGANIZATION ALEXANDRIA VA F/G 5/9
NAVAL FLIGHT OFFICER BASIC TRAINING. APPENDIX B. REVISION OF NA--ETC(U)
APR 76 J CHRISTMAN, S MUGG, W E CORLEY N61339-74-C-0166
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MICROCOPY RESOLUTION TEST CHART

SNFO Progress Record Form
CF/A 1-4 (Airways Navigation in T - 2)

Student Name _____ SS No. _____
Class _____ Flight No. _____ Date _____ Time _____
Flt Inst _____ WX Turb _____

- Complete S.E. Jet Log data
- Obtain, inspect personal flight equipment
- Brief pilot on mission
- IP explain night flying vision/vertigo problems
- Determine weather is within limits
- Complete DD 175 Flight Plan
- Determine A/C ready for flight
- Perform A/C Preflight inspection
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Place IFR clearance on request
- Interpret plane captain's taxi signals
- Obtain Ground Control taxi clearance

CF/A 1 - 4

- Identify airport taxi procedures
- Obtain IFR clearance on request
- Accomplish Before Take-off checklist
- Accomplish Instrument checklist
- Obtain take-off and departure clearance (as directed by pilot)
- Brief pilot on departure clearance
- Accomplish Line-up checklist
- Accomplish airspeed reports on take-off
- Record take-off/landing times
- Accomplish After take-off checklist
- Accomplish IFR Radar departure procedures
- Accomplish IFR Departure Control COMMs
- Advise pilot enroute:
 - (a) headings
 - (b) altitudes
 - (c) airspeed
 - (d) intercept arcs & radials/DME arcing
- Maintain exterior watch, report any aircraft
- Configure NAV equipment for enroute
- Accomplish enroute ATC COMMs

CF/A 1 - 4

- Perform TACAN/VOR radial tracking (+5°)
 - Compute quadrant wind
 - Accomplish "one min prior" turnpoint report
 - Pass over and recognize station passage
 - Accomplish "mark on top" procedures
 - Record ATA
 - Compute GS (+30 kts)
 - Compute, record ETA (+3 mins)
 - Record AFL, compute AFR (+200 lbs)
 - Obtain destination weather
 - Obtain enroute descent or penetration clearance
 - Accomplish Predescent checklist
 - Accomplish Approach Control COMMs
 - Accomplish TACAN Point-to Point
 - Accomplish Landing checklist
- Advise Pilot TACAN penetration/approach:
- | | |
|---------------------------------------|--|
| <input type="checkbox"/> (a) course | <input type="checkbox"/> (c) altitudes |
| <input type="checkbox"/> (b) headings | <input type="checkbox"/> (d) airspeed |

CF/A 1 - 4

- Advise pilot missed approach information
- Advise pilot GCA approach information
- Report R/W in sight
- Accomplish Tower and Ground Control COMMs
- Perform A/C post-flight inspection
- Describe aircraft servicing
- Accomplish post-mission briefing
- NATOPS emergency procedures

SNFO Progress Record Form
CF/A-5 (Section Road Reconnaissance T-2)

Student Name _____ SS No. _____
Class _____ Flight No. _____ Date _____ Time _____
Flt Inst _____ WX Turb _____

- Complete S.E. Jet Log data
- Complete Navigation chart preflight
- Obtain, inspect personal flight equipment
- Brief pilot on mission tasks
- Determine A/C ready for flight
- Perform A/C pre and post-flight inspections
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Accomplish IFR/VFR COMMs (taxi and takeoff; Radar departure to VFR)
- Obtain Ground Control taxi clearance
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Section ground COMMs

CF/A 5

- Obtain IFR/VFR take-off and departure clearance (as directed by pilot)
- Brief pilot on departure clearance
- Accomplish Line-up checklist
- Accomplish airspeed reports on take-off roll
- Record take-off/landing times on S.E. Jet Log
- Accomplish After-takeoff checklist
- Accomplish IFR/VFR section T/O and departure procedures
- Configure Nav equipment for enroute
- Utilize formation hand signals
- Maintain exterior watch, report any A/C
- Accomplish enroute FSS/ATC COMMs
- Accomplish fuel management
- Start timing at beginning of four
Advise pilot enroute:
 - (a) altitude
 - (b) headings
 - (c) positions
 - (d) checkpoints/target descriptions
- Demonstrate 30° dive bombing pattern
Provide visual navigation directions for pilot to:
 - (a) Maintain track ± 1 mile

CF/A 5

- (b) Control airspeed; ETA +15 secs turnpoint
- (c) Visually acquire and report coast in point
- (d) Accomplish checkpoint identification procedures
- (e) Visually acquire and report target
- (f) ETA at target +15 secs
Advise pilot destination information:
- (a) headings (c) speeds
- (b) altitudes (d) "call heading" to base
+10°
- Accomplish Predescent and Landing checklists
- Accomplish IFR radar arrival; VFR pattern procedures
- Accomplish IFR/VFR approach COMMs
- Explain NATOPS emergency procedures for:
- Engine fire on deck
- Starting limitations
- Hung start
- False start/wet start
- Bird strike
- Low altitude high speed ejection
- Lost plane procedures
- Emergency/divert fields

Flight CF/A-6: Section Low Level

Aircraft: T-2 Duration: 1.3 hrs.

Route: This flight may be combined with CF/A-5 as a return leg on a cross-country mission or an out-and-in, normally to Navy New Orleans. The section flight will consist of a running rendezvous and IFR departure to NBE 280/45, climb to 16000 feet; descent to 1000 feet and commence visual navigation along the training route 178 (TR-178) with points H-N; then climb to FL 190 direct NPA 180/10, and terminate at the destination airport or home field with an IFR Radar approach and a VFR entry and landing or GCA. One aircraft will be section leader for the first half of the flight; the other for the second. All VT-10 formation flight procedures will be followed.

TR 178 Points

| | | |
|---------|--------------------|-------------------|
| Point H | 30°29'N 90°52'W | Walker |
| I | 30°38'N 90°38'W | Road Intersection |
| J | 30°56'N 90°11'W | Mine |
| K | 30°58'N 89°48'W | Angie |
| L | 30°43'N 89°33'W | Road Intersection |
| M | 30°41'N 89°04'W | Fire Tower |
| N | 30°32'N 88°41'W | Vancleave |

Student Tasks: The SNFO will fill out a DD-175 and jet log prior to the brief. Airborne, the SNFO will be responsible for all routine NFO cockpit duties, e.g., checklists, fuel management, radio communications and NATOPS emergency procedures. The SNFO in the lead aircraft will perform all departure, enroute and

entry communications, as well as the enroute navigation, with the wing SNFO performing backup navigation.

Performance Standards: All appropriate formation tactical hand signals and radio communications will be used. Each SNFO will provide his instructor pilot with checkpoint and target descriptions, heading corrections to maintain track criteria, recognize how the wind affects the track, and utilize two-minute-prior and mark-on-top procedures. Also, all bogey aircraft will be reported. The SNFO must be able to call headings to return to base $\pm 10^\circ$ at all times. Unrestricted instructor coaching is permitted.

SNFO Progress Record Form
CF/A 6 (Section Low Level T-2)

Student Name _____ SS No. _____
Class _____ Flight No. _____ Date _____ Time _____
Flt Inst _____ WX Turb _____

- Complete S.E. Jet Log data
- Complete Navigation chart preflight
- Obtain, inspect personal flight equipment
- Brief pilot on mission tasks
- Determine A/C ready for flight
- Perform A/C pre-and post-flight inspections
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Accomplish IFR/VFR COMMs (taxi and takeoff)
- (Obtain Ground Control taxi clearance
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Section ground COMMs

CF/A-6

- Obtain IFR/VFR take-off and departure clearance (as directed by pilot)
 - Brief pilot on departure clearance
 - Accomplish Line-up checklist
 - Accomplish airspeed reports on take-off roll
 - Record take-off/landing times on S.E. Jet Log
 - Accomplish After-takeoff checklist
 - Accomplish section running rendezvous departure procedures
 - Accomplish IFR/VFR departure control COMMs
 - Configure Nav equipment for enroute
 - Utilize formation hand signals
 - Maintain exterior watch, report any A/C
 - Accomplish enroute FSS/ATC COMMs
 - Accomplish fuel management
 - Start timing at beginning of route
- Advise pilot enroute:
- (a) altitude (c) positions
 - (b) headings (d) checkpoint/target description
- Provide visual navigation directions for pilot to:
- (a) Maintain tract +1 mile

CF/A-6

- (b) Control airspeed; ETA +15 secs turnpoint
 - (c) Visual acquire and report coast in point
 - (d) Accomplish checkpoint identification procedures
 - (e) Visual acquire and report target
 - (f) ETA at target +15 secs
- Advise pilot destination information:
- (a) headings (c) speeds
 - (b) altitudes (d) "call heading" to base
+10°
- Accomplish Predescent and Landing checklists
 - Accomplish IFR/VFR approach procedures
 - Accomplish IFR/VFR approach COMMs
- Explain NATOPS emergency procedures for:
- Engine flameout on take-off
 - Airstart procedures
 - Bird strike
 - Low altitude high speed ejection
 - Single engine performance
 - Single engine landing
 - Lost plane procedures

Flight CF/A-7: High Angle of Attack Maneuvering

Aircraft: T-2

Duration: 1.3 hrs.

Route: This flight will normally involve an IFR/VFR departure to the VT-10 acrobatic area and terminate with an IFR/VFR arrival and landing. The instructor will demonstrate various flight regimes, e.g., level turn capabilities, oblique loop, slash turn, stalls, unusual attitudes and spin, which will portray the utility of the angle-of-attack airspeed, "G" meter and other instrument indicators. The spin demonstration will provide the SNFO experience in recognizing the stall-spin entry characteristics and recovery procedures.

Student Tasks: The SNFO will perform all routine NFO cockpit duties. In addition, he will diagnose the aircraft's performance by reference to the angle-of-attack indicator, airspeed indicator, and "G" meter. During the later portion of the flight, the student will call out indicators from these instruments.

Performance Standards: Student will alert the instructor to impending stalls by reference to the above instruments.

SNFO Progress Record Form
CA/F-7 (High Angle of Attack Maneuvering T-2)

Student Name _____ SS No. _____

Class _____ Flight No. _____ Date _____ Time _____

Flt Inst _____ WX Turb _____

- Obtain, inspect personal flight equipment
- Brief pilot on mission tasks
- Determine A/C ready for flight
- Perform A/C pre- and post-flight inspections
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Interpret plane captain's taxi signals
- Obtain Ground Control taxi clearance
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Obtain IFR/VFR take-off and departure clearance (as directed by pilot)
- Brief pilot on departure clearance
- Accomplish Line-up check-list

CA/F-7

- Accomplish airspeed reports on take-off
- Record take-off/landing times
- Accomplish After-takeoff checklist
- Accomplish IFR/VFR departure procedures
- Accomplish VFR Departure Control COMMs
- Configure NAV equipment for mission
- Advise pilot enroute:
 - (a) headings (c) airspeed
 - (b) altitudes (d) intercept arcs & radials/DME arcing
- Maintain exterior watch, make bogey calls
- Accomplish fuel management
- Receive demonstration of:
 - Turn capability (Lead) 12, 15 and 17 units AOA; Oblique Loop (pitch back) 60-70° inverted; Slash turn (under) - 120° roll; Acceleration stall (High speed); Break turn stall (Slow speed); Nose high recovery; Unusual altitudes SNFO call pitch and roll recovery directions; Wings level stall; Departure; Spin.
- Diagnose and call out aircraft's performance using:
 - (a) AOA indicator (c) "G" meter
 - (b) Airspeed Indicator (d) Recognize and report impending stalls using the above indicators
- Advise pilot return to destination information
 - (a) heading (c) speeds

CA/F-7

- (b) altitudes
- (d) "call heading" to base +10°
- Accomplish Predescent checklist
- Accomplish Landing checklist
- Accomplish IFR/VFR field entry COMMs
- Accomplish IFR/VFR field entry procedures
- Accomplish post mission debriefing
- Explain NATOPS emergency procedures:
 - Ejection procedures
 - Spin recovery
 - Mid-air collision
 - Lox depletion or failure
 - Lost communications
 - Air conditioning failure

Flights CF 8, 9, 10 and 11: Air Combat Maneuvering

Aircraft: T-2

Duration: 1.3 hrs. each flight

Route: These section flights will normally make an IFR/VFR departure to the ACM area; utilize TRADR ONE to TRADR. The SNFO should be demonstrated two of each, section take-off and running rendezvous. Terminate with radar vectors to VFR initial or GCA. During CF 8, 9 and 10 the following maneuvers will be used so that the SNFO can commence to acquire the basic VF NFO offensive and defensive positions for the following:

- 1) Firing envelope for guns and missiles
- 2) Combat spread maneuvering
- 3) Abeam overshoots
- 4) Horizontal scissors
- 5) Hi and Lo Yo Yo attack
- 6) Barrel roll attack
- 7) Lag pursuit roll

Student Tasks: On the CF-8, the SNFO will be encouraged to perceive the geometry and physical forces present in the environment during the various ACMs. During CF-9, emphasis will be placed on the defensive aspects of ACM. The instructor will demonstrate hard "G" turns into the attack, causing an overshoot. Both instructors will provide a narrative throughout the maneuvers and encourage the student to keep sight of the other aircraft at all times. Three classic defense maneuvers will be used: defense against hi yo yo, lo yo yo, and barrel roll attack. The SNFO will be responsible for maintaining visual contact with the bogey aircraft and describe his energy state. Also, the SNFO should be encouraged to call course turns, i.e., tell instructor to "pull up" or "break right" as appropriate for tactical situation. On CF-10, the SNFO should be able to provide a running commentary of the other aircraft's position using accepted verbage.

Performance Standards: The SNFO will perform routine NFO tasks without significant error while practicing tasks associated with the maneuvers being

conducted. On CF 8, 9 and 10 unrestricted instructor coaching is permitted; but CF-11 is the ACM evaluation flight with another instructor and the SNFO should perform all the tasks learned on CF 8, 9 and 10 to the stated performance standards without significant errors. Instructor coaching will be minimized on CF-11. Some of the tasks are listed below.

1) Fuel management - Student responds on request from the instructor with the estimated fuel remaining ± 100 lbs. and bingo profile within 100 lbs. Student responds appropriately to all low level warning indications.

2) Navigation - Student responds on request with headings to home field, $\pm 10^\circ$ and advises pilot when approaching limits of prescribed operating area.

3) Communications - Student initiates appropriate communications at prescribed checkpoints, using proper VFR and IFR format, and uses formation signals when appropriate to the tactical situation.

4) Crew coordination - Student responds with information or assistance to instructor on request.

5) Tactical response - Student informs pilot of information pertinent to the tactical situation, e.g., bogey calls with respect to clock code and relative position hi or lo, opposite aircraft's energy state with respect to closure rate.

SNFO Progress Record Forms
CF 8, 9, 10, and 11 (Air Combat Maneuvers T-2)

Student Name _____ SS No. _____
Class _____ Flight No. _____ Date _____ Time _____
Flt Inst _____ WX Turb _____

- Obtain, inspect personal flight equipment
- Brief pilot on mission(ACM)
- Determine A/C ready for flight
- Perform A/C pre-and post-flight inspections
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Interpret plane captain's taxi signals
- Obtain VFR COMMs (taxi and take-off) (IFR if wx dictates) taxi clearance`
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Accomplish section ground COMMs
- Obtain take-off and departure clearance (as directed by pilot)

CF 8, 9, 10 and 11

- Brief pilot on departure clearance
- Accomplish Line-up checklist
- Receive demonstration of section take-off
- Accomplish airspeed reports on take-off
- Record take-off/landing times
- Accomplish After take-off checklist
- Accomplish IFR/VFR section departure procedures
- Accomplish IFR/VFR Departure Control COMMs
- Configure NAV equipment for mission
- Advise pilot enroute:
 - (a) headings (c) airspeed
 - (b) altitudes (d) intercept arcs & radials/
DME arcing
 - (e) "call headings" to
base $\pm 10^\circ$
- Maintain exterior watch, make bogey calls
- Utilize formation hand signals
- Accomplish fuel management EFR and Bingo profile ± 100 lbs
- Receive demonstration of and practice NFO tasks for:
 - Basic fighter maneuvers: abeam attack, overshoot, hi
yo-to attack, defenses against hi yo-yo attack, low yo-
yo attack, defense against low yo-yo attack, displace-
ment roll and gunsight tracking

CF 8, 9, 10 & 11

Receive demonstration of and practice NFO tasks for:

- (a) Firing envelope for guns and missiles
- (b) Combat spread maneuvering
- (c) Overshoots
- (d) Horizontal scissors
- (e) Hi and Lo yo yo
- (f) Barrel roll attack
- (g) Lag pursuit roll
- Maintain section within ACM area
- Maintain sight of wingman
- Respond with appropriate information at pilot request
- Accomplish Predescent checklist
- Accomplish Landing checklist
- Accomplish IFR/VFR section field entry COMMs
- Accomplish IFR/VFR section field entry procedures
- Accomplish post mission debriefing
- Explain NATOPS emergency procedures:
 - Departure recovery
 - Ejection procedures

CF 8, 9, 10 and 11

- Spin recovery
- Mid-air collision
- Lox depletion or failure
- Lost communications
- Unusual attitude recovery
- Any other previous emergency procedures

VA/VAQ/VS PIPELINE TRAINING

The VA/VAQ/VS Pipeline training program consists of eight (8) flights in the T-2 aircraft followed by three flights in the T-39 aircraft for an estimated total flight time of 17.3 hours. The flights are identified in the table below. A description of each flight follows the table. Ground School for VA stage (VA/VAQ/VS) will consist of air combat maneuvering and low level planning in the T-39 aircraft for a total of 9.0 hours. Testing will consist of a vocabulary and low level planning problem. Since CF/A 1-7 are the same for VE and VA pipelines, description of these flights will not be repeated in this section.

VA/VAQ/VS Pipeline Training Flights

| <u>Flt No.</u> | <u>A/C</u> | <u>Duration</u> | <u>Flight Identification</u> |
|----------------|------------|-----------------|----------------------------------|
| CF/A-1 | T-2 | 1.3 hrs. | Airways Navigation |
| CF/A-2 | T-2 | 1.3 hrs. | Airways Navigation (night) |
| CF/A-3 | T-2 | 1.3 hrs. | Airways Navigation |
| CF/A-4 | T-2 | 1.3 hrs. | Airways Navigation Evaluation |
| CF/A-5 | T-2 | 1.3 hrs. | Section Road Reconnaissance |
| CF/A-6 | T-2 | 1.3 hrs. | Section Low Level |
| CF/A-7 | T-2 | 1.3 hrs. | High Angle of Attack Maneuvering |
| CA-8 | T-2 | 1.3 hrs. | Defense Air Combat Maneuvering |
| CA-9 | T-39 | 2.3 hrs. | Visual Navigation |
| CA-10 | T-39 | 2.3 hrs. | Visual Navigation |
| CA-11 | T-39 | 2.3 hrs. | Visual Navigation Evaluation |

VA PIPELINE FLIGHTS

Flight CA-8: Defensive Air Combat Maneuvering

Aircraft: T-2

Duration: 1.3 hrs.

Route: This flight will consist of a section take-off IFR/VFR departure to the ACM area. The defender aircraft pilot will demonstrate the following maneuver:

- 1) Firing envelope for guns and missiles
- 2) Hard "G" turn to cause overshoot
- 3) Defense against Hi and Lo Yo Yo attack
- 4) Defense against Barrel roll attack
- 5) Horizontal scissors

Student Tasks: The SNFO will perform all NFO navigation and communication duties and other routine tasks without significant error.

Performance Standards: Unrestricted instructor coaching is permitted. Some of the tasks and standards are listed:

1) Fuel management- Student responds on request from the instructor with the estimated fuel remaining ± 100 lbs. and bingo profile within 100 lbs. Student responds appropriately to all low level warning indications.

2) Navigation - Student responds on request with headings (Direction - R or L) to home field $\pm 10^\circ$ and advises pilot when approaching limits of prescribed operating area.

3) Communication - Student initiates appropriate communication at prescribed checkpoints, using proper VFR and IFR format, and uses formation signals when appropriate to the tactical situation.

4) Crew coordination - Student responds with information or assistance to instructor on request.

5) Tactical response - Student informs pilot of information pertinent to the tactical situation, e.g., bogey calls with respect to clock code and relative position hi or lo, opposite aircraft's energy state with respect to closure rate.

SNFO Progress Record Forms
CA-8 (Defensive Air Combat Maneuvers T-2)

Student Name _____ SS No. _____
Class _____ Flight No. _____ Date _____ Time _____
Flt Inst _____ WX Turb _____

- Obtain, inspect personal flight equipment
- Brief pilot on mission (DACM)
- Determine A/C ready for flight
- Perform A/C pre- and post-flight inspections
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain's signals on start
- Obtain and record ATIS information
- Interpret plane captain's A/C check signals
- Interpret plane captain's taxi signals
- Obtain VFR COMMs (taxi and take-off) (IFR if wx dictates) taxi clearance
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Accomplish section ground COMMs
- Obtain take-off departure clearance (as directed by pilot)
- Brief pilot on departure clearance

CA-8

- Accomplish Line-up checklist
 - Receive demonstration of section take-off
 - Accomplish airspeed reports on take-off
 - Record take-off/landing times
 - Accomplish After take-off checklist
 - Accomplish IFR/VFR section departure procedures
 - Accomplish IFR/VFR Departure Control COMMs
 - Configure NAV equipment for mission
- Advise pilot enroute:
- (a) headings (c) airspeed
 - (b) altitudes (d) intercept arcs & radials/
DME arcing
 - (e) "call headings" to base $\pm 10^\circ$
- Maintain exterior watch, make bogey calls
 - Utilize formation hand signals
 - Accomplish fuel management EFR and Bingo profile ± 100 lbs.
- Receive basic defensive fighter maneuvers demonstration of and practice NFO tasks for:
- (a) Firing envelope for guns and missiles
 - (b) Hard "G" turns to cause overshoots
 - (c) Horizontal scissors

CA - 8

- (d) Defense against Hi and Lo yo yo
- (e) Defense against Barrel roll attack
- Maintain section within ACM area
- Maintain sight of wingman
- Respond with appropriate information at pilot request
- Accomplish Pre-descent checklist
- Accomplish Landing checklist
- Accomplish IFR/VFR section field entry COMMs
- Accomplish IFR/VFR section field entry procedures
- Accomplish post mission debriefing
- Explain NATOPS emergency procedures:
 - Departure recovery
 - Ejection procedures
 - Spin recovery
 - Mid-air collision
 - Lox depletion or failure
 - Lost communications
 - Unusual attitude recovery
 - Any other previous emergency procedures

Flights CA 9,10 and 11: Low Level Visual Navigation

Aircraft: T-39 Duration: 2.3 hrs. 2 students per aircraft

Route: These missions will use an IFR departure with radar following to VFR at the commencement point.

CA 9 NPA 20

Request 9000 Pensí One NPA 360/26 MVC 024/14 (VFR Delay 1+00 Training Route 102)

| | | |
|---------|--------------------|-------------|
| Point E | Tunnel Springs | 31-38/87-14 |
| F | Fire Tower | 31-42/86-50 |
| G | Forest Home | 31-52/86-50 |
| H | Saint Clair | 31-19/86-37 |
| I | Billingsley | 32-40/86-43 |
| J | Dam | 32-53/87-27 |
| * K | Dam | 32-47/87-50 |
| L | Road Bridge | 32-34/88-11 |
| M | Road Bridge | 32-14/88-01 |
| N | Road/Railroad Ints | 32-07/88-19 |
| O | Fire Tower | 31-45/88-24 |
| P | Lock and Dam | 31-46/88-07 |
| Q | Deer Park | 31-13/88-19 |
| * R | Calvert | 31-09/88-01 |

* Denotes target; request 7000' MOB 031/31 BFM NPA 260/30 NPA

CA 10 NPA 22

Request 8000 TRADR ONE NPA 240/15 NPA 260/30 BFM 216/20 (VFR Delay 1+05 Training Route 179)

| | | |
|---------|-----------------|-------------|
| Point A | Peninsula | 30-22/88-19 |
| B | Road Bridge | 30-43/88-36 |
| C | Wiggins Dam | 30-52/89-07 |
| D | Railroad Bridge | 31-12/89-23 |
| E | Road Ints | 31-05/90-03 |
| F | Goss | 31-22/89-53 |
| * G | Mt Olive | 31-45/89-39 |

| | | |
|-----|--------------------|-------------|
| H | Road/Railroad Ints | 32-02/89-17 |
| I | Desoto | 31-58/88-43 |
| J | Road Bridge | 31-41/88-40 |
| K | Fire Tower | 31-24/88-40 |
| L | Deer Park | 31-13/88-19 |
| * M | Railroad Bridge | 30-50/87-57 |

* Denotes Target; Request 7000 BFM 018/15 BFM NPA 260/30 NPA

CA 11 NPA 24

Request 9000' Pensi One NPA 360/26 CEW 015/15 (VFR Delay 1+15, Training Route 25)

| | | |
|---------|--------------------|-------------|
| Point A | Road/Railroad Ints | 30-58/86-27 |
| B | Uriah | 31-18/87-30 |
| C | Railroad Bridge | 31-56/87-30 |
| D | Sawmill | 31-07/86-34 |
| * E | Fire Tower | 30-58/86-27 |
| A | Road/Railroad Ints | 30-58/86-27 |
| B | Uriah | 31-18/87-30 |
| C | Railroad Bridge | 31-56/87-30 |
| D | Sawmill | 31-07/86-34 |
| * E | Fire Tower | 30-58/86-27 |

* Denotes Target; Request 8000' CEW 034/20 CEW 265/20 NPA

Student Tasks: The SNFO will accomplish all the preflight planning and airborne NFO tasks, e.g., complete navigation chart and jet log preparation, interact with pilot completing checklists, manage fuel and make all communications, and provide pilot with heading and airspeed information to make good the pre-selected track using visual references primarily. Also, previously learned checkpoint and target descriptions and mark-on-top procedures will be utilized.

Performance Standards: The SNFO should be able to perform with no significant errors all routine NFO cockpit tasks. He must provide information to remain within +1 NM of the planned flight route and call return to base +10° at all times. Unrestricted instructor coaching is permitted on CA 9 and 10. CA 11 is the visual navigation evaluation flights where another instructor will observe

the SNFO who should perform all the tasks without significant errors with minimum coaching. An Aviation Training Form will be completed for this check flight using the current VT-10 criteria.

SNFO Progress Record Form
CA 9, 10 and 11 (Low Level Visual Navigation T-39)

Student Name _____ SS No. _____
Class _____ Flight No. _____ Date _____ Time _____
Flt Inst _____ WX Turb _____

- Complete S. E. Jet Log data
- Complete Navigation chart preflight
- Obtain, inspect personal flight equipment
- Brief pilot on mission
- Determine A/C ready for flight
- Perform A/C pre- and post-flight inspections
- Occupy, perform crew station inspection
- Monitor engine instruments and plane captain 's signals on start
- Obtain and record ATIS information
- Interpret plane captain 's A/C check signals
- Accomplish IFR/VFR COMMs for taxi and takeoff
- Obtain Ground Control taxi clearance
- Accomplish Before take-off checklist
- Accomplish Instrument checklist
- Obtain take-off and departure clearance (as directed by pilot)

CA 9, 10, & 11

- Brief pilot on departure clearance
 - Accomplish Line-up checklist
 - Accomplish airspeed reports on take-off roll
 - Record take-off/landing times on S. E. Jet Log.
 - Accomplish After-takeoff checklist
 - Accomplish IFR/VFR departure procedures
 - Accomplish IFR/VFR departure control COMMs
 - Maintain exterior watch, report any A/C
 - Configure Nav equipment for enroute
 - Accomplish enroute FSS/ATC COMMs
 - Start timing at beginning of route
- Advise pilot enroute:
- (a) altitude (c) positions
 - (b) headings (d) target description
- Provide visual navigation directions for pilot to:
- (a) Maintain track +1 mile
 - (b) Control airspeed; ETA +15 secs turnpoint
 - (c) Visual acquire and report coast in point
 - (d) Accomplish checkpoint identification procedures

CA 9, 10 & 11

- (e) Visual acquire and report target
- (f) ETA at target +15 secs
- Advise pilot destination:
- (a) headings (c) speeds
- (b) altitudes (d) call direction to base
+10°
- Accomplish Predescent and Landing checklists
- Accomplish IFR/VFR approach procedures
- Accomplish IFR/VFR approach COMMs
- Review NATOPS emergency procedures:
- Engine flameout on take-off
- Electrical fire/isolation
- Airstart procedures
- Bird strike
- Single engine landing
- Lost plane procedures
- Lost comm procedures
- Any previous emergencies on CA-7

TM TRAINING

The Training Manager (TM) is a key individual so far as the administration of the Revised NFO Basic Training Course is concerned, and he must receive special training in order to fulfill his instructional role effectively. This training is described below and is in addition to the instruction received in the Instructor Under Training syllabus. It should be noted that the training of a TM is to be conducted by a qualified TM, and the objective of that training is to prepare personnel meeting the selection criteria indicated below to fulfill the role of the TM in the conduct of Revised NFO Basic Training.

Prerequisites

TM Trainees should be selected from among those personnel assigned to the training squadron who themselves are fully qualified NFOs or Naval Aviators and who have completed at least one tour of fleet duty in such roles. In addition, they should be personable, self-confident, and desirous of engaging in an instructional role. After becoming generally familiar with the Revised NFO Basic Training Course and the role of the TM in it, they should volunteer to undergo TM training. Finally, they must have successfully completed all CNATRA training required of Naval Air Training instructors.

Training Activities

Instructional personnel selected to undergo TM Training will participate in a three-phase training program. These phases are: (I) TM Orientation; (II) Familiarization with the Revised Course; and (III) Practice Teaching. These phases which are described below, will be conducted on an individual or group basis by previously trained TMs, and the emphasis during each phase will be oriented to the needs of the particular trainees involved at any given time.

Phase I: TM Orientation. The initial phase will consist of discussions between the trainees and the instructing TM concerning the role, functions and responsibilities of the TM. Opportunities will be provided to observe on-going TM activities and to interact with both TM and SNFOs concerning the role of the TM in the Revised NFO Basic Training Course.

The TM Orientation Phase is not of fixed duration, since it typically will involve trainees with varying familiarity with the TM functions by virtue of earlier assignments and activities while assigned to the training squadron. It is anticipated that approximately two 2-hour discussion periods will be required to review TM functions and to answer trainee questions. In addition, the amount of time spent by each trainee observing TM activities and interacting with TMs and SNFOs will vary according to the Instructor's perception of the needs of each trainee.

Phase II: Familiarization with the Revised Course. The purpose of the second phase of TM training is to familiarize TM trainees with the content and sequencing of the Revised NFO Basic Training Course. It consists of a period of time during which each trainee proceeds through the Revised Course, as though he were an SNFO, except that the purpose of such training is to gain familiarity with the Course rather than to attain the Course objectives required of SNFOs. Under the supervision of the instructing TM, each trainee will proceed as rapidly as possible, omitting those course documents and activities with which he already is familiar, and will review those with which he is unfamiliar.

The duration of Phase II training also is highly variable, depending upon the familiarity with texts, tests and other content of the Revised Course possessed by each trainee prior to entering the TM training program. For a relatively knowledgeable instructor who has recent experience in a fleet assignment which required extensive use of the skills trained in the Revised Course,

as little as two weeks might be required to complete his review of the course. As much as two months might be required by another instructor whose recent experiences were largely unrelated to the course content. In any event, the supervising TM instructor would assist the trainees in gaining familiarity with the material involved in the Revised Course.

Phase III: Practice Teaching. The third phase of TM training consists of each trainee functioning as a TM under the supervision--and with whatever assistance he may need--of a fully qualified TM. The duration of Phase III is 19 weeks, i.e., the duration of the Core portion of the Revised NFO Basic Training Course. At the end of the third phase, the trainee would be fully qualified to function as a TM without supervision (other than that normally provided the instructional staff to assure the quality of training) and to conduct TM training for other groups of trainees.